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RTP ENVIRONMENTAL ASSOCIATES INC.®

AIR · WATER · SOLID WASTE CONSULTANTS

304 - A West Millbrook Road
Raleigh, NC 27609
(saini@rtpenv.com)

(919) 845-1422x 42
Fax: (919) 845-1424

February 26, 2020

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Environmental Protection Agency
BUREAU OF AIR

Raymond E. Pilapil
Manager, Permit Section
Bureau of Air
Illinois Environmental Protection Agency
1021 North Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276

RE: Permit Revision Application for Permit No. 95010001 ID No. 119813AAI
United States Steel Granite City Works

Dear Mr. Pilapil:

United States Steel Corporate ("USS") owns and operates an integrated iron and steel manufacturing facility in Granite City, Madison County, Illinois ("Granite City Works"). On January 25, 1996, Illinois Environmental Protection Agency ("Illinois EPA") issued a construction permit for Granite City Works for that authorized increases in production rates for the operations. USS is requesting revisions to the conditions of the 1996 Construction Permit as detailed in the enclosed application.

One original application document along with a compact disc containing the electronic files are enclosed with this letter. A check in the amount of $23,000 for permit application fee is also enclosed with the application.

USS and RTP will work closely with Illinois EPA personnel to respond to any questions as quickly as possible. If you have any questions regarding this matter or require additional information, please contact me at (919) 845-1422 Ext 42 or saini@rtpenv.com.

Sincerely,

Gurinder (Gary) Saini
Environmental Administrative Engineer, Sr.

Enclosures

R006439

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95010 CC

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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Appendix C	Air Quality Modeling Report
Appendix D	Copy of the 1996 Construction Permit
Appendix E	Copies of EPA Determinations

1. Introduction

United States Steel Corporation Granite City ("USS Granite City") owns and operates an integrated iron and steel manufacturing facility in Granite City, Madison County, Illinois (ID # 119813AAI). The prior owner of this facility was National Steel Corporation. U.S. Steel acquired the assets of the National Steel Granite City facility on May 20, 2003. On January 25, 1996, prior to U.S. Steel acquiring these assets of National Steel Corporation, the Illinois Environmental Protection Agency ("Illinois EPA") issued a Prevention of Significant Deterioration ("PSD") and Construction Permit (Permit Number 95010001) ("1996 Construction Permit") to National Steel Corporation. The 1996 Construction Permit authorized increases in the allowable production rate of iron and steel at the Granite City facility ("1996 Project" or "project").

The requirements of the 1996 Construction Permit were subsequently included in the Clean Air Act Permit Program ("CAAPP") (Permit Number 96030056 or "CAAPP Permit") for the facility that was issued on March 4, 2013. USS Granite City timely appealed some of the terms of the CAAPP Permit.[1]

This application for a construction permit revision requests certain changes to address the underlying issues identified in the CAAPP permit appeal filed by USS Granite City. In addition, this application requests that the Illinois EPA address certain elements under the PSD preconstruction permitting regulations at 40 CFR § 52.21 as provided herein.

USS Granite City also requests that Illinois EPA process the proposed revisions to the 1996 Construction Permit in accordance with the integrated processing procedures and issue the revised construction permit utilizing procedures and compliance requirements that are substantially equivalent to those utilized for issuance of a CAAPP permit, including a public notice period for the revised construction permit. See 35 Illinois Administrative Code (IAC) 270.302(e). USS Granite City understands that the construction permit would then be incorporated into the CAAPP permit by means of the administrative amendment process.

At the time of the 1996 Construction Permit issuance, Granite City area was designated nonattainment for ozone and particulate matter with aerodynamic diameter of 10 micrometer or less ("PM10") national ambient air quality standards ("NAAQS"). The 1996 Construction Permit included limitations on emissions sufficient to ensure that the 1996 Project did not trigger applicability of the Illinois Nonattainment New Source Review ("NNSR") program codified at 35 IAC Part 203 for oxides of nitrogen (NO_X) and volatile organic matter (VOM) (both as precursors for ozone) and PM10. The permit revisions requested by USS Granite City in this application are designed to ensure the continued non-applicability of the NNSR program to the 1996 Project.

No physical changes are proposed in conjunction with the requested revisions to the 1996 Construction Permit.

[1] CAAPP Permit Appeal IPCB No. 2013-053, pending before the Illinois Pollution Control Board.

1.1 Facility Information

The USS Granite City steel mill is an integrated steel manufacturer employing raw material processing and preparation, iron production, steel production, and steel finishing. The steel mill previously produced metallurgical coke in by-product coke plant, but those operations were permanently idled in 2015. Coke is now purchased from the heat recovery coke batteries located adjacent to the steel mill, which are owned and operated by Gateway Energy and Coke Company, and from other sources.

USS Granite City and certain other collocated and separately owned facilities are considered by Illinois EPA to be a single stationary source as that term is defined in 35 IAC 203.136 and 40 CFR § 52.21(b)(5). This stationary source is a major stationary source as defined by 35 IAC 203.206 and 40 CFR § 52.21(b)(1). Only the USS Granite City facility, and none of the separately owned facilities, are directly affected by the changes reflected in this permit application.

1.2 Application Organization

This application contains the following analyses and supporting information for the requested updates and revisions of the 1996 Construction Permit (Permit Number 95010001).

- Section 2 presents the overview of the requested permit revisions.
- Section 3 presents a discussion of proposed changes to carbon monoxide (CO) emission limitations.
- Section 4 contains a best available control technology (BACT) demonstration for CO.
- Section 5 summarizes the source impacts analyses (including air dispersion modeling) for CO.
- Section 6 addresses the additional impacts analyses.
- Section 7 provides details of requested changes to permit terms for particulate matter (PM/PM10) emissions and updated emissions increase analyses.
- Section 8 addresses requested changes to permit terms for NO_X emissions and updated emissions increase analysis.
- Section 9 addresses requested changes to permit terms relating to the volatile organic materials (VOM) emissions and updated emissions increase analysis.
- Section 10 summarizes pertinent regulatory applicability and changes thereto.

2. Overview of Requested Permit Revisions

2.1 Background on Construction Permit

National Steel Corporation submitted an application on January 3, 1995 for a construction permit for a proposed increase in production at the Granite City Works ("1995 Application"). Illinois EPA issued Construction Permit PSD Approval No. 95010001 on January 25, 1996. The 1996 Construction Permit authorized National Steel Corporation to increase throughput and fuel use at the Granite City Works as follows:

(a) The limits on total combined production of hot metal (*i.e.*, iron) from blast furnaces A and B increased to 9,849 net tons per day, averaged over any calendar month, and 3,165,000 net tons per calendar year. [Permit Conditions 2(a)-(b), 32(a)-(c), and 34(a).] Previously, under Construction Permit No. 95090167, hot metal production rate had been limited to 7,150 net tons per day, averaged over any calendar month, and 2,609,750 net tons per rolling 12-month period.

(b) The limits on total combined production of liquid steel from the Basic Oxygen Process Furnaces (BOFs) increased to 11,000 net tons per day, averaged over any calendar month, and 3,580,000 net tons per calendar year. [Permit Conditions 6(a)-(b), 32(a)-(c), and 34(b).) Previously, under Construction Permit No. 95090167, liquid steel production rate had been limited to 8,250 net tons per day, averaged over any calendar month, and 3,011,250 net tons per rolling 12-month period.

(c) The limits on combined use of blast furnace gas (BFG) at the boilers #1 through #12, blast furnace stoves, BFG flare #1, and ladle drying preheaters increased to 30,800 million cubic feet (MMcf) per calendar month and 185,030 MMcf per calendar year. [Permit Conditions 21(b) and 32(b)-(c).] The prescribed method of determining BFG usage is an assumed ratio of 0.05846 MMcf per ton of hot metal produced.[2] [Permit Condition 34(c).] Previously, under Construction Permit No. 95090167, BFG usage had been limited to 21,613 MMcf per calendar month and 129,681 MMcf per rolling 12-month period.

(d) The limits on combined use of fuel oil at the boilers #1 through #12, blast furnace stoves, BFG flare #1, and ladle drying preheaters increased to 60,000 gallons per calendar month and 365,000 gallons per calendar year. [Permit Conditions 21(c) and 32(b)-(c).] Previously, under Construction Permit No. 95090167, fuel oil usage had been limited to 18,000 gallons per calendar month and 113,000 gallons per rolling 12-month period.[3]

These increases in permitted throughput and associated fuel usage resulted in increases in emissions from the various project-affected emissions units. The net emissions increase

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[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, Pencor-Masada Oxynol, LLC*, Petition No.: II-2000-07, C.T. Whitman, U.S. EPA Administrator, May 2, 2001, upholding use of annual emission caps with a rolling cumulative total methodology and rejecting petitioners' "concern that the permit appears to rely on after-the-fact monitoring, rather than engineering practices, test data, or vendor guarantees" to establish restrictions on PTE. U.S. EPA based its findings on the fact that "[i]f the source has no room to operate under the PTE limiting emissions cap, it must cease operation or face a violation" and that "all PTE limits rely on after the fact monitoring of some kind."

combustion engines at an existing power plant in Arizona in December 2018.[8,9] The Alaska permit, issued by U.S. EPA Region 10, includes annual emissions caps for NO_X and CO, with compliance determined on a 365-day rolling sum basis, and annual emissions caps for SO_2 and greenhouse gases, with compliance determined on a 12-month rolling sum basis. The Arizona permit, issued by the Pima County Department of Environmental Quality pursuant to a delegation of authority from U.S. EPA, includes an annual NO_X emissions cap with compliance determined on a 12-month rolling sum basis. Copies of the Alaska and Arizona documents referred here are provided in Appendix E.

Each of these permits includes some emissions units for which the emission factor used to quantify that unit's contribution to the emissions cap over a particular time period is directly prescribed in the permit and also some emissions units for which the permit prescribes the method by which the emission factor will be developed. In each instance where the emission factor is directly prescribed in the permit, this approach was used because the permitting authority determined the emission factor to be sufficiently representative of actual emissions, provided that required monitoring of operating parameters shows the process and control device to be operating within ranges or conditions established during the permitting process. (For example, in the Alaska permit, the NO_X and CO emission factors for periods when the control devices are operating assume control efficiencies of 90 percent and 80 percent, respectively; in the Arizona permit, the NO_X emission factor for engine startup events, during which the air pollution control equipment does not operate, is based on the estimate provided by the engine manufacturer.) In each instance where emission factors are developed through site-specific testing subsequent to permit issuance, the permit carefully prescribes the testing conditions that will be followed, the frequency of that testing, and the calculations to be used to derive the emission factor.

The approach proposed by USS Granite City with respect to the PM, PM10, NO_X and VOM emissions caps to be used in any revised Construction Permit No. 95010001, including the proposed revised emissions limitations and compliance demonstration requirements discussed in detail in Sections 7-9 of this permit application, is consistent with this policy and precedent.

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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.~~

[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 Cutoff Casters #1 & #2	0.0071	0.0071	lb/ton of steel	No change	8.57	8.57
Slab Ripping Casters #1 & #2	0.00722	0.00722	lb/ton of steel	No change	8.71	8.71
Continuous Casting Operations					*47.71*	*47.71*
Combined BFG in stoves, B11 & B12, ladle drying preheaters, and BFG flares	2.90	2.90	lb/MMcf	No change	175.51	175.51
Combined NG in stoves, B11 & B12, ladle drying preheaters, and BFG flares	5.10	1.90	lb/MMcf	Note [d]	2.92	1.09
Combined FO in stoves, B11 & B12, ladle drying preheaters, and BFG flares	9.72	9.72	lb/Mgal	No change	0.08	0.08
Certain Fuel Burning Units					*178.51*	*176.68*
Iron Pellet Screen [a]	0.00279	0.00131	lb/ton of material	Note [e]	3.91	1.83
BOF Hopper Baghouse [a]	0.00032	0.00032	lb/ton of steel	No change	0.39	0.39
Flux Conv. & Transfer Points Bin Floor - BOF [a]	0.0016	0.0016	lb/ton of steel	No change	1.93	1.93
Material Handling Operations at BF and BOF					*6.23*	*4.15*
Total					*937.42*	*931.62*

(a) Emission unit groupings have been revised slightly: The identified line items associated with material handling operations were grouped with the blast furnace operations or BOF shop in the 1996 Construction Permit.

(b) Except as noted in subsequent sections of this permit application, the same emission factors used to calculate pre-project actual emissions are also used to calculate post-project actual emissions. The BOF Roof Monitor is a notable exception, as the 1996 Project included measures to improve PM10 control efficiency.

(c) Applied PM to PM10 ratio from AP-42, Chapter 13.2.4.

(d) Updated AP-42 emission factor for natural gas combustion.

(e) Calculated using AP-42 emission factor for crushed stone, assuming 85% control efficiency.

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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.c of the revised version of the 1996 Construction Permit.

(a) Use the blast furnace gas combustion PM/PM10 emission factor of 2.9 lb/MMcf.
(b) Use the natural gas combustion PM/PM10 emission factor of 1.9 lb/MMcf.
(c) Use the following equations for determining monthly PM and PM10 emissions from the fuel burning emissions units.

For Fuel Burning Emissions Units PM/PM10 (tons/month)	=	PM/PM10 (lb/MMcf) × Fuel Usage (MMcf/month) ÷ 2000 (lb/ton)

For recordkeeping requirements, USS Granite City proposes the following:

(a) Maintain monthly records of fuel usage for blast furnace stoves (A and B), Boiler 11, Boiler 12, ladle drying preheaters, blast furnace gas flare No. 1, and ancillary fuel burning units at the continuous casters.
(b) Compile monthly emissions as required above and calculate 12-month rolling total emissions.

7.5.5 Material Handling Operations at Blast Furnaces and BOF Shop

This section addresses the proposed 1996 Construction Permit Conditions for the material handling operations associated with the Blast Furnace and BOF Shop operations. As previously noted, material handling equipment in the Blast Furnace Operations and the BOF Shop Operations are now proposed to be included in this new section.

7.5.5.1 Proposed PM and PM10 Emission Limitations for Material Handling Operations at Blast Furnaces and BOF Shop

USS Granite City proposes the following new Condition 42 in the revised version of the revised 1996 Construction Permit.

> *42. Particulate matter emissions from the Material Handling Operations in Blast Furnaces and BOF Shop (Iron Pellet Screen, BOF Hopper Baghouse, Flux Conv & Transfer Points Bin Floor - BOF) shall not exceed 6.25 tons per year of PM filterable PM10, each based on a monthly rolling 12-month total.*

As the emission limitations are to be incorporated in Condition 42 itself, USS Granite City also requests the deletion of the PM and PM10 emission limitations from Table 1 and Table 2 of the 1996 Construction Permit as they would be redundant.

7.5.5.2 *Proposed Compliance Demonstration, Monitoring, and Recordkeeping for Material Handling Operations at Blast Furnaces and BOF Shop*

USS Granite City proposes the following requirements for demonstrating compliance with the emissions limitations under new proposed Condition 42 of the revised 1996 Construction Permit.

(a) For Iron Pellet Screen fugitives, use PM/PM10 emission factor of 0.00131 lb/ton.
(b) For BOF Hopper Baghouse, use PM/PM10 emission factor of 0.00032 lb/ton.
(c) For Flux Conv. & Transfer Points Bin Floor, use PM/PM10 emission factor of 0.0016 lb/ton.
(d) Use the following equations for determining monthly PM and PM10 emissions from the Material Handling Operations at Blast Furnaces and BOF Shop.

For Iron Pellet Screen Fugitives PM/PM10 (tons/month)	=	PM/PM10 (lb/ton) emission factor × Blast Furnace Charging (tons/month) ÷ 2000 (lb/ton)
For BOF Hopper Baghouse PM/PM10 (tons/month)	=	PM/PM10 (lb/ton) emission factor × Throughput (molten steel tons/month) ÷ 2000 (lb/ton)
For Flux Conv. & Transfer Points Bin Floor PM/PM10 (tons/month)	=	PM/PM10 (lb/ton) emission factor × Throughput (molten steel tons/month) ÷ 2000 (lb/ton)

For compliance monitoring requirements, USS Granite City proposes the following:

(a) Conduct monthly inspections of the control devices.
(b) Conduct monthly visible emissions checks of the control devices stacks.

For recordkeeping requirements, USS Granite City proposes the following:

(a) Compile monthly emissions as required above and calculate 12-month rolling total emissions.
(b) Maintain records of monthly emissions from the affected units.

8. Proposed Changes to Permit Terms for NO_X Emission Increase Analysis

This section describes the proposed changes to 1996 Construction Permit being requested by USS Granite City related to NO_X emissions and provides a demonstration that, even with the requested revisions, the 1996 Project would still not be a major modification under the PSD program at 40 CFR § 52.21 with respect to emissions of NO_2 and under the NNSR program at 35 IAC Part 203 with respect to emissions of NO_X.[38] The emissions calculations for NO_X from the 1995 Application submitted by National Steel Corporation are reproduced in Appendix B.

8.1 1996 Construction Permit Applicability and Requirements

Table 8-1 below summarizes the provisions from the 1996 Construction Permit pertaining to NO_X emissions limitations from the project affected emissions units. A copy of the 1996 Construction Permit is provided in Appendix E of this application.

Table 8-1. Construction Permit Conditions Addressing NO_X

Permit Condition	Requirements
5	Emissions from Blast Furnace operations shall not exceed the limits in attached Tables 1 and 5.
18	Emissions from the BOF Shop operations shall not exceed the limits in attached Tables 2 and 5.
20	Emissions from the continuous casting operations shall not exceed the limits in Tables 3 and 5
22	Emissions from the listed fuel combustion units shall not exceed the limits in Tables 4 and 5.

Annual NO_X emissions caps listed in Table 5 of the 1996 Construction Permit are presented in Table 8-2 below. These annual NO_X emissions caps cover all emissions units associated with the four main processes or activities at the USS Granite City facility, each calculated as the sum of the unit-specific NOx emissions limitations in Tables 1 through 4 of the 1996 Construction Permit.

Table 8-2. NO_X Emissions Information from Table 5 of 1996 Construction Permit

Processes and Activities	NOx Emissions Caps (tons/year)
Blast Furnace Operations	24
BOF Shop Operations	70
Continuous Casting Operations	90
Certain Fuel Combustion Units	674
Total	858

The NO_X emissions caps restricted the PTE of the project-affected emissions units. The project emissions increase for NO_X was calculated by subtracting pre-project actual emissions (August

[38] At the time of 1996 Construction Permit, the Granite City area was designated as nonattainment (moderate) for ozone NAAQS.

1992 to July 1994, 24-month period) from the PTE as restricted by the 1996 Construction Permit limitations. Table 6 of the 1996 Construction Permit included the emissions increase from the project and major modification applicability determinations for NO_X. The NO_X net emissions increase was below the applicable significant emission rates and as a result, NO_X emissions were not subject to PSD or NNSR review.

8.2 Pre-Project Actual Emissions for 1996 Project

This section presents the updated pre-project actual emissions with proposed corrections to some of the NO_X emission factors. Corrections to the NO_X emissions factors are the result of more recent performance tests and updated information as discussed in 8.2.2.

8.2.1 Historical Throughput Rates

The NO_X net emissions increase calculations presented in Table 6 of the 1996 Construction Permit were based on calculations provided by National Steel Corporation in Table 3-2 of the 1995 Application. That table from the prior construction permit application is reproduced in Appendix B of this permit application.

The pre-project actual emissions were calculated using the same production and operating rates as the 1995 Application shown in Table 8-3.

Table 8-3. Pre-Project Production and Operating Rates for NO_X

Parameters	Units	Pre-Project Rates
Blast Furnace Production	Net tons of hot metal/year	2,059,557
BOF Shop	Molten steel tons/year	2,413,406
Combined BFG Combustion	MMcf/year	121,039
Combined NG Combustion	MMcf/year	1,145

8.2.2 NO_X Emission Factors Basis and Revisions

USS Granite City has corrected some of the NO_X emission factors used to calculate pre-project actual emissions from the project-affected emissions units based on stack testing and updated literature-based information. USS Granite City has also validated the remaining emissions factors. The results are presented in Table 8-5; explanations are provided in the following paragraphs.

8.2.2.1 Fuel Burning Emissions Units Emissions (No Change)

The pre-project actual emissions for various fuels used in fuel burning emissions units affected by the project are calculated using the emission factors presented in Table 8-4.

Table 8-4. NO_X Emission Factors for Fuel Burning

Fuel	Emission Factor and Units	Basis
Blast Furnace Gas[39]	5.28 lb/MMcf	February 1993 stack test
Natural Gas	306 lb/MMcf	November 1992 stack test
Fuel Oil (*Shown for historical purposes. USS Granite City no longer plans to use fuel oil.*)	55 lb/1000 gallon	AP-42 Page 1.3-2

8.2.2.2 A&B Blast Furnace Casthouse Stack (Baghouse) Emissions (Revised)

The pre-project actual emissions for the A and B Blast Furnace Casthouse stack (baghouse), as presented by National Steel Corporation in the 1995 Application, were calculated using data from a stack test conducted in July 1993. Other than the test results, USS Granite City has no information regarding this stack test, which was conducted by National Steel. In March 2012, USS Granite City performed NO_X stack tests at the Blast Furnace Casthouse stack. This test indicated a lower NO_X emission factor for this operation than previously used (0.0144 lb/ton in the original analysis vs 0.0027 lb/ton based on the March 2012 stack test). In Table 8-5, both the original and updated NO_X emission factors are shown for the Blast Furnace Casthouse stack.

8.2.2.3 A&B Blast Furnace Casthouse Roof Monitor Emissions (Revised)

The pre-project actual emissions for the A and B Blast Furnace Casthouse roof monitor, as presented by National Steel Corporation in the 1995 Application, were calculated using the emission factor as 0.00072 lb/ton. This value was developed using the July 1993 stack test result of 0.0144 lb/ton for the casthouse baghouse stack and an assumption of 95% capture efficiency as described in Section 7.2.2.3 herein. As discussed in Section 8.2.2.2 above, subsequent testing indicated a lower NO_X emission factor for the stack emissions of 0.0027 lb/ton. Assuming a 95% capture efficiency for the casthouse baghouse collection system, the uncaptured portion (5% of NOx generated) is emitted through the roof monitors at the rate of 0.00014 lb/ton. In Table 8-5, both the original and updated NO_X emission factors are shown for the Blast Furnace Casthouse roof monitor emissions.

8.2.2.4 A&B Blast Furnace Iron Spout Baghouse Emissions (Revised)

The 1995 Application and 1996 Construction Permit did not identify any NO_X emissions from the Blast Furnace Iron Spout Baghouse. However, a stack test conducted in March 2012 indicated a NO_X emission factor of 0.0016 pound per ton of hot metal for this emission point. In Table 8-5, the revised analysis includes pre-project actual NO_X emissions from the Blast Furnace Iron Spout Baghouse stack.

8.2.2.5 BOF ESP Stack (BOF 2 Vessels) Emissions (Revised)

The pre-project actual emissions for the BOF ESP stack, as presented by National Steel Corporation in the 1995 Application, were calculated using data from the average of three runs from one stack test conducted in August 1993. As discussed below, the results of this 1993 stack

[39] BFG is a low Btu fuel that results in a cool flame during combustion. This results in relatively low NOx emission rate for this fuel for all types of applications.

test have been shown by subsequent data not to be representative of emissions from the BOF ESP stack. The 1996 Project involved increases in the production limits for the Granite City blast furnaces and BOF Shop operations. The project did not involve any physical changes or changes in the method of operation for the BOF Shop. The BOF Shop operations do not use any add-on NO_X control devices. Thus, variability in NO_X emissions for the BOF process are inherent to the process operation. Beginning in 2012, USS Granite City performed several NO_X stack tests at the BOF ESP stack. This testing provided an updated NO_X emission factor for the BOF ESP stack (0.0389 lb/ton in the original analysis vs 0.1503 lb/ton based on the average of April 2012, July 2012, and November 2014 stack test results). In Table 8-5, both the original and updated NO_X emission factors are shown for the BOF ESP stack.

8.2.2.6 Continuous Caster Mold Process Emissions (Revised)

The pre-project actual emissions for the Continuous Caster Mold – Caster #1 and Caster #2 process, as presented by National Steel Corporation in the 1995 Application listed NOx emissions from this operation. USS Granite City evaluated this analysis and determined that there is no NO_X formation in this operation. Any NO_X emissions from this operation are due to combustion of natural gas and are already accounted for under the gaseous fuel burning activities listed above. Therefore, in the revised analysis, NOx emissions are not included from this operation.

Table 8-5. Pre-project Actual Emissions and Summary of Proposed Changes to Pre-Project NO_X Emission Factors for Affected Emissions Units

Emission Point	Emission Factors[a]		Units	Reason for Change	Pre-project Actual Emissions (TPY)	
	Original	Corrected			Original	Corrected
A & B Blast Furnace Casthouse Stack (Baghouse)	0.0144	0.0027	lb/ton of hot metal	Revised based on 3/2012 stack test	14.83	2.78
A & B Blast Furnace Casthouse Roof Monitor	0.0007	0.0001	lb/ton of hot metal	3/2012 test assuming no NO_X control and 5% roof monitor fraction	0.74	0.15
Blast Furnace Operations					*15.57*	*4.57*
BOF ESP Stack (2 Vessels)	0.0389	0.1503	lb/ton of steel	Revised based on average of 2012-2014 stack tests	46.94	181.33
BOF Shop Operations					*46.94*	*181.33*
Continuous Caster Mold - Casters #1 & #2	0.05	0.00	lb/ton of steel	All NO_X formed from natural gas combustion. No additional NO_X	60.34	0.00
Continuous Casting Operations					*60.34*	*0.00*
Combined BFG in stoves, B11 & B12, ladle drying preheaters, and BFG flares	5.28	5.28	lb/MMcf	No change	319.54	319.54
Combined NG in stoves, B11 & B12, ladle drying preheaters, and BFG flares	306.00	306.00	lb/MMcf	No change	175.19	175.19
Combined FO in stoves, B11 & B12, ladle drying preheaters, and BFG flares (*shown here for historical purposes*)	9.72	9.72	lb/Mgal	No change	0.44	0.44
Certain Fuel Burning Units					*495.17*	*495.17*
Total					*618.01*	*681.07*

(a) Except as noted in subsequent sections of this permit application, the same emission factors used to calculate pre-project actual emissions are also used to calculate post-project actual emissions.

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8.3 Post-Project NO_X Emissions Caps

As described in subsection 7.3, the post-project emissions caps and emissions increases from the 1996 Project were, respectively, listed in Tables 5 and 6 of the 1996 Construction Permit. Similar to PM and PM10, this Section 8.3 presents a discussion of the post-project NO_X emissions caps and summary of the updated emissions increase calculations for the 1995 Project, reflecting the proposed changes in the emissions caps.

The post-project emissions caps for the project affected emissions units were developed by USS Granite City using the operating rates shown in Table 8-6. Other than the natural gas usage, which is proposed to increase, and the oil usage, which is proposed to be deleted entirely, these rates are unchanged from the operating rates in the 1996 Construction Permit. As previously noted in Section 7.3, due to 2015 shutdown of the Coke Plant this application addresses increase in natural gas usage for the fuel burning units affected by the project.

Table 8-6. Projected Post-Project Operating Rates for NO_X

Parameters	Units	Post Project Rates
Blast Furnace Production	Net tons of hot metal/year	3,165,000
BOF Shop	Molten steel tons/year	3,580,000
Combined BFG Combustion	MMcf/year	185,030
Combined NG Combustion	MMcf/year	1,980
Combined Oil Combustion	n/a	0

A comparison of the NO_X emissions caps from Table 5 of the 1996 Construction Permit and the proposed revisions to these emissions caps is provided in Table 8-7. Detailed emissions calculations are provided in Appendix B. The proposed revisions to the post-project NOx emissions caps reflect changes to some of the emission factors presented in Table 8-5 and changes in post-project operating rates as shown in Table 8-6. USS Granite City also revised NOx emission factors for boilers to reflect the currently applicable emission limitations for boilers under 35 IAC 217.164(b).

Table 8-7. NO_X Emissions Caps

	NO_X Emission Caps (TPY) from Table 5 of 1996 Construction Permit	Proposed Revised NOx Emissions Caps (TPY)
Blast Furnace Operations	24	7.0
BOF Shop	70	304.3
Continuous Casting Operations	90	0.0
Certain Fuel Burning Units	674	632.5
Total	858	944

Updated project emissions increase analysis for NOx reflecting proposed revisions to the emissions increase calculations in Table 6 of the 1996 Construction Permit, is provided in Table 8-8. This table incorporates the effects of the corrected pre-project emission factors as shown in Table 8-5 and the requested updates to the emission caps as shown in Table 8-7.

Table 8-8. NO_X Project Emissions Increase Analyses

	NO_X Pre-Project Actual Emissions (TPY)	Proposed Revised NO_X Emissions Caps (TPY)	NO_X Change (TPY)
Blast Furnace Operations	5.2	7.0	2.5
BOF Shop	185.2	304.3	123.0
Continuous Casting Operations	0.0	0.00	0.0
Certain Fuel Burning Units	495.2	632.5	137.4
Total			262.8

8.4 Changes to Net Emissions Increase Calculation for NO_X

In conjunction with the requested revisions to the 1996 Construction Permit, USS Granite City is also updating the analysis for net increases in emissions of NO_X for the 1996 Project. Table 8-9 shows the updated net emissions increases calculations for NO_X based on the updated project emissions increase calculations shown in Table 8-8. This table includes a correction to the contemporaneous period for NOx emissions from the project as established using the definition in 35 IAC 203.208.[40] The start of the contemporaneous period was January 4, 1990, five years prior to the date of submittal of a timely and complete application on January 3, 1995. The end of the contemporaneous period was January 25, 1996, the date on which the emissions increase from the project occurred. The original analysis considered the #8 Galvanizing Line to be contemporaneous. However, the startup of the #8 Galvanizing Line occurred after the end of the contemporaneous period and this project was not contemporaneous for the 1996 Project.

Table 8-9. Updated Net Emissions Increases for NO_X for the 1996 Project

		NO_X
Start of Contemporaneous Period		Jan 1990
End of Contemporaneous Period		Jan 1996
Project Emissions Increases		262.8
Significant Emission Rates		40
Whether Significant?		Yes
Contemporaneous Emissions Increases	Date	
Installation of #8 Galvanizing Line	Mar-1996	n/a
Contemporaneous Emissions Decreases		
Blooming Mill Shutdown	Apr-1991	-217.8
Batch Annealing Shutdown	Dec-1991	-8.7
Net Emissions Increase		**36.3**
Whether Significant?		No

[40] The USS Granite City facility was located in area that was designated as nonattainment for ozone at the time of 1996 Construction Permit issuance. Therefore, NNSR provisions under 35 IAC 203 applied for the project at the time.

Net emissions increase for NO_X remains below the applicable significant emission rate. Therefore, the 1996 Project remains a non-major modification under PSD and NNSR.

8.5 Requested Changes to Permit Terms Relating to NO_X Emissions

As part of this application for revision to the 1996 Construction Permit, USS Granite City is proposing the following revisions to the emission limitations and other permit terms relating to NO_X emissions from the processes or activities affected by the 1996 Project.

8.5.1 Blast Furnace Operations

This section addresses the proposed changes to the 1996 Construction Permit conditions for the blast furnace operations.

8.5.1.1 Proposed NO_X Emission Limitations for Blast Furnace Operations

USS Granite City proposes the following as Condition 5.b in the revised version of the 1996 Construction Permit.

> *5.b NO_X emissions from the Blast Furnace Operations (A & B Blast Furnaces Casthouse Roof Monitor, Casthouse Baghouse stack, Iron Spout Baghouse stack) shall not exceed 7.0 tons per year based on a monthly rolling 12-month total.*

As the NO_X emission limitations are to be incorporated in Condition 5.b itself, USS Granite City also proposes the deletion of the NO_X emission limitations from Table 1 of the 1996 Construction Permit as they would be redundant.

8.5.1.2 Proposed Compliance Demonstration, Monitoring, and Recordkeeping for Blast Furnaces Operations

USS Granite City proposes the following requirements for demonstrating compliance with the proposed emissions limitations under proposed Condition 5.b in the revised version of the 1996 Construction Permit. Consistent with the approach described in Section 2.2.4 herein, USS Granite City is proposing prescribed (*i.e.*, fixed) emission factors for casthouse roof monitor for which performance testing is not feasible. This emission factor is the same as the corresponding emission factor used to calculate pre-project actual emissions as shown in Table 8-5.

(a) In order to update or verify the NO_X emission factors, the Permittee shall conduct periodic stack tests for the Blast Furnace Casthouse Baghouse stack and the Iron Spout Baghouse stack.
(b) Use NO_X emission factors from performance tests to determine NO_X emission rates for the Blast Furnace Casthouse Baghouse and the Iron Spout Baghouse stacks.
(c) For Blast Furnace Casthouse roof monitor, use NO_X emission factor of 0.00014 lb/ton of hot metal.
(d) Use the following equations for determining monthly NO_X emissions from the Blast Furnace Operations.

For Casthouse Baghouse NO_X (tons/month)	=	NO_X (lb/ton) from Stack test × Blast Furnace Production (hot metal tons/month) ÷ 2000 (lb/ton)
For Iron Spout Baghouse NO_X (tons/month)	=	NO_X (lb/ton) from Stack test × Blast Furnace Production (hot metal tons/month) ÷ 2000 (lb/ton)
For Casthouse Roof Monitor NO_X (tons/month)	=	NO_X (lb/ton) emission factor × Blast Furnace Production (hot metal tons/month) ÷ 2000 (lb/ton)

For recordkeeping requirements, USS Granite City proposes the following:

(a) Maintain monthly records of Blast Furnace production rates.
(b) Compile monthly emissions as required above and calculate 12-month rolling total emissions.

8.5.2 Basic Oxygen Furnace Shop Operations

This section addresses the proposed changes to the revised 1996 Construction Permit Conditions for the BOF Shop operations.

8.5.2.1 Proposed NO_X Emission Limitations for BOF Shop Operations

USS Granite City proposes the following as Condition 18.b in the revised version of the 1996 Construction Permit.

> *18.b NO_X emissions from the BOF ESP stack shall not exceed 304.3 tons per year based on a monthly rolling 12-month total.*

As the NO_X emission limitations are to be incorporated in Condition 18.b itself, USS Granite City also proposes the deletion of the NO_X emission limitations in Table 2 of the 1996 Construction Permit as they would be redundant.

8.5.2.2 Proposed Compliance Demonstration, Monitoring, and Recordkeeping for BOF Shop Operations

USS Granite City proposes the following requirements for demonstrating compliance with the proposed emissions limitation under Condition 18.b of the revised version of the 1996 Construction Permit.

(a) In order to update or verify the NO_X emission factor, the Permittee shall conduct periodic stack tests for the BOF ESP stack.
(b) Use NO_X emission factor from performance tests to determine NO_X emission rate for the BOF ESP stack.
(c) Use the following equation for determining monthly NO_X emissions from the BOF Shop Operations.

For BOF ESP NO_X (tons/month)	=	NO_X (lb/ton) from BOF ESP stack test × BOF Throughput (Molten steel tons/month) ÷ 2000 (lb/ton)

For recordkeeping requirements, USS Granite City proposes the following:

(a) Maintain monthly records of BOF Shop production rates.
(b) Compile monthly emissions as required above and calculate 12-month rolling total emissions.

8.5.3 Certain Fuel Burning Emissions Units

This section addresses proposed changes to the 1996 Construction Permit Condition for the fuel burning emissions units affected by the project.

8.5.3.1 Proposed NO_X Emission Limitations for Certain Fuel Burning Emissions Units

USS Granite City proposes the replacement of Condition 21 in the revised version of 1996 Construction Permit with the following.

21.a Total consumption of blast furnace gas (BFG) and natural gas (NG) for the blast furnace stoves (A and B), Boiler 11, Boiler 12, ladle drying preheaters, ancillary fuel burning units at the continuous casters, and blast furnace gas flare No. 1 shall not exceed 540,000 MMcf per year, expressed as equivalent BFG, based on a monthly rolling 12-month total. For purposes of demonstrating compliance with this gaseous fuel usage limit, one MMcf NG shall equal 37.2 MMcf BFG equivalent.

21.b No fuel oil shall be combusted in Boiler 11 and Boiler 12.

USS Granite City proposes the inclusion of Condition 22.a in the revised version of 1996 Construction Permit as follows.

22.a NO_X emissions from the blast furnace stoves (A and B), Boiler 11, Boiler 12, ladle drying preheaters, ancillary fuel burning units at the continuous casters, and blast furnace gas flare No. 1, from firing blast furnace gas and/or natural gas shall not exceed 622.5 tons per year based on a monthly rolling 12-month total.

As the NO_X emission limitations are to be incorporated in Conditions 21(a) and (b) and 22.a, itself, USS Granite City also proposes the deletion of the NO_X emission limitations in Table 4 of the 1996 Construction Permit as they would be redundant.

8.5.3.2 Proposed Compliance Demonstration, Monitoring, and Recordkeeping for Certain Fuel Burning Emissions Units

USS Granite City proposes the following requirements for demonstrating compliance with the emissions limitations under Condition 22.a.

(a) In order to update or verify the NO_X emission factors, the Permittee shall conduct periodic stack tests for Boiler 11 and Boiler 12 stacks.
(b) Use NO_X emission factors from performance tests to determine NO_X emission rates from Boiler 11 or Boiler 12.
(c) Use equation specified in Condition 21.a to ensure compliance with the applicable emission limit specified in Condition 22.

For recordkeeping requirements, USS Granite City proposes the following:

(a) Maintain monthly records of fuel usage for blast furnace stoves (A and B), Boiler 11, Boiler 12, ladle drying preheaters, ancillary fuel burning units at the continuous casters, and blast furnace gas flare No. 1.
(b) Compile monthly emissions as required above and calculate 12-month rolling total emissions.

9. Proposed Changes to Permit Terms for VOM Emission Increase Analysis

This section describes the proposed changes to 1996 Construction Permit requested by USS Granite City related to VOM emissions and provides a demonstration that, even with the requested revisions, the 1996 Project would still not be a major modification under the NNSR program at 35 IAC Part 203 with respect to emissions of VOM.[41] The emissions calculations for VOM from the 1995 Application submitted by National Steel Corporation are reproduced in Appendix B.

9.1 1996 Construction Permit Applicability and Requirements

Table 9-1 below summarizes the provisions from the 1996 Construction Permit pertaining to VOM emissions limitations from the project-affected emissions units. A copy of the 1996 Construction Permit is provided in Appendix D of this application.

Table 9-1. Construction Permit Conditions Addressing VOM

Permit Condition	Requirements
5	Emissions from Blast Furnace operations shall not exceed the limits in attached Tables 1 and 5.
18	Emissions from the BOF Shop operations shall not exceed the limits in attached Tables 2 and 5.
22	Emissions from the listed fuel combustion units shall not exceed the limits in Tables 4 and 5.

Annual VOM emissions caps listed in Table 5 of the 1996 Construction Permit are presented in Table 9-2 below. These annual VOM emissions caps cover all emissions units associated with the three main processes or activities at the USS Granite City facility, each calculated as the sum of the unit specific VOM emissions limitations in Tables 1 through 4 of the 1996 Construction Permit.

Table 9-2. VOM Emissions Information from Table 5 of 1996 Construction Permit

Processes and Activities	VOM Emissions Caps (tons/year)
Blast Furnace Operations	157
BOF Shop Operations	12
Certain Fuel Combustion Units	2
Total	171

The VOM emissions caps restricted the PTE of the project affected emissions units. The VOM project emissions increase was calculated by subtracting pre-project actual emissions (August 1992 to July 1994 24-month period) from the PTE as restricted by the 1996 Construction Permit limitations. Table 6 of the 1996 Construction Permit included the emissions increase from the

[41] At the time of 1996 Construction Permit, the Granite City area was designated as nonattainment (moderate) for ozone NAAQS.

project and major modification applicability determinations for VOM. VOM net emissions increases were below the applicable significant emission rates and as a result, VOM emissions were not subject to NNSR review.

9.2 Pre-Project Actual Emissions for 1996 Project

This section presents the updated pre-project actual emissions with proposed corrections to some of the VOM emission factors. Revisions to the emissions factors are the result of more recent performance tests and updated information as discussed in 9.2.2.

9.2.1 Historical Throughput Rates

The VOM net emissions increase calculations presented in Table 6 of the 1996 Construction Permit were based on calculations provided by National Steel Corporation in Table 3-6 of the 1995 Application. That table from the prior construction permit application is reproduced in Appendix B to this permit application.

The pre-project annual emissions were calculated using the same production and operating rates as the 1995 Application shown in Table 9-3.

Table 9-3. Pre-Project Production and Operating Rates for VOM

Parameters	Units	Pre-Project Rates
Blast Furnace Production	Net tons of hot metal/year	2,059,557
BOF Shop	Molten steel tons/year	2,413,406
Combined BFG Combustion	MMcf/year	121,039
Combined NG Combustion	MMcf/year	1,145

9.2.2 VOM Emission Factors Basis and Revisions

USS Granite City has corrected some of the VOM emission factors used to calculate pre-project actual emissions from the project affected emissions units based on stack testing and updated literature-based information and has validated the remaining emissions factors. The results are presented in Table 9-5; explanations are provided in the following paragraphs.

9.2.2.1 Fuel Burning Emissions Units Emissions (Revised for BFG and NG)

The pre-project actual emissions for various fuels used in fuel burning emissions units affected by the project are calculated using the emission factors presented in Table 9-4.

Table 9-4. VOM Emission Factors for Fuel Burning

Fuel	Emission Factors and Units	Basis
Blast Furnace Gas	0.2 lb/MMcf *(revised)*	Updated based on the CoGen Boiler Permit No. 06070023
Natural Gas	5.5 lb/MMcf *(revised)*	Based on AP-42 Chapter 1.4
Fuel Oil	0.28 lb/1000 gallon	AP-42 Page 1.3-2

9.2.2.2 A&B Blast Furnace Casthouse Baghouse Emissions (Revised)

The pre-project actual emissions for the A and B Blast Furnaces Casthouse stack (baghouse) as presented by National Steel Corporation in the 1995 Application were calculated using data from

a stack test conducted in July 1993. Other than the test results, USS Granite City has no information regarding this stack test, which was conducted by National Steel. In March 2012, USS Granite City performed VOM stack tests at the Blast Furnace Casthouse stack. This test indicated a lower VOM emission factor for this operation than previously used (0.09458 lb/ton in the original analysis vs 0.01293 lb/ton based on the March 2012 stack test). In Table 9-5, both the original and updated VOM emission factors are shown for the Blast Furnace Casthouse stack.

9.2.2.3 A&B Blast Furnace Casthouse Roof Monitor Emissions (Revised)

The pre-project actual emissions for the A and B Blast Furnace Casthouse roof monitor, as presented by National Steel Corporation in the 1995 Application, were calculated using an emission factor of 0.0047 lb/ton. This value was developed using the July 1993 stack test result of 0.09548 lb/ton for the casthouse baghouse stack and an assumption of 95% capture efficiency described in Section 7.2.2.3 herein. As discussed in 9.2.2.2 above, subsequent testing indicated a lower VOM emission factor for the stack emissions of 0.01293 lb/ton. Assuming a 95% capture efficiency for the casthouse baghouse collection system, the uncaptured portion (5% of VOM generated) is emitted through the roof monitors at the rate of 0.00068 lb/ton. In Table 9-5, both the original and updated VOM emission factors are shown for the Blast Furnace Casthouse roof monitor emissions.

9.2.2.4 A&B Blast Furnace Iron Spout Baghouse Emissions (Revised)

The 1995 Application and 1996 Construction Permit did not identify any VOM emissions from the Blast Furnace Iron Spout Baghouse. However, a stack test conducted in March 2012 indicated a VOM emission factor of 0.00208 pounds per ton of hot metal for this emission point. In Table 9-5, the revised analysis includes pre-project actual VOM emissions from the Blast Furnace Iron Spout Baghouse stack.

9.2.2.5 BOF ESP Stack (BOF 2 Vessels) Emission (Revised)

The pre-project actual emissions for the BOF ESP stack, as presented by National Steel Corporation in the 1995 Application, were calculated using data from the average of three runs from one stack test conducted in August 1993. As discussed below, the results of this 1993 stack test have been shown by subsequent data to be non-representative of the emissions from the BOF ESP stack. The 1996 Project involved increases in the production limits for the Granite City blast furnaces and BOF Shop operations. The project did not involve any physical changes or changes in the method of operation for the BOF Shop. The BOF Shop operation does not use any add-on VOM control devices. Thus, variability in VOM emissions for the BOF process is inherent to the process operation. Beginning in 2012, USS Granite City performed several VOM stack tests at the BOF ESP stack. This testing provided an updated VOM emission factor for the BOF ESP stack (0.006 lb/ton in the original analysis vs 0.0186 lb/ton based on the average of April 2012, July 2012, and November 2014 stack test results). In Table 9-5, both the original and updated VOM emission factors are shown for the BOF ESP stack.

9.2.2.6 Desulfurization Station & Transfer Pit Baghouse Emission Factor (Revised)

The pre-project VOM baseline emissions for the Desulfurization Station & Transfer Pit Baghouse stack as presented by National Steel Corporation in the 1995 Application were calculated using an emission factor from the U.S. EPA's AIRS 1990 database (WebFIRE). In May 2012, USS Granite City performed VOM stack tests at the Desulfurization Station &

Transfer Pit Baghouse stack. This testing has provided an updated VOM emission factor for this emission point (0.0010 lb/ton in the original analysis vs 0.00187 lb/ton based on a May 2012 stack test). In Table 9-5, both the original and updated VOM emission factors are shown for the Desulfurization Station & Transfer Pit Baghouse stack.

Table 9-5. Pre-project Actual Emissions and Summary of Proposed Changes to Pre-Project VOM Emission Factors for Affected Emissions Units

Emission Point	Emission Factors		Units	Basis	Baseline Emissions (TPY)	
	Original	Corrected			Original	Corrected
A & B Blast Furnace Casthouse Stack (Baghouse)	0.09458	0.01293	lb/ton of hot metal	Revised based on 3/2012 stack test	97.40	13.32
A & B Blast Furnace Casthouse Roof Monitor	0.00469	0.00068	lb/ton of hot metal	3/2012 test assuming no VOM control and 5% roof monitor fraction	4.83	0.7
Iron Spout Baghouse	0.0000	0.0021	lb/ton of hot metal	Revised based on 3/2012 stack test	0.00	2.14
Blast Furnace Operations					*102.23*	*16.16*
BOF Stack (2 Vessels)	0.0060	0.0150	lb/ton of steel	Revised based on average of 2012-2014 stack tests	7.24	22.40
Desulfurization Station [inside BOF shop] & Transfer Pit	0.00100	0.00187	lb/ton of hot metal	Revised based on 5/2012 stack test	1.03	1.93
BOF Shop Operations					*8.27*	*24.33*
Combined BFG in stoves, B11 & B12, ladle drying preheaters, and BFG flares	0.0	0.2	lb/MMcf	Updated from Cogen Boiler permit	0	14.52
Combined NG in stoves, B11 & B12, ladle drying preheaters, and BFG flares	2.8	5.5	lb/MMcf	1998 update to AP-42 Section 1.4	1.60	3.15
Combined FO in stoves, B11 & B12, ladle drying preheaters, and BFG flares	0.28	0.28	lb/Mgal	No change	0.00	0.00
Certain Fuel Burning Units					*1.61*	*17.68*
Total					*112.10*	*58.17*

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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)

[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

R006514

Illinois Environmental Protection Agency

RECEIVED ILLINOIS
Environmental Protection Agency
BUREAU OF AIR

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: 119813AAI
Permit #: 95010001
$23,000
☑ Complete ☐ Incomplete
Date Complete: 2-28-20
Check Number: 8439
Account Name: RTP Environmental

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: _____ (Signature)

Michael Patton (Typed or Printed Name of Signatory)

General Manager - Granite City Works (Title of Signatory)

2/25/2020 (Date)

RECEIVED
STATE OF ILLINOIS
MAR 02 2020
Environmental Protection Agency
BUREAU OF AIR

R006516

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.:	119813AAI
Appl. No.:	95010001
Date Rec'd:	3-2-20
Chk No./Amt:	#23000

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:	4. County:	5. Zip code:*
Granite City	Madison	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?	2. All correspondence to: (check one)
☒ Owner ☐ Operator	☒ Source ☐ Owner ☐ Operator
3. Applicant's FEIN: 25-1897152	4. Attention name and/or title for written correspondence: Krista Armentrout - Environmental Manager

This Agency is authorized to require and you must disclose this information under 415 ILCS 5/39. Failure to do so could result in the application being denied and penalties under 415 ILCS 5 et seq. It is not necessary to use this form in providing this information. This form has been approved by the forms management center.

Owner Information*		
1. Name: United States Steel Corporation		
2. Address: 600 Grant Street		
3. City: Pittsburgh	4. State: PA	5. Zip code: 15219

* Is this information idifferent than previous information? ☐ Yes ☐ No
If yes, then complete Form CAAPP 273 to apply for an Administrative Change to the CAAPP Permit for the source.

Operator Information (if different from owner)*		
1. Name		
2. Address:		
3. City:	4. State:	5. Zip code:

* Is this information different than previous information? ☐ Yes ☒ No
If yes, then complete Form CAAPP 273 to apply for an Administrative Change to the CAAPP Permit for the source.

Technical Contacts for Application	
1. Preferred technical contact: (check one) ☒ Applicant's contact ☐ Consultant	
2. Applicant's technical contact person for application: Christopher Hardin	
3. Contact person's telephone number(s) (412) 433-5904	4. Contact person's e-mail address: cwhardin@uss.com
5. Consultant for application: RTP Environmental Associates Inc. (Colin Campbell)	
6. Consultant's telephone number(s): (919) 845-1422, 20	7. Consultant's e-mail address: campbell@rtpenv.com

Other Addresses for the Permit Applicant	
ONLY COMPLETE THE FOLLOWING FOR A SOURCE WITHOUT AN ID NUMBER	
1. Address for billing Site Fees for the source: ☐ Source ☐ Other (provide below):	
2. Contact person for Site Fees:	3. Contact person's telephone number:
4. Address for Annual Emission Report for the source: ☐ Source ☐ Other (provide below):	
5. Contact person for Annual Emission Report:	6. Contact person's telephone number:

Review Of Contents of the Application	
NOTE: ANSWERING "NO" TO THESE ITEMS MAY RESULT IN THE APPLICATION BEING DEEMED INCOMPLETE	
1. Does the application include a narrative description of the proposed project?	☒ Yes ☐ No
2. Does the application clearly identify the emission units and air pollution control equipment that are part of the project?	☒ Yes ☐ No
3. Does the application include process flow diagram(s) for the project showing new and modified emission units and control equipment, along with associated existing equipment and their relationships?	☒ Yes ☐ No
4. Does the application include a general description of the source, a plot plan for the source and a site map for its location?	☐ Yes ☐ No ☒ N/A* * Material previously provided
5. Does the application include relevant technical information for the proposed project as requested on CAAPP application forms (or otherwise contain all relevant technical information)?	☒ Yes ☐ No
6. Does the application include relevant supporting data and information for the proposed project as provided on CAAPP forms?	☒ Yes ☐ No
7. Does the application identify and address all applicable emission standards for the proposed project, including: State emission standards (35 IAC Chapter I, Subtitle B); Federal New Source Performance Standards (40 CFR Part 60)?	☒ Yes ☐ No
8. Does the application address whether the project would be a major project for Prevention of Significant Deterioration, 40 CFR 52.21?	☒ Yes ☐ No ☐ N/A
9. Does the application address whether the project would be a major project for "Nonattainment New Source Review," 35 IAC Part 203?	☒ Yes ☐ No ☐ N/A
10. Does the application address whether the proposed project would potentially be subject to federal regulations for Hazardous Air Pollutants (40 CFR Part 63) and address any emissions standards for hazardous air pollutants that would be applicable?	☒ Yes ☐ No ☐ N/A* * Source not major ☐ Project not major ☐
11. Does the application include a summary of annual emission data for different pollutants for the proposed project (tons/year), including: 1) The requested permitted emissions for individual new, modified and affected existing units*, 2) The past actual emissions and change in emissions for individual modified units* and affected existing units*, and 3) Total emissions consequences of the proposed project? (* Or groups of related units)	☒ Yes ☐ No ☐ N/A * The project does not involve an increase in emissions from new or modified emission units.
12. Does the application include a summary of the current and requested potential emissions of the source (tons/year)?	☒ Yes ☐ No ☐ N/A* * Applicability of PSD, NA NSR or 40 CFR 63 to the project is not related to the source's emissions.
13. Does the application address the relationships and implications of the proposed project on the CAAPP Permit for the source?	☒ Yes ☐ No ☐ N/A* * CAAPP Permit not issued
14. If the application contains information that is considered a TRADE SECRET, has it been properly marked and claimed and all requirements to properly support the claim pursuant to 35 IAC Part 130 been met? Note: "Claimed" information will not be legally protected from disclosure to the public if it is not properly claimed or does not qualify as trade secret information.	☐ Yes ☐ No ☒ N/A* * No information in the application is claimed to be a TRADE SECRET
15. Are the correct number of copies of the application provided? (See Instructions for Permit Applications, Form 201)	☒ Yes ☐ No
16. Does the application include a completed "FEE DETERMINATION FOR CONSTRUCTION PERMIT APPLICATION," Form 197-FEE, a check in the amount indicated on this form, and any supporting material needed to explain how the fee was determined?	☒ Yes ☐ No

Signature Block

Authorized Signature:

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

BY: AUTHORIZED SIGNATURE

General Manager - Granite City Works
TITLE OF SIGNATORY

Michael Patton
TYPED OR PRINTED NAME OF SIGNATORY

02 25 2020
DATE

Appendix B – Emissions Calculations

Updated Emissions Calculations for the 1996 Construction Permit Revision Application

USS Granite City
Revised PM Actual

Point	Emission Point	Past Throughput	Units	Pollutant	Original Emission Factor	Updated Emission Factor	Units	Basis	Original Baseline Emissions (TPY)	Revised Baseline Emissions (TPY)
0005 & 0010	A & B Blast Furnace Casthouse Fugitives	2,059,557	tons of hot metal/year	PM	0.031	0.031	lb/ton of hot metal	No change	31.92	31.92
0006 & 0011	A & B Blast Furnace Charging	2,803,241	tons of charge material/year	PM	0.0024	0.0024	lb/ton of material	No change	3.36	3.36
0007 & 0012	A & B Blast Furnace Casthouse Baghouse	2,059,557	tons of hot metal/year	PM	0.07026	0.07026	lb/ton of hot metal	No change	72.35	72.35
113	Blast Furnace Slag Pits	2,059,557	tons of hot metal/year	PM	0.00417	0.00417	lb/ton of hot metal	No change	4.29	4.29
	Iron Spout Baghouse	2,059,557	tons of hot metal/year	PM	0.02548	0.02548	lb/ton of hot metal	No change	26.24	26.24
	Blast Furnace Operations			PM					138.17	138.17
0033	BOF 2 Vessels	2,413,406	tons of molten steel/year	PM	0.16	0.16	lb/ton of steel	No change	193.07	193.07
0034	BOF Roof Monitor	2,413,406	tons of molten steel/year	PM	0.428	0.428	lb/ton of steel	No change	516.72	516.72
0107 & 0035	Desulfurization Station (inside BOF shop) & Transfer Pit	2,059,557	tons of hot metal/year	PM	0.03721	0.03721	lb/ton of hot metal	No change	38.32	38.32
0040	Hot Metal Charging Ladle Slag Skimmer	2,059,557	tons of hot metal/year	PM	0.00502	0.00502	lb/ton of hot metal	No change	5.17	5.17
	BOF Shop			PM					753.28	753.28
0103, 0104 & 0121	Argon Stirring #1 & #2 Material Handling Tripper	2,413,406	tons of molten steel/year	PM	0.00715	0.00715	lb/ton of steel	No change	8.63	8.63
0105 & 0106	Deslagging Station & Material HS	2,413,406	tons of molten steel/year	PM	0.00355	0.00355	lb/ton of steel	No change	4.28	4.28
0070 & 0120	Caster Mold - Casters #1 & #2 Continuous Casters #1 & #2 - Spray	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	Chamber	2,413,406	tons of molten steel/year	PM	0.00852	0.00852	lb/ton of steel	No change	10.28	10.28
0072 & 0118	Slab Cutoff Casters #1 & #2	2,413,406	tons of molten steel/year	PM	0.0071	0.0071	lb/ton of steel	No change	8.57	8.57
73	Slab Ripping Casters #1 & #2	2,413,406	tons of molten steel/year	PM	0.00722	0.00722	lb/ton of steel	No change	8.71	8.71
	Continuous Casting Operations			PM					47.71	47.71
	Combined BFG in stoves, B11 & B12, ladle preheaters, and BFG flares	121,039	MMcf	PM	2.90	2.90	lb/MMcf	No change	175.51	175.51
	Combined NG in stoves, B11 & B12, ladle preheaters, and BFG flares	1,145	MMcf	PM	5.10	1.90	lb/MMcf	AP-42 Revised Filt. PM Factor	2.92	1.09
	Combined FO in stoves, B11 & B12, ladle preheaters, and BFG flares	16	Mgal	PM	9.72	9.72	lb/Mgal	No change	0.08	0.08
	Certain Fuel Burning Emissions Units			PM					178.51	176.68
9003	Iron Pellet Screen	2,803,241	tons of charge material/year	PM	0.00279	0.00375	lb/ton of material	85% control to crushed stone screen EF in AP-42 Table 11.19.2-2	3.91	5.26
	BOF Hopper Baghouse	2,413,406	tons of molten steel/year	PM	0.00032	0.00032	lb/ton of steel	No change	0.39	0.39
0037	Flux Conv. & Transfer Points Bin Floor - BOF	2,413,406	tons of molten steel/year	PM	0.0016	0.0016	lb/ton of steel	No change	1.93	1.93
	Material Handling Operations at BF and BOF			PM					6.23	7.57
				Total PM					1,123.90	1,123.42

USS Granite City
Revised PM Analysis

Point	Emission Point	Past Throughput	Future Throughput	Units	Pollutant	Updated Emission Factor	Future Emission Factor	Units	Basis	Baseline Emissions (TPY)	Future Emissions (TPY)	Emissions Increase (TPY)	Emissions Change (TPY)
0005 & 0010	A & B Blast Furnace Casthouse Fugitives	2,059,557	3,165,000	tons of hot metal/year	PM	0.031	0.031	lb/ton of hot metal	No change	31.92	49.06	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	111.19		
113	Blast Furnace Slag Pits	2,059,557	3,165,000	tons of hot metal/year	PM	0.00417	0.00417	lb/ton of hot metal	No change	4.29	6.60	2.30	
	Iron Spout Baghouse	2,059,557	3,165,000	tons of hot metal/year	PM	0.02548	0.02548	lb/ton of hot metal	No change	26.24	40.32	14.08	
	Blast Furnace Operations				PM					138.17	212.34		74.16
0033	BOF 2 Vessels	2,413,406	3,580,000	tons of molten steel/year	PM	0.16	0.16	lb/ton of steel	Using 60 lb/hour for PTE	193.07	262.80	0.00	
0034	BOF Roof Monitor	2,413,406	3,580,000	tons of molten steel/year	PM	0.428	0.099	lb/ton of steel	No change (as in original application post-project EF lower than pre-project EF)	516.72	176.67		
	Desulfurization Station (inside BOF shop) &												
0107 & 0035	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 &	Argon Stirring #1 & #2 Material Handling												
0121	Tripper	2,413,406	3,580,000	tons of molten steel/year	PM	0.00715	0.00715	lb/ton of steel	No change	8.63	12.80	4.17	
0105 & 0106	Deslagging Station & Material HS	2,413,406	3,580,000	tons of molten steel/year	PM	0.00355	0.00355	lb/ton of steel	No change	4.28	6.35	2.07	
0070 & 0120	Caster Mold - Casters #1 & #2	2,413,406	3,580,000	tons of molten steel/year	PM	0.006	0.006	lb/ton of steel	No change	7.24	10.74	3.50	
0071 & 0119	Continuous Casters #1 & #2 - Spray Chamber	2,413,406	3,580,000	tons of molten steel/year	PM	0.00852	0.00852	lb/ton of steel	No change	10.28	15.25	4.97	
0072 & 0118	Slab Cutoff Casters #1 & #2	2,413,406	3,580,000	tons of molten steel/year	PM	0.0071	0.0071	lb/ton of steel	No change	8.57	12.71	4.14	
73	Slab Ripping Casters #1 & #2	2,413,406	3,580,000	tons of molten steel/year	PM	0.00722	0.00722	lb/ton of steel	No change	8.71	12.92	4.21	
	Continuous Casting Operations				PM					47.71	70.78		23.06
	Combined BFG in stoves, B11 & B12, ladle preheaters, and BFG flares	121,039	185,030	MMcf	PM	2.90	2.90	lb/MMcf	No change	175.51	268.30	92.79	
	Combined NG in stoves, B11 & B12, ladle preheaters, and BFG flares	1,145	1,980	MMcf	PM	1.9	1.9	lb/MMcf	AP-42 Revised Fit. PM Factor	1.09	1.88	0.79	
	Combined FO in stoves, B11 & B12, ladle preheaters, and BFG flares	16	365	Mgal	PM	9.72	9.72	lb/Mgal	No change	0.08	1.77	1.70	
	Certain Fuel Burning Emissions Units				PM					176.68	271.95		95.28
				tons of charge					USS representation of 85%				
9003	Iron Pellet Screen	2,803,241	4,308,581	material/year	PM	0.00375	0.00375	lb/ton of material	control to crushed stone EF	5.26	8.08	2.82	
	BOF Hopper Baghouse	2,413,406	3,580,000	tons of molten steel/year	PM	0.00032	0.00032	lb/ton of steel	No change	0.39	0.57	0.19	
0037	Flux Conv. & Transfer Points Bin Floor - BOF	2,413,406	3,580,000	tons of molten steel/year	PM	0.0016	0.0016	lb/ton of steel	No change	1.93	2.86	0.93	
	Material Handling Operations at BF and BOF				PM					7.57	11.52		3.94
					Total PM						1,072.88	219.79	-50.53

USS Granite City
Revised PM10 Actual

Point	Emission Point	Past Throughput	Units	Pollutant	Original Emission Factor	Updated Emission Factor	Units	Basis	Original Baseline Emissions (TPY)	Revised Baseline Emissions (TPY)
0005 & 0010	A & B Blast Furnace Casthouse Fugitives	2,059,557	tons of hot metal/year	PM10	0.0155	0.0153	lb/ton of hot metal	Correction to calculation minor change	15.96	15.76
0006 & 0011	A & B Blast Furnace Charging	2,803,241	tons of charge material/year	PM10	0.0024	0.0012	lb/ton of material	Applied AP-42 Ch 13.2.4 ratio of 48% for PM10 vs PM	3.36	1.68
0007 & 0012	A & B Blast Furnace Casthouse Baghouse	2,059,557	tons of hot metal/year	PM10	0.07026	0.07026	lb/ton of hot metal	No change	72.35	72.35
113	Blast Furnace Slag Pits	2,059,557	tons of hot metal/year	PM10	0.00417	0.00417	lb/ton of hot metal	No change	4.29	4.29
	Iron Spout Baghouse	2,059,557	tons of hot metal/year	PM10	0.02548	0.02548	lb/ton of hot metal	No change	26.24	26.24
	Blast Furnace Operations			**PM10**					122.21	120.32
0033	BOF 2 Vessels	2,413,406	tons of molten steel/year	PM10	0.16	0.16	lb/ton of steel	No change	193.07	193.07
0034	BOF Roof Monitor	2,413,406	tons of molten steel/year	PM10	0.287	0.287	lb/ton of steel	No change	346.20	346.20
0107 & 0035	Desulfurization Station [inside BOF shop] & Transfer Pit	2,059,557	tons of hot metal/year	PM10	0.03721	0.03721	lb/ton of hot metal	No change	38.32	38.32
0040	Hot Metal Charging Ladle Slag Skimmer	2,059,557	tons of hot metal/year	PM10	0.00502	0.00502	lb/ton of hot metal	No change	5.17	5.17
	BOF Shop			**PM10**					582.76	582.76
0103, 0104 & 0121	Argon Stirring #1 & #2 Material Handling Tripper	2,413,406	tons of molten steel/year	PM10	0.00715	0.00715	lb/ton of steel	No change	8.63	8.63
0105 & 0106	Deslagging Station & Material HS	2,413,406	tons of molten steel/year	PM10	0.00355	0.00355	lb/ton of steel	No change	4.28	4.28
0070 & 0120	Caster Mold - Casters #1 & #2	2,413,406	tons of molten steel/year	PM10	0.006	0.006	lb/ton of steel	No change	7.24	7.24
0071 & 0119	Continuous Casters #1 & #2 - Spray Chamber	2,413,406	tons of molten steel/year	PM10	0.00852	0.00852	lb/ton of steel	No change	10.28	10.28
0072 & 0118	Slab Cutoff Casters #1 & #2	2,413,406	tons of molten steel/year	PM10	0.0071	0.0071	lb/ton of steel	No change	8.57	8.57
73	Slab Ripping Casters #1 & #2	2,413,406	tons of molten steel/year	PM10	0.00722	0.00722	lb/ton of steel	No change	8.71	8.71
	Continuous Casting Operations			**PM10**					47.71	47.71
	Combined BFG in stoves, B11 & B12, ladle preheaters, and BFG flares	121,039	MMcf	PM10	2.90	2.90	lb/MMcf	No change	175.51	175.51
	Combined NG in stoves, B11 & B12, ladle preheaters, and BFG flares	1,145	MMcf	PM10	5.1	1.9	lb/MMcf	AP-42 Revised Filt. PM Factor	2.92	1.09
	Combined FO in stoves, B11 & B12, ladle preheaters, and BFG flares	16	Mgal	PM10	9.72	9.72	lb/Mgal	No change	0.08	0.08
	Certain Fuel Burning Emissions Units			**PM10**					178.51	176.68
9003	Iron Pellet Screen	2,803,241	tons of charge material/year	PM10	0.00279	0.00131	lb/ton of material	85% control to crushed stone screen EF in AP-42 Table 11.19.2-2	3.91	1.83
	BOF Hopper Baghouse	2,413,406	tons of molten steel/year	PM10	0.00032	0.00032	lb/ton of steel	No change	0.39	0.39
0037	Flux Conv. & Transfer Points Bin Floor - BOF	2,413,406	tons of molten steel/year	PM10	0.0016	0.0016	lb/ton of steel	No change	1.93	1.93
	Material Handling Operations at BF and BOF			**PM10**					6.23	4.15
				Total PM10					937.42	931.62

USS Granite City
Revised PM10 Analysis

Point	Emission Point	Past Throughput	Future Throughput	Units	Pollutant	Updated Emission Factor	Future Emission Factor	Units	Basis	Baseline Emissions (TPY)	Future Emissions (TPY)	Emissions Increase (TPY)	Emissions Change (TPY)
0005 & 0010	A & B Blast Furnace Casthouse Fugitives	2,059,557	3,165,000	tons of hot metal/year tons of charge	PM10	0.0153	0.0153	lb/ton of hot metal	Correction to calculation minor change	15.76	24.21	48.19	
0006 & 0011	A & B Blast Furnace Charging	2,803,241	4,308,581	material/year	PM10	0.0012	0.0012	lb/ton of material	USS representation includes baghouse for EF	1.68	2.59		
0007 & 0012	A & B Blast Furnace Casthouse Baghouse	2,059,557	3,165,000	tons of hot metal/year	PM10	0.07026	0.07026	lb/ton of hot metal	No change	72.35	111.19		
113	Blast Furnace Slag Pits	2,059,557	3,165,000	tons of hot metal/year	PM10	0.00417	0.00417	lb/ton of hot metal	No change	4.29	6.60	2.30	
	Iron Spout Baghouse	2,059,557	3,165,000	tons of hot metal/year	PM10	0.02548	0.02548	lb/ton of hot metal	No change	26.24	40.32	14.08	
	Blast Furnace Operations				PM10					120.32	184.90		64.58
0033	BOF 2 Vessels	2,413,406	3,580,000	tons of molten steel/year	PM10	0.16	0.16	lb/ton of steel	Using 60 lb/hour for PTE	193.07	262.80	0.00	
0034	BOF Roof Monitor	2,413,406	3,580,000	tons of molten steel/year	PM10	0.287	0.066	lb/ton of steel	No change	346.20	118.40		
	Desulfurization Station (inside BOF shop) &												
0037 & 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 HS	2,413,406	3,580,000	tons of molten steel/year	PM10	0.00355	0.00355	lb/ton of steel	No change	4.28	6.35	2.07	
0070 & 0120	Caster Mold - Casters #1 & #2	2,413,406	3,580,000	tons of molten steel/year	PM10	0.006	0.006	lb/ton of steel	No change	7.24	10.74	3.50	
0071 & 0119	Continuous Casters #1 & #2 - Spray Chamber	2,413,406	3,580,000	tons of molten steel/year	PM10	0.00852	0.00852	lb/ton of steel	No change	10.28	15.25	4.97	
0072 & 0118	Slab Cutoff Casters #1 & #2	2,413,406	3,580,000	tons of molten steel/year	PM10	0.0071	0.0071	lb/ton of steel	No change	8.57	12.71	4.14	
73	Slab Ripping Casters #1 & #2	2,413,406	3,580,000	tons of molten steel/year	PM10	0.00722	0.00722	lb/ton of steel	No change	8.71	12.92	4.21	
	Continuous Casting Operations				PM10					47.71	70.78		23.06
	Combined BFG in stoves, B11 & B12, ladle preheaters, and BFG flares	121,039	185,030	MMcf	PM10	2.90	2.90	lb/MMcf	No change	175.51	268.30	92.79	
	Combined NG in stoves, B11 & B12, ladle preheaters, and BFG flares	1,145	1,980	MMcf	PM10	1.9	1.9	lb/MMcf	AP-42 Revised Fix. PM Factor	1.09	1.88	0.79	
	Combined FO in stoves, B11 & B12, ladle preheaters, and BFG flares	16	365	Mgal	PM10	9.72	9.72	lb/Mgal	No change	0.08	1.77	1.70	
	Certain Fuel Burning Emissions Units				PM10					176.68	271.95		95.28
9003	Iron Pellet Screen	2,803,241	4,308,581	tons of charge material/year	PM10	0.001305	0.001131	lb/ton of material	USS representation of 85% control to crushed stone EF	1.83	2.81	0.98	
	BOF Hopper Baghouse	2,413,406	3,580,000	tons of molten steel/year	PM10	0.00032	0.00032	lb/ton of steel	No change	0.39	0.57	0.19	
0037	Flux Conv. & Transfer Points Bin Floor - BOF	2,413,406	3,580,000	tons of molten steel/year	PM10	0.0016	0.0016	lb/ton of steel	No change	1.93	2.86	0.93	
	Material Handling Operations at BF and BOF				PM10					4.15	6.25		2.10
					Total PM10						981.91	208.37	50.29

USS Granite City
Net Emissions Increases

		Emissions (tons/year) PM	PM10
Project Emissions Increases		220.6	209.1
Significant Emission Rates		25	15
Whether Significant?		Yes	Yes
Project Emissions Changes		-50.5	50.3
Contemporaneous Emissions Increases	Date		
Remove Blast Furnace Slag Spout Hood	Jan-1990		4.9
#2 Caster Production	Dec-1990		11.7
Installation of #8 Galvanizing Line	Mar-1996	Not contemporaneous	
Contemporaneous Emissions Decreases			
Ingot Teeming Shutdown	Apr-1991	-22.4	-22.4
Blooming Mill Shutdown	Apr-1991	-3.4	-3.4
NESHAP Controls Coke By-product	Jul-1991		
Batch Annealing Shutdown	Dec-1991	-0.2	-0.2
Road and Material Handling Fugitive Dust Controls	Nov-1991	-32	-32
Project Net Emissions Increases		-108.53	8.89
Whether Significant?		No	No

Date of complete permit application under Rule 203	1/3/1995	
Date Project implemented/operation started	1/25/1996	Same as permit issuance date as permit was for operational changes by revising production limits.
Contemporaneous Period	1/4/1990	to 1/25/1996

USS Granite City
Revised NO_x Actual

Point	Emission Point	Past Throughput	Units	Pollutant	Original Emission Factor	Updated Emission Factor	Units	Basis	Original Baseline Emissions (tons/year)	Revised Baseline Emissions (tons/year)
0005 & 0010	A & B Blast Furnace Casthouse Fugitives	2,059,557	tons of hot metal/year	NO_x	0.0007	0.0001	lb/ton of hot metal	3/2012 test assuming no NOx control and 5% fugitive	0.74	0.15
0007 & 0012	A & B Blast Furnace Casthouse Baghouse	2,059,557	tons of hot metal/year	NO_x	0.0144	0.0027	lb/ton of hot metal	3/2012 test	14.83	2.78
	Iron Spout Baghouse	2,059,557	tons of hot metal/year	NO_x	0.0000	0.0016	lb/ton of hot metal	3/2012 test	0.00	1.65
	Blast Furnace Operations			NO_x					15.57	4.57
0033	BOF 2 Vessels	2,413,406	tons of molten steel/year	NO_x	0.0389	0.1503	lb/ton of steel	Average of 4/2012, 7/2012, 11/2014 test results	46.94	181.33
	BOF Shop			NO_x					46.94	181.33
0070 & 0120	Caster Mold - Casters #1 & #2	2,413,406	tons of molten steel/year	NO_x	0.0500	0.0000	lb/ton of steel	All NOx formed is from natural gas usage; emissions are accounted for separately.	60.34	0.00
	Continuous Casting Operations			NO_x					60.34	0.00
	Combined BFG in BFG Flare	26,132	MMcf	NO_x	5.2800	5.2800	lb/MMcf	No change	68.99	68.99
	Combined BFG in stoves	44,977	MMcf	NO_x	5.2800	5.2800	lb/MMcf	No change	118.74	118.74
	Combined BFG in Boilers B11 & B12 and BH1	49,930	MMcf	NO_x	5.2800	5.2800	lb/MMcf	No change	131.82	131.82
	Combined NG in stoves, B11 & B12, ladle preheaters, and BFG flares	1,145	MMcf	NO_x	306.0	306.0	lb/MMcf	No change	175.19	175.19
	Combined FO in stoves, B11 & B12, ladle preheaters, and BFG flares	16	Mgal	NO_x	55.00	55.00	lb/Mgal	No change	0.44	0.44
	Certain Fuel Burning Emissions Units			NO_x					495.17	495.17
	Total								618.01	681.07

USS Granite City
Revised NO_x Analysis

Point	Emission Point	Past Throughput	Future Throughput	Units	Pollutant	Updated Emission Factor	Future Emission Factor	Units	Basis	Baseline Emissions (tons/year)	Future Emissions (tons/year)	Emissions Increase (tons/year)	Emissions Change (tons/year)
0005 & 0010	A & B Blast Furnace Casthouse Fugitives	2,059,557	3,165,000	tons of hot metal/year	NO_x	0.0001	0.0001	lb/ton of hot metal	3/2012 test assuming no NO_x control and 5% fugitive	0.15	0.22	2.46	
0007 & 0012	A & B Blast Furnace Casthouse Baghouse	2,059,557	3,165,000	tons of hot metal/year	NO_x	0.0027	0.0027	lb/ton of hot metal	3/2012 test	2.78	4.27		
	Iron Spout Baghouse	2,059,557	3,165,000	tons of hot metal/year	NO_x	0.0016	0.0016	lb/ton of hot metal	3/2012 test	1.65	2.53		
	Blast Furnace Operations				NO_x					4.57	7.03		2.46
0033	BOF 2 Vessels	2,413,406	3,580,000	tons of molten steel/year	NO_x	0.1503	0.1700	lb/ton of steel	Average of 4/2012, 7/2012, 11/2014 test results used for baseline, 11/2014 test result used for projection	181.33	304.30	122.97	
	BOF Shop				NO_x					181.33	304.30		122.97
0070 & 0120	Caster Mold - Casters #1 & #2	2,413,406	3,580,000	tons of molten steel/year	NO_x	0.0000	0.0000	lb/ton of steel	All NO_x 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 B#1	49,930	76,327	MMcf	NO_x	5.2800	5.2800	lb/MMcf		131.82	201.50	69.69	
	Combined NG in stoves, B11 & B12 (past), ladle preheaters, and BFG flares	1,145	340	MMcf	NO_x	306.0	306.0	lb/MMcf		175.19	52.02	0.00	
	B11 (Future)		820	MMcf	NO_x		100.0	lb/MMcf	No change made to baseline factor. Post project weighted average emission factor reflects current controls. (Limit in 35 IAC 217.164 for boilers is 0.084 lb/MMBtu; boilers were retrofitted with FGR to comply.)		41.00	41.00	
	B12 (Future)		820	MMcf	NO_x		100.0	lb/MMcf	No change made to baseline factor. Post project weighted average emission factor reflects current controls. (Limit in 35 IAC 217.164 for boilers is 0.084 lb/MMBtu; boilers were retrofitted with FGR to comply.)		41.00	41.00	
	Combined FO in stoves, B11 & B12, ladle preheaters, and BFG flares	16	365	Mgal	NO_x	55.00	55.00	lb/Mgal	No change	0.44	10.04	9.60	
	Certain Fuel Burning Emissions Units				NO_x Total					495.17	632.54		137.37
					NO_x					681	944	385.96	262.80

USS Granite City
Net Emissions Increases

		NOx
Project Emissions Increases		386.0
Significant Emission Rates		40
Whether Significant?		Yes
Project Emissions Changes		262.8
Contemporaneous Emissions Increases	Date	
Installation of #8 Galvanizing Line	Mar-1996	Not contemporaneous
Contemporaneous Emissions Decreases		
Blooming Mill Shutdown	Apr-1991	-217.8
Batch Annealing Shutdown	Dec-1991	-8.7
Project Net Emissions Increases		36.30
Whether Significant?		No

Date of complete permit application under Rule 203	1/3/1995	
Date Project implemented/operation started	1/25/1996	Same as permit issuance date as permit was for operational changes by revising production limits.
Contemporaneous Period	1/4/1990	to 1/25/1996

USS Granite City
Revised VOM Analysis

Point	Emission Point	Past Throughput	Units	Pollutant	Original Emission Factor	Updated Emission Factor	Units	Basis	Original Baseline Emissions (tons/year)	Revised Baseline Emissions (tons/year)
0005 & 0010	A & B Blast Furnace Casthouse Fugitives	2,059,557	tons of hot metal/year	VOM	0.00469	0.0006807	lb/ton of hot metal	3/2012 test assuming no VOM control and 5% fugitive	4.83	0.70
0007 & 0012	A & B Blast Furnace Casthouse Baghouse	2,059,557	tons of hot metal/year	VOM	0.09458	0.01293	lb/ton of hot metal	3/2012 test	97.40	13.32
	Iron Spout Baghouse	2,059,557	tons of hot metal/year	VOM	0.0000	0.0021	lb/ton of hot metal	3/2012 test	0.00	2.14
	Blast Furnace Operations			VOM					102.23	16.16
0033	BOF 2 Vessels	2,413,406	tons of molten steel/year	VOM	0.0060	0.0186	lb/ton of steel	Average of 4/2012, 7/2012, 11/2014 test results used for baseline;	7.24	22.40
0107 & 0035	Desulfurization Station [inside BOF shop] & Transfer Pit	2,059,557	tons of hot metal/year	VOM	0.00100	0.00187	lb/ton of hot metal	5/2012 test	1.03	1.93
	BOF Shop			VOM					8.27	24.33
	Combined BFG in stoves, B11 & B12, ladle preheaters, and BFG flares	121,039	MMcf	VOM	0.0	0.2	lb/MMcf	Updated from Cogen Permit	0.00	14.52
	Combined NG in stoves, B11 & B12, ladle preheaters, and BFG flares	1,145	MMcf	VOM	2.8	5.5	lb/MMcf	1998 update to AP-42 Section 1.4	1.60	3.15
	Combined FO in stoves, B11 & B12, ladle preheaters, and BFG flares	16	Mgal	VOM	0.28	0.28	lb/Mgal	No change	0.00	0.00
	Certain Fuel Burning Emissions Units			VOM					1.61	17.68
	Total								112.10	58.17

USS Granite City
Revised VOM Analysis

Point	Emission Point	Past Throughput	Future Throughput	Units	Pollutant	Updated Emission Factor	Future Emission Factor	Units	Basis	Baseline Emissions (tons/year)	Future Emissions (tons/year)	Emissions Increase (tons/year)	Emissions Change (tons/year)
0005 & 0010	A & B Blast Furnace Casthouse Fugitives	2,059,557	3,165,000	tons of hot metal/year	VOM	0.0006807	0.0006807	lb/ton of hot metal	3/2012 test assuming no VOM control and 5% fugitive	0.70	1.08	8.67	
0007 & 0012	A & B Blast Furnace Casthouse Baghouse	2,059,557	3,165,000	tons of hot metal/year	VOM	0.01293	0.01293	lb/ton of hot metal	3/2012 test	13.32	20.47		
	Iron Spout Baghouse	2,059,557	3,165,000	tons of hot metal/year	VOM	0.00208	0.00208	lb/ton of hot metal	3/2012 test	2.14	3.29		
	Blast Furnace Operations				VOM					16.16	24.84		8.67
0033	BOF 2 Vessels	2,413,406	3,580,000	tons of molten steel/year	VOM	0.0186	0.0230	lb/ton of steel	Average of 4/2012, 7/2012, 11/2014 test results used for baseline; 11/2014 test result used for projection	22.40	41.17	18.77	
0107 & 0035	Desulfurization Station (inside BOF shop) & Transfer Pit	2,059,557	3,165,000	tons of hot metal/year	VOM	0.00187	0.00187	lb/ton of hot metal	5/2012 test	1.93	2.96	1.03	
	BOF Shop				VOM					24.33	44.13		19.80
	Combined BFG in stoves, B11 & B12, ladle preheaters, and BFG flares	121,039	185,030	MMcf	VOM	0.2	0.2	lb/MMcf	Updated from Cogen Permit	14.52	22.20	7.68	
	Combined NG in stoves, B11 & B12, ladle preheaters, and BFG flares	1,145	340	MMcf	VOM	5.5	5.5	lb/MMcf	1998 update to AP-42 Section 1.4	3.15	0.94	2.30	
	B11		820	MMcf	VOM		5.5	lb/MMcf	1998 update to AP-42 Section 1.4		2.26	Included above	
	B12		820	MMcf	VOM		5.5	lb/MMcf	1998 update to AP-42 Section 1.4		2.26	Included above	
	Combined FO in stoves, B11 & B12, ladle preheaters, and BFG flares	16	365	Mgal	VOM	0.28	0.28	lb/Mgal	No change	0.002	0.051	0.05	
	Certain Fuel Burning Emissions Units				VOM					17.68	27.70		10.02
					Total VOM					58.2	96.7	38.50	38.50

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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	

R006532

Emissions Calculations Included in the 1995 Construction Permit Application

TABLE 3-1
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - CO

Projected Emissions Based On: Blast Furnace @ 8,291NTPD
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	13.7	lb/MMcf	22,774	MMcf	156.00	included in line 17	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	13.7	lb/MMcf	22,203	MMcf	152.09	included in line 17	-	-	-
3	0008	01	Blast Furnace Gas Flare - BFG	13.7	lb/MMcf	26,132	MMcf	179.00	included in line 17	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	13.7	lb/MMcf	37,501	MMcf	256.88	included in line 17	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	40	lb/MMcf	361	MMcf	7.22	included in line 16	-	-	-
6	0044	01	Boiler #11 - BFG	13.7	lb/MMcf	5,323	MMcf	36.46	included in line 17	-	-	-
7	0044	91	Boiler #11 - NG	40	lb/MMcf	226	MMcf	4.52	included in line 16	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	5.0	lb/Mgal	15.00	Mgal	0.04	included in line 18	-	-	-
9	0048	01	Boiler #12 - BFG	13.7	lb/MMcf	7,106	MMcf	48.68	included in line 17	-	-	-
10	0048	91	Boiler #12 - NG	40	lb/MMcf	218	MMcf	4.36	included in line 16	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	5.0	lb/Mgal	1.00	Mgal	0.00	included in line 18	-	-	-
12	0033	01	BOF 2 Vessels	8.993	lb/ton proc.	2,413,406	ton proc.	10,851.88	3,580,000	ton proc.	16,097.47	5,245.59
13	0038	01	BOF Preheaters/Dryers - NG	40	lb/MMcf	283	MMcf	5.66	included in line 16	-	-	-
14	0071 & 0119	01	Continuous Casters #1 & #2 - NG	40	lb/MMcf	57	MMcf	1.14	included in line 16	-	-	-
15			Natural Gas	40	lb/MMcf	1,145	MMcf	inc. above	1,145	MMcf	22.90	-
16			Blast Furnace Gas	13.7	lb/MMcf	121,039	MMcf	inc. above	185,030	MMcf	1,267.46	-
17			Fuel Oil	5.0	lb/Mgal	16	Mgal	inc. above	365	Mgal	0.91	-
	TOTALS:							11,703.94			17,388.74	5,684.80
			Contemporaneous Changes									(11.51)
			Net Change									***5,673.29***

R006534

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 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 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 18	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	5.0	lb/Mgal	1.00	Mgal	0.00	Included in line 18	-	-	-
12	0033	01	BOF 2 Vessels	8.993	lb/ton proc.	2,413,406	ton proc.	10,851.88	3,580,000	ton proc.	16,097.47	5,245.59
13	0038	01	BOF Preheaters/Dryers - NG	40	lb/MMcf	283	MMcf	5.66	Included in line 18	-	-	-
14	0071 & 0119	01	Continuous Casters #1 & #2 - NG	40	lb/MMcf	57	MMcf	1.14	Included in line 18	-	-	-
15			Natural Gas	40	lb/MMcf	1,145	MMcf	Inc. above	1,145	MMcf	22.90	-
16			Blast Furnace Gas	13.7	lb/MMcf	121,039	MMcf	Inc. above	185,030	MMcf	1,267.46	-
17			Fuel Oil	5.0	lb/Mgal	16	Mgal	Inc. above	365	Mgal	0.91	-
	TOTALS:							11,703.94			17,388.74	5,684.80
			Contemporaneous Changes								(11.51)	(13.11)
			Net Change								~~5,671.69~~	
											5673.29	

R006535

Projected Emissions Based On: Blast Furnace @ 8,571NTPD
BOF @ 9,808 NTPD

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

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy	
1	0004	01	"A" Blast Furnace Stoves - BFG	5.28	lb/MMcf	22,774	MMcf	60.12	Included in Line 20	-	-	-	
2	0009	01	"B" Blast Furnace Stoves - BFG	5.28	lb/MMcf	22,203	MMcf	58.62	Included in Line 20	-	-	-	
3	0008	01	Blast Furnace Gas Flare - BFG	5.28	lb/MMcf	26,132	MMcf	68.99	Included in Line 20	-	-	-	
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	5.28	lb/MMcf	37,501	MMcf	99.00	Included in Line 20	-	-	-	
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	306	lb/MMcf	361	MMcf	55.23	Included in Line 19	-	-	-	
6	0044	01	Boiler #11 - BFG	5.28	lb/MMcf	5,323	MMcf	14.05	Included in Line 20	-	-	-	
7	0044	91	Boiler #11 - NG	306	lb/MMcf	226	MMcf	34.58	Included in Line 19	-	-	-	
8	0044	92	Boiler #11 - Fuel Oil	55	lb/Mgal	15.00	Mgal	0.41	Included in Line 21	-	-	-	
9	0048	01	Boiler #12 - BFG	5.28	lb/MMcf	7,106	MMcf	18.76	Included in Line 20	-	-	-	
10	0048	91	Boiler #12 - NG	306	lb/MMcf	218	MMcf	33.35	Included in Line 19	-	-	-	
11	0048	92	Boiler #12 - Fuel Oil	55	lb/Mgal	1.00	Mgal	0.03	Included in Line 21	-	-	-	
12	0033	01	BOF 2 Vessels	0.0389	lb/ton proc.	2,413,406	tons proc.	46.94	3,580,000	ton proc.	69.63	X -	+22.69
13	0038	01	BOF Preheaters/Dryers - NG	306	lb/MMcf	283	MMcf	43.30	Included in Line 19	-	-	-	
14	0007 & 0012	01	"A" & "B" Blast Furnace - Casthouse	0.01440	lb/ton proc.	2,059,557	tons proc.	14.83	3,165,000	tons proc.	22.79	X -	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	-	-	-	60.21
18			Natural Gas	306	lb/MMcf	1,145	MMcf	inc. above	1,145	MMcf	175.19	-	
19			Blast Furnace Gas	5.28	lb/MMcf	121,039	MMcf	inc. above	185,030	MMcf	488.48	+168.54	52.3%
20			Fuel Oil	55	lb/Mgal	16	Mgal	inc. above	365	Mgal	10.04	+ 9.59	
	TOTALS:							618.01			856.76	238.75	229.15
			Contemperaneous Changes									(200.54)	
			Net Change									***38.21***	

+15%

R006536

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

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

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	5.28	lb/MMcf	22,774	MMcf	60.12	Included in Line 20	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	5.28	lb/MMcf	22,203	MMcf	58.62	Included in Line 20	-	-	-
3	0008	01	Blast Furnace Gas Flare - BFG	5.28	lb/MMcf	26,132	MMcf	68.99	Included in Line 20	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	5.28	lb/MMcf	37,501	MMcf	99.00	Included in Line 20	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	306	lb/MMcf	361	MMcf	55.23	Included in Line 19	-	-	-
6	0044	01	Boiler #11 - BFG	5.28	lb/MMcf	5,323	MMcf	14.05	Included in Line 20	-	-	-
7	0044	91	Boiler #11 - NG	306	lb/MMcf	226	MMcf	34.58	Included in Line 19	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	55	lb/Mgal	15.00	Mgal	0.41	Included in Line 21	-	-	-
9	0048	01	Boiler #12 - BFG	5.28	lb/MMcf	7,106	MMcf	18.76	Included in Line 20	-	-	-
10	0048	91	Boiler #12 - NG	306	lb/MMcf	218	MMcf	33.35	Included in Line 19	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	55	lb/Mgal	1.00	Mgal	0.03	Included in Line 21	-	-	-
12	0033	01	BOF 2 Vessels	0.0389	lb/ton proc.	2,413,408	tons proc.	46.94	3,580,000	ton proc.	69.63	-
13	0038	01	BOF Preheaters/Dryers - NG	306	lb/MMcf	283	MMcf	43.30	Included in Line 19	-	-	-
14	0007 & 0012	01	"A" & "B" Blast Furnace - Casthouse	0.01440	lb/ton proc.	2,059,557	tons proc.	14.83	3,165,000	tons proc.	22.79	-
15	0005 & 0010	01	"A" & "B" Blast Furnace - Unceptured 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	306	lb/MMcf	57	MMcf	8.72	Included in Line 19	-	-	-
18			Natural Gas	306	lb/MMcf	1,145	MMcf	inc. above	1,145	MMcf	175.19	-
19			Blast Furnace Gas	5.28	lb/MMcf	121,039	MMcf	inc. above	185,030	MMcf	488.48	-
20			Fuel Oil	55	lb/Mgal	16	Mgal	inc. above	365	Mgal	10.04	-
	TOTALS:							618.01			856.76	238.75
			Contemperaneous Changes								(260.54)	(208.14)
			Net Change								(38.21)	-30.61

R006537

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

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

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy	COMMENTS
1	0004	01	"A" Blast Furnace Stoves - BFG	6.65	lb/MMcf	22,774	MMcf	75.72	Included in line 19	-	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	6.65	lb/MMcf	22,203	MMcf	73.82	Included in line 19	-	-	-	-
3	0008	01	Blast Furnace Gas Flare - BFG	6.65	lb/MMcf	26,132	MMcf	86.89	Included in line 19	-	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	6.65	lb/MMcf	37,501	MMcf	124.69	Included in line 19	-	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	0.6	lb/MMcf	361	MMcf	0.11	Included in line 19	-	-	-	-
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 19	-	-	-	-
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 19	-	-	-	-
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 19	-	-	-	-
13	0007 & 0012	01	"A & B" Blast Furnace - Casthouse	0.2006	lb/ton proc.	2,059,557	tons proc.	206.57	3,165,000	tons proc.	422.00	215.43	Est. Annual Max
14	0005 & 0010	01	"A & B" Blast Furnace - Uncap. roof	0.0104	lb/ton proc.	2,059,557	tons proc.	10.71	3,165,000	tons proc.	21.94	11.23	Est. Annual Max
15	---	--	Iron Spout Baghouse	0.0073	lb/ton proc.	2,059,557	tons proc.	7.52	3,165,000	tons proc.	13.89	6.37	Est. Annual Max
16	113	1	Blast Furnace Slag Pits	0.0100	lb/ton	2,059,557	tons proc.	10.30	3,165,000	tons proc.	15.83	5.53	
17	0071 & 0119	01	Continuous Casters #1 & #2 - NG	0.6	lb/MMcf	57	MMcf	0.02	Included in line 18	-	-	-	
18			Natural Gas	0.6	lb/MMcf	1,145	MMcf	-	1,145	MMcf	0.34	0.00	
19			Blast Furnace Gas	6.65	lb/MMcf	121,039	MMcf	-	185,030	MMcf	615.22	212.77	
20			Fuel Oil	141.3	lb/Mgal	16	Mgal	-	365	Mgal	25.79	24.66	
	TOTALS:							639.03			1,115.01	475.98	
			Contemporaneous Changes									(0.13)	
			Net Change									***475.85***	

R006538

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

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

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy	COMMENTS
1	0004	01	"A" Blast Furnace Stoves - BFG	6.65	lb/MMcf	22,774	MMcf	75.72	included in line 19	-	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	6.65	lb/MMcf	22,203	MMcf	73.82	included in line 19	-	-	-	-
3	0008	01	Blast Furnace Gas Flare - BFG	6.65	lb/MMcf	26,132	MMcf	86.89	included in line 19	-	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	6.65	lb/MMcf	37,501	MMcf	124.69	included in line 19	-	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	0.6	lb/MMcf	361	MMcf	0.11	included in line 18	-	-	-	-
6	0044	01	Boiler #11 - BFG	6.65	lb/MMcf	5,323	MMcf	17.70	included in line 19	-	-	-	-
7	0044	91	Boiler #11 - NG	0.6	lb/MMcf	226	MMcf	0.07	included in line 18	-	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	141.3	lb/Mgal	15.00	Mgal	1.06	included in line 20	-	-	-	-
9	0048	01	Boiler #12 - BFG	6.65	lb/MMcf	7,106	MMcf	23.63	included in line 19	-	-	-	-
10	0048	91	Boiler #12 - NG	0.6	lb/MMcf	218	MMcf	0.07	included in line 18	-	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	141.3	lb/Mgal	1.00	Mgal	0.07	included in line 20	-	-	-	-
12	0038	01	BOF Preheaters/Dryers - NG	0.6	lb/MMcf	283	MMcf	0.08	included in line 18	-	-	-	-
13	0007 & 0012	01	"A & B" Blast Furnace - Casthouse	0.2006	lb/ton proc.	2,059,557	tons proc.	206.57	3,165,000	tons proc.	422.00	215.43	Est. Annual Max
14	0005 & 0010	01	"A & B" Blast Furnace - Uncap. roof	0.0104	lb/ton proc.	2,059,557	tons proc.	10.71	3,165,000	tons proc.	21.94	11.23	Est. Annual Max
15	—	—	Iron Spout Baghouse	0.0073	lb/ton proc.	2,059,557	tons proc.	7.52	3,165,000	tons proc.	13.89	6.37	Est. Annual Max
16	113	1	Blast Furnace Slag Pits	0.0100	lb/ton	2,059,557	tons proc.	10.30	3,165,000	tons proc.	15.83	5.53	
17	0071 & 0119	01	Continuous Casters #1 & #2 - NG	0.6	lb/MMcf	57	MMcf	0.02	included in line 18	-	-	-	
18			Natural Gas	0.6	lb/MMcf	1,145	MMcf	-	1,145	MMcf	0.34	0.00	
18			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			1,116.01	475.98	
			Contemporaneous Changes								(0.13) ~~(0.18)~~		
			Net Change								475.85 ~~475.80~~		

R006539

Projected Emissions Based On: Blast Furnace @ 8,571NTPD
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
1	0004	01	"A" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
3	0008	01	Blast Furnace Gas Flare - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
6	0044	01	Boiler #11 - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
7	0044	91	Boiler #11 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
8	0044	92	Boiler #11 - Fuel Oil	9.72	lb/Mgal	Included in line 40	Mgal	-	Included in line 40	-			-	-
9	0048	01	Boiler #12 - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
10	0048	91	Boiler #12 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
11	0048	92	Boiler #12 - Fuel Oil	9.72	lb/Mgal	Included in line 48	Mgal	-	Included in line 48	-			-	-
12	0033	01	BOF 2 Vessels	0.16	lb/ton proc.	2,413,406	tons proc.	193.07	8,760	hours	60	lbs/hr	262.80	69.73
13	0038	01	BOF Preheaters/Dryers - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
14	0005 & 0010	01	"A" & "B" Blast Furnace - Uncap. Fugitives	0.0155	lb/ton proc.	2,059,557	tons proc.	15.96	3,165,000	tons proc.			24.53	8.57
15	0006 & 0011	01	"A" & "B" Blast Furnace - Charging	0.0024	lb/ton pellets charged	2,803,241	tons proc.	3.36	4,308,581	tons proc.			5.17	1.81
16	0007 & 0012	01	"A" & "B" Blast Furnace - Baghouse Stack	0.0703	lb/ton proc.	2,059,557	tons proc.	72.35	3,165,000	tons proc.			111.19	38.83
17	0034	01	BOF Roof Monitor	0.287	lb/ton proc.	2,413,406	tons proc.	346.20	3,580,000	tons proc.	0.066144		118.40	(227.81)
18	0037	01	Flux Conv. & Xfer Pts., Bin Floor - BOF	0.0016	lb/ton proc.	2,413,406	tons proc.	1.93	3,580,000	tons proc.			2.86	0.93
19	0040	01	Hot Metal Chging Ladle Slag Skimmer	0.0050	lb/ton proc.	2,059,557	tons proc.	5.17	3,165,000	tons proc.			7.94	2.77

R006540

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

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

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED EMISSION FACTOR	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
3	0008	01	Blast Furnace Gas Flare - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
6	0044	01	Boiler #11 - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
7	0044	91	Boiler #11 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
8	0044	92	Boiler #11 - Fuel Oil	9.72	lb/Mgal	Included in line 40	Mgal	-	Included in line 40	-			-	-
9	0048	01	Boiler #12 - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
10	0048	91	Boiler #12 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
11	0048	92	Boiler #12 - Fuel Oil	9.72	lb/Mgal	Included in line 49	Mgal	-	Included in line 48	-			-	-
12	0033	01	BOF 2 Vessels	0.16	lb/ton proc.	2,413,406	tons proc.	193.07	8,760	hours	60	lbs/hr	262.80	69.73
13	0038	01	BOF Preheaters/Dryers - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
14	0005 & 0010	01	"A" & "B" Blast Furnace - Uncap. Fugitives	0.0155	lb/ton proc.	2,059,557	tons proc.	15.96	3,165,000	tons proc.			24.53	8.57
15	0006 & 0011	01	"A" & "B" Blast Furnace - Charging	0.0024	lb/ton pellets charged	2,803,241	tons proc.	3.36	4,308,581	tons proc.			5.17	1.81
16	0007 & 0012	01	"A" & "B" Blast Furnace - Baghouse Stack	0.0703	lb/ton proc.	2,059,557	tons proc.	72.35	3,165,000	tons proc.			111.19	38.83
17	0034	01	BOF Roof Monitor	0.287	lb/ton proc.	2,413,406	tons proc.	346.20	3,580,000	tons proc.	0.066144		118.40	(227.81)
18	0037	01	Flux Conv. & Xfer Pts., Bin Floor - BOF	0.0016	lb/ton proc.	2,413,406	tons proc.	1.93	3,580,000	tons proc.			2.86	0.93
19	0040	01	Hot Metal Chging Ladle Slag Skimmer	0.0050	lb/ton proc.	2,059,557	tons proc.	5.17	3,165,000	tons proc.			7.94	2.77

R006541

Projected Emissions Based On: Blast Furnace @ 8,071NTPD
BOF @ 9,808 NTPD

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

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED EMISSION FACTOR	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
20	0070 & 0120	01	Caster Mold - Casters #1 & #2	0.006	lb/ton prod.	2,413,406	tons prod.	7.24	3,580,000	ton prod.			10.74	3.50
21	0071 & 0119	01	Cont. Casters #1 & #2 - Spray Chamber	0.00852	lb/ton proc.	2,413,406	tons prod.	10.28	3,580,000	ton prod.			15.25	4.97
22	0071 & 0119	01	Continuous Casters #1 & #2 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
23	0072 & 0118	01	Slab Cutoff - Casters #1 & #2	0.0071	lb/ton proc.	2,413,406	tons prod.	8.57	3,580,000	ton prod.			12.71	4.14
	73	1	Slab Ripping - Casters #1 & #2	0.00722	lb/ton proc.	2,413,406	tons prod.	8.71	3,580,000	ton prod.			12.92	4.21
25	0103, 0104 & 0121	01	LMF Argon Stirring #1 & #2, Material Handling Tripper	0.00715	lb/ton proc.	2,413,406	tons prod.	8.63	3,580,000	ton prod.			12.80	4.17
26	0105 & 0106	01	Deslagging Station & Material HS	0.00355	lb/ton proc.	2,413,406	tons prod.	4.28	3,580,000	ton prod.			6.35	2.07
27			BOF Hopper Baghouse	0.00032	lb/ton proc.	2,413,406	tons proc.	0.39	3,580,000	tons proc.			0.57	0.18
28	0107 & 0035	01	Desulf. Station (inside BOF shop) & Xfer Pit	0.03721	lb/ton proc.	2,059,557	tons prod.	38.32	3,165,000	ton prod.			58.88	20.57
29	0113	01	Blast Furnace Slag Pits	0.00417	lb/ton proc.	2,059,557	tons slag	4.29	3,165,000	ton prod.			6.60	2.30
30	9003	01	Iron Pellet Screen	0.00279	lb/ton pellets charged	2,803,241	tons proc.	3.91	4,308,581	tons proc.			6.01	2.10
31		01	Iron Spout Baghouse	0.02548	lb/ton proc.	2,059,557	tons proc.	26.24	3,165,000	tons proc.			40.32	14.08
32			Road Fugitive Emissions	Included in Contemporaneous Changes. See Appendix F						-				0.00
33			Material Handling	Included in Contemporaneous Changes. See Appendix F						-				0.00
34			Unpaved Parking Lots					-		-			-	-
35			Paved Parking Lots					-		-			-	-
36			Natural Gas	5.1	lb/MMcf	1,145	MMcf	2.92	1,145	MMcf			2.92	0.00
37			Blast Furnace Gas	2.9	lb/MMcf	121,039	MMcf	175.51	185,030	MMcf			268.29	92.79
38			Fuel Oil	9.72	lb/Mgal	16	Mgal	0.08	365	Mgal			1.77	1.70
	TOTALS:							937.42					989.04	51.62
			Contemporaneous Changes											(37.31)
			Net Change											*14.31*

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

Projected Actual Emissions = Projected Throughput * Emission Factor / 2000
except -
BOF Vessels Projected Actual Emissions = 60 lb/hr * 8760 hrs
BOF Roof Monitor Projected Actual Emissions = Projected Emission Factor * Projected Throughput

R006542

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

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

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED EMISSION FACTOR	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
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 Beghouse	0.00032	lb/ton proc.	2,413,406	tons proc.	0.39	3,580,000	tons proc.			0.57	0.18
28	0107 & 0035	01	Desulf. Station (inside BOF shop) & Xfer Pit	0.03721	lb/ton proc.	2,059,557	tons prod.	38.32	3,165,000	ton prod.			58.88	20.57
29	0113	01	Blast Furnace Slag Pits	0.00417	lb/ton proc.	2,059,557	tons slag	4.29	3,165,000	ton prod.			6.60	2.30
30	9003	01	Iron Pellet Screen	0.00279	lb/ton pellets charged	2,803,241	tons proc.	3.91	4,308,581	tons proc.			6.01	2.10
31		01	Iron Spout Beghouse	0.02548	lb/ton proc.	2,059,557	tons proc.	26.24	3,165,000	tons proc.			40.32	14.08
32			Road Fugitive Emissions	Included in Contemporaneous Changes. See Appendix F						-				0.00
33			Material Handling	Included in Contemporaneous Changes. See Appendix F						-				0.00
34			Unpaved Parking Lots					-		-			-	-
35			Paved Parking Lots					-		-			-	-
36			Natural Gas	5.1	lb/MMcf	1,145	MMcf	2.92	1,145	MMcf			2.92	0.00
37			Blast Furnace Gas	2.9	lb/MMcf	121,039	MMcf	175.51	185,030	MMcf			268.29	92.79
38			Fuel Oil	9.72	lb/Mgal	16	Mgal	0.08	365	Mgal			1.77	1.70
	TOTALS:							937.42					989.04	51.62
			Contemporaneous Changes											37.16 (37.54)
			Net Change											14.46 74.08

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

R006543

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

Projected Emissions Based On: Blast Furnace @ 1,971NTPD
BOF @ 9,808 NTPD

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED EMISSION FACTOR	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
3	0008	01	Blast Furnace Gas Flare - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	5.1	lb/MMcf	Included in line 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 39	-			-	-
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	0006 & 0010	01	"A" & "B" Blast Furnace - Uncap. Fugitives	0.031	lb/ton proc.	2,059,557	tons proc.	31.92	3,165,000	tons proc.			49.06	17.13
15	0006 & 0011	01	"A" & "B" Blast Furnace - Charging	0.0024	lb/ton pellets charged	2,803,241	tons proc.	3.36	4,308,581	tons proc.			5.17	1.81
16	0007 & 0012	01	"A" & "B" Blast Furnace - Baghouse Stack	0.0703	lb/ton proc.	2,059,557	tons proc.	72.35	3,165,000	tons proc.			111.19	38.83
17	0034	01	BOF Roof Monitor	0.428	lb/ton proc.	2,413,406	tons proc.	516.72	3,580,000	tons proc.	0.0987		176.71	(340.01)
18	0037	01	Flux Conv. & Xfer Pts., Bin Floor - BOF	0.0016	lb/ton proc.	2,413,406	tons proc.	1.93	3,580,000	tons proc.			2.86	0.93
19	0040	01	Hot Metal Chging Ladle Slag Skimmer	0.0050	lb/ton proc.	2,059,557	tons proc.	5.17	3,165,000	tons proc.			7.94	2.77

R006544

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

Projected Emissions Based On: Blast Furnace @ 8,971NTPD
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	0.00365	lb/ton proc.	2,413,406	tons prod.	4.28	3,580,000	ton prod.			6.35	2.07
27			BOF Hopper Baghouse	0.00032	lb/ton proc.	2,413,406	tons proc.	0.39	3,580,000	tons proc.			0.57	0.18
28	0107 & 0035	01	Desulf. Station (inside BOF shop) & Xfer Pit	0.03721	lb/ton proc.	2,059,557	tons prod.	38.32	3,165,000	ton prod.			58.88	20.57
29	0113	01	Blast Furnace Slag Pits	0.00417	lb/ton proc.	2,059,557	tons slag	4.29	3,165,000	ton prod.			6.60	2.30
30	9003	01	Iron Pellet Screen	0.00279	lb/ton pellets charged	2,803,241	tons proc.	3.91	4,308,581	tons proc.			6.01	2.10
31		01	Iron Spout Baghouse	0.02548	lb/ton proc.	2,059,557	tons proc.	26.24	3,165,000	tons proc.			40.32	14.08
32			Road Fugitive Emissions	Included in Contemporaneous Changes. See Appendix F						-				0.00
33			Material Handling	Included in Contemporaneous Changes. See Appendix F						-				0.00
34			Unpaved Parking Lots					-		-			-	-
35			Paved Parking Lots					-		-			-	-
36			Natural Gas	5.1	lb/MMcf	1,145	MMcf	2.92	1,145	MMcf			2.92	0.00
37			Blast Furnace Gas	2.9	lb/MMcf	121,039	MMcf	175.51	185,030	MMcf			268.29	92.79
38			Fuel Oil	9.72	lb/Mgal	16	Mgal	0.08	365	Mgal			1.77	1.70
	TOTALS:							1,123.90					1,071.89	(52.01)
			Contemporaneous Changes											(37.16)
			Net Change											*(89.17)*

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

Projected Actual Emissions = Projected Throughput * Emission Factor / 2000
except -
BOF Vessels Projected Actual Emissions = 60 lb/hr * 8760 hrs
BOF Roof Monitor Projected Actual Emissions = Projected Emission Factor * Projected Throughput

R006545

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

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

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED EMISSION FACTOR	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
3	0008	01	Blast Furnace Gas Flare - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
6	0044	01	Boiler #11 - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
7	0044	91	Boiler #11 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
8	0044	92	Boiler #11 - Fuel Oil	9.72	lb/Mgal	Included in line 40	Mgal	-	Included in line 40	-			-	-
9	0048	01	Boiler #12 - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
10	0048	91	Boiler #12 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
11	0048	92	Boiler #12 - Fuel Oil	9.72	lb/Mgal	Included in line 48	Mgal	-	Included in line 48	-			-	-
12	0033	01	BOF 2 Vessels	0.16	lb/ton proc.	2,413,406	tons proc.	193.07	8,760	hours	60	lbs/hr	262.80	69.73
13	0038	01	BOF Preheaters/Dryers - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
14	0005 & 0010	01	"A" & "B" Blast Furnace - Uncap. Fugitives	.03 0.0155	lb/ton proc.	2,059,557	tons proc.	15.96	3,165,000	tons proc.			24.53	8.57
15	0006 & 0011	01	"A" & "B" Blast Furnace - Charging	0.0024	lb/ton pellets charged	2,803,241	tons proc.	3.36	4,308,581	tons proc.			5.17	1.81
16	0007 & 0012	01	"A" & "B" Blast Furnace - Baghouse Stack	0.0703	lb/ton proc.	2,059,557	tons proc.	72.35	3,165,000	tons proc.			111.19	38.83
17	0034	01	BOF Roof Monitor	0.428	lb/ton proc.	2,413,406	tons proc.	516.72	3,580,000	tons proc.	0.0987		176.71	(340.01)
18	0037	01	Flux Conv. & Xfer Pts., Bin Floor - BOF	0.0016	lb/ton proc.	2,413,406	tons proc.	1.93	3,580,000	tons proc.			2.86	0.93
19	0040	01	Hot Metal Chging Ladle Slag Skimmer	0.0050	lb/ton proc.	2,059,557	tons proc.	5.17	3,165,000	tons proc.			7.94	2.77

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

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

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED EMISSION FACTOR	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
20	0070 & 0120	01	Caster Mold - Casters #1 & #2	0.006	lb/ton prod.	2,413,406	tons prod.	7.24	3,580,000	ton prod.			10.74	3.50
21	0071 & 0119	01	Cont. Casters #1 & #2 - Spray Chamber	0.00852	lb/ton proc.	2,413,406	tons prod.	10.28	3,580,000	ton prod.			15.25	4.97
22	0071 & 0119	01	Continuous Casters #1 & #2 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
23	0072 & 0118	01	Slab Cutoff - Casters #1 & #2	0.0071	lb/ton proc.	2,413,406	tons prod.	8.57	3,580,000	ton prod.			12.71	4.14
	73	1	Slab Ripping - Casters #1 & #2	0.00722	lb/ton proc.	2,413,406	tons prod.	8.71	3,580,000	ton prod.			12.92	4.21
25	0103, 0104 & 0121	01	Argon Stirring #1 & #2, Material Handling Tripper	0.00715	lb/ton proc.	2,413,406	tons prod.	8.63	3,580,000	ton prod.			12.80	4.17
26	0105 & 0106	01	Deslagging Station & Material HS	0.00355	lb/ton proc.	2,413,406	tons prod.	4.28	3,580,000	ton prod.			6.35	2.07
27			BOF Hopper Baghouse	0.00032	lb/ton proc.	2,413,406	tons proc.	0.39	3,580,000	tons proc.			0.57	0.18
28	0107 & 0035	01	Desulf. Station (inside BOF shop) & Xfer Pit	0.03721	lb/ton proc.	2,059,557	tons prod.	38.32	3,165,000	ton prod.			58.88	20.57
29	0113	01	Blast Furnace Slag Pits	0.00417	lb/ton proc.	2,059,557	tons slag	4.29	3,165,000	ton prod.			6.60	2.30
30	9003	01	Iron Pellet Screen	0.00279	lb/ton pellets charged	2,803,241	tons proc.	3.91	4,308,581	tons proc.			6.01	2.10
31		01	Iron Spout Baghouse	0.02548	lb/ton proc.	2,059,557	tons proc.	26.24	3,165,000	tons proc.			40.32	14.08
32			Road Fugitive Emissions	Included in Contemporaneous Changes. See Appendix F						-				0.00
33			Material Handling	Included in Contemporaneous Changes. See Appendix F						-				0.00
34			Unpaved Parking Lots					-		-			-	-
35			Paved Parking Lots					-		-			-	-
36			Natural Gas	5.1	lb/MMcf	1,145	MMcf	2.92	1,145	MMcf			2.92	0.00
37			Blast Furnace Gas	2.9	lb/MMcf	121,039	MMcf	175.51	185,030	MMcf			268.29	92.79
38			Fuel Oil	9.72	lb/Mgal	16	Mgal	0.08	365	Mgal			1.77	1.70
	TOTALS:							1,107.94					1,047.36	(60.58)
			Contemporaneous Changes										(37.16)	(37.39)
			Net Change										(97.74)	(97.97)

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

Projected Actual Emissions = Projected Throughput * Emission Factor / 2000
except -
BOF Vessels Projected Actual Emissions = 60 lb/hr * 8760 hrs
BOF Roof Monitor Projected Actual Emissions = Projected Emission Factor * Projected Throughput

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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	0.0948	lb/ton proo.	2,059,557	tons proc.	97.40	3,165,000	tons proc.	149.88	-
14	0005 & 0010	01	"A & B" Blast Furnace - Uncap. roof	0.0047	lb/ton proo.	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 proo.	2,059,557	tons proc.	1.03	3,165,000	tons proc.	1.58	-
17	0071 & 0119	01	Continuous Casters #1 & #2 - NG	2.8	lb/MMcf	57	MMcf	0.08	included in line 17	-	-	-
18			Natural Gas	2.8	lb/MMcf	-	MMcf	-	1,145	MMcf	1.60	-
19			Blast Furnace Gas	0.0	lb/MMcf	-	MMcf	-	185,030	MMcf	0.00	-
20			Fuel Oil	0.28	lb/Mgal	-	Mgal	-	365	lb/Mgal	0.05	-
	TOTALS:							111.80			171.08	59.28
			Contemporaneous Changes									(31.23)
			Net Change									***28.05***

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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	28,132	MMcf	0.00	included in line 18	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	0.0	lb/MMcf	37,501	MMcf	0.00	included in line 18	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	2.8	lb/MMcf	361	MMcf	0.51	included in line 17	-	-	-
6	0044	01	Boiler #11 - BFG	0.0	lb/MMcf	5,323	MMcf	0.00	included in line 18	-	-	-
7	0044	91	Boiler #11 - NG	1.4	lb/MMcf	226	MMcf	0.16	included in line 17	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	0.28	lb/Mgal	15.00	Mgal	0.00	included in line 19	-	-	-
9	0048	01	Boiler #12 - BFG	0.0	lb/MMcf	7,106	MMcf	0.00	included in line 18	-	-	-
10	0048	91	Boiler #12 - NG	1.4	lb/MMcf	218	MMcf	0.15	included in line 17	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	0.28	lb/Mgal	1.00	Mgal	0.00	included in line 19	-	-	-
12	0033	01	BOF Preheaters/Dryers - NG	2.8	lb/MMcf	283	MMcf	0.40	included in line 17	-	-	-
13	0007 & 0012	01	"A & B" Blast Furnace - Casthouse	0.0946	lb/ton proc.	2,059,557	tons proc.	97.40	3,165,000	tons proc.	149.68	-
14	0005 & 0010	01	"A & B" Blast Furnace - Uncap. roof	0.0047	lb/ton proc.	2,059,557	tons proc.	4.83	3,165,000	tons proc.	7.42	-
15	0033	01	2 BOF Vessels	0.0060	lb/ton proc.	2,413,406	tons proc.	7.24	3,580,000	tons proc.	10.74	-
16	0035	01	Transfer Pits	0.0010	lb/ton proc.	2,059,557	tons proc.	1.03	3,165,000	tons proc.	1.58	-
17	0071 & 0119	01	Continuous Casters #1 & #2 - NG	2.8	lb/MMcf	57	MMcf	0.08	included in line 17	-	-	-
18			Natural Gas	2.8	lb/MMcf	-	MMcf	-	1,145	MMcf	1.60	-
19			Blast Furnace Gas	0.0	lb/MMcf	-	MMcf	-	185,030	MMcf	0.00	-
20			Fuel Oil	0.28	lb/Mgal	-	Mgal	-	365	lb/Mgal	0.05	-
	TOTALS:							111.80			171.08	59.28
			Contemporaneous Changes									(31.23) (31.70)
			Net Change									28.05 ~~27.58~~

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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.	0.00361512	-
8	0012	01	"B" Blast Furnace - Baghouse Stack	0.00021400	lb/hr	0.00021400	8360	hours	0.0009	1.537	tons proc.	0.00144066	-
9	0033	01	BOF 2 Vessels Stack	0.19337500	lb/hr	0.19337500	8760	hours	0.8470	1.483	tons prod.	1.25607505	0.3855
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	0.00002250	lb/hr	0.00002250	8760	hours	0.0001	1.483	tons prod.	0.00014615	-
14	0103	01	Argon Stirring #1 & #2	0.00020200	lb/hr	0.00020200	8760	hours	0.0009	1.483	tons prod.	0.00131210	-
15	0105	01	Deslagging Station	0.00240000	lb/hr	0.00240000	8760	hours	0.0105	1.483	tons prod.	0.01558930	-
16	0107	01	Desulf. Station (inside BOF shop)	0.01330000	lb/hr	0.01330000	8760	hours	0.0583	1.483	tons prod.	0.08639068	-
17	0120	01	Caster Mold - Casters	0.00113000	lb/hr	0.00113000	8760	hours	0.0049	1.483	tons prod.	0.00733996	-
18			Boilers -Waste Oil	0.33600000	lb/Mgals		-	-	-	365	Mgals	0.06132000	-
	TOTAL					0.26			0.988			1.627	0.539
			Contemporaneous Changes										0.000
			Net Change										*0.539*

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Appendix B – Emissions Calculations

Updated Emissions Calculations for the 1996 Construction Permit Revision Application

USS Granite City
Revised PM Actual

Point	Emission Point	Past Throughput	Units	Pollutant	Original Emission Factor	Updated Emission Factor	Units	Basis	Original Baseline Emissions (TPY)	Revised Baseline Emissions (TPY)
0005 & 0010	A & B Blast Furnace Casthouse Fugitives	2,059,557	tons of hot metal/year	PM	0.031	0.031	lb/ton of hot metal	No change	31.92	31.92
0006 & 0011	A & B Blast Furnace Charging	2,803,241	tons of charge material/year	PM	0.0024	0.0024	lb/ton of material	No change	3.36	3.36
0007 & 0012	A & B Blast Furnace Casthouse Baghouse	2,059,557	tons of hot metal/year	PM	0.07026	0.07026	lb/ton of hot metal	No change	72.35	72.35
113	Blast Furnace Slag Pits	2,059,557	tons of hot metal/year	PM	0.00417	0.00417	lb/ton of hot metal	No change	4.29	4.29
	Iron Spout Baghouse	2,059,557	tons of hot metal/year	PM	0.02548	0.02548	lb/ton of hot metal	No change	26.24	26.24
	Blast Furnace Operations			PM					138.17	138.17
0033	BOF 2 Vessels	2,413,406	tons of molten steel/year	PM	0.16	0.16	lb/ton of steel	No change	193.07	193.07
0034	BOF Roof Monitor	2,413,406	tons of molten steel/year	PM	0.428	0.428	lb/ton of steel	No change	516.72	516.72
0107 & 0035	Desulfurization Station (inside BOF shop) & Transfer Pit	2,059,557	tons of hot metal/year	PM	0.03721	0.03721	lb/ton of hot metal	No change	38.32	38.32
0040	Hot Metal Charging Ladle Slag Skimmer	2,059,557	tons of hot metal/year	PM	0.00502	0.00502	lb/ton of hot metal	No change	5.17	5.17
	BOF Shop			PM					753.28	753.28
0103, 0104 & 0121	Argon Stirring #1 & #2 Material Handling Tripper	2,413,406	tons of molten steel/year	PM	0.00715	0.00715	lb/ton of steel	No change	8.63	8.63
0105 & 0106	Deslagging Station & Material HS	2,413,406	tons of molten steel/year	PM	0.00355	0.00355	lb/ton of steel	No change	4.28	4.28
0070 & 0120	Caster Mold - Casters #1 & #2	2,413,406	tons of molten steel/year	PM	0.006	0.006	lb/ton of steel	No change	7.24	7.24
0071 & 0119	Continuous Casters #1 & #2 - Spray Chamber	2,413,406	tons of molten steel/year	PM	0.00852	0.00852	lb/ton of steel	No change	10.28	10.28
0072 & 0118	Slab Cutoff Casters #1 & #2	2,413,406	tons of molten steel/year	PM	0.0071	0.0071	lb/ton of steel	No change	8.57	8.57
73	Slab Ripping Casters #1 & #2	2,413,406	tons of molten steel/year	PM	0.00722	0.00722	lb/ton of steel	No change	8.71	8.71
	Continuous Casting Operations			PM					47.71	47.71
	Combined BFG in stoves, B11 & B12, ladle preheaters, and BFG flares	121,039	MMcf	PM	2.90	2.90	lb/MMcf	No change	175.51	175.51
	Combined NG in stoves, B11 & B12, ladle preheaters, and BFG flares	1,145	MMcf	PM	5.10	1.90	lb/MMcf	AP-42 Revised Filt. PM Factor	2.92	1.09
	Combined FO in stoves, B11 & B12, ladle preheaters, and BFG flares	16	Mgal	PM	9.72	9.72	lb/Mgal	No change	0.08	0.08
	Certain Fuel Burning Emissions Units			PM					178.51	176.68
9003	Iron Pellet Screen	2,803,241	tons of charge material/year	PM	0.00279	0.00375	lb/ton of material	85% control to crushed stone screen EF in AP-42 Table 11.19.2-2	3.91	5.26
	BOF Hopper Baghouse	2,413,406	tons of molten steel/year	PM	0.00032	0.00032	lb/ton of steel	No change	0.39	0.39
0037	Flux Conv. & Transfer Points Bin Floor - BOF	2,413,406	tons of molten steel/year	PM	0.0016	0.0016	lb/ton of steel	No change	1.93	1.93
	Material Handling Operations at BF and BOF			PM					6.23	7.57
				Total PM					1,123.90	1,123.42

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USS Granite City
Revised PM Analysis

Point	Emission Point	Past Throughput	Future Throughput	Units	Pollutant	Updated Emission Factor	Future Emission Factor	Units	Basis	Baseline Emissions (TPY)	Future Emissions (TPY)	Emissions Increase (TPY)	Emissions Change (TPY)
0005 & 0010	A & B Blast Furnace Casthouse Fugitives	2,059,557	3,165,000	tons of hot metal/year	PM	0.031	0.031	lb/ton of hot metal	No change	31.92	49.06	57.77	
0006 & 0011	A & B Blast Furnace Charging	2,803,241	4,308,581	tons of charge material/year	PM	0.0024	0.0024	lb/ton of material	No change	3.36	5.17		
0007 & 0012	A & B Blast Furnace Casthouse Baghouse	2,059,557	3,165,000	tons of hot metal/year	PM	0.07026	0.07026	lb/ton of hot metal	No change	72.35	111.19		
113	Blast Furnace Slag Pits	2,059,557	3,165,000	tons of hot metal/year	PM	0.00417	0.00417	lb/ton of hot metal	No change	4.29	6.60	2.30	
	Iron Spout Baghouse	2,059,557	3,165,000	tons of hot metal/year	PM	0.02548	0.02548	lb/ton of hot metal	No change	26.24	40.32	14.08	
	Blast Furnace Operations				PM					138.17	212.34		74.16
0033	BOF 2 Vessels	2,413,406	3,580,000	tons of molten steel/year	PM	0.16	0.16	lb/ton of steel	Using 60 lb/hour for PTE	193.07	262.80	0.00	
0034	BOF Roof Monitor	2,413,406	3,580,000	tons of molten steel/year	PM	0.428	0.099	lb/ton of steel	No change (as in original application post-project EF lower than pre-project EF)	516.72	176.67		
0107 & 0035	Desulfurization Station [inside BOF shop] & Transfer Pit	2,059,557	3,165,000	tons of hot metal/year	PM	0.03721	0.03721	lb/ton of hot metal	No change	38.32	58.88	20.57	
0040	Hot Metal Charging Ladle Slag Skimmer	2,059,557	3,165,000	tons of hot metal/year	PM	0.00502	0.00502	lb/ton of hot metal	No change	5.17	7.94	2.77	
	BOF Shop				PM					753.28	506.30		-246.98
0103, 0104 & 0121	Argon Stirring #1 & #2 Material Handling Tripper	2,413,406	3,580,000	tons of molten steel/year	PM	0.00715	0.00715	lb/ton of steel	No change	8.63	12.80	4.17	
0105 & 0106	Deslagging Station & Material HS	2,413,406	3,580,000	tons of molten steel/year	PM	0.00355	0.00355	lb/ton of steel	No change	4.28	6.35	2.07	
0070 & 0120	Caster Mold - Casters #1 & #2	2,413,406	3,580,000	tons of molten steel/year	PM	0.006	0.006	lb/ton of steel	No change	7.24	10.74	3.50	
0071 & 0119	Continuous Casters #1 & #2 - Spray Chamber	2,413,406	3,580,000	tons of molten steel/year	PM	0.00852	0.00852	lb/ton of steel	No change	10.28	15.25	4.97	
0072 & 0118	Slab Cutoff Casters #1 & #2	2,413,406	3,580,000	tons of molten steel/year	PM	0.0071	0.0071	lb/ton of steel	No change	8.57	12.71	4.14	
73	Slab Ripping Casters #1 & #2	2,413,406	3,580,000	tons of molten steel/year	PM	0.00722	0.00722	lb/ton of steel	No change	8.71	12.92	4.21	
	Continuous Casting Operations				PM					47.71	70.78		23.06
	Combined BFG in stoves, B11 & B12, ladle preheaters, and BFG flares	121,039	185,030	MMcf	PM	2.90	2.90	lb/MMcf	No change	175.51	268.30	92.79	
	Combined NG in stoves, B11 & B12, ladle preheaters, and BFG flares	1,145	1,980	MMcf	PM	1.9	1.9	lb/MMcf	AP-42 Revised Filt. PM Factor	1.09	1.88	0.79	
	Combined FO in stoves, B11 & B12, ladle preheaters, and BFG flares	16	365	Mgal	PM	9.72	9.72	lb/Mgal	No change	0.08	1.77	1.70	
	Certain Fuel Burning Emissions Units				PM					176.68	271.95		95.28
9003	Iron Pellet Screen	2,803,241	4,308,581	tons of charge material/year	PM	0.00375	0.00375	lb/ton of material	USS representation of 85% control to crushed stone EF	5.26	8.08	2.82	
	BOF Hopper Baghouse	2,413,406	3,580,000	tons of molten steel/year	PM	0.00032	0.00032	lb/ton of steel	No change	0.39	0.57	0.19	
0037	Flux Conv. & Transfer Points Bin Floor - BOF	2,413,406	3,580,000	tons of molten steel/year	PM	0.0016	0.0016	lb/ton of steel	No change	1.93	2.86	0.93	
	Material Handling Operations at BF and BOF				PM					7.57	11.52		3.94
					Total PM						1,072.88	219.79	-50.53

R006554

USS Granite City
Revised PM10 Actual

Point	Emission Point	Past Throughput	Units	Pollutant	Original Emission Factor	Updated Emission Factor	Units	Basis	Original Baseline Emissions (TPY)	Revised Baseline Emissions (TPY)
0005 & 0010	A & B Blast Furnace Casthouse Fugitives	2,059,557	tons of hot metal/year	PM10	0.0155	0.0153	lb/ton of hot metal	Correction to calculation minor change	15.96	15.76
0006 & 0011	A & B Blast Furnace Charging	2,803,241	tons of charge material/year	PM10	0.0024	0.0012	lb/ton of material	Applied AP-42 Ch 13.2.4 ratio of 48% for PM10 vs PM	3.36	1.68
0007 & 0012	A & B Blast Furnace Casthouse Baghouse	2,059,557	tons of hot metal/year	PM10	0.07026	0.07026	lb/ton of hot metal	No change	72.35	72.35
113	Blast Furnace Slag Pits	2,059,557	tons of hot metal/year	PM10	0.00417	0.00417	lb/ton of hot metal	No change	4.29	4.29
	Iron Spout Baghouse	2,059,557	tons of hot metal/year	PM10	0.02548	0.02548	lb/ton of hot metal	No change	26.24	26.24
	Blast Furnace Operations			PM10					122.21	120.32
0033	BOF 2 Vessels	2,413,406	tons of molten steel/year	PM10	0.16	0.16	lb/ton of steel	No change	193.07	193.07
0034	BOF Roof Monitor	2,413,406	tons of molten steel/year	PM10	0.287	0.287	lb/ton of steel	No change	346.20	346.20
0107 & 0035	Desulfurization Station [inside BOF shop] & Transfer Pit	2,059,557	tons of hot metal/year	PM10	0.03721	0.03721	lb/ton of hot metal	No change	38.32	38.32
0040	Hot Metal Charging Ladle Slag Skimmer	2,059,557	tons of hot metal/year	PM10	0.00502	0.00502	lb/ton of hot metal	No change	5.17	5.17
	BOF Shop			PM10					582.76	582.76
0103, 0104 & 0121	Argon Stirring #1 & #2 Material Handling Tripper	2,413,406	tons of molten steel/year	PM10	0.00715	0.00715	lb/ton of steel	No change	8.63	8.63
0105 & 0106	Deslagging Station & Material HS	2,413,406	tons of molten steel/year	PM10	0.00355	0.00355	lb/ton of steel	No change	4.28	4.28
0070 & 0120	Caster Mold - Casters #1 & #2	2,413,406	tons of molten steel/year	PM10	0.006	0.006	lb/ton of steel	No change	7.24	7.24
0071 & 0119	Continuous Casters #1 & #2 - Spray Chamber	2,413,406	tons of molten steel/year	PM10	0.00852	0.00852	lb/ton of steel	No change	10.28	10.28
0072 & 0118	Slab Cutoff Casters #1 & #2	2,413,406	tons of molten steel/year	PM10	0.0071	0.0071	lb/ton of steel	No change	8.57	8.57
73	Slab Ripping Casters #1 & #2	2,413,406	tons of molten steel/year	PM10	0.00722	0.00722	lb/ton of steel	No change	8.71	8.71
	Continuous Casting Operations			PM10					47.71	47.71
	Combined BFG in stoves, B11 & B12, ladle preheaters, and BFG flares	121,039	MMcf	PM10	2.90	2.90	lb/MMcf	No change	175.51	175.51
	Combined NG in stoves, B11 & B12, ladle preheaters, and BFG flares	1,145	MMcf	PM10	5.1	1.9	lb/MMcf	AP-42 Revised Filt. PM Factor	2.92	1.09
	Combined FO in stoves, B11 & B12, ladle preheaters, and BFG flares	16	Mgal	PM10	9.72	9.72	lb/Mgal	No change	0.08	0.08
	Certain Fuel Burning Emissions Units			PM10					178.51	176.68
9003	Iron Pellet Screen	2,803,241	tons of charge material/year	PM10	0.00279	0.00131	lb/ton of material	85% control to crushed stone screen EF in AP-42 Table 11.19.2-2	3.91	1.83
	BOF Hopper Baghouse	2,413,406	tons of molten steel/year	PM10	0.00032	0.00032	lb/ton of steel	No change	0.39	0.39
0037	Flux Conv. & Transfer Points Bin Floor - BOF	2,413,406	tons of molten steel/year	PM10	0.0016	0.0016	lb/ton of steel	No change	1.93	1.93
	Material Handling Operations at BF and BOF			PM10					6.23	4.15
				Total PM10					937.42	931.62

R006555

USS Granite City
Revised PM10 Analysis

Point	Emission Point	Past Throughput	Future Throughput	Units	Pollutant	Updated Emission Factor	Future Emission Factor	Units	Basis	Baseline Emissions (TPY)	Future Emissions (TPY)	Emissions Increase (TPY)	Emissions Change (TPY)
0005 & 0010	A & B Blast Furnace Casthouse Fugitives	2,059,557	3,165,000	tons of hot metal/year	PM10	0.0153	0.0153	lb/ton of hot metal	Correction to calculation minor change	15.76	24.21	48.19	
0006 & 0011	A & B Blast Furnace Charging	2,803,241	4,308,581	tons of charge material/year	PM10	0.0012	0.0012	lb/ton of material	USS representation includes basis for EF	1.68	2.59		
0007 & 0012	A & B Blast Furnace Casthouse Baghouse	2,059,557	3,165,000	tons of hot metal/year	PM10	0.07026	0.07026	lb/ton of hot metal	No change	72.35	111.19		
113	Blast Furnace Slag Pits	2,059,557	3,165,000	tons of hot metal/year	PM10	0.00417	0.00417	lb/ton of hot metal	No change	4.29	6.60	2.30	
	Iron Spout Baghouse	2,059,557	3,165,000	tons of hot metal/year	PM10	0.02548	0.02548	lb/ton of hot metal	No change	26.24	40.32	14.08	
	Blast Furnace Operations				PM10					120.32	184.90		64.58
0033	BOF 2 Vessels	2,413,406	3,580,000	tons of molten steel/year	PM10	0.16	0.16	lb/ton of steel	Using 60 lb/hour for PTE	193.07	262.80	0.00	
0034	BOF Roof Monitor	2,413,406	3,580,000	tons of molten steel/year	PM10	0.287	0.066	lb/ton of steel	No change	346.20	118.40		
0107 & 0035	Desulfurization Station [inside BOF shop] & Transfer Pit	2,059,557	3,165,000	tons of hot metal/year	PM10	0.03721	0.03721	lb/ton of hot metal	No change	38.32	58.88	20.57	
0040	Hot Metal Charging Ladle Slag Skimmer	2,059,557	3,165,000	tons of hot metal/year	PM10	0.00502	0.00502	lb/ton of hot metal	No change	5.17	7.94	2.77	
	BOF Shop				PM10					582.76	448.03		-134.74
0103, 0104 & 0121	Argon Stirring #1 & #2 Material Handling Tripper	2,413,406	3,580,000	tons of molten steel/year	PM10	0.00715	0.00715	lb/ton of steel	No change	8.63	12.80	4.17	
0105 & 0106	Deslagging Station & Material HS	2,413,406	3,580,000	tons of molten steel/year	PM10	0.00355	0.00355	lb/ton of steel	No change	4.28	6.35	2.07	
0070 & 0120	Caster Mold - Casters #1 & #2	2,413,406	3,580,000	tons of molten steel/year	PM10	0.006	0.006	lb/ton of steel	No change	7.24	10.74	3.50	
0071 & 0119	Continuous Casters #1 & #2 - Spray Chamber	2,413,406	3,580,000	tons of molten steel/year	PM10	0.00852	0.00852	lb/ton of steel	No change	10.28	15.25	4.97	
0072 & 0118	Slab Cutoff Casters #1 & #2	2,413,406	3,580,000	tons of molten steel/year	PM10	0.0071	0.0071	lb/ton of steel	No change	8.57	12.71	4.14	
73	Slab Ripping Casters #1 & #2	2,413,406	3,580,000	tons of molten steel/year	PM10	0.00722	0.00722	lb/ton of steel	No change	8.71	12.92	4.21	
	Continuous Casting Operations				PM10					47.71	70.78		23.06
	Combined BFG in stoves, B11 & B12, ladle preheaters, and BFG flares	121,039	185,030	MMcf	PM10	2.90	2.90	lb/MMcf	No change	175.51	268.30	92.79	
	Combined NG in stoves, B11 & B12, ladle preheaters, and BFG flares	1,145	1,980	MMcf	PM10	1.9	1.9	lb/MMcf	AP-42 Revised Filt. PM Factor	1.09	1.88	0.79	
	Combined FO in stoves, B11 & B12, ladle preheaters, and BFG flares	16	365	Mgal	PM10	9.72	9.72	lb/Mgal	No change	0.08	1.77	1.70	
	Certain Fuel Burning Emissions Units				PM10					176.68	271.95		95.28
9003	Iron Pellet Screen	2,803,241	4,308,581	tons of charge material/year	PM10	0.001305	0.00131	lb/ton of material	USS representation of 85% control to crushed stone EF	1.83	2.81	0.98	
	BOF Hopper Baghouse	2,413,406	3,580,000	tons of molten steel/year	PM10	0.00032	0.00032	lb/ton of steel	No change	0.39	0.57	0.19	
0037	Flux Conv. & Transfer Points Bin Floor - BOF	2,413,406	3,580,000	tons of molten steel/year	PM10	0.0016	0.0016	lb/ton of steel	No change	1.93	2.86	0.93	
	Material Handling Operations at BF and BOF				PM10					4.15	6.25		2.10
					Total PM10						981.91	208.37	50.29

R006556

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

R006557

USS Granite City
Revised NO_x Actual

Point	Emission Point	Past Throughput	Units	Pollutant	Original Emission Factor	Updated Emission Factor	Units	Basis	Original Baseline Emissions (tons/year)	Revised Baseline Emissions (tons/year)
0005 & 0010	A & B Blast Furnace Casthouse Fugitives	2,059,557	tons of hot metal/year	NO_x	0.0007	0.0001	lb/ton of hot metal	3/2012 test assuming no NOx control and 5% fugitive	0.74	0.15
0007 & 0012	A & B Blast Furnace Casthouse Baghouse	2,059,557	tons of hot metal/year	NO_x	0.0144	0.0027	lb/ton of hot metal	3/2012 test	14.83	2.78
	Iron Spout Baghouse	2,059,557	tons of hot metal/year	NO_x	0.0000	0.0016	lb/ton of hot metal	3/2012 test	0.00	1.65
	Blast Furnace Operations			NO_x					15.57	4.57
0033	BOF 2 Vessels	2,413,406	tons of molten steel/year	NO_x	0.0389	0.1503	lb/ton of steel	Average of 4/2012, 7/2012, 11/2014 test results	46.94	181.33
	BOF Shop			NO_x					46.94	181.33
0070 & 0120	Caster Mold - Casters #1 & #2	2,413,406	tons of molten steel/year	NO_x	0.0500	0.0000	lb/ton of steel	All NOx formed is from natural gas usage; emissions are accounted for separately.	60.34	0.00
	Continuous Casting Operations			NO_x					60.34	0.00
	Combined BFG in BFG Flare	26,132	MMcf	NO_x	5.2800	5.2800	lb/MMcf	No change	68.99	68.99
	Combined BFG in stoves	44,977	MMcf	NO_x	5.2800	5.2800	lb/MMcf	No change	118.74	118.74
	Combined BFG in Boilers B11 & B12 and BH1	49,930	MMcf	NO_x	5.2800	5.2800	lb/MMcf	No change	131.82	131.82
	Combined NG in stoves, B11 & B12, ladle preheaters, and BFG flares	1,145	MMcf	NO_x	306.0	306.0	lb/MMcf	No change	175.19	175.19
	Combined FO in stoves, B11 & B12, ladle preheaters, and BFG flares	16	Mgal	NO_x	55.00	55.00	lb/Mgal	No change	0.44	0.44
	Certain Fuel Burning Emissions Units			NO_x					495.17	495.17
	Total								618.01	681.07

R006558

USS Granite City
Revised NO_x Analysis

Point	Emission Point	Past Throughput	Future Throughput	Units	Pollutant	Updated Emission Factor	Future Emission Factor	Units	Basis	Baseline Emissions (tons/year)	Future Emissions (tons/year)	Emissions Increase (tons/year)	Emissions Change (tons/year)
0005 & 0010	A & B Blast Furnace Casthouse Fugitives	2,059,557	3,165,000	tons of hot metal/year	NO_x	0.0001	0.0001	lb/ton of hot metal	3/2012 test assuming no NOx control and 5% fugitive	0.15	0.22	2.46	
0007 & 0012	A & B Blast Furnace Casthouse Baghouse	2,059,557	3,165,000	tons of hot metal/year	NO_x	0.0027	0.0027	lb/ton of hot metal	3/2012 test	2.78	4.27		
	Iron Spout Baghouse	2,059,557	3,165,000	tons of hot metal/year	NO_x	0.0016	0.0016	lb/ton of hot metal	3/2012 test	1.65	2.53		
	Blast Furnace Operations				NO_x					4.57	7.03		2.46
0033	BOF 2 Vessels	2,413,406	3,580,000	tons of molten steel/year	NO_x	0.1503	0.1700	lb/ton of steel	Average of 4/2012, 7/2012, 11/2014 test results used for baseline; 11/2014 test result used for projection	181.33	304.30	122.97	
	BOF Shop				NO_x					181.33	304.30		122.97
0070 & 0120	Caster Mold - Casters #1 & #2	2,413,406	3,580,000	tons of molten steel/year	NO_x	0.0000	0.0000	lb/ton of steel	All NOx formed is from natural gas usage; emissions are accounted for separately.	0.00	0.00	0.00	
	Continuous Casting Operations				NO_x					0.00	0.00		0.00
	BFG in BFG flare	26,132	39,947	MMcf	NO_x	5.2800	5.2800	lb/MMcf	No change	68.99	105.46	36.47	
	Combined BFG in stoves	44,977	68,755	MMcf	NO_x	5.2800	5.2800	lb/MMcf		118.74	181.51	62.78	
	Combined BFG in Boilers B11 & B12 and BH1	49,930	76,327	MMcf	NO_x	5.2800	5.2800	lb/MMcf		131.82	201.50	69.69	
	Combined NG in stoves, B11 & B12 (past), ladle preheaters, and BFG flares	1,145	340	MMcf	NO_x	306.0	306.0	lb/MMcf		175.19	52.02	0.00	
	B11 (Future)		820	MMcf	NO_x		100.0	lb/MMcf	No change made to baseline factor. Post-project weighted average emission factor reflects current controls. (Limit in 35 IAC 217.164 for boilers is 0.084 lb/MMBtu; boilers were retrofitted with FGR to comply.)		41.00	41.00	
	B12 (Future)		820	MMcf	NO_x		100.0	lb/MMcf	No change made to baseline factor. Post-project weighted average emission factor reflects current controls. (Limit in 35 IAC 217.164 for boilers is 0.084 lb/MMBtu; boilers were retrofitted with FGR to comply.)		41.00	41.00	
	Combined FO in stoves, B11 & B12, ladle preheaters, and BFG flares	16	365	Mgal	NO_x	55.00	55.00	lb/Mgal	No change	0.44	10.04	9.60	
	Certain Fuel Burning Emissions Units				NO_x					495.17	632.54		137.37
					Total NO_x					681	944	385.96	262.80

R006559

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

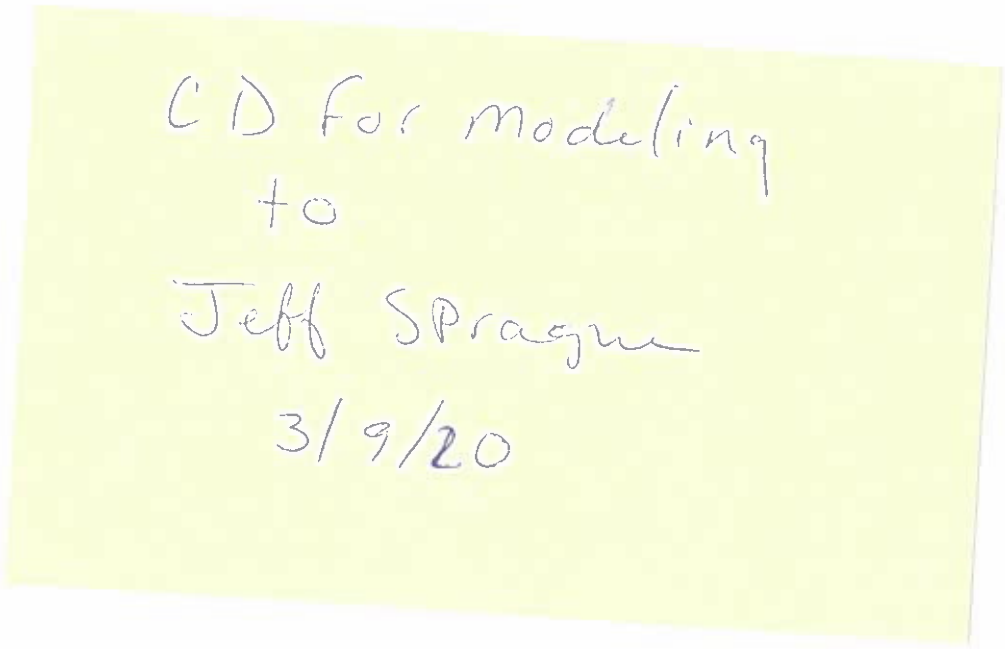
Date of complete permit application under Rule 203	1/3/1995	
Date Project implemented/operation started	1/25/1996	Same as permit issuance date as permit was for operational changes by revising production limits.
Contemporaneous Period	1/4/1990	to 1/25/1996

R006560

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

R006561



Appendix C – Air Quality Modeling Report

APPENDIX C

CARBON MONOXIDE AIR DISPERSION MODELING FOR A PREVENTION OF SIGNIFICANT DETERIORATION AND CONSTRUCTION PERMIT REVISION FOR UNITED STATES STEEL GRANITE CITY WORKS



Prepared for:
United States Steel Corporation
Granite City Works
20th and State Streets
Granite City, IL 62040

Prepared by:
RTP Environmental Associates, Inc.
304A West Millbrook Road
Raleigh, North Carolina 27609

February 2020

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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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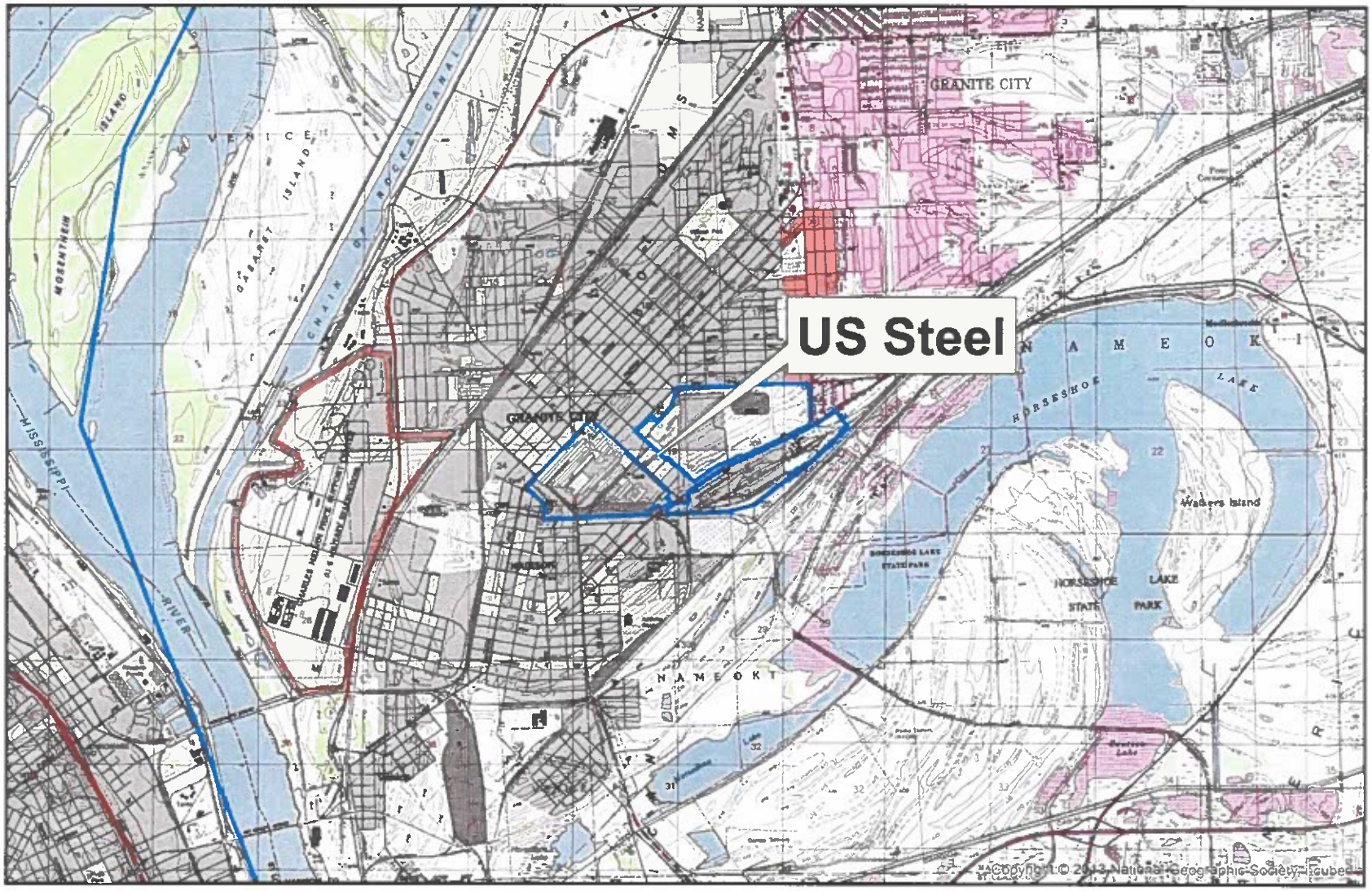

Figure 2. Specific Location of US Steel Granite City Works

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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.

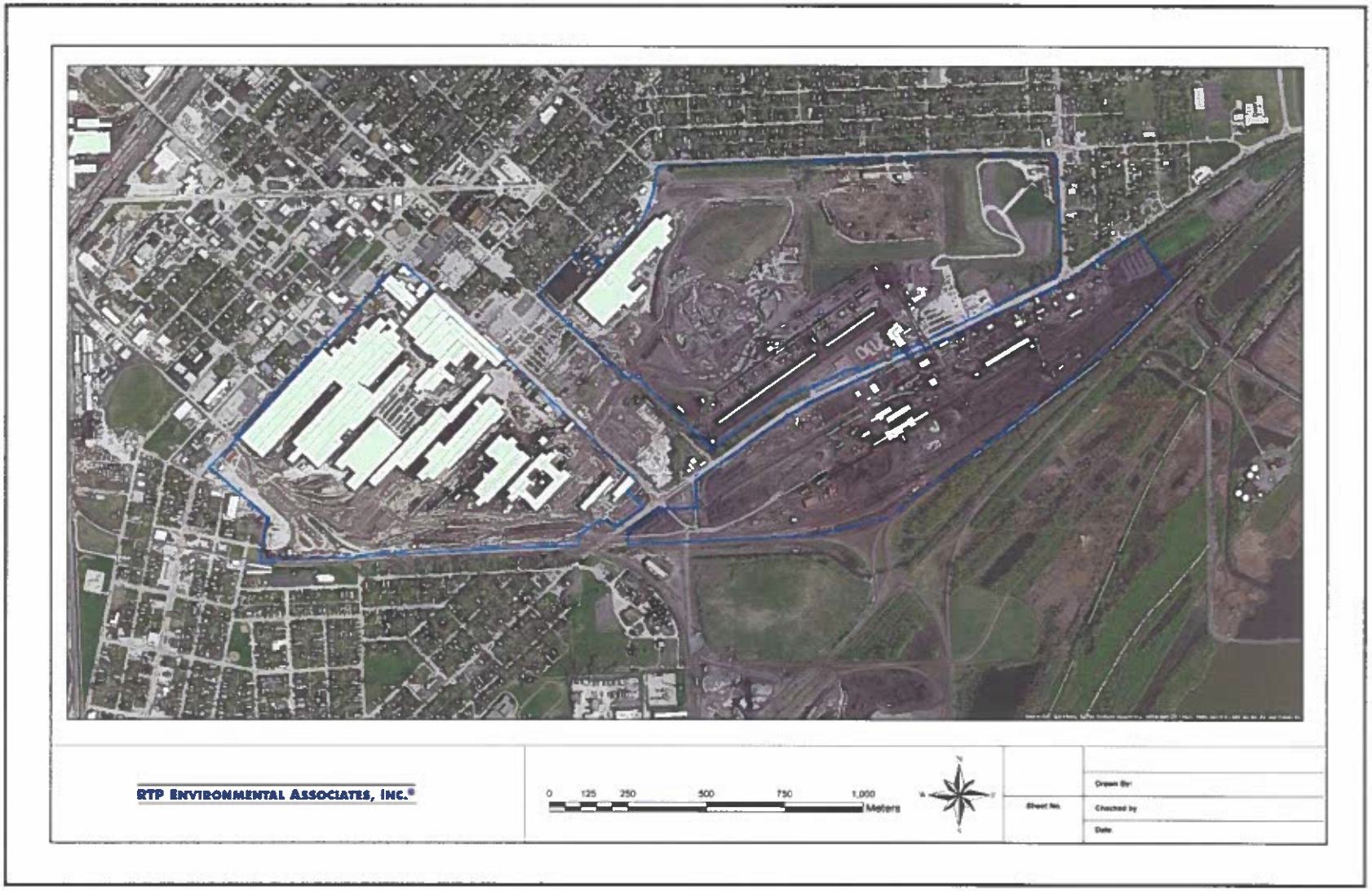

Figure 3. Structures Included in the US Steel GEP Analysis

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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

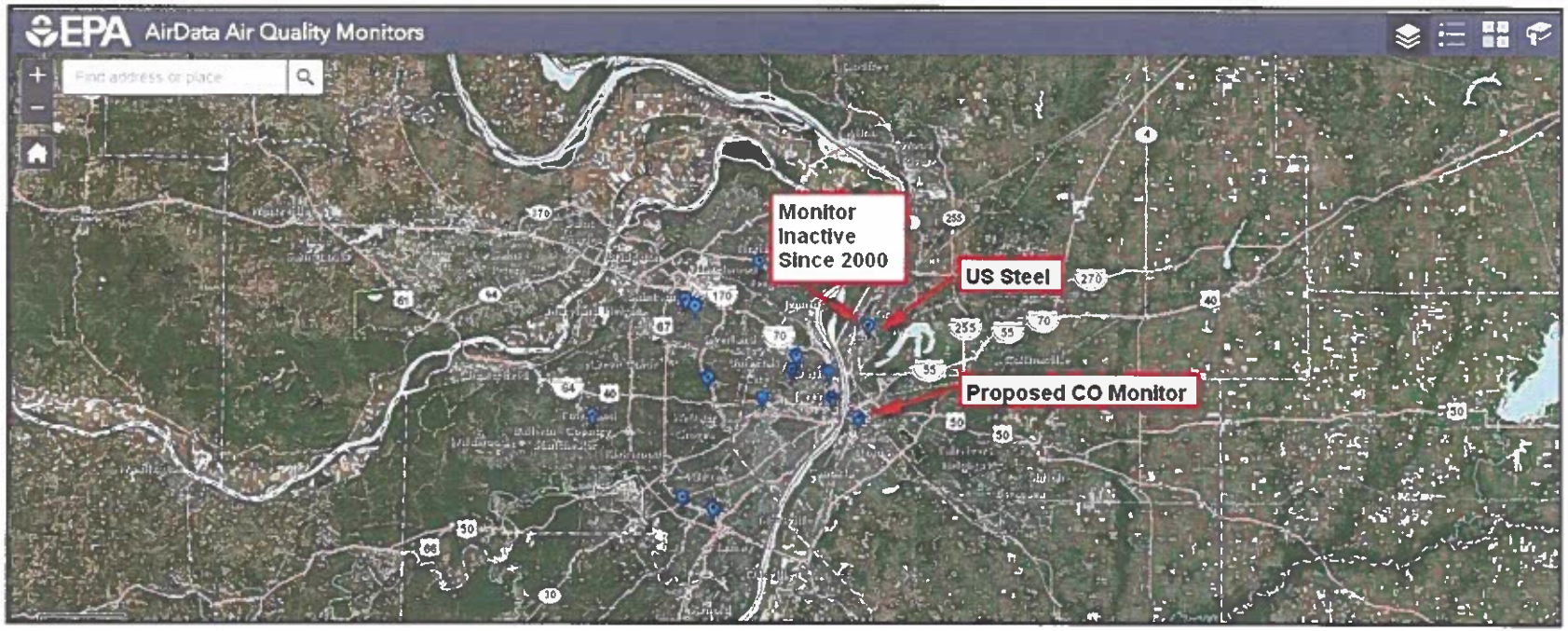

Figure 4. Ambient Air Quality Monitors in the Vicinity of the US Steel Facility

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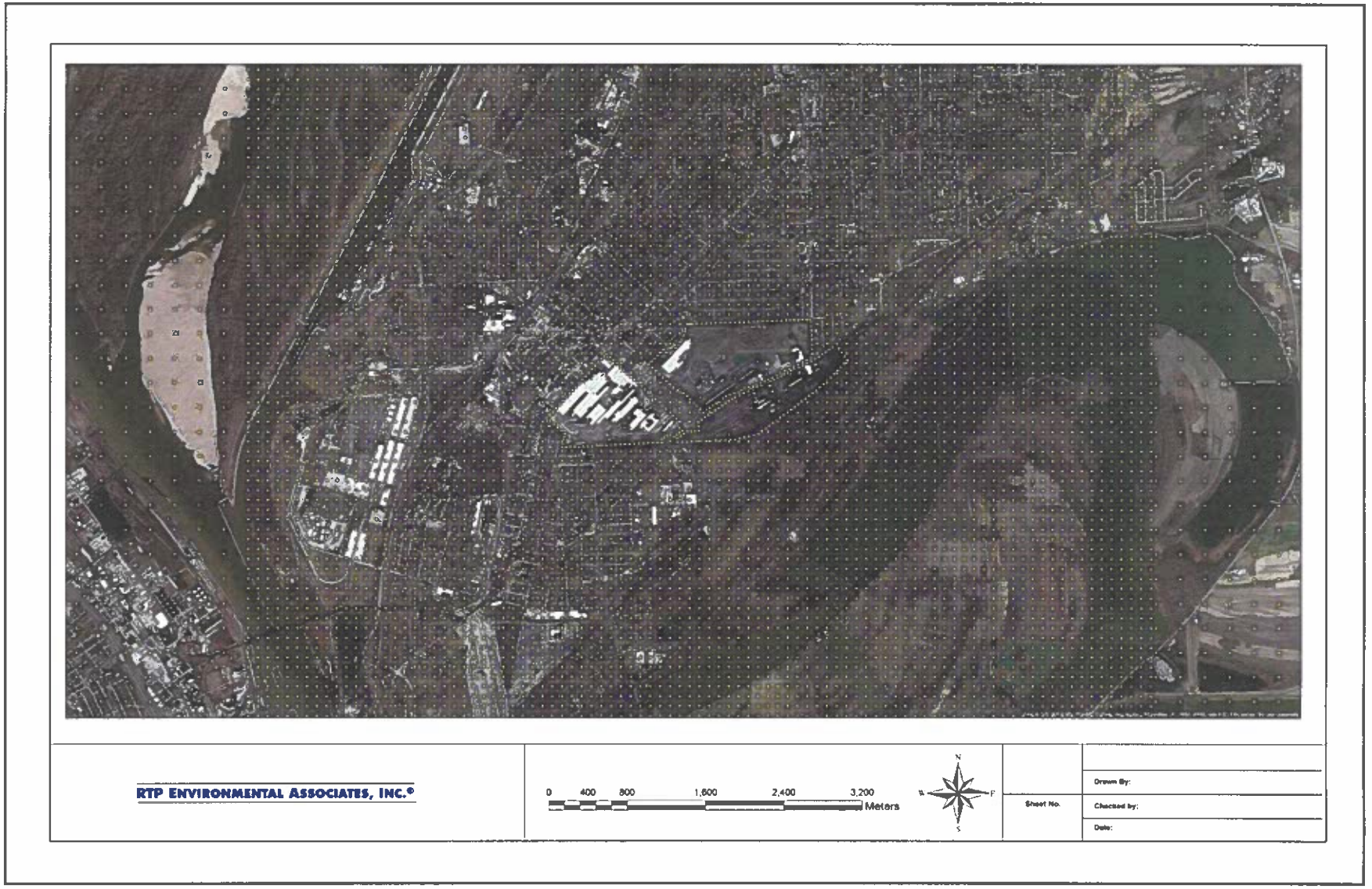

Figure 5. US Steel Facility Near-field Receptor Grid

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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.

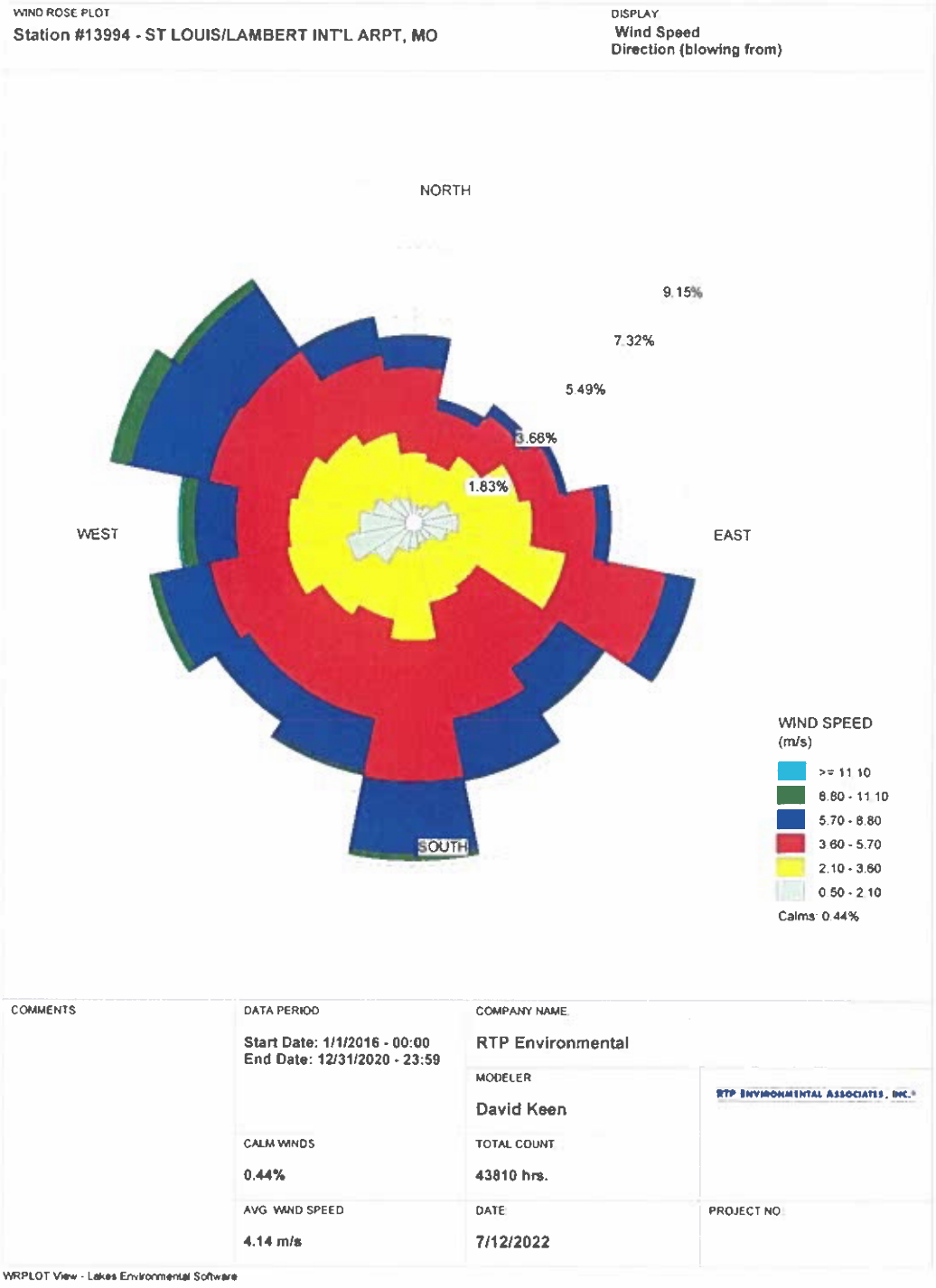


Figure 6. Lambert Field Windrose 2014-2018.

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	Maximum over 3 years	Highest, second high over 5 years

The NAAQS are shown in Table 5.

Table 5. National Ambient Air Quality Standards

Pollutant	Averaging Time	National Ambient Air Quality Standards ($\mu g/m^3$)	
		Primary	Secondary
CO	1-hour	40,000	--
	8-hour	10,000	--

6.0 RESULTS

Attachment B to this report provides the model summary output. AERMOD input and output files, including the BPIP-PRIME files, are included on the enclosed CD.

6.1 Significant Impact Analysis Results

The project results in CO impacts in excess of the 8-hour Significant Impact Level shown in Table 3. The significant impact analysis results are presented in Table 6. Based upon the results of the significant impacts analysis, a cumulative, NAAQS analysis was conducted.

6.2 NAAQS Analysis Results

Following the determination of significant impacts, an analysis was conducted to assess compliance with the CO NAAQS. The project resulted in insignificant 1-hr CO impacts, as a result the 1-hr average was not included in the NAAQS assessment. All sources located within 50km of the US Steel facility were modeled in conjunction with the US Steel facility in assessing compliance. Background concentrations were added to the model results to assess compliance. Evaluation of compliance with the CO short term standards was based upon the maximum of the highest-second-highest values from the five-year meteorological dataset.

The results of the NAAQS analysis are presented in Table 7. As can be seen, the model demonstrates compliance.

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

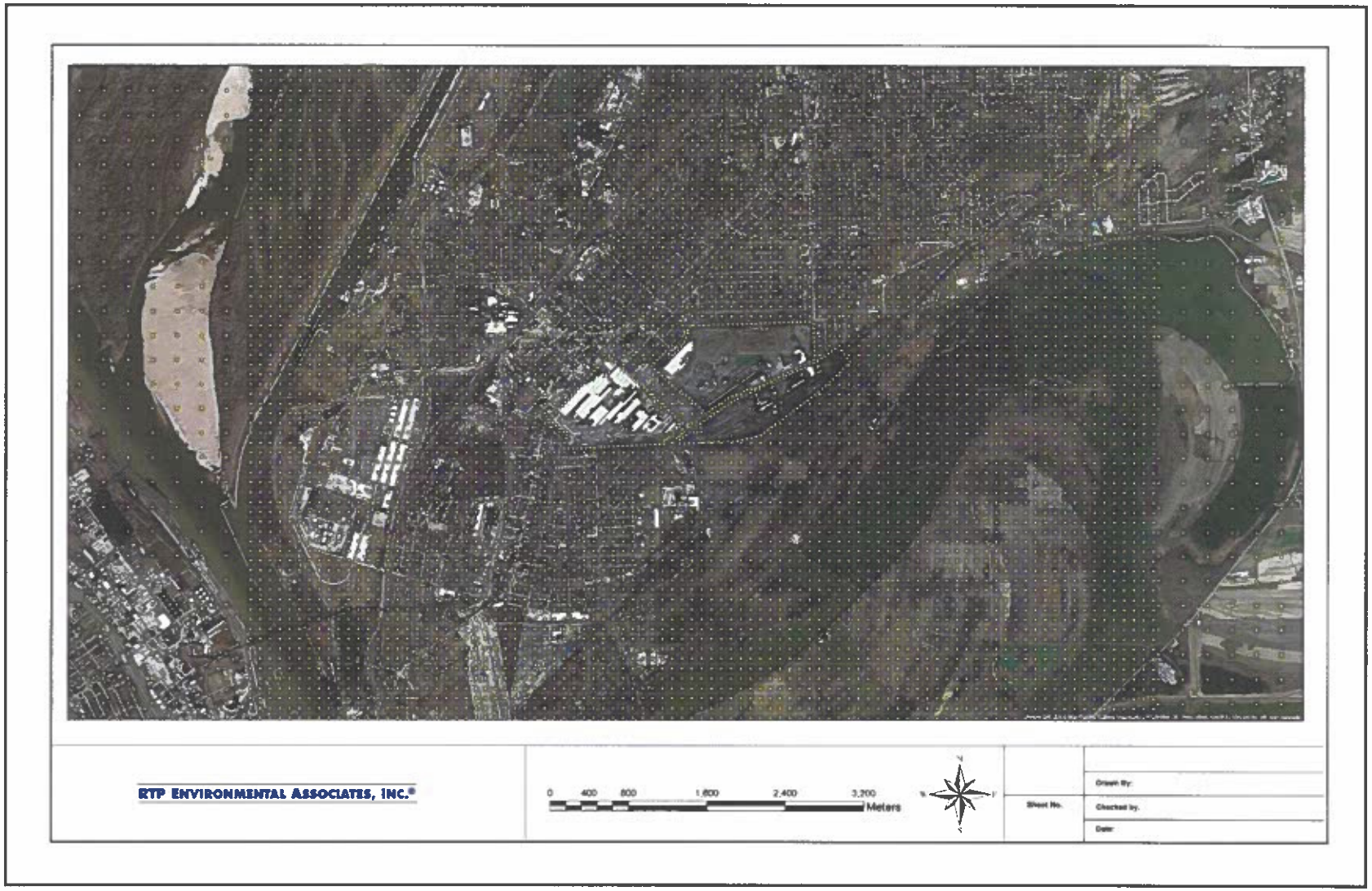
Receptor Spacing (m)	Distance from Facility (m)
100	3,000
250	5,000
500	15,000

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.



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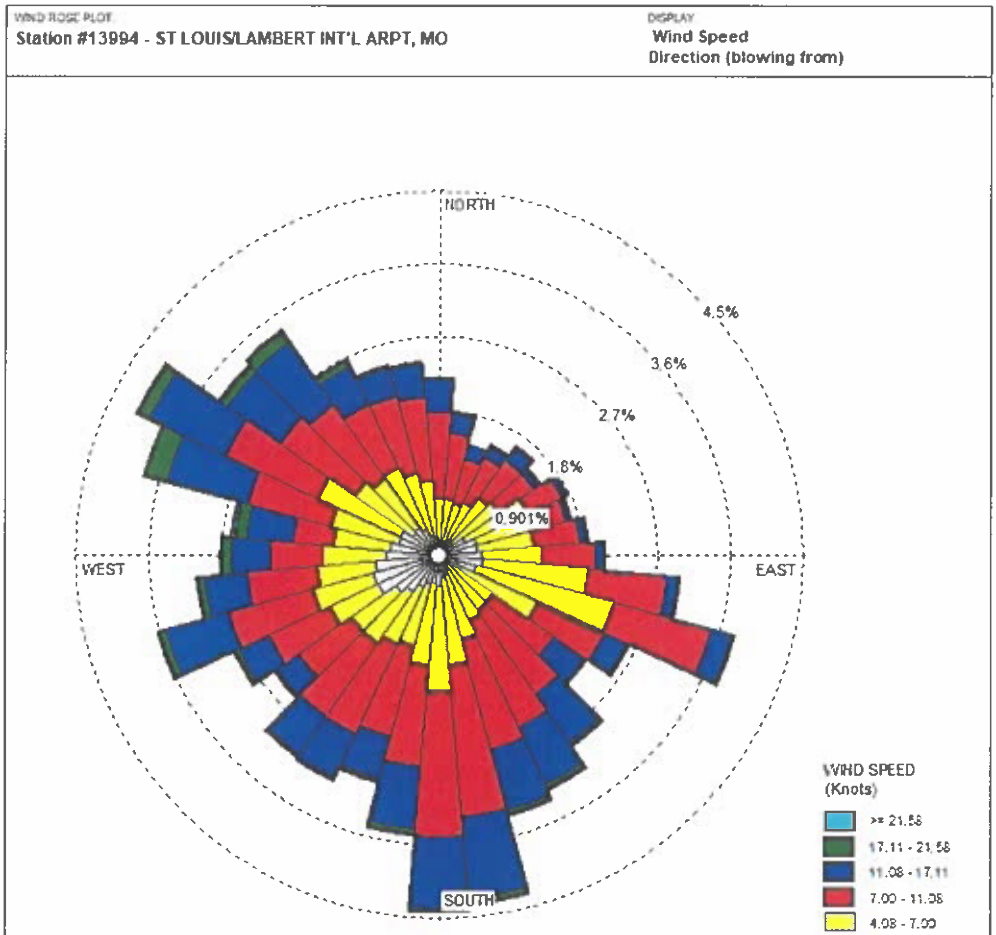

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Off-site sources were included in the NAAQS analysis. A 50km radius was used to define the screening area. A list of sources that are located within the screening area has been obtained from the IEPA as well as the Missouri Department of Natural Resources ("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.

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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 ($\mu g/m^3$)	PSD Significant Class II Impact Level ($\mu g/m^3$)	Significant Monitoring Concentration ($\mu g/m^3$)	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 ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	Standard ($\mu g/m^3$)	Comment
CO	1-hour	3,414	2,286	5,700	40,000	Compliant
	8-hour	1,941	1,349	3,290	10,000	Compliant

R006592

REFERENCES

1. Guidelines on Air Quality Models, (Revised). Appendix W of 40 CFR Part 51, 82 FR 5182, January 17, 2017.

2 . Prevention of Significant Deterioration, The Art and Science of PSD Air Quality Analysis, The Modeling Perspective, Illinois Environmental Protection Agency, Modeling Unit, February 27, 2014..

3. AERSCREEN User's Guide. EPA-454/B-15-005, July 2015.

4. Guideline for Determination of Good Engineering Practice Stack Height (Technical Support Document for Stack Height Regulations (Revised). EPA-450/4-80-023R, U.S. Environmental Protection Agency, June 1985.

5. *Sierra Club v. EPA*, No. 10-1413, 2013 WL 216018 (Jan. 22, 2013).

6. Ambient Monitor Guidelines for Prevention of Significant Deterioration, EPA-450/4-87-007, USEPA, May 1987.

7. Ambient Monitor Guidelines for Prevention of Significant Deterioration, EPA-450/4-87-007, USEPA, May 1987.

ATTACHMENT A
MODELING INPUT DATA

US Steel Granite City Point Source Model Input (NAD83, Zone 15)
Last Update (1-29-20)

Source ID		Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	CO Potential Emissions (lb/hr)	CO Emissions Increase (lb/hr)
132833	DEFAULT	Blast Furnace A Stoves	749816.02	4286809.08	416.83	217.0	500.0	49.66	7.0	1604.52	1604.52
132838	DEFAULT	Blast Furnace B Stoves	749665.50	4286719.93	417.16	225.0	500.0	51.05	9.8	1837.76	1837.76
132837	DEFAULT	Blast Furnace Gas Flare #1	749777.33	4286841.02	418.21	221.8	1831.7	65.62	15.4	3140.49	3140.49
240479	DEFAULT	Blast Furnace Gas Flare #2	749865.93	4286920.23	416.24	221.8	1831.7	65.62	15.4	3140.49	0.00
132836	DEFAULT	Casthouse Baghouse	749616.61	4286732.18	417.75	63.0	150.0	63.88	11.0	71.82	24.42
132927	DEFAULT	Blast Furnace A and B Iron Spout Baghouse	749831.35	4286818.73	415.98	43.0	123.0	43.04	7.8	7.18	2.44
238459	DEFAULT	Cogeneration Boiler BFG-fired some NG-firing	749776.38	4287073.85	415.19	137.0	400.1	62.11	6.0	203.08	0.00
132867	DEFAULT	Boiler 11	749865.15	4286883.84	416.24	149.9	335.0	29.82	8.0	90.48	90.48
132872	DEFAULT	Boiler 12	749881.40	4286887.85	416.50	150.0	335.0	26.74	8.0	90.48	90.48
BOF	DEFAULT	BOF ESP	748415.00	4286681.00	416.57	125.0	400.0	50.00	15.0	4121.79	1274.01
132842	DEFAULT	Slab Reheat Furnace #1	747729.70	4286762.02	417.52	56.8	650.1	44.88	8.0	26.52	0.00
172532	DEFAULT	Slab Reheat Furnace #2	747715.25	4286747.05	416.47	56.8	650.1	44.88	8.0	26.52	0.00
172512	DEFAULT	Slab Reheat Furnace #3	747700.79	4286730.53	415.88	56.8	650.1	44.88	8.0	26.52	0.00
172514	DEFAULT	Slab Reheat Furnace #4	747700.27	4286714.00	416.08	146.0	736.1	26.94	13.7	40.76	0.00
132849	DEFAULT	Galvanizing line #8 - fume scrubber	748883.00	4287195.00	416.57	80.0	80.0	41.66	3.0	0.00	0.00
229337	DEFAULT	Galvanizing line #8 - space heaters	748398.00	4287038.00	418.90	39.0	284.1	23.16	2.0	0.00	0.00
229338	DEFAULT	Galvanizing line #8 - drying oven and storage area heaters	748398.00	4287038.00	418.90	39.0	284.1	23.16	2.0	0.00	0.00
229339	DEFAULT	Galvanizing line #8 - miscellaneous heaters	748398.00	4287038.00	418.90	39.0	284.1	23.16	2.0	0.00	0.00
229601	DEFAULT	Emergency Generator (3500 HP)	749641.00	4286863.00	416.17	37.0	442.0	32.80	1.9	0.00	0.00
GECC0021	DEFAULT	Waste Heat Main Stack (Gateway Energy)	749278.10	4286983.70	415.78	200.0	261.1	52.94	13.0	0.00	0.00
GECC0006	DEFAULT	Waste Heat Stack #1 (Gateway Energy)	749198.08	4286808.68	418.57	85.0	1706.1	57.83	9.0	0.00	0.00
GECC0011	DEFAULT	Waste Heat Stack #2 (Gateway Energy)	749273.31	4286862.01	418.31	85.0	1706.1	57.835	9.0	0.00	0.00
GECC0012	DEFAULT	Waste Heat Stack #3 (Gateway Energy)	749352.45	4286918.44	418.70	85.0	1706.1	57.83	9.0	0.00	0.00
GECC0013	DEFAULT	Waste Heat Stack #4 (Gateway Energy)	749428.12	4286971.81	418.96	85.0	1706.1	57.83	9.0	0.00	0.00
GECC0014	DEFAULT	Waste Heat Stack #5 (Gateway Energy)	749544.63	4287055.23	418.27	85.0	1706.1	57.83	9.0	0.00	0.00
GECC0015	DEFAULT	Waste Heat Stack #6 (Gateway Energy)	749619.43	4287108.64	418.34	85.0	1706.1	57.83	9.0	0.00	0.00
GECC0007	DEFAULT	Coke Pushing - A (Gateway Energy)	749619.87	4287112.56	418.11	20.0	371.1	71.29	4.0	0.00	0.00
GECC0016	DEFAULT	Coke Pushing - B (Gateway Energy)	749545.02	4287058.93	418.27	20.0	371.1	71.29	4.0	0.00	0.00
GECC0017	DEFAULT	Coke Pushing - C (Gateway Energy)	749428.24	4286976.24	418.96	20.0	371.1	71.286	4.0	0.00	0.00
GECC0018	DEFAULT	Coke Pushing - D (Gateway Energy)	749352.23	4286921.92	418.60	20.0	371.1	71.286	4.0	0.00	0.00
GECC0019	DEFAULT	Coke Pushing - E (Gateway Energy)	749273.14	4286865.98	418.21	20.0	371.1	71.286	4.0	0.00	0.00
GECC0020	DEFAULT	Coke Pushing - F (Gateway Energy)	749197.51	4286811.96	418.70	20.0	371.1	71.286	4.0	0.00	0.00
GECC0004	DEFAULT	Coal Charging - A (Gateway Energy)	749623.34	4287107.16	418.54	26.0	135.1	50.679	4.5	0.00	0.00
GECC0022	DEFAULT	Coal Charging - B (Gateway Energy)	749548.49	4287053.91	418.18	26.0	135.1	50.679	4.5	0.00	0.00
GECC0023	DEFAULT	Coal Charging - C (Gateway Energy)	749432.74	4286971.35	418.90	26.0	135.1	50.679	4.5	0.00	0.00
GECC0024	DEFAULT	Coal Charging - D (Gateway Energy)	749355.86	4286916.95	418.67	26.0	135.1	50.679	4.5	0.00	0.00
GECC0025	DEFAULT	Coal Charging - E (Gateway Energy)	749277.43	4286860.70	418.44	26.0	135.1	50.679	4.5	0.00	0.00
GECC0026	DEFAULT	Coal Charging - F (Gateway Energy)	749201.81	4286807.07	418.57	26.0	135.1	50.679	4.5	0.00	0.00

R006595

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

R006596

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	4307832.00	433.07	100.0	250.1	31.029	24.2	2.25E+02	7.07E+01	7.07E+01
IL_131845	Alton Steel Inc. - 14 inch rolling mill reheat furnace	747645.00	4307692.00	432.64	106.0	200.0	2.394	16.0	2.40E+01	0.00E+00	0.00E+00
IL_131945	Alton Memorial Hospital - 3 Boilers	746364.00	4309470.00	521.36	89.0	389.9	24.108	3.0	0.00E+00	1.28E+01	1.28E+01
IL_132052	Olin Winchester, LLC - Package Boiler (B-4)	750887.00	4308614.00	435.63	35.0	400.0	84.854	2.0	0.00E+00	4.57E+00	4.57E+00
IL_132062	Olin Winchester, LLC - Package Boiler (B-3)	750891.00	4308619.00	435.89	35.0	400.0	84.854	2.0	0.00E+00	4.60E+00	4.60E+00
IL_132063	Olin Winchester, LLC - Package Boiler (B-2)	750892.00	4308613.00	435.53	35.0	400.0	84.854	2.0	0.00E+00	4.57E+00	4.57E+00
IL_132064	Olin Winchester, LLC - Package Boiler (B-1)	750888.00	4308609.00	435.30	35.0	400.0	84.854	2.0	0.00E+00	4.60E+00	4.60E+00
IL_132065	Olin Winchester, LLC - Package Boiler (B-5)	750883.00	4308610.00	435.27	35.0	400.0	84.854	2.0	0.00E+00	4.60E+00	4.60E+00
IL_132148	Amsted Rail Co., Inc. - Electric Arc Furnace #1 (EF-1)	747122.00	4287625.00	425.26	55.0	250.1	54.087	6.2	3.84E+01	4.07E+00	4.07E+00
IL_132149	Amsted Rail Co., Inc. - Electric Arc Furnace #2 (EF-2)	747147.00	4287625.00	425.20	44.0	250.1	42.443	7.0	3.84E+01	4.07E+00	4.07E+00
IL_132193	Velocity Services, LLC. - North American Boiler	748928.00	4286192.00	416.21	27.0	450.1	24.305	2.3	2.36E+00	0.00E+00	0.00E+00
IL_132194	Velocity Services, LLC. - Cleaver Brooks boiler	748928.00	4286192.00	416.21	29.0	440.0	39.590	2.0	2.36E+00	0.00E+00	0.00E+00
IL_132225	Gateway Regional Medical Center - Boiler #3	748587.00	4287448.00	426.05	48.0	600.0	41.131	4.5	1.53E+00	1.28E+01	1.28E+01
IL_132226	Gateway Regional Medical Center - Boilers #1 and 2	748592.00	4287452.00	425.95	48.0	600.0	38.966	4.5	3.07E+00	2.57E+01	2.57E+01
IL_132247	Prairie Farms Dairy, Inc. - Boiler #1	747505.00	4287550.00	424.64	75.0	375.0	30.078	2.5	1.30E-01	0.00E+00	0.00E+00
IL_132248	Prairie Farms Dairy, Inc. - Boiler #2	747505.00	4287550.00	424.64	25.0	375.0	65.010	2.5	2.40E-01	1.19E+00	1.19E+00
IL_132324	Precoat Metals - Afterburner AB1 and AB2	749469.00	4292538.00	424.97	34.0	1000.0	64.518	4.0	3.23E+00	0.00E+00	0.00E+00
IL_132424	Highland Electric Light Plant - Engine IC-5	788126.93	4293320.17	534.65	28.0	612.1	84.854	2.0	2.07E+01	0.00E+00	0.00E+00
IL_132425	Highland Electric Light Plant - Engine IC-7	788126.93	4293320.17	534.65	57.0	734.1	6.265	11.4	2.51E+01	0.00E+00	0.00E+00
IL_132496	ConocoPhillips Co. - Catalytic reformer #1 (STK12-4)	754869.00	4302625.00	442.55	349.9	600.0	56.810	15.0	6.28E+01	9.53E+01	9.53E+01
IL_132510	ConocoPhillips Co. - Distilling unit: HTR-DU1-F301 (STK5-2)	754327.00	4303077.00	444.69	185.0	319.0	21.878	8.0	1.21E+01	0.00E+00	0.00E+00
IL_132511	ConocoPhillips Co. - Distilling unit: HTR-DU1-F302 (STK5-1)	754326.00	4303100.00	444.49	150.0	150.0	11.677	8.5	1.57E+01	5.29E+00	5.29E+00
IL_132512	ConocoPhillips Co. - Steam methane reformer: SMR Heater (HTR-SMR - STK12-8)	754873.00	4302750.00	443.04	199.9	749.9	36.638	12.0	4.75E+01	6.82E+01	6.82E+01
IL_132516	ConocoPhillips Co. - Rectified absorption unit: Reboiler heater (HTR-RAU-DEBUT - STK5-5)	754470.00	4302943.00	444.98	75.0	850.0	34.440	5.0	7.14E+00	0.00E+00	0.00E+00
IL_132517	ConocoPhillips Co. - Rectified absorption system to RFG	754240.00	4303144.00	443.47	150.0	710.0	26.338	6.0	0.00E+00	1.20E+02	1.20E+02
IL_132519	ConocoPhillips Co. - Cracked absorption unit (HTR-CAU-ROSTILL - STK5-4)	754468.00	4302963.00	445.41	85.0	800.0	22.173	7.2	6.72E+00	0.00E+00	0.00E+00
IL_132526	ConocoPhillips Co. - CCU-1 Startup heater B-1	754240.00	4303144.00	443.47	212.0	500.1	86.953	4.5	0.00E+00	3.55E+01	3.55E+01
IL_132535	ConocoPhillips Co. - Catalytic cracking unit #2 (STK6-3)	754848.00	4302895.00	443.27	199.9	175.0	49.954	11.0	4.72E+01	2.17E+03	2.17E+03
IL_132551	ConocoPhillips Co. - Alkylation unit: HTR-ALKY-HM2 (STK6-6)	754930.00	4303043.00	442.59	150.9	475.1	12.398	5.7	4.32E+00	0.00E+00	0.00E+00
IL_132556	ConocoPhillips Co. - Utility boiler #15 (STK12-15)	754859.00	4302776.00	443.44	132.0	425.0	43.165	7.0	2.65E+01	1.62E+01	1.62E+01
IL_132557	ConocoPhillips Co. - Utility boiler #16 (STK12-16)	754875.00	4302778.00	443.21	132.0	425.0	43.165	7.0	2.78E+01	1.41E+01	1.41E+01
IL_132558	ConocoPhillips Co. - Utility boiler 17 (STK12-17)	754902.00	4302784.00	442.91	150.0	317.0	52.218	10.0	3.60E+01	1.82E+01	1.82E+01
IL_132559	ConocoPhillips Co. - Utility boiler 18 (STK6-9)	754919.00	4302809.00	442.52	100.0	325.0	14.465	6.2	3.00E+01	6.61E+00	6.61E+00
IL_132561	ConocoPhillips Co. - Hydrodesulfurization unit #1: Charge heater (HTR-HDU-1 - STK13-1)	755217.00	4302588.00	442.16	150.0	790.1	32.144	5.0	5.60E+00	0.00E+00	0.00E+00
IL_132564	ConocoPhillips Co. - Hydrodesulfurization unit #2: Charge heater (HTR-HDU-2 - STK12-14)	755022.00	4302530.00	442.95	150.0	900.1	31.422	5.8	4.90E+00	0.00E+00	0.00E+00
IL_132565	ConocoPhillips Co. - Cat reformer #3: Stabilizer reboiler (HTR-CR3-H2 - STK12-9)	755014.00	4302580.00	442.62	150.0	950.1	7.019	7.8	4.79E+00	0.00E+00	0.00E+00
IL_132567	ConocoPhillips Co. - Catalytic reformer unit #3: Charge heater (HTR-CR3 -H4)	755019.00	4302571.00	442.65	150.0	800.0	28.766	7.8	1.75E+01	8.04E+00	8.04E+00
IL_132568	ConocoPhillips Co. - Catalytic reformer unit #3: First interreactor heater (HTR-CR3-H5)	755019.00	4302548.00	442.78	150.0	749.9	26.929	7.8	2.11E+01	6.93E+00	6.93E+00
IL_132569	ConocoPhillips Co. - Cat reformer #3: Second interreactor heater (HTR-CR3-H6 - STK12-12)	755019.00	4302559.00	442.72	150.0	749.9	14.006	7.8	5.55E+00	0.00E+00	0.00E+00
IL_132594	ConocoPhillips Co. - Sulfuric acid tank	755114.00	4302829.00	441.93	40.0	186.0	26.273	2.0	1.78E+00	2.35E+00	2.35E+00
IL_132598	ConocoPhillips Co. - CCU-2 Startup heater B-1	754240.00	4303144.00	443.47	16.0	509.1	32.964	3.2	4.40E-01	0.00E+00	0.00E+00
IL_132599	Airgas USA, LLC - Liquified carbon dioxide plant	756314.00	4302509.00	435.93	30.0	70.1	79.573	0.2	4.10E-01	0.00E+00	0.00E+00
IL_132701	Kinder Morgan Liquids Terminals, LLC - New Truck loading rack	752998.00	4303578.00	435.63	20.0	70.1	0.262	2.2	4.87E+00	0.00E+00	0.00E+00
IL_132739	National Maintenance and Repair - Cleaver Brooks boiler (Stack 1 of 2)	750915.00	4300904.00	402.46	34.0	450.1	23.321	2.0	1.90E+00	5.00E+00	5.00E+00
IL_132777	Elias Kallal & Schaaf Funeral Home & Crematory - Crematorium	742098.00	4312210.00	627.20	30.0	1400.1	18.368	1.7	3.00E+00	0.00E+00	0.00E+00
IL_132781	Christ Bros Products, LLC - Baghouse	754160.00	4283243.00	419.46	32.0	240.0	83.706	3.9	5.56E+01	2.48E+01	2.48E+01
IL_132928	Enable Mississippi River Transmission, LLC - Engine SN-02	782556.00	4285336.00	492.29	30.0	1000.0	9.414	2.6	1.36E+01	0.00E+00	0.00E+00
IL_133625	Waterloo City Light Plant - Engine #1	748326.00	4246769.00	640.45	29.0	749.9	13.579	2.3	4.00E+01	1.35E+00	1.35E+00
IL_133627	Waterloo City Light Plant - Engine #9	748326.00	4246769.00	640.45	17.0	936.1	84.854	1.0	1.50E+01	3.60E+00	3.60E+00
IL_133628	Waterloo City Light Plant - Engine #10	748326.00	4246769.00	640.45	17.0	936.1	84.854	1.0	1.50E+01	3.60E+00	3.60E+00
IL_135983	Lakeview Memorial Gardens - Crematory	762896.00	4273894.00	579.89	16.0	895.0	26.666	2.6	8.40E+00	0.00E+00	0.00E+00
IL_136012	Breckenridge of IL - Natural gas combustion	756461.00	4277782.00	423.82	38.0	341.0	25.781	2.7	3.94E+00	0.00E+00	0.00E+00
IL_136014	Touchette Regional Hospital - 2 Boilers	751890.00	4273014.00	415.94	39.0	800.0	6.560	3.7	2.26E+00	0.00E+00	0.00E+00
IL_136018	Upchurch Ready Mix Concrete Company - Boiler	749859.00	4276616.00	418.44	30.0	376.1	29.684	3.7	0.00E+00	3.00E-01	3.00E-01
IL_136098	Safety Kleen Systems, Inc. - Pipe still (heat exchanger)	749786.00	4276425.00	420.28	15.0	170.0	0.295	1.0	0.00E+00	1.38E+00	1.38E+00

R006597

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

Source ID	Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	Potential Emissions (lb/hr)		
									CO	SOx	SO2 (1-hour)
IL_136125	Milam Recycling and Disposal Facility - Open flare	750434.00	4282812.00	420.54	42.0	1800.1	10.070	1.0	1.83E+01	6.00E+00	6.00E+00
IL_136129	Village of Freeburg - Engine #6	769352.00	4257578.00	509.42	24.0	749.9	24.239	1.8	3.93E+00	0.00E+00	0.00E+00
IL_136130	Village of Freeburg - Engine #4	769352.00	4257578.00	509.42	25.0	550.0	87.871	1.3	9.60E+00	0.00E+00	0.00E+00
IL_136131	Village of Freeburg - Engine #7	769352.00	4257578.00	509.42	22.0	900.1	18.926	2.7	4.50E+01	4.43E+00	4.43E+00
IL_136169	Darling Ingredients, Inc. - Continuous rendering process	747472.00	4281438.00	414.93	44.0	74.9	84.854	4.0	6.67E+00	1.43E+00	1.43E+00
IL_136187	Asphalt Sales & Products Inc. - Drum mix asphalt plant	772959.00	4275690.00	514.30	33.0	325.0	47.134	4.5	6.49E+01	2.90E+01	2.90E+01
IL_136486	Cerro Flow Products, LLC. - Piercing Mill Furnace #2	746228.00	4275272.00	407.32	25.0	299.9	38.901	2.0	8.65E-01	0.00E+00	0.00E+00
IL_136547	Christ Bros Products, LLC - Drum mix asphalt plant	747162.00	4269805.00	448.72	36.0	315.1	86.592	3.5	1.34E+01	5.91E+00	5.91E+00
IL_142809	Magnesium Elektron North America - Combustion units	746452.00	4285724.00	415.49	60.0	450.1	30.537	2.0	1.02E+01	4.44E+00	4.44E+00
IL_143317	Waterloo City Light Plant - Engine #11	748326.00	4246769.00	640.45	17.0	936.1	84.854	1.0	1.50E+01	3.60E+00	3.60E+00
IL_143319	Waterloo City Light Plant - Engine #7	748326.00	4246769.00	640.45	33.0	749.9	84.854	2.0	3.41E+01	0.00E+00	0.00E+00
IL_143320	Waterloo City Light Plant - Engine #8	748326.00	4246769.00	640.45	27.0	680.1	84.230	2.3	1.87E+01	1.36E+00	1.36E+00
IL_145809	ConocoPhillips Co. - Crude heaters (STK5-3)	754415.00	4303016.00	445.93	311.9	530.0	87.970	14.0	7.81E+01	1.98E+01	1.98E+01
IL_145820	ConocoPhillips Co. - Sulfur recovery unit #1 (STK3-1)	752928.00	4303077.00	428.41	125.0	965.9	17.712	7.2	0.00E+00	4.05E+01	4.05E+01
IL_145826	ConocoPhillips Co. - Supplemental air compressor engine CCU-1	754240.00	4303144.00	443.47	15.0	117.1	20.369	1.5	7.10E-01	1.74E+00	1.74E+00
IL_145838	ConocoPhillips Co. - Sulfur recovery unit #2 (STK3-2)	752929.00	4303071.00	428.38	125.0	965.9	17.712	7.2	0.00E+00	4.05E+01	4.05E+01
IL_145850	ConocoPhillips Co. - Flare for major effluent treatment project	754240.00	4303144.00	443.47	30.0	78.0	14.006	9.2	4.51E+00	0.00E+00	0.00E+00
IL_147845	Mayco Mfg, LLC - Britt kettles combustion stack	747189.00	4286970.00	421.78	34.0	250.1	2.362	1.1	2.00E-01	0.00E+00	0.00E+00
IL_147846	Mayco Mfg, LLC - Mixed metals A-II dross baghouse discharge stack	747189.00	4286970.00	421.78	30.0	95.1	52.611	5.0	5.77E-01	0.00E+00	0.00E+00
IL_148354	ConocoPhillips Co. - Catalytic cracking unit #1 (STK6-2)	754864.00	4302895.00	442.88	199.9	175.0	49.954	11.0	2.32E+01	3.84E+01	3.84E+01
IL_149873	City of Alton - Incinerator	749456.00	4310990.00	446.33	25.0	1400.1	53.038	1.0	1.40E+00	0.00E+00	0.00E+00
IL_149908	Charles E. Mahoney - Drum mix asphalt plant	749517.00	4309892.00	443.14	25.0	295.1	66.289	4.0	5.74E+01	2.56E+01	2.56E+01
IL_154190	Milam Recycling and Disposal Facility - Engine #1	750544.00	4282853.00	411.88	26.0	820.0	86.231	0.8	6.93E+00	1.78E+00	1.78E+00
IL_154191	Milam Recycling and Disposal Facility - Engine #2	750538.00	4282852.00	412.01	26.0	820.0	86.231	0.8	6.93E+00	1.78E+00	1.78E+00
IL_154192	Milam Recycling and Disposal Facility - Engine #3	750548.00	4282855.00	411.81	26.0	820.0	86.231	0.8	7.14E+00	1.84E+00	1.84E+00
IL_155302	Alton Steel Inc. - Ladle Furnace	747753.00	4307832.00	433.07	74.0	275.1	87.215	3.0	2.24E+01	1.12E+01	1.12E+01
IL_155304	Precoat Metals - Boiler B1	749469.00	4292538.00	424.97	24.0	700.1	20.730	1.6	8.80E-01	0.00E+00	0.00E+00
IL_155305	Granite City Pickling & Warehousing - Boiler	746973.00	4286890.00	422.41	50.0	331.1	15.449	2.7	7.06E-01	0.00E+00	0.00E+00
IL_155307	Kraft Heinz Co. - Boiler B	748105.00	4289580.00	423.56	40.0	380.0	68.946	2.0	1.44E+00	0.00E+00	0.00E+00
IL_155437	Southwestern Illinois Correctional Center - 2 Boilers	753202.00	4278290.00	421.46	32.0	450.1	15.285	1.5	7.06E-01	0.00E+00	0.00E+00
IL_155441	Asphalt Sales & Products Inc. - Asphalt heaters and boilers	772959.00	4275690.00	514.30	33.0	341.0	18.368	3.2	0.00E+00	2.80E+00	2.80E+00
IL_156624	US Air Force/Scott Air Force Base - Boilers and Heaters	774337.00	4270862.00	440.32	30.0	331.1	23.288	2.2	4.81E+00	0.00E+00	0.00E+00
IL_156970	Olin Winchester, LLC - Package Boiler (B-6)	750906.00	4308625.00	436.06	35.0	400.0	84.854	2.0	0.00E+00	4.60E+00	4.60E+00
IL_159940	Afton Chemical Corp. - 258 Sulfonation Stack	746513.00	4276305.00	407.05	158.0	70.1	41.820	1.0	0.00E+00	5.59E+00	5.59E+00
IL_159942	Afton Chemical Corp. - Unit 266 Flare 36-0011/36-0610	746653.00	4276356.00	410.10	100.0	700.1	59.368	0.7	8.55E+00	4.90E+01	4.90E+01
IL_159965	Afton Chemical Corp. - Flare 36-0219	746513.00	4276305.00	407.05	146.0	1000.0	42.837	0.4	3.84E+00	2.74E+01	2.74E+01
IL_160741	Brady McCasland, Inc. - Compaction plant	748518.00	4276987.00	413.75	17.0	1521.1	65.469	1.8	5.20E-01	0.00E+00	0.00E+00
IL_160742	Darling Ingredients, Inc. - Kewanee boiler	747472.00	4281438.00	414.93	35.0	450.1	54.448	2.6	1.96E+00	1.51E+01	1.51E+01
IL_160799	ConocoPhillips Co. - Supplemental air compressor engine CCU-2	754240.00	4303144.00	443.47	48.0	117.1	20.369	1.5	0.00E+00	1.74E+00	1.74E+00
IL_160898	Afton Chemical Corp. - Boiler 500-15-0110	746653.00	4276489.00	405.22	45.0	350.0	17.318	7.0	4.89E+00	0.00E+00	0.00E+00
IL_165120	BFI Waste Systems of North America, Inc. - Flare	758882.00	4264336.00	574.97	35.0	1600.1	23.485	0.8	6.80E+00	0.00E+00	0.00E+00
IL_166479	Union Electric Co. - Turbine CT02A	745573.00	4283620.00	420.60	30.0	850.0	18.860	11.4	7.73E+01	2.73E+01	2.73E+01
IL_166491	Enable Mississippi River Transmission, LLC - Turbine SN-03	782556.00	4285336.00	492.29	30.0	749.9	86.854	2.5	9.56E+00	0.00E+00	0.00E+00
IL_167781	Amsted Rail Co., Inc. - Pouring and casting (PR/CST-1)	747025.00	4287611.00	424.80	101.0	251.0	34.768	9.7	0.00E+00	6.70E-01	6.70E-01
IL_167787	Amsted Rail Co., Inc. - Ladle Preheater (LDP-1)	747039.00	4287611.00	424.93	82.0	505.0	31.488	6.1	6.50E+00	2.20E-01	2.20E-01
IL_167858	ConocoPhillips Co. - Scot unit	754240.00	4303144.00	443.47	16.0	115.1	15.580	9.0	0.00E+00	1.72E+02	1.72E+02
IL_169226	Messer, LLC - 2 Boilers	752309.00	4301220.00	434.42	15.0	800.0	0.525	1.4	2.52E+00	0.00E+00	0.00E+00
IL_172707	St. Anthony's Hospital - Boiler #4	745097.00	4310364.00	584.58	64.0	400.0	58.614	2.3	0.00E+00	6.02E+00	6.02E+00
IL_179611	Highland Electric Light Plant - Engine IC-1	788126.93	4293320.17	534.65	12.0	656.0	86.920	1.2	1.44E+01	0.00E+00	0.00E+00
IL_179671	Village of Freeburg - Engine #1	769352.00	4257578.00	509.42	30.0	500.1	40.311	1.0	8.55E+00	8.25E-01	8.25E-01
IL_179672	Village of Freeburg - Engine #2	769352.00	4257578.00	509.42	30.0	500.1	40.311	1.0	8.55E+00	8.25E-01	8.25E-01
IL_179673	Village of Freeburg - Engine #3a	769352.00	4257578.00	509.42	25.0	500.1	55.170	1.0	5.92E+00	0.00E+00	0.00E+00
IL_181173	ConocoPhillips Co. - Loading rack	752292.00	4299987.00	429.92	40.0	1800.1	87.510	2.0	1.53E+00	0.00E+00	0.00E+00
IL_183733	Veolia ES Technical Solutions, LLC - Hazardous waste incinerator #4 (rotary kiln)	745532.00	4275942.00	414.76	57.0	650.9	32.570	2.8	3.17E+00	1.16E+01	1.16E+01
IL_189069	US Air Force/Scott Air Force Base - Diesel generators	774337.00	4270862.00	440.32	37.0	402.0	29.389	1.3	5.83E+01	0.00E+00	0.00E+00
IL_190090	Contract Services, LLC - 3 Boilers	746767.00	4275755.00	417.81	40.0	310.0	50.381	4.2	8.53E+00	5.14E+00	5.14E+00

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

Source ID	Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	Potential Emissions (lb/hr)		
									CO	SOx	SO2 (1-hour)
IL_192953	Midwest Metal Coatings, LLC - Chemical coater/infrared oven (CC/ IRO)	748281.00	4290395.00	423.88	34.0	110.0	18.926	3.0	2.90E-01	0.00E+00	0.00E+00
IL_192964	Midwest Metal Coatings, LLC - Afterburner	748281.00	4290395.00	423.88	34.0	900.1	23.780	5.0	3.28E-01	0.00E+00	0.00E+00
IL_192967	Midwest Metal Coatings, LLC - Boiler (B1)	748281.00	4290395.00	423.88	34.0	400.0	67.338	1.5	2.12E+00	0.00E+00	0.00E+00
IL_198552	Christ Bros Products, LLC - Drum mix asphalt plant	778702.00	4276345.00	439.34	35.0	297.1	62.254	3.8	2.95E+01	1.32E+01	1.32E+01
IL_201652	Empire Comfort Systems - Stack	763529.00	4266192.00	477.26	25.0	800.0	14.334	1.0	2.69E+00	0.00E+00	0.00E+00
IL_204833	Milam Recycling and Disposal Facility - 3 Passive solar flares	750550.00	4282537.00	594.06	20.0	1800.1	57.138	0.7	4.23E+00	4.38E+00	4.38E+00
IL_207740	Chemtrade Solutions, LLC - Scrubber C007	753339.00	4281367.00	422.21	30.0	70.1	0.394	0.3	0.00E+00	2.00E-01	2.00E-01
IL_208343	Center Point Terminal Co. - Asphalt and polymer modified blend tank (T-9)	746361.00	4289240.00	416.44	33.0	185.1	0.951	1.5	1.00E-01	0.00E+00	0.00E+00
IL_209238	Concrete Supply, LLC - Natural gas combustion	757768.00	4302270.00	444.69	20.0	341.0	25.781	2.7	9.69E-01	0.00E+00	0.00E+00
IL_209433	Alton Water Treatment Facility - Stack	742583.00	4309460.00	488.98	22.0	400.0	85.083	0.7	0.00E+00	5.50E-01	5.50E-01
IL_211274	Kienstra-Illinois, LLC - Natural gas combustion	764550.00	4296982.00	575.95	20.0	341.0	25.781	2.7	7.68E-01	0.00E+00	0.00E+00
IL_211772	Center Point Terminal Co. - Incinerator/waste heat boiler	746361.00	4289240.00	416.44	18.0	650.0	7.970	2.0	1.83E-01	1.05E+00	1.05E+00
IL_212692	Chain of Rocks Recycling & Disposal - Open flare	746945.00	4293274.00	431.59	20.0	1400.1	47.265	0.7	6.92E+00	1.06E+00	1.06E+00
IL_212881	Koch Fertilizer, LLC - Ammonia heater	750008.00	4305316.00	428.15	25.0	250.1	42.443	1.0	2.43E+00	5.30E-01	5.30E-01
IL_213573	Illinois Department of Transportation - R and K model 367-1 incinerator	732106.00	4332182.00	623.79	15.0	736.1	30.865	2.8	2.88E+00	0.00E+00	0.00E+00
IL_213834	Darling Ingredients, Inc. - Johnson boiler	747472.00	4281438.00	414.93	33.0	450.1	46.937	2.8	1.96E+00	1.51E+01	1.51E+01
IL_213854	Solvay Fluorides, LLC - Boiler	750245.00	4276115.00	419.72	30.0	361.0	7.314	2.8	1.44E+00	0.00E+00	0.00E+00
IL_215315	Madison County Sand, LLC - Drum mix asphalt plant	758921.00	4289026.00	422.01	32.0	245.0	64.452	4.1	1.63E+01	5.00E-01	5.00E-01
IL_217756	Phillips 66 Pipeline, LLC - Truck loading racks	744935.00	4274152.00	407.25	20.0	70.1	10.594	2.0	1.10E+01	0.00E+00	0.00E+00
IL_218530	ConocoPhillips Co. - North property ground flare (FLR1-2)	754486.00	4303322.00	445.08	195.0	1800.1	2.394	3.0	1.41E+01	0.00E+00	0.00E+00
IL_218537	Custom Steel Processing - Scrubber	746335.00	4286043.00	416.99	55.0	70.1	49.036	4.2	0.00E+00	1.00E-01	1.00E-01
IL_218539	Custom Steel Processing - Sulfuric acid storage tank	746335.00	4286043.00	416.99	35.0	127.0	0.000	2.4	0.00E+00	1.00E-01	1.00E-01
IL_218569	Contract Services, LLC - Boiler #4	746767.00	4275755.00	417.81	40.0	310.0	49.036	3.7	1.30E+01	1.64E+00	1.64E+00
IL_218687	ConocoPhillips Co. - Gas plant sour water stripper	754240.00	4303144.00	443.47	15.0	128.9	11.382	2.9	1.06E+00	0.00E+00	0.00E+00
IL_218995	Asphalt Sales & Products Inc. - Asphalt silos and truck loadout	772959.00	4275690.00	514.30	32.0	86.1	84.854	1.5	1.26E+00	0.00E+00	0.00E+00
IL_219420	Crown Textile Services - Boiler	744287.00	4259382.00	466.40	24.0	450.1	35.227	1.7	1.03E+00	0.00E+00	0.00E+00
IL_220266	American Colloid Co. - Sand drying	746862.00	4287239.00	419.91	72.0	491.1	28.766	3.3	1.29E+00	0.00E+00	0.00E+00
IL_220267	American Colloid Co. - Space Heaters	746862.00	4287239.00	419.91	35.0	198.1	21.484	1.4	2.30E-01	0.00E+00	0.00E+00
IL_220618	Asphalt Sales & Products Inc. - Drum mix asphalt plant	757560.00	4299901.00	441.63	32.0	280.0	68.322	4.3	7.61E+01	3.40E+01	3.40E+01
IL_220849	ConocoPhillips Co. - Alkylation unit flare (FLR6-1)	755035.00	4303081.00	442.55	199.9	1800.1	2.034	2.5	1.85E+01	0.00E+00	0.00E+00
IL_222033	Waterloo City Light Plant - Dual fuel-fired Turbine GT1	748326.00	4246769.00	640.45	39.0	612.1	41.590	4.8	1.77E+01	0.00E+00	0.00E+00
IL_222134	Asphalt Sales & Products Inc. - Asphalt silo loading	757560.00	4299901.00	441.63	26.0	123.0	4.986	1.7	7.00E-01	0.00E+00	0.00E+00
IL_222135	Asphalt Sales & Products Inc. - Asphalt heaters and boilers	757560.00	4299901.00	441.63	35.0	361.0	26.896	3.7	0.00E+00	2.80E+00	2.80E+00
IL_222988	Apex Oil Co., Inc. - Thermal oxidizers	752471.00	4302667.00	431.07	18.0	820.0	43.985	2.3	2.98E+00	0.00E+00	0.00E+00
IL_223796	Union Electric Co. - Turbine CT03	745735.00	4282930.00	420.96	38.0	603.1	74.948	3.4	4.90E+01	1.30E+00	1.30E+00
IL_223797	Union Electric Co. - Turbine CT04	745776.00	4282947.00	421.16	38.0	603.1	74.948	3.4	4.90E+01	1.30E+00	1.30E+00
IL_223798	Union Electric Co. - Turbine CT05	745538.00	4283620.00	420.90	38.0	603.1	74.948	3.4	6.90E+01	9.00E-01	9.00E-01
IL_224167	Interurban ILAWC - Emergency generator	757265.00	4276109.00	482.38	29.0	880.1	51.463	1.3	1.10E+01	4.60E+00	0.00E+00
IL_224416	Belleville Landfill, Inc. - Flare	760402.00	4264040.00	571.88	35.0	1600.1	8.659	0.8	1.22E+01	0.00E+00	0.00E+00
IL_224592	Christ Bros Products, LLC - Drum mix asphalt plant	755685.00	4299823.00	431.10	32.0	251.0	53.628	4.1	3.09E+01	1.38E+01	1.38E+01
IL_224594	Christ Bros Products, LLC - Asphalt tank heaters and boilers	755701.00	4299841.00	427.46	10.0	416.0	42.443	1.0	1.18E+00	2.80E+00	2.80E+00
IL_224838	Enable Mississippi River Transmission, LLC - Compressor engine SN-01	750039.00	4285426.00	410.47	22.0	1125.1	66.453	1.1	5.67E+00	0.00E+00	0.00E+00
IL_224839	Enable Mississippi River Transmission, LLC - Compressor engine SN-02	750044.00	4285416.00	410.24	22.0	1125.1	66.453	1.1	5.67E+00	0.00E+00	0.00E+00
IL_224840	Enable Mississippi River Transmission, LLC - Compressor engine SN-03	750049.00	4285406.00	410.37	22.0	1125.1	66.453	1.1	5.67E+00	0.00E+00	0.00E+00
IL_224841	Enable Mississippi River Transmission, LLC - Compressor engine SN-04	750054.00	4285397.00	410.30	22.0	1125.1	66.453	1.1	5.67E+00	0.00E+00	0.00E+00
IL_224901	Premcor Refining Group, Inc. - Thermal oxidizer	752775.00	4302414.00	429.95	20.0	342.1	49.462	0.8	7.40E-01	0.00E+00	0.00E+00
IL_225166	Metro Crematory - Crematory	754120.00	4290785.00	417.29	18.0	736.1	84.854	1.0	1.50E+00	0.00E+00	0.00E+00
IL_225832	ConocoPhillips Co. - Startup/malfunction/breakdown	754240.00	4303144.00	443.47	103.0	623.9	21.681	4.6	2.86E+01	1.91E+02	1.91E+02
IL_225843	City of O'Fallon - 400 kW (591 HP) Diesel generator	774612.00	4277280.00	434.42	13.0	500.1	86.592	0.7	3.37E+00	0.00E+00	0.00E+00
IL_225844	City of O'Fallon - 900 kW (1 322 HP) Diesel generator	774612.00	4277280.00	434.42	17.0	500.1	86.592	0.7	7.55E+00	0.00E+00	0.00E+00
IL_225960	Waterloo City Light Plant - Engine #4	748326.00	4246769.00	640.45	37.0	680.1	87.904	2.5	3.32E+01	0.00E+00	0.00E+00
IL_226013	Milam Recycling and Disposal Facility - 325 HP Tub grinder	750550.00	4282537.00	594.06	7.0	627.0	74.030	0.3	2.20E+00	8.00E-01	8.00E-01
IL_226014	Milam Recycling and Disposal Facility - Enclosed flare	750476.00	4282825.00	419.62	55.0	1400.1	0.656	12.0	2.40E+01	6.08E+00	6.08E+00
IL_226015	Milam Recycling and Disposal Facility - 760 HP Tub grinder	750550.00	4282537.00	594.06	8.0	627.0	70.881	0.7	5.10E+00	1.90E+00	1.90E+00
IL_226184	GBC Metals, LLC (d/b/a Olin Brass) - 1F Mix muller (MM-3) Low profile turbine (LF-1) and Induction form s	750075.00	4306259.00	432.32	41.0	209.9	36.080	2.1	2.00E+00	0.00E+00	0.00E+00
IL_226204	GBC Metals, LLC (d/b/a Olin Brass) - Strip anneal #4 (SA-4)	750150.00	4308388.00	431.10	90.0	350.0	41.426	1.6	9.33E+01	0.00E+00	0.00E+00

R006599

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

Source ID	Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	Potential Emissions (lb/hr)		
									CO	SOx	SO2 (1-hour)
IL_226256	GBC Metals, LLC (d/b/a Olin Brass) - Strip Anneal #3 (SA-3)	750439.00	4308328.00	433.83	100.0	350.0	62.746	1.3	9.83E+01	0.00E+00	0.00E+00
IL_226257	GBC Metals, LLC (d/b/a Olin Brass) - #7 Strip Anneal (SA-7)	750222.00	4308335.00	433.20	89.0	850.0	38.671	1.5	1.18E+02	0.00E+00	0.00E+00
IL_226352	Olin Winchester, LLC - Hammermill 1 2 and 3 (HM-1 HM-2 and HM-3)	750495.00	4308287.00	434.42	21.0	160.1	19.647	1.8	8.03E+00	0.00E+00	0.00E+00
IL_226612	Solutia Inc. - Santoflex process Thermal oxidizer 2770934	746325.00	4275822.00	405.12	112.0	865.0	16.794	12.6	1.50E+01	0.00E+00	0.00E+00
IL_226783	Schildknecht Funeral Home, Inc. - Crematory	769033.00	4275796.00	549.57	17.0	1241.0	13.612	1.7	1.20E+00	0.00E+00	0.00E+00
IL_227030	ConocoPhillips Co. - #4 Crude unit heater H-24 (STK9-5)	753051.00	4302413.00	428.81	179.9	550.0	26.207	8.5	2.27E+01	0.00E+00	0.00E+00
IL_227032	ConocoPhillips Co. - Hydrogen plant #1 flare (FLR12-2)	755194.00	4302793.00	443.67	130.0	1800.1	7.970	1.7	1.62E+01	0.00E+00	0.00E+00
IL_227034	ConocoPhillips Co. - Sulfur operation	754240.00	4303144.00	443.47	158.0	590.1	37.753	3.4	0.00E+00	3.00E+01	3.00E+01
IL_227035	ConocoPhillips Co. - Process heater HP-1 (STK12-6)	755194.00	4302793.00	443.67	127.0	360.1	27.093	7.5	6.97E+00	0.00E+00	0.00E+00
IL_227038	ConocoPhillips Co. - SZU Charge heater H-3	755219.00	4302667.00	442.29	150.0	567.1	25.518	5.0	5.75E+00	0.00E+00	0.00E+00
IL_227333	Waterloo City Light Plant - Engine SGS	750635.00	4249410.00	628.97	8.0	924.0	61.172	0.7	1.40E+00	0.00E+00	0.00E+00
IL_227400	Collinsville Wastewater Treatment Plant - Emergency diesel generator (2922 HP/2180 kW)	758289.00	4283982.00	419.36	36.0	692.0	67.371	2.0	1.72E+01	1.20E+00	0.00E+00
IL_227432	Totall Metal Recycling, Inc. - Safety certification unit	748030.00	4289120.00	422.74	6.0	587.0	8.069	1.2	1.00E-01	0.00E+00	0.00E+00
IL_227590	Illinois Electric Works - 3 Burn off ovens	747872.00	4288124.00	423.20	46.0	250.1	41.230	2.4	1.17E+00	6.90E-02	6.90E-02
IL_227679	Union Electric Co. - Diesel generator	745516.00	4283326.00	430.38	26.0	490.0	60.811	1.4	1.30E+00	1.60E-01	1.60E-01
IL_228119	St. Clair Crematory - Human crematory	773291.00	4275644.00	507.28	17.0	1241.0	13.612	1.7	1.20E+00	0.00E+00	0.00E+00
IL_228260	Center Ethanol Co. - West boiler	745888.00	4275662.00	412.66	75.0	428.1	43.460	3.0	3.23E+00	0.00E+00	0.00E+00
IL_228262	Center Ethanol Co. - East boiler	745888.00	4275662.00	412.66	75.0	428.1	45.428	3.0	3.23E+00	0.00E+00	0.00E+00
IL_228263	Center Ethanol Co. - RTO	745888.00	4275662.00	412.66	50.0	310.0	70.684	5.5	6.85E+00	0.00E+00	0.00E+00
IL_228294	ConocoPhillips Co. - Distilling west refinery flare (FLR10-1)	753647.00	4302546.00	430.31	197.0	1800.1	6.626	3.0	2.51E+01	0.00E+00	0.00E+00
IL_228295	ConocoPhillips Co. - SZU Regenerator vent	755209.00	4302720.00	442.32	44.0	135.1	32.341	2.0	1.78E+00	2.35E+00	2.35E+00
IL_229921	Christ Bros Products, LLC - 8 Heaters and boilers	754160.00	4283243.00	419.46	37.0	400.0	20.664	1.8	1.18E+00	2.80E+00	2.80E+00
IL_229922	Christ Bros Products, LLC - Silo filling	754160.00	4283243.00	419.46	25.0	74.0	0.262	0.4	5.10E-01	0.00E+00	0.00E+00
IL_229923	Christ Bros Products, LLC - Truck loading	754160.00	4283243.00	419.46	29.0	135.1	48.052	2.0	5.80E-01	0.00E+00	0.00E+00
IL_230300	Afton Chemical Corp. - Flare 36-0090	746478.00	4276293.00	407.28	45.0	1600.1	0.656	8.0	2.20E+00	0.00E+00	0.00E+00
IL_230350	Village of Freeburg - Engine #10	769352.00	4257578.00	509.42	28.0	929.9	87.674	1.5	1.28E+01	3.20E+00	3.20E+00
IL_230355	Asphalt Sales & Products Inc. - Truck loadout	757560.00	4299901.00	441.63	28.0	135.1	43.198	1.9	7.90E-01	0.00E+00	0.00E+00
IL_231259	Village of Freeburg - Engine #11	769352.00	4257578.00	509.42	28.0	929.9	87.674	1.5	1.28E+01	3.20E+00	3.20E+00
IL_231260	Village of Freeburg - Engine #12	769352.00	4257578.00	509.42	28.0	929.9	87.674	1.5	1.28E+01	3.20E+00	3.20E+00
IL_231291	Kurrus Funeral Home - 2 Crematories	759066.00	4271234.00	547.11	18.0	787.0	13.186	1.1	2.70E+00	0.00E+00	0.00E+00
IL_232739	ConocoPhillips Co. - Benzene extraction unit #3 (STK6-4)	754923.00	4302930.00	442.59	185.0	470.0	16.138	9.7	1.22E+01	0.00E+00	0.00E+00
IL_232785	Roxana Landfill, Inc. - Enclosed flare	759153.00	4301368.00	619.62	35.0	1600.1	20.008	12.0	2.31E+01	1.76E+00	1.76E+00
IL_233294	Gateway Terminals, LLC. - Marine vapor combustion unit (MVCU)	744607.00	4275093.00	422.70	74.0	514.0	25.158	3.3	1.69E+01	0.00E+00	0.00E+00
IL_233295	Gateway Terminals, LLC. - Truck/Rail vapor destruction unit (TRCU)	744607.00	4275093.00	422.70	74.0	514.0	25.158	3.3	8.39E+00	0.00E+00	0.00E+00
IL_235261	Gulfstream Aerospace Services Corp. - Make-up air unit 19-3	747629.00	4273560.00	410.10	42.0	577.0	29.356	2.5	1.63E+00	0.00E+00	0.00E+00
IL_235939	GBC Metals, LLC (d/b/a Olin Brass) - Strip anneal #5 (SA-5)	750151.00	4308373.00	430.91	90.0	450.1	54.087	1.4	1.07E+02	0.00E+00	0.00E+00
IL_235940	GBC Metals, LLC (d/b/a Olin Brass) - Strip anneal #6 (SA-6)	750207.00	4308390.00	431.82	110.0	580.0	62.779	1.3	1.07E+02	0.00E+00	0.00E+00
IL_236260	Bunge-SF Grain, LLC. - Grain Dryer	746158.00	4281045.00	417.55	96.0	105.0	87.904	8.2	5.06E+00	1.71E+01	1.71E+01
IL_236359	City of Belleville - 2 Emergency generators (1500 kW each)	763544.00	4265595.00	474.70	28.0	627.0	73.767	1.2	2.57E+01	1.84E+00	0.00E+00
IL_236927	Kraft Heinz Co. - Boiler C	748105.00	4289580.00	423.56	40.0	380.0	68.946	2.0	1.44E+00	0.00E+00	0.00E+00
IL_236928	Kraft Heinz Co. - Boiler D	748105.00	4289580.00	423.56	40.0	380.0	68.946	2.0	1.44E+00	0.00E+00	0.00E+00
IL_236929	Kraft Heinz Co. - Boiler E	748105.00	4289580.00	423.56	40.0	380.0	68.946	2.0	1.44E+00	0.00E+00	0.00E+00
IL_236930	National Maintenance and Repair - Cleaver Brooks boiler (Stack 2 of 2)	750920.00	4300904.00	402.46	34.0	450.1	23.321	2.0	1.90E+00	5.00E+00	5.00E+00
IL_237099	Union Electric Co. - Turbine CT02B	745573.00	4283613.00	419.69	30.0	850.0	18.860	11.4	7.74E+01	2.73E+01	2.73E+01
IL_237182	Highland Electric Light Plant - Engine IC-6	788126.93	4293320.17	534.65	28.0	612.1	84.854	2.0	1.32E+01	0.00E+00	0.00E+00
IL_237183	Highland Electric Light Plant - Engine IC-8	788126.93	4293320.17	534.65	57.0	734.1	61.762	11.4	2.57E+01	0.00E+00	0.00E+00
IL_237340	Charles E. Mahoney - Asphalt silo filling	749517.00	4309892.00	443.14	25.0	74.0	0.262	0.4	5.30E-01	0.00E+00	0.00E+00
IL_237341	Charles E. Mahoney - Truck loadout	749517.00	4309892.00	443.14	27.0	136.0	42.050	1.9	6.00E-01	0.00E+00	0.00E+00
IL_237362	Charles E. Mahoney - Asphalt heaters and boilers	749517.00	4309892.00	443.14	10.0	350.0	69.995	1.0	1.18E+00	2.80E+00	2.80E+00
IL_237659	Green Plains Madison, LLC - Boiler #1	745256.00	4285477.00	414.14	71.0	284.1	22.960	3.3	1.29E+00	5.00E-01	5.00E-01
IL_237660	Green Plains Madison, LLC - Fire Pump back-up Engine (460 HP)	745191.00	4285409.00	413.85	13.0	627.0	86.231	0.8	4.80E-01	9.40E-01	0.00E+00
IL_237661	Green Plains Madison, LLC - Electrical system backup Engine (1495 HP)	745144.00	4285537.00	415.88	28.0	627.0	73.767	1.2	3.54E+00	1.21E+01	0.00E+00
IL_237679	Green Plains Madison, LLC - Indirect dryer #1	745191.00	4285468.00	415.12	71.0	387.1	12.136	4.6	7.97E+00	4.10E-01	4.10E-01
IL_237866	Amsted Rail Co., Inc. - Curing oven	746913.00	4287625.00	419.23	39.0	258.0	27.978	1.9	2.52E-01	0.00E+00	0.00E+00
IL_237899	Center Ethanol Co. - Emergency generator	745888.00	4275662.00	412.66	28.0	627.0	73.767	1.2	3.30E+00	0.00E+00	0.00E+00
IL_237903	Center Ethanol Co. - Ethanol loadout Rack	745888.00	4275662.00	412.66	19.0	99.1	7.806	0.7	8.86E-01	0.00E+00	0.00E+00

R006600

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

Source ID	Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	Potential Emissions (lb/hr)		
									CO	SOx	SO2 (1-hour)
IL_238199	Solutia Inc. - An in-situ soil vapor extraction system	746325.00	4275822.00	405.12	15.0	70.1	73.406	0.2	4.00E-01	0.00E+00	0.00E+00
IL_238839	Waterloo City Light Plant - Turbine Generator (GT2)	748326.00	4246769.00	640.45	39.0	965.9	87.937	4.8	1.78E+01	0.00E+00	0.00E+00
IL_238942	ConocoPhillips Co. - Rental Boiler #3	754240.00	4303144.00	443.47	20.0	550.0	46.412	4.0	1.65E+00	0.00E+00	0.00E+00
IL_239395	Amsted Rail Co., Inc. - Sand dryer	746975.00	4287537.00	422.05	39.0	284.1	23.157	2.0	1.24E+00	0.00E+00	0.00E+00
IL_239396	Amsted Rail Co., Inc. - Thermal sand reclaimer	746975.00	4287537.00	422.05	39.0	284.1	23.157	2.0	3.70E-01	0.00E+00	0.00E+00
IL_239899	Shell Oil Products US - RTO	753758.00	4303650.00	442.59	19.0	200.0	33.948	2.5	0.00E+00	8.47E-01	8.47E-01
IL_240053	Westwood Lands, Inc. - Process heater DFH-1	748864.00	4285684.00	412.99	39.0	284.1	23.157	2.0	8.30E-01	0.00E+00	0.00E+00
IL_240359	Afton Chemical Corp. - Boiler S00-15-0210	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 S00-15-0310	746674.00	4276485.00	407.25	45.0	350.0	17.318	7.0	4.91E+00	0.00E+00	0.00E+00
IL_241300	ConocoPhillips Co. - VOC Flare (West - FLR4-1)	753428.00	4303073.00	428.81	30.0	1800.1	26.174	0.7	1.43E+00	0.00E+00	0.00E+00
IL_241301	ConocoPhillips Co. - VOC Flare (East - FLR4-2)	753441.00	4303073.00	428.77	30.0	1800.1	26.174	0.7	1.43E+00	0.00E+00	0.00E+00
IL_241302	ConocoPhillips Co. - Coker north flare (FLR1-3)	754947.00	4303684.00	444.23	139.0	911.0	26.535	5.4	0.00E+00	3.08E+01	3.08E+01
IL_241303	ConocoPhillips Co. - VF-5 Heater (H350H4 - STK1-1)	754937.00	4303459.00	444.98	150.0	650.0	26.765	12.0	0.00E+00	1.35E+01	1.35E+01
IL_241304	ConocoPhillips Co. - Coker north heater (H351H2 - STK1-2)	754953.00	4303305.00	444.85	150.0	500.1	22.304	10.0	0.00E+00	7.37E+00	7.37E+00
IL_241305	ConocoPhillips Co. - Coker north heater (H351H1 - STK1-3)	754986.00	4303306.00	444.82	150.0	500.1	22.304	10.0	0.00E+00	7.38E+00	7.38E+00
IL_241312	ConocoPhillips Co. - Heater HP-2 (STK7-1)	755263.00	4302920.00	443.86	118.0	400.0	45.002	10.8	0.00E+00	2.87E+01	2.87E+01
IL_241405	Procter & Gamble Distributing - Emergency diesel generator #1	756504.00	4295421.00	425.00	26.0	490.0	60.811	1.4	1.68E+01	0.00E+00	0.00E+00
IL_241449	Procter & Gamble Distributing - Emergency diesel generator #2	756494.00	4295735.00	424.74	26.0	490.0	60.811	1.4	1.68E+01	0.00E+00	0.00E+00
IL_242126	Center Point Terminals Co. - Tank Heater	746359.00	4289027.00	411.84	49.0	331.1	32.144	2.5	1.03E+00	0.00E+00	0.00E+00
IL_245579	Procter & Gamble Distributing - Emergency diesel generator #3	756198.00	4295409.00	424.97	26.0	490.0	60.811	1.4	1.68E+01	0.00E+00	0.00E+00
IL_245580	Procter & Gamble Distributing - Emergency diesel generator #4	756182.00	4295721.00	424.77	26.0	490.0	60.811	1.4	1.68E+01	0.00E+00	0.00E+00
IL_245839	Milam Recycling and Disposal Facility - Landfill gas conversion plant	750666.00	4282895.00	413.09	55.0	70.1	0.000	4.5	3.80E+00	9.00E-01	9.00E-01
IL_246759	Stookey Township WWTP - 2000 kW Emergency generator	756253.00	4269975.00	518.86	28.0	627.0	73.767	1.2	1.54E+01	0.00E+00	0.00E+00
IL_246761	Omega Partners Hartford, LLC - Truck Rail Marine racks loadout and VCUs	752232.00	4300866.00	430.74	33.0	69.5	0.328	0.3	6.60E+00	0.00E+00	0.00E+00
IL_246762	Omega Partners Hartford, LLC - Boiler 1 and 2	752273.00	4300698.00	430.18	58.0	436.0	27.650	3.4	3.83E+00	0.00E+00	0.00E+00
IL_248060	Kraft Heinz Co. - Boiler F	748105.00	4289580.00	423.56	26.0	380.0	34.407	2.0	1.44E+00	0.00E+00	0.00E+00
IL_248262	Olin Winchester, LLC - New Rotary retort process (RDR-2)	750495.00	4308287.00	434.42	16.0	119.9	26.634	1.7	9.62E+00	0.00E+00	0.00E+00
IL_248799	Gateway Terminals, LLC. - 600 HP Boiler	744607.00	4275093.00	422.70	26.0	440.0	39.557	2.2	2.11E+00	0.00E+00	0.00E+00
IL_249480	Highland Electric Light Plant - Engine IC-2	788126.93	4293320.17	534.65	57.0	734.1	61.762	11.4	1.44E+01	0.00E+00	0.00E+00
IL_249481	Highland Electric Light Plant - Engine IC-3	788126.93	4293320.17	534.65	57.0	734.1	61.762	11.4	1.25E+01	0.00E+00	0.00E+00
IL_249482	Highland Electric Light Plant - Engine IC-9	788126.93	4293320.17	534.65	57.0	734.1	61.762	11.4	1.50E+01	0.00E+00	0.00E+00
IL_249483	Highland Electric Light Plant - Engine IC-10	788126.93	4293320.17	534.65	57.0	734.1	61.762	11.4	1.50E+01	0.00E+00	0.00E+00
IL_249499	Roxana Landfill, Inc. - Zink ultra-Low emissions (Zule) Flare	759153.00	4301368.00	619.62	60.0	1800.1	46.838	13.0	1.25E+01	1.55E+01	1.55E+01
IL_250343	Mayco Mfg, LLC - Natural gas combustion	747189.00	4286970.00	421.78	39.0	284.1	23.157	2.0	1.74E+00	0.00E+00	0.00E+00
IL_250892	ConocoPhillips Co. - Lift station pump (21028)	754240.00	4303144.00	443.47	26.0	490.0	60.811	1.4	1.40E+00	4.90E-01	4.90E-01
IL_250893	ConocoPhillips Co. - Lift station pump (21029)	754240.00	4303144.00	443.47	26.0	490.0	60.811	1.4	1.30E+00	4.60E-01	4.60E-01
IL_250894	ConocoPhillips Co. - Non-emergency air compressor #1	754240.00	4303144.00	443.47	26.0	490.0	60.811	1.4	6.01E+00	2.12E+00	2.12E+00
IL_250895	ConocoPhillips Co. - Non-emergency air compressor #2	754240.00	4303144.00	443.47	26.0	490.0	60.811	1.4	6.01E+00	2.12E+00	2.12E+00
IL_250896	ConocoPhillips Co. - Non-emergency air compressor #3	754240.00	4303144.00	443.47	26.0	490.0	60.811	1.4	5.98E+00	2.10E+00	2.10E+00
IL_250897	ConocoPhillips Co. - Non-emergency air compressor #4	754240.00	4303144.00	443.47	26.0	490.0	60.811	1.4	6.01E+00	2.12E+00	2.12E+00
IL_250898	ConocoPhillips Co. - Non-emergency air compressor #5	754240.00	4303144.00	443.47	26.0	490.0	60.811	1.4	6.01E+00	2.12E+00	2.12E+00
IL_250899	ConocoPhillips Co. - Non-emergency air compressor #6	754240.00	4303144.00	443.47	26.0	490.0	60.811	1.4	5.98E+00	2.10E+00	2.10E+00
IL_251099	Amsted Rail Co., Inc. - Annealing Furnace 18	747071.00	4287670.00	426.02	39.0	284.1	23.157	2.0	1.12E+00	1.00E-01	1.00E-01
IL_251286	Premcor Refining Group, Inc. - Vapor Combustion Unit	752775.00	4302414.00	429.95	53.0	289.0	24.830	2.9	1.00E+01	0.00E+00	0.00E+00
IL_251735	ConocoPhillips Co. - Diesel engine (605 HP)	754240.00	4303144.00	443.47	15.0	69.5	0.328	0.3	3.50E+00	0.00E+00	0.00E+00
IL_251754	Chain of Rocks Recycling & Disposal - Passive flare #1	746944.00	4293274.00	431.79	10.0	841.0	4.756	0.5	4.95E-01	0.00E+00	0.00E+00
IL_253107	Allnex USA, Inc. - Natural gas combustion	749698.00	4276478.00	418.37	58.0	436.0	27.650	3.4	3.26E+00	0.00E+00	0.00E+00
IL_253166	Cerro Flow Products, LLC. - Generators	746228.00	4275272.00	407.32	26.0	490.0	60.811	1.4	9.23E-01	2.82E-01	2.82E-01
IL_253167	City of Belleville - Emergency diesel generator (1500 kW)	762469.00	4266351.00	468.70	26.0	490.0	60.811	1.4	1.16E+01	0.00E+00	0.00E+00
IL_253300	Phillips 66 Pipeline, LLC - Engines (insignificant activities)	744935.00	4274152.00	407.25	26.0	490.0	60.811	1.4	9.23E-01	0.00E+00	0.00E+00
IL_253361	Amsted Rail Co., Inc. - Sand regeneration process (combustion)	746975.00	4287537.00	422.05	39.0	284.1	23.157	2.0	2.80E-01	2.80E-01	2.80E-01
IL_253367	Green Plains Madison, LLC - Boiler #2	745258.00	4285486.00	414.27	71.0	284.1	22.960	3.3	1.29E+00	5.00E-01	5.00E-01
IL_253368	Green Plains Madison, LLC - Boiler #3	745260.00	4285491.00	414.24	71.0	284.1	22.960	3.3	1.29E+00	5.00E-01	5.00E-01
IL_253369	Green Plains Madison, LLC - Boiler #4	745262.00	4285500.00	414.21	71.0	284.1	22.960	3.3	1.29E+00	5.00E-01	5.00E-01
IL_253370	Green Plains Madison, LLC - Indirect dryer #2	745164.00	4285430.00	414.60	81.0	387.1	8.430	5.5	7.97E+00	4.10E-01	4.10E-01
IL_253386	GBC Metals, LLC (d/b/a Olin Brass) - Engines (insignificant activities)	750423.00	4308352.00	434.28	26.0	490.0	60.811	1.4	9.23E-01	0.00E+00	0.00E+00

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

Source ID	Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	Potential Emissions (lb/hr)		
									CO	SOx	SO2 (1-hour)
IL_253738	Milam Recycling and Disposal Facility - 2000 scfm Utility Flare	750550.00	4282537.00	594.06	36.0	852.0	18.565	4.6	1.83E-01	7.32E+00	7.32E+00
IL_253769	Veolia ES Technical Solutions, LLC - 2 Emergency generators	745532.00	4275942.00	414.76	26.0	490.0	60.811	1.4	7.41E-01	0.00E+00	0.00E+00
IL_254175	Chain of Rocks Recycling & Disposal - Passive flare #2	746944.00	4293274.00	431.79	10.0	841.0	4.756	0.5	4.95E-01	0.00E+00	0.00E+00
IL_254176	Chain of Rocks Recycling & Disposal - Passive flare #3	746944.00	4293274.00	431.79	10.0	841.0	4.756	0.5	4.95E-01	0.00E+00	0.00E+00
IL_254177	Chain of Rocks Recycling & Disposal - Passive flare #4	746944.00	4293274.00	431.79	10.0	841.0	4.756	0.5	4.95E-01	0.00E+00	0.00E+00
IL_254178	Chain of Rocks Recycling & Disposal - Passive flare #5	746944.00	4293274.00	431.79	10.0	841.0	4.756	0.5	4.95E-01	0.00E+00	0.00E+00
IL_254179	Chain of Rocks Recycling & Disposal - Passive flare #6	746944.00	4293274.00	431.79	10.0	841.0	4.756	0.5	4.95E-01	0.00E+00	0.00E+00
IL_254699	HSHS St. Elizabeth's Hospital - 2 Emergency generators	767237.00	4275111.00	541.01	28.0	627.0	73.767	1.2	1.93E-01	0.00E+00	0.00E+00
IL_255341	Roxana Landfill, Inc. - New open flare	759153.00	4301368.00	619.62	45.0	1800.1	61.434	1.3	3.77E-01	8.17E+00	8.17E+00
IL_255527	Magnesium Elektron North America - Natural gas combustion	746452.00	4285724.00	415.49	39.0	284.1	23.157	2.0	4.20E-01	0.00E+00	0.00E+00
IL_255741	ConocoPhillips Co. - Utility Boiler #19 (BLR-19)	754755.00	4302798.00	442.16	132.0	304.1	46.281	7.0	0.00E+00	1.54E+01	1.54E+01
IL_255816	Mayco Mfg, LLC - Expansion; Natural gas combustion	747189.00	4286970.00	421.78	39.0	284.1	23.157	2.0	1.94E+00	0.00E+00	0.00E+00
IL_255953	Moore Recycling Concrete & Asphalt, LLC. - Drum mix asphalt plant	762178.00	4246660.00	463.19	35.0	251.0	56.908	4.0	1.32E+01	0.00E+00	0.00E+00
IL_256624	PBT Acquisition, LLC - ASR Dryer	748704.00	4280830.00	418.77	32.0	305.0	19.483	1.5	2.53E+00	0.00E+00	0.00E+00
IL_257535	Marathon Ashland Pipe Line, LLC - Marine vapor combustion unit	751239.00	4302663.00	402.85	51.0	810.1	27.749	7.4	2.71E+01	0.00E+00	0.00E+00
SJEFF1	RIVER CEMENT CO. DBA BUZZI UNICEM USA SELMA PLANT	733431.84	4229131.13	406.36	410.0	370.0	54.081	19.0		1.44E+02	1.44E+02
SJEFF2	RIVER CEMENT CO. DBA BUZZI UNICEM USA SELMA PLANT	733431.84	4229131.13	406.36	125.0	210.0	59.173	6.6		2.04E-02	2.04E-02
SJEFF3	RIVER CEMENT CO. DBA BUZZI UNICEM USA SELMA PLANT	733431.84	4229131.13	406.36	10.0	1100.0	23.333	0.5		1.32E-01	0.00E+00
SJEFF15	SPECIALTY ELECTRONIC MATERIALS US INC THE RIVERSIDE PLANT	728353.47	4240500.97	465.09	52.0	260.0	10.666	2.0		5.09E-03	5.09E-03
SJEFF16	SPECIALTY ELECTRONIC MATERIALS US INC THE RIVERSIDE PLANT	728353.47	4240500.97	465.09	10.0	1100.0	23.333	0.5		2.29E-01	2.29E-01
SJEFF17	SPECIALTY ELECTRONIC MATERIALS US INC THE RIVERSIDE PLANT	728353.47	4240500.97	465.09	10.0	1100.0	23.333	0.5		2.40E-03	2.40E-03
SJEFF18	SPECIALTY ELECTRONIC MATERIALS US INC THE RIVERSIDE PLANT	728353.47	4240500.97	465.09	10.0	1100.0	23.333	0.5		2.29E-01	0.00E+00
SJEFF19	SPECIALTY ELECTRONIC MATERIALS US INC THE RIVERSIDE PLANT	728353.47	4240500.97	465.09	10.0	1100.0	23.333	0.5		1.80E-03	1.80E-03
SJEFF20	SPECIALTY ELECTRONIC MATERIALS US INC THE RIVERSIDE PLANT	728353.47	4240500.97	465.09	10.0	1100.0	23.333	0.5		1.20E-03	1.20E-03
SJEFF21	SPECIALTY ELECTRONIC MATERIALS US INC THE RIVERSIDE PLANT	728353.47	4240500.97	465.09	10.0	1100.0	23.333	0.5		5.40E-04	5.40E-04
SJEFF22	SPECIALTY ELECTRONIC MATERIALS US INC THE RIVERSIDE PLANT	728353.47	4240500.97	465.09	10.0	1100.0	23.333	0.5		4.80E-04	4.80E-04
SJEFF23	SPECIALTY ELECTRONIC MATERIALS US INC THE RIVERSIDE PLANT	728353.47	4240500.97	465.09	10.0	1100.0	23.333	0.5		4.20E-04	4.20E-04
SJEFF24	SPECIALTY ELECTRONIC MATERIALS US INC THE RIVERSIDE PLANT	728353.47	4240500.97	465.09	10.0	1100.0	23.333	0.5		3.00E-04	3.00E-04
SJEFF25	SPECIALTY ELECTRONIC MATERIALS US INC THE RIVERSIDE PLANT	728353.47	4240500.97	465.09	15.0	1049.0	149.734	0.2		4.80E-04	0.00E+00
SJEFF26	AMEREN MISSOURI RUSH ISLAND ENERGY CENTER	739491.07	4224078.19	407.87	700.0	270.0	82.001	20.7		1.73E+03	1.73E+03
SJEFF27	AMEREN MISSOURI RUSH ISLAND ENERGY CENTER	739491.07	4224078.19	407.87	700.0	270.0	82.001	29.0		2.50E+03	2.50E+03
SJEFF28	AMEREN MISSOURI RUSH ISLAND ENERGY CENTER	739491.07	4224078.19	407.87	30.0	985.0	105.633	1.3		8.52E-06	0.00E+00
SJEFF29	AMEREN MISSOURI RUSH ISLAND ENERGY CENTER	739491.07	4224078.19	407.87	240.0	600.0	32.999	7.0		3.54E-03	3.54E-03
SJEFF59	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	14.0	392.0	0.003	1.7	3.03E-01	2.17E-03	2.17E-03
SJEFF60	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	14.0	392.0	0.003	1.7	3.03E-01	2.17E-03	2.17E-03
SJEFF61	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	14.0	392.0	0.003	1.7	4.20E-02	3.00E-04	3.00E-04
SJEFF62	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	14.0	392.0	0.000	1.7	1.12E-02	7.98E-05	7.98E-05
SJEFF63	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	27.0	1800.0	10.046	1.5	2.86E-02	1.63E-01	1.63E-01
SJEFF65	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	20.0	0.0	0.000	0.5	1.45E-02	4.34E-04	4.34E-04
SJEFF66	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	20.0	0.0	0.000	0.5	1.40E-02	4.20E-04	4.20E-04
SJEFF67	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	20.0	-459.7	0.003	2.0	8.35E-02	5.97E-04	5.97E-04
SJEFF68	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	20.0	-459.7	0.003	2.0	3.54E-01	2.53E-03	2.53E-03
SJEFF69	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	14.0	-459.7	0.003	2.0	2.51E-01	1.79E-03	1.79E-03
SJEFF70	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	5.0	-459.7	0.003	0.5	1.11E+00	3.37E-01	0.00E+00
SJEFF71	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	5.0	-459.7	0.003	0.5	1.11E+00	3.37E-01	0.00E+00
SJEFF72	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	5.0	-459.7	0.003	0.5	3.32E-01	1.02E-01	0.00E+00
SJEFF73	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	10.0	-459.7	0.003	1.0	1.92E-05	1.37E-07	1.37E-07
SJEFF74	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	10.0	-459.7	0.003	1.0	1.92E-05	1.37E-07	1.37E-07
SJEFF82	ARDAGH GLASS INC. PEVELY	727306.83	4241579.49	466.57	156.0	611.0	39.902	5.8	7.38E-02	3.77E+00	3.77E+00
SJEFF83	ARDAGH GLASS INC. PEVELY	727306.83	4241579.49	466.57	156.0	611.0	39.902	5.8	1.96E-01	6.37E+00	6.37E+00
SJEFF86	ARDAGH GLASS INC. PEVELY	727306.83	4241579.49	466.57	20.0	0.0	0.000	0.5	1.26E-01	9.00E-04	9.00E-04
SJEFF92	ARDAGH GLASS INC. PEVELY	727306.83	4241579.49	466.57	10.0	1100.0	23.333	0.5		2.17E+00	0.00E+00
SJEFF99	CARONDELET CORPORATION PEVELY	727491.85	4241725.78	485.56	2.5	170.0	46.499	2.0	5.60E-01	4.25E-02	4.25E-02
SJEFF100	CARONDELET CORPORATION PEVELY	727491.85	4241725.78	485.56	2.5	170.0	46.499	2.0	1.60E-01	1.14E-03	1.14E-03
SJEFF125	FRED WEBER, INC. ANTONIA	720102.79	4248877.71	670.57	20.0	250.0	49.249	5.0		5.88E-02	5.88E-02
SJEFF128	ANIMAL CARE SERVICE INC FESTUS	724479.42	4236856.27	436.22	28.0	1413.0	18.734	2.0		2.33E-01	2.33E-01

R006602

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

Source ID	Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	Potential Emissions (lb/hr)		
									CO	SOx	SO2 (1-hour)
SJEFF129	ANIMAL CARE SERVICE INC FESTUS	724479.42	4236856.27	436.22	18.0	1354.0	25.666	1.0		1.92E-02	1.92E-02
SJEFF130	ANIMAL CARE SERVICE INC FESTUS	724479.42	4236856.27	436.22	30.0	1448.0	22.418	2.0		9.62E-03	9.62E-03
SJEFF131	ANIMAL CARE SERVICE INC FESTUS	724479.42	4236856.27	436.22	28.0	1413.0	18.734	2.0		3.50E-01	3.50E-01
SJEFF132	ANIMAL CARE SERVICE INC FESTUS	724479.42	4236856.27	436.22	28.0	1413.0	18.734	2.0		2.95E-01	2.95E-01
SJEFF133	ANIMAL CARE SERVICE INC FESTUS	724479.42	4236856.27	436.22	18.0	1347.0	16.316	1.0		1.54E-02	1.54E-02
SJEFF134	ANIMAL CARE SERVICE INC FESTUS	724479.42	4236856.27	436.22	30.0	1448.0	22.418	2.0		6.01E-03	6.01E-03
SJEFF135	ANIMAL CARE SERVICE INC FESTUS	724479.42	4236856.27	436.22	18.0	1354.0	25.666	1.0		1.44E-02	1.44E-02
SJEFF136	ANIMAL CARE SERVICE INC FESTUS	724479.42	4236856.27	436.22	28.0	1600.0	18.734	2.0		7.50E-02	7.50E-02
SJEFF137	JEFFERSON COUNTY CREMATION SERVICES LC PEVELY	728536.07	4239554.88	583.23	10.0	1100.0	23.333	0.5		9.39E-02	9.39E-02
SJEFF138	SIMPSON CONSTRUCTION MATERIALS PAULINA HILLS SITE	726459.86	4259186.04	426.64	12.0	885.0	42.441	0.5		1.29E-01	1.29E-01
SJEFF144	N. B. WEST CONTRACTING CO INC HOUSE SPRINGS ASPHALT	712353.42	4251763.19	532.22	32.0	247.0	0.853	3.7	3.03E+00	1.21E+00	1.21E+00
SJEFF145	N. B. WEST CONTRACTING CO INC HOUSE SPRINGS ASPHALT	712353.42	4251763.19	532.22	5.0	400.0	0.003	2.0	5.35E-02	3.07E-01	3.07E-01
SJEFF146	N. B. WEST CONTRACTING CO INC HOUSE SPRINGS ASPHALT	712353.42	4251763.19	532.22	5.0	400.0	0.003	2.0	3.61E-03	9.62E-08	9.62E-08
SSTC1	AMEREN MISSOURI SIOUX ENERGY CENTER	734752.14	4310260.61	445.64	496.5	138.7	46.759	23.6		2.32E+02	2.32E+02
SSTC2	AMEREN MISSOURI SIOUX ENERGY CENTER	734752.14	4310260.61	445.64	496.5	136.6	46.844	23.6		2.89E+02	2.89E+02
SSTC3	AMEREN MISSOURI SIOUX ENERGY CENTER	734752.14	4310260.61	445.64	212.0	325.0	50.000	4.5		8.90E-04	8.90E-04
SSTC4	AMEREN MISSOURI SIOUX ENERGY CENTER	734752.14	4310260.61	445.64	25.0	1100.0	23.333	1.0		1.42E+00	0.00E+00
SSTC9	SSM HEALTH ST JOSEPHS HOSPITAL	718499.57	4295433.59	515.16	50.0	1000.0	0.151	2.3		2.23E-04	2.23E-04
SSTC10	SSM HEALTH ST JOSEPHS HOSPITAL	718499.57	4295433.59	515.16	50.0	1000.0	0.151	2.3		1.70E-03	1.70E-03
SSTC11	SSM HEALTH ST JOSEPHS HOSPITAL	718499.57	4295433.59	515.16	50.0	1000.0	0.151	2.3		2.23E-04	2.23E-04
SSTC12	SSM HEALTH ST JOSEPHS HOSPITAL	718499.57	4295433.59	515.16	50.0	1000.0	0.151	2.3		1.70E-03	1.70E-03
SSTC13	SSM HEALTH ST JOSEPHS HOSPITAL	718499.57	4295433.59	515.16	50.0	1000.0	0.151	2.3		2.23E-04	2.23E-04
SSTC14	SSM HEALTH ST JOSEPHS HOSPITAL	718499.57	4295433.59	515.16	50.0	1000.0	0.151	2.3		1.70E-03	1.70E-03
SSTC15	SSM HEALTH ST JOSEPHS HOSPITAL	718499.57	4295433.59	515.16	14.0	1063.0	40.515	0.4		3.59E-01	0.00E+00
SSTC16	SSM HEALTH ST JOSEPHS HOSPITAL	718499.57	4295433.59	515.16	3.0	1011.0	154.085	0.8		1.08E+00	0.00E+00
SSTC17	SSM HEALTH ST JOSEPHS HOSPITAL	718499.57	4295433.59	515.16	3.0	1011.0	154.085	0.8		1.06E+00	0.00E+00
SSTC18	SSM HEALTH ST JOSEPHS HOSPITAL	718499.57	4295433.59	515.16	14.0	1063.0	56.732	0.4		3.66E-01	2.38E-04
SSTC28	GENERAL MOTORS LLC WENTZVILLE CENTER	689428.03	4299089.70	622.57	250.0	365.0	12.999	10.0		2.16E+01	2.16E+01
SSTC29	GENERAL MOTORS LLC WENTZVILLE CENTER	689428.03	4299089.70	622.57	250.0	365.0	12.999	10.0		7.21E+02	7.21E+02
SSTC30	GENERAL MOTORS LLC WENTZVILLE CENTER	689428.03	4299089.70	622.57	250.0	365.0	12.999	10.0		2.16E+01	2.16E+01
SSTC31	GENERAL MOTORS LLC WENTZVILLE CENTER	689428.03	4299089.70	622.57	53.0	520.0	58.999	1.8		1.33E-01	1.33E-01
SSTC45	SSM HEALTH ST JOSEPH HOSPITAL WEST	693164.96	4297283.00	533.89	66.0	200.0	0.003	3.0		2.31E+00	2.31E+00
SSTC46	SSM HEALTH ST JOSEPH HOSPITAL WEST	693164.96	4297283.00	533.89	66.0	200.0	0.003	3.0		2.66E-02	2.66E-02
SSTC47	SSM HEALTH ST JOSEPH HOSPITAL WEST	693164.96	4297283.00	533.89	10.0	1100.0	23.333	0.5		1.52E+00	0.00E+00
SSTC48	SSM HEALTH ST JOSEPH HOSPITAL WEST	693164.96	4297283.00	533.89	66.0	200.0	0.003	3.0		1.50E-03	1.50E-03
SSTC57	BLASTCO INC	690213.84	4297755.23	543.44	20.0	0.0	0.000	0.5		3.96E-04	3.96E-04
SSTC63	TRUE MANUFACTURING CO O'FALLON	702777.57	4297717.78	496.26	30.0	65.0	16.499	1.5		4.20E-03	4.20E-03
SSTC64	TRUE MANUFACTURING CO O'FALLON	702777.57	4297717.78	496.26	17.0	450.0	27.631	1.3		4.09E-03	4.09E-03
SSTC65	TRUE MANUFACTURING CO O'FALLON	702777.57	4297717.78	496.26	20.0	0.0	0.000	0.5		4.10E-03	4.10E-03
SSTC66	TRUE MANUFACTURING CO O'FALLON	702777.57	4297717.78	496.26	33.0	77.0	33.015	1.5		1.56E-03	1.56E-03
SSTC67	TRUE MANUFACTURING CO O'FALLON	702777.57	4297717.78	496.26	33.0	77.0	33.015	1.5		8.40E-04	8.40E-04
SSTC68	TRUE MANUFACTURING CO O'FALLON	702777.57	4297717.78	496.26	33.0	450.0	39.416	1.5		1.44E-03	1.44E-03
SSTC69	TRUE MANUFACTURING CO O'FALLON	702777.57	4297717.78	496.26	30.0	400.0	29.708	1.0		1.74E-03	1.74E-03
SSTC70	TRUE MANUFACTURING CO O'FALLON	702777.57	4297717.78	496.26	30.0	450.0	24.803	1.2		4.68E-03	4.68E-03
SSTC71	TRUE MANUFACTURING CO O'FALLON	702777.57	4297717.78	496.26	28.0	475.0	1.667	0.5		0.00E+00	0.00E+00
SSTC72	TRUE MANUFACTURING CO O'FALLON	702777.57	4297717.78	496.26	28.0	450.0	27.500	2.3		0.00E+00	0.00E+00
SSTC73	TRUE MANUFACTURING CO O'FALLON	702777.57	4297717.78	496.26	10.0	1100.0	23.333	0.5		3.07E+00	0.00E+00
SSTC87	HANSEN'S TREE SERVICE O'FALLON	697357.18	4298189.47	585.40	20.0	0.0	0.000	0.5	2.10E-02	6.31E-04	6.31E-04
SSTC88	HANSEN'S TREE SERVICE O'FALLON	697357.18	4298189.47	585.40	20.0	0.0	0.000	0.5	3.14E-02	1.73E-04	1.73E-04
SSTC89	HANSEN'S TREE SERVICE O'FALLON	697357.18	4298189.47	585.40	20.0	0.0	0.000	0.5	1.20E+00	3.65E-01	3.65E-01
SSTC98	AMERISTAR ST. CHARLES	718432.28	4294005.30	443.64	1.0	-459.7	0.003	1.0	3.87E-01	2.76E-03	2.76E-03
SSTC99	AMERISTAR ST. CHARLES	718432.28	4294005.30	443.64	1.0	-459.7	0.003	1.0	3.87E-01	2.76E-03	2.76E-03
SSTC100	AMERISTAR ST. CHARLES	718432.28	4294005.30	443.64	1.0	-459.7	0.003	1.0	3.87E-01	2.76E-03	2.76E-03
SSTC101	AMERISTAR ST. CHARLES	718432.28	4294005.30	443.64	1.0	-459.7	0.003	1.0	3.87E-01	2.76E-03	2.76E-03
SSTC102	AMERISTAR ST. CHARLES	718432.28	4294005.30	443.64	1.0	-459.7	0.003	1.0	1.27E-03	9.46E-04	0.00E+00
SSTC103	AMERISTAR ST. CHARLES	718432.28	4294005.30	443.64	1.0	-459.7	0.003	1.0	1.27E-03	9.46E-04	0.00E+00

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

Source ID	Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	Potential Emissions (lb/hr)		
									CO	SOx	SO2 (1-hour)
SSTC104	AMERISTAR ST. CHARLES	718432.28	4294005.30	443.64	1.0	-459.7	0.003	1.0	1.27E-03	9.46E-04	0.00E+00
SSTC105	AMERISTAR ST. CHARLES	718432.28	4294005.30	443.64	1.0	-459.7	0.003	1.0	1.27E-03	9.46E-04	0.00E+00
SSTC106	AMERISTAR ST. CHARLES	718432.28	4294005.30	443.64	1.0	-459.7	0.003	1.0	1.27E-03	9.46E-04	0.00E+00
SSTC107	AMERISTAR ST. CHARLES	718432.28	4294005.30	443.64	1.0	-459.7	0.003	1.0	1.27E-03	9.46E-04	0.00E+00
SSTL1	AMEREN MISSOURI MERAMEC ENERGY CENTER	732736.78	4253752.81	418.24	250.0	326.0	101.627	11.0		2.28E-02	2.28E-02
SSTL2	AMEREN MISSOURI MERAMEC ENERGY CENTER	732736.78	4253752.81	418.24	250.0	326.0	101.627	11.0		2.20E-02	2.20E-02
SSTL3	AMEREN MISSOURI MERAMEC ENERGY CENTER	732736.78	4253752.81	418.24	350.0	345.0	135.400	14.0		2.97E+02	2.97E+02
SSTL4	AMEREN MISSOURI MERAMEC ENERGY CENTER	732736.78	4253752.81	418.24	350.0	374.0	123.284	16.0		4.69E+02	4.69E+02
SSTL5	AMEREN MISSOURI MERAMEC ENERGY CENTER	732736.78	4253752.81	418.24	40.0	642.0	38.100	1.0		5.46E-03	5.46E-03
SSTL6	AMEREN MISSOURI MERAMEC ENERGY CENTER	732736.78	4253752.81	418.24	32.0	1050.0	103.799	12.0		4.55E-01	4.55E-01
SSTL7	AMEREN MISSOURI MERAMEC ENERGY CENTER	732736.78	4253752.81	418.24	32.0	1050.0	103.799	12.0		1.96E+00	1.96E+00
SSTL8	AMEREN MISSOURI MERAMEC ENERGY CENTER	732736.78	4253752.81	418.24	32.0	1050.0	103.799	12.0		4.55E-01	4.55E-01
SSTL9	AMEREN MISSOURI MERAMEC ENERGY CENTER	732736.78	4253752.81	418.24	32.0	1050.0	103.799	12.0		2.01E-02	2.01E-02
SSTL10	AMEREN MISSOURI MERAMEC ENERGY CENTER	732736.78	4253752.81	418.24	32.0	1050.0	103.799	12.0		4.55E-01	4.55E-01
SSTL11	AMEREN MISSOURI MERAMEC ENERGY CENTER	732736.78	4253752.81	418.24	32.0	1050.0	103.799	12.0		1.10E-02	1.10E-02
SSTL14	MISSOURI BAPTIST MEDICAL CENTER NORTH BALLAS	722244.75	4279363.47	652.56	99.0	440.0	9.432	4.5	9.84E-01	1.42E+00	1.42E+00
SSTL15	MISSOURI BAPTIST MEDICAL CENTER NORTH BALLAS	722244.75	4279363.47	652.56	99.0	440.0	9.432	4.5	1.06E-02	7.55E-05	7.55E-05
SSTL16	MISSOURI BAPTIST MEDICAL CENTER NORTH BALLAS	722244.75	4279363.47	652.56	10.0	1100.0	23.333	0.5	5.03E+00	1.53E+00	0.00E+00
SSTL17	MISSOURI BAPTIST MEDICAL CENTER NORTH BALLAS	722244.75	4279363.47	652.56	104.0	450.0	7.172	1.2	2.91E+00	4.19E+00	4.19E+00
SSTL18	MISSOURI BAPTIST MEDICAL CENTER NORTH BALLAS	722244.75	4279363.47	652.56	104.0	450.0	7.172	1.2	9.59E-02	6.85E-04	6.85E-04
SSTL19	MONSANTO WORLD HEADQUARTERS LINDBERGH BLVD	726250.11	4283348.63	691.57	40.0	315.0	30.098	4.0		2.95E-05	2.95E-05
SSTL20	MONSANTO WORLD HEADQUARTERS LINDBERGH BLVD	726250.11	4283348.63	691.57	40.0	315.0	30.098	4.0		2.24E-02	2.24E-02
SSTL21	MONSANTO WORLD HEADQUARTERS LINDBERGH BLVD	726250.11	4283348.63	691.57	10.0	1100.0	23.333	0.5		1.06E+00	0.00E+00
SSTL22	MONSANTO WORLD HEADQUARTERS LINDBERGH BLVD	726250.11	4283348.63	691.57	10.0	1100.0	23.333	0.5		5.74E-04	0.00E+00
SSTL23	U. S. SILICA COMPANY PACIFIC	698244.91	4262010.04	471.16	80.0	150.0	50.000	3.0		2.57E+01	2.57E+01
SSTL24	U. S. SILICA COMPANY PACIFIC	698244.91	4262010.04	471.16	80.0	150.0	50.000	3.0		6.69E-03	6.69E-03
SSTL25	U. S. SILICA COMPANY PACIFIC	698244.91	4262010.04	471.16	80.0	150.0	50.000	3.0		2.66E-02	2.66E-02
SSTL26	U. S. SILICA COMPANY PACIFIC	698244.91	4262010.04	471.16	110.0	70.0	0.003	2.7		1.39E-02	1.39E-02
SSTL27	ST. JOHNS MERCY MEDICAL CNTR/MAINTENANCE NEW BALLAS RD	722224.73	4280414.44	627.82	30.0	400.0	4.951	4.0		1.11E+01	1.11E+01
SSTL28	ST. JOHNS MERCY MEDICAL CNTR/MAINTENANCE NEW BALLAS RD	722224.73	4280414.44	627.82	30.0	400.0	4.951	4.0		1.95E-02	1.95E-02
SSTL29	MONSANTO CHESTERFIELD VILLAGE	712608.90	4282124.50	590.78	159.0	300.0	32.667	4.8		3.08E-05	3.08E-05
SSTL30	MONSANTO CHESTERFIELD VILLAGE	712608.90	4282124.50	590.78	159.0	300.0	32.667	4.8		2.36E-02	2.36E-02
SSTL31	MONSANTO CHESTERFIELD VILLAGE	712608.90	4282124.50	590.78	10.0	1100.0	23.333	0.5		4.34E-01	0.00E+00
SSTL32	MONSANTO CHESTERFIELD VILLAGE	712608.90	4282124.50	590.78	10.0	1100.0	23.333	0.5		4.04E-03	0.00E+00
SSTL33	MONSANTO CHESTERFIELD VILLAGE	712608.90	4282124.50	590.78	10.0	1100.0	23.333	0.5		3.77E+00	0.00E+00
SSTL37	WASHINGTON UNIVERSITY DANFORTH CAMPUS	734425.40	4281363.46	506.46	175.0	350.0	4.849	9.0	0.00E+00	0.00E+00	0.00E+00
SSTL38	WASHINGTON UNIVERSITY DANFORTH CAMPUS	734425.40	4281363.46	506.46	175.0	350.0	4.849	9.0	2.24E+00	1.60E-02	1.60E-02
SSTL39	WASHINGTON UNIVERSITY DANFORTH CAMPUS	734425.40	4281363.46	506.46	21.0	475.0	9.616	1.2	0.00E+00	0.00E+00	0.00E+00
SSTL40	WASHINGTON UNIVERSITY DANFORTH CAMPUS	734425.40	4281363.46	506.46	21.0	475.0	9.616	1.2	6.04E-01	4.31E-03	4.31E-03
SSTL41	WASHINGTON UNIVERSITY DANFORTH CAMPUS	734425.40	4281363.46	506.46	10.0	1100.0	23.333	0.5	1.39E+01	2.34E-03	0.00E+00
SSTL42	WASHINGTON UNIVERSITY DANFORTH CAMPUS	734425.40	4281363.46	506.46	10.0	1100.0	23.333	0.5	2.12E+01	3.78E-02	0.00E+00
SSTL43	WASHINGTON UNIVERSITY DANFORTH CAMPUS	734425.40	4281363.46	506.46	10.0	1100.0	23.333	0.5	1.59E+01	4.87E+00	0.00E+00
SSTL44	WASHINGTON UNIVERSITY DANFORTH CAMPUS	734425.40	4281363.46	506.46	55.0	316.0	84.150	0.7	9.13E-02	2.37E+01	2.37E+01
SSTL45	WASHINGTON UNIVERSITY DANFORTH CAMPUS	734425.40	4281363.46	506.46	55.0	316.0	84.150	0.7	9.02E-02	4.11E+01	4.11E+01
SSTL46	WASHINGTON UNIVERSITY DANFORTH CAMPUS	734425.40	4281363.46	506.46	55.0	316.0	84.150	0.7	1.05E-01	1.48E+01	1.48E+01
SSTL47	WASHINGTON UNIVERSITY DANFORTH CAMPUS	734425.40	4281363.46	506.46	55.0	316.0	84.150	0.7	2.86E-01	2.62E+01	2.62E+01
SSTL48	WASHINGTON UNIVERSITY DANFORTH CAMPUS	734425.40	4281363.46	506.46	55.0	316.0	84.150	0.7		2.04E-03	2.04E-03
SSTL66	MISSOURI ASPHALT PRODUCTS, LLC WEST LAKE QUARRY MATERIAL CO	721914.39	4294042.31	462.50	20.0	230.5	31.309	5.1		3.27E-01	3.27E-01
SSTL70	FRED WEBER, INC. ANTIRE	711291.07	4264547.49	448.49	30.0	250.0	58.950	4.0		1.27E+00	1.27E+00
SSTL76	THE BOEING COMPANY ST. LOUIS	728742.77	4293777.11	545.54	45.0	400.0	44.167	2.5	5.58E+00	8.24E+00	8.24E+00
SSTL77	THE BOEING COMPANY ST. LOUIS	728742.77	4293777.11	545.54	45.0	400.0	44.167	2.5	1.38E+00	9.87E-03	9.87E-03
SSTL78	THE BOEING COMPANY ST. LOUIS	728742.77	4293777.11	545.54	38.0	400.0	25.968	2.0	3.02E+00	4.47E+00	4.47E+00
SSTL79	THE BOEING COMPANY ST. LOUIS	728742.77	4293777.11	545.54	38.0	400.0	25.968	2.0	1.06E+00	7.57E-03	7.57E-03
SSTL80	THE BOEING COMPANY ST. LOUIS	728742.77	4293777.11	545.54	50.0	461.0	14.616	3.0	2.95E+00	4.36E+00	4.36E+00
SSTL81	THE BOEING COMPANY ST. LOUIS	728742.77	4293777.11	545.54	50.0	461.0	14.616	3.0	7.02E-01	5.01E-03	5.01E-03
SSTL82	THE BOEING COMPANY ST. LOUIS	728742.77	4293777.11	545.54	1.0	100.0	12.733	0.1	1.66E+00	1.19E-02	1.19E-02

R006604

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

Source ID	Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	Potential Emissions (lb/hr)		
									CO	SOx	SO2 (1-hour)
SSTL83	THE BOEING COMPANY ST. LOUIS	728742.77	4293777.11	545.54	15.0	955.0	19.800	0.7	2.52E+01	4.49E-02	0.00E+00
SSTL84	THE BOEING COMPANY ST. LOUIS	728742.77	4293777.11	545.54	7.0	960.0	113.182	0.8	2.50E+01	7.63E+00	0.00E+00
SSTL85	THE BOEING COMPANY ST. LOUIS	728742.77	4293777.11	545.54	30.0	965.0	31.234	5.0	2.03E-01	1.04E-02	1.04E-02
SSTL86	THE BOEING COMPANY ST. LOUIS	728742.77	4293777.11	545.54	17.0	72.0	29.882	2.8		5.58E-03	5.58E-03
SSTL88	CHAMP LANDFILL COMPANY LLC	720845.43	4291144.98	571.46	28.0	1400.0	25.466	1.0		1.01E+00	1.01E+00
SSTL89	CHAMP LANDFILL COMPANY LLC	720845.43	4291144.98	571.46	38.3	1400.0	21.568	12.0		7.77E-01	7.77E-01
SSTL90	CHAMP LANDFILL COMPANY LLC	720845.43	4291144.98	571.46	38.0	1400.0	21.568	12.0		6.35E-01	6.35E-01
SSTL92	BRIDGETON LANDFILL, LLC	722107.35	4294454.70	459.06	40.0	1200.0	61.381	1.1		1.86E-02	1.86E-02
SSTL93	BRIDGETON LANDFILL, LLC	722107.35	4294454.70	459.06	40.0	1200.0	61.381	1.1		6.98E-02	6.98E-02
SSTL94	BRIDGETON LANDFILL, LLC	722107.35	4294454.70	459.06	45.0	1200.0	50.226	1.3		1.70E+01	1.70E+01
SSTL95	BRIDGETON LANDFILL, LLC	722107.35	4294454.70	459.06	45.0	1200.0	50.226	1.3		5.43E+01	5.43E+01
SSTL96	BRIDGETON LANDFILL, LLC	722107.35	4294454.70	459.06	35.0	1200.0	53.051	1.0		1.22E-01	1.22E-01
SSTL97	BRIDGETON LANDFILL, LLC	722107.35	4294454.70	459.06	584.0	1450.0	21.923	4.7		1.08E-03	1.08E-03
SSTL98	BRIDGETON LANDFILL, LLC	722107.35	4294454.70	459.06	584.0	1450.0	21.923	4.7		1.07E-03	1.07E-03
SSTL100	SSM HEALTH ST MARYS HOSPITAL	734075.92	4279544.88	601.67	17.2	500.0	25.000	3.0		9.06E+00	9.06E+00
SSTL101	SSM HEALTH ST MARYS HOSPITAL	734075.92	4279544.88	601.67	17.2	500.0	25.000	3.0		7.14E-03	7.14E-03
SSTL102	SSM HEALTH ST MARYS HOSPITAL	734075.92	4279544.88	601.67	130.0	1009.0	53.156	1.0		2.56E+00	0.00E+00
SSTL106	SSM HEALTH DEPAUL HOSPITAL - ST. LOUIS BRIDGETON	723046.72	4292134.06	542.16	45.0	450.0	21.932	3.0		6.63E-02	6.63E-02
SSTL107	SSM HEALTH DEPAUL HOSPITAL - ST. LOUIS BRIDGETON	723046.72	4292134.06	542.16	45.0	450.0	21.932	3.0		1.15E-02	1.15E-02
SSTL108	SSM HEALTH DEPAUL HOSPITAL - ST. LOUIS BRIDGETON	723046.72	4292134.06	542.16	12.0	900.0	38.100	1.2		8.33E+00	0.00E+00
SSTL109	SSM HEALTH DEPAUL HOSPITAL - ST. LOUIS BRIDGETON	723046.72	4292134.06	542.16	45.0	450.0	21.932	3.0		1.37E-03	1.37E-03
SSTL111	VETERANS ADMIN MEDICAL CENTER JEFFERSON BARRACKS DRIVE	736944.98	4264089.51	508.83	45.0	425.0	1.667	2.0	3.02E+00	4.35E+00	4.35E+00
SSTL112	VETERANS ADMIN MEDICAL CENTER JEFFERSON BARRACKS DRIVE	736944.98	4264089.51	508.83	45.0	425.0	1.667	2.0	4.17E-01	2.98E-03	2.98E-03
SSTL113	VETERANS ADMIN MEDICAL CENTER JEFFERSON BARRACKS DRIVE	736944.98	4264089.51	508.83	45.0	425.0	1.667	2.0	4.40E-03	6.49E-03	6.49E-03
SSTL114	VETERANS ADMIN MEDICAL CENTER JEFFERSON BARRACKS DRIVE	736944.98	4264089.51	508.83	45.0	425.0	1.667	2.0	6.81E-01	4.86E-03	4.86E-03
SSTL115	VETERANS ADMIN MEDICAL CENTER JEFFERSON BARRACKS DRIVE	736944.98	4264089.51	508.83	10.0	1100.0	23.333	0.5	1.02E+02	3.11E+01	0.00E+00
SSTL116	CHRISTIAN HOSPITAL NORTHEAST DUNN ROAD	739738.60	4295554.78	565.65	35.0	270.0	10.000	4.0	1.45E-01	6.26E-03	6.26E-03
SSTL117	CHRISTIAN HOSPITAL NORTHEAST DUNN ROAD	739738.60	4295554.78	565.65	35.0	270.0	10.000	4.0	9.17E-01	6.55E-03	6.55E-03
SSTL118	CHRISTIAN HOSPITAL NORTHEAST DUNN ROAD	739738.60	4295554.78	565.65	15.0	-459.7	0.003	1.0	3.28E+01	3.00E-01	0.00E+00
SSTL120	BODINE ALUMINUM INC WALTON ROAD	730791.15	4286068.83	618.60	15.0	65.0	7.165	2.2		3.20E-03	3.20E-03
SSTL121	BODINE ALUMINUM INC WALTON ROAD	730791.15	4286068.83	618.60	16.0	75.0	26.949	1.1		8.96E-03	8.96E-03
SSTL122	BODINE ALUMINUM INC WALTON ROAD	730791.15	4286068.83	618.60	29.0	600.0	14.167	2.5		4.83E-01	4.83E-01
SSTL123	BODINE ALUMINUM INC WALTON ROAD	730791.15	4286068.83	618.60	30.0	365.0	12.001	1.2		4.48E-01	4.48E-01
SSTL124	BODINE ALUMINUM INC WALTON ROAD	730791.15	4286068.83	618.60	29.0	360.0	25.499	0.7		1.63E-01	1.63E-01
SSTL126	BODINE ALUMINUM INC WALTON ROAD	730791.15	4286068.83	618.60	20.0	0.0	0.000	0.5		1.23E-02	1.23E-02
SSTL127	REICHHOLD LLC 2 VALLEY PARK	718899.54	4269850.38	422.90	30.0	650.0	11.998	1.3		3.60E-03	3.60E-03
SSTL128	REICHHOLD LLC 2 VALLEY PARK	718899.54	4269850.38	422.90	30.0	650.0	11.998	1.3		1.79E+01	1.79E+01
SSTL129	REICHHOLD LLC 2 VALLEY PARK	718899.54	4269850.38	422.90	26.0	650.0	13.264	2.0		2.26E-03	2.26E-03
SSTL130	REICHHOLD LLC 2 VALLEY PARK	718899.54	4269850.38	422.90	26.0	650.0	13.264	2.0		1.44E+01	1.44E+01
SSTL131	REICHHOLD LLC 2 VALLEY PARK	718899.54	4269850.38	422.90	54.0	1800.0	17.218	2.3		1.21E-03	1.21E-03
SSTL132	REICHHOLD LLC 2 VALLEY PARK	718899.54	4269850.38	422.90	10.0	1100.0	23.333	0.5		9.83E-01	9.83E-01
SSTL133	REICHHOLD LLC 2 VALLEY PARK	718899.54	4269850.38	422.90	10.0	1100.0	23.333	0.5		9.83E-01	9.83E-01
SSTL141	ST. ANTHONY'S MEDICAL CENTER KENNERLY ROAD	728489.70	4265428.04	633.14	25.0	495.0	4.068	2.5		3.40E+00	3.40E+00
SSTL142	ST. ANTHONY'S MEDICAL CENTER KENNERLY ROAD	728489.70	4265428.04	633.14	25.0	495.0	4.068	2.5		8.76E-04	8.76E-04
SSTL143	ST. ANTHONY'S MEDICAL CENTER KENNERLY ROAD	728489.70	4265428.04	633.14	30.0	450.0	0.003	1.5		5.59E-04	5.59E-04
SSTL144	ST. ANTHONY'S MEDICAL CENTER KENNERLY ROAD	728489.70	4265428.04	633.14	10.0	1100.0	23.333	0.5		4.66E-02	0.00E+00
SSTL147	MSD, MISSOURI RIVER WWTP MO RIVER WASTERWATER TREATMENT PLANT	718333.79	4290583.38	444.32	25.0	550.0	1.181	0.7	9.18E-01	8.00E-01	8.00E-01
SSTL148	MSD, MISSOURI RIVER WWTP MO RIVER WASTERWATER TREATMENT PLANT	718333.79	4290583.38	444.32	25.0	550.0	1.181	0.7	1.58E+00	5.47E-03	5.47E-03
SSTL149	MSD, MISSOURI RIVER WWTP MO RIVER WASTERWATER TREATMENT PLANT	718333.79	4290583.38	444.32	15.2	446.0	19.393	1.7	4.42E-01	2.28E-01	2.28E-01
SSTL150	MSD, MISSOURI RIVER WWTP MO RIVER WASTERWATER TREATMENT PLANT	718333.79	4290583.38	444.32	15.2	446.0	19.393	1.7	9.14E-02	4.81E-03	4.81E-03
SSTL151	MSD, MISSOURI RIVER WWTP MO RIVER WASTERWATER TREATMENT PLANT	718333.79	4290583.38	444.32	16.0	77.0	4.774	2.0	2.46E+00	4.74E-01	4.74E-01
SSTL152	SIMPSON CONSTRUCTION MATERIALS LLC VALLEY PARK	715996.20	4268469.87	430.05	42.0	300.0	38.494	4.2	2.49E+01	5.49E+00	5.49E+00
SSTL153	SIMPSON CONSTRUCTION MATERIALS LLC VALLEY PARK	715996.20	4268469.87	430.05	26.7	400.0	26.785	0.8	3.84E-03	1.20E-04	1.20E-04
SSTL154	SIMPSON CONSTRUCTION MATERIALS LLC VALLEY PARK	715996.20	4268469.87	430.05	26.7	400.0	26.785	0.8	4.60E-02	1.44E-03	1.44E-03
SSTL162	MACLAN INDUSTRIES	742056.49	4291436.76	495.44	14.0	190.0	0.003	0.2		2.29E-01	2.29E-01
SSTL165	MISSOURI AMERICAN WATER-CENTRAL PLANT CHESTERFIELD	715427.34	4284896.78	451.44	22.0	871.0	24.016	0.8		1.02E-01	1.02E-01

R006605

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

Source ID	Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	Potential Emissions (lb/hr) CO	SOx	SO2 (1-hour)
SSTL166	MISSOURI AMERICAN WATER-CENTRAL PLANT CHESTERFIELD	715427.34	4284896.78	451.44	10.0	871.0	24.016	0.8		2.38E-01	2.38E-01
SSTL169	SPIRE MISSOURI, EAST INC.	736637.09	4302290.45	525.66	20.0	0.0	0.000	0.5	1.79E-01	1.28E-03	1.28E-03
SSTL170	SPIRE MISSOURI, EAST INC.	736637.09	4302290.45	525.66	25.0	-459.7	0.003	0.8	2.33E+01	3.69E-03	3.69E-03
SSTL171	SPIRE MISSOURI, EAST INC.	736637.09	4302290.45	525.66	18.0	-459.7	0.003	4.0	1.61E+00	6.69E-02	6.69E-02
SSTL172	SPIRE MISSOURI, EAST INC.	736637.09	4302290.45	525.66	15.0	-459.7	0.003	2.0	1.20E-02	8.60E-05	8.60E-05
SSTL173	SPIRE MISSOURI, EAST INC.	736637.09	4302290.45	525.66	16.0	-459.7	0.003	0.5	9.34E-01	2.85E-01	2.85E-01
SSTL174	SPIRE MISSOURI, EAST INC.	736637.09	4302290.45	525.66	20.0	0.0	0.000	0.5	4.62E-03	3.30E-05	3.30E-05
SSTL175	SPIRE MISSOURI, EAST INC.	736637.09	4302290.45	525.66	20.0	0.0	0.000	0.5	4.62E-03	3.30E-05	3.30E-05
SSTL196	FRED WEBER, INC. FT. BELLE	739499.97	4302900.13	443.27	7.7	25.0	11.788	0.9	3.02E+00	1.28E-01	1.28E-01
SSTL199	A.G. RECYCLING	734844.18	4284158.21	525.43	10.0	1100.0	23.333	0.5		1.59E-01	1.59E-01
SSTL200	A.G. RECYCLING	734844.18	4284158.21	525.43	10.0	1100.0	23.333	0.5		7.25E-01	7.25E-01
SSTL209	MISSOURI-AMERICAN WATER CO FLORISSANT	728394.88	4300010.04	461.78	15.0	896.0	0.000	14.0		9.51E+00	9.51E+00
SSTL214	THE HARPER COMPANY	731184.93	4292013.86	588.35	10.0	1100.0	23.333	0.5		2.75E-01	0.00E+00
SCITY1	ANHEUSER-BUSCH INC ST. LOUIS	743002.81	4275906.67	469.19	225.0	330.0	21.217	10.0		2.38E-02	2.38E-02
SCITY2	ANHEUSER-BUSCH INC ST. LOUIS	743002.81	4275906.67	469.19	100.0	350.0	47.149	3.0		5.80E-02	5.80E-02
SCITY3	ANHEUSER-BUSCH INC ST. LOUIS	743002.81	4275906.67	469.19	225.0	350.0	18.468	10.0		1.67E+01	1.67E+01
SCITY4	ANHEUSER-BUSCH INC ST. LOUIS	743002.81	4275906.67	469.19	225.0	350.0	18.468	10.0		1.78E-02	1.78E-02
SCITY5	ANHEUSER-BUSCH INC ST. LOUIS	743002.81	4275906.67	469.19	225.0	350.0	18.468	10.0		2.53E+01	2.53E+01
SCITY6	ANHEUSER-BUSCH INC ST. LOUIS	743002.81	4275906.67	469.19	225.0	350.0	18.468	10.0		2.15E-02	2.15E-02
SCITY7	ANHEUSER-BUSCH INC ST. LOUIS	743002.81	4275906.67	469.19	135.0	950.0	19.367	1.5		1.75E+01	1.75E+01
SCITY8	ANHEUSER-BUSCH INC ST. LOUIS	743002.81	4275906.67	469.19	20.0	50.0	70.000	1.0		1.69E+00	1.69E+00
SCITY9	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	70.0	200.0	0.003	5.5	1.33E+00	9.51E-03	9.51E-03
SCITY10	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	70.0	200.0	0.003	5.5	2.13E+00	1.52E-02	1.52E-02
SCITY11	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	100.0	145.0	62.500	4.5	2.53E+00	1.81E-02	1.81E-02
SCITY12	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	100.0	145.0	62.500	4.5	3.20E-01	2.29E-03	2.29E-03
SCITY13	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	12.0	200.0	0.335	1.0	3.77E+00	1.15E+00	0.00E+00
SCITY14	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	45.0	150.0	50.400	2.0	3.55E-02	1.07E-03	1.07E-03
SCITY15	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	45.0	150.0	50.400	2.0	3.07E-02	9.22E-04	9.22E-04
SCITY16	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	45.0	150.0	69.751	1.7	3.07E-02	9.22E-04	9.22E-04
SCITY17	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	16.0	77.0	24.600	0.2		1.41E-03	1.41E-03
SCITY18	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	3.0	800.0	0.335	0.5	1.63E-01	4.98E-02	0.00E+00
SCITY22	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	20.0	0.0	0.000	0.5	5.72E-03	1.72E-04	1.72E-04
SCITY23	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	10.0	1100.0	23.333	0.5	6.00E-02	1.83E-02	0.00E+00
SCITY24	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	10.0	785.0	42.283	0.3	2.11E+00	6.44E-01	0.00E+00
SCITY25	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	10.0	785.0	42.283	0.3	8.12E-03	4.79E-03	0.00E+00
SCITY26	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	10.0	1100.0	23.333	0.5	1.73E-02	5.29E-03	0.00E+00
SCITY27	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	42.0	77.0	3.734	0.2	4.35E-02	1.33E-02	0.00E+00
SCITY28	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	20.0	200.0	0.335	1.0	1.98E-01	6.04E-02	0.00E+00
SCITY29	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	8.0	800.0	0.335	0.5	1.07E-01	3.27E-02	0.00E+00
SCITY30	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	8.0	800.0	0.335	0.5	1.09E-04	3.32E-05	0.00E+00
SCITY31	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	22.0	212.0	1.296	1.0	5.28E-01	1.61E-01	0.00E+00
SCITY32	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	90.0	77.0	33.215	2.2	1.09E-04	3.32E-05	0.00E+00
SCITY33	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	10.0	1100.0	23.333	0.5	3.65E-02	1.12E-02	0.00E+00
SCITY34	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	8.0	800.0	0.335	0.5	1.98E-01	6.04E-02	0.00E+00
SCITY48	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	111.0	300.0	72.900	4.0		2.58E-01	2.58E-01
SCITY49	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	111.0	300.0	72.900	4.0		2.42E-02	2.42E-02
SCITY50	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	111.0	300.0	72.900	4.0		1.20E+00	1.20E+00
SCITY51	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	111.0	300.0	72.900	4.0		1.51E-01	1.51E-01
SCITY52	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	115.0	280.0	41.099	5.0		1.17E+00	1.17E+00
SCITY53	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	115.0	280.0	41.099	5.0		6.91E-03	6.91E-03
SCITY54	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	115.0	280.0	41.099	5.0		1.17E+00	1.17E+00
SCITY55	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	115.0	280.0	41.099	5.0		7.87E-03	7.87E-03
SCITY56	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	30.0	975.0	237.684	0.8		3.10E-02	0.00E+00
SCITY57	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	161.0	250.0	34.101	4.0		2.59E+01	2.59E+01
SCITY58	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	161.0	250.0	34.101	4.0		5.09E+00	5.09E+00
SCITY59	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	161.0	250.0	34.101	4.0		3.48E-02	3.48E-02

R006606

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

Source ID	Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	Potential Emissions (lb/hr)		
									CO	SOx	SO2 (1-hour)
SCITY60	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	225.0	280.0	35.784	7.3	3.97E-01	3.97E-01	3.97E-01
SCITY61	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	225.0	280.0	35.784	7.3	3.97E-01	5.32E-02	5.32E-02
SCITY62	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	225.0	280.0	35.784	7.3	3.00E+00	4.43E+00	4.43E+00
SCITY63	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	225.0	280.0	35.784	7.3	3.30E+00	2.36E-02	2.36E-02
SCITY64	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	225.0	280.0	35.784	7.3	3.00E+00	4.43E+00	4.43E+00
SCITY65	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	225.0	280.0	35.784	7.3	3.20E+00	2.29E-02	2.29E-02
SCITY66	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	20.0	0.0	0.000	0.5	4.42E-01	1.33E+00	1.33E+00
SCITY67	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	69.0	318.0	63.035	3.0	4.19E+00	4.64E+00	4.64E+00
SCITY68	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	69.0	318.0	63.035	3.0	6.11E-01	5.15E-03	5.15E-03
SCITY69	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	225.0	280.0	35.784	7.3	3.04E+00	4.48E+00	4.48E+00
SCITY70	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	225.0	280.0	35.784	7.3	1.14E+00	8.17E-03	8.17E-03
SCITY71	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	10.0	1100.0	23.333	0.5	2.98E-03	4.70E-07	0.00E+00
SCITY72	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	10.0	1100.0	23.333	0.5	7.05E+00	2.15E+00	0.00E+00
SCITY83	VETERANS ADMIN MEDICAL CENTER JOHN COCHRAN DIV	741047.52	4280704.99	545.64	50.0	430.0	35.000	2.0		1.14E-04	1.14E-04
SCITY84	VETERANS ADMIN MEDICAL CENTER JOHN COCHRAN DIV	741047.52	4280704.99	545.64	50.0	430.0	35.000	2.0		4.07E-03	4.07E-03
SCITY85	VETERANS ADMIN MEDICAL CENTER JOHN COCHRAN DIV	741047.52	4280704.99	545.64	50.0	430.0	35.000	2.0		8.40E-03	8.40E-03
SCITY86	VETERANS ADMIN MEDICAL CENTER JOHN COCHRAN DIV	741047.52	4280704.99	545.64	50.0	280.0	35.000	2.0		1.14E+00	1.14E+00
SCITY87	VETERANS ADMIN MEDICAL CENTER JOHN COCHRAN DIV	741047.52	4280704.99	545.64	50.0	280.0	35.000	2.0		4.07E-03	4.07E-03
SCITY88	VETERANS ADMIN MEDICAL CENTER JOHN COCHRAN DIV	741047.52	4280704.99	545.64	50.0	280.0	35.000	2.0		1.14E+00	1.14E+00
SCITY89	VETERANS ADMIN MEDICAL CENTER JOHN COCHRAN DIV	741047.52	4280704.99	545.64	50.0	280.0	35.000	2.0		4.07E-03	4.07E-03
SCITY90	VETERANS ADMIN MEDICAL CENTER JOHN COCHRAN DIV	741047.52	4280704.99	545.64	10.0	1100.0	23.333	0.5		2.47E+00	0.00E+00
SCITY110	ICL SPECIALTY PRODUCTS INC CARONDELET PLANT	737985.63	4270043.36	414.11	32.0	120.0	15.453	2.0		2.08E-02	2.08E-02
SCITY111	ICL SPECIALTY PRODUCTS INC CARONDELET PLANT	737985.63	4270043.36	414.11	481.0	200.0	9.432	3.0		5.70E-03	5.70E-03
SCITY112	ICL SPECIALTY PRODUCTS INC CARONDELET PLANT	737985.63	4270043.36	414.11	56.0	400.0	15.922	4.0		6.81E+01	6.81E+01
SCITY113	ICL SPECIALTY PRODUCTS INC CARONDELET PLANT	737985.63	4270043.36	414.11	56.0	400.0	15.922	4.0		3.75E-02	3.75E-02
SCITY114	ICL SPECIALTY PRODUCTS INC CARONDELET PLANT	737985.63	4270043.36	414.11	45.0	122.0	151.818	2.0		1.14E-02	1.14E-02
SCITY115	ICL SPECIALTY PRODUCTS INC CARONDELET PLANT	737985.63	4270043.36	414.11	80.0	171.0	69.682	2.0		5.14E-03	5.14E-03
SCITY116	ICL SPECIALTY PRODUCTS INC CARONDELET PLANT	737985.63	4270043.36	414.11	78.0	176.0	88.484	1.2		1.43E-03	1.43E-03
SCITY117	ICL SPECIALTY PRODUCTS INC CARONDELET PLANT	737985.63	4270043.36	414.11	10.0	1100.0	23.333	0.5		1.91E-03	1.91E-03
SCITY121	ICL SPECIALTY PRODUCTS INC CARONDELET PLANT	737985.63	4270043.36	414.11	42.0	340.0	37.776	4.0		9.43E+01	9.43E+01
SCITY122	ICL SPECIALTY PRODUCTS INC CARONDELET PLANT	737985.63	4270043.36	414.11	42.0	340.0	37.776	4.0		5.31E-02	5.31E-02
SCITY123	ELANTAS PDG, INC. SECOND ST	743167.86	4284941.73	426.35	55.0	700.0	14.738	1.2		6.41E+00	6.41E+00
SCITY124	ELANTAS PDG, INC. SECOND ST	743167.86	4284941.73	426.35	55.0	700.0	14.738	1.2		7.35E-03	7.35E-03
SCITY125	ELANTAS PDG, INC. SECOND ST	743167.86	4284941.73	426.35	55.0	700.0	14.738	1.2		1.86E-02	1.86E-02
SCITY126	ELANTAS PDG, INC. SECOND ST	743167.86	4284941.73	426.35	55.0	700.0	14.738	1.2		5.89E-04	5.89E-04
SCITY127	ELANTAS PDG, INC. SECOND ST	743167.86	4284941.73	426.35	30.0	140.0	0.125	2.0		1.44E-03	1.44E-03
SCITY128	ELANTAS PDG, INC. SECOND ST	743167.86	4284941.73	426.35	15.4	752.2	32.451	1.0		7.85E-03	0.00E+00
SCITY129	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	34.0	1700.0	4.665	2.0		3.72E-03	3.72E-03
SCITY132	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	34.0	1700.0	6.916	3.3		1.72E-02	1.72E-02
SCITY133	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	34.0	1700.0	36.601	2.0		3.72E-03	3.72E-03
SCITY136	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	34.0	1800.0	8.301	3.7		8.58E-03	8.58E-03
SCITY137	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	42.0	1700.0	4.665	2.0		3.72E-03	3.72E-03
SCITY140	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	44.0	200.0	47.149	3.0		5.82E-03	5.82E-03
SCITY141	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	44.0	200.0	47.149	3.0		5.82E-03	5.82E-03
SCITY142	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	34.0	200.0	39.649	2.8		5.16E-03	5.16E-03
SCITY143	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	33.0	300.0	20.551	2.2		1.98E-03	1.98E-03
SCITY144	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	33.0	300.0	20.551	2.2		1.98E-03	1.98E-03
SCITY145	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	33.0	300.0	20.551	2.2		1.98E-03	1.98E-03
SCITY146	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	33.0	300.0	20.551	2.2		1.98E-03	1.98E-03
SCITY147	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	25.0	300.0	14.865	2.0		1.14E-02	1.14E-02
SCITY148	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	20.0	0.0	0.000	0.5		3.30E-03	3.30E-03
SCITY149	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	37.0	600.0	38.983	1.2		1.98E-03	1.98E-03
SCITY156	ST. ALEXIUS HOSPITAL JEFFERSON CAMPUS	741441.37	4274961.73	544.65	115.0	210.0	38.885	5.0		1.19E-02	1.19E-02
SCITY157	ST. ALEXIUS HOSPITAL JEFFERSON CAMPUS	741441.37	4274961.73	544.65	115.0	210.0	38.885	5.0		1.20E-02	1.20E-02
SCITY158	ST. ALEXIUS HOSPITAL JEFFERSON CAMPUS	741441.37	4274961.73	544.65	115.0	210.0	38.885	5.0		1.19E-02	1.19E-02
SCITY159	ST. ALEXIUS HOSPITAL JEFFERSON CAMPUS	741441.37	4274961.73	544.65	14.0	490.0	60.200	0.5		7.80E-01	0.00E+00

R006607

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

Source ID	Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	Potential Emissions (lb/hr)		
									CO	SOx	SO2 (1-hour)
SCITY160	ST. ALEXIUS HOSPITAL JEFFERSON CAMPUS	741441.37	4274961.73	544.65	12.6	200.0	205.400	0.5		7.80E-01	0.00E+00
SCITY162	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	210.0	260.0	17.733	2.8	2.69E+00	1.16E-01	1.16E-01
SCITY163	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	210.0	260.0	17.733	2.8	6.20E+00	4.43E-02	4.43E-02
SCITY164	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	4.20E+00	9.30E-03	0.00E+00
SCITY165	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	4.18E+00	9.20E-03	0.00E+00
SCITY166	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	3.77E+00	8.30E-03	0.00E+00
SCITY167	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	4.12E+00	9.10E-03	0.00E+00
SCITY168	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	4.01E+00	1.23E+00	0.00E+00
SCITY169	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	8.15E+00	1.80E-02	0.00E+00
SCITY170	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	4.90E+00	1.08E-02	0.00E+00
SCITY171	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	8.52E+00	1.88E-02	0.00E+00
SCITY172	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	184.2	400.0	1.949	5.5	4.71E+00	2.04E-01	2.04E-01
SCITY173	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	184.2	400.0	1.949	5.5	1.09E+01	7.76E-02	7.76E-02
SCITY174	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	184.2	400.0	1.949	5.5	2.50E+00	1.08E-01	1.08E-01
SCITY175	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	184.2	400.0	1.949	5.5	6.01E+00	4.29E-02	4.29E-02
SCITY176	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	6.24E+00	1.38E-02	0.00E+00
SCITY177	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	5.17E+00	1.14E-02	0.00E+00
SCITY178	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	9.14E+00	2.02E-02	0.00E+00
SCITY179	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	2.31E+00	9.84E-01	0.00E+00
SCITY180	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	3.98E+00	8.40E-03	0.00E+00
SCITY181	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	2.29E-01	3.53E-03	3.53E-03
SCITY183	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	2.29E-01	2.41E-03	2.41E-03
SCITY185	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	8.24E-02	5.89E-04	5.89E-04
SCITY187	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	2.36E-01	1.69E-03	1.69E-03
SCITY189	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	1.37E+00	4.86E-01	0.00E+00
SCITY190	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	247.0	190.0	20.417	1.2	5.35E-02	2.31E-03	2.31E-03
SCITY191	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	247.0	190.0	20.417	1.2	5.00E-01	3.57E-03	3.57E-03
SCITY192	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	3.69E+01	6.78E-02	0.00E+00
SCITY193	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	8.48E+00	1.56E-02	0.00E+00
SCITY194	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	2.09E+01	4.41E-02	0.00E+00
SCITY227	INDUSTRIAL CONTAINER SERVICES - MO, LLC MANCHESTER	737686.12	4278652.89	459.06	20.0	250.0	18.068	1.0		2.54E-03	2.54E-03
SCITY228	INDUSTRIAL CONTAINER SERVICES - MO, LLC MANCHESTER	737686.12	4278652.89	459.06	20.0	150.0	22.218	1.0		1.20E+00	1.20E+00
SCITY229	INDUSTRIAL CONTAINER SERVICES - MO, LLC MANCHESTER	737686.12	4278652.89	459.06	25.0	0.0	0.000	1.0		2.19E-04	2.19E-04
SCITY242	PQ CORPORATION -THE	739053.43	4285317.19	495.80	60.0	250.0	71.667	1.7		2.39E-03	2.39E-03
SCITY243	PQ CORPORATION -THE	739053.43	4285317.19	495.80	60.0	400.0	19.833	1.5		4.37E-03	4.37E-03
SCITY244	PQ CORPORATION -THE	739053.43	4285317.19	495.80	20.0	0.0	0.000	0.5		1.37E-04	1.37E-04
SCITY245	PQ CORPORATION -THE	739053.43	4285317.19	495.80	55.0	750.0	11.168	4.2		8.16E-03	8.16E-03
SCITY246	PQ CORPORATION -THE	739053.43	4285317.19	495.80	43.0	500.0	7.467	2.5		7.33E-05	7.33E-05
SCITY247	PQ CORPORATION -THE	739053.43	4285317.19	495.80	20.0	0.0	0.000	0.5		3.46E-04	3.46E-04
SCITY248	PQ CORPORATION -THE	739053.43	4285317.19	495.80	36.0	375.0	1.716	2.0		2.48E-03	2.48E-03
SCITY266	HUMANE SOCIETY OF MISSOURI ST. LOUIS - MACKLIND AVE	737162.32	4278817.40	474.08	24.0	1139.0	15.515	1.7		1.10E-02	1.10E-02
SCITY267	HUMANE SOCIETY OF MISSOURI ST. LOUIS - MACKLIND AVE	737162.32	4278817.40	474.08	28.0	1800.0	15.584	2.0		6.76E-01	6.76E-01
SCITY275	ALSCO, INC ST. LOUIS	743334.17	4275818.28	427.92	10.0	1100.0	23.333	0.5		2.33E+01	2.33E+01
SCITY276	ALSCO, INC ST. LOUIS	743334.17	4275818.28	427.92	10.0	1100.0	23.333	0.5		4.99E-03	4.99E-03
SCITY277	NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY ST LOUIS	743107.71	4275132.40	439.30	23.5	800.0	0.003	0.5	7.11E-01	1.25E-05	0.00E+00
SCITY278	NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY ST LOUIS	743107.71	4275132.40	439.30	20.5	250.0	0.003	1.3	3.05E-01	1.28E-04	1.28E-04
SCITY279	NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY ST LOUIS	743107.71	4275132.40	439.30	20.5	250.0	0.003	1.3	6.87E-01	4.91E-03	4.91E-03
SCITY280	NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY ST LOUIS	743107.71	4275132.40	439.30	20.5	250.0	0.003	1.3	3.05E-02	1.28E-05	1.28E-05
SCITY281	NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY ST LOUIS	743107.71	4275132.40	439.30	20.5	250.0	0.003	1.3	6.89E-01	4.92E-03	4.92E-03
SCITY282	NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY ST LOUIS	743107.71	4275132.40	439.30	22.0	250.0	0.003	1.0	1.22E-01	5.27E-03	5.27E-03
SCITY283	NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY ST LOUIS	743107.71	4275132.40	439.30	22.0	250.0	0.003	1.0	2.73E-01	1.95E-03	1.95E-03
SCITY284	NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY ST LOUIS	743107.71	4275132.40	439.30	22.5	250.0	0.003	2.0	6.10E-01	2.56E-04	2.56E-04
SCITY285	NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY ST LOUIS	743107.71	4275132.40	439.30	22.5	250.0	0.003	2.0	1.38E+00	9.84E-03	9.84E-03
SCITY286	NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY ST LOUIS	743107.71	4275132.40	439.30	20.5	800.0	0.003	1.5	8.65E-01	1.53E-05	0.00E+00
SCITY287	NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY ST LOUIS	743107.71	4275132.40	439.30	20.5	800.0	0.003	1.5	7.84E+00	1.38E-04	0.00E+00
SCITY288	NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY ST LOUIS	743107.71	4275132.40	439.30	20.5	800.0	0.003	1.5	7.84E+00	1.38E-04	0.00E+00

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

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	4273049.76	423.52	28.0	400.0	50.535	2.0		2.26E-03	2.26E-03
SCITY290	ARTCO ST. LOUIS-AMERICAN RIVER TRANS CO ST. LOUIS	741227.54	4273049.76	423.52	28.0	400.0	50.535	2.0		2.91E+01	2.91E+01
SCITY291	ARTCO ST. LOUIS-AMERICAN RIVER TRANS CO ST. LOUIS	741227.54	4273049.76	423.52	28.0	400.0	50.535	2.0		1.63E-03	1.63E-03
SCITY292	SOUTHERN METAL PROCESSING	739807.53	4271091.77	426.02	31.0	1590.0	19.255	2.5		1.28E+01	1.28E+01
SCITY293	SOUTHERN METAL PROCESSING	739807.53	4271091.77	426.02	31.0	1590.0	19.255	2.5		3.47E+00	3.47E+00
SCITY295	SSM HEALTH ST. LOUIS UNIVERSITY HOSPITAL	740357.18	4278600.20	527.85	220.0	350.0	14.856	5.0	2.14E+00	6.17E+01	6.17E+01
SCITY296	SSM HEALTH ST. LOUIS UNIVERSITY HOSPITAL	740357.18	4278600.20	527.85	220.0	350.0	14.856	5.0	1.81E+00	1.29E-02	1.29E-02
SCITY297	SSM HEALTH ST. LOUIS UNIVERSITY HOSPITAL	740357.18	4278600.20	527.85	220.0	350.0	14.856	5.0	8.93E-01	2.57E+01	2.57E+01
SCITY298	SSM HEALTH ST. LOUIS UNIVERSITY HOSPITAL	740357.18	4278600.20	527.85	220.0	350.0	14.856	5.0	6.62E+00	4.73E-02	4.73E-02
SCITY299	SSM HEALTH ST. LOUIS UNIVERSITY HOSPITAL	740357.18	4278600.20	527.85	220.0	350.0	14.856	5.0	1.89E+00	5.45E+01	5.45E+01
SCITY300	SSM HEALTH ST. LOUIS UNIVERSITY HOSPITAL	740357.18	4278600.20	527.85	220.0	350.0	14.856	5.0	7.92E+00	5.66E-02	5.66E-02
SCITY301	SSM HEALTH ST. LOUIS UNIVERSITY HOSPITAL	740357.18	4278600.20	527.85	220.0	350.0	14.856	5.0	2.14E+00	6.17E+01	6.17E+01
SCITY302	SSM HEALTH ST. LOUIS UNIVERSITY HOSPITAL	740357.18	4278600.20	527.85	220.0	350.0	14.856	5.0	1.04E+00	7.40E-03	7.40E-03
SCITY303	SSM HEALTH ST. LOUIS UNIVERSITY HOSPITAL	740357.18	4278600.20	527.85	10.0	1100.0	23.333	0.5	9.62E+00	5.13E+00	0.00E+00
SCITY304	SSM HEALTH ST. LOUIS UNIVERSITY HOSPITAL	740357.18	4278600.20	527.85	10.0	1100.0	23.333	0.5	5.11E+00	6.08E+00	0.00E+00
SCITY315	J S ALBERICI CONSTRUCTION	736723.60	4285287.44	575.43	10.0	1100.0	23.333	0.5	6.50E+00	1.98E+00	0.00E+00
SCITY316	J S ALBERICI CONSTRUCTION	736723.60	4285287.44	575.43	20.0	0.0	0.000	0.5	7.40E-02	2.22E-03	2.22E-03
SCITY317	J S ALBERICI CONSTRUCTION	736723.60	4285287.44	575.43	20.0	0.0	0.000	0.5	7.40E-02	2.22E-03	2.22E-03
SCITY318	J S ALBERICI CONSTRUCTION	736723.60	4285287.44	575.43	10.0	1100.0	23.333	0.5	9.62E-01	3.00E-01	3.00E-01
SCITY319	J S ALBERICI CONSTRUCTION	736723.60	4285287.44	575.43	20.0	0.0	0.000	0.5	2.00E-02	6.00E-04	6.00E-04
SCITY320	J S ALBERICI CONSTRUCTION	736723.60	4285287.44	575.43	20.0	0.0	0.000	0.5	1.26E-02	3.70E-04	3.70E-04
SCITY321	NESTLE PURINA PETCARE COMPANY ST. LOUIS	743912.49	4278167.30	467.68	80.0	380.0	33.766	2.0	8.99E-01	3.88E-02	3.88E-02
SCITY322	NESTLE PURINA PETCARE COMPANY ST. LOUIS	743912.49	4278167.30	467.68	80.0	380.0	33.766	2.0	4.60E-01	3.28E-03	3.28E-03
SCITY323	NESTLE PURINA PETCARE COMPANY ST. LOUIS	743912.49	4278167.30	467.68	15.0	850.0	73.133	0.7	1.40E-02	3.08E-05	0.00E+00
SCITY324	NESTLE PURINA PETCARE COMPANY ST. LOUIS	743912.49	4278167.30	467.68	15.0	850.0	73.133	0.7	7.00E-04	1.54E-06	0.00E+00
SCITY325	NESTLE PURINA PETCARE COMPANY ST. LOUIS	743912.49	4278167.30	467.68	15.0	850.0	73.133	0.7	5.78E-03	1.22E-05	0.00E+00
SCITY326	NESTLE PURINA PETCARE COMPANY ST. LOUIS	743912.49	4278167.30	467.68	80.0	405.0	33.766	2.0	8.71E-02	3.76E-03	3.76E-03
SCITY327	NESTLE PURINA PETCARE COMPANY ST. LOUIS	743912.49	4278167.30	467.68	80.0	405.0	33.766	2.0	8.30E-01	5.93E-03	5.93E-03
SCITY328	NESTLE PURINA PETCARE COMPANY ST. LOUIS	743912.49	4278167.30	467.68	80.0	405.0	33.766	2.0	7.46E-01	3.22E-02	3.22E-02
SCITY329	NESTLE PURINA PETCARE COMPANY ST. LOUIS	743912.49	4278167.30	467.68	80.0	405.0	33.766	2.0	9.04E-01	6.46E-03	6.46E-03
SCITY330	NESTLE PURINA PETCARE COMPANY ST. LOUIS	743912.49	4278167.30	467.68	15.0	1007.0	51.050	0.7	4.68E-01	1.03E-03	0.00E+00
SCITY331	NESTLE PURINA PETCARE COMPANY ST. LOUIS	743912.49	4278167.30	467.68	10.0	1100.0	23.333	0.5	4.06E+00	1.24E+00	0.00E+00
SCITY332	NESTLE PURINA PETCARE COMPANY ST. LOUIS	743912.49	4278167.30	467.68	10.0	1100.0	23.333	0.5	2.02E-01	1.44E-03	1.44E-03
SCITY333	NESTLE PURINA PETCARE COMPANY ST. LOUIS	743912.49	4278167.30	467.68	6.0	1157.0	35.000	0.3	8.24E+00	2.52E+00	0.00E+00
SCITY334	NESTLE PURINA PETCARE COMPANY ST. LOUIS	743912.49	4278167.30	467.68	6.0	1076.0	151.667	0.3	2.56E+00	7.82E-01	0.00E+00
SCITY335	NESTLE PURINA PETCARE COMPANY ST. LOUIS	743912.49	4278167.30	467.68	8.9	815.0	37.835	0.8	6.13E-01	1.35E-03	0.00E+00
SCITY344	PAULO PRODUCTS COMPANY	736597.70	4278776.67	501.12	32.0	200.0	2.933	1.2		5.04E-03	5.04E-03
SCITY353	CHRISTY REFRACTORIES CO L.L.C	738223.37	4278219.85	483.66	1.0	325.0	0.003	1.0		9.60E-02	9.60E-02
SCITY355	SOUTHWESTERN BELL TELEPHONE COMPANY	744346.61	4279152.95	459.35	290.0	431.0	79.216	2.0		9.54E-01	9.54E-01
SCITY356	SOUTHWESTERN BELL TELEPHONE COMPANY	744346.61	4279152.95	459.35	290.0	455.0	79.216	2.0		9.54E-01	9.54E-01
SCITY357	SOUTHWESTERN BELL TELEPHONE COMPANY	744346.61	4279152.95	459.35	290.0	428.0	79.216	2.0		9.54E-01	9.54E-01
SCITY358	SOUTHWESTERN BELL TELEPHONE COMPANY	744346.61	4279152.95	459.35	565.0	985.0	23.035	0.7		3.05E-01	3.05E-01
SCITY359	SOUTHWESTERN BELL TELEPHONE COMPANY	744346.61	4279152.95	459.35	565.0	985.0	23.035	0.7		3.05E-01	3.05E-01
SCITY360	SOUTHWESTERN BELL TELEPHONE COMPANY	744346.61	4279152.95	459.35	565.0	985.0	23.035	0.7		3.05E-01	3.05E-01
SCITY361	SOUTHWESTERN BELL TELEPHONE COMPANY	744346.61	4279152.95	459.35	660.0	300.0	23.035	1.5		1.09E-03	1.09E-03
SCITY362	SOUTHWESTERN BELL TELEPHONE COMPANY	744346.61	4279152.95	459.35	660.0	300.0	23.035	1.5		4.92E-03	4.92E-03
SCITY363	SOUTHWESTERN BELL TELEPHONE COMPANY	744346.61	4279152.95	459.35	390.0	960.0	23.035	9.5		7.17E-01	7.17E-01
SCITY364	SOUTHWESTERN BELL TELEPHONE COMPANY	744346.61	4279152.95	459.35	390.0	960.0	23.035	9.5		7.17E-01	7.17E-01
SCITY365	SOUTHWESTERN BELL TELEPHONE COMPANY	744346.61	4279152.95	459.35	290.0	722.0	96.401	2.0		1.19E+00	1.19E+00
SCITY366	SOUTHWESTERN BELL TELEPHONE COMPANY	744346.61	4279152.95	459.35	290.0	722.0	96.401	2.0		5.13E+00	5.13E+00
SCITY367	SOUTHWESTERN BELL TELEPHONE COMPANY	744346.61	4279152.95	459.35	290.0	722.0	96.401	2.0		8.24E+00	8.24E+00
SCITY368	SOUTHWESTERN BELL TELEPHONE COMPANY	744346.61	4279152.95	459.35	290.0	722.0	96.401	2.0		8.24E+00	8.24E+00
SCITY380	BKEP MATERIALS, LLC ST. LOUIS TERMINAL CO	739332.17	4270413.67	420.93	25.0	450.0	20.000	2.5		2.46E-03	2.46E-03
SCITY381	BKEP MATERIALS, LLC ST. LOUIS TERMINAL CO	739332.17	4270413.67	420.93	12.0	150.0	8.333	1.0		1.63E-01	1.63E-01
SCITY394	SAINT LOUIS UNIVERSITY FACILITIES SERVICES	740384.08	4280241.69	507.64	10.0	1100.0	23.333	0.5		2.06E+00	0.00E+00
SCITY395	SAINT LOUIS UNIVERSITY FACILITIES SERVICES	740384.08	4280241.69	507.64	20.0	0.0	0.000	0.5		9.53E-03	9.53E-03

R006609

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)
SCITY396	SAINT LOUIS UNIVERSITY FACILITIES SERVICES	740384.08	4280241.69	507.64	20.0	0.0	0.000	0.5		1.71E-03	1.71E-03
SCITY401	SSM CARDINAL GLENNON CHILDRENS HOSPITAL	740376.29	4278334.05	544.29	40.0	200.0	21.667	2.5		9.30E-05	9.30E-05
SCITY402	SSM CARDINAL GLENNON CHILDRENS HOSPITAL	740376.29	4278334.05	544.29	40.0	200.0	21.667	2.5		4.97E-03	4.97E-03
SCITY403	SSM CARDINAL GLENNON CHILDRENS HOSPITAL	740376.29	4278334.05	544.29	40.0	200.0	21.667	2.5		5.07E-05	5.07E-05
SCITY404	SSM CARDINAL GLENNON CHILDRENS HOSPITAL	740376.29	4278334.05	544.29	40.0	200.0	21.667	2.5		2.48E-03	2.48E-03
SCITY405	SSM CARDINAL GLENNON CHILDRENS HOSPITAL	740376.29	4278334.05	544.29	10.0	1100.0	23.333	0.5		1.83E-02	0.00E+00
SCITY406	SSM CARDINAL GLENNON CHILDRENS HOSPITAL	740376.29	4278334.05	544.29	23.5	200.0	16.667	2.9		2.55E+00	2.55E+00
SCITY407	SSM CARDINAL GLENNON CHILDRENS HOSPITAL	740376.29	4278334.05	544.29	23.5	200.0	16.667	2.9		2.87E-02	2.87E-02
CJEFF34	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	36.6	77.0	20.600	1.8	2.68E-02		
CJEFF35	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	70.0	350.0	40.000	2.0	2.90E-01		
CJEFF36	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	70.0	850.0	41.667	2.5	2.07E-01		
CJEFF37	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	20.0	0.0	0.000	0.5	9.13E-03		
CJEFF43	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	56.0	370.0	33.333	2.5	1.01E-01		
CJEFF44	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	70.0	850.0	41.667	2.5	8.06E-01		
CJEFF45	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	70.0	850.0	112.999	2.5	9.97E-02		
CJEFF46	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	70.0	850.0	20.600	2.5	2.58E-01		
CSTLC55	ST. LOUIS AIRPORT AUTHORITY LAMBERT INTERNATIONAL BLVD	728947.29	4291571.16	554.63	34.0	375.0	26.555	2.3	1.68E-02		
CSTLC56	ST. LOUIS AIRPORT AUTHORITY LAMBERT INTERNATIONAL BLVD	728947.29	4291571.16	554.63	34.0	375.0	26.555	2.3	1.27E+00		
CSTLC57	ST. LOUIS AIRPORT AUTHORITY LAMBERT INTERNATIONAL BLVD	728947.29	4291571.16	554.63	33.0	428.0	15.669	3.8	1.66E-02		
CSTLC58	ST. LOUIS AIRPORT AUTHORITY LAMBERT INTERNATIONAL BLVD	728947.29	4291571.16	554.63	33.0	428.0	15.669	3.8	3.85E-01		
CSTLC59	ST. LOUIS AIRPORT AUTHORITY LAMBERT INTERNATIONAL BLVD	728947.29	4291571.16	554.63	20.0	250.0	2.083	1.0	7.72E-02		
CSTLC60	ST. LOUIS AIRPORT AUTHORITY LAMBERT INTERNATIONAL BLVD	728947.29	4291571.16	554.63	5.5	1200.0	254.649	0.2	3.28E+00		
CSTLC61	ST. LOUIS AIRPORT AUTHORITY LAMBERT INTERNATIONAL BLVD	728947.29	4291571.16	554.63	5.5	1200.0	254.649	0.2	1.29E-01		
CSTLC62	ST. LOUIS AIRPORT AUTHORITY LAMBERT INTERNATIONAL BLVD	728947.29	4291571.16	554.63	5.5	1200.0	254.649	0.2	9.99E-05		
CSTLC63	ST. LOUIS AIRPORT AUTHORITY LAMBERT INTERNATIONAL BLVD	728947.29	4291571.16	554.63	19.0	425.0	7.047	1.7	6.01E-01		
CSTLC64	ST. LOUIS AIRPORT AUTHORITY LAMBERT INTERNATIONAL BLVD	728947.29	4291571.16	554.63	24.0	270.0	105.951	2.0	3.24E+00		
CSTLC152	SIMPSON CONSTRUCTION MATERIALS LLC VALLEY PARK	715996.20	4268469.87	430.05	43.0	-459.7	3.225	1.0	1.38E-01		
CSTLC155	FRED WEBER INC. - SOUTH ASPHALT BATCH SOUTH ASPHALT	732929.25	4259955.19	424.64	37.0	230.0	51.250	4.2	2.57E+01		
CSTLC156	FRED WEBER INC. - SOUTH ASPHALT BATCH SOUTH ASPHALT	732929.25	4259955.19	424.64	12.0	355.0	0.804	1.3	4.03E-01		
CSTLC157	FRED WEBER INC. - NORTH ASPHALT H and B	720614.10	4290798.15	468.70	31.0	230.0	80.499	4.2	3.93E+01		
CSTLC158	FRED WEBER INC. - NORTH ASPHALT H and B	720614.10	4290798.15	468.70	20.0	300.0	16.667	1.1	2.29E-01		
CSTLC207	MISSOURI-AMERICAN WATER CO FLORISSANT	728394.88	4300010.04	461.78	15.0	896.0	0.000	14.0	1.61E+02		
CCITY65	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	100.0	350.0	29.984	1.3	3.08E-02		
CCITY203	INDUSTRIAL CONTAINER SERVICES - MO, LLC MANCHESTER	737686.12	4278652.89	459.06	20.0	250.0	18.068	1.0	3.56E-01		
CCITY204	INDUSTRIAL CONTAINER SERVICES - MO, LLC MANCHESTER	737686.12	4278652.89	459.06	20.0	150.0	22.218	1.0	1.68E+02		
CCITY344	GP RECYCLING, LLC	743830.86	4284034.28	422.18	20.0	0.0	0.000	0.5	1.72E-02		
CCITY368	GP RECYCLING, LLC	740384.08	4280241.69	507.64	10.0	1100.0	23.333	0.5	6.73E+00		
CCITY369	SAINT LOUIS UNIVERSITY FACILITIES SERVICES	740384.08	4280241.69	507.64	20.0	0.0	0.000	0.5	1.33E+00		
CCITY370	SAINT LOUIS UNIVERSITY FACILITIES SERVICES	740384.08	4280241.69	507.64	20.0	0.0	0.000	0.5	5.69E-02		

R006610

Off-Site Volume Source Inputs

Source ID	Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Release Height (ft)	Sigma Y (ft)	Sigma Z (ft)	Potential Emissions (lb/hr) CO	SOx	SO2 (1-hour)
SJEFF64	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	16.4	3.8	15.3	1.28E-02	9.13E-05	9.13E-05
SJEFF84	ARDAGH GLASS INC. PEVELY	727306.83	4241579.49	466.57	8.2	2.3	7.6	2.29E-01	4.68E-03	4.68E-03
SJEFF85	ARDAGH GLASS INC. PEVELY	727306.83	4241579.49	466.57	8.2	2.3	7.6	2.29E-01	7.06E-03	7.06E-03
SJEFF87	ARDAGH GLASS INC. PEVELY	727306.83	4241579.49	466.57	16.4	3.8	15.3	2.29E-01	1.44E-03	1.44E-03
SJEFF88	ARDAGH GLASS INC. PEVELY	727306.83	4241579.49	466.57	8.2	2.3	7.6	2.29E-01	3.91E-03	3.91E-03
SJEFF89	ARDAGH GLASS INC. PEVELY	727306.83	4241579.49	466.57	8.2	2.3	7.6		1.47E-03	1.47E-03
SJEFF90	ARDAGH GLASS INC. PEVELY	727306.83	4241579.49	466.57	8.2	2.3	7.6		2.29E-01	2.29E-01
SJEFF91	ARDAGH GLASS INC. PEVELY	727306.83	4241579.49	466.57	8.2	2.3	7.6		6.88E-03	6.88E-03
SJEFF93	ARDAGH GLASS INC. PEVELY	727306.83	4241579.49	466.57	8.2	2.3	7.6		1.38E-03	1.38E-03
SJEFF101	CARONDELET CORPORATION PEVELY	727491.85	4241725.78	485.56	8.2	2.3	7.6	4.81E-01	2.40E-02	2.40E-02
SJEFF102	CARONDELET CORPORATION PEVELY	727491.85	4241725.78	485.56	8.2	2.3	7.6	6.41E-01	1.42E-02	1.42E-02
SJEFF103	CARONDELET CORPORATION PEVELY	727491.85	4241725.78	485.56	8.2	2.3	7.6	5.24E-01	6.09E-03	6.09E-03
SJEFF104	CARONDELET CORPORATION PEVELY	727491.85	4241725.78	485.56	8.2	2.3	7.6	1.51E-01	3.75E-03	3.75E-03
SJEFF105	CARONDELET CORPORATION PEVELY	727491.85	4241725.78	485.56	8.2	2.3	7.6		1.08E-03	1.08E-03
SJEFF106	CARONDELET CORPORATION PEVELY	727491.85	4241725.78	485.56	8.2	2.3	7.6		1.14E-03	1.14E-03
SJEFF107	AERO METAL FINISHING	718099.61	4263747.23	613.55	8.2	2.3	7.6		2.43E-01	2.43E-01
SJEFF126	FRED WEBER, INC. ANTONIA	720102.79	4248877.71	670.57	8.2	2.3	7.6		3.08E+00	3.08E+00
SSTC56	BLASTCO INC	690213.84	4297755.23	543.44	8.2	2.3	7.6		1.47E-01	1.47E-01
SSTL67	MISSOURI ASPHALT PRODUCTS, LLC WEST LAKE QUARRY MATERIAL CO	721914.39	4294042.31	462.50	16.4	3.8	15.3		5.88E-04	5.88E-04
SSTL68	MISSOURI ASPHALT PRODUCTS, LLC WEST LAKE QUARRY MATERIAL CO	721914.39	4294042.31	462.50	16.4	3.8	15.3		1.02E+00	1.02E+00
SSTL125	BODINE ALUMINUM INC WALTON ROAD	730791.15	4286068.83	618.60	8.2	2.3	7.6		7.18E-03	7.18E-03
SSTL197	FRED WEBER, INC. FT. BELLE	739499.97	4302900.13	443.27	8.2	2.3	7.6		1.80E-01	1.80E-01
SCITY19	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	8.2	2.3	7.6	8.24E-02	2.47E-02	2.47E-02
SCITY20	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	8.2	2.3	7.6	4.44E-03	7.73E-01	7.73E-01
SCITY21	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	8.2	2.3	7.6	2.59E+00	7.94E-01	7.94E-01
SCITY44	ADM GRAIN COMPANY ST. LOUIS	744141.30	4284932.90	425.39	15.0	0.2	14.0		6.22E-04	6.22E-04
SCITY45	ADM GRAIN COMPANY ST. LOUIS	744141.30	4284932.90	425.39	15.0	0.2	14.0		2.76E+02	2.76E+02
SCITY118	ICL SPECIALTY PRODUCTS INC CARONDELET PLANT	737985.63	4270043.36	414.11	8.2	2.3	7.6		7.50E-05	7.50E-05
SCITY119	ICL SPECIALTY PRODUCTS INC CARONDELET PLANT	737985.63	4270043.36	414.11	8.2	2.3	7.6		4.00E-01	4.00E-01
SCITY120	ICL SPECIALTY PRODUCTS INC CARONDELET PLANT	737985.63	4270043.36	414.11	8.2	2.3	7.6		2.61E-01	2.61E-01
SCITY130	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	8.2	2.3	7.6		3.00E-04	3.00E-04
SCITY131	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	8.2	2.3	7.6		7.40E-02	7.40E-02
SCITY134	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	8.2	2.3	7.6		7.40E-02	7.40E-02
SCITY135	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	8.2	2.3	7.6		3.00E-04	3.00E-04
SCITY138	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	8.2	2.3	7.6		7.40E-02	7.40E-02
SCITY139	JW ALUMINUM ST. LOUIS	740003.39	4271318.74	425.30	8.2	2.3	7.6		3.00E-04	3.00E-04
SCITY182	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	16.4	3.8	15.3	3.36E-02	2.40E-04	2.40E-04
SCITY184	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	16.4	3.8	15.3	6.59E-02	4.71E-04	4.71E-04
SCITY186	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	16.4	3.8	15.3	3.36E-02	2.40E-04	2.40E-04
SCITY188	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	16.4	3.8	15.3	4.95E-02	3.53E-04	3.53E-04
SCITY195	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	8.2	2.3	7.6	8.40E-02	6.00E-04	6.00E-04
SCITY241	PQ CORPORATION -THE	739053.43	4285317.19	495.80	8.2	2.3	7.6		2.66E-02	2.66E-02
SCITY340	PAULO PRODUCTS COMPANY	736597.70	4278776.67	501.12	8.2	2.3	7.6		3.60E-04	3.60E-04
SCITY341	PAULO PRODUCTS COMPANY	736597.70	4278776.67	501.12	8.2	2.3	7.6		1.13E-03	1.13E-03
SCITY342	PAULO PRODUCTS COMPANY	736597.70	4278776.67	501.12	8.2	2.3	7.6		1.20E-03	1.20E-03
SCITY343	PAULO PRODUCTS COMPANY	736597.70	4278776.67	501.12	8.2	2.3	7.6		1.20E-02	1.20E-02
CJEFF33	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	1.49E-01		
CJEFF38	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	4.71E-03		
CJEFF39	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	3.22E-03		
CJEFF40	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	2.01E-01		

Off-Site Volume Source Inputs

Source ID	Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Release Height (ft)	Sigma Y (ft)	Sigma Z (ft)	Potential Emissions (lb/hr) CO	SOx	SO2 (1-hour)
CJEFF41	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	1.10E-03		
CJEFF42	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	8.18E-04		
CJEFF47	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	6.55E-02		
CJEFF48	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	6.56E-06		
CJEFF49	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	4.09E-04		
CJEFF50	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	8.48E-04		
CJEFF51	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	5.28E-02		
CJEFF52	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	2.46E-03		
CJEFF53	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	1.53E-01		
CJEFF54	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	1.56E-02		
CJEFF55	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	1.16E-01		
CJEFF56	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	8.45E-03		
CJEFF57	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	3.42E-01		
CJEFF58	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	4.74E-03		
CJEFF59	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	1.92E-01		
CJEFF60	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	16.4	3.8	15.3	1.36E-02		
CSTLC92	THE BOEING COMPANY ST. LOUIS	728742.77	4293777.11	545.54	8.2	2.3	7.6	2.25E-01		
CSTLC151	SIMPSON CONSTRUCTION MATERIALS LLC VALLEY PARK	715996.20	4268469.87	430.05	13.5	1.4	0.7	1.58E-01		
CSTLC195	FRED WEBER, INC. FT. BELLE	739499.97	4302900.13	443.27	13.5	1.4	0.7	5.97E-01		
CCITY343	GP RECYCLING, LLC	743830.86	4284034.28	422.18	8.2	2.3	7.6	5.57E-02		

R006612

ATTACHMENT B
MODEL SUMMARY OUTPUT

1-28-20 US Steel CO Significant Impacts Analysis Results

Model	File	Pollutant	Average	Group	Rank	Conc/Dep	East (X)	North (Y)	Elev	Hill	Flag	Time	Met File	Sources	Groups	Receptors
AERMOD 19191	Granite City SIL_2015_CO.SUM	CO	1-HR	ALL	1ST	1086.962	748434.9	4287033	127.16	127.16		0 15081904	STL_LCN15	12	1	14098
AERMOD 19191	Granite City SIL_2016_CO.SUM	CO	1-HR	ALL	1ST	1002.586	748434.9	4287033	127.16	127.16		0 16071420	STL_LCN16	12	1	14098
AERMOD 19191	Granite City SIL_2017_CO.SUM	CO	1-HR	ALL	1ST	982.0781	748434.9	4287033	127.16	127.16		0 17051502	STL_LCN17	12	1	14098
AERMOD 19191	Granite City SIL_2014_CO.SUM	CO	1-HR	ALL	1ST	973.8513	748434.9	4287033	127.16	127.16		0 14061604	STL_LCN14	12	1	14098
AERMOD 19191	Granite City SIL_2018_CO.SUM	CO	1-HR	ALL	1ST	969.1688	748400	4287100	128.28	128.28		0 18050802	STL_LCN18	12	1	14098
AERMOD 19191	Granite City SIL_2018_CO.SUM	CO	8-HR	ALL	1ST	669.1028	748481.6	4286378	126.67	126.67		0 18111224	STL_LCN18	12	1	14098
AERMOD 19191	Granite City SIL_2016_CO.SUM	CO	8-HR	ALL	1ST	645.9929	748434.9	4287033	127.16	127.16		0 16110108	STL_LCN16	12	1	14098
AERMOD 19191	Granite City SIL_2014_CO.SUM	CO	8-HR	ALL	1ST	620.7987	748756.2	4286732	125.76	125.76		0 14112416	STL_LCN14	12	1	14098
AERMOD 19191	Granite City SIL_2017_CO.SUM	CO	8-HR	ALL	1ST	612.1259	748434.9	4287033	127.16	127.16		0 17112624	STL_LCN17	12	1	14098
AERMOD 19191	Granite City SIL_2015_CO.SUM	CO	8-HR	ALL	1ST	607.0288	748434.9	4287033	127.16	127.16		0 15020308	STL_LCN15	12	1	14098

1-28-20 US Steel CO Significant Impacts Analysis Results

Pollutant	Average	Group	Rank	Model Conc. (ug/m3)	Background Conc. (ug/m3)	Total Conc. (ug/m3)	Standard (ug/m3)	% Standard
CO	1-HR	ALL	1ST	1087.0	NA	1087.0	2000	54%
CO	8-HR	ALL	1ST	669.1	NA	669.1	500	134%

1-29-20 US Steel CO NAAQS Analysis Results

Model	File	Pollutant	Average	Group	Rank	Conc/Dep	East (X)	North (Y)	Elev	Hill	Flag	Time	Met File	Sources	Groups	Receptors
AERMOD 19191	Granite City NAAQS_2015_CO.SUM	CO	1-HR	ALL	2ND	3413.958	748434.9	4287033	127.16	127.16		0 15072724	STL_LCN15	564	1	47
AERMOD 19191	Granite City NAAQS_2016_CO.SUM	CO	1-HR	ALL	2ND	3309.501	748434.9	4287033	127.16	127.16		0 16050105	STL_LCN16	564	1	47
AERMOD 19191	Granite City NAAQS_2014_CO.SUM	CO	1-HR	ALL	2ND	3233.448	748434.9	4287033	127.16	127.16		0 14030707	STL_LCN14	564	1	47
AERMOD 19191	Granite City NAAQS_2018_CO.SUM	CO	1-HR	ALL	2ND	3178.54	748434.9	4287033	127.16	127.16		0 18070124	STL_LCN18	564	1	47
AERMOD 19191	Granite City NAAQS_2017_CO.SUM	CO	1-HR	ALL	2ND	3140.406	748434.9	4287033	127.16	127.16		0 17091704	STL_LCN17	564	1	47
AERMOD 19191	Granite City NAAQS_2017_CO.SUM	CO	8-HR	ALL	2ND	1941.224	748434.9	4287033	127.16	127.16		0 17121624	STL_LCN17	564	1	47
AERMOD 19191	Granite City NAAQS_2016_CO.SUM	CO	8-HR	ALL	2ND	1856.671	748434.9	4287033	127.16	127.16		0 16032208	STL_LCN16	564	1	47
AERMOD 19191	Granite City NAAQS_2014_CO.SUM	CO	8-HR	ALL	2ND	1849.688	748434.9	4287033	127.16	127.16		0 14050724	STL_LCN14	564	1	47
AERMOD 19191	Granite City NAAQS_2015_CO.SUM	CO	8-HR	ALL	2ND	1835.384	748434.9	4287033	127.16	127.16		0 15122108	STL_LCN15	564	1	47
AERMOD 19191	Granite City NAAQS_2018_CO.SUM	CO	8-HR	ALL	2ND	1726.839	748470.1	4287000	126.94	126.94		0 18092424	STL_LCN18	564	1	47

1-29-20 US Steel CO NAAQS Analysis Results

Pollutant	Average	Group	Rank	Model Conc. (ug/m3)	Background Conc. (ug/m3)	Total Conc. (ug/m3)	Standard (ug/m3)	% Standard
CO	1-HR	ALL	1ST	3414.0	2286	5700.0	40000	14%
CO	8-HR	ALL	1ST	1941.2	1349	3290.2	10000	33%

R006614

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

COLLINSVILLE OFFICE

Application No.: 95010001 I.D. No.: 119813AAI
Applicant's Designation: Date Received: January 3, 1995
Subject: Production Increase
Date Issued: January 25, 1996
Location: Southeastern Granite City

Permit is hereby granted to the above-designated Permittee for an increase in the allowable production rate of iron (from 2,372,500 to 3,165,000 net tons per year) and steel (from 2,774,000 to 3,580,000 net tons per year) as described in the above-referenced application. This permit is subject to standard conditions attached hereto and the following special conditions:

1. Prior to issuance of this permit, a draft of this permit has undergone a public notice and comment period, and a public hearing was held.

BLAST FURNACE OPERATIONS

2a. Total combined production of hot metal (a.k.a., iron) from blast furnaces A and B shall not exceed 9,849 net tons per day, averaged over any calendar month, and;

b. Total combined production of hot metal from blast furnaces A and B shall not exceed 3,165,000 net tons per year.

3a. Particulate emissions from the blast furnace casthouse baghouse and iron spout baghouse shall not exceed 0.010 gr/dscf, pursuant to 35 Ill. Adm. Code 212.445(b)(1).

b. The opacity of emissions from the blast furnace casthouse baghouse and the iron spout baghouse shall not exceed 10% on a 6 minute rolling average basis, pursuant to 35 Ill. Adm. Code 212.445(b)(1).

4a. Emissions of particulate matter from any opening in the blast furnace casthouse shall not exceed 20% opacity on a 6-minute rolling average basis beginning from initiation of the opening of the tap hole up to the point where iron and slag stops flowing in the troughs, pursuant to 35 Ill. Adm. Code 212.445(a)(2).

5. Emissions from Blast Furnace operations shall not exceed the limits in attached Tables 1 and 5.

BASIC OXYGEN FURNACE SHOP

6a. Total combined production of liquid steel from the Basic Oxygen Furnaces (BOF's) shall not exceed 11,000 net tons per day, averaged over any calendar month, and;

b. Total combined production of liquid steel from the BOF's shall not exceed 3,580,000 net tons per year.

7. The emissions of PM-10 from the BOF ESP stack for the total of all BOF processes (i.e., operations from the beginning of the charging process through the end of the tapping process) shall not exceed 60.0 lbs/hr and 0.225 lbs per ton of steel in process, pursuant to 35 Ill. Adm. Code 212.458(b)(23).

8. Visible emissions from any opening in the BOF shop (e.g., roof monitor) shall not exceed 20% on a 3 minute rolling average basis.

9a. The Permittee shall determine the opacity from the openings BOF shop on at least a weekly basis. Observations shall be conducted for at least an hour or the entire BOF cycle, whichever is greater.

b. The Permittee shall determine the opacity from the BOF ESP stack for at least one hour on any normal work day (i.e., Monday through Friday) that the continuous opacity monitor on the BOF ESP stack has an outage that exceeds two consecutive hours and is still down. The readings shall commence as soon as possible after the opacity monitor has been down for two consecutive hours. If meteorological conditions or lack of visibility preclude these observations from being conducted, then this shall be noted in the log book.

c. The opacity shall be determined in accordance with the observation procedures set out in 40 CFR Part 60, Appendix A, Method 9 including the requirement that readings be taken by a certified observer.

d. These determinations shall be recorded in a log book, which at a minimum shall include the date and time of observations, name and title of observer, individual opacity readings, calculated opacity so as to determine compliance with Section 212.123, and calculated opacity relative to 20% opacity on a three minute rolling average basis.

10. The Permittee shall follow the BOF operating procedures and requirements specified in attachment A. These requirements are designed to ensure proper operation of the BOF control system. These procedures shall be posted in the BOF pulpit (a.k.a., control room).

11. Flame suppression shall be used and maintained during the entire tapping process.

12a. The stack gas pulpit set point of the BOF ESP control system shall be set in accordance with the following, so as to establish sufficient particulate matter capture efficiency of the charging and primary hoods:

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.

per SO2 FESOP

Cast House 626 ton/yr
> 422 tons/yr
Iron Spout 31 tons/yr
> 13.89 tons/yr

Permit Application #95010001

TABLE 1

BLAST FURNACE OPERATIONS

Maximum Hot Metal Production = 3,165,000 net

1. Casthouse Baghouse (furnace tapping)- baghouse, uncaptured emissions emitte etc.

Pollutant	Emission Factor (Lbs/Ton)	
PM	0.0703	111.19
PM-10	0.0703	111.19
SO_2	0.2006	422.0
NO_x	0.0144	22.79
VOM	0.0946	149.68

2. Blast Furnace - uncaptured fugitives

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.031	49.06
PM-10	0.0155	24.53
SO_2	0.0104	21.94
NO_x	0.0007	1.14
VOM	0.0047	7.42

3. Blast Furnace Charging
Maximum pellets charged = 4,308,581 tons/yr

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.0024	5.17
PM-10	0.0024	5.17

4. Slag Pits

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00417	6.60
PM-10	0.00417	6.60
SO_2	0.0100	15.83

Permit Application #95010001

TABLE 1 (cont.)

5. Iron Spout Baghouse- captured emissions controlled by iron spout baghouse.

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.02548	40.32
PM-10	0.02548	40.32
SO_2	0.0073	13.89

6. Iron Pellet Screen
Maximum pellets charged = 4,308,581 tons/yr

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00279	6.01
PM-10	0.00279	6.01

Permit Application #95010001

TABLE 2

BOF SHOP

Maximum Liquid Steel Production = 3,580,000 net tons per year

1. BOF ESP Stack (charge, refine, tap)

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.16	262.80
PM-10	0.16	262.80
NO_x	0.0389	69.63
VOM	0.0060	10.74
CO	8.993	16,097.47
Lead	0.1934 lbs/hr	1.26 tons/yr

2. BOF Roof Monitor

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.0987	176.71
PM-10	0.06614	118.40
Lead	0.0129 lbs/hr	0.08 tons/yr

3. Desulfurization and Reladling - Hot Metal Transfer

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.03721	58.88
PM-10	0.03721	58.88
VOM	0.0010	1.58
Lead	0.0133 lbs/hr	0.09 tons/yr

4. BOF Additive System (i.e., fluxes) with Baghouse, a.k.a., BOF hopper baghouse

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00032	0.57
PM-10	0.00032	0.57

Permit Application #95010001

TABLE 2 (cont.)

5. Flux conveyor & transfer pits, bin floor

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.0016	2.86
PM-10	0.0016	2.86

6. Hot metal charging ladle slag skimmer

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.0050	7.94
PM-10	0.0050	7.94

Permit Application #95010001

TABLE 3

CONTINUOUS CASTING OPERATIONS

Maximum Liquid Steel Throughput = 3,580,000 net tons per year

1. Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy)

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00715	12.80
PM-10	0.00715	12.80

2. Deslagging Station and Material HS.

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00355	6.35
PM-10	0.00355	6.35

3. Caster Molds - Casting

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.006	10.74
PM-10	0.006	10.74
NO_x	0.050	89.50

4. Casters Spray Chambers

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00852	15.25
PM-10	0.00852	15.25

5. Slab Cut-off

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.0071	12.71
PM-10	0.0071	12.71

Permit Application #95010001

TABLE 3 (cont.)

6. Slab Ripping

Pollutant	Emission Factor (Lbs/Ton)	Maximum Emissions (Tons/Yr)
PM	0.00722	12.92
PM-10	0.00722	12.92

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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

Permit Application #95010001

TABLE 4 (cont.)

3. Fuel Oil

Pollutant	Emission Factor (Lbs/Mgal)	Maximum Emissions (Tons/Yr)
PM	9.72	1.77
PM-10	9.72	1.77
SO_2	141.3	25.79
NO_x	55	10.04
VOM	0.28	0.05
CO	5.0	0.91
Lead	0.336	0.06 (waste oil)

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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

Permit Application #95010001

ATTACHMENT A

PROCEDURES TO ENSURE PROPER OPERATION
OF BOF ESP CONTROL SYSTEM

1. The emissions control operator shall:

   a. Check on a regular basis and report to the emissions control foreman or melter:

      i. Any ESP fields down;

      ii. Any ESP fields in which the meter readings are showing no current or a fault;

   b. Check on a regular basis that doors on all hopper screws are closed;

   c. Inspect on a regular basis the fans and motors for unusual sounds and/or visual problems. Any abnormalities will be immediately reported to the melter or maintenance foreman for investigation.

2. The melter shall:

   a. Check on a regular basis and report to the emissions control foreman or the area electrician any fields which the pulpit precipitator field short indicators shows as having a short and is able to reset;

   b. Check on a regular basis and report to the emissions control foreman or the maintenance foreman any draft or fan problems;

   c. Check the ESP stack opacity monitor on a regular basis and initiate the following in the event that the stack opacity level, as determined by the opacity monitor, exceeds 30% opacity on a six minute average:

      i. Check the pulpit indicators for proper operation of the steam and spray water system. Report any problems to emission control foreman or maintenance foreman;

      ii. Check the stack gas pulpit set point for proper setting;

      iii. Call the emissions control operator who shall perform the following steps;

         A. Check the AVC operation and power level. Report any problems to electrical maintenance foreman or area electrician;

         B. Check to ensure that doors on all hopper screws are closed;

   d. Check oxygen blow rates and adjust, if necessary;

   e. Check hot metal chemistry;

Permit Application #95010001

ATTACHMENT A (cont.)

f. A log shall be maintained of the above checks and any actions taken as a result.

3. The emission control foreman shall:

   a. Check on a regular basis the opacity monitor exceedances and trends. The control specialist shall be contacted to correct any problems;

   b. Check on a regular basis the draft rate set points;

   c. Check on a regular basis primary and secondary damper settings;

   d. Check on a regular basis ESP operation, including the following:

      i. Fields down;

      ii. Fields indicating shorts and unable to reset;

      iii. Hopper screw doors are closed;

   e. Check on a regular basis blow rates;

   f. Check on a regular basis spray water system operation;

   g. Check on a regular basis steam injection rate;

   h. Contact the area manager regarding electrical maintenance and to schedule the ESP repair work;

   i. Contact the area manger for mechanical maintenance to schedule the isolation of the ESP channel by closing the inlet and outlet gates of that chamber and opening the top hatches for entry into the chamber;

   j. Notify the emissions control operator and melter when isolation work begins;

   k. A log shall be maintained of the above checks and any actions taken as a result.

4. The crane operator shall use the following procedures, as appropriate, to minimize emissions and maximize emissions capture by the hoods:

   a. Use controlled pouring of the hot metal into the BOF vessel;

   b. Use careful positioning of the hot metal ladle with respect to the hood face and furnace mouth;

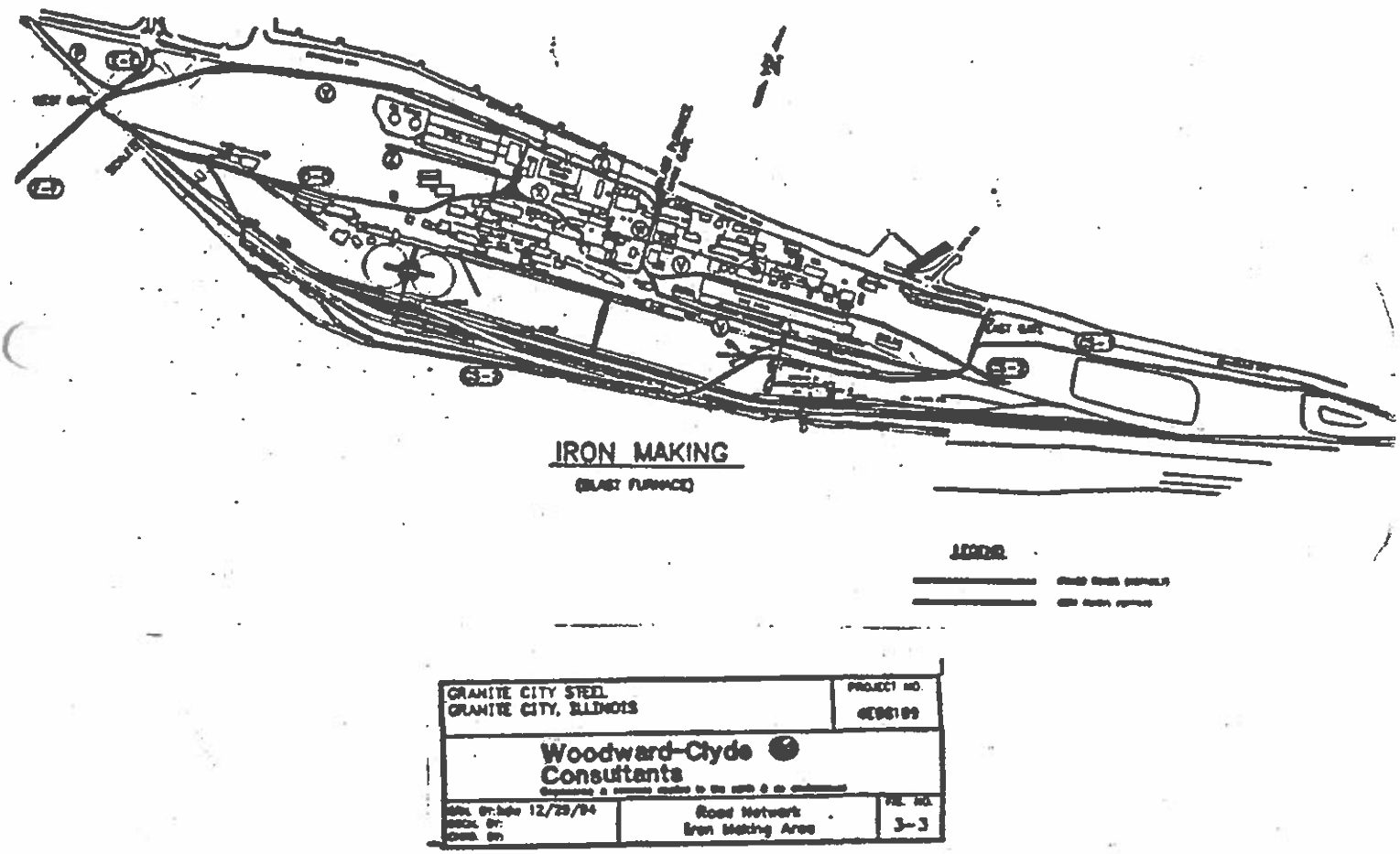
   c. Use the most beneficial furnace tilt angle;

   d. These procedures shall be posted in the crane operator booth.

Permit Application #95010001

ATTACHMENT B

ON-SITE FUGITIVE DUST ROADWAY CONTROL MEASURES AND MAPS SHOWING THE ROAD SEGMENTS



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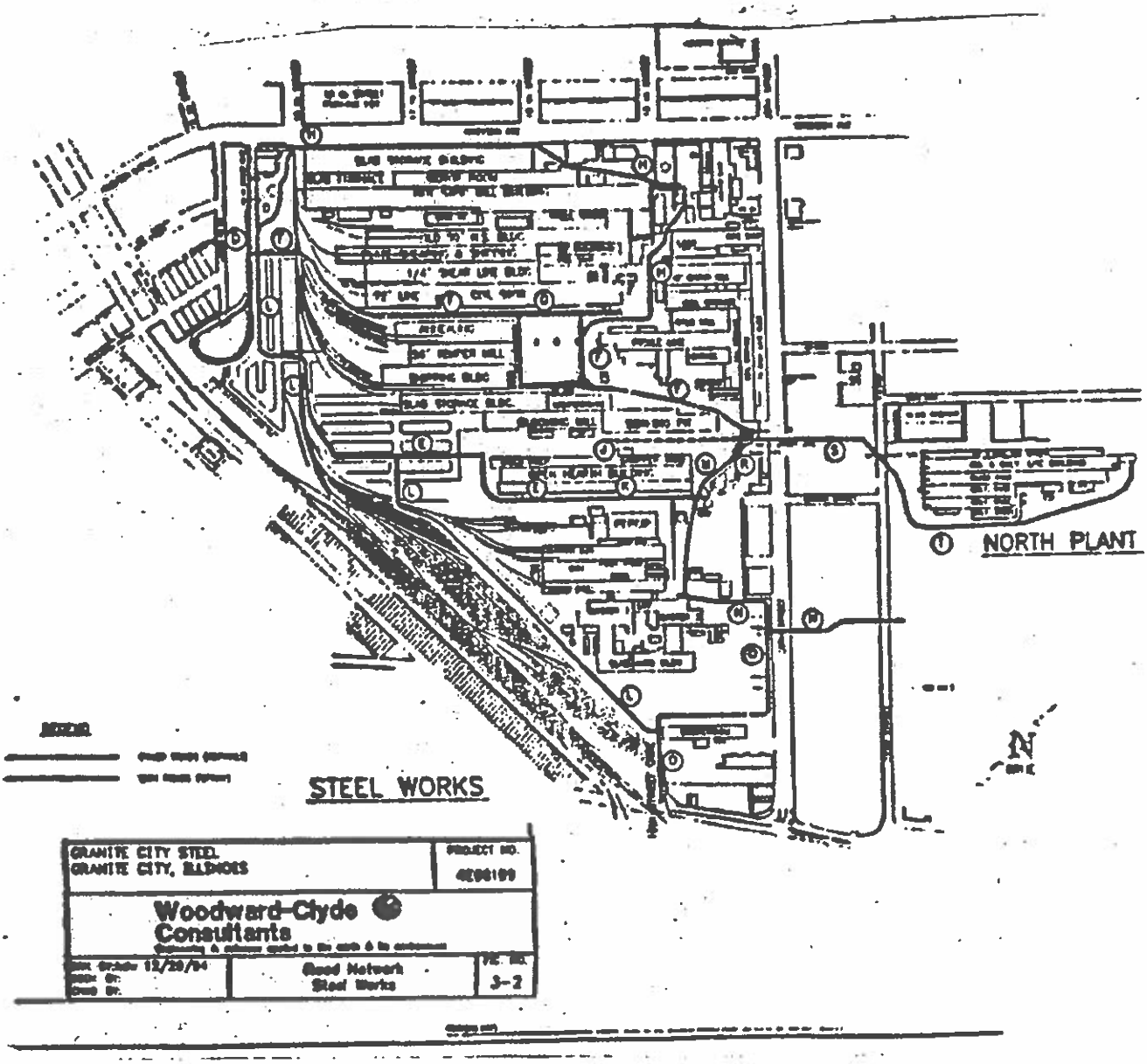
ATTACHMENT B (cont.)



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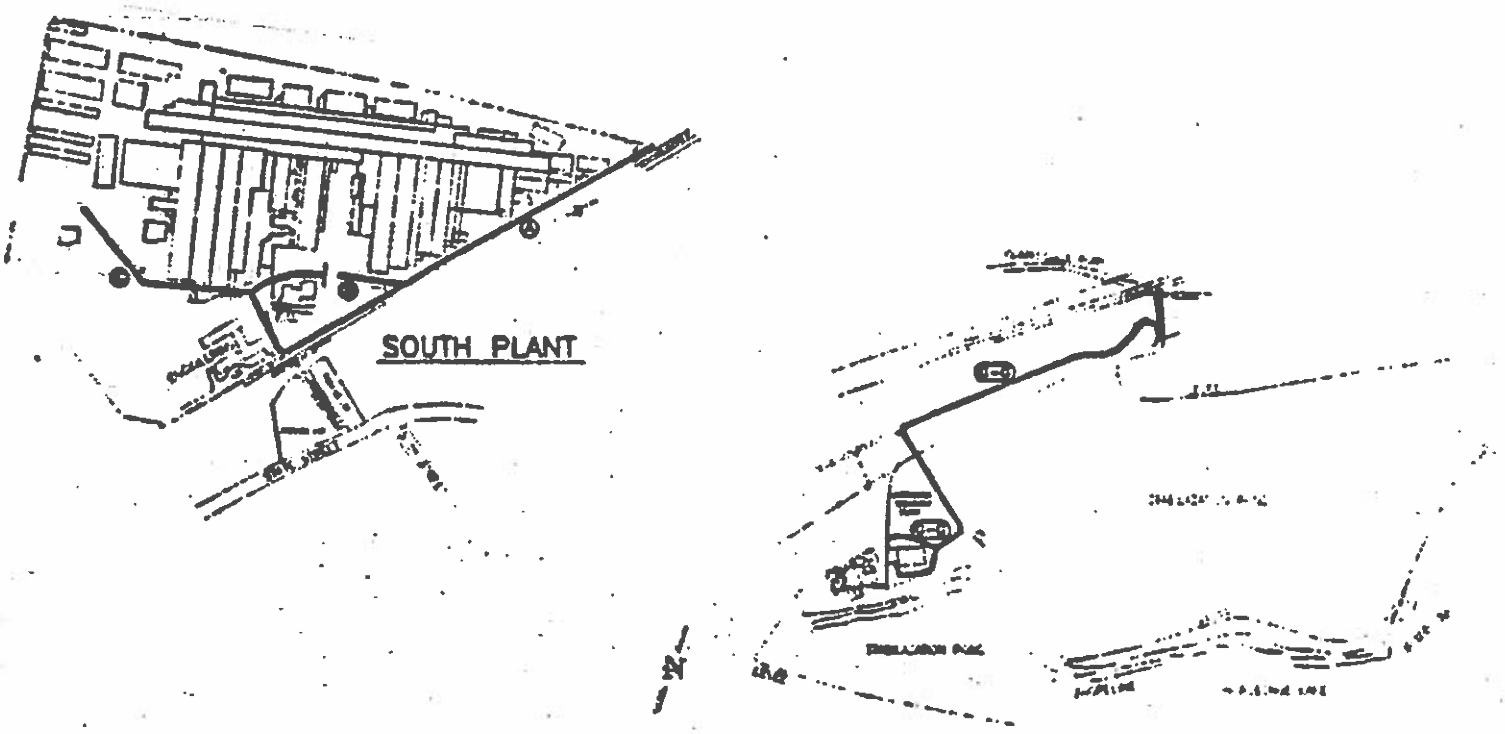
ATTACHMENT B (cont.)



GRANITE CITY STEEL GRANITE CITY, ILLINOIS	PROJECT NO. 4E88181
Woodward-Clyde Consultants	
Date Drawn 12/29/94 Drawn By: Chkd By:	Road Network South Plant & WWTP
	FIG. NO. 3-4

Permit Application #95010001

ATTACHMENT C

CONTEMPORANEOUS REDUCTIONS IN THE
EMISSIONS OF PM-10

- Historic roadway emissions of 428 tons/yr, minus future potential roadway emissions of 27 tons/yr, equals a resulting reduction in roadway emissions of 401 tons/yr
- Historic material handling emissions of 17 tons/yr minus future potential material handling emissions of 2 tons/yr, equals a resulting reduction in material handling emissions of 15 tons/yr.
- Emission reductions resulting from the sweeping of city streets = 52 tons/yr*
- Emission reductions resulting from sweeping and housekeeping of areas below and around BOF ESP = 12 tons/yr*

Total reductions in the emissions of PM-10 as a result of the additional dust control measures required by Illinois' SIP and the special conditions of this permit = 480 tons/yr

* These are considered reasonable estimates of reductions and are subject to change upon further investigation of the actual reductions which will occur as a result of the control measures required by this permit.

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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VII. CONCLUSION AND ORDER 610

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.

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[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

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

[8] The Board notes that Mr. Lum attempted to file by e-mail a request to file a reply brief and a request for oral argument. *See* E-mail from Daniel Lum to Eurika Durr, Clerk of the Board, Environmental Appeals Board, U.S. EPA (Nov. 4, 2011 6:18 pm EDT). The Board denies Mr. Lum's requests.

[9] While ICAS challenges the Region's PTE limitations for all of these pollutants, REDOIL Petitioners only challenge the Region's PTE limitations with respect to NO_x and CO. *See* ICAS Petition at 10-28; REDOIL Petition at 9-14.

practically enforceable and reasonable in light of the applicable statutory and regulatory authorities as well as Agency guidance and practice, and whether the Region provided adequate support for its decisions in the administrative record.

Before addressing the parties' arguments, a brief review of the relevant statutory and regulatory authorities is warranted.

1. *Statutory and Regulatory Context*

a. *CAA Section 328 and OCS Air Regulations*

Section 328 of the CAA, 42 U.S.C. § 7627, establishes air pollution controls for OCS sources[10] and requires OCS sources to "attain and maintain Federal and State ambient air quality standards" and to comply with the PSD provisions contained in CAA Title I, part C. EPA promulgated the Outer Continental Shelf Air Regulations, 40 C.F.R. part 55, to implement CAA section 328 and established within part 55 "the air pollution control requirements for OCS sources and the procedures for implementation and enforcement of the requirements." 40 C.F.R. § 55.1.

Section 328(a)(1), 42 U.S.C. § 7627(a)(1), also requires that, for OCS sources located within 25 miles of a state's seaward boundary, the requirements shall be the same as would apply if the source were located in the corresponding onshore area ("COA"), including, but not limited to, state and local requirements for emission controls, emission limitations, offsets, permitting, monitoring, testing, and reporting. As the Board has explained before, "OCS sources must obtain

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

> The terms "Outer Continental Shelf source" and "OCS source" include any equipment, activity, or facility which –
>
> (i) emits or has the potential to emit any air pollutant,
>
> (ii) is regulated or authorized under the Outer Continental Shelf Lands Act [43 U.S.C. § 1331 et seq.], and
>
> (iii) is located on the Outer Continental Shelf or in or on waters above the Outer Continental Shelf.
>
> Such activities include, but are not limited to, platform and drill ship exploration, construction, development, production, processing, and transportation. For purposes of this subsection, emissions from any vessel servicing or associated with an OCS source, including emissions while at the OCS source or en route to or from the OCS source within 25 miles of the OCS source, shall be considered direct emissions from the OCS source.

CAA § 328(a)(4)(C), 42 U.S.C. § 7627(a)(4)(c).

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 Continued

If a source accepts limitations that restrict its potential to emit air pollutants to a level below the PSD threshold, that source will be a synthetic minor source for purposes of the PSD program and will therefore not be subject to PSD permitting requirements "unless future facility modifications increase emission capacity enough to exceed the PSD major source threshold." *Id.* at 31-32. As the Board noted in *Peabody*, in order for a capacity restriction to be cognizable as a PTE limit, it must be practically enforceable, which Agency guidance has interpreted to mean that:

> [T]he permit's provisions must specify: (1) a technically accurate limitation and the portions of the source subject to the limitation; (2) the time period for the limitation (hourly, daily, monthly, and annual limits such as rolling annual limits); and (3) the method to determine compliance including appropriate monitoring, recordkeeping, and reporting.

12 E.A.D. at 32 (quoting Memorandum from John Seitz, Dir., Office of Air Quality Planning & Standards, U.S. EPA, to EPA Reg'l Air Div. Dirs., *Options for Limiting the Potential to Emit (PTE) of a Stationary Source Under Section 112 and Title V of the Clean Air Act* 5-6 (Jan. 25, 1995) [hereinafter *Options for Limiting PTE*] (A.R. B-9)).

In this instance, the pre-permit PTE for units located on the *Kulluk*, and on the Associated Fleet when operating within 25 miles of the *Kulluk* while it is an OCS source,[16] exceeded applicable PSD thresholds for NO_x, CO, SO_2, and GHGs. Statement of Basis at 24-25 & tbl. 2-1.[17] To avoid exceeding the PSD major

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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. II-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 E.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

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[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*].[21] However, the Petitioners' characterization of the source-wide emission limits for NO_x and CO contained in the Permit as blanket emission limits must fail. ICAS and REDOIL Petitioners do not acknowledge the Region's explanation in the Response to Comments for why it chose to apply source-wide emission limits in the Permit, nor do they establish that the Region's fundamentally technical determinations contravene Agency guidance.

The Region made clear in the Response to Comments that its decision to employ source-wide emission limits calculated as rolling 365-day limits to restrict NO_x and CO was based in large part on the substantial and unpredictable variations in emissions based on the atypical nature of Shell's operations. RTC at 26-27; Region Response at 18. Variability in Shell's exploratory operations, multiple engines and generators located on both the *Kulluk* and numerous vessels in the Associated Fleet, the state of the weather and the sea, ice thickness, and the changing nature of the activities that Shell may need to conduct all influenced the Region's conclusion that the need for operational flexibility made it impractical to establish unit-specific limits or operating parameters for some pollutants, such as NO_x and CO, that might typically be applied to limit a stationary source's PTE. RTC at 27; *see* Statement of Basis at 38. The Region continued that, in its judgment, the choice to restrict the *Kulluk*'s PTE for NO_x and CO using source-wide emissions limits "accounts for variability in operations and emissions, yet still

[21] Appendix C of the NSR Manual is based largely on the 1989 Guidance on Limiting PTE. *NSR Manual* at C.1 n.1.

provides assurance that limits on potential to emit can be enforced as a practical matter." RTC at 28.

Although the restrictions to limit the PTE of emission units located on the *Kulluk* and the Associated Fleet utilize a rolling 365-day limit, a longer time period than generally recommended in Agency guidance,[22] as the Region points out, the continuous monitoring and recording of fuel usage and the application of source-test derived or specified emission factors have the practical effect of constraining Shell's fuel use, thus ensuring compliance with the PTE limits. Region Response at 15, 17 (citing *In re Pope & Talbot, Inc.*, Petition No. VIII-2006-04 (Adm'r 2007) (A.R. B-24), in which rolling emission limits in addition to prescribed emission factors and appropriate monitoring and recordkeeping were sufficient to restrict PTE).[23] In essence, although the Region could not incorporate more traditional operational limits into the Permit based on the atypical nature of the permitted activities, the daily calculation of NO_x and CO emissions in conjunction with continuous monitoring and recording of fuel usage ensure that the NO_x and CO PTE restrictions can be practically enforced.

Despite the Region's explanation in the Response to Comments regarding the need to consider the facts unique to this Permit, neither ICAS nor REDOIL Petitioners explain why, especially in light of the *Kulluk*'s atypical operations as

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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.

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 1: Stationary Point and Area Sources 1 (Jan. 1995) (5th ed.) ("AP-42 Guidance"). Emission factors essentially represent an average of a range of emission rates of the subject sources. *Id.* at 2. As stated above in Part VI.A.2, in this instance compliance with the PTE restrictions for NO_x and CO are determined by calculating daily emissions of each pollutant, which requires multiplying the appropriate emission factor by the recorded daily operation rate and dividing by 2000 lb/ton. Permit Conditions D.4.1, D.4.2.

REDOIL Petitioners and ICAS challenge several aspects of the Region's use of emission factors to assist in calculating compliance with the restricted PTE for both NO_x and CO. Both petitioners challenge the Region's decision to forgo source-specific emission testing to establish emission factors for all emission units on the *Kulluk* and the Associated Fleet and further assert that this will cause the Region and Shell to underestimate the quantities of NO_x and CO emitted by the OCS source. ICAS Petition at 15-19; REDOIL Petition at 11-13. REDOIL Petitioners and ICAS assert that the use of AP-42 emission factors and emission factors derived from *Discoverer* test results for those emission units that will not undergo source-specific testing constitutes clear error because these more generic emission factors will likely lead to an underestimation of emissions from the units to which they are applied. ICAS Petition at 16-18; REDOIL Petition at 11-12 (referring to AP-42 emission factors as "notoriously inaccurate default factors"). Finally, ICAS challenges the frequency and number of stack tests used to develop source-specific emission factors for emission units and further asserts that by Shell's own admission there is a 15% variability in stack test data that results in a less conservative emission factor than the Region claims. ICAS Petition at 16-17.

The Board notes at the outset that the development of emission factors for use in calculating daily emissions to determine compliance with PTE restrictions requires the sort of quintessential technical expertise the permit issuer possesses, here the Region, to which the Board will defer if "the record demonstrates that the Region duly considered the issues raised in the comments and if the approach ultimately selected by the Region is rational in light all of the information in the record." *NE Hub*, 7 E.A.D. at 567-68, *quoted in Peabody*, 12 E.A.D. at 34; *see also Avenal Energy Ctr.*, 15 E.A.D. at 387. As explained more fully below, for each challenge regarding the derivation and use of emission factors set forth in the Permit, REDOIL Petitioners and ICAS have failed to sustain the particularly heavy burden petitioners must overcome to demonstrate that review of a funda-

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-

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[25] ICAS's attempt to analogize the situation the Board confronted in *Peabody* to the current permit appeal falls short. Although *Peabody* discusses the use of AP-42 emission factors in a PTE calculation where the source was seeking synthetic minor status, ICAS fails to acknowledge critical factual elements that distinguish *Peabody* from the current appeal.

In *Peabody*, the permittee was a large coal-processing plant built prior to the effective date of the PSD program that requested a PTE limit for particulate matter with a diameter of 10 microns or less ("PM_{10}") in the permittee's Title V permit so that the facility could remain a synthetic minor source for PM_{10} emissions should it conduct any major modifications in the future. *See Peabody*, 12 E.A.D. at 24-34. Of critical importance, the facility's emissions were primarily fugitive, and thus, emission testing to directly measure PM_{10} emissions was not feasible. *Id.* at 34. The permittee consequently submitted a request for a PTE limit based on a quantitative estimate of the facility's capacity to emit PM_{10}, which in turn relied on estimates of uncontrolled emissions from each unit based on the application of AP-42 emission factors that were then used to estimate net emissions by applying assumed emission control efficiencies for the emission control equipment in use. *Id.* at 34-35 & n.31. Peabody's proposed compliance regimen did not include direct measurement of PM_{10} emissions. As the Board stated, "[b]ecause Peabody's approach would rely entirely on the application of emission factors and assumed control efficiencies, for purposes of both estimating maximum emissions capacity and monitoring ongoing compliance, the accuracy and appropriateness of the emission factors and the control efficiency assumptions were the focal point of Region IX's analysis of Peabody's proposal." *Id.* at 35-36.

Contrary to the facility in *Peabody*, in this instance the use of AP-42 factors to calculate compliance with restricted PTE for NO_x and CO was essentially a last resort method for calculating compliance, whereas the emission units that accounted for at least 90% of the NO_x and CO emissions were subject to source-specific emission testing. *See id.* at 32-33. The Region made clear that in the relatively small number of instances where an AP-42 emission factor was employed to calculate compliance with PTE, the Region chose conservatively higher emission factors. In *Peabody*, the Region made a technical determination and "concluded that Peabody had not sufficiently demonstrated that it met the central criteria for establishing [PTE] – technical accuracy and a reliable method of determining compliance." *Id.* at 39. In this instance, the Region made a technical determination that Shell has sufficiently demonstrated that the *Kulluk* could demonstrate compliance with the NO_x and CO PTE limits included in the permit in a manner that is technically accurate, and that the compliance of the emission units can be verified based on source-specific testing. The Region's exercise of its technical expertise to conclude that in limited circumstances AP-42 emission factors were appropriate to demonstrate compliance with the restricted PTE is rational in light of all of the information in the record. Thus, ICAS's contention that *Peabody* governs the appeal currently before the Board is unpersuasive.

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-

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[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

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[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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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.

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

[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-

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[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-

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[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

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[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.

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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 15. The Board has consistently stated that, in order to sustain its burden of demonstrating that review is warranted, the petitioner must address the permit issuer's responses to relevant comments made during the permit proceeding. *See, e.g., Peabody*, 12 E.A.D. at 33 ("[T]he petitioner may not simply reiterate comments made during the public comment period, but must substantively confront the permit issuer's subsequent explanations.").

Furthermore, ICAS's suggestion that the Region should "compile rough estimates" of these mobile source emissions because "[s]ome additional steps are particularly necessary here" is similarly unavailing. ICAS Petition at 36. ICAS has acknowledged its ongoing concern regarding emissions that are not included in the PTE analysis, along with its efforts to compel Region 10 to consider non-PTE emissions as OCS source emissions in prior appeals to this Board. ICAS Petition at 34. Despite its concerns, ICAS cannot demonstrate that review is warranted where, as here, ICAS offers a generalized objection to the Region's consideration of mobile sources in the environmental justice analysis, and the Region has demonstrated that it lacks sufficient data to reach a determinative conclusion regarding these mobile source emissions in the environmental justice context. *See Avenal*, 15 E.A.D. at 401-02; *see also In re Cape Wind Assocs., LLC*, 15 E.A.D. 327, 330 (EAB 2011) (noting that petitioners "must raise specific objections to the permit"); *In re BP Cherry Point*, 12 E.A.D. 209, 217 (EAB 2005) (same).

[69] In a memorandum addressing environmental justice in the permitting context, the Agency stated:

> Unlike PSD/[New Source Review] permitting, Title V generally does not impose substantive emission control requirements, but rather requires all applicable requirements to be included in a Title V operating permit. * * * Because Title V does not directly impose substantive emissions control requirements, it is not clear whether or how EPA could take environmental justice issues into account in Title V permitting – other than to allow public participation to serve as a motivating factor for applying closer scrutiny to a Title V permit's compliance with applicable CAA requirements.

Memorandum from Gary Guzy, General Counsel, U.S. EPA, to Assistant Administrators, U.S. EPA, *EPA Statutory and Regulatory Authorities Under Which Environmental Justice Issues May Be Addressed in Permitting* 13 (Dec. 1, 2000) (A.R. FF-7).

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-

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[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-

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[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. III-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.

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Inupiat interpreter for the hearing.[85] *Id.* at 10. ICAS asserts that making an interpreter "available in this fashion is akin to not having [one] at all." *Id.*

Part 71 and part 124 each contain a provision governing public hearings. *See* 40 C.F.R. §§ 71.11(f), 124.12. Both public hearing regulations require the permitting authority to hold a public hearing when the permitting authority "finds, on the basis of requests, a significant degree of public interest in a draft permit." *Id.* §§ 71.11(f)(1), 124.12(a)(1). The regulations also authorize the permitting authority to hold a public hearing "at its discretion, whenever, for instance, such a hearing might clarify one or more issues involved in the permit decision." *Id.* §§ 71.11(f)(2), 124.12(a)(2); *accord In re Russell City Energy Ctr.* ("*Russell City I*"), 14 E.A.D. 159, 164 n.6 (EAB 2008). The public hearing regulations also prescribe the method of giving public notice of the hearing, 40 C.F.R. §§ 71.11(f)(3), 124.12 (a)(4), the procedure for designating a presiding officer to preside at the hearing, *id.* §§ 71.11(f)(4), 124.12 (b), and the procedures for the public to comment at the hearing, *id.* §§ 71.11(f)(5), 124.12 (c). Finally, both regulations require that a tape recording or written transcript of the hearing be made publically available. *Id.* §§ 71.11(f)(6), 124.12 (d).

Parts 71 and 124 also both require the permit issuer, in making its final decision, to consider all comments it receives during the public comment period and at any public hearings and to issue a "response to comments." *Id.* §§ 71.11(j), 124.17(a); *see also id.* §§ 71.11(e), 124.11. More particularly, these provisions require the permit issuer to "[b]riefly describe and respond to all significant comments on the draft permit * * * raised during the public comment period, or during any hearing" in the response to comments document issued at the same time the final permit decision is issued. *Id.* §§ 77.11(j)(1)(ii), 124.17(a)(1). Importantly, none of the aforementioned regulations refer to, or in any way mention, a requirement to provide an interpreter or a requirement to provide written materials at the hearing.

Upon review of the administrative record and the parties' arguments, the Board concludes that ICAS has not shown that the Region clearly erred in its handling of the Barrow public hearing for any of the three reasons ICAS advances. Not only does ICAS fail to point to any specific regulatory provision that the Region violated, but none of the alleged problems otherwise warrant Board review. The Board addresses each alleged deficiency in more detail below.

ICAS's first contention – that the Region committed clear error because it was allegedly unable to adequately obtain input from the public due to telecom-

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[85] According to ICAS, although the Region may have noted that an interpreter was available at the top of the hearing's sign-in sheet, it did not make a public announcement of this fact at the outset of the hearing. ICAS Petition at 10; ICAS Reply at 6; *see also infra* note 89.

munication problems during the hearing – is unpersuasive. The Region addressed this concern in its Response to Comments. *See* RTC at 9. There, the Region explained that, because such telecommunication problems are common on the North Slope, it had "recorded the public hearing in addition to having the hearing transcribed by a court reporter. From these *two* sources, Region 10 was able to capture the comments provided during the public hearing." *Id.* (emphasis added); *see also* Public Hearing Transcript ("Pub. Hrg Tr.") at 3 (explaining that the hearing was recorded on the teleconference line as a "safety net"). In response, ICAS merely asserts that "this does not change the fact that people were not able to be heard via phone." ICAS Petition at 9. Significantly, however, ICAS does not identify any comment that the Region failed to hear or for which the Region failed to provide a response.[86] *See id.* at 9; ICAS Reply at 6. Nor has any commenter come forward alleging that the Region failed to respond to his or her public hearing comments. The fact that the call center experienced some telecommunications problems during the public hearing – which the Region appears to have adequately anticipated and addressed by utilizing two methods of note taking – does not, without more, constitute clear legal error. Speculative claims that a permitting authority may have failed to hear a comment are insufficient to warrant Board review.

ICAS's contention that the Region committed clear procedural error by failing to provide pre-meeting copies of a Powerpoint presentation is inapposite. In its response to the petition, the Region explains that this presentation was given during the informational meeting, not during the public hearing. Region Response at 39; *see also* Statement of Basis at 11 (scheduling informational hearing prior to public hearing); RTC at 6-7 (mentioning informational meeting). ICAS does not dispute this.[87] *See* ICAS Reply at 5-7. Furthermore, nowhere do the regulations require a permitting authority to provide informational handouts at an informational meeting (or at a public hearing).[88] Thus, while it may be useful for a permit

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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. § 77.11(j)(1)(ii), 124.17(a)(1). Thus, had ICAS identified significant comments raised at the public hearing that the Region failed to address, ICAS's arguments would have been more persuasive. *See, e.g., In re Rockgen Energy Ctr.*, 8 E.A.D. 536, 557 (EAB 1999) (remanding so that permit issuer could demonstrate it had given thoughtful and full consideration to public comments); *In re W. Suburban Recycling & Energy Ctr., L.P.*, 6 E.A.D. 692, 710-12 (EAB 1996) (remanding permit and requiring permit issuer to comply with procedures under part 124 including provision requiring a response to all significant comments received); *see also In re N. Mich. Univ.*, 14 E.A.D. 283, 317-18 (EAB 2009) (discussing part 124 requirement to adequately respond to comments).

[87] The Region's explanation makes sense in light of the purpose of the two meetings. While the permitting authority may present its analyses, findings, and conclusions about the draft permit at an informational meeting, the purpose of the public hearing is to obtain comments *from* the public.

[88] The only document the public hearing regulations require a permit issuer make available to the public is the transcript of the hearing. 40 C.F.R. §§ 71.11(f)(6), 124.12 (d).

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*

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[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]

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[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.

RIN:
2060-AT03 (https://www.federalregister.gov/regulations/2060-AT03/national-emission-standards-for-hazardous-air-pollutants-integrated-iron-and-steel-manufacturing-fac)

Document Number:
2020-09753

DOCUMENT DETAILS

DOCUMENT STATISTICS

Page views:
2,345
as of 07/17/2023 at 6:15 pm EDT

DOCUMENT STATISTICS

PUBLISHED DOCUMENT

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AGENCY:

Environmental Protection Agency (EPA).

ACTION:

Final rule.

SUMMARY:

This action finalizes the residual risk and technology review (RTR) conducted for the Integrated Iron and Steel Manufacturing Facilities source category regulated under national emission standards for hazardous air pollutants (NESHAP). The Agency found that risks due to emissions of air toxics from this source category are acceptable and that the current NESHAP provides an ample margin of safety to protect public health. Under the technology review, we found no developments in practices, processes, or control technologies that necessitate revision of the standards. In addition, we are taking final action to establish emission standards for mercury in response to a 2004 administrative petition for reconsideration which minimizes emissions by limiting the amount of mercury per ton of metal scrap used. We also are removing exemptions for periods of startup, shutdown, and malfunction (SSM) consistent with a 2008 court decision, and clarifying that the emissions standards apply at all times; adding electronic reporting of performance test results and compliance reports; and making minor corrections and clarifications for a few other rule provisions.

DATES:

This final rule is effective on July 13, 2020. The incorporation by reference (IBR) of certain publications listed in the rule is approved by the Director of the Federal Register as of July 13, 2020.

ADDRESSES:

The U.S. Environmental Protection Agency (EPA) has established a docket for this action under Docket ID No. EPA-HQ-OAR-2002-0083. All documents in the docket are listed on the *https://www.regulations.gov/ (https://www.regulations.gov/)* website. Although listed, some information is not publicly available, *e.g.*, Confidential Business Information or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the internet and will be publicly available only

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in hard copy form. Publicly available docket materials are available electronically through *https://www.regulations.gov (https://www.regulations.gov)/*. Out of an abundance of caution for members of the public and our staff, the EPA Docket Center and Reading Room was closed to public visitors on March 31, 2020, to reduce the risk of transmitting COVID-19. Our Docket Center staff will continue to provide remote customer service via email, phone, and webform. There is a temporary suspension of mail delivery to the EPA, and no hand deliveries are currently accepted. For further information and updates on EPA Docket Center services and the current status, please visit us online at *https://www.epa.gov/dockets (https://www.epa.gov/dockets)*.

FOR FURTHER INFORMATION CONTACT:

For questions about this final action, contact Dr. Donna Lee Jones, Sector Policies and Programs Division (D243-02), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711; telephone number: (919) 541-5251; fax number: (919) 541-4991; and email address: *jones.donnalee@epa.gov (mailto:jones.donnalee@epa.gov)*. For specific information regarding the risk assessment methodology, contact Ted Palma, Health and Environmental Impacts Division (C539-02), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711; telephone number: (919) 541-5470; fax number: (919) 541-0840; and email address: *palma.ted@epa.gov (mailto:palma.ted@epa.gov)*. For information about the applicability of the NESHAP to a particular entity, contact Maria Malave, Office of Enforcement and Compliance Assurance, U.S. Environmental Protection Agency, WJC South Building (Mail Code 2227A), 1200 Pennsylvania Avenue NW, Washington DC 20460; telephone number: (202) 564-7027; and email address: *malave.maria@epa.gov (mailto:malave.maria@epa.gov)*.

SUPPLEMENTARY INFORMATION:

Preamble acronyms and abbreviations. We use multiple acronyms and terms in this preamble. While this list may not be exhaustive, to ease the reading of this preamble and for reference purposes, the EPA defines the following terms and acronyms here:

ACI activated carbon injection

ADL above detection limit

AISI American Iron and Steel Institute

ANSI American National Standards Institute

ASME American Society of Mechanical Engineers

ASTM American Society for Testing and Materials

BDL below detection limit

BF blast furnace

BOPF basic oxygen process furnace

CAA Clean Air Act

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CDX Central Data Exchange

CEDRI Compliance and Emissions Data Reporting Interface

CFR Code of Federal Regulations

COS carbonyl sulfide

DCOT Digital Camera Opacity Technique

DLL detection level limited

EAF electric arc furnace

EPA Environmental Protection Agency

ERT Electronic Reporting Tool

ESP electrostatic precipitators

HAP hazardous air pollutant(s)

HCl hydrochloric acid

HCN hydrogen cyanide

HI hazard index

HMTDS hot metal transfer, desulfurization, and skimming

HQ hazard quotient

IBR incorporation by reference

ICR information collection request

km kilometers

lbs pounds

MACT maximum achievable control technology

MIR maximum individual risk

NAICS North American Industry Classification System

NESHAP national emission standards for hazardous air pollutants

NRDC Natural Resources Defense Council

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NVMSRP National Vehicle Mercury Switch Recovery Program

OAQPS Office of Air Quality Planning and Standards

OMB Office of Management and Budget

PDF portable document format

PM particulate matter

$PM_{2.5}$ particulate matter at or below 2.5 micrometers.

ppm parts per million

REL reference exposure level

RFA Regulatory Flexibility Act

RTR residual risk and technology review

SSM startup, shutdown, and malfunction

TOSHI target organ-specific hazard index

tpy tons per year

UFIP unmeasured fugitive and intermittent particulate

UMRA Unfunded Mandates Reform Act

UPL upper prediction limit

U.S. United States

VCS voluntary consensus standards

VOC volatile organic compound

Background information. On August 16, 2019, the EPA proposed the results of the RTR and various amendments for the Integrated Iron and Steel Manufacturing Facilities NESHAP (84 FR 42704 (/citation/84-FR-42704)). In this action, we are finalizing decisions and revisions for the rule. We summarize some of the more significant comments we timely received regarding the proposed rule and provide our responses in this preamble. A summary of all other public comments on the proposal and the EPA's responses to those comments is available in the *Summary of Public Comments and Responses for the Risk and Technology Review for Integrated Iron and Steel Manufacturing Facilities* (Docket ID No. EPA-HQ-OAR-2002-0083). A "redline" (track changes) version of the regulatory language that incorporates the changes in this action is available in the docket.

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Organization of this document. The information in this preamble is organized as follows:

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H. Executive Order 13045 (/executive-order/13045): Protection of Children From Environmental Health Risks and Safety Risks

I. Executive Order 13211 (/executive-order/13211): Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use

J. National Technology Transfer and Advancement Act (NTTAA) and 1 CFR part 51 (https://www.ecfr.gov/current/title-1/part-51)

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K. Executive Order 12898 (/executive-order/12898): Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations

L. Congressional Review Act (CRA)

I. General Information

A. Does this action apply to me?

Regulated entities. Categories and entities potentially regulated by this action are shown in Table 1 of this preamble.

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Table 1—NESHAP and Industrial Source Categories Affected by This Final Action

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Source category	NESHAP	NAICS code [1]
Integrated Iron and Steel Manufacturing	40 CFR part 63, subpart FFFFF (https://www.ecfr.gov/current/title-40/part-63/subpart-FFFFF)	331110

R006753

Source category	NESHAP	NAICS code [1]

[1] *North American Industry Classification System.*

R006754

Table 1 of this preamble is not intended to be exhaustive, but rather to provide a guide for readers regarding entities likely to be affected by the final action for the source category listed. To determine whether your facility is affected, you should examine the applicability criteria in the appropriate NESHAP. If you have any questions regarding the applicability of any aspect of this NESHAP, please contact the appropriate person listed in the preceding **FOR FURTHER INFORMATION CONTACT** section of this preamble.

B. Where can I get a copy of this document and other related information?

In addition to being available in the docket, an electronic copy of this final action will also be available on the internet. Following signature by the EPA Administrator, the EPA will post a copy of this final action at: *https://www.epa.gov/stationary-sources-air-pollution/integrated-iron-and-steel-manufacturing-national-emission-standards (https://www.epa.gov/stationary-sources-air-pollution/integrated-iron-and-steel-manufacturing-national-emission-standards).* Following publication in the **Federal Register**, the EPA will post the **Federal Register** version and key technical documents at this same website.

Additional information is available on the RTR website at *https://www.epa.gov/stationary-sources-air-pollution/risk-and-technology-review-national-emissions-standards-hazardous (https://www.epa.gov/stationary-sources-air-pollution/risk-and-technology-review-national-emissions-standards-hazardous).* This information includes an overview of the RTR program, links to project websites for the RTR source categories.

C. Judicial Review and Administrative Reconsideration

Under Clean Air Act (CAA) section 307(b)(1), judicial review of this final action is available only by filing a petition for review in the United States Court of Appeals for the District of Columbia Circuit (the Court) by September 11, 2020. Under CAA section 307(b)(2), the requirements established by this final rule may not be challenged separately in any civil or criminal proceedings brought by the EPA to enforce the requirements.

Section 307(d)(7)(B) of the CAA further provides that only an objection to a rule or procedure which was raised with reasonable specificity during the period for public comment (including any public hearing) may be raised during judicial review. This section also provides a mechanism for the EPA to reconsider the rule if the person raising an objection can demonstrate to the Administrator that it was impracticable to raise such objection within the period for public comment or if the grounds for such objection arose after the period for public comment (but within the time specified for judicial review) and if such objection is of central relevance to the outcome of the rule. Any person seeking to make such a demonstration should submit a Petition for Reconsideration to the Office of the Administrator, U.S. EPA, Room 3000, WJC South Building, 1200 Pennsylvania Ave. NW, Washington, DC 20460, with a copy to both the person(s) listed in the preceding **FOR FURTHER INFORMATION CONTACT** section, and the Associate General Counsel for the Air and Radiation Law Office, Office of General Counsel (Mail Code 2344A), U.S. EPA, 1200 Pennsylvania Ave. NW, Washington, DC 20460.

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II. Background

A. What is the statutory authority for this action?

Section 112 of the CAA establishes a two-stage regulatory process to address emissions of hazardous air pollutants (HAP) from stationary sources. In the first stage, we must identify categories of sources emitting one or more of the HAP listed in CAA section 112(b) and then promulgate technology-based NESHAP for those sources. "Major sources" are those that emit, or have the potential to emit, any single HAP at a rate of 10 tons per year (tpy) or more, or 25 tpy or more of any combination of HAP. For major sources, these

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standards are commonly referred to as maximum achievable control technology (MACT) standards and must reflect the maximum degree of emission reductions of HAP achievable (after considering cost, energy requirements, and non-air quality health and environmental impacts). In developing MACT standards, CAA section 112(d)(2) directs the EPA to consider the application of measures, processes, methods, systems, or techniques, including, but not limited to, those that reduce the volume of or eliminate HAP emissions through process changes, substitution of materials, or other modifications; enclose systems or processes to eliminate emissions; collect, capture, or treat HAP when released from a process, stack, storage, or fugitive emissions point; are design, equipment, work practice, or operational standards; or any combination of the above.

For these MACT standards, the statute specifies certain minimum stringency requirements, which are referred to as MACT floor requirements, and which may not be based on cost considerations. See CAA section 112(d)(3). For new sources, the MACT floor cannot be less stringent than the emission control achieved in practice by the best-controlled similar source. The MACT standards for existing sources can be less stringent than floors for new sources, but they cannot be less stringent than the average emission limitation achieved by the best-performing 12 percent of existing sources in the category or subcategory (or the best-performing five sources for categories or subcategories with fewer than 30 sources). In developing MACT standards, we must also consider control options that are more stringent than the floor under CAA section 112(d)(2). We may establish standards more stringent than the floor, based on the consideration of the cost of achieving the emissions reductions, any non-air quality health and environmental impacts, and energy requirements.

In the second stage of the regulatory process, the CAA requires the EPA to undertake two different analyses, which we refer to as the technology review and the residual risk review. Under the technology review, we must review the technology-based standards and revise them "as necessary (taking into account developments in practices, processes, and control technologies)" no less frequently than every 8 years, pursuant to CAA section 112(d)(6). Under the residual risk review, we must evaluate the risk to public health remaining after application of the technology-based standards and revise the standards, if necessary, to provide an ample margin of safety to protect public health or to prevent, taking into consideration costs, energy, safety, and other relevant factors, an adverse environmental effect. The residual risk review is required within 8 years after promulgation of the technology-based standards, pursuant to CAA section 112(f). In conducting the residual risk review, if the EPA determines that the current standards provide an ample margin of safety to protect public health, it is not necessary to revise the MACT standards pursuant to CAA section 112(f).[1] For more information on the statutory authority for this rule, see 84 FR 42704 (/citation/84-FR-42704), August 16, 2019.

B. What is the Integrated Iron and Steel Manufacturing Facilities source category and how does the NESHAP regulate HAP emissions from the source category?

The EPA promulgated the Integrated Iron and Steel Manufacturing Facilities NESHAP on May 20, 2003 (68 FR 27646 (/citation/68-FR-27646)). The standards are codified at 40 Code of Federal Regulations (CFR) part 63, subpart FFFFF. The rule was amended on July 13, 2006 (71 FR 39579 (/citation/71-FR-39579)). The amendments added a new compliance option, revised emission limitations, reduced the frequency of repeat performance tests for certain emission units, added corrective action requirements, and clarified monitoring, recordkeeping, and reporting requirements. All documents used to develop the previous 2003 and 2006 final rules can be found in either the legacy docket, A-2000-44, or the electronic docket, EPA-HQ-OAR-2002-0083.

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The Integrated Iron and Steel Manufacturing Facilities industry consists of facilities that produce steel from iron ore pellets, coke, metal scrap, and other raw materials using furnaces and other processes. The Integrated Iron and Steel Manufacturing Facilities source category includes sinter production, iron preparation, iron production, and steel production. The source category covered by this MACT standard currently includes 11 facilities.

The main sources of air toxics emissions from Integrated Iron and Steel Manufacturing Facilities are the blast furnace (BF); basic oxygen process furnace (BOPF); hot metal transfer, desulfurization, and skimming (HMTDS) operations; ladle metallurgy operations; sinter plant windbox; sinter plant discharge end; and sinter cooler. All 11 facilities have BFs, BOPFs, HMTDS operations, and ladle metallurgy operations. However, only three facilities have sinter plants. See 40 CFR 63.7852 (https://www.ecfr.gov/current/title-40/section-63.7852) for definitions of the emission units at integrated iron and steel manufacturing facilities.

The NESHAP includes emission limits for particulate matter (PM) and opacity standards (both of which are surrogates for PM HAP) for furnaces and sinter plants. The NESHAP also includes an emission limit for volatile organic compounds (VOC) for the sinter plant windbox exhaust stream or, as an alternative, an operating limit for the oil content of the sinter plant feedstock. The VOC and oil content limits serve as surrogates for all organic HAP emitted from the windbox.

C. What changes did we propose for the Integrated Iron and Steel Manufacturing Facilities source category in our August 16, 2019, proposal?

On August 16, 2019, the EPA published a proposed rule in the **Federal Register** for the Integrated Iron and Steel Manufacturing Facilities NESHAP, 40 CFR part 63, subpart FFFFF (https://www.ecfr.gov/current/title-40/part-63/subpart-FFFFF), that took into consideration the RTR analyses (84 FR 42704 (/citation/84-FR-42704)). In the proposed rule, we also proposed a numerical emissions standard for mercury and an alternative compliance option based on limiting the amount of mercury in the metal scrap used by these facilities. In addition, we proposed the removal of exemptions for periods of SSM consistent with a 2008 court decision, and clarifying that the emissions standards apply at all times; the addition of electronic reporting of performance test results and compliance reports; and minor corrections and clarifications for a few other rule provisions.

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D. Regulatory Background

In 2003, the EPA promulgated standards pursuant to CAA section 112(d)(2) and (3) for HAP emissions from the Integrated Iron and Steel Manufacturing Facilities source category. In 2004, the Sierra Club submitted an administrative petition for reconsideration on several issues, including adding standards for mercury, dioxins/furans, polycyclic aromatic hydrocarbons, benzene, and other organic HAP. In 2005, the EPA granted reconsideration to evaluate a possible mercury emission limit, but denied the petition for reconsideration to the extent it requested reconsideration of other issues. The Sierra Club sought judicial review of the 2003 NESHAP as well as the EPA's 2005 denial of the petition for reconsideration. In February 2010, the EPA asked the Court for a voluntary remand without vacatur of both the 2003 rule and the EPA's 2005 reconsideration denial letter. The Court granted this request and the rule and the letter denying reconsideration were remanded to the Agency.

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III. What is included in this final rule?

This action finalizes the EPA's determinations pursuant to the RTR provisions of CAA section 112 for the Integrated Iron and Steel Manufacturing Facilities source category. This action also finalizes amendments to the NESHAP, including the addition of mercury emission limits, changes to SSM provisions, addition of electronic reporting, and minor corrections and clarifications to a number of other rule provisions. This final action also includes some changes to the August 2019 proposed requirements based on consideration of comments received during the public comment period described in section IV of this preamble.

A. What are the final rule amendments based on the risk review for the Integrated Iron and Steel Manufacturing Facilities source category?

The EPA proposed no changes to the Integrated Iron and Steel Manufacturing Facilities NESHAP based on the risk review conducted pursuant to CAA section 112(f). In this action, we are finalizing our proposed determination that risks from this source category are acceptable, the standards provide an ample margin of safety to protect public health, and more stringent standards are not necessary to prevent an adverse environmental effect. Section IV.A.3 of this preamble provides a summary of key comments we received regarding the risk review and our responses to those comments.

B. What are the final rule amendments based on the technology review for the Integrated Iron and Steel Manufacturing Facilities source category?

Consistent with the proposal, we determined that there are no developments in practices, processes, and control technologies that warrant revisions to the MACT standards for this source category. Therefore, we are not finalizing revisions to the MACT standards pursuant to CAA section 112(d)(6).

C. What are the final rule amendments for mercury for the Integrated Iron and Steel Manufacturing Facilities source category?

The EPA is promulgating emissions standards for mercury for the Integrated Iron and Steel Manufacturing Facilities source category pursuant to CAA sections 112(d)(2) and (3).

We are promulgating a MACT floor limit of 0.00026 pounds (lbs) of mercury per ton of scrap processed as an input-based limit for all existing BOPFs and related units at existing integrated iron and steel facilities pursuant to CAA section 112(d)(3) for existing sources. We are finalizing the mercury emission limit for existing sources as proposed. We are providing two options to demonstrate compliance with the input-based emission limit in the final rule: (1) Subsequent to an initial performance test required within 1 year of the effective date of the rule, conduct performance testing twice per permit cycle, (*i.e.*, mid-term and at initial or end term for permitted facilities, or every 2.5 years for facilities without a permit) at all BOPF-related units and convert the sum of the results to input-based units (*i.e.*, lbs of mercury per ton of scrap input) and document the results in a test report that can be submitted electronically to the delegated authority with the results (see section IV.E below); or (2) certify annually that the facility obtains all of their scrap from National Vehicle Mercury Switch Recovery Program (NVMSRP) participants (or similar program as approved by the delegated authority), or certify that the scrap processed by the facility does not contain mercury switches. Existing sources will have 1 year to comply with the mercury emission limits.

Pursuant to CAA section 112(d)(3), the standard for new sources shall not be less stringent than the emission control that is achieved in practice by the best controlled similar source. We are promulgating a new source MACT limit of 0.000081 lbs of mercury per ton of scrap processed as an input-based limit for any new BOPF

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and related units, or any new integrated iron and steel facility. With regard to compliance, new sources will have the same options to demonstrate compliance as existing sources. These new source limits apply to BOPFs for which construction or reconstruction commenced after August 16, 2019.

The mercury emission limits, promulgated pursuant to CAA sections 112(d)(2) and (3), have been added to Table 1 in the NESHAP. In addition, 40 CFR 63.7791 (https://www.ecfr.gov/current/title-40/section-63.7791) (and related sections 40 CFR 63.7820 (https://www.ecfr.gov/current/title-40/section-63.7820), 63.7821 (https://www.ecfr.gov/current/title-40/section-63.7821), 63.7825 (https://www.ecfr.gov/current/title-40/section-63.7825), 63.7826 (https://www.ecfr.gov/current/title-40/section-63.7826), 63.7833 (https://www.ecfr.gov/current/title-40/section-63.7833), 63.7840 (https://www.ecfr.gov/current/title-40/section-63.7840), and 63.7841 (https://www.ecfr.gov/current/title-40/section-63.7841)) describes the specific compliance deadlines and compliance options related to the control of mercury. Based on consideration of public comments discussed in section IV.C below, we made some minor revisions to the proposed deadlines, compliance options, and testing requirements in 40 CFR 63.7791 (https://www.ecfr.gov/current/title-40/section-63.7791), 63.7820(e) (https://www.ecfr.gov/current/title-40/section-63.7820#p-63.7820(e)), 63.7821(e) (https://www.ecfr.gov/current/title-40/section-63.7821#p-63.7821(e)), 63.7825 (https://www.ecfr.gov/current/title-40/section-63.7825), 63.7833(h) (https://www.ecfr.gov/current/title-40/section-63.7833#p-63.7833(h)), 63.7833(i) (https://www.ecfr.gov/current/title-40/section-63.7833#p-63.7833(i)), 63.7840(e) (https://www.ecfr.gov/current/title-40/section-63.7840#p-63.7840(e)), 63.7840(f) (https://www.ecfr.gov/current/title-40/section-63.7840#p-63.7840(f)), and 63.7841(b)(9)-(11) (https://www.ecfr.gov/current/title-40/section-63.7841(b)(9)-#p-63.7841(b)(9)-(11)). The specific revisions are described in section IV.C.5 of this preamble.

D. What are the final rule amendments addressing emissions during periods of SSM?

In this action, we are finalizing revisions to the SSM provisions of the NESHAP to ensure that they are consistent with the Court decision in *Sierra Club* v. *EPA*, 551 F. 3d 1019 (DC Cir. 2008), which vacated two provisions that exempted sources from the requirement to comply with otherwise applicable CAA section 112(d) emission standards during periods of SSM. We also are finalizing various other changes to modify reporting and monitoring as a result of the SSM revisions. Our analyses and changes related to these issues are discussed below. In addition, we are making minor revisions to aspects of the proposed SSM requirements in response to comments. These changes are discussed below in IV.D.5.

We are finalizing the proposed revision of 40 CFR 63.7810(a) (https://www.ecfr.gov/current/title-40/section-63.7810#p-63.7810(a)) to eliminate the SSM exemption. The ☐ revision will apply after January 11, 2021. In addition, we are updating the references in Table 4 (the General Provisions Applicability Table) of 40 CFR part 63, subpart FFFFF (https://www.ecfr.gov/current/title-40/part-63/subpart-FFFFF), including the references to 40 CFR 63.6(f)(1) (https://www.ecfr.gov/current/title-40/section-63.6#p-63.6(f)(1)) and (h)(1) (https://www.ecfr.gov/current/title-40/section-63.6#p-63.6(h)(1))—the provisions vacated by *Sierra Club* v. *EPA*. Consistent with *Sierra Club* v. *EPA*, the standards in this rule will apply at all times. We are also revising 40 CFR part 63, subpart FFFFF (https://www.ecfr.gov/current/title-40/part-63/subpart-FFFFF), Table 4 to change several references related to requirements that apply during periods of SSM. For example, we are eliminating the incorporation of the General Provisions' requirement that sources develop an SSM plan. We also are eliminating and revising certain recordkeeping and reporting requirements related to the SSM exemption.

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The EPA has attempted to ensure that the provisions we eliminated are inappropriate, unnecessary, or redundant in the absence of the SSM exemption. In promulgating the standards in this rule, the EPA has taken into account startup and shutdown periods and, for the reasons explained below, has not proposed alternate standards for those periods. The integrated iron and steel industry has not identified (and there are no data indicating) any specific problems with removing the SSM provisions.

1. 40 CFR 63.7810(D) (HTTPS://WWW.ECFR.GOV/CURRENT/TITLE-40/SECTION-63.7810#P-63.7810(D)) GENERAL DUTY

We are promulgating revisions to the General Provisions table (Table 4) of 40 CFR part 63, subpart FFFFF (https://www.ecfr.gov/current/title-40/part-63/subpart-FFFFF) by adding an entry for 40 CFR 63.6(e)(1)(i) (https://www.ecfr.gov/current/title-40/section-63.6#p-63.6(e)(1)(i)), which describes the general duty to minimize emissions, and including a "No" for new or reconstructed sources which commenced construction or reconstruction after August 16, 2019. For all other affected sources, we include "Yes on or before January 11, 2021 and No thereafter." in column 3. Some of the language in that section is no longer necessary or appropriate in light of the elimination of the SSM exemption. We are instead adding general duty regulatory text at 40 CFR 63.7810(d) (https://www.ecfr.gov/current/title-40/section-63.7810#p-63.7810(d)) that reflects the general duty to minimize emissions while eliminating the reference to periods covered by an SSM exemption. The current language in 40 CFR 63.6(e)(1)(i) (https://www.ecfr.gov/current/title-40/section-63.6#p-63.6(e)(1)(i)) characterizes what the general duty entails during periods of SSM. With the elimination of the SSM exemption, there is no need to differentiate between normal operations, startup and shutdown, and malfunction events in describing the general duty. Therefore, the language the EPA is promulgating for 40 CFR 63.7810(d) (https://www.ecfr.gov/current/title-40/section-63.7810#p-63.7810(d)) does not include that language from 40 CFR 63.6(e)(1) (https://www.ecfr.gov/current/title-40/section-63.6#p-63.6(e)(1)) after January 11, 2021 for each such source, and after July 13, 2020 for new and reconstructed sources for which construction or reconstruction commenced after August 16, 2019.

We are also finalizing revisions to the General Provisions table (Table 4) of 40 CFR part 63, subpart FFFFF (https://www.ecfr.gov/current/title-40/part-63/subpart-FFFFF) by adding an entry for 40 CFR 63.6(e)(1)(ii) (https://www.ecfr.gov/current/title-40/section-63.6#p-63.6(e)(1)(ii)) and including "No, for new or reconstructed sources which commenced construction or reconstruction after August 16, 2019." For all other affected sources, we are adding "Yes, on or before January 11, 2021 and No thereafter." in column 3. 40 CFR 63.6(e)(1)(ii) (https://www.ecfr.gov/current/title-40/section-63.6#p-63.6(e)(1)(ii)) imposes requirements that are not necessary with the elimination of the SSM exemption or are redundant with the general duty requirement being added at 40 CFR 63.7810(d) (https://www.ecfr.gov/current/title-40/section-63.7810#p-63.7810(d)).

2. SSM PLAN

We are finalizing revisions to the General Provisions table (Table 4) of 40 CFR part 63, subpart FFFFF (https://www.ecfr.gov/current/title-40/part-63/subpart-FFFFF) by adding an entry for 40 CFR 63.6(e)(3) (https://www.ecfr.gov/current/title-40/section-63.6#p-63.6(e)(3)) and including "No, for new or reconstructed sources which commenced construction or reconstruction after August 16, 2019. For all other affected sources, Yes, on or before January 11, 2021 and No thereafter." in column 3. Generally, the paragraphs under 40 CFR 63.6(e)(3) (https://www.ecfr.gov/current/title-40/section-63.6#p-63.6(e)(3)) require development of an SSM plan and specify SSM recordkeeping and reporting requirements related to the SSM plan. As the EPA is removing the SSM exemptions, the affected units will be subject to an emission standard during such events. The applicability of a standard during such events will ensure that sources have ample incentive to plan for and achieve compliance and, thus, the SSM plan requirements are no longer

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necessary. For that same reason, we are revising 40 CFR 63.7810(c) (https://www.ecfr.gov/current/title-40/section-63.7810#p-63.7810(c)) to remove the SSM plan requirement 180 days after publication in the **Federal Register** for sources that commenced construction or reconstruction on or before August 16, 2019, and to remove the SSM plan requirement upon publication in the **Federal Register** for all sources that commenced construction or reconstruction after August 16, 2019.

3. COMPLIANCE WITH STANDARDS

We are finalizing revisions to the General Provisions table (Table 4) of 40 CFR part 63, subpart FFFFF (https://www.ecfr.gov/current/title-40/part-63/subpart-FFFFF) by adding an entry for 40 CFR 63.6(f)(1) (https://www.ecfr.gov/current/title-40/section-63.6#p-63.6(f)(1)) and including "No" in column 3. The exemption at 40 CFR 63.6(f)(1) (https://www.ecfr.gov/current/title-40/section-63.6#p-63.6(f)(1)), which exempted sources from non-opacity standards during periods of SSM, was vacated by the Court in *Sierra Club* v. *EPA*, as discussed above.

We also are finalizing revisions to the General Provisions table (Table 4) of 40 CFR part 63, subpart FFFFF (https://www.ecfr.gov/current/title-40/part-63/subpart-FFFFF) by adding an entry for 40 CFR 63.6(h)(1) (https://www.ecfr.gov/current/title-40/section-63.6#p-63.6(h)(1)) and including "No" in column 3. The exemption at 40 CFR 63.6(h)(1) (https://www.ecfr.gov/current/title-40/section-63.6#p-63.6(h)(1)), which exempted sources from opacity standards during periods of SSM, was also vacated by the Court in *Sierra Club* v. *EPA*. Consistent with *Sierra Club* v. *EPA*, the EPA is finalizing revisions to standards in this rule to ensure that a CAA section 112 standard applies at all times.

4. 40 CFR 63.7822 (HTTPS://WWW.ECFR.GOV/CURRENT/TITLE-40/SECTION-63.7822) AND 63.7823 (HTTPS://WWW.ECFR.GOV/CURRENT/TITLE-40/SECTION-63.7823) PERFORMANCE TESTING

We are finalizing revisions to the General Provisions table (Table 4) of 40 CFR part 63, subpart FFFFF (https://www.ecfr.gov/current/title-40/part-63/subpart-FFFFF) by adding an entry for 40 CFR 63.7(e)(1) (https://www.ecfr.gov/current/title-40/section-63.7#p-63.7(e)(1)) and including "No, for new or reconstructed sources which commenced construction or reconstruction after August 16, 2019. For all other affected sources, Yes, on or before January 11, 2021 and No thereafter." in column 3. In section 40 CFR 63.7(e)(1) (https://www.ecfr.gov/current/title-40/section-63.7#p-63.7(e)(1)), performance testing requirements are described. The EPA is instead adding a performance testing requirement at 40 CFR 63.7822(a) (https://www.ecfr.gov/current/title-40/section-63.7822#p-63.7822(a)) and 63.7823(a) (https://www.ecfr.gov/current/title-40/section-63.7823#p-63.7823(a)). The performance testing requirements we are adding differ from the General Provisions performance testing provisions in several respects. The regulatory text we are adding does not include the language in 40 CFR 63.7(e)(1) (https://www.ecfr.gov/current/title-40/section-63.7#p-63.7(e)(1)) that restated the SSM exemption and precluded SSM periods from being considered "representative" for purposes of performance testing. In 40 CFR 63.7(e)(1) (https://www.ecfr.gov/current/title-40/section-63.7#p-63.7(e)(1)), performance tests conducted under this subpart should not be conducted during SSM because conditions during SSM are often not representative of normal operating conditions. During SSM periods, both emission and flow rate profiles can be highly variable and unsuitable for the emission measurement methods. The EPA is promulgating language that requires the owner or operator to record the process information that is necessary to document operating conditions during the test and include in this record an explanation to support that such conditions represent normal operation. In 40 CFR 63.7(e) (https://www.ecfr.gov/current/title-40/section-63.7#p-63.7(e)), the owner or operator is required to make available to the Administrator on request such

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records "as may be necessary to determine the condition of the performance test," but does not specifically require the information to be recorded. The regulatory text the EPA is adding to this provision builds onto that requirement and makes explicit the requirement to record the information.

5. MONITORING

We are finalizing revisions to the General Provisions table (Table 4) of 40 CFR part 63, subpart FFFFF (https://www.ecfr.gov/current/title-40/part-63/subpart-FFFFF) by adding entries for 40 CFR 63.8(c)(1)(i) (https://www.ecfr.gov/current/title-40/section-63.8#p-63.8(c)(1)(i)) and (iii) (https://www.ecfr.gov/current/title-40/section-63.8#p-63.8(c)(1)(iii)) and including "No, for new or reconstructed sources which commenced construction or reconstruction after August 16, 2019. For all other affected sources, Yes, on or before January 11, 2021 and No thereafter." in column 3. The cross-references to the general duty and SSM plan requirements in those subparagraphs are not necessary in light of other requirements of 40 CFR 63.8 (https://www.ecfr.gov/current/title-40/section-63.8) that require good air pollution control practices (40 CFR 63.8(c)(1) (https://www.ecfr.gov/current/title-40/section-63.8#p-63.8(c)(1))) and that set out the requirements of a quality control program for monitoring equipment (40 CFR 63.8(d) (https://www.ecfr.gov/current/title-40/section-63.8#p-63.8(d))).

We are finalizing revisions to the General Provisions table (Table 4) of 40 CFR part 63, subpart FFFFF (https://www.ecfr.gov/current/title-40/part-63/subpart-FFFFF) by adding an entry for 40 CFR 63.8(d)(3) (https://www.ecfr.gov/current/title-40/section-63.8#p-63.8(d)(3)) and including "No, for new or reconstructed sources which commenced construction or reconstruction after August 16, 2019. For all other affected sources, Yes, on or before January 11, 2021 and No thereafter." in column 3. The final sentence in 40 CFR 63.8(d)(3) (https://www.ecfr.gov/current/title-40/section-63.8#p-63.8(d)(3)) refers to the General Provisions' SSM plan requirement which is no longer applicable. The EPA is adding to the rule at 40 CFR 63.7842(b)(3) (https://www.ecfr.gov/current/title-40/section-63.7842#p-63.7842(b)(3)) text that is identical to 40 CFR 63.8(d)(3) (https://www.ecfr.gov/current/title-40/section-63.8#p-63.8(d)(3)) except that the final sentence is replaced with the following sentence: "The program of corrective action should be included in the plan required under 40 CFR 63.8(d)(2) (https://www.ecfr.gov/current/title-40/section-63.8#p-63.8(d)(2))."

6. 40 CFR 63.7842 (HTTPS://WWW.ECFR.GOV/CURRENT/TITLE-40/SECTION-63.7842) RECORDKEEPING

We are finalizing revisions to the General Provisions table (Table 4) of 40 CFR part 63, subpart FFFFF (https://www.ecfr.gov/current/title-40/part-63/subpart-FFFFF) by adding an entry for 40 CFR 63.10(b)(2)(i) (https://www.ecfr.gov/current/title-40/section-63.10#p-63.10(b)(2)(i)) and including "No, for new or reconstructed sources which commenced construction or reconstruction after August 16, 2019. For all other affected sources, Yes, on or before January 11, 2021 and No thereafter." in column 3. 40 CFR 63.10(b)(2)(i) (https://www.ecfr.gov/current/title-40/section-63.10#p-63.10(b)(2)(i)) describes the recordkeeping requirements during startup and shutdown. These recording provisions are no longer necessary because the EPA is requiring that recordkeeping and reporting applicable to normal operations would apply to startup and shutdown. In the absence of special provisions applicable to startup and shutdown, such as a startup and shutdown plan, there is no reason to retain additional recordkeeping for startup and shutdown periods.

We are finalizing revisions to the General Provisions table (Table 4) of 40 CFR part 63, subpart FFFFF (https://www.ecfr.gov/current/title-40/part-63/subpart-FFFFF) by adding an entry for 40 CFR 63.10(b)(2)(ii) (https://www.ecfr.gov/current/title-40/section-63.10#p-63.10(b)(2)(ii)) and including "No, for new or reconstructed sources which commenced construction or reconstruction after August 16, 2019. For all other

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affected sources, Yes, on or before January 11, 2021 and No thereafter." in column 3. 40 CFR 63.10(b)(2)(ii) (https://www.ecfr.gov/current/title-40/section-63.10#p-63.10(b)(2)(ii)) describes the recordkeeping requirements during a malfunction. The EPA is adding such requirements to 40 CFR 63.7842 (https://www.ecfr.gov/current/title-40/section-63.7842). The regulatory text we are adding differs from the General Provisions it is replacing in that the General Provisions requires the creation and retention of a record of the occurrence and duration of each malfunction of process, air pollution control, and monitoring equipment. The EPA is finalizing this requirement to apply to any failure to meet an applicable standard and is requiring the source to record the date, time, and duration of the failure rather than the "occurrence." The EPA is also adding to 40 CFR 63.7842(a)(3) (https://www.ecfr.gov/current/title-40/section-63.7842#p-63.7842(a)(3)) a requirement that sources keep records that include a list of the affected sources or equipment and actions taken to minimize emissions, an estimate of the quantity of each regulated pollutant emitted over the standard for which the source failed to meet the standard, and a description of the method used to estimate the emissions. Examples of such methods would include product-loss calculations, mass balance calculations, measurements when available, or engineering judgment based on known process parameters. The EPA is requiring that sources keep records of this information to ensure that there is adequate information to allow the EPA to determine the severity of any failure to meet a standard, and to provide data that may document how the source met the general duty to minimize emissions when the source has failed to meet an applicable standard.

We are finalizing revisions to the General Provisions table (Table 4) of 40 CFR part 63, subpart FFFFF (https://www.ecfr.gov/current/title-40/part-63/subpart-FFFFF) by adding an entry for 40 CFR 63.10(b)(2)(iv) (https://www.ecfr.gov/current/title-40/section-63.10#p-63.10(b)(2)(iv)) and including "No, for new or reconstructed sources which commenced construction or reconstruction after August 16, 2019. For all other affected sources, Yes, on or before January 11, 2021 and No thereafter." in column 3. When applicable, the provision requires sources to record actions taken during SSM events when actions were inconsistent with their SSM plan. The requirement is no longer appropriate because SSM plans would no longer be required. The requirement previously applicable under 40 CFR 63.10(b)(2)(iv) (https://www.ecfr.gov/current/title-40/section-63.10#p-63.10(b)(2)(iv)) to record actions to minimize emissions and record corrective actions during SSM is now applicable at all times by 40 CFR 63.7842(a)(4) (https://www.ecfr.gov/current/title-40/section-63.7842#p-63.7842(a)(4)).

We are finalizing revisions to the General Provisions table (Table 4) of 40 CFR part 63, subpart FFFFF (https://www.ecfr.gov/current/title-40/part-63/subpart-FFFFF) by adding an entry for 40 CFR 63.10(b)(2)(v) (https://www.ecfr.gov/current/title-40/section-63.10#p-63.10(b)(2)(v)) and including "No, for new or reconstructed sources which commenced construction or reconstruction after August 16, 2019. For all other affected sources, Yes, on or before January 11, 2021 and No thereafter." in column 3. When applicable, the provision requires sources to record actions taken during SSM events to show that actions taken were consistent with their SSM plan. The requirement is no longer appropriate because SSM plans would no longer be required.

We are finalizing revisions to the General Provisions table (Table 4) of 40 CFR part 63, subpart FFFFF (https://www.ecfr.gov/current/title-40/part-63/subpart-FFFFF) by adding an entry for 40 CFR 63.10(c)(15) (https://www.ecfr.gov/current/title-40/section-63.10#p-63.10(c)(15)) and including "No, for new or reconstructed sources which commenced construction or reconstruction after August 16, 2019. For all other affected sources, Yes, on or before January 11, 2021 and No thereafter." in column 3. Because the SSM plan requirement is being eliminated, 40 CFR 63.10(c)(15) (https://www.ecfr.gov/current/title-40/section-63.10#p-63.10(c)(15)) no longer applies. When applicable, the provision allowed an owner or operator to use

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the affected source's SSM plan or records kept to satisfy the recordkeeping requirements of the SSM plan, specified in 40 CFR 63.6(e) (https://www.ecfr.gov/current/title-40/section-63.6#p-63.6(e)), to also satisfy the requirements of 40 CFR 63.10(c)(10) (https://www.ecfr.gov/current/title-40/section-63.10#p-63.10(c)(10)) through (12) (https://www.ecfr.gov/current/title-40/section-63.10#p-63.10(c)(12)). The EPA is eliminating this requirement because SSM plans would no longer be required, and, therefore, 40 CFR 63.10(c)(15) (https://www.ecfr.gov/current/title-40/section-63.10#p-63.10(c)(15)) no longer serves any useful purpose for affected units.

7. 40 CFR 63.7841 (HTTPS://WWW.ECFR.GOV/CURRENT/TITLE-40/SECTION-63.7841) REPORTING

We are finalizing revisions to the General Provisions table (Table 4) of 40 CFR part 63, subpart FFFFF (https://www.ecfr.gov/current/title-40/part-63/subpart-FFFFF) by adding an entry for 40 CFR 63.10(d)(5)(i) (https://www.ecfr.gov/current/title-40/section-63.10#p-63.10(d)(5)(i)) and including "No, for new or reconstructed sources which commenced construction or reconstruction after August 16, 2019. For all other affected sources, Yes, on or before January 11, 2021 and No thereafter." in column 3. 40 CFR 63.10(d)(5)(i) (https://www.ecfr.gov/current/title-40/section-63.10#p-63.10(d)(5)(i)) describes the reporting requirements for startups, shutdowns, and malfunctions. To replace the General Provisions reporting requirement, the EPA is adding reporting requirements to 40 CFR 63.7841(b)(4) (https://www.ecfr.gov/current/title-40/section-63.7841#p-63.7841(b)(4)). The replacement language differs from the General Provisions requirement in that it eliminates periodic SSM reports as a stand-alone report. We are adding language that requires sources that fail to meet an applicable standard at any time to report the information concerning such events in the semiannual reporting period compliance report already required under this rule. We are requiring the report to contain the date, time, duration, and the cause of such events (including unknown cause, if applicable), a list of the affected source or equipment, an estimate of the quantity of each regulated pollutant emitted over any emission limit, and a description of the method used to estimate the emissions. Examples of such methods would include product-loss calculations, mass balance calculations, measurements when available, or engineering judgment based on known process parameters. The EPA is promulgating this requirement to ensure that there is adequate information to determine compliance, to allow the EPA to determine the severity of the failure to meet an applicable standard, and to provide data that may document how the source met the general duty to minimize emissions during a failure to meet an applicable standard.

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We are no longer requiring owners or operators to determine whether actions taken to correct a malfunction are consistent with an SSM plan, because plans are no longer required. These final amendments, therefore, eliminate from this section the cross-reference to 40 CFR 63.10(d)(5)(i) (https://www.ecfr.gov/current/title-40/section-63.10#p-63.10(d)(5)(i)) that contains the description of the previously required SSM report format and submittal schedule. These specifications are no longer necessary because the SSM events would be reported in otherwise required periodic reports with similar format and submittal requirements.

We are finalizing revisions to the General Provisions table (Table 4) of 40 CFR part 63, subpart FFFFF (https://www.ecfr.gov/current/title-40/part-63/subpart-FFFFF) by adding an entry for 40 CFR 63.10(d)(5)(ii) (https://www.ecfr.gov/current/title-40/section-63.10#p-63.10(d)(5)(ii)) and including "No, for new or reconstructed sources which commenced construction or reconstruction after August 16, 2019. For all other affected sources, Yes, on or before January 11, 2021 and No thereafter." in column 3. 40 CFR 63.10(d)(5)(ii) (https://www.ecfr.gov/current/title-40/section-63.10#p-63.10(d)(5)(ii)) describes an immediate report for startups, shutdown, and malfunctions when a source failed to meet an applicable standard but did not follow the SSM plan. We are no longer requiring owners and operators to report when actions taken during an SSM event were not consistent with an SSM plan, because such plans are no longer required.

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E. What are the final rule amendments addressing electronic reporting?

Through this final rule, the EPA is requiring that owners and operators of integrated iron and steel manufacturing facilities submit the required electronic copies of performance test results and semiannual reports through the EPA's Central Data Exchange (CDX) using the Compliance and Emissions Data Reporting Interface (CEDRI). A description of the electronic data submission process is provided in the memorandum titled *Electronic Reporting Requirements for New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP) Rules* (Docket ID Item No. EPA-HQ-OAR-2002-0083-0909).

This final rule requires that performance test results collected using test methods that are supported by the EPA's Electronic Reporting Tool (ERT), as listed on the ERT website at the time of the test, be submitted in the format generated through the use of the ERT, and that other performance test results be submitted in portable document format (PDF) using the attachment module of the ERT. Similarly, performance evaluation results of continuous monitoring systems that measure relative accuracy test audit pollutants that are supported by the ERT at the time of the test, should be submitted in the format generated through the use of the ERT; other performance evaluation results should be submitted in PDF using the attachment module of the ERT. For semiannual compliance reports, the final rule requires that owners and operators use the appropriate spreadsheet template to submit information to CEDRI. The draft template for these reports is included in the docket for this rulemaking and the final template will be available on the CEDRI homepage (*https://www.epa.gov/electronic-reporting-air-emissions/cedri (https://www.epa.gov/electronic-reporting-air-emissions/cedri)*).

Additionally, the EPA has identified two broad circumstances in which electronic reporting extensions may be provided. In both circumstances, the decision to accept the claim of needing additional time to report is within the discretion of the Administrator, and reporting should occur as soon as possible. The EPA is providing these potential extensions to protect owners and operators from noncompliance in cases where they cannot successfully submit a report by the reporting deadline for reasons outside of their control. The situation where an extension may be warranted due to outages of the EPA's CDX or CEDRI which precludes an owner or operator from accessing the system and submitting required reports is addressed in 40 CFR 63.7841(e) (https://www.ecfr.gov/current/title-40/section-63.7841#p-63.7841(e)). The situation where an extension may be warranted due to a force majeure event, which is defined as an event that would be or has been caused by circumstances beyond the control of the affected facility, its contractors, or any entity controlled by the affected facility that prevents an owner or operator from complying with the requirement to submit a report electronically as required by this rule is addressed in 40 CFR 63.7841(f) (https://www.ecfr.gov/current/title-40/section-63.7841#p-63.7841(f)). Examples of such events are acts of nature, acts of war or terrorism, or equipment failure or safety hazards beyond the control of the facility.

The electronic submittal of the reports addressed in this rulemaking will increase the usefulness of the data contained in those reports, is in keeping with current trends in data availability and transparency, will further assist in the protection of public health and the environment, will improve compliance by facilitating the ability of regulated facilities to demonstrate compliance with requirements, and by facilitating the ability of delegated state, local, tribal, and territorial air agencies and the EPA to assess and determine compliance, and will ultimately reduce burden on regulated facilities, delegated air agencies, and the EPA. Electronic reporting also eliminates paper-based, manual processes, thereby saving time and resources, simplifying data entry, eliminating redundancies, minimizing data reporting errors, and providing data quickly and accurately to the affected facilities, air agencies, the EPA, and the public. Moreover, electronic reporting is consistent with the EPA's plan to implement Executive Order 13563 (/executive-order/13563) and is in

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keeping with the EPA's Agency-wide policy developed in response to the White House's Digital Government Strategy. For more information on the benefits of electronic reporting, see the memorandum titled *Electronic Reporting Requirements for New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP) Rules* (Docket ID Item No. EPA-HQ-OAR-2002-0083-0909).

We are also making minor revisions to aspects of the proposed electronic reporting requirements in response to comments. These rule changes are discussed in section IV.E.5 of this preamble.

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F. What other changes are being made to the NESHAP?

1. IBR UNDER 1 CFR PART 51 (HTTPS://WWW.ECFR.GOV/CURRENT/TITLE-1/PART-51)

We are promulgating regulatory text that includes IBR. In accordance with requirements of 1 CFR 51.5 (https://www.ecfr.gov/current/title-1/section-51.5), the EPA is incorporating by reference the three documents listed below and amending 40 CFR 63.14 (https://www.ecfr.gov/current/title-40/section-63.14) to identify the provisions for which these documents are IBR approved for this rule:

- ANSI/ASME PTC 19.10-1981, Flue and Exhaust Gas Analyses [Part 10, Instruments and Apparatus], issued August 31, 1981, IBR approved for 40 CFR 63.7822(b) (https://www.ecfr.gov/current/title-40/section-63.7822#p-63.7822(b)), 63.7824(e) (https://www.ecfr.gov/current/title-40/section-63.7824#p-63.7824(e)) and 63.7825(b) (https://www.ecfr.gov/current/title-40/section-63.7825#p-63.7825(b)). This method determines quantitatively the gaseous constituents of exhausts resulting from stationary combustion sources. The gases addressed in the method are oxygen, carbon dioxide, carbon monoxide, nitrogen, sulfur dioxide, sulfur trioxide, nitric oxide, nitrogen dioxide, hydrogen sulfide, and hydrocarbons. The method is approved for this rule for oxygen and carbon dioxide measurements, with the caveats described in section VI.J of this preamble.
- ASTM D7520-16, Standard Test Method for Determining the Opacity of a Plume in the Outdoor Ambient Atmosphere, approved April 1, 2016, IBR approved for 40 CFR 63.7823(c) (https://www.ecfr.gov/current/title-40/section-63.7823#p-63.7823(c)), 63.7823(d) (https://www.ecfr.gov/current/title-40/section-63.7823#p-63.7823(d)), 63.7823(e) (https://www.ecfr.gov/current/title-40/section-63.7823#p-63.7823(e)), and 63.7833(g) (https://www.ecfr.gov/current/title-40/section-63.7833#p-63.7833(g)). This method describes procedures to determine the opacity of a plume, using digital imagery and associated hardware and software, where opacity is caused by PM emitted from a stationary point source in the outdoor ambient environment. The opacity of emissions is determined by the application of a digital camera opacity technique (DCOT) that consists of a digital still camera, analysis software, and the output function's content to obtain and interpret digital images to determine and report plume opacity. The method is approved for this rule with caveats described in section VI.J of this preamble.
- Fabric Filter Bag Leak Detection Guidance, EPA-454/R-98-015, Office of Air Quality Planning and Standards (OAQPS), September 1997, IBR approved for 40 CFR 63.7831(f) (https://www.ecfr.gov/current/title-40/section-63.7831#p-63.7831(f)). This document provides guidance on the use of triboelectric monitors as fabric filter bag leak detectors. The document includes fabric filter and monitoring system descriptions; guidance on monitor selection, installation, setup, adjustment, and operation; and quality assurance procedures.

2. TECHNICAL AND EDITORIAL RULE CORRECTIONS AND CLARIFICATIONS

In this final rule, the EPA is making a number of technical and editorial changes to the NESHAP to reflect corrections and clarifications. These revisions are described in section IV.G.3 of this preamble.

G. What are the effective and compliance dates of the standards?

This final rule is effective on July 13, 2020. Because most of these amendments provide corrections and clarifications to the current rule and do not impose new requirements on the industry, existing sources are required to comply with the amendments 180 days after publication of the final rule, except where indicated

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otherwise, as in the provisions for mercury. Sources constructed on or before August 16, 2019 must comply with the mercury emission limits within 1 year of publication of the final rule. New BOPF or new facilities constructed or reconstructed after August 16, 2019, must comply with the new source mercury emission limit on the effective date of the final rule, or upon startup, whichever is later. Electronic reporting for the compliance report is required beginning either 180 days after promulgation of the final rule or 180 days after the spreadsheet template is available in CEDRI, whichever is later. Electronic reporting of performance tests is required upon promulgation of the final rule.

IV. What is the rationale for our final decisions and amendments for the Integrated Iron and Steel Manufacturing Facilities source category?

For each significant issue, this section provides a description of what we proposed and what we are finalizing for each issue, the EPA's rationale for the final decisions and amendments, a summary of key comments and responses, and impact on final rule language, if applicable. For all comments not discussed in this preamble, comment summaries and the EPA's responses can be found in the *Summary of Public Comments and Responses for the Risk and Technology Review for Integrated Iron and Steel Manufacturing Facilities* document, which is available in the docket.

A. Residual Risk Review for the Integrated Iron and Steel Manufacturing Facilities Source Category

1. WHAT DID WE PROPOSE PURSUANT TO CAA SECTION 112(F) FOR THE INTEGRATED IRON AND STEEL MANUFACTURING FACILITIES SOURCE CATEGORY?

On August 16, 2019 (84 FR 42704 (/citation/84-FR-42704)), the EPA proposed that risks posed by emissions from the source category are acceptable, that the current NESHAP provides an ample margin of safety to protect public health, and that additional standards are not necessary to prevent an adverse environmental effect. The estimated cancer risks were below the presumptive limit of acceptability and the noncancer risk results indicate there is minimal likelihood of adverse noncancer health effects due to HAP emissions from this source category. The proposed decision on ample margin of safety was based on weighing factors relevant to this particular source category, including the risk posed by point sources and the costs and cost-effectiveness of additional controls to reduce risk further, as well as uncertainties in the assessment of unmeasured fugitive and intermittent particulate (UFIP),[2] including uncertainties in the baseline emissions estimates used in estimating risk posed by UFIP emissions, the costs and effectiveness of the work practices we considered to reduce these emissions, and the amount of risk reduction that could be achieved with the work practices.

The EPA sets standards under CAA section 112(f)(2) using "a two-step standard-setting approach, with an analytical first step to determine an `acceptable risk' that considers all health information, including risk estimation uncertainty, and includes a presumptive limit on maximum individual risk (MIR) of approximately 1-in-10 thousand." (54 FR 38045 (/citation/54-FR-38045), September 14, 1989). In the proposal, the EPA estimated risks based on actual and allowable emissions from integrated iron and steel sources, and we considered these in determining acceptability. A more thorough discussion of the risk assessment is included in the *Residual Risk Assessment for the Integrated Iron and Steel Manufacturing Source Category in Support of the Risk and Technology Review 2020 Final Rule* document, available in the docket for this rule (Docket ID No. EPA-HQ-OAR-2002-0083).

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In the proposed rule, as presented in Table 2 below, based on modeling point source actual emissions from the source category for all 11 facilities, we estimated inhalation cancer risk to the individual most exposed was 10-in-1 million. The estimated incidence of cancer due to inhalation exposures due to the point sources

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for the source category was 0.03 excess cancer cases per year, or one excess case every 33 years. We estimated that approximately 64,000 people face an increased cancer risk greater than or equal to 1-in-1 million due to inhalation exposure to HAP emissions from the point sources for this source category. The Agency estimated that the maximum chronic noncancer target organ-specific hazard index (TOSHI) from inhalation exposure due to point sources for this source category was 0.1. In the screening assessment of worst-case acute inhalation impacts due to point sources, we estimated a maximum hazard quotient (HQ) of 0.3 (due to arsenic) based on the reference exposure level (REL). With regard to multipathway human health risks, we estimated the cancer risk for the highest exposed individual to be 40-in-1 million (due to dioxins/furans emissions from sinter plants) and the maximum chronic noncancer hazard quotient (HQ) to be less than 1 for all the persistent and bioaccumulative HAP. Based on the results of the environmental risk screening analysis, we do not expect an adverse environmental effect as a result of HAP emissions from point source emissions from this source category.

As shown in Table 2, based on allowable emissions, the estimated inhalation cancer risk to the individual most exposed from point sources in the source category is 70-in-1 million and the estimated incidence of cancer due to inhalation exposures to these allowable emissions is 0.3 excess cancer cases per year, or one excess case every 3 years. An estimated 6 million people would face an increased cancer risk greater than or equal to 1-in-1 million due to inhalation exposure to allowable HAP emissions from this source category. The maximum chronic noncancer TOSHI from inhalation exposure is 0.9 based on allowable emissions.

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Table 2—Risk Summary for the Integrated Iron and Steel Manufacturing Source Cate

R006769

Emissions	Inhalation cancer risk		Population cancer risk			Max chronic individu noncancer risk	
	Maximum individual risk (in 1 million)	Risk driver	Cancer incidence (cases per year)	≥10 in 1 million	≥1 in 1 million	Hazard index (TOSHI)	Ris driv
Baseline Actual Emissions:							
Source Category	10	chromium (VI) compounds	0.03	60	64,000	0.1 (developmental)	arsenic lead compo
Baseline Allowable Emissions:							
Source Category	70	arsenic compounds, chromium (VI) compounds, nickel compounds, cadmium compounds	0.3	79,500	5,900,000	0.9 (developmental)	arsenic lead compo

R006770

We also estimated risk posed by both point source and nonpoint (*i.e.*, UFIP) emissions from an actual facility in the category that we selected as an example facility. Of the facilities in the category, the example facility has the largest production capacity, the highest estimated HAP emissions from steel-making sources (*i.e.*, facility emissions not including sinter plant emissions), and the highest estimated UFIP emissions. The example facility is also the facility with the highest potential population exposure (4 million people within 50 kilometers of the facility). The EPA conducted a risk assessment using conservative emissions estimates to evaluate the potential exposures and risks due to all the emissions for this one example facility. We performed the risk analysis for the example facility to assess the potential change in the magnitude of risk when risk from UFIP emissions is added to risk posed by point-source emissions. The estimated risks due to actual emissions from nonpoint (*i.e.*, UFIP) and point sources for the example facility are presented in Table 3.

When UFIP sources were included in the EPA's risk analysis, the estimated HAP emissions increased from 3 tpy to 53 tpy and the estimated inhalation cancer risk to the individual most exposed to actual emissions from the example facility increased from 2-in-1 million to 20-in-1 million. The estimated population with risks greater than or equal to 1-in-1 million increased from 3,000 to 4,000,000, and the population with risks greater than or equal to 10-in-1 million increased from 0 to 9,000. The maximum chronic noncancer TOSHI from inhalation exposures remained at less than 1, but the acute HQ increased from 0.3 to 3 based on the REL (for arsenic). The two UFIP sources that are the greatest contributors to the inhalation risk in terms of MIR were the BF casthouse and BOPF shop, which are currently regulated by opacity limits in the rule. Based on allowable emissions, the estimated inhalation cancer risk to the individual most exposed increased from 30-in-1 million to 50-in-1 million with the inclusion of emissions from UFIP sources.

There is considerable uncertainty in the estimated risk due to UFIP sources for the example facility due to the uncertainties in the estimated UFIP emissions and release parameters. Nevertheless, if UFIP emissions were quantified for the entire source category, the source category risks and the number of individuals with cancer risk exceeding 1-in-1 million would be expected to increase for each facility. Although it is problematic to estimate from our risk assessment results (shown in Tables 2 and 3) what the increase in risk might be for each facility in the entire industry without quantifying UFIP emissions for each facility, based upon results from the example facility, we concluded that it is likely that the cancer MIR based on allowable emissions at all other facilities would be less than 90-in-1 million (70-in-1 million from point sources and up to 20-in-1 million from UFIP emissions) and the maximum chronic noncancer HI would be less than 1. For information on the development of emission estimates from the example facility, see the memorandum titled *Development of Emissions Estimates for Fugitive or Intermittent HAP Emission Sources for an Example Integrated Iron and Steel Facility for Input to the RTR Risk Assessment* (Docket ID Item No. EPA-HQ-OAR-2002-0083-0956), hereafter called the "Example Facility memorandum."

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Table 3—Inhalation Risk Results—Example Facility With and Without UFIP Emissions

R006772

Emissions	Example facility sources	Inhalation chronic cancer				Inhalation chronic noncancer		Acut noncar	
		MIR (in 1-M)	Incidence	Pop >1-in-1 million	Pop >10-in-1 million	HI (TOSHI)	Target organ	HQ	Poll
Actual	Point Sources *Only*	2	0.010	3,000	0	0.03	Developmental	0.3	A
	Point Sources & UFIP Emissions	20	0.12	4,000,000	9,000	0.3	Developmental	3	A
Allowables	Point Sources *Only*	30	0.13	4,000,000	11,000	0.3	Developmental		
	Point Sources & UFIP Emissions	50	0.24	4,000,000	90,000	0.7	Developmental		

R006773

Although we did not assess multipathway risks for the example facility used to represent a "worst case" for UFIP emissions, the highest exposed individual for dioxins/furans in the point source modeling was not due to the example facility. Furthermore, none of the UFIP sources are known to emit dioxins/furans emissions. In addition, because mercury is emitted as a gas, UFIP emissions, which are PM, did not add to mercury emissions. See the Example Facility memorandum cited above for more information on the estimated emissions from the model facility.

Furthermore, it is important to note that after the EPA completed its risk modeling, the American Iron and Steel Institute (AISI) provided additional, more recent test data for the example facility that suggest arsenic emissions are lower than the level we estimated based on the 2011 information collection request (ICR) data that we used in our analysis (Docket ID Item No. EPA-HQ-OAR-2002-0083-0804). The AISI also conducted their own risk assessment using the new data and using the same modeling methodology that the EPA uses. The results presented by AISI (described in the EPA's proposal preamble at 84 FR 42704 (/citation/84-FR-42704)) indicate the MIR when the UFIP emissions are included could be about 60 percent lower than the estimated value in the EPA's risk characterization presented above (*i.e.*, 8-in-1 million compared to the EPA's estimate of 20-in-1 million) and that population risks also could be substantially lower than the EPA's estimate presented above in this preamble, with an estimated 500,000 people with risks greater than or equal to 1-in-1 million compared to the estimate of 4,000,000 in the EPA's risk characterization. Therefore, we conclude the emissions used in our risk assessment are likely conservative (upper-end) estimates.

In determining whether risks are acceptable for this source category, the EPA considered all available health information and risk estimation uncertainty that includes the uncertainty in the data from both point sources and the estimated UFIP emissions. (*See* proposal at 84 FR 42716 (/citation/84-FR-42716), section III.C.8, *How do we consider uncertainties in risk assessment?*) A more thorough discussion of the uncertainties is included in the *Residual Risk Assessment for the Integrated Iron and Steel Manufacturing Source Category in Support of the Risk and Technology Review 2020 Final Rule*, available in the docket for this rule (Docket ID No. EPA-HQ-OAR-2002-0083).

The risk results indicate that the inhalation cancer risks to the individual most exposed could be more than 70-in-1-million but less than 90-in-1 million, as a worst case, based on the highest allowable emissions due to point sources among the industry facilities plus the conservative estimate of risk from UFIP emissions, and also considering the uncertainties in the example facility analysis as discussed above and in the proposal (84 FR 42716 (/citation/84-FR-42716)). This worst case risk is still below the presumptive limit of 100-in-1 million risk. In addition, there were no facilities with an estimated maximum chronic noncancer HI greater than or equal to 1 from point sources. The maximum acute HQ for all pollutants was less than 1 when we only considered point source emissions, and up to 3 based on the REL for arsenic when including exposures to estimated emissions from UFIP emissions at the example facility.

For the acute screening analyses, to better characterize the potential health risks associated with estimated worst-case acute exposures to HAP, the EPA examined a wider range of acute health metrics, where available, including the California Reference Exposure Levels (RELs) and emergency response levels, such as Acute Exposure Guideline Levels and Emergency Response Planning Guidelines. This is in acknowledgement that there are generally more data gaps and uncertainties in acute reference values than there are in chronic reference values. The maximum acute HQ is estimated to be no more than 3 from arsenic emissions, based on the acute REL. However, for arsenic, the only available acute health metric is the REL. By definition, the acute REL represents a health-protective level of exposure, with effects not anticipated below those levels, even for repeated exposures; however, the level of exposure that would cause health effects is not specifically

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known. As the exposure concentration increases above the acute REL, the potential for effects increases. In addition, the acute screening assessment includes the conservative (health protective) assumptions that every process releases its peak hourly emissions at the same hour, that the near worst-case dispersion conditions occur at that same hour, and that an individual is present at the location of maximum concentration for that hour. Further, the HQ value was not refined to an off-site location, which, in many cases, may be significantly lower than that estimated at an on-site receptor. Thus, because of the conservative nature of the acute inhalation screening assessment as well as the conservative bias in the UFIP emission estimates, the EPA anticipates that emissions from the Integrated Iron and Steel Manufacturing Facilities source category pose minimal risk of adverse acute health effects.

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As part of the ample margin of safety analysis performed for the proposal, we evaluated additional potential technologies for controlling point source emissions to further reduce risk from these sources, taking into consideration costs, energy, safety, and other relevant factors. We evaluated the installation of a wet electrostatic precipitator (ESP) on the exhaust of the current air pollution control devices for the BF casthouse primary units to reduce chromium VI and arsenic emissions, respectively. We also evaluated the installation of activated carbon injection (ACI) systems onto current control devices for the sinter plant windbox to reduce emissions of dioxins/furans. Details of the estimated costs and emissions reductions associated with these control measures can be found in the memorandum titled *Ample Margin of Safety for Point Sources in the II&S Industry* (Docket ID Item No. EPA-HQ-OAR-2002-0083-0952).

We estimated the MIR could be reduced by 95, 95, and 98 percent, respectively, from 10-in-1 million, 70-in-1 million, and 40-in-1 million for BF chromium actual emissions, BOPF arsenic allowable emissions, and sinter plant dioxins/furans actual emissions as toxic equivalents, respectively. However, we did not propose any of these control scenarios because of the relatively high capital and annualized costs compared to a relatively low amount of emissions reduced. Cost-effectiveness estimates were determined to be $1.9 billion/ton ($940,000/lb), $46 million/ton ($23,000/lb), and $188 billion/ton ($94 million/lb) for BF chromium, BOPF arsenic, and sinter plant dioxins/furans, respectively. None of these options were considered cost effective.

We also considered potential work practices to reduce UFIP emissions as part of the ample margin of safety analysis. The EPA identified work practices that could achieve HAP reductions from the seven UFIP sources, such as more frequent measurements (*e.g.*, opacity, internal furnace conditions) to identify problems earlier, increased maintenance, applying covers on equipment, developing operating plans to minimize emissions, optimizing positioning of ladles with respect to hood faces, and earlier repair of equipment. We estimated these work practices would achieve a range of 50- to 90-percent reduction in UFIP emissions (*i.e.*, control efficiency) from these sources, based on EPA staff judgment as to the potential effectiveness of the work practices. In analyzing post-control scenarios, we assumed the work practices would achieve 70-percent reduction in emissions (the midpoint between 50 and 90 percent), corresponding to an estimate of 185 tpy of HAP reduced, assuming work practices were required for all seven UFIP sources. A description of the uncontrolled UFIP emissions and an estimate of emissions after implementation of work practices are provided in the Example Facility memorandum cited above.

To estimate the risk reductions that could be achieved from the UFIP sources via work practices, we developed a model input file to reflect the estimated emissions reductions that would be achieved under two control options and modeled two post-control scenarios for the example facility to estimate risk reductions. We analyzed two options: Option 1 would establish work practice standards for two of the UFIP sources (BF casthouse fugitives and BOPF shop fugitives), which contribute about 70 percent of the MIR and are

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currently regulated via opacity standards; Option 2 would establish work practice standards for all seven of the UFIP sources. Potential work practices for the two UFIP sources in Option 1 were the same in Option 2. We assumed a control efficiency of 70 percent for the work practices as the average of an assumed range of 50-percent to 90-percent control efficiency for the work practices. Details of the work practices for UFIP and estimated costs of the work practices can be found in the memorandum titled *Ample Margin of Safety for Nonpoint Sources in the II&S Industry* (Docket ID Item No. EPA-HQ-OAR-2002-0083-0953).

Based on this modeling assessment, we estimated Option 1 would reduce the MIR from 20-in-1 million to about 10-in-1 million for the example facility, the estimated population with risks greater than or equal to 1-in-1 million would decrease from 4,000,000 to 1,500,000, and the estimated population with risks greater than or equal to 10-in-1 million would decrease from 9,000 to 800. In addition, the maximum acute HQ would decrease from 3 to 2. This option also would achieve reductions in PM with a diameter of 2.5 micrometers or less ($PM_{2.5}$). For Option 2, we estimated the work practices would reduce the MIR from 20-in-1 million to about 9-in-1 million for the example facility, the estimated population with risks greater than or equal to 1-in-1 million would decrease from 4,000,000 to 800,000, and the estimated population with risks greater than or equal to 10-in-1 million would decrease from 9,000 to 0. Also, the maximum acute HQ would decrease from 3 to 0.9. This option would also achieve reductions in $PM_{2.5}$.

We estimated the total capital costs of Option 1 for the source category would be approximately $1.4 million, annualized costs would be approximately $1.7 million per year, and HAP reductions would be approximately 173 tpy of HAP, which corresponds to a cost-effectiveness value of approximately $10,000/ton. This estimate was based on cost estimates for individual emission units that were projected to the entire industry based on the number of units of each type at each facility. For Option 2 for the source category, we estimated the total capital costs would be approximately $8.7 million, annualized costs would be approximately $3 million per year, and HAP reductions would be approximately 185 tpy, which corresponds to a cost-effectiveness value of approximately $16,000/ton HAP.

Considering all of the health and environmental risk information and factors discussed above, including the substantial uncertainties regarding our estimates of UFIP emissions, and the costs and cost effectiveness of the work practices, the EPA proposed that risks from the Integrated Iron and Steel Manufacturing Facilities source category are acceptable and that revision of the standards is not required in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect.

2. HOW DID THE RISK REVIEW CHANGE FOR THE INTEGRATED IRON AND STEEL MANUFACTURING FACILITIES SOURCE CATEGORY?

No changes were made to the risk review in the final rule. As mentioned above, we received new arsenic performance test data and an industry conducted risk assessment for the example facility from industry shortly before proposal suggesting arsenic emissions and risks are about 60 percent lower than our estimates.[3] (See 84 FR 42720 (/citation/84-FR-42720) (August 16, 2019) for more discussion). However, we did not rerun the risk model after proposal because of the court-ordered schedule to complete the final rule [4] and because it would not affect the outcome of the final rule. We proposed risks were acceptable and the NESHAP provided an ample margin of safety to protect public health. Based on consideration of comments and information received through the comment period, we continue to conclude risks are acceptable and that the NESHAP provides an ample margin of safety to protect public health.

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3. WHAT KEY COMMENTS DID WE RECEIVE ON THE RISK REVIEW, AND WHAT ARE OUR RESPONSES?

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This section provides a summary of key comments and responses regarding the risk review. A summary of all other public comments on the proposal related to the risk review and the EPA's responses to those comments is available in the document, *Summary of Public Comments and Responses for the Risk and Technology Review for Integrated Iron and Steel Manufacturing Facilities* (Docket ID No. EPA-HQ-OAR-2002-0083). With regard to UFIP emissions and potential work practices, key comments and responses in regard to risk are discussed below. Other key comments and responses are discussed under the sections in this preamble on technology review (Section IV.B of this preamble) and UFIP (Section IV.F). The remainder of the UFIP comments and responses are discussed in the response to comment document cited above.

Comment: One commenter stated the EPA has failed to provide an ample margin of safety. The commenter stated at the ample margin stage, the EPA refuses to address the fact that the health risks are quite high. The EPA must consider how to assure an ample margin of safety to protect public health from the systemic harm implied by this risk value. Yet, the EPA does not discuss or find that it is providing any margin, much less an ample one, to protect people from the emissions causing the carcinogenic, chronic noncancer, and acute risks it also found.

In contrast, a different commenter stated the conservative residual risk estimates in the proposal are already well below the presumptively acceptable risk threshold, despite being artificially inflated due to inaccurate emissions inputs and modeling parameters. Thus, the Agency's proposed determination that no additional regulatory requirements are necessary to provide an ample margin of safety or to prevent adverse environmental effect in light of relevant factors including safety and costs is unquestionably reasonable and appropriate.

Response: We acknowledge the comments supporting the EPA's ample margin of safety analysis and the determination that risks are acceptable and no additional regulatory requirements are necessary to provide an ample margin of safety or to prevent adverse environmental effect. A summary of the EPA's ample margin of safety analysis is provided in section IV.A.1 of this preamble and in the proposal preamble (84 FR 42704 (/citation/84-FR-42704)). Further details are provided in the memorandum titled *Ample Margin of Safety Analysis for Point Sources in the Integrated Iron and Steel Industry* (Docket ID Item No. EPA-HQ-OAR-2002-0083-0952). In this memorandum, we estimate the remaining risk after implementation of potential control technologies and work practices along with the costs of these controls and work practices.

The EPA disagrees with the comments that the EPA failed to satisfy the CAA requirement to provide an ample margin of safety and only addressed whether cost-effective measures were identified for reducing HAP emissions. The EPA uses "a two-step standard-setting approach, with an analytical first step to determine an `acceptable risk' that considers all health information, including risk estimation uncertainty, and includes a presumptive limit on MIR of approximately 1-in-10 thousand," as stated in the Benzene NESHAP (54 FR 38045 (/citation/54-FR-38045)), followed by a second step to set a standard that provides an "ample margin of safety," in which the EPA considers whether the emissions standards provide an ample margin of safety to protect public health in consideration of all health information, including the number of persons at risk levels higher than, approximately, 1-in-1 million, as well as other relevant factors, including costs and economic impacts, technological feasibility, and other factors relevant to each particular decision.

As explained above, we determined, based on our risk analysis, the risks from the source category are acceptable and that no additional regulatory requirements are necessary to provide an ample margin of safety to protect public health.

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Regarding potential controls for point sources (described in section IV.A.1 of this preamble), we determined these controls would reduce risks, but were not cost effective. The calculated cost-effectiveness values were $940,000/lb, $23,000/lb, and $94 million/lb for HAP removed from BF (chromium VI), BOPF (arsenic), and sinter plants (dioxins/furans), respectively.

With regard to the UFIP and potential work practices, consistent with our explanation in the proposed rule (see 84 FR 42704 (/citation/84-FR-42704)), based on consideration of all our analyses and related information, including the risk results, costs, and uncertainties, we have determined that no additional standards are required under CAA section 112(f) and that the current NESHAP provides an ample margin of safety to protect public health. This decision is based largely on the substantial uncertainties in the estimates of the baseline HAP emissions from UFIP emission sources, costs of the work practices, HAP risk reductions that would be achieved by the work practices, and uncertainties raised by industry in their comments regarding potential effects of the work practices on the facilities' operations, safety, and economics.

Comment: One commenter stated the multipathway risk did not include UFIP sources. Since the EPA only considered UFIP emissions from the one facility, the commenter inquired about the population that resides in the area impacted by all four mills along a short 20 mile stretch of northwest Indiana. The commenter questioned whether the cumulative risk from inhalation from total point, and UFIP sources for people who live within the impacted areas from all of these mills together was addressed because it does not appear to have been assessed in this proposal. The commenter asserted the EPA has significantly underestimated the exposure for people who live near more than one of the four mills in an approximately 20-mile area of northwest Indiana. The commenter stated the EPA's risk model results, when UFIP emissions are included for the example facility alone, increase by an order of magnitude. The commenter asserted that by itself this should have made it imperative that the EPA consider UFIP sources as important as point sources in quantifying emissions and risks and considering control measures in the final rule.

Another commenter stated documents in the rule docket show serious, harmful, and major releases of pollution, demonstrated in photographs and in high opacity or visible smoke, and in inspections and communications with enforcement officials. The commenter asserted that this information shows the need for stronger standards under each provision of the CAA. The commenter concluded that by not including UFIP emissions in its multipathway assessment, the EPA has underestimated health risks and the already high health threats communities are facing. The commenter stated the EPA has recognized that its residual risk assessment fails to account for several types of pollution that the EPA calls UFIP emissions. The commenter stated the EPA is also refusing to complete a risk assessment for all sources, including the UFIP emission points, and this is unlawful. The commenter asserted the EPA needs to complete a new risk assessment study, where they include all of the risk factors, to protect the health of Americans that are living around these steel facilities.

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Response: The commenter is correct that the UFIP emissions were considered later in the process of developing the RTR and, therefore, were not included in the quantitative multipathway analysis. The EPA would not have been able to meet the RTR court-ordered deadline if the multipathway analysis was repeated to include UFIP emissions or if the risk assessment was repeated to include UFIP emissions from all facilities. However, we qualitatively considered the potential impact of UFIP emissions on the multipathway analysis and concluded that including UFIP emissions would not have affected the results or conclusions of the analysis. Specifically, the HAP driving the risks in the multipathway analysis were dioxins/furans from sinter plants (with a cancer risk estimate for the highest exposed individual of 40-in-1 million from the fisher scenario). In contrast, the UFIP HAP emissions are particulate HAP metals (such as arsenic) from the BF

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and BOPF related sources, and do not include dioxins/furans. The combined metal HAP from all point sources at the three facilities in the multipathway analysis showed a significantly lower risk (with a cancer risk estimate of 2-in-1 million from arsenic emissions from the gardener scenario) as compared to the risk estimated from dioxins/furans noted above. Therefore, even if we took estimated arsenic emissions from UFIP sources into account in the multipathway analysis, the multipathway risks from the gardener scenario would almost certainly remain lower than the dioxins/furans risk from the fisher scenario. Thus, we have no reason to believe that including arsenic emissions from UFIP sources in the multipathway analysis would alter our conclusion from the multipathway analysis.

Obtaining measurements of UFIP emissions via source testing to combine with the point source emissions was not possible due to the court-ordered deadline and, more importantly, because measurement of UFIP sources would be very difficult, if not impossible, for some sources. To balance the difficulty of obtaining reasonably accurate information on HAP emissions from UFIP sources with the importance of gaining some understanding of the potential risk from UFIP, we modeled a very large facility with the highest expected UFIP (and HAP) emissions, which is also close to a large urban area to estimate the potential upper-end risks due to such emissions. Using the example facility analysis was also a time-saving measure in lieu of estimating UFIP emissions for the entire industry via emission factors.

Comment: One commenter stated the EPA found that a list of effective controls, work practices, and monitoring methods for UFIP sources could achieve HAP reductions from the seven UFIP sources. The commenter stated the EPA's findings are extensive, and are noted as being available, with emissions "preventable," with many practices identified as "having no or minimal cost" (ample margin of safety memorandum at 7), and that some facilities are actually using currently. See, *e.g.*, Id. at 7-15. The commenter further stated the EPA found that the experience of its regional staff provided the reason for consideration of these controls. The commenter continued that the EPA recognized some iron and steel sources have had serious compliance problems in the past and highlighted some provisions, like stronger monitoring, that would reduce and prevent those problems. The commenter stated the EPA also provided photographs (at undisclosed locations) that show huge visual releases of HAP metals and other pollution into the air from bell leaks, beaching, and BF slips. The commenter noted that the care the EPA staff took to research, compile, and discuss the important pollution control methods is appreciated.

The commenter stated the Ferroalloys and Secondary Lead Smelting NESHAP each include a number of methods or variations on the methods described in the Integrated Iron and Steel Manufacturing Facilities RTR proposal to reduce metal HAP emissions from UFIP—such as requiring total or partial building enclosure with negative pressure. In addition, the commenter asserted the EPA has recognized the need to prohibit uncontrolled releases of HAP to the atmosphere from planned or unplanned openings at other kinds of facilities. For example, the commenter noted that the EPA, in a long list of CAA section 112 rulemakings in recent years, has repeatedly prohibited uncontrolled HAP releases that vented directly to the atmosphere rather than being routed to a control device.

The commenter stated the EPA ultimately proposes not to require any of the work practices, referring to "uncertainties regarding the effect the work practice standards would have on facility operations, economics, and safety." The commenter stated the EPA's own analyses and direct observations all support better characterizing UFIP emissions and implementing the basic cost-effective control measures and work practices the EPA has already explored to some extent. To not do so, the commenter asserted, would be to ignore the EPA's own analyses of the impacts to human health and the environment of the UFIP emissions from the mills in these highly affected areas, and miss the opportunity to implement easy cost and industry-

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friendly actions that would go far to reduce impacts to the nearby communities, land, and waterways. The commenter asserted the EPA may not lawfully or rationally refuse to set emission standards that reflect the emission reduction methods available.

Response: We agree with the commenter that work practices to reduce UFIP emissions are available. However, due to the substantial uncertainties regarding the emissions estimates, the uncertainties regarding the costs and effectiveness of the work practices, and potential negative effects of the work practices on facility operations, economics, and safety that were asserted by industry representatives (see below in their detailed comments), the EPA is not promulgating any work practice requirements for UFIP sources in this final rule at this time. Because we conducted a risk assessment for the largest facility in the source category to examine a worst-case scenario for UFIP sources in the industry (as described in detail in section IV.A of this preamble) and determined that risks posed by emissions from the source category were acceptable, and due to the uncertainties and other factors described above, we conclude that the NESHAP provides an amply margin of safety and additional standards, such as work practices described above, are not necessary. In addition, because of the same uncertainties and potential impacts described above for the UFIP sources and work practices, we also are not promulgating any work practice standards under CAA section 112(d)(6) for the two regulated UFIP sources in this action.

Comment: One commenter stated the EPA is right to conclude that additional control technologies, including wet ESPs for BF casthouses and BOPF shops and ACI systems for sinter plant windboxes would not provide cost-effective emissions reductions, given the extremely high costs associated with small incremental additional reductions of HAP.

The commenter asserted that the EPA's "very high" cost estimates are actually low, *i.e.*, underestimated, and that the removal rate estimates are high, *i.e.*, overestimated. The values that the EPA calculated are so clearly not cost effective, however, that further analysis of these costs and reduction levels is unnecessary to reject them under an ample margin of safety analysis. The EPA's proposed determination is, thus, well within the substantial discretion afforded to it under the Court's *Vinyl Chloride* decision and should be finalized.

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Response: We acknowledge the comments supporting the EPA's proposed determination that no new standards are required to provide an ample margin of safety to protect public health and that the costs of the control technologies evaluated and emission reductions estimated in the ample margin of safety analysis were not in the range generally determined to be cost effective by the EPA. The costs of additional controls are disproportionately high considering the reductions in risk that are achievable.

Comment: One commenter stated it is arbitrary for the EPA to find risk acceptable in view of additional evidence of uncertainty in the record. The EPA should find the current health risks to be unacceptable because of the omissions, underestimates, and uncertainties its own risk assessment contains. The EPA has failed to show, based on evidence in the record, that the risks are not significantly higher than the values it has presented. The EPA has failed to justify its acceptability determination when such major gaps are present.

Response: As stated in the proposal rulemaking, the estimated combined worst-case, upper-end risks (point and UFIP) are below the presumptive limit of acceptability of 100-in-1-million and the noncancer results indicate there is minimal likelihood of adverse noncancer health effects due to HAP emissions from this source category. As we explained in the proposal preamble, the EPA's risk results indicate that the inhalation cancer risks to the individual most exposed are less than 90-in-1 million, as a worst case, considering the

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highest allowable risk due to point sources among the industry facilities plus the conservative estimate of risk from UFIP emissions due, in part, to the use of the largest facility as the example facility. Furthermore, we conclude that by using the UFIP emissions estimate from the example facility plus the highest allowable point source risk to represent the worst case risk scenario for the industry mitigates any potential concerns regarding the lack of UFIP emissions estimates and associated UFIP associated risks for each individual facility. Furthermore, we did not receive any data or information through the public comment process that would change our proposed determination that risks are acceptable.

Comment: One commenter stated the EPA's ICR did not collect emissions data information on UFIP sources or all HAP emitted, controlled and uncontrolled. The EPA assessed additional particulate and metal HAP emissions from UFIP sources not addressed in the ICR through estimates based on "literature values for PM from these or other similar emission points and ratios of HAP to PM developed from the ICR data." The commenter also stated the EPA's "actual" analysis of risk is based on an emission inventory that is largely calculated from emission factors and engineering judgment. The commenter asserted that it is well-documented that emission factors underestimate emissions for a variety of reasons including inherent bias in the factors themselves and the inability to account for equipment malfunctions and environmental conditions. The commenter stated the EPA cannot rationally base emission estimates or risk assessments on data it has strong reason to doubt. The commenter stated the EPA must collect actual emissions data to support its emissions estimates. The commenter argues that, to the extent actual data is not collected, the Agency must adjust the emissions inventory using these same conclusions from the technology review and the large body of scientific evidence that show emissions factors underestimate emissions, in order to ensure that the inventory better represents reality and reflects actual emissions.

One commenter stated that the proposal's UFIP source analysis (*i.e.*, effort to quantify UFIP emissions) is based on no sampling or engineering analysis, but on very dated studies and emission factors that are poorly rated. While it is more difficult to characterize the emissions from UFIP sources, the commenter asserted that methods do exist that can help in properly characterizing UFIP emissions. The commenter stated these include grab sampling followed by HAP characterization, use of process knowledge, and engineering assessment/modeling. The commenter asserted that each of these methods could have been used by the EPA to better characterize potential HAP emissions from UFIP.

Response: The commenter is correct that EPA did not require HAP testing from these UFIP sources in the ICR in 2011. The EPA did not have a good understanding of the UFIP sources at the time of the ICR in 2011. Furthermore, it would have been quite difficult to reliably measure the UFIP emissions at that time due to the nature of such emissions and lack of test methods to reliably quantify emissions from these sources for use in the RTR. However, note that we did not use an inventory for any analyses in this RTR, for UFIP or otherwise.

The HAP to PM ratios that were used along with the estimates of PM emissions from UFIP to calculate HAP emissions estimates for UFIP sources for the risk assessment for this action were obtained from ICR source tests and are as good, in terms of quality and, therefore, accuracy, if not better than the grab samples that the commenter suggests because the ICR stack tests were performed continuously over a period of hours providing a composite profile of HAP emissions, whereas grab samples would have been instantaneous and only reflect a discrete moment in time. The EPA used all of the other methods recommended by the commenter to estimate emissions from UFIP sources, specifically: HAP characterization, use of process knowledge, and engineering assessment/modeling, as described in the technical memorandum titled

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Development of Emissions Estimates for Fugitive or Intermittent HAP Emission Sources for an Example Integrated Iron and Steel Facility for Input to the RTR Risk Assessment (Docket ID Item No. EPA-HQ-OAR-2002-0083-0956), hereafter called the "Example Facility" memorandum.

The emission factors used in the example facility analysis were, in most cases, from a number of test reports from various and different facilities that were evaluated and combined into one overall emission factor for each of the seven UFIP sources. Environmental conditions and malfunctions are not included in data used to develop EPA emission factors and the latter are never included in any part of an emission factor analysis. In addition, we have no evidence that based on current industry operation the EPA's emission factors are biased low, in general, *i.e.*, for typical or average conditions. Engineering judgment was used when portions of the emission estimates were missing and was conservative in nature. An analysis using limited ambient emission data previously obtained by the EPA in the vicinity of the example facility, included in the "Example Facility" memorandum (Section 7 and Appendix G), indicates the EPA's emissions estimates for UFIP at the example facility are plausible.

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4. WHAT IS THE RATIONALE FOR OUR FINAL APPROACH AND FINAL DECISIONS FOR THE RISK REVIEW?

Based on consideration of comments, and all of the health risk information, factors, results, and uncertainties discussed above and in the proposal (84 FR 42704 (/citation/84-FR-42704)), we conclude the risks due to HAP emissions from this source category acceptable. Furthermore, based on the analyses described in the proposal and elsewhere in this preamble, including the evaluation of potential controls and work practices to reduce emissions and risks, and the costs, effectiveness, and uncertainties of those controls and work practices, and after evaluating comments, we conclude the NESHAP provides an ample margin of safety to protect public health. Finally, based on our evaluation of environmental risks, we conclude that more stringent standards are not necessary to prevent an adverse environmental effect. Therefore, we are not promulgating any additional control requirements pursuant to CAA section 112(f)(2), but instead are readopting the existing standards.[5]

B. Technology Review for the Integrated Iron and Steel Manufacturing Facilities Source Category

1. WHAT DID WE PROPOSE PURSUANT TO CAA SECTION 112(D)(6) FOR THE INTEGRATED IRON AND STEEL MANUFACTURING FACILITIES SOURCE CATEGORY?

In the proposed technology review, we evaluated the cost effectiveness of upgrading fume/flame suppressants used for control of fugitive PM and HAP metal emissions from BF to use of baghouses as control devices. We also evaluated process modifications found in European literature to further reduce dioxins/furans emissions from sinter plants; these potential process controls for dioxins/furans emissions were in addition to the add-on control devices considered for sinter plants under the ample margin of safety analysis for point sources described above. The technology reviews for these two emissions sources were discussed in detail in the proposal (84 FR 42704 (/citation/84-FR-42704)) and the technical memorandum titled *Technology Review for the Integrated Iron and Steel NESHAP* (Docket ID Item No. EPA-HQ-OAR-2002-0083-0964).

In the proposed technology review, the EPA also evaluated potential work practices to reduce nonpoint source emissions from the BF casthouse and BOPF shop (84 FR 42704 (/citation/84-FR-42704)). However, the EPA did not propose any of these work practices primarily because there are significant uncertainties in the technical assessment of UFIP emissions that includes estimates of the baseline UFIP emissions, the estimated HAP reductions that would be achieved by the work practices, and the costs of the work practices.

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In addition, there also are uncertainties in the effect the work practices would have on facility operations, economics, and safety. Based on all our analyses and uncertainties described above, the EPA proposed to find that there are no developments in practices, processes, or control technologies that necessitate revising the standards for these two UFIP sources under CAA section 112(d)(6).

Considering all the information evaluated in our technology reviews for upgrading fume/flame suppressants control on BFs, sinter plant process modifications, and the potential work practices to reduce UFIP emissions from BF casthouse and BOP shop, we did not identify any developments in practices, processes, or technologies that warrant revision of the NESHAP for the currently regulated point or nonpoint sources under section 112(d)(6) of the CAA and, therefore, did not propose any changes to the NESHAP pursuant to section 112(d)(6) of the CAA.

A. UPGRADING FUME/FLAME SUPPRESSANTS AT BFS TO BAGHOUSES

Emissions from BFs are controlled in the integrated iron and steel industry in one of two fundamentally different ways: (1) Fume and flame suppression techniques or (2) conventional ventilation practices that route exhaust air to control devices such as baghouses. Fume suppression consists of blowing natural gas over the open equipment which retards vaporization and prevents emissions. With flame suppression, the natural gas is ignited with accompanying oxygen consumption that suppresses the formation of metal oxide emissions. The use of fume/flame suppressants for control of fugitive BF casthouse emissions is estimated to have 75-percent control, whereas control with baghouses is estimated to have 95-percent control.

There are a total of eight BFs with fume/flame suppressants distributed at four facilities among the 21 BFs total at 11 integrated iron and steel facilities. Per-unit capital costs for converting from fume/flame suppressant control to baghouses was estimated to be $18 million with $2.7 million in annual unit costs, where some facilities have two or three units. Total industry costs are estimated to be $140 million in capital costs and $22 million in annual costs. The estimated cost effectiveness of upgrading the fume/flame suppressant control to ventilation and baghouses at all eight BFs is $7 million/ton of metal HAP with 3 tpy of HAP removed, and $160,000/ton PM with 120 tpy of PM removed. We concluded these controls were not cost effective and, therefore, we did not propose to require baghouses to be installed on BFs as a result of the technology review.

B. PROCESS MODIFICATIONS TO CONTROL DIOXINS/FURANS AT SINTER PLANTS

There are three facilities in the Integrated Iron and Steel Manufacturing Facilities source category that have sinter plants. The sinter plants are currently regulated by PM and opacity limits on the windbox exhaust stream, sinter cooler, and discharge end of sinter plants. In addition, the sinter plant windbox is regulated for organic HAP with compliance demonstrated by either meeting a VOC limit or a limit on oil content of the sinter feed. Dioxins/furans are components of the organic HAP but because of their higher toxicity, they often are evaluated separately under control scenarios. Therefore, our technology review included exploration of potential control measures that could further reduce dioxins/furans from sinter plants.

For the proposal, we conducted a literature search and reviewed various technical publications (largely from Europe and other countries in the Stockholm Convention [6]) regarding potential control technologies and practices to reduce dioxins/furans from sinter plants and found a number of potential options that could potentially be applied at sinter plants in the U.S.[7 8 9] These options include urea injection to inhibit dioxins/furans formation; partial windbox exhaust gas recirculation; post-exhaust windbox chemical spray

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(monoethanolamine and triethanolamine dissolved in water and sprayed onto exhaust); and elimination of certain inputs (*e.g.*, no ESP dust). The European Union also included these measures in their 2013 Best Available Technology evaluation.[10]

As far as we knew at proposal, none of these technologies or practices were currently used at sinter plants in the U.S. However, based on the literature cited above, we believe some of these technologies or measures may be used to control dioxins/furans in other countries (such as in Europe and other countries complying with the Stockholm Convention).

We were not able to estimate the costs of these control methods due to lack of cost information in the literature, nor were we able to estimate the feasibility for U.S. facilities. Based on the analysis set forth in the proposal, we did not propose to require process modifications to control dioxins/furans at sinter plants as a result of the technology review.

C. WORK PRACTICES AS A POTENTIAL MEASURE TO REDUCE UFIP EMISSIONS FROM BF CASTHOUSES AND BOPF SHOPS

As described in the proposal, we evaluated potential work practices to reduce uncaptured fugitive emissions from BF casthouses and BOPF shops under our technology review. The estimated capital costs for work practices for these two nonpoint sources were $1.4 million and annualized costs were $1.7 million. We estimated these work practices would achieve about 173 tpy reduction in metal HAP, at an average combined cost effectiveness of $10,000 per ton.

After considering all the information and analyses, we proposed to find that there were no developments in practices, processes, or control technologies that necessitate revising the standards for these two UFIP sources under CAA section 112(d)(6). This decision was based largely on the considerable uncertainties in the technical assessment of UFIP emissions that includes estimates of the baseline UFIP emissions, the HAP emission reductions that would be achieved by the work practices, and the costs of the work practices. In addition, as indicated by the industry in their comments, there are also uncertainties with regard to the effect the work practices would have on facility operations, economics, and safety.

2. HOW DID THE TECHNOLOGY REVIEW CHANGE FOR THE INTEGRATED IRON AND STEEL MANUFACTURING FACILITIES SOURCE CATEGORY?

No changes were made to the technology review in the final rule from that proposed for the Integrated Iron and Steel Manufacturing Facilities source category (84 FR 42704 (/citation/84-FR-42704)).

3. WHAT KEY COMMENTS DID WE RECEIVE ON THE TECHNOLOGY REVIEW, AND WHAT ARE OUR RESPONSES?

This section provides a summary of key comments and responses regarding the technology review. Related comments and responses in regard to UFIP emissions are discussed in sections IV.A.3 and IV.F.3 of this preamble. A summary of all other public comments on the proposal and the EPA's responses to those comments is available in the *Summary of Public Comments and Responses for the Risk and Technology Review for Integrated Iron and Steel Manufacturing Facilities* (Docket ID No. EPA-HQ-OAR-2002-0083).

Comment: One commenter stated the record contradicts the EPA's conclusion of no developments for point sources. The evidence shows, "that there are many techniques to control dioxins/furans emissions from sinter plants," through process modifications controls such as windbox gas recirculation or chemical treatment of windbox exhaust, and these are in use at European facilities. Tech. Review Memo at 21. The commenter said that the EPA found chemical treatment could achieve 40- to 90-percent control and that the

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EPA concluded that the cost effectiveness and success of application of these techniques in the U.S. is not known. *Id.* at 19-20. The commenter stated that the EPA gave no justification for why the application should be different in the U.S., however, nor any evidence showing that these could not be applied or should not be applied in the U.S. The commenter also claimed that the European Union actually requires BAT for control of dioxins/furans emissions and stated that the EPA has no lawful or rational basis to refuse to revise the emission standards to "tak[e] into account" these techniques when they are plainly "developments" within the meaning of CAA section 112(d)(6). *Id.* at 20.

The commenter stated the EPA's claims about the cost effectiveness of ACI in the proposal were made in the context of its separate CAA section 112(f) analysis (84 FR at 42725) and that the EPA did not evaluate ACI in the context of its CAA section 112(d)(6) analysis. *Id.* at 42729. The commenter also claimed that the EPA's findings under CAA section 112(f)(2) cannot possibly satisfy the Agency's obligations under the separate and different requirements of CAA section 112(d)(6). Stating what the EPA believes ACI costs does not show that ACI is not cost effective and is irrelevant under CAA section 112(d)(6). Equally irrelevant is whether or not ACI would reduce health risks. The focus under CAA section 112(d)(6), is how much reduction is achievable and not the EPA's views about risk or the value of reducing it.

The commenter stated moreover, the Agency grossly underestimates this technology's cost effectiveness by considering it only for one HAP at a time, as if iron and steel sources would have to purchase and install ACI once to control dioxins/furans, and again to control other pollutants. 84 FR 42726 (/citation/84-FR-42726) (August 16, 2019). The commenter stated the EPA's irrational failure to recognize the actual benefits of ACI on multiple HAP is arbitrary and unlawful.

In addition, the commenter asserted that the Agency pretends that cost effectiveness must be measured in dollars per ton even for pollutants like mercury and dioxins/furans for which such a measure is "ridiculous." The commenter explained that dioxins/furans are measured in millionths of a gram, and they are toxic in the millionths of a gram. Further, the commenter elaborated that all the industries in the nation do not emit a single ton of dioxins/furans in a year. The commenter posited that giving the cost effectiveness for ACI in dollars per ton of dioxins/furans is meaningless and that by doing so the EPA is simply obscuring the facts by using absurdly irrelevant units to make ACI look as though it is not cost effective to support its rejection of an extremely effective and cost-effective technology.

The commenter stated failing to present all of the underlying information the EPA relied on for its CAA section 112(d)(6) determination—including, *e.g.*, the title V permits to which it refers—makes it impossible for the public and for a reviewing court to evaluate the EPA's conclusory determination that there are "no developments" requiring revision.

In contrast, a different commenter stated as part of the technology review, the EPA considered a number of process modifications to provide additional reductions of dioxins/furans emissions from sinter plants but appropriately chose not to propose to require them based on inadequate information. The commenter stated that the EPA reasonably determined not to focus on additional control technologies for sinter plants during the technology review, which are already subject to limits on organic HAP emissions (through either a VOC limit or an oil content limit for the sinter feed). Based on the incredibly high estimated cost-effectiveness numbers, the commenter stated that the EPA proposes that these additional control technologies would not be cost effective and proposes not to require them. Although the commenter stated that the EPA's cost estimates appear unrealistically low and the estimated emissions reductions too high, even with those flawed assumptions the commenter stated that the EPA calculated such staggeringly high cost-effectiveness values

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that further analysis is unnecessary to establish that these controls are not appropriate to impose pursuant to the technology review. The commenter stated the process modifications the EPA evaluated are not used at any facility in the Integrated Iron and Steel Manufacturing Facilities source category but, rather, were identified during the EPA's literature review from primarily European sources. Sinter plant emissions are already regulated by PM and opacity limits, as well as a VOC limit or limit on sinter feed oil content to regulate organic HAP emissions, including dioxins/furans. The commenter stated that the EPA nonetheless looked to identify the potential process changes in its literature review to yield further dioxins/furans emission reductions. The commenter stated that none of the process changes that the EPA identified warrant revision of the 40 CFR part 63, subpart FFFFF (https://www.ecfr.gov/current/title-40/part-63/subpart-FFFFF) standards for sinter plants. The industry reviewed the materials from the EPA's literature review described in the proposal; however, the commenter stated that the EPA did not provide adequate information to properly evaluate the potential effectiveness, costs, or other issues associated with the process changes discussed therein. Because there has not been a meaningful opportunity to review and comment on any potential requirement the EPA could impose on the basis of that insufficiently clear literature, the commenter stated that none should be adopted in the final rule.

Response: At proposal, we evaluated ACI as a means of reducing dioxins/furans emissions from sinter plants and used the information and data we collected to inform both our ample margin of safety analysis under CAA section 112(f) and our technology review under CAA section 112(d)(6). In addition, we investigated potential process modifications to reduce emissions for the sinter plants under CAA section 112(d)(6). None of the process technologies or practices identified to control dioxins/furans in European sinter plants are currently used at sinter plants in the U.S. Therefore, we were not able to estimate the costs of these control methods due to lack of cost information in the literature, nor were we able to determine the feasibility for U.S. facilities or whether the European facilities that are applying these process modifications are similar enough to U.S. facilities to enable adoption of the same control techniques. Considering all the information in our technology reviews, we did not identify any developments in practices, processes, or technologies that warrant revision of the NESHAP for sinter plants.

We agree with the first commenter that dioxins/furans are commonly expressed in grams. However, in the RTR proposal (84 FR 42704 (/citation/84-FR-42704)), we provided the emissions for dioxins/furans in measurement units typically used for most other HAP (*i.e.*, tons and lbs) for consistency purposes. Changing measurement units does not change the relative impact of this analysis compared to previous EPA analyses for dioxins/furans.

We agree with the first commenter that we did not specifically discuss ACI for dioxins/furans in the technology review sections of our RTR proposal preamble. However, in the memorandum titled *Technology Review for the Integrated Iron and Steel NESHAP* (Docket ID Item No. EPA-HQ-OAR-2002-0083-0964), we explained (on page 17 of 22) that although add-on controls are available, the focus for the technology review was on process modifications because add-on controls (*i.e.*, ACI) for dioxins/furans emissions were shown not to be cost effective at sinter plants at integrated iron and steel facilities in the ample margin of safety analysis. For details of this analysis, see the memorandum titled *Ample Margin of Safety Analysis for Point Sources in the Integrated Iron and Steel Industry* (Docket ID Item No. EPA-HQ-OAR-2002-0083-0952).

In terms of multiple pollutant control, for the purpose of this comment, because dioxins/furans are quite different than other HAP, we typically would not add together the mass of other individual HAP together with dioxins/furans to generate a cost effectiveness value for the sum of HAP, such as in units of dollars per

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ton of total HAP or lbs per ton of total HAP. Nevertheless, in response to the comment, we estimated the cost effectiveness to control VOC, such as benzene, toluene, ethyl benzene, and xylene (BTEX), and carbonyl sulfide (COS) with ACI. Using the same annual costs for ACI described for control of dioxins/furans (see 84 FR 42725 (/citation/84-FR-42725) (August 16, 2019) and also Docket ID Item No. EPA-HQ-OAR-2002-0083-0952), at $1,849,781 per year, and assuming 85-percent control of BTEX and COS with ACI (average of vendor estimate of 80 to 90 percent),[11] the estimated cost effectiveness for BTEX and COS co-control is approximately $14,000/ton, which is above the range that the EPA has typically considered cost effective for volatile HAP. Consequently, we continue to conclude that ACI is not cost effective for sinter plants, whether we consider ACI for only dioxins/furans controls or if we consider costs and cost effectiveness of the other HAP as well, and we are not promulgating any new or revised standards for sinter plants under the technology review pursuant to CAA section 112(d)(6).

We disagree with the comment that claims the EPA did not provide the underlying information the EPA relied on for its CAA section 112(d)(6) determination. The EPA provided all the relevant supporting information in the proposal preamble or technical memoranda, including the *Technology Review for the Integrated Iron and Steel NESHAP* (Docket ID Item No. EPA-HQ-OAR-2002-0083-0964) and *Ample Margin of Safety Analysis for Point Sources in the Integrated Iron and Steel Industry* (Docket ID Item No. EPA-HQ-OAR-2002-0083-0952). Regarding the title V permits, we made no reference to title V permits in this rule package or any of the supporting materials and technical memoranda; therefore, we cannot address the commenter's points on this issue.

Comment: One commenter stated the EPA cannot justify leaving other non-mercury emissions completely uncontrolled. Refusing to set limits on all uncontrolled pollutants that iron and steel sources emit is both unlawful and arbitrary. The commenter stated that the EPA's emission standards for iron and steel plants lack any limits at all for certain HAP, such as hydrochloric acid (HCl), hydrogen cyanide (HCN), and COS, either direct or through a surrogate. Specifically, the iron and steel plants emit 12 tpy HCl, 4 tpy HCN, and 72 tpy COS. Although the EPA has set certain requirements that purport to be limits on VOC, it has not set any limit for iron and steel plants' emissions of COS. Indeed, when the EPA promulgated the Integrated Iron and Steel Manufacturing Facilities standards, it did not even recognize that they emit COS. Instead, the EPA claimed that iron and steel plants emit only "trace amounts of other organic HAP (such as polycyclic organic matter, benzene, and carbon disulfide)." Moreover, the EPA claimed that these "trace" emissions come entirely from oil used in the sintering process, and its only limit on them is to "establish limits on the amount of organic HAP precursor material (specifically oil and grease) that may be in the sinter feed . . ." The commenter stated because the EPA does not claim that COS emissions either come from organic HAP precursor material in sinter feed or can be reduced by limits on such material, its current standards do not limit emissions of COS. In addition, the extremely dangerous neurotoxicant HCN appears not to be currently restricted at all.

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The commenter stated it is well-established that, under CAA section 112(d) of the CAA, the EPA's emission standards for a source category must include limits for each HAP that a source category emits. As the Court held in *National Lime Ass'n*, 233 F.3d 625, 634 (D.C. Cir. 2000), the Agency has a "clear statutory obligation to set emission standards for each listed HAP." In subsequent decisions, the Court has repeatedly confirmed that the EPA has this obligation, that it is unambiguous, and that the EPA's failure or refusal to set limits for each listed HAP that a category emits is flatly unlawful. See, *e.g.*, *Sierra Club* v. *EPA*, 479 F.3d 875, 883 (D.C. Cir. 2007). Despite the plain language of the CAA and the Court precedent, the existing standards do not currently contain any limit at all on certain HAP.

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The commenter stated that CAA section 112(d)(6) requires the EPA to review and revise "as necessary" the emission standards for integrated iron and steel facilities. This includes ensuring standards apply to all emitted HAPs and satisfying all currently applicable requirements. As part of its review rulemaking under CAA section 112(d)(6) of existing standards to determine whether it is "necessary" to revise the standards, EPA must ensure that standards for Iron & Steel facilities meet the requirements of CAA section 112(d), consistent with its responsibility under the CAA and applicable case law.

The commenter stated while the EPA has been ignoring its statutory obligations to control these sources' toxic pollution, people in communities near these sources suffer as a result of their exposure to uncontrolled HAP emissions. The commenter stated as communities currently have no protection at all from these emitted HAP, it is both unlawful and arbitrary for the EPA not to set a limit in this rulemaking. If it fails to do so, it will fail to complete the review and revision rulemaking as CAA section 122(d)(6) requires, will violate the Court's Order in *California Communities Against Toxics* v. *Pruitt*, 241 F. Supp. 3d 199 (D.D.C. 2017), and will also issue a final rule that is unlawful and inadequate.

Response: Section 112(d)(6) of the CAA requires the EPA to review and revise, as necessary (taking into account developments in practices, processes, and control technologies), emission standards promulgated under this section. We do not agree with the commenter's assertion that the EPA must establish new standards for unregulated emission points or pollutants as part of a technology review of the existing standards.[12] The EPA reads CAA section 112(d)(6) as a limited provision requiring the Agency to, at least every 8 years, review the emission standards already promulgated in the NESHAP and to revise those standards as necessary taking into account developments in practices, processes, and control technologies. Nothing in CAA section 112(d)(6) directs the Agency, as part of or in conjunction with the mandatory 8-year technology review, to develop new emission standards to address HAP or emission points for which standards were not previously promulgated. As shown by the statutory text and the structure of CAA section 112, CAA section 112(d)(6) does not impose upon the Agency any obligation to promulgate emission standards for previously unregulated emissions. Establishing emissions standards for unregulated emission points or pollutants involves a different analytical approach from reviewing emissions standards under CAA section 112(d)(6).

Though the EPA has discretion to develop standards under CAA section 112(d)(2) through (4) and CAA section 112(h) for previously unregulated pollutants at the same time as the Agency completes the CAA section 112(d)(6) review, any such action is not part of the CAA section 112(d)(6) review, and there is no obligation to undertake such actions at the same time as the CAA section 112(d)(6) review.[12] In the case of mercury, as described in sections III.C and IV.C of this preamble, the EPA has decided to promulgate new standards pursuant to CAA section 112(d)(2) and (3) to address an outstanding petition for reconsideration. However, the EPA is not establishing new standards for the other HAP described above (*i.e.*, HCl, HCN, and COS) as part of this rulemaking, partly due to the fact that the EPA has insufficient time to gather the information to complete the necessary analyses and review in order to develop such additional standards before the court-ordered deadline of May 5, 2020. Nevertheless, the Agency may address these additional HAP in a future action.

4. WHAT IS THE RATIONALE FOR OUR FINAL APPROACH FOR THE TECHNOLOGY REVIEW?

Our technology review focused on the identification and evaluation of developments in practices, processes, and control technologies that have occurred since the MACT standards were promulgated. Where we identified such developments, we analyzed their technical feasibility, estimated costs, energy implications,

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and non-air environmental impacts. We also considered the emission reductions associated with applying each development. This analysis informed our decision of whether it is "necessary" to revise the emissions standards.

For the reasons explained in the proposed rule (84 FR 42704 (/citation/84-FR-42704)) and in this final rule preamble (section IV.B), we determined that there are no developments in practices, processes, or control technologies that warrant revisions to the standards. We evaluated all of the comments on the EPA's technology review and we determined no changes to the review are needed. Consequently, the EPA is not promulgating any new or revised standards in this action for the Integrated Iron and Steel NESHAP under CAA section 112 (d)(6) of the CAA.[12] More information concerning our technology review is in the memorandum titled *Technology Review for the Integrated Iron and Steel* ▯ *NESHAP* (Docket ID Item No. EPA-HQ-OAR-2002-0083-0964).

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C. Mercury Emission Limits

1. WHAT DID WE PROPOSE FOR MERCURY EMISSIONS FOR THE INTEGRATED IRON AND STEEL MANUFACTURING FACILITIES SOURCE CATEGORY?

On August 16, 2019, the EPA proposed emissions standards for mercury for the Integrated Iron and Steel Manufacturing Facilities source category pursuant to CAA section 112(d)(3) in part to address a petition for reconsideration received by the EPA in 2004 from the Sierra Club. The proposed MACT floor limit was 0.00026 lbs of mercury per ton of scrap processed as an input-based limit for all existing BOPFs and related units at existing integrated iron and steel facilities. We proposed two options to demonstrate compliance with the input-based limit of 0.00026 lbs of mercury per ton of scrap processed for existing facilities. These options were: (1) Conduct an annual performance test at all BOPF-related units and convert the sum of the results to input-based units (*i.e.*, lbs of mercury per ton of scrap input) and document the results in a test report that can be submitted electronically to the delegated authority with the results (see section IV.E below); or (2) certify that the facility obtains all of their scrap from NVMSRP participants (or similar program as approved by the delegated authority), or establish that their scrap is not likely to contain mercury switches. We proposed that existing sources would be required to comply with these requirements within 1 year of promulgation of the final rule. We also proposed that for facilities demonstrating compliance with the mercury limits through performance testing, subsequent performance testing would be required annually. In addition, we proposed that facilities demonstrating compliance through the scrap selection options, would be required to report their status with the appropriate required information in their semiannual compliance reports beginning 1 year after promulgation of final rule.

For new sources, we proposed a MACT limit of 0.00008 lbs of mercury per ton of scrap processed as an input-based limit for any new BOPF and related units, and new integrated iron and steel facility, pursuant to the CAA section 112(d)(3) requirements for new sources that the standard for new sources shall not be less stringent than the emission control that is achieved in practice by the best controlled similar source. With regard to compliance, the EPA proposed that new sources would have the same options to demonstrate compliance as the existing sources. A new BOPF and new integrated iron and steel facility was defined, with respect to the mercury standard, to be any BOPF or facility constructed or reconstructed on or after August 16, 2019.

2. HOW DID THE MERCURY EMISSIONS STANDARDS CHANGE FOR THE INTEGRATED IRON AND STEEL MANUFACTURING FACILITIES SOURCE CATEGORY?

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For the final rule, in response to comments, we changed the mercury testing frequency after the initial performance test to twice per permit cycle, *i.e.*, every 2.5 years in a 5-year title V permit cycle or every 2.5 years for facilities without a permit (where the initial performance test is performed within 1 year from the effective date of the rule); changed definitions for motor vehicle scrap; changed 40 CFR 63.7825 (https://www.ecfr.gov/current/title-40/section-63.7825) Equation 1 to reflect the correct calculation for mass emissions; and changed minor aspects of provisions that allow sources to demonstrate compliance through participation in the NVMSRP and other provisions related to compliance with the mercury limits. These changes are described in sections III.C, IV.C.4, and IV.C.5 of this preamble.

3. WHAT KEY COMMENTS DID WE RECEIVE ON THE MERCURY EMISSIONS STANDARDS, AND WHAT ARE OUR RESPONSES?

This section provides a summary of key comments and responses regarding the mercury standard. A summary of all other public comments on the proposal and the EPA's responses to those comments is available in the *Summary of Public Comments and Responses for the Risk and Technology Review for Integrated Iron and Steel Manufacturing Facilities* (Docket ID No. EPA-HQ-OAR-2002-0083).

Comment: One commenter stated the EPA has appropriately proposed a measure to reduce mercury emissions, which the emission standards currently do not control, by (proposing to) set standards for the first time pursuant to CAA sections 112(d)(2) and (3). (84 FR 42730 (/citation/84-FR-42730)). The commenter urged the EPA to finalize this measure, but also asserted that it does not satisfy CAA section 112(d)(6). The commenter added, as the EPA acknowledges, the EPA also has a pending petition for reconsideration asking the EPA to set mercury limits. (*Id.* at 42,731). The EPA granted the petition on the issue of the mercury limits. The commenter opined that the EPA should not have waited 15 years to propose measures to reduce iron and steel plants' mercury emissions, and its current proposal falls short of the CAA's requirements. (*Id.*).

The commenter stated the EPA's proposed practices for the removal of mercury switches from the scrap metal used by iron and steel plants are not numeric emission limits. At best, the commenter stated, they constitute a work practice requirement the EPA has not even claimed, let alone shown, as it must under CAA section 112(h), that the statutory preconditions for setting work practice requirements instead of numeric emission limits have been satisfied. For this reason alone, the commenter asserted that the EPA's proposed mercury requirements are unlawful and arbitrary.

The commenter asserted that the limits fail to satisfy the stringency requirements under CAA sections 112(d)(2) and (3). Specifically, the commenter argues that the EPA has not demonstrated with substantial evidence, as it must, that these requirements reflect the mercury emissions levels actually achieved by the plants that are best-performing with respect to mercury and contravene CAA section 112(d)(3). Further, the commenter stated that the EPA has neither claimed nor demonstrated that its mercury requirements require the "maximum" degree of reduction in mercury emissions that is "achievable" through the full range of reduction measures enumerated in CAA section 112(d)(2) and, therefore, this violates CAA section 112(d)(2).

The commenter affirmed that the mercury switch requirements the EPA has proposed should be included in the Agency's final mercury emission limits. The commenter acknowledged that the EPA has the authority to set limits for mercury that reflect, among other things, the application of operational measures, such as the proposed mercury switch requirements. However, they questioned whether such measures are sufficient and asserted that, if not, the EPA must set numeric limits for mercury that satisfy the stringency requirements in CAA sections 112(d)(2) and (3).

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The commenter stated that the proposed limits for mercury are unlawfully and arbitrarily weak, because they simply codify what the majority of sources are already doing—instead of ensuring the "maximum achievable degree of emission reduction." (42 U.S.C. 7412(d)(2) (https://www.govinfo.gov/link/uscode/42/7412) and (3) (https://www.govinfo.gov/link/uscode/42/7412); see 84 FR 42730-32 (/citation/84-FR-42730), August 16, 2019). The commenter stated that the EPA does not claim that this satisfies CAA sections 112(d)(2) and (3), or determine that numerical emission limits are not feasible.

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Response: We acknowledge the support for our proposal to set mercury standards. This is the first time the EPA is promulgating a mercury emissions standard for this source category. Therefore, CAA section 112(d)(6) does not apply. Section 112(d)(6) of the CAA only applies to existing standards and requires that the EPA review existing standards within 8 years, and revise them as necessary, taking into account developments in practices, processes, or technologies.[12]

Pursuant to CAA sections 112(d)(2) and (3), and based on data from all facilities, we proposed MACT floor limits for new and existing sources in terms of lbs of mercury per ton of scrap processed as an input-based limit for all BOPFs and related units (HMTDS and ladles) at integrated iron and steel facilities. These limits, which are in units of mass of mercury emissions from all BOPFs and related units at each facility (hereafter called the "BOPF Group"[13]) per mass of scrap processed by each facility in their BOPFs, were derived using performance test data and data on amount of metal scrap processed obtained through an ICR sent to the industry in 2011, and are based in part on the assumption that the mass of mercury emitted from all BOPFs and related units is equivalent to the mass of mercury in the scrap input. Mercury is neither created nor destroyed in the BOPF and, based on our understanding of the steelmaking process, the primary source of mercury emissions is mercury contained in the scrap feedstock. Thus, the EPA determined it was reasonable to set a standard that limits the amount of mercury that may be emitted per ton of scrap processed.

Because we collected test data from BOPF Groups at all facilities in the industry, we necessarily collected test data from the best performing sources. We then used the test data to develop mercury-to-scrap input ratios for the facilities' BOPF Groups and used the best performing five facilities out of all 11 integrated iron and steel facilities in the source category to develop the data set to derive the input-based MACT floor for existing sources for mercury, pursuant to CAA section 112(d)(3). For new sources, we established a standard no less stringent than the emission control achieved in practice by the best controlled source, as determined by the Administrator, pursuant to CAA section 112(d)(3).

Once we established the MACT floor data set, we then determined an upper prediction limit (UPL)[14] to develop the mercury MACT standard that incorporates the potential variability in future measurements. The EPA's MACT analyses use the UPL approach to identify the average emission limitation achieved by the best performing sources to determine the MACT level of performance, or MACT emission limit, as described in the EPA memorandum titled *Mercury Emissions, Controls, and Costs at Integrated Iron and Steel Facilities* (Docket ID Item No. EPA-HQ-OAR-2002-0083-0958). The EPA uses this approach because it incorporates the average performance of the best performing sources as well as the variability of the performance during testing conditions. The UPL estimates what the upper bound of future values will be based upon present or past background data. The UPL approach encompasses all the data point-to-data point variability in the collected data, as derived from the dataset to which it is applied. We then took the mercury mass-to-scrap input ratio from the lowest-emitting facility in regard to mercury and used this value to establish the new source standard, after applying the same UPL procedure. Details of this procedure also are described in the technical memorandum cited above.

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After calculating the MACT floor, the EPA evaluated and considered a beyond-the-floor option pursuant to CAA section 112(d)(2) based on ACI. However, for the reasons explained in the proposal preamble, including the relatively high capital and annualized cost of ACI with baghouses, and poor cost effectiveness, the EPA did not propose a beyond-the-floor option and instead proposed the MACT floor emission limits for new and existing sources as described above in this preamble. Additional details of the development of the proposed mercury emission limits and beyond-the-floor analyses are available in the proposed rule preamble and technical document titled *Mercury Emissions, Controls, and Costs at Integrated Iron and Steel Facilities* (Docket ID Item No. EPA-HQ-OAR-2002-0083-0958).

With regard to compliance with the proposed mercury emission limits, we proposed that facilities would have two options to demonstrate compliance with the proposed input-based MACT emission limit: (1) Conduct a performance test annually at all BOPF-related units and convert the sum of the results to input-based units (*i.e.*, lbs of mercury per ton of scrap input) and document the results in a test report that can be submitted electronically to the delegated authority with the results; or (2) certify that the facility obtains all of their scrap from NVMSRP participants (or similar program as approved by the delegated authority), or establish that the facility's scrap is not likely to contain mercury switches.

In the proposal preamble (84 FR 42704 (/citation/84-FR-42704)), we explained that although we did not know exactly what type of scrap was used when the integrated iron and steel facilities performed the ICR testing for mercury, we assumed the scrap was either NVMSRP scrap or scrap with higher amounts of mercury per ton of scrap than NVMSRP scrap. In response to the proposal, industry (AISI and one facility, U.S. Steel) submitted comments [15] stating that the performance tests conducted to establish the MACT floor limits and, thus, the MACT for mercury in the proposal were based on facilities participating in the NVMSRP. We expect NVMSRP scrap in the future will contain similar levels of mercury or, more likely, less mercury than the scrap used to develop the MACT floor limits because the amount of mercury in scrap is declining overall due to the ban on the use of mercury in switches in U.S. automobiles after 2002, the expected continual retirement of older vehicles, and success of the NVMSRP. Based on the EPA's understanding of the NVMSRP and the commitments made by the parties in the memoranda of understanding, the NVMSRP scrap constitutes some of the cleanest, if not the cleanest, scrap available in terms of mercury content. Therefore, if a facility chooses to comply with the mercury emission limit by certifying that all their scrap is from NVMSRP participants (or a similarly-approved program) or establishes that their scrap does not contain mercury switches, it is also reasonable to conclude that the amount of mercury left in the scrap due to the removal of mercury switches by the NVMSRP achieves at least the same level of mercury reduction or likely better reduction compared to the numeric MACT floor limits.

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By finalizing this emissions standard for mercury and two options to demonstrate compliance, the EPA has fulfilled its legal obligations under CAA sections 112 (d)(2) and (d)(3).

Comment: One commenter supported the EPA's proposal to continue to rely on the NVMSRP as an effective and efficient means of reducing mercury emissions in the steel industry. The commenter stated mercury is not an ingredient in steel, nor is it intentionally added in the steelmaking process; however, mercury is a contaminant sometimes present in scrap metal feedstock. The commenter acknowledges that the EPA correctly stated in the proposal that the primary source of mercury contamination in scrap metal is mercury-containing convenience switches that were used in automobiles until their use was phased out in model year 2002.

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The commenter stated the NVMSRP has been a component of the NESHAP for Area Source Electric Arc Furnaces (EAF) Steelmaking Facilities in 40 CFR part 63, subpart YYYYY (https://www.ecfr.gov/current/title-40/part-63/subpart-YYYYY) ("subpart YYYYY") for over a decade. As evidenced by the EPA's own data, the commenter noted that the program has been highly effective in removing mercury from scrap feedstock and reducing mercury emissions from EAF mills. The commenter stated as EAF steel production uses a feedstock of nearly 100-percent steel scrap, Steel Manufacturers Association and its members have gone to great lengths to prevent mercury switches and other sources of mercury contamination from entering the scrap metal recycling stream. Foremost among those efforts, the commenter stated, is the development of the NVMSRP in 2006. Since that time, the commenter noted that the NVMSRP and its participants have removed and safely diverted from the scrap supply and environment over seven million mercury convenience light switches containing nearly 7.8 tons of mercury. By removing these switches from scrap feedstock, the commenter stated, the steel industry prevented that mercury from being charged into its furnaces and released into the atmosphere.

The commenter agreed with the EPA that the amount of mercury emitted from steel manufacturers using scrap metal as feedstock has declined significantly due to the elimination of mercury-containing switches in cars in 2002 and the steel industry's efforts through the NVMSRP to ensure that those remaining mercury switches are not charged into steelmaking furnaces. Critically, the commenter stated, the removal of mercury from convenience switches in cars is only one part—albeit, an important part—of a larger trend toward removing mercury from products. The commenter stated that all available data show the downward trend in mercury emissions is continuing and will continue until there are so few remaining pre-2003 vehicles reaching the end of their useful lives that mercury emissions will cease to be an issue for the steel manufacturing industry.

The commenter stated that the facilities in the Integrated Iron and Steel Manufacturing Facilities source category that use automotive shredded scrap inputs obtain automotive shredded scrap solely from suppliers participating in the NVMSRP.[15] Furthermore, the commenter stated, the performance tests conducted to establish the MACT floor limits and, thus, the MACT limits for mercury in this rule were based on these very facilities participating in the program. The commenter stated the NVMSRP seeks to ensure that mercury switches are removed from scrap used in integrated iron and steel and other industries' production processes; this approach allows for responsible recycling of vehicles while minimizing the likelihood of mercury emissions from companies using this scrap to make new products. Based on this, the commenter asserted the EPA has appropriately proposed to account for the NVMSRP.

Response: We agree with the commenter that mercury is not intentionally added to the steelmaking process, that the NVMSRP works to remove mercury from the scrap supply, and that the level of mercury in steel scrap should continue to decline in the future because, based on available information and our analyses, the overwhelming majority of the mercury originates from mercury-containing convenience switches that were used in automobiles until their use was banned in the U.S. after model year 2002.

Comment: One commenter stated that because mercury emissions from scrap consuming facilities are caused by contamination in the scrap feedstock, mercury emissions are necessarily random and episodic. The commenter stated the intermittence of these emissions—and the widespread reduction in sources of mercury contamination—strongly weigh against the imposition of specific numerical limits. The commenter recognized that the EPA believes the Agency is legally compelled to promulgate numerical mercury limits, and the commenter takes no position on whether the Agency is compelled to do so in this rulemaking. The

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commenter viewed these limits as inappropriate given the nature of mercury emissions in scrap-consuming facilities. The commenter asserted the NVMSRP remains a highly protective and effective surrogate for numerical limits and recommended that the EPA continue to rely on it as such.

Response: As explained above, the EPA has decided to promulgate a mercury emission limit for the BOPF and related processes pursuant to section 112(d) of the CAA in part, to address a 2004 petition for reconsideration. The steel-making units, although by definition a batch process, operate on a cycle where one batch starts as soon as the previous one ends so that the furnace remains operating almost all the time (except for occasional maintenance or repair activities) to prevent cooling and the need to reheat. Three test runs are required for a performance test. The steelmaking process cycle, although a batch process, is sufficiently long enough to allow at least one test run in each cycle. Because the scrap content and amount of mercury in each batch may change from batch to batch, using an average of three runs to develop the standard that the facilities will use to determine compliance (or for any other testing purpose) contributes to the accuracy of the data and, therefore, is to the benefit of both steel facilities as well as the EPA. The final three-run test average, then, is considered representative of typical operations and not just one "batch." Therefore, the EPA determined it was feasible and reasonable to develop a numerical emission limit based on the data we had. However, as explained above, the EPA is including two options to demonstrate compliance: (1) Conduct performance testing; or (2) certify scrap is obtained from suppliers who participate in the NVMSRP or similar program, or is free of mercury switches. With this final rule, the EPA has fulfilled its legal obligations under CAA sections 112(d)(2) and (3) to set emission standards for mercury.

Comment: The commenter stated that the use of a 99-percent UPL to develop the MACT floor for mercury is appropriate and consistent with the EPA's approach in other rulemakings. The commenter stated the ability of the UPL, however, to properly account for variability here is in question, given that 80 percent of the sampling results included at least one mass fraction below the detection limit (non-detect), and 8 percent of total runs included all □ non-detect values. In sum, the commenter stated only 12 percent of runs included all detected results, severely limiting the above-detection-limit dataset on which the UPL calculation was based.

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Response: In the procedure the EPA uses to develop the MACT standards, the calculated UPL is compared to three times the HAP and method-specific "representative detection level" (RDL) developed by the EPA, and the higher value of the two (UPL v. 3xRDL) is used as the MACT standard. This step ensures that the final MACT floor values will be a measurable above-detection-limit value. (See Westlin and Merrill, 2011[14]). When multiplying RDL by a factor of 3, the measurement imprecision is decreased to around 10 to 15 percent. Using the larger value for the MACT standard ensures that measurement variability is adequately addressed.

In regard to the number of below detection limit (BDL) values, see the procedure from the EPA memorandum titled *Determination of "Non-Detect" from EPA Method 29 (Multi-Metals) and EPA Method 23 (Dioxin/Furan) Test Data When Evaluating the Setting of MACT Floors Versus Establishing Work Practice Standards* (S. Johnson, U.S. EPA, June 5, 2014) located in the docket to this final rule. In the memorandum (page 8, item 3), there is a discussion of a procedure for data classification for mercury and nonmercury metals obtained via EPA Method 29. According to the procedure: "Where test results for any single analyte are detection level limited (DLL) or above detection limit (ADL), we assume detection (*i.e.,* ADL) for that test run data for that specific analyte." Therefore, the integrated iron and steel mercury data classified as DLL, at 80 percent, are considered ADL and consequently, the number of runs considered ADL is 92 percent, a clear majority of the data set. See summary table of the MACT floor run data below.

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Table 4—Integrated Iron and Steel Source Mercury MACT Floor Run Data Classifications

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Source	Data	Number of runs				Percentage of total runs		
		BDL	DLL	ADL	Total	BDL	DLL	ADL
BOPF Group	Before reclassification [1]	7	73	11	91	8	80	12
	After reclassification [2]	7	0	84	91	8	0	92

R006796

Source	Data	Number of runs				Percentage of total runs		
		BDL	DLL	ADL	Total	BDL	DLL	ADL

[1] *From the memorandum titled Mercury Emissions, Controls, and Costs at Integrated Iron and Steel Facilities (Docket ID Item No. EPA-HQ-OAR-2002-0083-0958).*

[4] *As per the procedures described in the memorandum titled Determination of "Non-Detect" from EPA Method 29 (Multi-Metals) and EPA Method 23 (Dioxin/Furan) Test Data When Evaluating the Setting of MACT Floors Versus Establishing Work Practice Standards. S. Johnson, U.S. EPA, Research Triangle Park, North Carolina. June 5, 2014.*

R006797

Comment: A commenter stated the EPA's equating of hourly mercury test results with annual mercury rates and use of annual scrap usage to determine lbs of mercury per ton of scrap value is problematic for several reasons. The commenter stated that hourly mercury tests only account for the amount of mercury in the scrap at the time of the test and are not normalized for fluctuations in the short-term scrap usage rates, short-term scrap/iron ratios, or scrap and lime mercury concentration. The commenter asserted the differences in the mercury emissions rates between facilities and their respective operations are not appropriately accounted for in the EPA's calculations, based on the amount of scrap and mercury concentration in the scrap during the time of the test, which could add variability not properly factored into the EPA's calculations. The commenter stated it is inappropriate to assume that the type of scrap, scrap usage, and scrap-to-molten iron ratio at the time of the test were indicative of the long-term averages. Thus, the commenter stated, this critical element of the proposal's analysis is unjustified and cannot support standard-setting. In addition, the commenter stated that although the proposed standards in 40 CFR part 63, subpart FFFFF (https://www.ecfr.gov/current/title-40/part-63/subpart-FFFFF), Table 1 are intended to be set at the CAA section 112(d) floor level, they fail to account for the degree of variability present in steelmaking inputs and, thus, go beyond the floor without proper justification.

The commenter also stated the EPA's annualized approach (lbs/yr mercury ÷ ton scrap/yr) resulted in the skewness and kurtosis data analyses being represented as a lognormal distribution, whereas the output-based steel production approach (that accounts for short-term production rates) is skewed non-normal distribution, according to the prescribed MACT floor methodology. The commenter stated that since the mercury emissions data sets are the same between the two input- and output-based approaches, one could properly conclude that the annualized approach is not adequately accounting for the short-term production rate variability and, thus, it may be comparatively less representative of actual variability in mercury emissions during operations.

The commenter stated the EPA's analysis appears not to have accounted properly for the scrap mercury content variability and, thus, does not adequately apply the UPL concept of ensuring that sources controlled to the level of the best performing five sources would achieve the limit 99 percent of the time. The commenter stated that, as proposed, the UPL calculation does account for some degree of variability. However, the commenter stated the EPA needs to revisit the associated MACT floor calculations to better represent the variability among individual loads of scrap in terms of the variability in mercury content and the associated long-term emission performance in assessing the emission limit that is achieved by the top five performing sources or UPL.

The commenter asserted that the EPA should calculate the variability using all viable mercury emissions stack testing results in the UPL analysis and then apply that variability factor to the five best performing sources. Particularly when there is a small dataset for which the raw material content is indicative of emissions, the commenter asserted that the EPA needs to determine the variability that can reasonably be expected from the top performers. Given that the facilities in question were all accepting scrap from suppliers in the NVMSRP, the commenter said the variability in scrap obtained from such suppliers is reflected in all of the test results, not just the top five performers.

The commenter noted that in the NESHAP for the EAF source, which used similar scrap inputs as the Integrated Iron and Steel Manufacturing Facilities source category but at much greater volumes and proportions, the EPA recognized that an additional scrap variability factor would be needed to account for variation in mercury emissions if an emission limit was to be developed. Therefore, the commenter stated, although the EPA did not ultimately establish a numeric mercury emission limit, working documents from

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development of the EAF rule show a "scrap (mercury) variability" factor was applied in an attempt to develop a mercury limit. The commenter stated that the EPA cited the variability of mercury in scrap metal as the reason why performance test averages varied by over 2 orders of magnitude at a single EAF plant. (72 FR 53817 (/citation/72-FR-53817)). The commenter stated that if the EPA decides to proceed, it needs to seek additional data regarding scrap mercury content and variability similar to the approach the EPA considered with the EAF NESHAP so that the UPL can account for that variability using standard and accepted methods.

The commenter stated rather than the approach the EPA took in the proposal of calculating the mercury per ton of scrap values by using a source's annual total scrap input tonnage, the EPA should refine its approach by comparing the scrap tonnage used in the individual heats when the ICR stack test results were obtained. Moreover, the commenter stated the EPA should look not only at the total scrap used for those heats, but also to the extent possible based on available records, the proportion of automotive shredded scrap used in those heats. The commenter stated this approach would be far more accurate than the one reflected in the proposal, which fails to account for any relation between the stack test data and the scrap used at the time those results were obtained. The commenter stated that failure to take this critical factor into account renders the standard not rationally related to the performance of the top performing sources and, thus, arbitrary and capricious.

Response: Because scrap varied from unit to unit and facility to facility, the variability in the scrap was already accounted for in the data used to develop the MACT floor. We used data for the mercury content of scrap from all units in the BOPF Group [13] at the top five best performing facilities from five locations in three states that stretched from Chicago, Illinois, to Pittsburgh, Pennsylvania. Over 100 runs of data were used to develop the facility lbs mercury/ton steel scrap values used to calculate the UPL. The variability in the scrap in the over 100 runs was almost certainly captured by the UPL calculation for the MACT floor.

In addition, the procedure the EPA uses to develop the MACT standards allows for variability in future emission measurements. To determine the MACT standard, an initially calculated UPL is compared to 3 times the HAP- and method-specific representative detection level (RDL) developed by the EPA, and the higher value is used as the MACT standard. This step ensures that the final MACT floor values will be measurable ADL values. (See Westlin and Merrill, 2011.[14])

As explained at the following website, a lognormal distribution is a type of skewed distribution (see *https://www.statisticshowto.datasciencecentral.com/lognormal-distribution/ (https://www.statisticshowto.datasciencecentral.com/lognormal-distribution/);;; https://www.investopedia.com/terms/s/skewness.asp (https://www.investopedia.com/terms/s/skewness.asp)*). A lognormal distribution leans toward the right because all values are above zero, by definition of a log. "Skew" refers to distortion or asymmetry as compared to a symmetrical bell curve, or normal distribution, in a set of data. If the curve leans towards the left or to the right, it is said to be skewed. Skewness can be quantified as a representation of the extent to which a given distribution varies from a normal distribution. A normal distribution has a skew of zero, while a lognormal distribution has some degree of right-skew. Both the input- and output-based approaches to calculate a mercury MACT limit are skewed because they are both lognormally distributed.

With regard to the mercury MACT calculations, when data from the same facilities were compared, the variability of the lbs mercury/ton scrap input dataset had more variability than the lbs mercury/ton steel output variability. Consequently, more variability is incorporated into the UPL calculation for the input-based standard than for an output-based.

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Not every facility reported run-by-run scrap tonnage values to the EPA in the ICR, whereas every facility reported an annual scrap tonnage value. In addition, almost all facilities did not report percent automotive scrap use during testing or annually. Most facilities left this ICR answer field blank, said it was confidential, or was unknown. Therefore, the annual approach was the only option available to the EPA based on the data provided to the EPA by the integrated iron and steel facilities.

Comment: One commenter stated although the EPA's MACT floor calculation includes a mass concentration value for mercury content in lime, as is discussed in an attached engineering report providing independent evaluation by Barr Engineering Co. commissioned by AISI/U.S. Steel, the MACT floor calculation fails to account for potential mercury variability in lime inputs as the EPA has appropriately done in other contexts. The commenter stated this approach fails to account for variability in a manner that is appropriate for the source category.

Response: We agree with the commenter's Barr evaluation that some mercury emissions can be attributed to the other inputs to the BOPF, which include lime. However, the stack performance test data the EPA collected through the 2011 ICR would account for the lime portion of the mercury emissions and include some of the variability in emissions as well. Variability is accounted for both by the number and length of the source test runs and the fact that multiple sources were tested. Our MACT floor calculation relied on this data and, thus, accounted for variability in lime inputs. At this time, we do not have additional data regarding variability in lime inputs. The Barr evaluation cites the Portland Cement UPL calculation as an example of the EPA accounting for mercury variability in lime inputs in the UPL MACT floor calculation. The commenter pointed to the "Intra-quarry Variability Estimate for Mercury" memorandum for the Portland Cement NESHAP (40 CFR part 63, subpart LLL (https://www.ecfr.gov/current/title-40/part-63/subpart-LLL)) memorandum (Docket ID item No. EPA-HQ-OAR-2002-0051-3323), and stated that, in that rulemaking, the EPA had 30 daily mercury concentrations, parts per million (ppm) in limestone by quarry values for three kilns that were in the MACT floor pool or used the same quarry as MACT floor pool kilns. The commenter also stated that those values were used to calculate temporal correlation between the quarries and calculate intra-quarry variability. That information, the commenter asserts, was then incorporated into the Portland Cement UPL MACT floor calculation. The commenter is correct that the EPA does not have direct data regarding mercury content of the lime used at the integrated iron and steel industry. For the integrated iron and steel ICR, facilities had to report the amount of lime used annually, but not the mercury content of that lime.

As shown in the memorandum titled *Mercury Emissions, Controls, and Costs at Integrated Iron and Steel Facilities* (Docket ID Item No. EPA-HQ-OAR-2002-0083-0958), Table 4, the mercury from lime was estimated to comprise less than 15 percent of the total mercury inputs to the BOPF, on average. The value for mercury content of lime, at 0.03035 ppm, was developed from the average of data from two reference sources. One reference source was the information (Limestone Mercury Concentrations (ppb) with Revised Data from Buzzi. July 21, 2009) gathered for the Portland Cement NESHAP (40 CFR part 63, subpart LLL (https://www.ecfr.gov/current/title-40/part-63/subpart-LLL); Docket ID Item No. EPA-HQ-OAR-2002-0051-3400) and the other source was from a Portland Cement Association research report (Hills and Stevenson, 2006; Docket ID Item No. EPA-HQ-OAR-2002-0083-0872).

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The EPA estimated that mercury in the scrap accounts for over 85 percent of the total mercury inputs to the BOPF and constitutes the vast majority of mercury content; therefore, regulating the scrap input is sufficiently correlated to the numeric emission limitation for mercury to enable setting a standard for mercury from scrap. And, as noted above, as a result of the robustness of the mercury emission data used

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and the calculations performed to develop the MACT standard (UPL, etc.), we have accounted for the variability of mercury in both the scrap and lime. The mercury emission limitations are based on the best data available to the Agency and satisfies our obligation under CAA section 112(d) to establish a standard for mercury emissions from the BOPF. For information on the data used to develop the MACT floor, see the memorandum titled *Mercury Emissions, Controls, and Costs at Integrated Iron and Steel Facilities* (Docket ID Item No. EPA-HQ-OAR-2002-0083-0958).

Comment: One commenter stated that with a small source category, and, thus, small number of sources setting the floor, a proper UPL analysis is essential to a technically defensible standard that is consistent with the statute. The commenter stated the EPA's technical memorandum regarding its mercury floor calculations acknowledges, however, that its dataset including just five data points is small and, in fact, below the minimum of seven data points that the EPA considers the threshold for a "limited dataset." The commenter stated that this limited dataset is the result of calculating a mercury emissions per ton of steel scrap value for only the top five sources in the source category and then running the UPL calculation based only on those five sources.

Response: The BOPF Group existing source MACT floor pool dataset (five data points) is based on fewer than seven data points. Therefore, the EPA used the protocol for developing MACT floors for small datasets. (See technical memorandum titled *Mercury Emissions, Controls, and Costs at Integrated Iron and Steel Facilities* (Docket ID Item No. EPA-HQ-OAR-2002-0083-0958)). For limited datasets, the EPA can further evaluate each individual dataset in order to ensure that the uncertainty associated with a limited dataset does not cause the calculated emission limit to be so high that it does not reflect the average performance of the units upon which the limit is based after accounting for variability in the emissions of those units. The EPA evaluated this specific integrated iron and steel mercury dataset to determine whether it is appropriate to make any modifications to the approach used to calculate MACT floors for each of these datasets. The EPA ensured that the selected data distribution best represents each dataset; ensured that the correct equation for the distribution was then applied to the data; and compared individual components of each limited dataset to determine if the standards based on limited datasets reasonably represent the performance of the units included in the dataset. Based on an evaluation of the limited datasets, the EPA determined that no changes to the standard floor calculation procedure were warranted.

For new sources, in the EPA's experience from the past, limited datasets warranted close scrutiny because sources with the lowest average emissions, but with a relatively high variance, could be identified mistakenly as the best performing source. In the mercury emission limit for new integrated iron and steel sources, the best performing source identified had 28 data points in the MACT floor pool, so it is not a limited dataset, nor does it have relatively high variance. Therefore, we conclude that further inspection of the existing emissions datasets is not warranted.

Comment: One commenter stated given the need to finalize this RTR in March 2020 and given that any data collection and analysis needed to generate a sound mercury emission limit would take at least a year, the EPA should not finalize the mercury emission limit at this time but instead should withdraw it and defer action to a later date to allow the EPA to address the flaws in the proposed standard. The commenter stated the proposed mercury emission limit should be withdrawn and, if the Agency ultimately determines a standard must be set, the EPA should issue a new, separate proposal because the changes necessary to both the dataset and the floor setting methodologies are sufficiently great that interested persons will need an opportunity to comment on the EPA's efforts to address them. In short, the commenter stated any mercury

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gap-filling should proceed on an independent track from the RTR, and it would be arbitrary and capricious for the EPA to finalize a mercury emission limit in reliance on the limited data it has and particularly using the flawed methodologies reflected in the proposal.

The commenter stated the EPA can and should determine that it currently lacks adequate data to establish a mercury emission limit, in light of the limited timeframe allowed under the judicial deadline to complete this rulemaking. The commenter stated such a decision would be afforded an "extreme degree of deference" by the Court on review. The commenter stated the EPA's obligation under the court order is to complete the RTR. The commenter stated filling a perceived gap in the original standard is not mandated under CAA section 112 generally and certainly is not compelled to be part of the RTR. Accordingly, the commenter stated the EPA need not finalize the mercury proposal by the March 2020 RTR deadline. The commenter stated if the EPA promulgates now, the standard will necessarily lack adequate data and a record to support it and, thus, would not only be ill-advised, but also arbitrary and capricious.

Response: The EPA opted to promulgate these mercury emission limits at the same time we conducted the RTR in part to address an outstanding petition for reconsideration asking the Agency to set a mercury emissions standard. The data used for the mercury emission limit were stack test data obtained using typical mercury testing methodology and the procedures we followed to develop the MACT limits were typical MACT standard development procedures. The mercury data are not flawed, as explained elsewhere in this preamble in responses to commenters' specific allegations. All alleged flaws have been addressed above in responses to comments received, and we have shown that the allegations were unfounded and/or lacking scientific basis and that the EPA data and data handling procedures were performed correctly to develop the numeric emission limitation. Thus, we did not make any changes to the mercury emission limit in response to comments received. The mercury emission limitation promulgated in this rule is based on the best data available to the Agency and satisfies our obligation under CAA section 112(d) to establish a standard for mercury emissions from the BOPF.

Comment: One commenter stated if the EPA proceeds with a mercury emission limit, the proposal to allow facilities to satisfy the mercury requirements by certifying that their scrap is "not likely to contain motor vehicle scrap" in the proposed rule, *e.g.*, proposed 40 CFR 63.7791(b) (https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(b)) (final 40 CFR 63.7791(d) (https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(d))), is reasonable but needs to be revised to better match the requirements in 40 CFR 63.10685(b) (https://www.ecfr.gov/current/title-40/section-63.10685#p-63.10685(b)) in 40 CFR part 63, subpart YYYYY (https://www.ecfr.gov/current/title-40/part-63/subpart-YYYYY). For example, the commenter stated the EPA needs to clarify that the option applies to "scrap not likely to contain automotive *shredded* scrap," rather than all "motor vehicle scrap" as it is currently proposed; regulatory language changes should be made to reflect this clarification. This is because mercury switches, the commenter stated, the driver of mercury emissions, are not present in all motor vehicle scrap; rather, mercury switches are typically only present in *shredded* automotive scrap. The commenter stated facilities should, thus, be able to comply by certifying that scrap inputs are not likely to contain automotive shredded scrap. The commenter recommended the EPA modify proposed 40 CFR 63.7791(a)(1) (https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(a)(1)), 63.7791(a)(2) (https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(a)(2)), 63.7791(b)(1) (https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(b)(1)), 63.7791(b)(2) (https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(b)(2)), 63.7791(c) (https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(c)), 63.7840(f)(1) (https://www.ecfr.gov/current/title-40/section-63.7840#p-63.7840(f)(1)), and 63.7852 (https://www.ecfr.gov/current/title-40/section-63.7852) (final 40 CFR 63.7791(c)(1)

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(https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(c)(1)), 63.7791(c)(2) (https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(c)(2)), 63.7791(d)(1) (https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(d)(1)) through (d)(3) (https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(d)(3)), 63.7791(e) (https://www.ecfr.gov/current/title-40/section-63.7791), 63.7840(f)(1) (https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(f)(1)), and 63.7852 (https://www.ecfr.gov/current/title-40/section-63.7791), respectively) definitions for motor vehicle scrap, scrap provider, and steel scrap accordingly.

Response: The EPA acknowledges the clarification requested by the commenter and has incorporated these suggestions as much as appropriate into the final rule. We agree with the commenter that given today's automobile fleet, where motor vehicles from 2003 production and earlier still contain mercury switches, the scrap containing mercury switches is typically shredded automotive scrap. We have revised the proposed option that would have allowed facilities to comply by certifying that the facility's scrap is "not likely to contain motor vehicle scrap." As finalized, this option has been changed to allow facilities to comply by certifying that the facility's scrap "does not contain mercury switches." This approach allows facilities to establish the absence of mercury switches in their scrap, as appropriate for their facility, *i.e.*, their scrap is recovered for its specialty alloy content, their scrap does not contain motor vehicle scrap, or their scrap does not contain shredded motor vehicle scrap.

Comment: One commenter stated facilities that use small amounts of automotive shredded scrap relative to other inputs per ton of steel produced, even from non-NVMSRP suppliers, would not be expected to emit mercury at levels exceeding the emission limitations reflected in the proposed rule. As the proposal acknowledges, the commenter stated that the mercury content associated with mercury switches in older, end-of-life vehicles is the basis for the mercury emission limit. The commenter stated mercury switches are not present in all scrap, and not even in all automotive scrap; rather, mercury switches are only potentially present in shredded automotive scrap. Because of this, the commenter stated, facilities using small amounts of automotive shredded scrap would not be expected to have mercury emissions in excess of the proposed standard. Thus, the commenter stated, sources using minimal amounts of automotive shredded scrap should not be burdened with the costs of testing or documenting participation in the switch recovery programs, particularly given the low risk modeled for the source category.

The commenter stated the EPA should modify the proposed 40 CFR 63.7791(b) (https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(b)) to allow facilities to instead certify that they use only minimal amounts of automotive shredded scrap inputs, such as 10-percent automotive shredded scrap per ton of steel produced. So long as a facility does not use more automotive shredded scrap than the threshold, the commenter stated that certification should constitute its compliance demonstration; this would enable facilities that use very minimal amounts of automotive shredded scrap or that use automotive shredded scrap only occasionally based on the scrap supply market, and are, thus, unlikely to exceed the mercury emission limit, to be deemed compliant, as well.

The commenter added the EPA should acknowledge that when the NVMSRP ends this event will, in essence, establish compliance with the proposed mercury emission limit because it will signal achievement of substantial elimination of mercury switches from automotive scrap. Consistent with the compliance option for the proposed mercury requirements of allowing purchase of scrap from NVMSRP participants, the commenter stated the EPA should include in any final rule a provision that when the NVMSRP ends, sources would be deemed compliant with the mercury emission limit (because the commenter stated the EPA would have deemed that the NVMSRP is no longer needed to reduce mercury switches from automotive scrap).

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The commenter stated the EPA should revise proposed 40 CFR 63.7791(c) (https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(c)) or add a new 40 CFR 63.7791(d) (https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(d)) to allow sources to otherwise show that their shredded motor vehicle scrap is unlikely to contain mercury. For example, the commenter stated, if the NVMSRP has ended with a finding that the mercury switches remaining in vehicles on the road are minimal, the fact that there is no need for such a program establishes the diminished presence of mercury. Or, the commenter stated, if a scrap dealer uses only recycled post-2003 vehicles, the use of this automotive scrap should not contain any appreciable mercury. In other words, the commenter stated, at some point the number of recycled vehicles containing mercury switches will diminish to the extent that mercury in automotive scrap is no longer a concern. At this point, the commenter stated, facilities should be able to rely on some provision in 40 CFR 63.7791 (https://www.ecfr.gov/current/title-40/section-63.7791) to conclude that their scrap is unlikely to contain mercury switches. The commenter stated such an approach is reasonable because the standard is driven by the use of automotive shredded scrap at BOPF shops and the mercury content in that scrap, and the NVMSRP is aimed at removing mercury switches from automotive shredded scrap. The commenter stated meeting the NVMSRP's program goals, which should be the rationale for ending the program, will occur when mercury switches are sufficiently removed from automotive scrap. When that has occurred, the commenter stated, it will mean that the remaining automotive scrap inputs available to integrated iron and steel facilities will in effect satisfy the NVMSRP criteria, and facilities should be considered to be in compliance with the mercury emissions standard. In that case, the commenter stated, it would not add value to require further compliance with the administrative burdens associated with complying with the standard, since the source will have been effectively eliminated.

Response: The commenter appears to be asking the EPA to create an exemption from the requirements for certain sources and to not regulate the mercury emissions from those sources. In other words, the commenter is asking the EPA to read a de minimis exemption into the requirement that the EPA regulate all HAP emitted by major sources. The court, however, has previously upheld the EPA's rejection of this argument on the grounds that the statute does not provide for de minimis exemptions where a MACT floor exists. *See Nat'l Lime Assn.* v. *EPA*, 233 F.3d 625, 640 (D.C. Cir. 2000). For this reason, the EPA is not making any changes to the proposed rule to create an exemption for de minimis mercury emissions as per this comment.

However, in the final rule, the compliance option in 40 CFR 63.7791(d) (https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(d)) "*Use of scrap that does not contain mercury switches*" can be used by a source if the facility can establish that their scrap does not include mercury switches. This option is available regardless of whether or not the NVMSRP is in operation. If the NVMSRP were to be discontinued, however, the fact that the program had been discontinued would not establish the mercury level, or lack thereof, in the scrap. Thus, the potential scenario of NVMSRP discontinuation could not be relied upon to demonstrate compliance with the mercury emission limit.

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Comment: One commenter stated the proposed standards for the integrated iron and steel source category are very similar to the requirements for facilities in the EAF area source standards to obtain scrap from participants in the NVMSRP and therefore the EPA should reconcile this rule with the EAF rule. The commenter stated the rule language should be revised to maintain consistency with the existing EAF NVMSRP regulatory language.

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As background, the commenter explained that some companies with facilities subject to the subpart FFFFF standards for integrated iron and steel sources also operate EAF facilities subject to the subpart YYYYY standards, and they purchase and manage scrap that is charged both into BOPF vessels and the EAF at a corporate level, using the same policies and management methods to obtain scrap for both source categories. Since these companies have area source EAF facilities that must comply with the mercury switch program requirements in subpart YYYYY, the commenter stated their entire scrap management system is already compliant with the motor vehicle scrap management requirements in those standards. The commenter stated the language differences between subpart YYYYY and the proposed subpart FFFFF motor vehicle scrap management requirements could cause issues in managing these companies' scrap supply chains and ensuring compliance with both regulations. The commenter stated the proposal does not explain why these differently worded requirements are being imposed on integrated iron and steel facilities, particularly given that EAF sources use a greater proportion of scrap inputs than integrated iron and steel BOPF sources and that doing so would impose burdens on facilities, including the need to modify contracts and additional administrative costs. Because of the identical supply chain for BOPF shops and EAFs, the commenter stated there should be no differentiation in the requirements. The commenter suggested revisions to the proposed language 40 CFR 63.7791(b) (https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(b)) (final 40 CFR 63.7791(d) (https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(d))) and to add allowance for specialty metal scrap from motor vehicles.

Response: The EPA agrees with the rationale for the suggested changes and we have made revisions to the rule to make this rule more similar to 40 CFR part 63, subpart YYYYY (https://www.ecfr.gov/current/title-40/part-63/subpart-YYYYY), as described below in section IV.C.5. In terms of NVMSRP participation, the proposed rule was identical to subpart YYYYY except for the scrap plan requirement; we have removed the scrap plan requirement in the final rule. As discussed above in a previous comment, in the final rule, we have revised the proposed option that allowed sources to comply by certifying that the facility's scrap is "not likely to contain motor vehicle scrap." As finalized, the facility can establish compliance with the mercury emission limit by certifying the absence of mercury switches in their scrap, as appropriate for their facility: By either certifying that their scrap is recovered for its specialty alloy content, or their scrap does not contain motor vehicle scrap, or their scrap does not contain shredded motor vehicle scrap.

Comment: One commenter stated the proposed annual testing for sources opting to comply under subpart FFFFF Table 1 should be revised to once per five-year title V permit term, which is consistent with frequencies for other title V testing requirements for the sources, such as for secondary BOPF baghouses. The commenter stated more frequent testing is unnecessary given that emissions are steadily declining among the source category in conjunction with the depletion of mercury switches in automotive scrap. If the EPA believes that more frequent than once-per-term testing is needed, the commenter stated EPA then should adopt a twice per five-year permit term, similar to the testing frequency for primary BOPF controls, given the high cost of testing. The commenter stated requiring annual testing would be excessive, costly, without basis, and inconsistent with any other requirements in the subpart FFFFF standards. In the event that EPA retains the annual testing requirement, the commenter stated revisions to the proposed language regarding time between performance tests should be made to clarify the point at which facilities should begin to calculate these dates.

Response: The EPA agrees with a reduction in testing frequency to coincide with tests for PM already promulgated in the rule (40 CFR 63.7821(b) (https://www.ecfr.gov/current/title-40/section-63.7821#p-63.7821(b))) for units equipped with control devices other than a baghouse (which includes all of the primary BOPF control devices), which will reduce the testing burden on the industry. The change is as follows (for

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testing compliance option, only): Change from annual testing to twice per permit cycle (initial/final and mid-term) for facilities with title V permits, and every 2.5 years for facilities without a title V permit, to match the PM testing frequency in 40 CFR 63.7821 (https://www.ecfr.gov/current/title-40/section-63.7821). Testing would then take place after the initial performance test at the next specified point in the permit cycle, either at initial, final, or mid-term of the permit (for facilities with permits), whichever comes first after the initial performance test, which is one year after the effective date of the rule, or within 2.5 years after promulgation (for facilities without permits).

Comment: One commenter stated in any final rule, and consistent with the approach the EPA took in the ICR testing, the EPA should explicitly provide for similar units at a source to rely on the testing of one of those units for subpart FFFFF Table 1 compliance demonstration purposes, where the units are exhausted to the same type of control device, processed the same types of materials, were similar size and design, and have similar operating conditions.

Response: We understand the economic benefit associated with reducing the testing burden where possible. The EPA allows testing of representative units on a case-by-case basis as described in the 2009 EPA guidance document, *Clean Air Act National Stack Test Guidance*,[116] pursuant to the EPA's authority cited in the General Provisions to part 63 at 40 CFR 63.7(h) (https://www.ecfr.gov/current/title-40/section-63.7#p-63.7(h)). Similar to the requirements to establish similarity that was used in the integrated iron and steel ICR for this RTR, the stack test guidance requires submission of design and operating parameters to establish the case of identical units, as described further in the guidance, with the final decision to be determined by the Administrator or delegated authority. The EPA thus provides options for reducing testing burden and no addition to or modification of the rule is needed to provide this testing option.

Comment: One commenter stated the proposed 40 CFR 63.7825(a)(2) (https://www.ecfr.gov/current/title-40/section-63.7825#p-63.7825(a)(2)) provision requires either a single compliance test with all affected units in operation or separate compliance tests on each emission unit in the BOPF Group. The commenter stated most facilities have multiple stacks that would need to be tested under the current Proposed Rule; simultaneously testing all stacks during a single compliance testing event would be difficult or impossible. The commenter stated this leaves the option of performing separate compliance testing on each emission unit. The commenter stated proposed 40 CFR 63.7825(a)(2) (https://www.ecfr.gov/current/title-40/section-63.7825#p-63.7825(a)(2)) requires that when units are tested separately, they must be tested "as soon as is practicable," which is not defined. The commenter stated the EPA should allow a three-month period for all stacks to be tested. To implement this, the commenter stated the EPA should create a new subparagraph, *e.g.*, 63.7825(a)(3), as follows: "Testing of related BOPF Group units shall be conducted within a 3-month period."

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The commenter stated since the BOPF Group mercury limit applies to all BOPF shop steelmaking operation units, the compliance demonstration for performance testing requires mercury emissions from all BOPF Group stacks to be added up to demonstrate compliance. The commenter stated this calculation cannot be made until all BOPF Group sources have been tested. Under proposed 40 CFR 63.7840(e)(2) (https://www.ecfr.gov/current/title-40/section-63.7840#p-63.7840(e)(2)), the commenter stated facilities are required to submit a notification of compliance status within 60 days of completion of the performance test. The commenter requested that EPA allow for one notification of compliance status to be submitted 60 days after the final performance test. The commenter also stated that in the proposal, facilities are required to provide a 60-day notification of intent to conduct performance testing. Therefore, the commenter requested that the rule also provide that the 60-day notice be submitted at least 60 days prior to the first

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BOPF Group unit control device test; then the initial testing notification can be required to include a schedule of when testing of other BOPF Group unit control devices will be tested, rather than require additional notification for subsequently tested sources.

Response: The EPA has decided that it is not appropriate to allow a three-month window for testing because this time period likely would include very different batches of scrap and possibly wide variation in levels of mercury. However, we discuss in the previous comment and response that EPA provides for facilities to be able to apply for a waiver of testing in the case of multiple and identical units via stack test guidance [16] pursuant to EPA's authority in 40 CFR 63.7(h) (https://www.ecfr.gov/current/title-40/section-63.7#p-63.7(h)). For the final rule, the EPA changed the requirement for a 60-day notification of the start of "mercury compliance testing" to "notification of the first compliance test in the BOPF Group with a schedule of all subsequent tests in the BOPF Group." The final rule also differs from the proposed rule in that it states that "for the purposes of submitting the notification of compliance status, the performance test shall be considered complete when the final BOPF Group unit control device is tested." These changes eliminate multiple start notices for testing of the BOPF Group and clarify that only one notice of compliance status is needed to show compliance with the mercury emission limit. Because all units in the BOPF Group must be tested before the mercury emissions can be calculated and compared to the emission limit in the rule, it is logical to require one notice of compliance status after the last BOPF Group unit is tested. See section IV.C.5 below for details of the rule changes.

Comment: One commenter stated mercury testing samples were collected during the ICR process following sampling procedures in 40 CFR 63.7822(f) (https://www.ecfr.gov/current/title-40/section-63.7822#p-63.7822(f)), (g) (https://www.ecfr.gov/current/title-40/section-63.7822#p-63.7822(g)), and (h) (https://www.ecfr.gov/current/title-40/section-63.7822#p-63.7822(h)), which dictate when sampling begins and ends during specific process BOPF operations for PM testing. The commenter stated the same procedures should apply to mercury testing and should be incorporated by reference in the mercury testing requirements. Accordingly, the commenter stated proposed 40 CFR 63.7825 (https://www.ecfr.gov/current/title-40/section-63.7825) should be modified to include the procedures in 40 CFR 63.7822(f) (https://www.ecfr.gov/current/title-40/section-63.7822#p-63.7822(f)), (g) (https://www.ecfr.gov/current/title-40/section-63.7822#p-63.7822(g)), and (h) (https://www.ecfr.gov/current/title-40/section-63.7822#p-63.7822(h)) as applicable.

Response: The EPA agrees that mercury testing samples were collected during the ICR process following sampling procedures in 40 CFR 63.7822(f) (https://www.ecfr.gov/current/title-40/section-63.7822#p-63.7822(f)), (g) (https://www.ecfr.gov/current/title-40/section-63.7822#p-63.7822(g)), and (h) (https://www.ecfr.gov/current/title-40/section-63.7822#p-63.7822(h)). Therefore, we have added these procedures to the final rule. See section IV.C.5 for details of the rule changes.

Comment: One commenter stated the 40 CFR 63.7825(b)(2) (https://www.ecfr.gov/current/title-40/section-63.7825#p-63.7825(b)(2)) provision requires a minimum sample volume of 60 dscf of gas during each mercury test run. The commenter stated it is inappropriate to collect 60 dscf when using EPA Method 30B because the method itself contains guidelines for selecting proper sampling rates. The commenter stated the collection of 60 dscf should be clarified to only apply to EPA Method 29 or other isokinetic sampling methods.

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Response: We agree with the commenter that EPA Method 30B has a method-specific volume requirement tied to the detection limit of the method, so we do not need to identify a minimum volume for EPA Method 30B in the rule. However, a sample volume of 60 dscf is appropriate for EPA Method 29. The rule text has been revised to specify that the 60 dscf minimum sample volume applies to Method 29 only. See section IV.C.5 for details of the rule changes.

Comment: One commenter stated the EPA should also include EPA Method 101A, *Determination of Particulate and Gaseous Mercury Emissions From Sewage Sludge Incinerators,* which is a viable alternative to both EPA Methods 29 and 30B.

Response: The EPA does not consider EPA Method 101A to be equivalent to EPA Method 29 for mercury measurement for all purposes. However, the EPA is willing to consider EPA Method 101A as an alternative test method under the General Provisions to 40 CFR part 63 (https://www.ecfr.gov/current/title-40/part-63) (40 CFR 63.7(f) (https://www.ecfr.gov/current/title-40/section-63.7#p-63.7(f))) on a case-by-case basis, provided the petitioner can provide adequate information demonstrating that this candidate method is equivalent to the standards (*i.e.*, EPA Methods 29 and/or 30B). The proposed rule text has been revised to elaborate on EPA's ability to allow alternative test methods to be considered on a case-by-case basis. See section IV.C.5 for details of the rule changes.

Comment: One commenter stated in order to use the NVMSRP or equivalent program option, the EPA lists in proposed 40 CFR 63.7791(a) (https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(a)) and (c) (https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(c)) a host of requirements that companies will need to meet. The commenter stated a key purpose of the NVMSRP was to have suppliers register and participate so that companies could rely on that participation to prevent mercury from entering their feedstocks in the form of automotive shredded scrap. The commenter stated since its initiation, the NVMSRP has proven to be a success. As recognition of that success, in 2017, the commenter stated that the EPA, along with the original parties to the 2006 agreement, came together to extend the program through 2021. The commenter stated unfortunately, the proposed language fails to recognize that the industry has substantially invested to make the program a success and instead would put individual companies in the role of policing the program. The commenter stated companies need to be able to rely on the program and that its suppliers are participants therein. The commenter stated nothing more should be required.

The commenter said specifically that the EPA should delete 40 CFR 63.7791(a)(3)-(5) (https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(a)(3)) and (c)(3)-(5) (https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(c)(3)). The commenter stated these provisions are inconsistent with the requirements that apply to the NVMSRP as it is considered an "approved mercury program" in 40 CFR 63.10685 (https://www.ecfr.gov/current/title-40/section-63.10685) in 40 CFR part 63 (https://www.ecfr.gov/current/title-40/part-63), subpart YYYYY. The commenter stated companies are not in a position to renegotiate supplier contracts to allow them to enter and inspect suppliers. Moreover, the commenter stated the EPA is unclear about what "other corroboration" even means in the context of the program; the participation of the suppliers in the program should be sufficient. Finally, the commenter stated any broker contracts would provide that the scrap needs to be from NVMSRP-participating suppliers and it is entirely unclear how the EPA expects companies to ensure that suppliers are "implementing appropriate steps to minimize the presence of mercury in scrap from end-of-life vehicles." The commenter stated that this assurance is implicitly made by contracting for scrap from suppliers participating in the program.

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The commenter stated while the EPA correctly states that companies are already participating in the NVMSRP, the requirements in the proposed rule take the verification process to a more burdensome level, which will impose significant additional costs. The commenter stated creating the plans required in the proposed rule is likely to far exceed the proposed approximate $1,000 estimate, given the labor and supervision required, not to mention ongoing plan updates. Moreover, the commenter stated the proposed cost estimate entirely excludes consideration of the massive costs that would be required to satisfy the due diligence obligations the proposed regulatory language would create. For example, according to the commenter, the proposed requirement to "conduct periodic inspections or provide other means of corroboration to ensure that scrap providers and brokers are aware of the need for and are implementing appropriate steps to minimize the presence of mercury in scrap from end-of-life vehicles" would impose an obligation on integrated iron and steel facilities that would be both onerous and expensive. The commenter stated it also would be potentially impossible to satisfy because existing contracts are in place that do not provide authority for the purchaser to inspect suppliers or otherwise ensure *their* "appropriate" implementation of mercury removal practices. If the plan is not removed, and a mercury emission limit is issued, the commenter said the EPA should revise the cost-effectiveness analysis to better account for the costs of the NVMSRP (or equivalent) program. Specifically, the commenter stated the proposal needs to better account for the cost of the NVMSRP option, which is estimated at $1,058 per facility and $11,638 across the industry, with similar costs assumed for certifying compliance not likely to contain automotive scrap.

The commenter stated instead of these requirements, as explained above, the EPA should simply require that the company to purchase from suppliers that state they are participating in the NVMSRP (which may be reflected on invoices or in contracts). The commenter stated additional obligations need not be imposed because the EPA's record for this rulemaking establishes that the NVMSRP is an effective program for removing mercury switches from shredded automobile scrap. The commenter stated the EPA can reasonably rely on that record.

The commenter stated similarly, just as the NVMSRP is an EPA approved program, any alternative "approved mercury program" contemplated in the proposal would have the same level of approval as the NVMSRP, and integrated iron and steel facilities should be able to rely on the stipulation in contracts with their scrap suppliers that any shredded automotive scrap received is from NVMSRP or similar EPA-approved program participants and is compliant with the program's standards.

Response: The EPA has considered the commenter's request and rationale, and has eliminated the proposed plan requirement in the final rule and instead is requiring facilities to both identify their scrap dealers or brokers and certify that these dealers and brokers participate in the NVMSRP or other EPA-approved program. See section IV.C.5 of this preamble for details of the rule changes.

Comment: One commenter stated the EPA proposes to require compliance with the proposed mercury emission limits within 1 year of publication of the final rule, and that all other amendments to the 40 CFR part 63, subpart FFFFF (https://www.ecfr.gov/current/title-40/part-63/subpart-FFFFF) standards will become effective 180 days after publication of the final rule. The commenter stated these proposed compliance dates are inadequate to allow facilities to undertake all the necessary planning and operational adjustments needed to ensure compliance with the Proposed Rule. The commenter stated the EPA should not proceed to finalize the proposed mercury provisions with this RTR rulemaking, however, if the Agency proceeds to do so nonetheless, the EPA must provide a 3-year compliance period to allow facilities to comply. The commenter stated because the proposed mercury requirement constitutes new standard setting under

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CAA sections 112(d)(2) and (3), more time is needed for facilities to ensure compliance. The commenter stated the remaining proposed amendments to the 40 CFR part 63, subpart FFFFF (https://www.ecfr.gov/current/title-40/part-63/subpart-FFFFF) standards will likewise require additional time for facilities to conform their existing practices. The commenter stated the EPA should, thus, extend the proposed effective date of 180 days after promulgation of the final rule to 1 year after that date.

Response: It is our understanding that all facilities are already participating in the NVMSRP and facilities have the option of complying with the mercury emission limit by certifying that all their scrap is from NVMSRP participants (or a similarly-approved program). Further, we determined 1 year after promulgation is sufficient for facilities to familiarize themselves with the new reporting requirements in the amended rule for this compliance option. For these reasons, we have concluded that it is reasonable to require existing sources to comply with the mercury requirements within 1 year. Existing sources will be given 180 days to comply with the changes to the SSM provisions in 40 CFR part 63, subpart FFFFF (https://www.ecfr.gov/current/title-40/part-63/subpart-FFFFF) and all (https://www.ecfr.gov/current/title-40/part-63/subpart-all) other new or revised requirements in this final rule, except the requirements for mercury. We have determined that there are no other compliance requirements as a result of this rule that require more than 180 days except for those for complying with the mercury emission limit and potentially for electronic reporting. Regarding the electronic reporting requirement, because we are revising the spreadsheet template for integrated iron and steel facilities as a result of comments discussed in section IV.E of this preamble, we are allowing the beginning of electronic reporting of compliance reports to begin 180 days after the new template is available in CEDRI if later than 180 days after promulgation of the final rule.

4. WHAT IS THE RATIONALE FOR OUR FINAL APPROACH FOR THE MERCURY EMISSION LIMITS?

The mercury MACT limit for existing sources (*i.e.,* 0.00026 lbs of mercury per ton of scrap processed, as an input-based limit) was derived using data obtained from source tests performed to fulfill an EPA ICR to determine the mass of mercury emissions from the BOPF Groups [13] at each facility per mass of scrap used in their BOPFs. The format of this standard is based, in part, on the assumption that the mass of mercury emitted from all BOPFs and related units was substantially equivalent to the mass of mercury in the input materials because mercury is neither created nor destroyed in the BOPF. Furthermore, based on available data and information, we conclude that the primary source of mercury in the input materials are mercury switches. Therefore, we used mercury-to-scrap input ratios from the best performing five facilities out of all 11 integrated iron and steel facilities in the Integrated Iron and Steel Manufacturing Facilities source category to develop an input-based MACT floor limit for mercury. To establish the limit, we calculated a UPL that incorporates the potential variability in future measurements. Because there are fewer than 30 sources in the Integrated Iron and Steel Manufacturing Facilities source category, as described below, we evaluated the best performing five sources in the category to establish a standard for existing sources, pursuant to CAA section 112(d)(3)(B).

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The EPA's MACT analyses used the UPL approach to identify the average emission limitation achieved by the best performing five sources. The EPA uses this approach because it incorporates the average performance of the best performing sources as well as the variability of the performance during testing conditions. The UPL represents the value which one can expect the mean of a specified number of future observations (*e.g.,* three-run average) to fall below for the specified level of confidence (99 percent), based upon the results from the same population. In other words, the UPL estimates what the upper bound of future values will be based upon present or past background data. The UPL approach encompasses all the data point-to-data point

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variability in the collected data, as derived from the dataset to which it is applied. For more details regarding how this limit was derived, see the technical memorandum on the mercury emission limits, referenced above.

The steel industry submitted comments [15] on the proposed rule indicating that the scrap currently used by all facilities is NVMSRP scrap. Furthermore, industry stated [15] that the performance tests conducted to establish the MACT floor limits and, thus, the MACT for mercury in the proposal were based on facilities participating in the NVMSRP. Because of the projected decline in the number of mercury switches in the automobile fleet over time due to the ban of such switches after 2002, and with the continuing implementation of the NVMSRP, it is reasonable for the EPA to conclude that NVMSRP scrap in the future will contain similar mercury, or more likely less mercury, than the scrap used to develop the MACT floor limits. This rule relies, in part, on that conclusion. Therefore, if a facility chooses to comply with the emission limit by certifying that all their scrap is from NVMSRP participants (or a similarly-approved program) or certify that their scrap does not contain mercury switches, it is also reasonable to conclude that such certification achieves the same level of mercury reduction or more reduction as the numeric MACT floor limits.

The mercury emission limit for new sources in the final rule, at 0.000081 lbs of mercury per ton of scrap processed, was derived using ICR test data of the mass of mercury emissions from all BOPF and related units (HMTDS and ladles) per mass of scrap used by the lowest-emitting facility, pursuant to CAA section 112(d)(3). For the final rule, we are correcting the mercury limit from proposal to include two significant figures, from 0.00008 to 0.000081 lbs of mercury per ton of scrap processed, as in the standard for existing sources and as typically done in EPA regulations.

Following the same reasoning discussed above in connection with the existing source standard, we assumed and industry confirmed [15] that the scrap used by the best performing source was either NVMSRP scrap or scrap with higher amounts of mercury per ton of scrap than NVMSRP scrap. Furthermore, industry stated [15] that the performance tests conducted to establish the MACT floor limits and, thus, the MACT for mercury in the proposal were based on facilities participating in the NVMSRP.

As described above, we expect mercury levels in scrap to continue to decline over time due to the switch ban and success of the NVMSRP. Therefore, it is reasonable for the EPA to conclude that scrap subject to the NVMSRP or other approved scrap program in the future will contain similar levels of mercury or, more likely, less mercury than the scrap used to develop the new source limit. Because mercury levels in scrap in the NVMSRP have decreased since 2011 and continue to decrease, it is reasonable to assume that mercury emissions from sources that obtain their metal scrap from participants of that program (or similar program) will be equal to, or more likely lower than, the MACT floor limits for both new and existing sources.

Similar to existing sources above, for new BOPFs and new facilities, we are finalizing provisions in the NESHAP that allow two options to demonstrate compliance with the input-based limit of 0.000081 lbs of mercury per ton of scrap processed, as follows: (1) Conduct performance test twice per permit cycle, *i.e.*, mid-term and at initial or end term for facilities with permits or every 2.5 years for facilities without permits, after the initial performance testing, which is required to be performed within 180 days of July 13, 2020 or within 180 days of initial startup of the new BOPF or new facility, whichever is later, convert the sum of the results to input-based units (*i.e.*, lbs of mercury per ton of scrap input) and document the results in a test report created using the ERT and submitted electronically to the delegated authority through CEDRI (see section IV.E below); or (2) certify in their semiannual compliance reports, with the first semiannual compliance report required after July 13, 2021 or after initial startup of your BOPF Group, whichever is later, that the

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facility obtains all of their scrap from NVMSRP participants (or similar program as approved by the delegated authority) or certify that their scrap does not contain mercury switches. However, based on consideration of comments, in this final rule the EPA has eliminated the proposed requirement to develop and maintain onsite a scrap plan demonstrating the manner through which facilities are participating in the NVMSRP or similar approved program. Facilities complying via the performance testing option and facilities complying via the NVMSRP or similarly-approved program, or facilities that use scrap that does not contain mercury switches will have 1 year to comply. New facilities must be in compliance with the rule upon startup.

5. WHAT RULE CHANGES DID WE MAKE TO THE FINAL RULE FOR THE MERCURY EMISSIONS STANDARDS FROM PROPOSAL?

In response to comments submitted in regard to the proposed mercury emissions standards, we made the following changes for the final rule:

- Added 40 CFR 63.7783(f) (https://www.ecfr.gov/current/title-40/section-63.7783#p-63.7783(f)) to establish the deadline for existing and new affected sources to comply with the emission limitations for mercury;
- Revised proposed 40 CFR 63.7791 (https://www.ecfr.gov/current/title-40/section-63.7791) title to "How do I comply with the requirements for the control of mercury?";
- Revised proposed 40 CFR 63.7791 (https://www.ecfr.gov/current/title-40/section-63.7791) opening paragraph to start with the letter (a); renamed "Compliance deadlines"; created new subsections 40 CFR 63.7791(a)(1) (https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(a)(1)), 63.7791(a)(2) (https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(a)(2)), 63.7791(b)(1) (https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(b)(1)) through (3) (https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(b)(3)); re-lettered the subsections that followed: 63.7791(c)(1) through (4); 63.7791(d)(1) through (3); and 63.7791(e)(1) through (4); and updated citations throughout the remaining rule text to reflect new organization;

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- Revised 40 CFR 63.7791(c)(2) (https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(c)(2)) (proposed as (a)(2)) to specify the notification of compliance requirement to identify all scrap providers in semiannual compliance report;
- Revised 40 CFR 63.7791(c)(3) (https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(c)(3)) (proposed as (a)(3)) to specify the requirement to identify all scrap providers used by all scrap brokers in semiannual compliance report;
- Removed proposed 40 CFR 63.7791 (a)(4) (https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(a)(4)) scrap plan requirement to develop and maintain onsite plan demonstrating the manner through which facilities are participating in the NVMSRP (or other EPA-approved program);
- Revised 40 CFR 63.7791(d) (https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(d)) (proposed as (b)(1)) to delete the scrap plan features to obtain information from scrap suppliers or other entities with established knowledge of scrap content that the steel scrap used is not likely to contain motor vehicle scrap and maintain records of this information, and reassigning proposed 40 CFR 63.7791(b)(2) (https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(b)(2)) as new, revised 40 CFR 63.7791(d) (https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(d));
- Added 40 CFR 63.7791(d)(1) (https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(d)(1)) through (3) (https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(d)(3)) regarding compliance by certification of the use of scrap that does not contain mercury switches or is recovered for the specialty alloy content;
- Removed proposed 40 CFR 63.7791 (c)(1)(i) (https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(c)(1)(i)) through (iii) (https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(c)(1)(iii)), limitations on future approved programs;
- Revised 40 CFR 63.7791(e)(2) (https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(e)(2)) (proposed as (c)(2)) to specify the notification of compliance requirement to identify all scrap providers in semiannual compliance report;

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- Revised 40 CFR 63.7791(e)(3) (https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(e)(3)) (proposed as (c)(3)) to specify the requirement to identify all scrap providers used by all scrap brokers in semiannual compliance report;
- Removed proposed 40 CFR 63.7791(c)(4) (https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(c)(4)) scrap plan requirement to prevent limitations on future approved plan, and reassigned proposed 40 CFR 63.7791(c)(5) (https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(c)(5)) as new, revised 40 CFR 63.7791(e)(4) (https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(e)(4));
- Added 40 CFR 63.7820(e)(1) (https://www.ecfr.gov/current/title-40/section-63.7820#p-63.7820(e)(1)) through (4) (https://www.ecfr.gov/current/title-40/section-63.7820#p-63.7820(e)(4)) to establish the deadlines for conducting initial performance tests to demonstrate compliance with the mercury emission limitations;
- Added and revised 40 CFR 63.7821(e) (https://www.ecfr.gov/current/title-40/section-63.7821#p-63.7821(e)) to require performance tests to be conducted twice per permit cycle for sources with title V operating permits and every 2.5 years for sources without a title V operating permit;
- Added 40 CFR 63.7825 (https://www.ecfr.gov/current/title-40/section-63.7825) for test methods and other procedures to demonstrate initial compliance with the emission limit for mercury;
- Revised 40 CFR 63.7825(a) (https://www.ecfr.gov/current/title-40/section-63.7825#p-63.7825(a)) to clarify that initial compliance tests must be conducted by the deadlines in 40 CFR 63.7820 (https://www.ecfr.gov/current/title-40/section-63.7820);
- Revised 40 CFR 63.7825(b)(1)(v) (https://www.ecfr.gov/current/title-40/section-63.7825#p-63.7825(b)(1)(v)) to clarify that the minimum sample volume of 1.7 dry standard cubic meters (dscm) (60 dry standard cubic feet (dscf)) is for EPA Method 29 only and to clarify alternative test methods can be considered on a case-by-case basis per 40 CFR 63.7(f) (https://www.ecfr.gov/current/title-40/section-63.7#p-63.7(f));
- Revised 40 CFR 63.7825(b)(2) (https://www.ecfr.gov/current/title-40/section-63.7825#p-63.7825(b)(2)) to remove requirement of minimum sample volume of 1.7 dscm (60 dscf);
- Added to 40 CFR 63.7825(b)(3) (https://www.ecfr.gov/current/title-40/section-63.7825#p-63.7825(b)(3)), (b)(4)(i) (https://www.ecfr.gov/current/title-40/section-63.7825#p-63.7825(b)(4)(i)), (b)(4)(ii) (https://www.ecfr.gov/current/title-40/section-63.7825#p-63.7825(b)(4)(ii)), and (b)(5) (https://www.ecfr.gov/current/title-40/section-63.7825#p-63.7825(b)(5)) to make sampling procedures consistent with 40 CFR 63.7822(f) (https://www.ecfr.gov/current/title-40/section-63.7822#p-63.7822(f)), (g) (https://www.ecfr.gov/current/title-40/section-63.7822#p-63.7822(g)), and (h) (https://www.ecfr.gov/current/title-40/section-63.7822#p-63.7822(h)) in regard to when sampling should start and stop for BOPF operations;
- Revised 40 CFR 63.7825(c) (https://www.ecfr.gov/current/title-40/section-63.7825#p-63.7825(c)) Equation 1 to correctly calculate the mass emissions and revised units to those typically used in the measurement of metals;
- Revised 40 CFR 63.7833(h) (https://www.ecfr.gov/current/title-40/section-63.7833#p-63.7833(h)) to clarify requirements for demonstrating compliance with the mercury emission limits in Table 1 through mercury performance testing;
- Revised 40 CFR 63.7833(i) (https://www.ecfr.gov/current/title-40/section-63.7833#p-63.7833(i)) to clarify requirement for demonstrating compliance with the mercury emission limits in Table 1 by certifying participation in the NVMSRP or another EPA-approved mercury program, or by using scrap that does not contain mercury switches;
- Revised 40 CFR 63.7840(e) (https://www.ecfr.gov/current/title-40/section-63.7840#p-63.7840(e)) requirement for notification of mercury compliance testing for BOPF Group units to include notification of the first mercury compliance test in the BOPF Group along with a schedule of all subsequent tests in the BOPF Group, and that testing is considered complete when the final unit or control device in the BOPF Group is tested;
- Revised 40 CFR 63.7840(f) (https://www.ecfr.gov/current/title-40/section-63.7840#p-63.7840(f)) to include citation to 40 CFR 63.7791(c) (https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(c)), (d) (https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(d)), and (e) (https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(e)) (proposed as (a), (b), and (c));

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- Revised 40 CFR 63.7840(f)(1) (https://www.ecfr.gov/current/title-40/section-63.7840#p-63.7840(f)(1)) to remove requirements regarding preparing a plan per proposed 40 CFR 63.7791 (a)(4) (https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(a)(4)) or (c)(4) (https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(c)(4));
- Added 40 CFR 63.7841(b)(11) (https://www.ecfr.gov/current/title-40/section-63.7841#p-63.7841(b)(11)) to clarify the reporting statements required per 40 CFR 63.7791(c) (https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(c)), (d) (https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(d)) or (e) (https://www.ecfr.gov/current/title-40/section-63.7791#p-63.7791(e));
- Revised 40 CFR 63.7852 (https://www.ecfr.gov/current/title-40/section-63.7852) to add or change definitions for "basic oxygen process furnace group," "mercury switch," "motor vehicle," "motor vehicle scrap," "opening," "post-consumer steel scrap," "pre-consumer steel scrap," "steel scrap," "scrap provider;" "shredded motor vehicle scrap," and "specialty metal scrap;" and
- Revised the mercury emission limits in Tables 1, 2, and 3 from 0.00008 to 0.000081 lbs of mercury per ton of scrap processed to include two significant figures.

D. Changes to SSM Provisions

1. WHAT DID WE PROPOSE FOR SSM?

On August 16, 2019, we proposed to eliminate the SSM exemption in this rule which appears at 40 CFR 63.7810(a) (https://www.ecfr.gov/current/title-40/section-63.7810#p-63.7810(a)). We also proposed to revise the references in Table 4 (the General Provisions table) of 40 CFR part 63, subpart FFFFF (https://www.ecfr.gov/current/title-40/part-63/subpart-FFFFF), including the references to 40 CFR 63.6(f)(1) (https://www.ecfr.gov/current/title-40/section-63.6#p-63.6(f)(1)) and (h)(1) (https://www.ecfr.gov/current/title-40/section-63.6#p-63.6(h)(1)), which were vacated by the Court in *Sierra Club* v. *EPA*, 551 F. 3d 1019 (D.C. Cir. 2008). Consistent with *Sierra Club* v. *EPA*, we proposed that the standards in this rule would apply at all times. We also proposed several additional revisions to Table 4 of 40 CFR part 63, subpart FFFFF (https://www.ecfr.gov/current/title-40/part-63/subpart-FFFFF). For example, we proposed to eliminate the incorporation of the General Provisions' requirement that the source develop an SSM plan. We also proposed to eliminate or revise certain recordkeeping and reporting requirements related to the SSM exemption. We aimed to ensure that the provisions we proposed to eliminate were inappropriate, unnecessary, or redundant in the absence of the SSM exemption.

2. HOW DID THE SSM PROVISIONS CHANGE FOR THE INTEGRATED IRON AND STEEL MANUFACTURING FACILITIES SOURCE CATEGORY?

We did not make any major changes to the proposed SSM provisions for the Integrated Iron and Steel Manufacturing Facilities source category. We made minor edits to the proposed SSM provisions in response to comments that are shown in section IV.D.5, below.

3. WHAT KEY COMMENTS DID WE RECEIVE ON SSM, AND WHAT ARE OUR RESPONSES?

This section provides a summary of key comments and responses regarding SSM. A summary of all other public comments on the proposal and the EPA's responses to those comments is available in the *Summary of Public Comments and Responses for the Risk and Technology Review for Integrated Iron and Steel Manufacturing Facilities* (Docket ID No. EPA-HQ-OAR-2002-0083).

Comment: One commenter stated certain aspects of the Proposed Rule, including the proposed elimination of the SSM exemption, are not based on the EPA's authority to conduct RTR rulemakings under CAA sections 112(f)(2) and (d)(6) but, instead, invoke the EPA's discretion to exercise its other statutory authorities in the same rulemaking. The commenter stated the proposed elimination of the SSM exemption would bring the 40 CFR part 63, subpart FFFFF (https://www.ecfr.gov/current/title-40/part-

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63/subpart-FFFFF) standards in line with relevant Court decisions by the D.C. Circuit. The commenter stated in certain cases, the EPA's proposed language would create redundancies and pose problems for compliance that should be addressed.

The commenter stated the EPA should not finalize the additional recordkeeping and reporting requirements included in the proposal under 40 CFR 63.7835 (https://www.ecfr.gov/current/title-40/section-63.7835), 63.7841 (https://www.ecfr.gov/current/title-40/section-63.7841), and 63.7842 (https://www.ecfr.gov/current/title-40/section-63.7842) that would add regulatory burden without adding apparent value.

The commenter stated the preamble explains that the requirement would "ensure that there is adequate information to determine compliance, to allow the EPA to determine the severity of the failure to meet an applicable standard, and to provide data that may document how the source met the general duty to minimize emissions during a failure to meet an applicable standard." The commenter stated the preamble provides no information or examples of how or why the absence of this information has created any issues for the EPA or those subject to the regulation. As a practical matter, the commenter stated, it may not be possible to estimate the quantity of "each regulated pollutant" emitted over any emission limit.

The commenter stated the NESHAP provides for work practices and involves regulation of HAP emissions with the use of surrogates. Given that SSM or deviation reports may be due to a permitting authority in relatively short order, the commenter stated it could be very difficult to meet this requirement even where an estimate could be generated. The commenter stated minimizing regulatory burden and avoiding information "creep" that tends to institutionalize higher costs are important concerns for regulated entities; it is unclear why this information needs to be supplied on an ongoing basis, rather than providing it in response to an expected, infrequent request from a regulatory authority. Thus, the commenter stated the EPA should remove the proposed requirements to provide estimates quantifying emission limit exceedances or methods used to estimate those emissions in the proposed recordkeeping and reporting requirements in 40 CFR 63.7835 (https://www.ecfr.gov/current/title-40/section-63.7835), 63.7841 (https://www.ecfr.gov/current/title-40/section-63.7841), and 63.7842 (https://www.ecfr.gov/current/title-40/section-63.7842).

Response: The EPA disagrees that the additional reporting and recordkeeping requirements add burden without value. As stated in the proposed rule, recordkeeping and reporting of the information specified in 40 CFR 63.7835 (https://www.ecfr.gov/current/title-40/section-63.7835), 63.7841 (https://www.ecfr.gov/current/title-40/section-63.7841), and 63.7842 (https://www.ecfr.gov/current/title-40/section-63.7842) ensure that there is adequate information to determine compliance, allow the EPA to determine the severity of the failure to meet an applicable standard, and to provide data that may document how the source met the general duty to minimize emissions during a failure to meet an applicable standard.

The procedure for estimating the quantity of pollutant emitted during the deviation is left open because we recognize that precise or direct measurement is not likely unless the failure to meet the applicable standard happens to occur during a performance test. The estimate of emissions is not for each HAP emitted, but for the regulated pollutant, which in the case of a surrogate such as PM, is the surrogate pollutant (PM) itself. A facility has the flexibility to employ any reasonable means to estimate the emissions from a deviation (*e.g.*, mass balance calculations, measurements when available, or engineering judgment based on known process parameters or the effects of a work practice). The estimation of the quantity of pollutant emitted, as the

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product of the mass emission rate (determined from emissions concentration and gas flow) and the duration of the deviation, are direct indicators of the severity of an issue. Therefore, we maintain that it is appropriate and feasible for facilities to estimate the quantity of each regulated pollutant over the emission limit.

The SSM reports are no longer required by this rule with the removal of the SSM provisions, and the deviation reports are part of the semiannual compliance report, occurring on a known schedule, and have a fixed reporting deadline of 31 days after the end of the reporting period. This deadline provides sufficient time for reporting a deviation that may have occurred on the final day of the reporting period. The EPA is retaining the additional recordkeeping and reporting elements in the final rule, with the exception of the number of deviations, which is unnecessary in light of all deviations being reported.

We agree with the commenter that one of the proposed new SSM requirements, the inclusion of compliance procedures and emissions calculations in the Operations and Maintenance Plan, was not consistent with required content or use of an Operation and Maintenance Plan. To address this inconsistency, we removed certain SSM provisions, described below in section IV.D.5. In addition, see other related rule changes included under electronic reporting, in section IV.E.5 of this preamble.

4. WHAT IS THE RATIONALE FOR OUR FINAL APPROACH FOR THE SSM PROVISIONS?

In finalizing the SSM standards in this rule, the EPA has taken into account startup and shutdown periods and, for the reasons explained below, has not proposed alternate standards for those periods. The integrated iron and steel industry has not identified (and there are no data indicating) any specific problems with removing the SSM exemption. We solicited comment on whether any situations exist where separate standards, such as work practices, would be more appropriate during periods of startup and shutdown rather than the current standard. We did not receive any comments on this topic.

Periods of startup, normal operations, and shutdown are all predictable and routine aspects of a source's operations. Malfunctions, in contrast, are neither predictable nor routine. Instead they are, by definition, "sudden, infrequent, and not reasonably preventable failures of emissions control, process, or monitoring equipment." (40 CFR 63.2 (https://www.ecfr.gov/current/title-40/section-63.2)) (definition of malfunction).

The EPA interprets CAA section 112 as not requiring emissions that occur during periods of malfunction to be factored into development of CAA section 112 standards and this reading has been upheld as reasonable by the Court in *U.S. Sugar Corp.* v. *EPA*, 830 F.3d 579, 606-610 (2016). Under CAA section 112, emissions standards for new sources must be no less stringent than the level "achieved" by the best controlled similar source and for existing sources generally must be no less stringent than the average emission limitation "achieved" by the best performing 12 percent of sources in the category. There is nothing in CAA section 112 that directs the Agency to consider malfunctions in determining the level "achieved" by the best performing sources when setting emission standards. As the Court has recognized, the phrase "average emission limitation achieved by the best performing 12 percent of sources" says nothing about how the performance of the best units is to be calculated. *Nat'l Ass'n of Clean Water Agencies* v. *EPA*, 734 F.3d 1115, 1141 (D.C. Cir. 2013). While the EPA accounts for variability in setting emissions standards, nothing in CAA section 112 requires the Agency to consider malfunctions as part of that analysis. The EPA is not required to treat a malfunction in the same manner as the type of variation in performance that occurs during routine operations of a source. A malfunction is a failure of the source to perform in a "normal or usual manner" and no statutory language compels the EPA to consider such events in setting CAA section 112 standards.

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As the Court recognized in *U.S. Sugar Corp.*, accounting for malfunctions in setting standards would be difficult, if not impossible, given the myriad different types of malfunctions that can occur across all sources in the category and given the difficulties associated with predicting or accounting for the frequency, degree, and duration of various malfunctions that might occur. *Id.* at 608 ("the EPA would have to conceive of a standard that could apply equally to the wide range of possible boiler malfunctions, ranging from an explosion to minor mechanical defects. Any possible standard is likely to be hopelessly generic to govern such a wide array of circumstances."). As such, the performance of units that are malfunctioning is not "reasonably" foreseeable. See, *e.g.*, *Sierra Club* v. *EPA*, 167 F.3d 658, 662 (D.C. Cir. 1999) ("The EPA typically has wide latitude in determining the extent of data-gathering necessary to solve a problem. We generally defer to an Agency's decision to proceed on the basis of imperfect scientific information, rather than to 'invest the resources to conduct the perfect study.'"). See also, *Weyerhaeuser* v. *Costle*, 590 F.2d 1011, 1058 (D.C. Cir. 1978) ("In the nature of things, no general limit, individual permit, or even any upset provision can anticipate all upset situations. After a certain point, the transgression of regulatory limits caused by `uncontrollable acts of third parties', such as strikes, sabotage, operator intoxication or insanity, and a variety of other eventualities, must be a matter for the administrative exercise of case-by-case enforcement discretion, not for specification in advance by regulation."). In addition, emissions during a malfunction event can be significantly higher than emissions at any other time of source operation. For example, if an air pollution control device with 99-percent removal goes off-line as a result of a malfunction (as might happen if, for example, the bags in a baghouse catch fire) and the emission unit is a steady state type unit that would take days to shut down, the source would go from 99-percent control to zero control until the control device was repaired. The source's emissions during the malfunction would be 100 times higher than during normal operations. As such, the emissions over a 4-day malfunction period would exceed the annual emissions of the source during normal operations. As this example illustrates, accounting for malfunctions could lead to standards that are not reflective of (and significantly less stringent than) levels that are achieved by a well-performing non-malfunctioning source. It is reasonable to interpret CAA section 112 to avoid such a result. The EPA's approach to malfunctions is consistent with CAA section 112 and is a reasonable interpretation of the statute.

Although no statutory language compels the EPA to set standards for malfunctions, the EPA has the discretion to do so where feasible. For example, when the EPA conducted the Petroleum Refinery Sector RTR, the EPA established a work practice standard for unique types of malfunctions that result in releases from pressure relief devices or emergency flaring events because the EPA had information to determine that such work practices reflected the level of control that applies to the best performers. 80 FR 75178 (/citation/80-FR-75178), 75211-14 (/citation/80-FR-75211) (December. 1, 2015). The EPA will consider whether circumstances warrant setting standards for a particular type of malfunction and, if so, whether the EPA has sufficient information to identify the relevant best performing sources and establish a standard for such malfunctions. In the event that a source fails to comply with the applicable CAA section 112(d) standards as a result of a malfunction event, the EPA would determine an appropriate response based on, among other things, the good faith efforts of the source to minimize emissions during malfunction periods, including preventative and corrective actions, as well as root cause analyses to ascertain and rectify excess emissions. The EPA would also consider whether the source's failure to comply with the CAA section 112(d) standard was, in fact, "sudden, infrequent, not reasonably preventable," and was not caused (in any way) by poor maintenance or careless operation. 40 CFR 63.2 (https://www.ecfr.gov/current/title-40/section-63.2) (definition of malfunction).

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If the EPA determines in a particular case that an enforcement action against a source for violation of an emission standard is warranted, the source can raise any and all defenses in that enforcement action and the Federal district court will determine what, if any, relief is appropriate. The same is true for citizen enforcement actions. Similarly, the presiding officer in an administrative proceeding can consider any defense raised and determine whether administrative penalties are appropriate.

In summary, the EPA interpretation of the CAA and, in particular, CAA section 112 is reasonable and encourages practices that will avoid malfunctions. Administrative and judicial procedures for addressing exceedances of the standards fully recognize that violations may occur despite good faith efforts to comply and can accommodate those situations. *U.S. Sugar Corp.* v. *EPA*, 830 F.3d 579, 606-610 (2016).

We are requiring compliance with the SSM changes for existing sources 180 days from publication of the final rule. This period of time will allow facilities to read and understand the amended rule requirements, to evaluate their operations to ensure that they can meet the standards during periods of startup and shutdown as defined in the rule and make any necessary adjustments, and to convert reporting mechanisms to install necessary hardware and software. The EPA considers a period of 180 days to be the most expeditious compliance period practicable for these source categories and, thus, all affected sources must comply with the revisions to the SSM provisions and electronic reporting requirements no later than 180 days from the effective date of the final rule, or upon startup, whichever is later.

5. WHAT RULE CHANGES DID WE MAKE FOR THE FINAL RULE FOR THE SSM PROVISIONS?

In response to comments submitted in regard to the SSM provisions, we made the following changes for the final rule:

- Removed proposed 40 CFR 63.7800(b)(8) (https://www.ecfr.gov/current/title-40/section-63.7800#p-63.7800(b)(8)), "The compliance procedures within the operation and maintenance plan shall not include any periods of startup or shutdown in emissions calculations."

E. Electronic Reporting

1. WHAT DID WE PROPOSE FOR ELECTRONIC REPORTING FOR THE INTEGRATED IRON AND STEEL MANUFACTURING FACILITIES SOURCE CATEGORY?

On August 16, 2019, the EPA proposed the requirement that owners and operators of integrated iron and steel facilities submit the required electronic copies of summaries of performance test and performance evaluation results and semiannual reports through the EPA's CDX using the CEDRI. A description of the electronic data submission process is provided in the memorandum titled *Electronic Reporting Requirements for New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP) Rules* (Docket ID Item No. EPA-HQ-OAR-2002-0083-0909). The proposed rule required performance test results to be collected using test methods that are supported by the EPA's ERT, as listed on the ERT website at the time of the test, be submitted in the format generated through the use of the ERT, and that other performance test results be submitted in PDF using the attachment module of the ERT. Similarly, performance evaluation results of continuous monitoring systems measuring relative accuracy test audit pollutants that are supported by the ERT at the time of the test would be submitted in the format generated through the use of the ERT and other performance evaluation results be submitted in PDF using the attachment module of the ERT.

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For semiannual compliance reports, the proposed rule required owners and operators to use the appropriate spreadsheet template to submit information to CEDRI. A draft template for these reports was included in the docket for this rulemaking, and the final template will be available on the CEDRI homepage

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(*https://www.epa.gov/electronic-reporting-air-emissions/cedri (https://www.epa.gov/electronic-reporting-air-emissions/cedri)*). Additionally, the EPA identified two broad circumstances in which electronic reporting extensions may be provided. In both circumstances, the decision to accept the claim of needing additional time to report would be within the discretion of the Administrator, and reporting should occur as soon as possible. The EPA is providing these potential extensions to protect owners and operators from noncompliance in cases where they cannot successfully submit a report by the reporting deadline for reasons outside of their control. The situation where an extension may be warranted due to outages of the EPA's CDX or CEDRI that preclude an owner or operator from accessing the system and submitting required reports is addressed in 40 CFR 63.7841(e) (https://www.ecfr.gov/current/title-40/section-63.7841#p-63.7841(e)). The situation where an extension may be warranted due to a force majeure event, which is defined as an event that would be or has been caused by circumstances beyond the control of the affected facility, its contractors, or any entity controlled by the affected facility that prevents an owner or operator from complying with the requirement to submit a report electronically as required by this rule is addressed in 40 CFR 63.7841(f) (https://www.ecfr.gov/current/title-40/section-63.7841#p-63.7841(f)). Examples of such events are acts of nature, acts of war or terrorism, or equipment failure or safety hazards beyond the control of the facility.

2. HOW DID ELECTRONIC REPORTING CHANGE FOR THE INTEGRATED IRON AND STEEL MANUFACTURING FACILITIES SOURCE CATEGORY?

There were no major changes to the final rule for electronic reporting for the Integrated Iron and Steel Manufacturing Facilities source category. Minor rule edits were made to the proposed requirements in response to comments and are shown in section IV.E.5 below.

3. WHAT KEY COMMENTS DID WE RECEIVE ON ELECTRONIC REPORTING, AND WHAT ARE OUR RESPONSES?

This section provides a summary of key comments and responses regarding electronic reporting. A summary of all other public comments on the proposal and the EPA's responses to those comments is available in the Summary of Public Comments and Responses for the Risk and Technology Review for Integrated Iron and Steel Manufacturing Facilities (Docket ID No. EPA-HQ-OAR-2002-0083).

Comment: A commenter requested minor technical corrections to the compliance reporting template.

Response: The EPA acknowledges the thorough review of the template by the commenter. Updates to the Integrated Iron and Steel Manufacturing Facilities source category compliance template have been made accordingly to better reflect the provisions of the final rule and address industry comments. These corrections are shown in detail in the response to comment document with responses to specific elements of the comments.

4. WHAT IS THE RATIONALE FOR OUR FINAL APPROACH FOR ELECTRONIC REPORTING?

The electronic submittal of the reports addressed in this rulemaking will increase the usefulness of the data contained in those reports, is in keeping with current trends in data availability and transparency, will further assist in the protection of public health and the environment, will improve compliance by facilitating the ability of regulated facilities to demonstrate compliance with requirements, and by facilitating the ability of delegated state, local, tribal, and territorial air agencies and the EPA to assess and determine compliance, and will ultimately reduce burden on regulated facilities, delegated air agencies, and the EPA. Electronic reporting also eliminates paper-based, manual processes, thereby saving time and resources, simplifying data entry, eliminating redundancies, minimizing data reporting errors, and providing data quickly and

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accurately to the affected facilities, air agencies, the EPA, and the public. Moreover, electronic reporting is consistent with the EPA's plan to implement Executive Order 13563 (/executive-order/13563) and is in keeping with the EPA's Agency-wide policy developed in response to the White House's Digital Government Strategy. For more information on the benefits of electronic reporting, see the memorandum titled *Electronic Reporting Requirements for New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP) Rules* (Docket ID Item No. EPA-HQ-OAR-2002-0083-0909).

5. WHAT RULE CHANGES DID WE MAKE FOR THE FINAL RULE FOR ELECTRONIC REPORTING?

In response to comments submitted in regard to electronic reporting, we made the following changes for the final rule:

- Revised 40 CFR 63.7835 (https://www.ecfr.gov/current/title-40/section-63.7835) to remove requirement to record number of failures to eliminate redundancy with the spreadsheet template that requires the inclusion of every failure;
- Revised 40 CFR 63.7841(b)(4) (https://www.ecfr.gov/current/title-40/section-63.7841#p-63.7841(b)(4)) to remove requirement to report number of failures to eliminate redundancy with the spreadsheet template that requires the inclusion of every failure;
- Revised 40 CFR 63.7841(b)(7) (https://www.ecfr.gov/current/title-40/section-63.7841#p-63.7841(b)(7)) to include citation to newly added 40 CFR 63.7841(b)(13) (https://www.ecfr.gov/current/title-40/section-63.7841#p-63.7841(b)(13));
- Revised 40 CFR 63.7841(b)(7)(i) (https://www.ecfr.gov/current/title-40/section-63.7841#p-63.7841(b)(7)(i)) to remove the requirement to report the "number" of deviations;
- Revised 40 CFR 63.7841(b)(8) (https://www.ecfr.gov/current/title-40/section-63.7841#p-63.7841(b)(8)) to include citation to newly added 40 CFR 63.7841(b)(13) (https://www.ecfr.gov/current/title-40/section-63.7841#p-63.7841(b)(13));
- Revised 40 CFR 63.7841(b)(8)(ii) (https://www.ecfr.gov/current/title-40/section-63.7841#p-63.7841(b)(8)(ii)) to add "and duration", as in (iii);
- Revised 40 CFR 63.7841(b)(9) (https://www.ecfr.gov/current/title-40/section-63.7841#p-63.7841(b)(9)) to include citation to newly added 40 CFR 63.7841(b)(13) (https://www.ecfr.gov/current/title-40/section-63.7841#p-63.7841(b)(13));
- Added 40 CFR 63.7841(b)(13) (https://www.ecfr.gov/current/title-40/section-63.7841#p-63.7841(b)(13)) to provide 180 days after publication in the **Federal Register** for all sources that failed to meet an applicable standard to include in the compliance report for each failure the start date, start time and duration of each failure and a list of the affected sources or equipment, an estimate of the quantity of each regulated pollutant emitted over any emission limit, and a description of the method used to estimate the emissions;
- Revised 40 CFR 63.7841(c) (https://www.ecfr.gov/current/title-40/section-63.7841#p-63.7841(c)) to specify the beginning of electronic reporting to begin either 180 days after promulgation of the final rule or 180 days after the template is available in CEDRI, whichever is later; and
- Removed proposed 40 CFR 63.7843(d) (https://www.ecfr.gov/current/title-40/section-63.7843#p-63.7843(d)) to eliminate redundancy with existing language in 40 CFR 63.10(b)(1) (https://www.ecfr.gov/current/title-40/section-63.10#p-63.10(b)(1)).

F. Other Issues Regarding UFIP Sources of HAP Emissions

In this section we address other issues related to UFIP emissions sources that are not addressed above in section IV.A of this preamble.

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1. HOW WERE OTHER RELEVANT ISSUES REGARDING UFIP SOURCES OF HAP EMISSIONS ADDRESSED IN THE PROPOSED RULE FOR THE INTEGRATED IRON AND STEEL MANUFACTURING FACILITIES SOURCE CATEGORY?

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As described in Section IV.A of this preamble, in the August 16, 2019, proposal, we discussed seven UFIP HAP emission sources (84 FR at 42708) and requested comments on all aspects of the UFIP analyses. We did not propose any standards for these sources.

The UFIP emission sources described in the proposal included BF bleeder valve unplanned openings (also known as slips), BF bleeder valve planned openings, BF bell leaks, BF casthouse fugitives, BF iron beaching, BF slag handling and storage operations, and BOPF shop fugitives. These UFIP emission sources were identified by observation of visible plumes of fugitives and intermittent emissions being emitted from the seven UFIP sources during inspections by EPA Regional staff[17] and discussed in the technical memorandum titled *Development of Emissions Estimates for Fugitive or Intermittent HAP Emission Sources for an Example Integrated Iron and Steel Facility for Input to the RTR Risk Assessment* (Docket ID Item No. EPA-HQ-OAR-2002-0083-0956). The NESHAP already contains opacity limits for two of these sources—BF casthouse fugitives and BOPF shop fugitives.

The emissions from these UFIP sources were included in the risk assessment in an example facility analysis to assess the potential risk contributed by UFIP and the effect that omission of these sources has on the estimated risks for the source category as a whole. (See section IV.A.1 and Table 2 of this preamble for the risk estimated for the source category).

As explained in section IV.A in regard to the UFIP and potential work practices, and consistent with our explanation in the proposed rule (see 84 FR 42704 (/citation/84-FR-42704)) that was based on consideration of all our analyses and related information including the risk analysis results, costs, and uncertainties, we determined in the proposal that the current NESHAP provides an ample margin of safety to protect public health and that no additional standards are required under CAA section 112(f). This decision was based largely on the substantial uncertainties in the estimates of the baseline HAP emissions from UFIP emission sources, costs of the work practices, HAP risk reductions that would be achieved by the work practices, and uncertainties raised by industry in their comments regarding potential effects of the work practices on the facilities' operations, safety, and economics.

Furthermore, as described in section IV.B, for most of the same reasons discussed above in regard to ample margin of safety analysis for UFIP emissions, no new standards were proposed for the two regulated UFIP sources under the technology review pursuant to CAA section 112(d)(6).

2. HOW DID THE FINAL RULE CHANGE BASED ON THE COMMENTS RECEIVED ABOUT UFIP SOURCES?

We are not promulgating any new standards for UFIP emissions sources under the risk or technology reviews, as described in sections IV.A and IV.B. We also are not taking final action to establish additional emission standards for any of the UFIP emissions sources under any other CAA authority at this time. Although we received many comments on UFIP sources, both supporting and opposing additional standards, we did not receive any additional data on UFIP emissions or on the effectiveness of the work practices. We did receive some limited additional information on costs that suggested we may have underestimated the costs for some of the work practices discussed in the proposal, but no citations or documentation were provided to validate the new cost information. We also received comments that suggested we may have overestimated UFIP emissions and control-effectiveness of the work practices, but, again, without any citations of documentation for other emission estimates or control efficiencies of the work practices. For

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these reasons, and because we do not have adequate information to resolve the substantial uncertainty that remains for the UFIP emissions estimates, control efficiency of the work practices, costs, and other factors, we are not promulgating any new requirements for UFIP sources in this action.

3. WHAT KEY COMMENTS DID WE RECEIVE ABOUT UFIP SOURCES THAT WERE NOT ALREADY ADDRESSED UNDER THE RISK REVIEW SECTION OF THIS PREAMBLE AND WHAT ARE OUR RESPONSES?

This section provides a summary of some of the key comments and responses regarding UFIP sources not addressed above in section IV.A.3. A summary of all other public comments on the proposal in regard to UFIP and the EPA's responses to those comments are available in the document *Summary of Public Comments and Responses for the Risk and Technology Review for Integrated Iron and Steel Manufacturing Facilities*, located in the docket for this rule (Docket ID No. EPA-HQ-OAR-2002-0083).

Comment: One commenter recognized that the EPA identified the work practice information as uncertain, and in fact, too uncertain to be relied upon in this rulemaking. The commenter appreciated the EPA's recognition of these issues and supported the Agency's conclusions. The commenter is pleased that the EPA is not proposing to rely on unsupported conclusions as part of a final rule.

Another commenter stated the EPA created the "UFIP" designation to refer to emissions that facilities generally try to prevent from occurring in the first place. In other words, facilities are already naturally incentivized to prevent many UFIP emissions as they reflect nonoptimal operation. Thus, the commenter says, facilities operate to minimize these emissions without additional regulatory requirements; imposing a regulatory overlay would be problematic from an operational perspective and would not lead to reduced emissions. The commenter stated regulating these sources would dictate *how* facilities operate—effectively freezing approaches in time when they should be evolving as part of the continuous improvement process. Second, the commenter stated regulation would impose a one-size-fits-all approach for sources that make products in different ways and have different configurations. Third, the commenter stated regulation of UFIP would create a micro-managerial structure that would be costly—even if not from a capital investment perspective—because of the operational nature of many of the approaches the EPA considered. This micro-managerial structure, the commenter stated, would lead to only "paperwork" deviations, by imposing onerous recordkeeping requirements, which will mean that operators' and inspectors' attention will be taken away from critical aspects of plant operations, even when a plant is not causing increased emissions. Thus, the commenter concluded the emission reduction practices presented by the EPA for UFIP sources provide no risk reduction benefit despite the cost and effort they entail. Finally, the commenter stated that, given the intense competition in this industry, which stretches well beyond U.S. borders, these requirements would put U.S. facilities at a cost disadvantage—and would do so without generating commensurate emissions and risk reductions.

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The commenter stated the EPA appropriately acknowledges that there are significant uncertainties in costs, effectiveness, and feasibility of the work practice options on which it seeks comment. The commenter stated the estimates in the proposal drastically understate the costs and likewise overstate any emission reductions that would be achieved, since companies already work to prevent these emissions and are incentivized to do so to maintain their operations in the most efficient and safe manner. Although the EPA estimates the specific costs for each of the work practices discussed in the proposal preamble, the commenter stated the EPA fails to attribute potential HAP emissions reductions individually, and, thus, does not appropriately estimate cost effectiveness. The commenter stated that, even without these additional considerations, the EPA is right not to require them, and that with an accurate view of the costs and benefits of this regulatory overlay, the EPA decision is unquestionably correct.

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The commenter stated given the risk modeling, the work practice options discussed are not necessary to provide an ample margin of safety. The commenter stated the various compliance and enforcement documents related to the so-called UFIP sources in the rulemaking docket are not to the contrary. Moreover, the commenter stated it would be unreasonable to require the potential work practices as doing so would codify practices that already occur voluntarily or pursuant to current federal or state requirements and drive up costs of compliance without resulting in any risk reduction. The commenter stated adding a substantial administrative burden to an important economic sector, particularly without clear benefit, is contrary to Congress' purpose under the CAA and with reasoned decision-making. The commenter stated the focus should be on maximizing environmentally beneficial results, not paperwork. The commenter stated codifying work practices that already take place on a case-by-case basis would result in a misdirection of resources not only from the steel industry to comply with added monitoring, recordkeeping, and reporting requirements, but also from the EPA by having to assure compliance with details that ultimately have little bearing on air quality and public health.

The commenter stated many of the work practices are practically infeasible as applied to particular plants or, generally, not cost effective and, in some instances, could even be contrary to practices established to assure facility safety, such as what would result from reducing natural ventilation and other effects of closing the openings and air holes in the BF casthouse and BOP shop. These effects include cost to the facility to otherwise increase breathing space ventilation for workers; the wear and tear on control equipment due to higher-than-design air flowrates; the cost to document opening and closing of doors, windows, *etc.*, to accommodate large equipment and vehicle traffic into buildings; difficulty in accessing some openings that may be hundreds of feet off the ground, requiring significant precautions due to the height alone; and prevent the opening of pressure relief panels, which would badly damage building exteriors during high-pressure events, etc. Therefore, the commenter stated the EPA should, thus, finalize its proposal not to amend 40 CFR part 63, subpart FFFFF (https://www.ecfr.gov/current/title-40/part-63/subpart-FFFFF) to require additional work practices for UFIP sources.

Response: The EPA acknowledges the support by the commenter for the proposed conclusions, which are being finalized in this document. The EPA also acknowledges, as the commenter points out, the complexities in controlling emissions from UFIP sources. The EPA also is pleased to know that the industry is already attempting to minimize these emissions.

We do not agree with the commenter that many of the work practices are "practically infeasible" at all plants, but we cannot adequately assess the effectiveness or impacts of the work practices without more specific descriptions of actual facility experience with, or analyses of, the impacts of the work practices, including potential changes in air flow into and out of the buildings beyond the extreme consequences hypothesized by the commenter, which mostly only concern BF casthouse and BOP shop operations. With the understanding that the work practices could be more difficult to implement at some facilities than others, we sought specific comments on the general feasibility of the work practices, with the hope that commenters could have described ways to improve or modify the work practice so as to be amenable to their use at all facilities. Unfortunately, we received very little information through the public comments to improve our understanding of which work practices would be generally feasible and appropriate across the industry.

In regard to calculating cost effectiveness, since the HAP being evaluated are all various PM HAP metals, we conclude that it would neither be appropriate nor logical to apportion control costs of a work practice or control device to each metal HAP in this case, mainly because the intent of the control methods we analyzed

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is to minimize emissions of the mix of PM HAP metals. Nevertheless, as described elsewhere in this preamble, the EPA is not promulgating any new or revised standards for UFIP sources in this action.

Comment: One commenter stated, based on the record, it is unclear how or why the EPA ended its staff's consideration of the work practice standards for the proposal, or on what basis it did so. In addition, the commenter noted that the EPA contacted Michigan and Indiana and provided "draft work practice standards," as shown by email communications with these states in 2018. The commenter continued that there was some material in the bodies of the emails that the EPA has disclosed showing these would likely have been important and achieved significant emission reductions. It is clear to the commenter that the EPA staff long planned to propose significant emission reduction requirements, based on the evidence they have in the record, and that the state air quality inspectors and regulators also supported these requirements.

The commenter stated the EPA has failed to show how it can lawfully or rationally not follow what its own regulatory staff initially provided to stakeholders, what its enforcement staff apparently support (EPA Region V), and what state regulators in Michigan and Indiana have also supported as needed to reduce UFIP emissions and protect public health. The commenter stated the EPA's "about-face" from its staff's and state air regulators' recommendations, and its ultimate refusal to follow the evidence in the record illustrate that this proposal, if finalized, would be unlawful and arbitrary. The commenter stated it appears that the EPA Administrator has not acted with the requisite open mind to consider the relevant statutory requirements, record, or staff recommendations which would have led to a stronger proposal and a stronger final rule. The commenter stated the EPA will violate the CAA and engage in the ultimate in capricious decision making if it attempts to finalize this proposed rule which lacks the necessary statutory requirements as well as the required rational connection to the facts shown in the record.

Response: While the EPA agrees with the commenter that the UFIP HAP emissions issue and related information available to the EPA were worthy of bringing forth to the public and asking for comment in the proposal, no additional technical information was received to improve our understanding or quantification of the UFIP emissions or our understanding of the effectiveness of using work practices to control UFIP emissions. We received some new cost information that suggests that we underestimated the costs of the work practices, but that new information was not documented or cited. We also received comments that we overestimated UFIP emissions and overestimated the effectiveness of the work practices, which combined with information suggesting we underestimated costs, if accurate, would make control of UFIP emissions substantially less cost-effective than the values we presented in the proposal preamble. In addition, although environmental groups submitted comments in general support of UFIP regulations, no comments were received from citizens or community groups living in the areas of the integrated iron and steel facilities supporting the UFIP emission regulations, or on the impact to local residents of not requiring work practices to reduce emissions from these sources, or any other claims as such. Therefore, because of the uncertainty in the UFIP emission estimates, cost estimates, and control efficiencies of the work practices; and the lack of complete information about the impact of UFIP emissions at all facilities (as described above in previous comments), the EPA is not promulgating any work practice standards for UFIP emissions at this time. See above section IV.A for a more detailed discussion of the estimated risk from UFIP emissions.

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4. WHAT IS OUR RATIONALE FOR OUR FINAL APPROACH FOR THE UFIP SOURCES?

The decision not to promulgate any new standards for UFIP sources at this time is based largely on the uncertainties in the UFIP assessment in terms of the emission estimates, costs of the work practices, how much emission reduction the work practices could achieve, and the potential negative effects of the work practices on the facilities' operations, safety, and economics. For five of the UFIP sources not currently

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regulated,[18] we would need to promulgate standards for these sources pursuant to CAA section 112(d)(2) and (3), which would necessitate an analysis of the top performers under CAA sections 112(d)(2) and (3). The lack of quantitative emissions data (and the time and techniques to obtain such data) for UFIP sources and/or the lack of other relevant information (such as reliable information regarding the effectiveness of each of the work practices), which is needed to establish the top performing facilities and the MACT floor level of control, prevents us from establishing appropriate emissions standards for the five UFIP sources at this time.

With regard to the other two UFIP sources currently regulated (*i.e.*, BF casthouse and BOPF shop), since we have concluded that risks due to emissions from the source category are acceptable, we would need to promulgate standards for these two UFIP sources pursuant to CAA section 112(d)(6) or under the ample margin of safety analysis phase of our section 112(f) review, both of which include considerations of costs and other factors. As explained previously in this preamble, the EPA has decided to not promulgate any of the work practices for these two UFIP sources at this time mainly because of the substantial uncertainties in the UFIP assessment in terms of baseline emissions, costs of the work practices, how much emission reduction the work practices could achieve; and, the potential negative effects of the work practices on the facilities' operations, safety, and economics.

G. Other Items

Other items in this final rule are IBR, compliance dates, and other rule changes not discussed elsewhere in this preamble. These issues are discussed below.

1. IBR UNDER 1 CFR PART 51 (HTTPS://WWW.ECFR.GOV/CURRENT/TITLE-1/PART-51)

On August 16, 2019, the EPA proposed regulatory text that includes IBR. In accordance with requirements of 1 CFR 51.5 (https://www.ecfr.gov/current/title-1/section-51.5), the EPA proposed to incorporate by reference the following documents and to amend 40 CFR 63.14 (https://www.ecfr.gov/current/title-40/section-63.14) to identify the provisions for which these documents are IBR approved for this rule:

- ANSI/ASME PTC 19.10-1981, Flue and Exhaust Gas Analyses [Part 10, Instruments and Apparatus], issued August 31, 1981, IBR approved for 40 CFR 63.7822(b) (https://www.ecfr.gov/current/title-40/section-63.7822#p-63.7822(b)), 63.7824(e) (https://www.ecfr.gov/current/title-40/section-63.7824#p-63.7824(e)), and 63.7825(b) (https://www.ecfr.gov/current/title-40/section-63.7825#p-63.7825(b)). This method determines quantitatively the gaseous constituents of exhausts resulting from stationary combustion sources. The gases addressed in the method are oxygen, carbon dioxide, carbon monoxide, nitrogen, sulfur dioxide, sulfur trioxide, nitric oxide, nitrogen dioxide, hydrogen sulfide, and hydrocarbons. The method is approved for this rule with caveats described in section VI.J of this preamble.
- EPA-454/R-98-015, Office of Air Quality Planning and Standards (OAQPS), Fabric Filter Bag Leak Detection Guidance, September 1997, IBR approved for 40 CFR 63.7831(f) (https://www.ecfr.gov/current/title-40/section-63.7831#p-63.7831(f)). This document provides guidance on the use of triboelectric monitors as fabric filter bag leak detectors. The document includes fabric filter and monitoring system descriptions; guidance on monitor selection, installation, setup, adjustment, and operation; and quality assurance procedures.

For the final rule, in response to comments, we have added the following voluntary consensus standard (VCS) approved as an alternate method to measure opacity under 40 CFR part 63, subpart FFFFF (https://www.ecfr.gov/current/title-40/part-63/subpart-FFFFF), with caveats described in section VI.J of this preamble; we will incorporate the method by reference in the amendments to 40 CFR 63.14 (https://www.ecfr.gov/current/title-40/section-63.14):

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- ASTM D7520-16, Standard Test Method for Determining the Opacity of a Plume in the Outdoor Ambient Atmosphere, approved April 1, 2016, IBR approved for 40 CFR 63.7823(c) (https://www.ecfr.gov/current/title-40/section-63.7823#p-63.7823(c)), 63.7823(d) (https://www.ecfr.gov/current/title-40/section-63.7823#p-63.7823(d)), 63.7823(e) (https://www.ecfr.gov/current/title-40/section-63.7823#p-63.7823(e)), and 63.7833(g) (https://www.ecfr.gov/current/title-40/section-63.7833#p-63.7833(g)). This method describes procedures to determine the opacity of a plume, using digital imagery and associated hardware and software, where opacity is caused by PM emitted from a stationary point source in the outdoor ambient environment. The opacity of emissions is determined by the application of a DCOT that consists of a digital still camera, analysis software, and the output function's content to obtain and interpret digital images to determine and report plume opacity. The method is approved for this rule with caveats described in section VI.J of this preamble.

The ANSI/ASME document is available from the American Society of Mechanical Engineers (ASME) at *http://www.asme.org; (http://www.asme.org;);* by mail at Three Park Avenue, New York, NY 10016-5990; or by telephone at (800) 843-2763. The ASTM D7520-16 document is available from the American Society for Testing and Materials (ASTM) at *https://www.astm.org (https://www.astm.org)* or 1100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, telephone number: (610) 832-9500, fax number: (610) 832-9555, or email: *service@astm.org (mailto:service@astm.org)*. The EPA has made, and will continue to make, the EPA document generally available electronically through *https://www.regulations.gov/ (https://www.regulations.gov/)* and at the EPA Docket Center (see the **ADDRESSES** section of this preamble for more information).

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2. COMPLIANCE DATES

On August 16, 2019, we proposed to provide existing sources with 180 days after the effective date of the final rule to comply with the changes to the SSM provisions in 40 CFR part 63, subpart FFFFF (https://www.ecfr.gov/current/title-40/part-63/subpart-FFFFF) and all (https://www.ecfr.gov/current/title-40/part-63/subpart-all) other new or revised requirements in this rule except for the mercury emission limits, for which we proposed to require compliance within 1 year. We proposed that new sources, defined as BOPFs, BOPF shops, or facilities constructed or reconstructed after August 16, 2019, would be required to comply with all requirements on the effective date of the final rule, or upon startup, whichever is later.

In the final rule, for the SSM provisions and all other new or revised requirements in this rule except for those related to the mercury standards, we are finalizing the compliance times as proposed (180 days) for existing sources, and new sources will need to comply upon the effective date of the final rule or upon startup, whichever is later. Regarding the mercury standards and associated requirements, we are providing for existing sources the same deadlines as proposed (*i.e.*, 1 year to comply). An additional year may be provided for compliance via the states as per 40 CFR part 63 (https://www.ecfr.gov/current/title-40/part-63) General Provisions (40 CFR 63.6(i) (https://www.ecfr.gov/current/title-40/section-63.6#p-63.6(i))) for facilities needing to make process changes or install control equipment. As proposed and consistent with the CAA, new sources must comply upon the effective date of the final rule or upon startup, whichever is later.

For electronic reporting, the final rule provides that facilities must comply with the electronic reporting requirements for semiannual compliance reports either 180 days after date of publication in the **Federal Register** of the final rule or 180 days after the electronic reporting template for Integrated Iron and Steel Manufacturing Facilities is available in CEDRI, whichever is later, to allow for EPA revisions to the template in response to comments.

3. WHAT OTHER RULE CHANGES DID WE MAKE IN THE FINAL RULE?

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In the final rule, we made the following technical and editorial corrections and clarifications:

- Revised 40 CFR 63.7810(a) (https://www.ecfr.gov/current/title-40/section-63.7810#p-63.7810(a)) to provide sources that commenced construction or reconstruction on or before August 16, 2019, 180 days after publication in the **Federal Register** for all sources to comply with emission limitations during periods of SSM;
- Revised 40 CFR 63.7810(c) (https://www.ecfr.gov/current/title-40/section-63.7810#p-63.7810(c)) to remove the SSM plan requirement 180 days after publication in the **Federal Register** for sources that commenced construction or reconstruction on or before August 16, 2019 and to remove the SSM plan requirement upon publication in the **Federal Register** for all sources that commenced construction or reconstruction after August 16, 2019;
- Revised 40 CFR 63.7810(d) (https://www.ecfr.gov/current/title-40/section-63.7810#p-63.7810(d)) to provide sources that commenced construction or reconstruction on or before August 16, 2019 with 180 days to comply with the general duty requirement in 40 CFR 63.7810(d) (https://www.ecfr.gov/current/title-40/section-63.7810#p-63.7810(d)). Prior to the expiration of the 180 days, such sources must comply with the provisions in 40 CFR 63.6(e)(1)(i) (https://www.ecfr.gov/current/title-40/section-63.6#p-63.6(e)(1)(i));
- Revised 40 CFR 63.7822(a) (https://www.ecfr.gov/current/title-40/section-63.7822#p-63.7822(a)) to provide 180 days after publication in the **Federal Register** for all sources that commenced construction or reconstruction on or before August 16, 2019 comply with the revised requirement to conduct each performance test under conditions representative of normal operations, excluding periods of startup and shutdown and malfunction. Prior to the expiration of 180 days, such sources must comply with the pre-existing requirement to conduct performance tests based on representative performance;
- Revised 40 CFR 63.7822 (https://www.ecfr.gov/current/title-40/section-63.7822) and 63.7823 (https://www.ecfr.gov/current/title-40/section-63.7823) to specify the conditions for conducting performance tests;
- Revised 40 CFR 63.7822(b)(1)(iii) (https://www.ecfr.gov/current/title-40/section-63.7822#p-63.7822(b)(1)(iii)), 63.7824(e)(1)(iii) (https://www.ecfr.gov/current/title-40/section-63.7824#p-63.7824(e)(1)(iii)), and 63.7825(b)(1)(iii) (https://www.ecfr.gov/current/title-40/section-63.7825#p-63.7825(b)(1)(iii)) to IBR ANSI/ASME PTC 19.10-1981;
- Revised 40 CFR 63.7822 (https://www.ecfr.gov/current/title-40/section-63.7822), 63.7823 (https://www.ecfr.gov/current/title-40/section-63.7823), 63.7824 (https://www.ecfr.gov/current/title-40/section-63.7824), and 63.7833 (https://www.ecfr.gov/current/title-40/section-63.7833) to clarify the location in 40 CFR part 60 (https://www.ecfr.gov/current/title-40/part-60) of applicable EPA test methods;
- Revised 40 CFR 63.7823(a) (https://www.ecfr.gov/current/title-40/section-63.7823#p-63.7823(a)) to specify initial compliance with the opacity limits should be based on representative performance which excludes periods of startup and shutdown and malfunction;
- Added to 40 CFR 63.7823(c)(1) (https://www.ecfr.gov/current/title-40/section-63.7823#p-63.7823(c)(1)), (d)(1)(i) (https://www.ecfr.gov/current/title-40/section-63.7823#p-63.7823(d)(1)(i)), (d)(2)(i) (https://www.ecfr.gov/current/title-40/section-63.7823#p-63.7823(d)(2)(i)), (e)(1) (https://www.ecfr.gov/current/title-40/section-63.7823#p-63.7823(e)(1)) and 63.7833(g)(3) (https://www.ecfr.gov/current/title-40/section-63.7833#p-63.7833(g)(3)) to IBR the ASTM D7520-16 method as an alternative VCS to EPA Method 9 opacity observations; added "For Method 9" to 40 CFR 63.7823(e)(3) (https://www.ecfr.gov/current/title-40/section-63.7823#p-63.7823(e)(3)) to clarify that using an observer is only for EPA Method 9;
- Revised 40 CFR 63.7831(a)(4) (https://www.ecfr.gov/current/title-40/section-63.7831#p-63.7831(a)(4)) to clarify that sources that commenced construction or reconstruction on or before August 16, 2019, and, therefore, are not required to comply during periods of SSM until after 180 days after publication in the **Federal Register**, are subject during that 180 day period to the requirements in 40 CFR 63.8(c)(1)(ii) (https://www.ecfr.gov/current/title-40/section-63.8#p-63.8(c)(1)(ii)), (c)(3) (https://www.ecfr.gov/current/title-40/section-63.8#p-63.8(c)(3)), (c)(4)(ii) (https://www.ecfr.gov/current/title-40/section-63.8#p-63.8(c)(4)(ii)), (c)(7) (https://www.ecfr.gov/current/title-40/section-63.8#p-63.8(c)(7)), and (c)(8) (https://www.ecfr.gov/current/title-40/section-63.8#p-63.8(c)(8));

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- Revised 40 CFR 63.7831(a)(5) (https://www.ecfr.gov/current/title-40/section-63.7831#p-63.7831(a)(5)) to clarify that sources that commenced construction or reconstruction on or before August 16, 2019, and, therefore, are not required to comply during periods of SSM until after 180 days after publication in the **Federal Register**, are subject during that 180 day period to the requirements related to SSM plans referenced in 40 CFR 63.8(d)(3) (https://www.ecfr.gov/current/title-40/section-63.8#p-63.8(d)(3));
- Revised 40 CFR 63.7831(a)(6) (https://www.ecfr.gov/current/title-40/section-63.7831#p-63.7831(a)(6)) to provide sources constructed or reconstructed on or before August 16, 2019, and, therefore, are not required to comply during periods of SSM until after 180 days after publication in the **Federal Register**, are subject during that 180 day period to the requirements in § 63.10(c)(1) through (c)(14), and (e)(1) and (e)(2)(i);
- Revised 40 CFR 63.7831(f)(4) (https://www.ecfr.gov/current/title-40/section-63.7831#p-63.7831(f)(4)) to IBR for EPA-454/R-98-015;
- Added 40 CFR 63.7835(d) (https://www.ecfr.gov/current/title-40/section-63.7835#p-63.7835(d)) to specify that for sources that commenced construction or reconstruction after August 16, 2019 the exemptions for deviations that occur during a period of startup, shutdown, or malfunction no longer apply 180 days after publication in the **Federal Register**, and for all other sources the exemptions no longer apply as of the date of publication of the final rule in the **Federal Register**;
- Revised 40 CFR 63.7835 (https://www.ecfr.gov/current/title-40/section-63.7835), 63.7841 (https://www.ecfr.gov/current/title-40/section-63.7841), and 63.7842 (https://www.ecfr.gov/current/title-40/section-63.7842) to include the requirements to record and report information on failures to meet the applicable standard;
- Added 40 CFR 63.7840 (https://www.ecfr.gov/current/title-40/section-63.7840) and 63.7841 (https://www.ecfr.gov/current/title-40/section-63.7841) electronic reporting requirements of required summaries of performance test results and semiannual reports;
- Revised 40 CFR 63.7841(b)(4) (https://www.ecfr.gov/current/title-40/section-63.7841#p-63.7841(b)(4)) to specify that for sources that commenced construction or reconstruction after August 16, 2019 a SSM plan and the information in 40 CFR 63.10(d)(5)(i) (https://www.ecfr.gov/current/title-40/section-63.10#p-63.10(d)(5)(i)) are no longer required 180 days after publication in the **Federal Register**;
- Added 40 CFR 63.7841(b)(12) (https://www.ecfr.gov/current/title-40/section-63.7841#p-63.7841(b)(12)) to specify that for sources that commenced construction or reconstruction after August 16, 2019 a SSM report is no longer required 180 days after publication in the **Federal Register**;
- Revised 40 CFR 63.7842(a)(2) (https://www.ecfr.gov/current/title-40/section-63.7842#p-63.7842(a)(2)) to specify records related to SSM to be kept;
- Revised Table 1 of 40 CFR part 63, subpart FFFFF (https://www.ecfr.gov/current/title-40/part-63/subpart-FFFFF) to add a mercury emission limit, revised Table 2 to add demonstration of initial compliance with the mercury emission limit, and revised Table 3 to add demonstration of continuous compliance with the mercury emission limit;

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- Revised Tables 1 and 3 of 40 CFR part 63, subpart FFFFF (https://www.ecfr.gov/current/title-40/part-63/subpart-FFFFF) to clarify that opacity observations be made at all openings to the BF casthouse;
- Revised Tables 1, 2, and 3 of 40 CFR part 63, subpart FFFFF (https://www.ecfr.gov/current/title-40/part-63/subpart-FFFFF) to clarify that the affected source is each BOPF shop; and
- Eliminated the SSM exemption with revisions to Table 4 (the General Provisions table) of 40 CFR part 63, subpart FFFFF (https://www.ecfr.gov/current/title-40/part-63/subpart-FFFFF) and updated citations throughout the remaining rule text.

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V. Summary of Cost, Environmental, and Economic Impacts and Additional Analyses Conducted

A. What are the affected sources?

The affected sources are facilities in the Integrated Iron and Steel Manufacturing Facilities source category. This includes any facility engaged in producing steel from iron ore. Integrated iron and steel manufacturing includes the following processes: Sinter production, iron production, iron preparation (hot metal desulforization), and steel production. The iron production process includes the production of iron in BFs by the reduction of iron-bearing materials with a hot gas. The steel production process includes BOPF. Based on the data we have, there are eleven integrated iron and steel manufacturing facilities subject to this NESHAP, but one of these facilities is idle.

B. What are the air quality impacts?

We are promulgating standards for mercury that may result in unquantified reductions of mercury emissions and consequently improve air quality to some degree.

C. What are the cost impacts?

In this final rule, we require control of mercury emissions and allow sources to demonstrate compliance through performance testing or scrap selection requirements. We expect that facilities that choose scrap selection as their method of demonstrating compliance likely will not incur operational costs to comply with this requirement because we understand that most, if not all, facilities are already purchasing all their auto scrap from providers who participate in the NVMSRP. Therefore, we estimate a cost of $1,058 per year per facility and $11,639 per year for all 11 facilities in the industry, for recordkeeping and reporting of compliance with the standards.

D. What are the economic impacts?

Negligible economic impacts are expected to be incurred by integrated iron and steel facilities due to the mercury emission limit because the information available to the EPA indicates that most, if not all, facilities are already purchasing scrap from providers who participate in the NVMSRP.

E. What are the benefits?

These promulgated amendments may result in some unquantified reductions in emissions of mercury, depending on the extent of current limitation of mercury input or participation in the scrap selection program by integrated iron and steel facilities. While the industry has reported to the EPA that most, or all, facilities are already meeting the proposed mercury emission limit, to the extent that additional reductions may be achieved, this rule may result in improved health in surrounding populations, especially protection of children from the negative health impacts of mercury exposure.

The requirements to submit reports and test results electronically will reduce paperwork and improve monitoring, compliance, and implementation of the rule.

F. What analysis of environmental justice did we conduct?

For this action, we examined the potential for any environmental justice issues that might be associated with the source category through a demographic analysis, which is an assessment of risks to individual demographic groups of the populations living within 5 kilometer (km) and within 50 km of the facilities. In

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the analysis, we evaluated the distribution of HAP-related cancer and noncancer risks from point sources in the Integrated Iron and Steel Manufacturing Facilities source category across different demographic groups within the populations living near facilities.

The results of the demographic analysis are summarized in Table 5 below. These results, for various demographic groups, are based on the estimated risk from actual emissions from point sources for the population living within 50 km of the facilities.

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Table 5—Integrated Iron and Steel Manufacturing Facilities Demographic Risk Analysis Results

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Item	Nationwide	Population with cancer risk at or above 1-in-1 million due to integrated iron and steel manufacturing facilities	Population with chronic HI at or above 1 due to integrated iron and steel manufacturing facilities
Total Population	317,746,049	64,158	0
White and Minority by Percent			
White	62%	63%	0%
Minority	38%	37%	0%
Minority by Percent			
African American	12%	29%	0%
Native American	0.8%	0.1%	0%
Hispanic or Latino includes white and nonwhite)	18%	4%	0%
Other and Multiracial	7%	4%	0%
Income by Percent			
Below Poverty Level	14%	23%	0%
Above Poverty Level	86%	77%	0%
Education by Percent			
Over 25 and without High School Diploma	14%	12%	0%
Over 25 and with a High School Diploma	86%	88%	0%
Linguistically Isolated by Percent			
Linguistically Isolated	6%	0.6%	0%

R006832

The results of the Integrated Iron and Steel Manufacturing Facilities source category demographic analysis indicate that point source emissions from the source category expose approximately 64,000 people to a cancer risk at or above 1-in-1 million and zero people to a chronic noncancer HI greater than or equal to 1. The percentages of the at-risk population in each demographic group (except for African American and Below Poverty Level) are similar to or lower than their respective nationwide percentages. The African American population with cancer risk at or above 1-in-1 million due to Integrated Iron and Steel Manufacturing Facilities source category emissions is more than 3 times the national average. Likewise, populations living "Below Poverty Level" exposed to cancer risk at or above 1-in-1 million is nearly twice the national average. However, the risks to all demographic groups is less than 100-in-1 million.

The methodology and the results of the demographic analysis are presented in a technical report, *Risk and Technology Review—Analysis of Demographic Factors for Populations Living Near Integrated Iron and Steel Manufacturing Facilities* (Docket ID Item No. EPA-HQ-OAR-2002-0083-1060).

VI. Statutory and Executive Order Reviews

Additional information about these statutes and Executive Orders can be found at *https://www.epa.gov/laws-regulations/laws-and-executive-orders (https://www.epa.gov/laws-regulations/laws-and-executive-orders).*

A. Executive Orders 12866: Regulatory Planning and Review and Executive Order 13563 (/executive-order/13563): Improving Regulation and Regulatory Review

This action is a not a significant regulatory action and was, therefore, not submitted to the Office of Management and Budget (OMB) for review.

B. Executive Order 13771 (/executive-order/13771): Reducing Regulations and Controlling Regulatory Costs

This action is not an Executive Order 13771 (/executive-order/13771) regulatory action because this action is not significant under Executive Order 12866.

C. Paperwork Reduction Act (PRA)

The information collection activities in this final rule have been submitted for approval to OMB under the PRA. The ICR document that the EPA prepared has been assigned EPA ICR number 2003.09. You can find a copy of the ICR in the docket for this rule, and it is briefly summarized here. The information collection requirements are not enforceable until OMB approves them.

These amendments require electronic reporting; remove the SSM exemptions; and impose other revisions that affect reporting and recordkeeping for integrated iron and steel facilities. We are also promulgating standards for mercury that require facilities to certify the type of steel scrap they use or conduct a performance test. This information is collected to assure compliance with 40 CFR part 63, subpart FFFFF (https://www.ecfr.gov/current/title-40/part-63/subpart-FFFFF).

Respondents/affected entities: Integrated iron and steel manufacturing facilities.

Respondent's obligation to respond: Mandatory (40 CFR part 63, subpart FFFFF (https://www.ecfr.gov/current/title-40/part-63/subpart-FFFFF)).

Estimated number of respondents: 11 facilities.

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Frequency of Response: One time.

Total estimated burden: The annual recordkeeping and reporting burden for facilities to comply with all of the requirements in the NESHAP is estimated to be 6,500 hours (per year). Burden is defined at 5 CFR 1320.3(b) (https://www.ecfr.gov/current/title-5/section-1320.3#p-1320.3(b)).

Total estimated cost: The annual recordkeeping and reporting cost for all facilities to comply with all of the requirements in the NESHAP is estimated to be $800,000 (per year), of which $20,000 (per year) is for this rule, and $780,000 is for other costs related to continued compliance with the NESHAP including $50,300 for paperwork associated with operation and maintenance requirements. The total rule costs reflect a savings of $210,000 (per year) from the previous ICR due to the transition to electronic reporting.

An Agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for the EPA's regulations in 40 CFR are listed in 40 CFR part 9 (https://www.ecfr.gov/current/title-40/part-9). When OMB approves this ICR, the Agency will announce that approval in the **Federal Register** and publish a technical amendment to 40 CFR part 9 (https://www.ecfr.gov/current/title-40/part-9) to display the OMB control number for the approved information collection activities contained in this final rule.

D. Regulatory Flexibility Act (RFA)

I certify that this action will not have a significant economic impact on a substantial number of small entities under the RFA. This action will not impose any requirements on small entities. No small entities are subject to the requirements of this rule.

E. Unfunded Mandates Reform Act (UMRA)

This action does not contain an unfunded mandate of $100 million or more as described in UMRA, 2 U.S.C. 1531-1538 (https://www.govinfo.gov/link/uscode/2/1531), and does not significantly or uniquely affect small governments. While this action creates an enforceable duty on the private sector, the cost does not exceed $100 million or more.

F. Executive Order 13132 (/executive-order/13132): Federalism

This action does not have federalism implications. It will not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government.

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G. Executive Order 13175 (/executive-order/13175): Consultation and Coordination With Indian Tribal Governments

This action does not have tribal implications as specified in Executive Order 13175 (/executive-order/13175). It will not have substantial direct effects on tribal governments, on the relationship between the Federal government and Indian tribes, or on the distribution of power and responsibilities between the Federal government and Indian tribes. No tribal governments own facilities subject to the NESHAP. Thus, Executive Order 13175 (/executive-order/13175) does not apply to this action.

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H. Executive Order 13045 (/executive-order/13045): Protection of Children From Environmental Health Risks and Safety Risks

This action is not subject to Executive Order 13045 (/executive-order/13045) because the EPA does not believe the environmental health or safety risks addressed by this action present a disproportionate risk to children. This action's health and risk assessments are contained in sections III and IV of this preamble and further documented in the document titled *Residual Risk Assessment for the Integrated Iron and Steel Manufacturing Facilities Source Category in Support of the Risk and Technology Review 2020 Final Rule,* in the docket for this rule (Docket ID No. EPA-HQ-OAR-2002-0083).

I. Executive Order 13211 (/executive-order/13211): Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use

This action is not subject to Executive Order 13211 (/executive-order/13211) because it is not a significant regulatory action under Executive Order 13211 (/executive-order/13211).

J. National Technology Transfer and Advancement Act (NTTAA) and 1 CFR Part 51 (https://www.ecfr.gov/current/title-1/part-51)

This action involves technical standards. Therefore, the EPA conducted searches for the Iron and Steel Manufacturing Facilities NESHAP through the Enhanced National Standards Systems Network Database managed by the American National Standards Institute (ANSI). We also contacted VCS organizations and accessed and searched their databases. We conducted searches for EPA Methods 1, 2, 2F, 2G, 3, 3A, 3B, 4, 5, 5D, 9, 17, 25, 29, and 30B of 40 CFR part 60, appendix A (https://www.ecfr.gov/current/title-40/part-60/appendix-Appendix%20A%20to%20Part%2060) and SW-846 Method 9071B Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA Publications SW-846 third edition. During the EPA's VCS search, if the title or abstract (if provided) of the VCS described technical sampling and analytical procedures that are similar to the EPA's reference method, the EPA reviewed it as a potential equivalent method. We reviewed all potential standards to determine the practicality of the VCS for this rule. This review requires significant method validation data that meet the requirements of EPA Method 301 for accepting alternative methods or scientific, engineering and policy equivalence to procedures in the EPA reference methods. The EPA may reconsider determinations of impracticality when additional information is available for a particular VCS. No applicable VCS were identified for EPA Methods 1A, 2F, 2G, 5D, 30B, and SW-846 Method 9071B.

The EPA is incorporating by reference the VCS ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses." We are revising 40 CFR 63.7822(b) (https://www.ecfr.gov/current/title-40/section-63.7822#p-63.7822(b)), 40 CFR 63.7824(e) (https://www.ecfr.gov/current/title-40/section-63.7824#p-63.7824(e)), and 40 CFR 63.7825(b) (https://www.ecfr.gov/current/title-40/section-63.7825#p-63.7825(b)) to provide that the manual procedures (but not instrumental procedures) of VCS ANSI/ASME PTC 19.10-1981—Part 10 may be used as an alternative to EPA Method 3B.The manual procedures (but not instrumental procedures) of VCS ANSI/ASME PTC 19.10-1981—Part 10 (incorporated by reference—see 40 CFR 63.14 (https://www.ecfr.gov/current/title-40/section-63.14)) may be used as an alternative to EPA Method 3B for measuring the oxygen or carbon dioxide content of the exhaust gas. This standard is acceptable as an alternative to EPA Method 3B and is available from ASME at *http://www.asme.org; (http://www.asme.org;);* by mail at Three Park Avenue, New York, NY 10016-5990; or by telephone at (800) 843-2763. This method determines quantitatively the gaseous constituents of exhausts resulting from stationary combustion sources. The gases covered in ANSI/ASME PTC 19.10-1981 are oxygen, carbon dioxide, carbon monoxide, nitrogen, sulfur dioxide, sulfur trioxide, nitric oxide, nitrogen dioxide, hydrogen sulfide, and hydrocarbons, however the use in this rule is only applicable to oxygen and carbon dioxide.

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In the final rule, the EPA is incorporating by reference the VCS ASTM D7520-16, Standard Test Method for Determining the Opacity of a Plume in the Outdoor Ambient Atmosphere, as an acceptable alternative to EPA Method 9 with the following caveats:

- During the DCOT certification procedure outlined in Section 9.2 of ASTM D7520-16, the facility or the DCOT vendor must present the plumes in front of various backgrounds of color and contrast representing conditions anticipated during field use such as blue sky, trees, and mixed backgrounds (clouds and/or a sparse tree stand).
- The facility must also have standard operating procedures in place including daily or other frequency quality checks to ensure the equipment is within manufacturing specifications as outlined in Section 8.1 of ASTM D7520-16.
- The facility must follow the recordkeeping procedures outlined in 40 CFR 63.10(b)(1) (https://www.ecfr.gov/current/title-40/section-63.10#p-63.10(b)(1)) for the DCOT certification, compliance report, data sheets, and all raw unaltered JPEGs used for opacity and certification determination.
- The facility or the DCOT vendor must have a minimum of four independent technology users apply the software to determine the visible opacity of the 300 certification plumes. For each set of 25 plumes, the user may not exceed 15-percent opacity of anyone reading and the average error must not exceed 7.5-percent opacity.
- This approval does not provide or imply a certification or validation of any vendor's hardware or software. The onus to maintain and verify the certification and/or training of the DCOT camera, software, and operator in accordance with ASTM D7520-16 is on the facility, DCOT operator, and DCOT vendor. This method describes procedures to determine the opacity of a plume, using digital imagery and associated hardware and software, where opacity is caused by PM emitted from a stationary point source in the outdoor ambient environment. The opacity of emissions is determined by the application of a DCOT that consists of a digital still camera, analysis software, and the output function's content to obtain and interpret digital images to determine and report plume opacity. The ASTM D7520-16 document is available from ASTM at *https://www.astm.org (https://www.astm.org)* or 1100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, telephone number: (610) 832-9500, fax number: (610) 8329555 at *service@astm.org (mailto:service@astm.org)*.

The EPA is finalizing the use of the guidance document, *Fabric Filter Bag Leak Detection Guidance*, EPA-454/R-98-015, Office of Air Quality Planning and Standards (OAQPS), U.S. Environmental Protection Agency, Research Triangle Park, North Carolina, September 1997. This document provides guidance on the use of triboelectric monitors as fabric filter bag leak detectors. The document includes fabric filter and monitoring system descriptions; guidance on monitor selection, installation, setup, adjustment, and operation; and quality assurance procedures. The document is available at *https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=2000D5T6.PDF (https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=2000D5T6.PDF)*.

Additional information for the VCS search and determinations can be found in the memorandum titled *Voluntary Consensus Standard Results for National Emission Standards for Hazardous Air Pollutants for Iron and Steel Manufacturing Facilities*, available in the docket for this final rule.

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K. Executive Order 12898 (/executive-order/12898): Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations

The EPA believes that this action does not have disproportionately high and adverse human health or environmental effects on minority populations, low-income populations, and/or indigenous peoples, as specified in Executive Order 12898 (/executive-order/12898) (59 FR 7629 (/citation/59-FR-7629), February 16, 1994). The documentation for this decision is included in sections III.A and IV.A of this preamble and the technical report titled *Risk and Technology Review—Analysis of Socio-Economic Factors for Populations Living Near Integrated Iron and Steel Manufacturing Facilities*, available in the docket for this final rule.

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We examined the potential for any environmental justice issues that might be associated with the source category by performing a demographic analysis of the population close to the facilities. In this analysis, we evaluated the distribution of HAP-related cancer and noncancer risks from the NESHAP source category across different social, demographic, and economic groups within the populations living near facilities identified as having the highest risks. The methodology and the results of the demographic analyses are included in a technical report titled *Risk and Technology Review—Analysis of Socio-Economic Factors for Populations Living Near Integrated Iron and Steel Manufacturing Facilities* (Docket ID No. EPA-HQ-OAR-2002-0083).

The results of the source category demographic analysis for the NESHAP (point sources only) indicate that emissions expose approximately 60 people to a cancer risk at or above 10-in-1 million and none exposed to a chronic noncancer TOSHI greater than or equal to 1. The specific demographic results indicate that the overall percentage of the population potentially impacted by emissions is less than its corresponding national percentage for the minority population (37 percent for the source category compared to 38-percent nationwide). However, the "African American" population (29 percent for the source category compared to 12-percent nationwide) and the population "Below the Poverty Level" are greater than their corresponding national percentages. The proximity results (irrespective of risk) indicate that the population percentages for certain demographic categories within 5 km of source category emissions are greater than the corresponding national percentage for certain demographic groups including: "African American," "Ages 0 to 17," "Over age 25 without a high school diploma," and "Below the poverty level."

The risks due to HAP emissions from this source category are acceptable for all populations. Furthermore, we do not expect this rule to achieve significant reductions in HAP emissions. Therefore, we conclude that this final rule will not have disproportionately high and adverse human health or environmental effects on minority or low-income populations because it does not affect the level of protection provided to human health or the environment. However, this final rule will provide additional benefits to these demographic groups by improving the compliance, monitoring, and implementation of the NESHAP.

L. Congressional Review Act (CRA)

This action is subject to the CRA, and the EPA will submit a rule report to each House of the Congress and to the Comptroller General of the United States. This action is not a "major rule" as defined by 5 U.S.C. 804(2) (https://www.govinfo.gov/link/uscode/5/804).

List of Subjects in 40 CFR Part 63 (https://www.ecfr.gov/current/title-40/part-63)

- Environmental protection
- Administrative practice and procedures
- Air pollution control
- Hazardous substances
- Incorporation by reference
- Intergovernmental relations
- Reporting and recordkeeping requirements

Andrew Wheeler,

Administrator.

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For the reasons set forth in the preamble, the EPA amends 40 CFR part 63 (https://www.ecfr.gov/current/title-40/part-63) as follows:

PART 63—NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS FOR SOURCE CATEGORIES

1. The authority citation for part 63 continues to read as follows:

Authority: 42 U.S.C. 7401 (https://www.govinfo.gov/link/uscode/42/7401) *et seq.*

Subpart A—General Provisions

2. Section 63.14 is amended by revising paragraphs (e)(1), (h)(106), and (n)(3) to read as follows:

§ 63.14 Incorporations by reference.

* * * * *

(e) * * *

(1) ANSI/ASME PTC 19.10-1981, Flue and Exhaust Gas Analyses [Part 10, Instruments and Apparatus], issued August 31, 1981, IBR approved for §§ 63.309(k), 63.457(k), 63.772(e) and (h), 63.865(b), 63.997(e), 63.1282(d) and (g), 63.1625(b), table 5 to subpart EEEE, 63.3166(a), 63.3360(e), 63.3545(a), 63.3555(a), 63.4166(a), 63.4362(a), 63.4766(a), 63.4965(a), 63.5160(d), table 4 to subpart UUUU, table3 to subpart YYYY, 63.7822(b), 63.7824(e), 63.7825(b), 63.9307(c), 63.9323(a), 63.11148(e), 63.11155(e), 63.11162(f), 63.11163(g), 63.11410(j), 63.11551(a), 63.11646(a), and 63.11945, table 5 to subpart DDDDD, table 4 to subpart JJJJJ, table 4 to subpart KKKKK, tables 4 and 5 of subpart UUUUU, table 1 to subpart ZZZZZ, and table 4 to subpart JJJJJJ.

* * * * *

(h) * * *

(106) ASTM D7520-16, Standard Test Method for Determining the Opacity of a Plume in the Outdoor Ambient Atmosphere, approved April 1, 2016, IBR approved for §§ 63.1625(b), table 3 to subpart LLLLL, 63.7823(c) through (e), and 63.7833(g).

* * * * *

(n) * * *

(3) EPA-454/R-98-015, Office of Air Quality Planning and Standards (OAQPS), Fabric Filter Bag Leak Detection Guidance, September 1997, *https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=2000D5T6.pdf (https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=2000D5T6.pdf),*, IBR approved for §§ 63.548(e), 63.864(e), 63.7525(j), 63.7831(f), 63.8450(e), 63.8600(e), and 63.11224(f).

* * * * *

Subpart FFFFF—[Amended]

3. Section 63.7783 is amended by revising paragraphs (a) introductory text, (b), and (c) and adding paragraph (f) to read as follows:

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§ 63.7783 When do I have to comply with this subpart?

(a) If you have an existing affected source, you must comply with each emission limitation, standard, and operation and maintenance requirement in this subpart that applies to you by the dates specified in paragraphs (a)(1) and (2) of this section. This paragraph does not apply to the emission limitations for mercury.

* * * * *

(b) If you have a new affected source and its initial startup date is on or before May 20, 2003, then you must comply with each emission limitation, standard, and operation and maintenance requirement in this subpart that applies to you by May 20, 2003. This paragraph does not apply to the emission limitations for mercury.

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(c) If you have a new affected source and its initial startup date is after May 20, 2003, you must comply with each emission limitation, standard, and operation and maintenance requirement in this subpart that applies to you upon initial startup. This paragraph does not apply to the emission limitations for mercury.

* * * * *

(f) With regard to the mercury emission limitations, if you have a new or existing affected source, you must comply with each emission limitation for mercury that applies to you by the deadlines set forth in § 63.7791.

4. The undesignated center heading before § 63.7790 is revised to read:

Emission Limitations and Standards

5. Section 63.7791 is added before the undesignated center heading "Operation and Maintenance Requirements" to read as follows:

§ 63.7791 How do I comply with the requirements for the control of mercury?

(a) *Compliance deadlines.* (1) If you have an existing affected source or a new or reconstructed affected source for which construction or reconstruction commenced on or before August 16, 2019, each BOPF Group at your facility must be in compliance with the applicable mercury emission limit in Table 1 of this subpart through performance testing under §§ 63.7825 and 63.7833, or through procurement of steel scrap pursuant to the compliance options in § 63.7791(c), (d), or (e) beginning July 13, 2021.

(2) If you have a new or reconstructed affected source for which construction or reconstruction commenced after August 16, 2019, each BOPF Group at that source must be in compliance with the applicable mercury emission limit in Table 1 of this subpart beginning July 13, 2020 or upon initial startup of your affected source, whichever is later.

(b) *Alternative compliance demonstration.* (1) As an alternative to demonstrating compliance with the emission limits in Table 1 by conducting performance tests pursuant to §§ 63.7825 and 63.7833(h), you may demonstrate compliance with the emission limits in Table 1 by procuring scrap pursuant to the requirements in paragraph (c), (d), or (e) of this section for each scrap provider, contract, or shipment. It is not necessary to use the same BOPF scrap compliance provision for all scrap providers, contracts, or shipments. You may procure some scrap through

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providers, contracts, or shipments pursuant to one BOPF scrap compliance provision and other scrap through providers, contracts, or shipments pursuant to other BOPF scrap compliance provisions.

(2) To utilize the alternative compliance options established in paragraph (b)(1) of this section, you must submit an initial certification of compliance and semiannual compliance reports consistent with the requirements of §§ 63.7840(f) and 63.7841(b)(9) through (11), and (13), and comply with the recordkeeping requirements in § 63.7842(e) and all other applicable provisions related to demonstrating compliance through participating in an approved mercury program or through the use of scrap that does not contain mercury switches.

(3) For any facility that initially elects to utilize the alternative compliance options established in paragraph (b)(1) of this section, but subsequently stops using scrap that meets the requirements of paragraph (c), (d), or (e) of this section for each scrap provider, contract, or shipment, within 180 days of the change you must, for that BOPF Group, demonstrate compliance through performance testing pursuant to the requirements of §§ 63.7825 and 63.7833(h), and submit a revised notice of compliance status in your next semiannual compliance report described in this section. You must also comply with the requirements for conducting subsequent performance tests in §§ 63.7821(e) and 63.7840(g), and all other applicable requirements related to demonstrating compliance with the emission limits through performance testing.

(c) *Participation in the NVMSRP.* (1) You must obtain all post-consumer scrap that contains motor vehicle scrap from scrap providers who participate in the NVMSRP. The NVMSRP is an EPA-approved program under this section unless and until the Administrator disapproves the program (in part or in whole);

(2) You must certify in your initial notification of compliance status required by § 63.7840(f) and semiannual compliance report required by § 63.7841(a) that you purchased post-consumer steel scrap containing motor vehicle scrap according to paragraph (c)(1) of this section, and identify all your scrap providers in your semiannual compliance report;

(3) If you purchase scrap from a broker, you must certify that all scrap received from that broker was obtained from other scrap providers who participate in the NVMSRP and identify all scrap providers used by all your scrap brokers in your semiannual compliance report; and

(4) You must conduct periodic inspections or provide other means of corroboration to ensure that scrap providers and brokers participate in the NVMSRP and, therefore, are aware of the need for and are implementing appropriate steps to minimize the presence of mercury in scrap from end-of-life vehicles.

(d) *Use of scrap that does not contain mercury switches.* For BOPF scrap not complying with the requirements in paragraph (c) or (e) of this section, you must certify in your initial notification of compliance report required by § 63.7840(f) and semiannual compliance report required by § 63.7841(a) and maintain records of documentation required by § 63.7842(e) establishing that the scrap does not contain mercury switches. You may satisfy this requirement by certifying and documenting that:

(1) The scrap does not contain motor vehicle scrap; or

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(2) The scrap does not contain shredded motor vehicle scrap; or

(3) The only materials from motor vehicles in the scrap are materials recovered for their specialty alloy content (including, but not limited to, chromium, nickel, molybdenum, or other alloys); therefore, based on the type of the scrap and purchase specifications, the scrap does not contain mercury switches.

(e) *Use of an EPA-approved mercury removal program.* (1) You must obtain all post-consumer scrap containing motor vehicle scrap from scrap providers who participate in a program for the removal of mercury switches that has been approved by the Administrator;

(2) You must certify in your initial notification of compliance status required by § 63.7840(f) and semiannual compliance report required by § 63.7841(a) that you purchase post-consumer steel scrap containing motor vehicle scrap according to paragraph (e)(1) of this section and identify all your scrap providers in your semiannual compliance report;

(3) If you purchase scrap from a broker, you must certify that all scrap received from that broker was obtained from other scrap providers who participate in a program for the removal of mercury switches that has been approved by the Administrator and identify all scrap providers used by all your scrap brokers in your semiannual compliance report; and

(4) You must conduct periodic inspections or provide other means of corroboration to ensure that scrap providers and brokers are complying with the approved mercury removal program and, therefore, are aware of the need for and are implementing appropriate steps to minimize the presence of mercury in scrap from end-of-life vehicles.

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6. Section 63.7800 is amended by revising paragraph (a) to read as follows:

§ 63.7800 What are my operation and maintenance requirements?

(a) You must always operate and maintain your affected source, including air pollution control and monitoring equipment, according to the requirements in § 63.7810(d).

* * * * *

7. Section 63.7810 is amended by revising paragraphs (a) and (c) and adding paragraph (d) to read as follows:

§ 63.7810 What are my general requirements for complying with this subpart?

(a) On or before January 11, 2021, for each existing source, and for each new or reconstructed source for which construction or reconstruction commenced on or before August 16, 2019, you must be in compliance with the emission limitations, standards, and operation and maintenance requirements in this subpart at all times, except during periods of startup, shutdown, and malfunction. After January 11, 2021, for each such source you must be in compliance with the emission limitations in this subpart at all times. For new and reconstructed sources for which construction or reconstruction commenced after August 16, 2019, you must be in compliance with the emission limitations in this subpart at all times.

* * * * *

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(c) On or before January 11, 2021, for each existing source, and for each new or reconstructed source for which construction or reconstruction commenced on or before August 16, 2019, you must develop a written startup, shutdown, and malfunction plan according to the provisions in § 63.6(e)(3). For each such source, a startup, shutdown, and malfunction plan is not required after January 11, 2021. No startup, shutdown, and malfunction plan is required for any new or reconstructed source for which construction or reconstruction commenced after August 16, 2019.

(d) On or before January 11, 2021, for each existing source, and for each new or reconstructed source for which construction or reconstruction commenced on or before August 16, 2019, you must always operate and maintain your affected source, including air pollution control and monitoring equipment, according to the provisions in § 63.6(e)(1)(i). After January 11, 2021for each such source, and after July 13, 2020 for new and reconstructed sources for which construction or reconstruction commenced after August 16, 2019, at all times, you must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require you to make any further efforts to reduce emissions if levels required by the applicable standard have been achieved. Determination of whether a source is operating in compliance with operation and maintenance requirements will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

8. Section 63.7820 is amended by adding paragraph (e) to read as follows:

§ 63.7820 By what date must I conduct performance tests or other initial compliance demonstrations?

** ** ** ** **

(e) Notwithstanding the deadlines in this section, existing and new affected sources must comply with the deadlines for making the initial compliance demonstrations for the mercury emission limit set forth in (e)(1) through (4) in this section.

(1) If you have an existing affected BOPF Group or a new or reconstructed affected source for which construction or reconstruction commenced on or before August 16, 2019, and you are demonstrating compliance with the emission limit in Table 1 through performance testing, you must conduct the initial performance test at your BOPF Group to demonstrate compliance with the mercury emission limit in Table 1 no later than July 13, 2021.

(2) If you have a new or reconstructed affected BOPF Group for which construction or reconstruction commenced after August 16, 2019, and you are demonstrating compliance with the emission limit in Table 1 through performance testing, you must conduct the initial performance test at your BOPF Group to demonstrate compliance with the mercury emission limit in Table 1 within 180 days of July 13, 2020 or within 180 days of initial startup of your affected source, whichever is later.

(3) If you have an existing affected BOPF Group or a new or reconstructed affected source for which construction or reconstruction commenced on or before August 16, 2019, and you are demonstrating compliance with the mercury emission limit in Table 1 through the requirements in

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§ 63.7791(c) through (e), you must certify compliance in accordance with § 63.7840(f) in your notification of compliance and in accordance with § 63.7841(b)(11) in your first semiannual compliance report after July 13, 2021.

(4) If you have a new affected BOPF Group or a new or reconstructed affected source for which construction or reconstruction commenced after August 16, 2019, and you are demonstrating compliance with the mercury emission limit in Table 1 through the requirements in § 63.7791(b) through (d), you must certify compliance in accordance with § 63.7840(f) in your initial notification of compliance and in accordance with § 63.7841(b)(11) in your first semiannual compliance report after July 13, 2021 or after initial startup of your BOPF Group, whichever is later.

9. Section 63.7821 is amended by revising paragraph (a) and adding paragraph (e) to read as follows:

§ 63.7821 When must I conduct subsequent performance tests?

(a) You must conduct subsequent performance tests to demonstrate compliance with all applicable emission and opacity limits in Table 1 to this subpart at the frequencies specified in paragraphs (b) through (e) of this section.

** ** ** ** **

(e) For each BOPF Group, if demonstrating compliance with the mercury emission limit in Table 1 to this subpart through performance testing under §§ 63.7825 and 63.7833, you must conduct subsequent performance tests twice per permit cycle (*i.e.*, mid-term and initial/final) for sources with title V operating permits, and every 2.5 years for sources without a title V operating permit, at the outlet of the control devices for the BOPF Group.

10. Section 63.7822 is amended by revising paragraphs (a) and (b)(1) to read as follows:

§ 63.7822 What test methods and other procedures must I use to demonstrate initial compliance with the emission limits for particulate matter?

(a) On or before January 11, 2021, for each existing source, and for each new or reconstructed source for which construction or reconstruction commenced on or before August 16, 2019, you must conduct each performance test that applies to your affected source based on representative performance (*i.e.*, performance based on normal operating conditions) of the affected source for the period being tested, according to the conditions detailed in paragraphs (b) through (i) of this section. After January 11, 2021 for each such source, and after July 13, 2020 for new and reconstructed sources for which construction or reconstruction commenced after August 16, 2019, you must conduct each performance test under conditions representative of normal operations. The owner or operator must record the process information that is necessary to document operating conditions during the test and include in such record an explanation to support that such conditions represent normal operation. Upon request, the owner or operator shall make available to the Administrator such records as may be necessary to determine the conditions of performance tests. Representative conditions exclude periods of startup and shutdown. You shall not conduct performance tests during periods of malfunction. You must record the process information that is necessary to document operating conditions during the test and include in such record an explanation to support that such conditions represent normal operation. Upon request, you shall make available to the Administrator such records as may be necessary to determine the conditions of performance tests.

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(b) * * *

(1) Determine the concentration of particulate matter according to the following test methods:

(i) EPA Method 1 in appendix A-1 to part 60 of this chapter to select sampling port locations and the number of traverse points. Sampling ports must be located at the outlet of the control device and prior to any releases to the atmosphere.

(ii) EPA Method 2 or 2F in appendix A-1 to part 60 of this chapter or EPA Method 2G in appendix A-2 to part 60 of this chapter to determine the volumetric flow rate of the stack gas.

(iii) EPA Method 3, 3A, or 3B in appendix A-2 to part 60 of this chapter to determine the dry molecular weight of the stack gas. The manual procedures (but not instrumental procedures) of voluntary consensus standard ANSI/ASME PTC 19.10-1981—Part 10 (incorporated by reference—see § 63.14) may be used as an alternative to EPA Method 3B.

(iv) EPA Method 4 in appendix A-3 to part 60 of this chapter to determine the moisture content of the stack gas.

(v) EPA Method 5 or 5D in appendix A-3 to part 60 of this chapter or EPA Method 17 in appendix A-6 to part 60 of this chapter, as applicable, to determine the concentration of particulate matter (front half filterable catch only).

* * * * * * * * * *

11. Section 63.7823 is amended by revising paragraphs (a), (c)(1), (d)(1)(i), (d)(2)(i), and (e)(1) and (3) to read as follows:

§ 63.7823 What test methods and other procedures must I use to demonstrate initial compliance with the opacity limits?

(a) You must conduct each performance test that applies to your affected source based on representative performance (*i.e.*, performance based on normal operating conditions) of the affected source for the period being tested, according to the conditions detailed in paragraphs (b) through (d) of this section. Representative conditions exclude periods of startup and shutdown. You shall not conduct performance tests during periods of malfunction. You must record the process information that is necessary to document operating conditions during the test and include in such record an explanation to support that such conditions represent normal operation. Upon request, you shall make available to the Administrator such records as may be necessary to determine the conditions of performance tests.

* * * * * * * * * *

(c) * * *

(1) Using a certified observer, determine the opacity of emissions according to EPA Method 9 in appendix A-4 to part 60 of this chapter. Alternatively, ASTM D7520-16, (incorporated by reference, see § 63.14) may be used with the following conditions:

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(i) During the digital camera opacity technique (DCOT) certification procedure outlined in Section 9.2 of ASTM D7520-16 (incorporated by reference, see § 63.14), the owner or operator or the DCOT vendor must present the plumes in front of various backgrounds of color and contrast representing conditions anticipated during field use such as blue sky, trees, and mixed backgrounds (clouds and/or a sparse tree stand).

(ii) The owner or operator must also have standard operating procedures in place including daily or other frequency quality checks to ensure the equipment is within manufacturing specifications as outlined in Section 8.1 of ASTM D7520-16 (incorporated by reference, see § 63.14).

(iii) The owner or operator must follow the recordkeeping procedures outlined in § 63.10(b)(1) for the DCOT certification, compliance report, data sheets, and all raw unaltered JPEGs used for opacity and certification determination.

(iv) The owner or operator or the DCOT vendor must have a minimum of four independent technology users apply the software to determine the visible opacity of the 300 certification plumes. For each set of 25 plumes, the user may not exceed 15-percent opacity of anyone reading and the average error must not exceed 7.5-percent opacity.

(v) Use of this approved alternative does not provide or imply a certification or validation of any vendor's hardware or software. The onus to maintain and verify the certification and/or training of the DCOT camera, software, and operator in accordance with ASTM D7520-16 (incorporated by reference, see § 63.14) and these requirements is on the facility, DCOT operator, and DCOT vendor.

* * * * * * * * * *

(d) * * *

(1) * * *

(i) Using a certified observer, determine the opacity of emissions according to EPA Method 9 in appendix A-4 to part 60 of this chapter except as specified in paragraphs (d)(1)(ii) and (iii) of this section. Alternatively, ASTM D7520-16 (incorporated by reference, see § 63.14) may be used with the following conditions:

(A) During the DCOT certification procedure outlined in Section 9.2 of ASTM D7520-16 (incorporated by reference, see § 63.14), the owner or operator or the DCOT vendor must present the plumes in front of various backgrounds of color and contrast representing conditions anticipated during field use such as blue sky, trees, and mixed backgrounds (clouds and/or a sparse tree stand).

(B) The owner or operator must also have standard operating procedures in place including daily or other frequency quality checks to ensure the equipment is within manufacturing specifications as outlined in Section 8.1 of ASTM D7520-16 (incorporated by reference, see § 63.14).

(C) The owner or operator must follow the recordkeeping procedures outlined in § 63.10(b)(1) for the DCOT certification, compliance report, data sheets, and all raw unaltered JPEGs used for opacity and certification determination.

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(D) The owner or operator or the DCOT vendor must have a minimum of four independent technology users apply the software to determine the visible opacity of the 300 certification plumes. For each set of 25 plumes, the user may not exceed 15-percent opacity of anyone reading and the average error must not exceed 7.5-percent opacity.

(E) Use of this approved alternative does not provide or imply a certification or validation of any vendor's hardware or software. The onus to maintain and verify the certification and/or training of the DCOT camera, software, and operator in accordance with ASTM D7520-16 (incorporated by reference, see § 63.14) and these requirements is on the facility, DCOT operator, and DCOT vendor.

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(2) * * *

(i) Using a certified observer, determine the opacity of emissions according to EPA Method 9 in appendix A-4 to part 60 of this chapter. Alternatively, ASTM D7520-16 (incorporated by reference, see § 63.14) may be used with the following conditions:

(A) During the DCOT certification procedure outlined in Section 9.2 of ASTM D7520-16 (incorporated by reference, see § 63.14), the owner or operator or the DCOT vendor must present the plumes in front of various backgrounds of color and contrast representing conditions anticipated during field use such as blue sky, trees, and mixed backgrounds (clouds and/or a sparse tree stand).

(B) The owner or operator must also have standard operating procedures in place including daily or other frequency quality checks to ensure the equipment is within manufacturing specifications as outlined in Section 8.1 of ASTM D7520-16 (incorporated by reference, see § 63.14).

(C) The owner or operator must follow the recordkeeping procedures outlined in § 63.10(b)(1) for the DCOT certification, compliance report, data sheets, and all raw unaltered JPEGs used for opacity and certification determination.

(D) The owner or operator or the DCOT vendor must have a minimum of four independent technology users apply the software to determine the visible opacity of the 300 certification plumes. For each set of 25 plumes, the user may not exceed 15-percent opacity of anyone reading and the average error must not exceed 7.5-percent opacity.

(E) Use of this approved alternative does not provide or imply a certification or validation of any vendor's hardware or software. The onus to maintain and verify the certification and/or training of the DCOT camera, software, and operator in accordance with ASTM D7520-16 (incorporated by reference, see § 63.14) and these requirements is on the facility, DCOT operator, and DCOT vendor.

* * * * * * * * * *

(e) * * *

(1) Using a certified observer, determine the opacity of emissions according to EPA Method 9 in appendix A-4 to part 60 of this chapter. Alternatively, ASTM D7520-16 (incorporated by reference, see § 63.14) may be used with the following conditions:

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(i) During the DCOT certification procedure outlined in Section 9.2 of ASTM D7520-16 (incorporated by reference, see § 63.14), the owner or operator or the DCOT vendor must present the plumes in front of various backgrounds of color and contrast representing conditions anticipated during field use such as blue sky, trees, and mixed backgrounds (clouds and/or a sparse tree stand).

(ii) The owner or operator must also have standard operating procedures in place including daily or other frequency quality checks to ensure the equipment is within manufacturing specifications as outlined in Section 8.1 of ASTM D7520-16 (incorporated by reference, see § 63.14).

(iii) The owner or operator must follow the recordkeeping procedures outlined in § 63.10(b)(1) for the DCOT certification, compliance report, data sheets, and all raw unaltered JPEGs used for opacity and certification determination.

(iv) The owner or operator or the DCOT vendor must have a minimum of four independent technology users apply the software to determine the visible opacity of the 300 certification plumes. For each set of 25 plumes, the user may not exceed 15-percent opacity of anyone reading and the average error must not exceed 7.5-percent opacity.

(v) Use of this approved alternative does not provide or imply a certification or validation of any vendor's hardware or software. The onus to maintain and verify the certification and/or training of the DCOT camera, software, and operator in accordance with ASTM D7520-16 (incorporated by reference, see § 63.14) and these requirements is on the facility, DCOT operator, and DCOT vendor.

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(3) Make visible emission observations of uncovered portions of sinter plant coolers with the line of sight generally in the direction of the center of the cooler.

12. Section 63.7824 is amended by revising paragraphs (e) introductory text and (e)(1) and (2) and the defined term "M_c" in Equation 1 in paragraph (e)(3) to read as follows:

§ 63.7824 What test methods and other procedures must I use to establish and demonstrate initial compliance with operating limits?

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(e) To demonstrate initial compliance with the alternative operating limit for volatile organic compound emissions from the sinter plant windbox exhaust stream in § 63.7790(d)(2), follow the test methods and procedures in paragraphs (e)(1) through (5) of this section. You must conduct each performance test that applies to your affected source based on representative performance (*i.e.*, performance based on normal operating conditions) of the affected source for the period being tested. Representative conditions exclude periods of startup and shutdown. You shall not conduct performance tests during periods of malfunction. You must record the process information that is necessary to document operating conditions during the test and include in such record an explanation to support that such conditions represent normal operation. Upon request, you shall make available to the Administrator such records as may be necessary to determine the conditions of performance tests.

(1) Determine the volatile organic compound emissions according to the following test methods:

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(i) EPA Method 1 in appendix A-1 to part 60 of this chapter to select sampling port locations and the number of traverse points. Sampling ports must be located at the outlet of the control device and prior to any releases to the atmosphere.

(ii) EPA Method 2 or 2F in appendix A-1 to part 60 of this chapter or EPA Method 2G in appendix A-2 to part 60 of this chapter to determine the volumetric flow rate of the stack gas.

(iii) EPA Method 3, 3A, or 3B in appendix A-2 to part 60 of this chapter to determine the dry molecular weight of the stack gas. The manual procedures (but not instrumental procedures) of voluntary consensus standard ANSI/ASME PTC 19.10-1981—Part 10 (incorporated by reference—see § 63.14) may be used as an alternative to EPA Method 3B.

(iv) EPA Method 4 in appendix A-3 to part 60 of this chapter to determine the moisture content of the stack gas.

(v) EPA Method 25 in appendix A-7 to part 60 of this chapter to determine the mass concentration of volatile organic compound emissions (total gaseous nonmethane organics as carbon) from the sinter plant windbox exhaust stream stack.

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(2) Determine volatile organic compound (VOC) emissions every 24 hours (from at least three samples taken at 8-hour intervals) using EPA Method 25 in appendix A-7 to part 60 of this chapter. Record the sampling date and time, sampling results, and sinter produced (tons/day).

(3) * * *

M_c = Average concentration of total gaseous nonmethane organics as carbon by EPA Method 25 in appendix A-7 to part 60 of this chapter, milligrams per dry standard cubic meters (mg/dscm) for each day;

* * * * * * * * * *

§ § 63.7825 and 63.7826 [Redesignated as §§ 63.7826 and 63.7827]

13. Sections 63.7825 and 63.7826 are redesignated as §§ 63.7826 and 63.7827, respectively, and a new § 63.7825 is added to read as follows:

§ 63.7825 What test methods and other procedures must I use to demonstrate initial compliance with the emission limit for mercury?

(a) If demonstrating compliance with the mercury emission limits for each BOPF Group in Table 1 to this subpart through performance testing, you must conduct a performance test to demonstrate initial compliance with the emission limit. If demonstrating compliance with the emission limit through performance testing, you must conduct each performance test that applies to your affected source based on representative performance (*i.e.*, performance based on normal operating conditions) of the affected source for the period being tested, according to the conditions detailed in paragraphs (b) through (f) of this section. Representative conditions exclude periods of startup and shutdown. You shall not conduct performance tests during periods of malfunction. Initial compliance tests must be conducted by the deadlines in § 63.7820(e).

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(1) You must record the process information that is necessary to document operating conditions during the test and include in such record an explanation to support that such conditions represent normal operation. Upon request, you shall make available to the Administrator such records as may be necessary to determine the conditions of performance tests.

(2) For sources with multiple emission units ducted to a common control device and stack, compliance testing must be performed either by conducting a single compliance test with all affected emissions units in operation or by conducting a separate compliance test on each emissions unit. Alternatively, the owner or operator may request approval from the permit authority for an alternative testing approach. If the units are tested separately, any emissions unit that is not tested initially must be tested as soon as is practicable.

(b) To demonstrate compliance with the emission limit for mercury in Table 1 to this subpart through performance testing, follow the test methods and procedures in paragraphs (b)(1) and (2) of this section.

(1) Determine the concentration of mercury according to the following test methods:

(i) EPA Method 1 in appendix A-1 to part 60 of this chapter to select sampling port locations and the number of traverse points. Sampling ports must be located at the outlet of the control device and prior to any releases to the atmosphere.

(ii) EPA Method 2 or 2F in appendix A-1 to part 60 of this chapter or EPA Method 2G in appendix A-2 to part 60 of this chapter to determine the volumetric flow rate of the stack gas.

(iii) EPA Method 3, 3A, or 3B in appendix A-2 to part 60 of this chapter to determine the dry molecular weight of the stack gas. The manual procedures (but not instrumental procedures) of voluntary consensus standard ANSI/ASME PTC 19.10-1981—Part 10 (incorporated by reference—see § 63.14) may be used as an alternative to EPA Method 3B.

(iv) EPA Method 4 in appendix A-3 to part 60 of this chapter to determine the moisture content of the stack gas.

(v) EPA Method 29 or 30B in appendix A-8 to part 60 of this chapter to determine the concentration of mercury from each unit of the BOPF Group exhaust stream stack. If performing measurements using EPA Method 29, you must collect a minimum sample volume of 1.7 dscm (60 dscf). Alternative test methods may be considered on a case-by-case basis per § 63.7(f).

(2) Three valid test runs are needed to comprise a performance test of each BOPF Group unit. If the performance testing results for any of the emission points yields a non-detect value, then the minimum detection limit (MDL) must be used to calculate the mass emissions (lb) for that emission unit and, in turn, for calculating the sum of the emissions (in units of pounds of mercury per ton of steel scrap) for all BOPF Group units subject to the emission standard for determining compliance. If the resulting mercury emissions are greater than the MACT emission standard, the owner or operator may use procedures that produce lower MDL results and repeat the mercury performance testing one additional time for any emission point for which the measured result was below the MDL. If this additional testing is performed, the results from that testing must be used to determine compliance (*i.e.*, there are no additional opportunities allowed to lower the MDL).

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(3) For a primary emission control device applied to emissions from a BOPF with a closed hood system, sample only during the primary oxygen blow and do not sample during any subsequent reblows. Continue sampling for each run for an integral number of primary oxygen blows.

(4) For a primary emission control system applied to emissions from a BOPF with an open hood system and for a control device applied solely to secondary emissions from a BOPF, you must complete the requirements of paragraphs (b)(4)(i) and (ii) of this section:

(i) Sample only during the steel production cycle. Conduct sampling under conditions that are representative of normal operation. Record the start and end time of each steel production cycle and each period of abnormal operation; and

(ii) Sample for an integral number of steel production cycles. The steel production cycle begins when the scrap is charged to the furnace and ends 3 minutes after the slag is emptied from the vessel into the slag pot.

(5) For a control device applied to emissions from BOPF shop ancillary operations (hot metal transfer, skimming, desulfurization, or ladle metallurgy), sample only when the operation(s) is being conducted.

(c) Calculate the mercury mass emissions, based on the average of three test run values, for each BOPF Group unit (or combination of units that are ducted to a common stack and are tested when all affected sources are operating pursuant to paragraph (a) of this section) using Equation 1 of this section as follows:

$$E = \frac{C_s \times Q \times t}{454{,}000 \times 35.31}$$ (Eq. 1) (https://images.federalregister.gov/ER13JY20.000/original.png?1616803610)

Where:

E = Mass emissions of mercury, pounds (lb);

C_s = Concentration of mercury in stack gas, mg/dscm;

454,000 = Conversion factor (mg/lb);

Q = Volumetric flow rate of stack gas, dscf/min;

35.31 = Conversion factor (dscf/dscm); and

t = Duration of test, minutes.

(d) You must install, calibrate, maintain, and operate an appropriate □weight measurement device, to measure the tons of steel scrap input to the BOPF cycle simultaneous with each BOPF Group unit's stack test.

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(e) You must maintain the systems for measuring weight within ±5 percent accuracy. You must describe the specific equipment used to make measurements at your facility and how that equipment is periodically calibrated. You must also explain, document, and maintain written procedures for determining the accuracy of the measurements and make these written procedures available to your permitting authority upon request. You must determine, record, and maintain a record of the accuracy of the measuring systems before the beginning of your initial compliance test and during each subsequent quarter of affected source operation.

(f) Calculate the emissions from each new and existing affected source in pounds of mercury per ton of steel scrap to determine initial compliance with the mercury emission limit in Table 1. Sum the mercury mass emissions (in pounds) from all BOPF Group units calculated using Equation 1 of this section. Divide that sum by the sum of the total amount of steel scrap charged to the BOPFs (in tons).

14. Section 63.7831 is amended by revising paragraphs (a)(4) through (6) and (f)(4) to read as follows:

§ 63.7831 What are the installation, operation, and maintenance requirements for my monitors?

(a) * * *

(4) On or before January 11, 2021, for each existing source, and for each new or reconstructed source for which construction or reconstruction commenced on or before August 16, 2019, ongoing operation and maintenance procedures in accordance with the general requirements of § 63.8(c)(1)(ii), (c)(3), (c)(4)(ii), and (c)(7) and (8). After January 11, 2021 for each such source, and after July 13, 2020 for new and reconstructed sources for which construction or reconstruction commenced after August 16, ongoing operation and maintenance procedures in accordance with the general requirements of § 63.8(c)(1)(ii), (c)(3), (c)(4)(ii), and (c)(7) and (8);

(5) On or before January 11, 2021, for each existing source, and for each new or reconstructed source for which construction or reconstruction commenced on or before August 16, 2019, ongoing data quality assurance procedures in accordance with the general requirements of § 63.8(d). After January 11, 2021 for each such source, and after July 13, 2020 for new and reconstructed sources for which construction or reconstruction commenced after August 16, 2019, ongoing data quality assurance procedures in accordance with the general requirements of § 63.8(d) except for the requirements related to startup, shutdown, and malfunction plans referenced in § 63.8(d)(3). The owner or operator shall keep these written procedures on record for the life of the affected source or until the affected source is no longer subject to the provisions of this part, to be made available for inspection, upon request, by the Administrator. If the performance evaluation plan is revised, the owner or operator shall keep previous (*i.e.*, superseded) versions of the performance evaluation plan on record to be made available for inspection, upon request, by the Administrator, for a period of 5 years after each revision to the plan. The program of corrective action should be included in the plan required under § 63.8(d)(2);

(6) On or before January 11, 2021, for each existing source, and for each new or reconstructed source for which construction or reconstruction commenced on or before August 16, 2019, ongoing recordkeeping and reporting procedures in accordance with the general requirements of § 63.10(c)(1) through (14), (e)(1), and (e)(2)(i). After January 11, 2021 for each such source, and after July 13,

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2020 for new and reconstructed sources for which construction or reconstruction commenced after August 16, 2019, ongoing recordkeeping and reporting procedures in accordance with the general requirements of § 63.10(c)(1) through (14), (e)(1), and (e)(2)(i);

* * * * * * * * * *

(f) * * *

(4) Each system that works based on the triboelectric effect must be installed, operated, and maintained in a manner consistent with the guidance document, "Fabric Filter Bag Leak Detection Guidance," EPA-454/R-98-015 (incorporated by reference, see § 63.14). You may install, operate, and maintain other types of bag leak detection systems in a manner consistent with the manufacturer's written specifications and recommendations.

* * * * * * * * * *

15. Section 63.7833 is amended by revising paragraph (g)(3) and adding paragraphs (h) and (i) to read as follows:

§ 63.7833 How do I demonstrate continuous compliance with the emission limitations that apply to me?

* * * * * * * * * *

(g) * * *

(3) For purposes of paragraphs (g)(1) and (2) of this section, in the case of an exceedance of the hourly average opacity operating limit for an electrostatic precipitator, measurements of the hourly average opacity based on visible emission observations in accordance with EPA Method 9 (in appendix A-4 to part 60) may be taken to evaluate the effectiveness of corrective action. ASTM D7520-16 (incorporated by reference, see § 63.14) may be used with the following conditions:

(i) During the DCOT certification procedure outlined in Section 9.2 of ASTM D7520-16 (incorporated by reference, see § 63.14), the owner or operator or the DCOT vendor must present the plumes in front of various backgrounds of color and contrast representing conditions anticipated during field use such as blue sky, trees, and mixed backgrounds (clouds and/or a sparse tree stand).

(ii) The owner or operator must also have standard operating procedures in place including daily or other frequency quality checks to ensure the equipment is within manufacturing specifications as outlined in Section 8.1 of ASTM D7520-16 (incorporated by reference, see § 63.14).

(iii) The owner or operator must follow the recordkeeping procedures outlined in § 63.10(b)(1) for the DCOT certification, compliance report, data sheets, and all raw unaltered JPEGs used for opacity and certification determination.

(iv) The owner or operator or the DCOT vendor must have a minimum of four independent technology users apply the software to determine the visible opacity of the 300 certification plumes. For each set of 25 plumes, the user may not exceed 15-percent opacity of anyone reading and the average error must not exceed 7.5-percent opacity.

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(v) Use of this approved alternative does not provide or imply a certification or validation of any vendor's hardware or software. The onus to maintain and verify the certification and/or training of the DCOT camera, software, and operator in accordance with ASTM D7520-16 (incorporated by reference, see § 63.14) and these requirements is on the facility, DCOT operator, and DCOT vendor.

*** *** *** *** ***

(h) If you are demonstrating compliance with the mercury emission limits in Table 1 of this section for your BOPF Groups through performance testing, you must conduct mercury performance tests in accordance with §§ 63.7821(e) and 63.7825 and calculate the emissions from each new and existing affected source in pounds of mercury per ton of steel scrap to determine compliance with the mercury emission limits in Table 1. Sum the mercury mass emissions (in pounds) from all BOPF Group units calculated using Equation 1 of § 63.7825. Divide that sum by the sum of the total amount of steel scrap charged to the BOPFs (in tons).

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(i) If you are demonstrating compliance with the mercury emission limits in Table 1 of this section for your BOPF Groups by certifying participation in the NVMSRP or another EPA-approved mercury program, or by using scrap that does not contain mercury switches, you must obtain and certify your use of steel scrap per § 63.7791(c), (d), or (e), as applicable, and § 63.7841(b)(11) to demonstrate continuous compliance with the standard.

16. Section 63.7835 is revised to read as follows:

§ 63.7835 What other requirements must I meet to demonstrate continuous compliance?

Except as provided in § 63.7833(g), you must report each instance in which you did not meet each emission limitation in § 63.7790 that applies to you. This includes periods of startup, shutdown, and malfunction. You also must report each instance in which you did not meet each operation and maintenance requirement in § 63.7800 that applies to you. These instances are deviations from the emission limitations and operation and maintenance requirements in this subpart. These deviations must be reported according to the requirements in § 63.7841.

(a) In the event that an affected unit fails to meet an applicable standard, record the date, time, and duration of each failure.

(b) For each failure to meet an applicable standard, record and retain a list of the affected sources or equipment, an estimate of the quantity of each regulated pollutant emitted over any emission limit and a description of the method used to estimate the emissions.

(c) Record actions taken to minimize emissions in accordance with § 63.7810(d), and any corrective actions taken to return the affected unit to its normal or usual manner of operation.

(d) For existing sources and for new or reconstructed sources which commenced construction or reconstruction on or before August 16, 2019, before January 11, 2021, consistent with §§ 63.6(e) and 63.7(e)(1), deviations that occur during a period of startup, shutdown, or malfunction are not violations if you demonstrate to the Administrator's satisfaction that you were operating in accordance with § 63.6(e)(1). The Administrator will determine whether deviations that occur during a period of startup, shutdown, or malfunction are violations, according to the provisions in

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§ 63.6(e). After January 11, 2021 for such sources, and after July 13, 2020 for new and reconstructed sources which commence construction or reconstruction after August 16, 2019, the exemptions for periods of startup, shutdown, and malfunction in § 63.6(e) no longer apply.

17. Section 63.7840 is amended by revising paragraphs (d), (e) introductory text, and (e)(2) and adding paragraphs (f) through (h) to read as follows:

§ 63.7840 What notifications must I submit and when?

* * * * *

(d) If you are required to conduct a performance test, you must submit a notification of intent to conduct a performance test at least 60 calendar days before the performance test is scheduled to begin as required in § 63.7(b)(1). For the first mercury compliance test in the BOPF Group for anyone sequence of tests, you must include a schedule of all subsequent tests in the BOPF Group in the test series.

(e) If you are required to conduct a performance test, opacity observation, or other initial compliance demonstration, you must submit a notification of compliance according to § 63.9(h)(2)(ii), except that for the purposes of submitting the notification of compliance status for BOPF Group mercury testing, the performance test shall be considered complete when the final unit or control device in the BOPF Group in the sequence is tested.

* * * * *

(2) For each initial compliance demonstration that includes a performance test, you must submit the notification of compliance status, including the summary of performance test results, before the close of business on the 60th calendar day following the completion of the performance test according to § 63.10(d)(2).

(f) The notification of compliance status required by §§ 63.9(b) and (h) and 63.7826(c) must include each applicable certification of compliance, signed by a responsible official, in paragraphs (f)(1) and (2) of this section, regarding the mercury requirements, as applicable, in § 63.7791(c) through (e).

(1) "This facility participates in and purchases scrap only from scrap providers who participate in a program for removal of mercury switches that has been approved by the EPA Administrator, in accordance with § 63.7791(c) or (e)"; or

(2) "This facility complies with the requirements for scrap that does not contain mercury switches, in accordance with § 63.7791(d)."

(g) Within 60 calendar days after the date of completing each performance test required by this subpart, you must submit the results of the performance test following the procedures specified in paragraphs (g)(1) through (3) of this section. Where applicable, you may assert a claim of EPA system outage, in accordance with § 63.7841(e), or force majeure, in accordance with § 63.7841(f), for failure to timely comply with this requirement.

(1) Data collected using test methods supported by EPA's Electronic Reporting Tool (ERT) as listed on EPA's ERT website (*https://www.epa.gov/electronic-reporting-air-emissions/electronic-reporting-tool-ert (https://www.epa.gov/electronic-reporting-air-emissions/electronic-*

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reporting-tool-ert)) at the time of the test. Submit the results of the performance test to the EPA via the Compliance and Emissions Data Reporting Interface (CEDRI), which can be accessed through EPA's Central Data Exchange (CDX) (*https://cdx.epa.gov/ (https://cdx.epa.gov/)*). The data must be submitted in a file format generated through the use of EPA's ERT. Alternatively, you may submit an electronic file consistent with the extensible markup language (XML) schema listed on EPA's ERT website.

(2) Data collected using test methods that are not supported by EPA's ERT as listed on EPA's ERT website at the time of the test. The results of the performance test must be included as an attachment in the ERT or an alternate electronic file consistent with the XML schema listed on EPA's ERT website. Submit the ERT generated package or alternative file to the EPA via CEDRI.

(3) Confidential business information (CBI). If you claim some of the information submitted under paragraph (g) of this section is CBI, you must submit a complete file, including information claimed to be CBI, to the EPA. The file must be generated through the use of EPA's ERT or an alternate electronic file consistent with the XML schema listed on EPA's ERT website. Submit the file on a compact disc, flash drive, or other commonly used electronic storage medium and clearly mark the medium as CBI. Mail the electronic medium to U.S. EPA/OAQPS/CORE CBI Office, Attention: Group Leader, Measurement Policy Group, MD C404-02, 4930 Old Page Rd., Durham, NC 27703. The same file with the CBI omitted must be submitted to the EPA via EPA's CDX as described in paragraph (g) of this section.

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(h) Within 60 calendar days after the date of completing each continuous monitoring system (CMS) performance evaluation (as defined in § 63.2), you must submit the results of the performance evaluation following the procedures specified in paragraphs (h)(1) through (3) of this section. Where applicable, you may assert a claim of EPA system outage, in accordance with § 63.7841(e), or force majeure, in accordance with § 63.7841(f), for failure to timely comply with this requirement.

(1) Performance evaluations of CMS measuring relative accuracy test audit (RATA) pollutants that are supported by EPA's ERT as listed on EPA's ERT website at the time of the evaluation. Submit the results of the performance evaluation to the EPA via CEDRI, which can be accessed through EPA's CDX. The data must be submitted in a file format generated through the use of EPA's ERT. Alternatively, you may submit an electronic file consistent with the XML schema listed on EPA's ERT website.

(2) Performance evaluations of CMS measuring RATA pollutants that are not supported by EPA's ERT as listed on EPA's ERT website at the time of the evaluation. The results of the performance evaluation must be included as an attachment in the ERT or an alternate electronic file consistent with the XML schema listed on EPA's ERT website. Submit the ERT generated package or alternative file to the EPA via CEDRI.

(3) Confidential business information (CBI). If you claim some of the information submitted under this paragraph (h) is CBI, you must submit a complete file, including information claimed to be CBI, to the EPA. The file must be generated through the use of EPA's ERT or an alternate electronic file consistent with the XML schema listed on EPA's ERT website. Submit the file on a compact disc, flash drive, or other commonly used electronic storage medium and clearly mark the medium

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as CBI. Mail the electronic medium to U.S. EPA/OAQPS/CORE CBI Office, Attention: Group Leader, Measurement Policy Group, MD C404-02, 4930 Old Page Rd., Durham, NC 27703. The same file with the CBI omitted must be submitted to the EPA via EPA's CDX as described in this paragraph (h).

18. Section 63.7841 is amended by:

a. Revising paragraphs (b) introductory text, (b)(4), (b)(7) introductory text, (b)(7)(ii), (b)(8) introductory text, and (b)(8)(ii), (iv), and (vi);

b. Adding paragraphs (b)(9) through (13);

c. Revising paragraph (c);

d. Redesignating paragraph (d) as paragraph (g) and revising it; and

e. Adding new paragraph (d) and paragraphs (e) and (f).

The revisions and additions read as follows:

§ 63.7841 What reports must I submit and when?

* * * * *

(b) *Compliance report contents.* Each compliance report must include the information in paragraphs (b)(1) through (3) of this section and, as applicable, paragraphs (b)(4) through (13) of this section.

* * * * *

(4) For existing sources and for new or reconstructed sources for which construction or reconstruction commenced on or before August 16, 2019, before January 11, 2021, if you had a startup, shutdown, or malfunction during the reporting period and you took actions consistent with your startup, shutdown, and malfunction plan, the compliance report must include the information in § 63.10(d)(5)(i). A startup, shutdown, and malfunction plan and the information in § 63.10(d)(5)(i) is not required after January 11, 2021.

* * * * *

(7) For each deviation from an emission limitation in § 63.7790 that occurs at an affected source where you are not using a continuous monitoring system (including a CPMS, COMS, or CEMS) to comply with an emission limitation in this subpart, the compliance report must contain the information in paragraphs (b)(1) through (4) of this section, the information in paragraphs (b)(7)(i) and (ii) of this section, and the information in (b)(13) of this section. This includes periods of startup, shutdown, and malfunction.

* * * * *

(ii) Information on the duration and cause of deviations (including unknown cause, if applicable) as applicable and the corrective action taken.

* * * * *

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(8) For each deviation from an emission limitation occurring at an affected source where you are using a continuous monitoring system (including a CPMS or COMS) to comply with the emission limitation in this subpart, you must include the information in paragraphs (b)(1) through (4) of this section, the information in paragraphs (b)(8)(i) through (xi) of this section, and the information in (b)(13) of this section. This includes periods of malfunction.

* * * * *

(ii) The date, time, and duration that each continuous monitoring was inoperative, except for zero (low-level) and high-level checks.

* * * * *

(iv) The date and time that each deviation started and stopped, and whether each deviation occurred during a malfunction or during another period.

* * * * *

(vi) A breakdown of the total duration of the deviations during the reporting period including those that are due to control equipment problems, process problems, other known causes, and other unknown causes.

* * * * *

(9) Any deviation from the requirements in § 63.7791 and the corrective action taken. For each deviation, you must include the information in (b)(13) of this section.

(10) If there were no deviations from the requirements in § 63.7791, a statement that there were no deviations from the requirements during the reporting period.

(11) If the facility demonstrates compliance with the mercury emission limits in Table 1 through the compliance options in § 63.7791(c), (d), or (e), the report must contain the applicable statement in paragraphs (b)(11)(i) and (ii) of this section, as applicable.

(i) "This facility participates in and purchases scrap only from scrap providers who participate in a program for removal of mercury switches that has been approved by the EPA Administrator, in accordance with § 63.7791(c) or (e)"; or

(ii) "This facility complies with the requirements for scrap that does not contain mercury switches, in accordance with § 63.7791(d)."

(12) For existing sources and for new or reconstructed sources which commenced construction or reconstruction on or before August 16, 2019, before January 11, 2021, for each startup, shutdown, or malfunction during the reporting period that is not consistent with your startup, shutdown, and malfunction plan you must submit an immediate startup, shutdown and malfunction report. Unless the Administrator has approved a different schedule for submission of reports under § 63.10(a), you must submit each report according to paragraphs (f)(1) and (2) of this section. An immediate startup, shutdown, and malfunction report is not required after January 11, 2021.

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(13) Beginning on January 11, 2021 if you failed to meet an applicable standard, the compliance report must include the start date, start time, and duration of each failure. For each failure, the compliance report must include a list of the affected sources or equipment, an estimate of the quantity of each regulated pollutant emitted over any emission limit, and a description of the method used to estimate the emissions.

(c) *Use of CEDRI template.* Beginning on January 11, 2021 or 180 days after the date the reporting template becomes available in CEDRI, whichever is later, submit all subsequent reports following the procedure specified in paragraph (d) of this section.

(d) *CEDRI submission.* If you are required to submit reports following the procedure specified in this paragraph, you must submit reports to the EPA via CEDRI, which can be accessed through EPA's CDX (*https://cdx.epa.gov/ (https://cdx.epa.gov/)*). You must use the appropriate electronic report template on the CEDRI website (*https://www.epa.gov/electronic-reporting-air-emissions/compliance-and-emissions-data-reporting-interface-cedri (https://www.epa.gov/electronic-reporting-air-emissions/compliance-and-emissions-data-reporting-interface-cedri)*) for this subpart. The date report templates become available will be listed on the CEDRI website. The report must be submitted by the deadline specified in this subpart, regardless of the method in which the report is submitted. If you claim some of the information required to be submitted via CEDRI is CBI, submit a complete report, including information claimed to be CBI, to the EPA. The report must be generated using the appropriate form on the CEDRI website. Submit the file on a compact disc, flash drive, or other commonly used electronic storage medium and clearly mark the medium as CBI. Mail the electronic medium to U.S. EPA/OAQPS/CORE CBI Office, Attention: Group Leader, Measurement Policy Group, MD C404-02, 4930 Old Page Rd., Durham, NC 27703. The same file with the CBI omitted must be submitted to the EPA via EPA's CDX as described earlier in this paragraph.

(e) *CDX outage.* If you are required to electronically submit a report through CEDRI in EPA's CDX, you may assert a claim of EPA system outage for failure to timely comply with the reporting requirement. To assert a claim of EPA system outage, you must meet the requirements outlined in paragraphs (e)(1) through (7) of this section.

(1) You must have been or will be precluded from accessing CEDRI and submitting a required report within the time prescribed due to an outage of either EPA's CEDRI or CDX systems.

(2) The outage must have occurred within the period of time beginning five business days prior to the date that the submission is due.

(3) The outage may be planned or unplanned.

(4) You must submit notification to the Administrator in writing as soon as possible following the date you first knew, or through due diligence should have known, that the event may cause or has caused a delay in reporting.

(5) You must provide to the Administrator a written description identifying:

(i) The date(s) and time(s) when CDX or CEDRI was accessed and the system was unavailable;

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(ii) A rationale for attributing the delay in reporting beyond the regulatory deadline to EPA system outage;

(iii) Measures taken or to be taken to minimize the delay in reporting; and

(iv) The date by which you propose to report, or if you have already met the reporting requirement at the time of the notification, the date you reported.

(6) The decision to accept the claim of EPA system outage and allow an extension to the reporting deadline is solely within the discretion of the Administrator.

(7) In any circumstance, the report must be submitted electronically as soon as possible after the outage is resolved.

(f) *Claim of force majeure.* If you are required to electronically submit a report through CEDRI in EPA's CDX, you may assert a claim of force majeure for failure to timely comply with the reporting requirement. To assert a claim of force majeure, you must meet the requirements outlined in paragraphs (f)(1) through (5) of this section.

(1) You may submit a claim if a force majeure event is about to occur, occurs, or has occurred or there are lingering effects from such an event within the period of time beginning five business days prior to the date the submission is due. For the purposes of this section, a force majeure event is defined as an event that will be or has been caused by circumstances beyond the control of the affected facility, its contractors, or any entity controlled by the affected facility that prevents you from complying with the requirement to submit a report electronically within the time period prescribed. Examples of such events are acts of nature (*e.g.*, hurricanes, earthquakes, or floods), acts of war or terrorism, or equipment failure or safety hazard beyond the control of the affected facility (*e.g.*, large scale power outage).

(2) You must submit notification to the Administrator in writing as soon as possible following the date you first knew, or through due diligence should have known, that the event may cause or has caused a delay in reporting.

(3) You must provide to the Administrator:

(i) A written description of the force majeure event;

(ii) A rationale for attributing the delay in reporting beyond the regulatory deadline to the force majeure event;

(iii) Measures taken or to be taken to minimize the delay in reporting; and

(iv) The date by which you propose to report, or if you have already met the reporting requirement at the time of the notification, the date you reported.

(4) The decision to accept the claim of force majeure and allow an extension to the reporting deadline is solely within the discretion of the Administrator.

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(5) In any circumstance, the reporting must occur as soon as possible after the force majeure event occurs.

(g) *Part 70 monitoring report.* If you have obtained a title V operating permit for an affected source pursuant to part 70 or 71 of this chapter, you must report all deviations as defined in this subpart in the semiannual monitoring report required by § 70.6(a)(3)(iii)(A) or § 71.6(a)(3)(iii)(A) of this chapter. If you submit a compliance report for an affected source along with, or as part of, the semiannual monitoring report required by § 70.6(a)(3)(iii)(A) or § 71.6(a)(3)(iii)(A) of this chapter, and the compliance report includes all the required information concerning deviations from any emission limitation, standard, or operation and maintenance requirement in this subpart, submission of the compliance report satisfies any obligation to report the same deviations in the semiannual monitoring report. However, submission of a compliance report does not otherwise affect any obligation you may have to report deviations from permit requirements for an affected source to your permitting authority.

19. Section 63.7842 is amended by:

a. Revising paragraph (a)(2);

b. Redesignating paragraph (a)(3) as paragraph (a)(5);

c. Adding new paragraph (a)(3) and paragraph (a)(4);

d. Revising paragraph (b)(3); and

e. Adding paragraph (e).

The revisions and additions read as follows:

§ 63.7842 What records must I keep?

(a) * * *

(2) For existing sources and for new or reconstructed sources which commenced construction or reconstruction on or before August 16, 2019, before January 11, 2021, the records in § 63.6(e)(3)(iii) through (v) related to startup, shutdown, and malfunction for a period of five years. A startup, shutdown, and malfunction plan is not required after January 11, 2021.

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(3) For each failure to meet an applicable standard, a list of the affected sources or equipment, an estimate of the quantity of each regulated pollutant emitted over any emission limit, and a description of the method used to estimate the emissions.

(4) Records of the actions taken to minimize emissions in accordance with § 63.7810(d), and any corrective actions taken to return the affected unit to its normal or usual manner of operation.

* * * * *

(b) * * *

(3) Previous (that is, superseded) versions of the performance evaluation plan required under § 63.8(d)(2), with the program of corrective action included in the plan.

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(e) If you are demonstrating compliance with the mercury emission limit in Table 1 through § 63.7791(c), you must keep records to demonstrate compliance with the requirements for mercury in § 63.7791(c) as applicable. If you are demonstrating compliance with the mercury emission limit in Table 1 through § 63.7791(d), you must keep records documenting compliance with § 63.7791(d) for scrap that does not contain mercury switches. If you are demonstrating compliance with the mercury emission limit in Table 1 through § 63.7791(e), you must maintain records identifying each scrap provider and documenting the scrap provider's participation in an approved mercury switch removal program. If you purchase scrap from a broker, you must maintain records identifying each broker and documentation that all scrap provided by the broker was obtained from other scrap providers who participate in an approved mercury switch removal program.

20. Section 63.7851 is amended by revising paragraph (c) introductory text and adding paragraph (c)(5) to read as follows:

§ 63.7851 Who implements and enforces this subpart?

* * * * *

(c) The authorities that will not be delegated to State, local, or tribal agencies are specified in paragraphs (c)(1) through (5) of this section.

* * * * *

(5) Approval of an alternative to any electronic reporting to the EPA required by this subpart.

21. Section 63.7852 is amended by:

a. Adding in alphabetical order a definition for "basic oxygen process furnace group";

b. Revising the definition of "deviation"; and

c. Adding in alphabetical order definitions for "mercury switch", "motor vehicle", "motor vehicle scrap", "opening", "post-consumer steel scrap", "pre-consumer steel scrap", "scrap provider", "shredded motor vehicle scrap", "specialty metal scrap", and "steel scrap".

The additions and revision read as follows:

§ 63.7852 What definitions apply to this subpart?

* * * * *

Basic oxygen process furnace group means the collection of BOPF shop steelmaking operating units and their control devices including the BOPF primary emission control system, BOPF secondary control system, ladle metallurgy units, and hot metal transfer, desulfurization and slag skimming units that are operating at the time of each mercury test sequence. In the case of duplicate units in the BOPF Group, the BOPF Group for purposes of this rule means only those units operating at the time of the test sequence. See related definitions in this section for "primary emissions," "primary emission control system," "secondary emissions," and "secondary emission control system."

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Deviation means any instance in which an affected source subject to this subpart, or an owner or operator of such a source:

(1) Fails to meet any requirement or obligation established by this subpart, including but not limited to any emission limitation (including operating limits), standard, or operation and maintenance requirement;

(2) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any affected source required to obtain such a permit; or

(3) Fails to meet any emission limitation in this subpart during startup, shutdown, or malfunction, regardless of whether or not such failure is permitted by this subpart.

* * * * *

Mercury switch means each mercury-containing capsule or switch assembly that is part of a convenience light switch mechanism installed in a motor vehicle.

Motor vehicle means an automotive vehicle not operated on rails and usually operated with rubber tires for use on roads and highways.

Motor vehicle scrap means post-consumer scrap from discarded automotive vehicles, in whole or in part, including automobile body hulks that have been processed through a shredder. Motor vehicle scrap does not include automobile manufacturing bundles or miscellaneous vehicle parts, such as wheels and bumpers, which do not contain mercury switches.

Opening means any roof monitor, vent, door, window, hole, crack or other conduit that allows gas to escape to the atmosphere from a blast furnace casthouse or BOPF shop.

Post-consumer steel scrap means steel scrap that is composed of materials made of steel that were purchased by households or by commercial, industrial, and institutional facilities in their role as end-users of the product and which can no longer be used for its intended purpose.

Pre-consumer steel scrap means steel scrap that is left over from industrial or manufacturing processes and which is subsequently recycled as scrap. Other terms used to describe this scrap are new, home, run-around, prompt-industrial, and return scrap.

* * * * *

Scrap provider means the company or person (including a broker) who contracts directly with an integrated iron and steel manufacturing facility to provide steel scrap. Scrap processors, such as shredder operators or vehicle dismantlers, who do not sell scrap directly to an integrated iron and steel manufacturing facility are not scrap providers.

* * * * *

Shredded motor vehicle scrap means post-consumer scrap from discarded automotive vehicles that has been processed through a shredder.

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Specialty metal scrap means scrap where the only materials from motor vehicles in the scrap are materials (such as certain exhaust systems) recovered for their specialty alloy content (including, but not limited to, chromium, nickel, molybdenum, or other alloys), and, based on the nature of the scrap and purchase specifications, the scrap is not expected to contain mercury switches.

* * * * * * * * * *

Steel scrap means pre-consumer and post-consumer discarded steel that is processed by scrap providers for resale (post-consumer) or used on-site (pre-consumer or run-around scrap from within a facility or company). Post-consumer steel scrap may or may not contain motor vehicle scrap, depending on the type of scrap.

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* * * * * * * * * *

22. Table 1 to Subpart FFFFF of Part 63 is revised to read as follows:

As required in § 63.7790(a), you must comply with each applicable emission and opacity limit in the following table:

Table 1 to Subpart FFFFF of Part 63—Emission and Opacity Limits

For . . .	You must comply with each of the following . . .
1. Each windbox exhaust stream at an existing sinter plant	You must not cause to be discharged to the atmosphere any gases that contain particulate matter in excess of 0.4 lb/ton of product sinter.
2. Each windbox exhaust stream at a new sinter plant	You must not cause to be discharged to the atmosphere any gases that contain particulate matter in excess of 0.3 lb/ton of product sinter.
3. Each discharge end at an existing sinter plant	a. You must not cause to be discharged to the atmosphere any gases that exit from one or more control devices that contain, on a flow-weighted basis, particulate matter in excess of 0.02 gr/dscf [1] [2]; and b. You must not cause to be discharged to the atmosphere any secondary emissions that exit any opening in the building or structure housing the discharge end that exhibit opacity greater than 20 percent (6-minute average).
4. Each discharge end at a new sinter plant	a. You must not cause to be discharged to the atmosphere any gases that exit from one or more control devices that contain, on a flow weighted basis, particulate matter in excess of 0.01 gr/dscf; and b. You must not cause to be discharged to the atmosphere any secondary emissions that exit any opening in the building or structure housing the discharge end that exhibit opacity greater than 10 percent (6-minute average).
5. Each sinter cooler at an existing sinter plant	You must not cause to be discharged to the atmosphere any emissions that exhibit opacity greater than 10 percent (6-minute average).

[1] *This limit applies if the cooler is vented to the same control device as the discharge end.*

[2] *This concentration limit (gr/dscf) for a control device does not apply to discharges inside a building or structure housing the discharge end at an existing sinter plant, inside a casthouse at an existing blast furnace, or inside an existing BOPF shop if the control device was installed before August 30, 2005.*

[3] *This limit applies to control devices operated in parallel for a single BOPF during the oxygen blow.*

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For . . .	You must comply with each of the following . . .
6. Each sinter cooler at a new sinter plant	You must not cause to be discharged to the atmosphere any gases that contain particulate matter in excess of 0.01 gr/dscf.
7. Each casthouse at an existing blast furnace	a. You must not cause to be discharged to the atmosphere any gases that exit from a control device that contain particulate matter in excess of 0.01 gr/dscf [2]; and b. You must not cause to be discharged to the atmosphere any secondary emissions that exit all openings in the casthouse or structure housing the blast furnace that exhibit opacity greater than 20 percent (6-minute average).
8. Each casthouse at a new blast furnace	a. You must not cause to be discharged to the atmosphere any gases that exit from a control device that contain particulate matter in excess of 0.003 gr/dscf; and b. You must not cause to be discharged to the atmosphere any secondary emissions that exit all openings in the casthouse or structure housing the blast furnace that exhibit opacity greater than 15 percent (6-minute average).
9. Each BOPF at a new or existing shop	a. You must not cause to be discharged to the atmosphere any gases that exit from a primary emission control system for a BOPF with a closed hood system at a new or existing BOPF shop that contain, on a flow-weighted basis, particulate matter in excess of 0.03 gr/dscf during the primary oxygen blow [2 3]; and b. You must not cause to be discharged to the atmosphere any gases that exit from a primary emission control system for a BOPF with an open hood system that contain, on a flow-weighted basis, particulate matter in excess of 0.02 gr/dscf during the steel production cycle for an existing BOPF shop [2 3] or 0.01 gr/dscf during the steel production cycle for a new BOPF shop [3]; and c. You must not cause to be discharged to the atmosphere any gases that exit from a control device used solely for the collection of secondary emissions from the BOPF that contain particulate matter in excess of 0.01 gr/dscf for an existing BOPF shop [2] or 0.0052 gr/dscf for a new BOPF shop.
10. Each hot metal transfer, skimming, and desulfurization operation at a new or existing BOPF shop	You must not cause to be discharged to the atmosphere any gases that exit from a control device that contain particulate matter in excess of 0.01 gr/dscf for an existing BOPF shop [2] or 0.003 gr/dscf for a new BOPF shop.
11. Each ladle metallurgy operation at a new or existing BOPF shop	You must not cause to be discharged to the atmosphere any gases that exit from a control device that contain particulate matter in excess of 0.01 gr/dscf for an existing BOPF shop [2] or 0.004 gr/dscf for a new BOPF shop.
12. Each existing BOPF shop	You must not cause to be discharged to the atmosphere any secondary emissions that exit any opening in the BOPF shop or any other building housing the BOPF or BOPF shop operation that exhibit opacity greater than 20 percent (3-minute average).

[1] This limit applies if the cooler is vented to the same control device as the discharge end.

[2] This concentration limit (gr/dscf) for a control device does not apply to discharges inside a building or structure housing the discharge end at an existing sinter plant, inside a casthouse at an existing blast furnace, or inside an existing BOPF shop if the control device was installed before August 30, 2005.

[3] This limit applies to control devices operated in parallel for a single BOPF during the oxygen blow.

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For . . .	You must comply with each of the following . . .
13. Each new BOPF shop	a. You must not cause to be discharged to the atmosphere any secondary emissions that exit any opening in the BOPF shop or other building housing a bottom-blown BOPF or BOPF shop operations that exhibit opacity (for any set of 6-minute averages) greater than 10 percent, except that one 6-minute period not to exceed 20 percent may occur once per steel production cycle; or b. You must not cause to be discharged to the atmosphere any secondary emissions that exit any opening in the BOPF shop or other building housing a top-blown BOPF or BOPF shop operations that exhibit opacity (for any set of 3-minute averages) greater than 10 percent, except that one 3-minute period greater than 10 percent but less than 20 percent may occur once per steel production cycle.
14. Each BOPF Group at an existing BOPF shop	You must not cause to be discharged to the atmosphere any gases that exit from the collection of BOPF Group control devices that contain mercury in excess of 0.00026 lb/ton of steel scrap input to the BOPF.
15. Each BOPF Group at a new BOPF shop	You must not cause to be discharged to the atmosphere any gases that exit from the collection of BOPF Group control devices that contain mercury in excess of 0.000081 lb/ton of steel scrap input to the BOPF.

[1] *This limit applies if the cooler is vented to the same control device as the discharge end.*

[2] *This concentration limit (gr/dscf) for a control device does not apply to discharges inside a building or structure housing the discharge end at an existing sinter plant, inside a casthouse at an existing blast furnace, or inside an existing BOPF shop if the control device was installed before August 30, 2005.*

[3] *This limit applies to control devices operated in parallel for a single BOPF during the oxygen blow.*

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23. Table 2 to Subpart FFFFF of Part 63 is revised to read as follows:

As required in § 63.7826(a)(1), you must demonstrate initial compliance with the emission and opacity limits according to the following table:

Table 2 to Subpart FFFFF of Part 63—Initial Compliance With Emission and Opacity Limits

For . . .	You have demonstrated initial compliance if . . .
1. Each windbox exhaust stream at an existing sinter plant	The process-weighted mass rate of particulate matter from a windbox exhaust stream, measured according to the performance test procedures in § 63.7822(c), did not exceed 0.4 lb/ton of product sinter.
2. Each windbox exhaust stream at a new sinter plant	The process-weighted mass rate of particulate matter from a windbox exhaust stream, measured according to the performance test procedures in § 63.7822(c), did not exceed 0.3 lb/ton of product sinter.
3. Each discharge end at an existing sinter plant	a. The flow-weighted average concentration of particulate matter from one or more control devices applied to emissions from a discharge end, measured according to the performance test procedures in § 63.7822(d), did not exceed 0.02 gr/dscf; and b. The opacity of secondary emissions from each discharge end, determined according to the performance test procedures in § 63.7823(c), did not exceed 20 percent (6-minute average).

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For . . .	You have demonstrated initial compliance if . . .
4. Each discharge end at a new sinter plant	a. The flow-weighted average concentration of particulate matter from one or more control devices applied to emissions from a discharge end, measured according to the performance test procedures in § 63.7822(d), did not exceed 0.01 gr/dscf; and b. The opacity of secondary emissions from each discharge end, determined according to the performance test procedures in § 63.7823(c), did not exceed 10 percent (6-minute average).
5. Each sinter cooler at an existing sinter plant	The opacity of emissions, determined according to the performance test procedures in § 63.7823(e), did not exceed 10 percent (6-minute average).
6. Each sinter cooler at a new sinter plant	The average concentration of particulate matter, measured according to the performance test procedures in § 63.7822(b), did not exceed 0.01 gr/dscf.
7. Each casthouse at an existing blast furnace	a. The average concentration of particulate matter from a control device applied to emissions from a casthouse, measured according to the performance test procedures in § 63.7822(e), did not exceed 0.01 gr/dscf; and b. The opacity of secondary emissions from each casthouse, determined according to the performance test procedures in § 63.7823(c), did not exceed 20 percent (6-minute average).
8. Each casthouse at a new blast furnace	a. The average concentration of particulate matter from a control device applied to emissions from a casthouse, measured according to the performance test procedures in § 63.7822(e), did not exceed 0.003 gr/dscf; and b. The opacity of secondary emissions from each casthouse, determined according to the performance test procedures in § 63.7823(c), did not exceed 15 percent (6-minute average).
9. Each BOPF at a new or existing BOPF shop	a. The average concentration of particulate matter from a primary emission control system applied to emissions from a BOPF with a closed hood system, measured according to the performance test procedures in § 63.7822(f), did not exceed 0.03 gr/dscf for a new or existing BOPF shop; b. The average concentration of particulate matter from a primary emission control system applied to emissions from a BOPF with an open hood system, measured according to the performance test procedures in § 63.7822(g), did not exceed 0.02 gr/dscf for an existing BOPF shop or 0.01 gr/dscf for a new BOPF shop; and c. The average concentration of particulate matter from a control device applied solely to secondary emissions from a BOPF, measured according to the performance test procedures in § 63.7822(g), did not exceed 0.01 gr/dscf for an existing BOPF shop or 0.0052 gr/dscf for a new BOPF shop.
10. Each hot metal transfer skimming, and desulfurization at a new or existing BOPF shop	The average concentration of particulate matter from a control device applied to emissions from hot metal transfer, skimming, or desulfurization, measured according to the performance test procedures in § 63.7822(h), did not exceed 0.01 gr/dscf for an existing BOPF shop or 0.003 gr/dscf for a new BOPF shop.
11. Each ladle metallurgy operation at a new or existing BOPF shop	The average concentration of particulate matter from a control device applied to emissions from a ladle metallurgy operation, measured according to the performance test procedures in § 63.7822(h), did not exceed 0.01 gr/dscf for an existing BOPF shop or 0.004 gr/dscf for a new BOPF shop.

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For . . .	You have demonstrated initial compliance if . . .
12. Each existing BOPF shop	The opacity of secondary emissions from each BOPF shop, determined according to the performance test procedures in § 63.7823(d), did not exceed 20 percent (3-minute average).
13. Each new BOPF shop	a. The opacity of the highest set of 6-minute averages from each BOPF shop housing a bottom-blown BOPF, determined according to the performance test procedures in § 63.7823(d), did not exceed 20 percent and the second highest set of 6-minute averages did not exceed 10 percent; or b. The opacity of the highest set of 3-minute averages from each BOPF shop housing a top-blown BOPF, determined according to the performance test procedures in § 63.7823(d), did not exceed 20 percent and the second highest set of 3-minute averages did not exceed 10 percent.
14. Each BOPF Group at an existing BOPF shop	If demonstrating compliance through performance testing, the average emissions of mercury from the collection of BOPF Group control devices applied to the emissions from the BOPF Group, measured according to the performance test procedures in § 63.7825, did not exceed 0.00026 lb/ton steel scrap input to the BOPF.
15. Each BOPF Group at a new BOPF shop	If demonstrating compliance through performance testing, the average emissions of mercury from the collection of BOPF Group control devices applied to the emissions from the BOPF Group, measured according to the performance test procedures in § 63.7825, did not exceed 0.000081 lb/ton steel scrap input to the BOPF.

24. Table 3 to Subpart FFFFF of Part 63 is revised to read as follows:

As required in § 63.7833(a), you must demonstrate continuous compliance with the emission and opacity limits according to the following table:

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Table 3 to Subpart FFFFF of Part 63—Continuous Compliance With Emission and Opacity Limits

For . . .	You must demonstrate continuous compliance by . . .
1. Each windbox exhaust stream at an existing sinter plant	a. Maintaining emissions of particulate matter at or below 0.4 lb/ton of product sinter; and b. Conducting subsequent performance tests at the frequencies specified in § 63.7821.
2. Each windbox exhaust stream at a new sinter plant	a. Maintaining emissions of particulate matter at or below 0.3 lb/ton of product sinter; and b. Conducting subsequent performance tests at the frequencies specified in § 63.7821.
3. Each discharge end at an existing sinter plant	a. Maintaining emissions of particulate matter from one or more control devices at or below 0.02 gr/dscf; and b. Maintaining the opacity of secondary emissions that exit any opening in the building or structure housing the discharge end at or below 20 percent (6-minute average); and c. Conducting subsequent performance tests at the frequencies specified in § 63.7821.
4. Each discharge end at a new sinter plant	a. Maintaining emissions of particulate matter from one or more control devices at or below 0.01 gr/dscf; and

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For . . .	You must demonstrate continuous compliance by . . .
	b. Maintaining the opacity of secondary emissions that exit any opening in the building or structure housing the discharge end at or below 10 percent (6-minute average); and
	c. Conducting subsequent performance tests at the frequencies specified in § 63.7821.
5. Each sinter cooler at an existing sinter plant	a. Maintaining the opacity of emissions that exit any sinter cooler at or below 10 percent (6-minute average); and
	b. Conducting subsequent performance tests at the frequencies specified in § 63.7821.
6. Each sinter cooler at a new sinter plant	a. Maintaining emissions of particulate matter at or below 0.1 gr/dscf; and
	b. Conducting subsequent performance tests at the frequencies specified in § 63.7821.
7. Each casthouse at an existing blast furnace	a. Maintaining emissions of particulate matter from a control device at or below 0.01 gr/dscf; and
	b. Maintaining the opacity of secondary emissions that exit all openings in the casthouse or structure housing the casthouse at or below 20 percent (6-minute average); and
	c. Conducting subsequent performance tests at the frequencies specified in § 63.7821.
8. Each casthouse at a new blast furnace	a. Maintaining emissions of particulate matter from a control device at or below 0.003 gr/dscf; and
	b. Maintaining the opacity of secondary emissions that exit all openings in the casthouse or structure housing the casthouse at or below 15 percent (6-minute average); and
	c. Conducting subsequent performance tests at the frequencies specified in § 63.7821.
9. Each BOPF at a new or existing BOPF shop	a. Maintaining emissions of particulate matter from the primary control system for a BOPF with a closed hood system at or below 0.03 gr/dscf; and
	b. Maintaining emissions of particulate matter from the primary control system for a BOPF with an open hood system at or below 0.02 gr/dscf for an existing BOPF shop or 0.01 gr/dscf for a new BOPF shop; and
	c. Maintaining emissions of particulate matter from a control device applied solely to secondary emissions from a BOPF at or below 0.01 gr/dscf for an existing BOPF shop or 0.0052 gr/dscf for a new BOPF shop; and
	d. Conducting subsequent performance tests at the frequencies specified in § 63.7821.
10. Each hot metal transfer, skimming, and desulfurization operation at a new or existing BOPF shop	a. Maintaining emissions of particulate matter from a control device at or below 0.01 gr/dscf at an existing BOPF or 0.003 gr/dscf for a new BOPF; and
	b. Conducting subsequent performance tests at the frequencies specified in § 63.7821.
11. Each ladle metallurgy operation at a new or existing BOPF shop	a. Maintaining emissions of particulate matter from a control device at or below 0.01 gr/dscf at an existing BOPF shop or 0.004 gr/dscf for a new BOPF shop; and

Site Feedback

For . . .	You must demonstrate continuous compliance by . . .
	b. Conducting subsequent performance tests at the frequencies specified in § 63.7821.
12. Each existing BOPF shop	a. Maintaining the opacity of secondary emissions that exit any opening in the BOPF shop or other building housing the BOPF shop or shop operation at or below 20 percent (3-minute average); and
	b. Conducting subsequent performance tests at the frequencies specified in § 63.7821.
13. Each new BOPF shop	a. Maintaining the opacity (for any set of 6-minute averages) of secondary emissions that exit any opening in the BOPF shop or other building housing a bottom-blown BOPF or shop operation at or below 10 percent, except that one 6-minute period greater than 10 percent but no more than 20 percent may occur once per steel production cycle; and
	b. Maintaining the opacity (for any set of 3-minute averages) of secondary emissions that exit any opening in the BOPF shop or other building housing a top-blown BOPF or shop operation at or below 10 percent, except that one 3-minute period greater than 10 percent but less than 20 percent may occur once per steel production cycle; and
	c. Conducting subsequent performance tests at the frequencies specified in § 63.7821.
14. Each BOPF Group at an existing BOPF shop	a. Maintaining emissions of mercury from the collection of BOPF Group control devices at or below 0.00026 lb/ton steel scrap input to the BOPF; and
	b. If demonstrating compliance through performance testing, conducting subsequent performance tests at the frequencies specified in § 63.7821; and
	c. If demonstrating compliance through § 63.7791(c), (d), or (e), maintaining records pursuant to § 63.7842(e).
15. Each BOPF Group at a new BOPF shop	a. Maintaining emissions of mercury from the collection of BOPF Group control devices at or below 0.000081 lb/ton steel scrap input to the BOPF; and
	b. If demonstrating compliance through performance testing, conducting subsequent performance tests at the frequencies specified in § 63.7821; and
	c. If demonstrating compliance through § 63.7791(c), (d), or (e), maintaining records pursuant to § 63.7842(e).

25. Table 4 to Subpart FFFFF of Part 63 is revised to read as follows:

As required in § 63.7850, you must comply with the requirements of the NESHAP General Provisions (40 CFR part 63, subpart A (https://www.ecfr.gov/current/title-40/part-63/subpart-A)) shown in the following table:

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Table 4 to Subpart FFFFF of Part 63—Applicability of General Provisions to Subpart FFFFF

R006870

Citation	Subject	Applies to Subpart FFFFF	Explanation
§ 63.1	Applicability	Yes	
§ 63.2	Definitions	Yes	
§ 63.3	Units and Abbreviations	Yes	
§ 63.4	Prohibited Activities	Yes	
§ 63.5	Construction/Reconstruction	Yes	
§ 63.6(a), (b), (c), (d), (e)(1)(iii), (f)(2)-(3), (g), (h)(2)(ii)-(h)(9)	Compliance with Standards and Maintenance Requirements	Yes	
§ 63.6(e)(1)(i)	General Duty to Minimize Emissions	No, for new or reconstructed sources which commenced construction or reconstruction after August 16, 2019. For all other affected sources, Yes on or before January 11, 2021 and No thereafter	See § 63.7810(d) for general duty requirement.
§ 63.6(e)(1)(ii)	Requirement to Correct Malfunctions ASAP	No, for new or reconstructed sources which commenced construction or reconstruction after August 16, 2019. For all other affected sources, Yes, on or before January 11, 2021 and No thereafter	
§ 63.6(e)(3)	SSM Plan Requirements	No, for new or reconstructed sources which commenced construction or reconstruction after August 16, 2019. For all other affected sources, Yes on or before January 11, 2021 and	See § 63.7810(c)

R006871

Citation	Subject	Applies to Subpart FFFFF	Explanation
§ 63.6(j)	Exemption from Compliance with Emission Standards	Yes	
§ 63.7(a)(1)-(2)	Applicability and Performance Test Dates	No	Subpart FFFFF and specifies performance test applicability and dates.
§ 63.7(a)(3), (b)-(d), (e)(2)-(4), (f)-(h)	Performance Testing Requirements	Yes	
§ 63.7(e)(1)	Performance Testing	No, for new or reconstructed sources which commenced construction or reconstruction after August 16, 2019. For all other affected sources, Yes on or before January 11, 2021 and No thereafter	See §§ 63.7822(a), 63.7823(a), and 63.7825(a).
§ 63.8(a)(1)-(3), (b), (c)(1)(ii), (c)(2)-(3), (c)(4)(i)-(ii), (c)(5)-(6), (c)(7)-(8), (d)(1)-(2), (e), (f)(1)-(5), (g)(1)-(4)	Monitoring Requirements	Yes	CMS requirements in § 63.8(c)(4)(i)-(ii), (c)(5)-(6), (d)(1)-(2), and (e) apply only to COMS.
§ 63.8(a)(4)	Additional Monitoring Requirements for Control Devices in § 63.11	No	Subpart FFFFF does not require flares.
§ 63.8(c)(1)(i)	General Duty to Minimize Emissions and CMS Operation	No, for new or reconstructed sources which commenced construction or reconstruction after August 16, 2019. For all other affected sources, Yes on or before January 11, 2021 and No thereafter	

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R006872

Citation	Subject	Applies to Subpart FFFFF	Explanation
§ 63.8(d)(3)	Written procedures for CMS	No, for new or reconstructed sources which commenced construction or reconstruction after August 16, 2019. For all other affected sources, Yes on or before January 11, 2021 and No thereafter	See § 63.7842(b)(3).
§ 63.8(f)(6)	RATA Alternative	No	
§ 63.8(g)(5)	Data Reduction	No	Subpart FFFFF specifies data reduction requirements.
§ 63.9	Notification Requirements	Yes	Additional notifications for CMS in § 63.9(g) apply only to COMS.
§ 63.10(a), (b)(1), (b)(2)(x), (b)(2)(xiv), (b)(3), (c)(1)-(6), (c)(9)-(14), (d)(1)-(4), (e)(1)-(2), (e)(4), (f)	Recordkeeping and Reporting Requirements	Yes	Additional records for CMS in § 63.10(c)(1)-(6), (9)-(14), and reports in § 63.10(d)(1)-(2) apply only to COMS.
§ 63.10(b)(2)(i)	Recordkeeping of Occurrence and Duration of Startups and Shutdowns	No, for new or reconstructed sources which commenced construction or reconstruction after August 16, 2019. For all other affected sources, Yes on or before January 11, 2021 and No thereafter	
§ 63.10(b)(2)(ii)	Recordkeeping of Failures to Meet a Standard	No, for new or reconstructed sources which commenced construction or reconstruction after	See § 63.7842(a)(2)-(4) for recordkeeping of (1) date, time, and duration of failure to meet the standard; (2) listing of affected source or

R006873

Citation	Subject	Applies to Subpart FFFFF	Explanation
§ 63.10(b)(2)(iv)	Actions Taken to Minimize Emissions During SSM	No, for new or reconstructed sources which commenced construction or reconstruction after August 16, 2019. For all other affected sources, Yes on or before January 11, 2021 and No thereafter	See § 63.7842(a)(4) for records of actions taken to minimize emissions.
§ 63.10(b)(2)(v)	Actions Taken to Minimize Emissions During SSM	No, for new or reconstructed sources which commenced construction or reconstruction after August 16, 2019. For all other affected sources, Yes on or before January 11, 2021 and No thereafter	See § 63.7842(a)(4) for records of actions taken to minimize emissions.
§ 63.10(b)(2)(vi)	Recordkeeping for CMS Malfunctions	Yes	
§ 63.10(b)(2)(vii)-(ix)	Other CMS Requirements	Yes	
§ 63.10(b)(2)(xiii)	CMS Records for RATA Alternative	No	
§ 63.10(c)(7)-(8)	Records of Excess Emissions and Parameter Monitoring Exceedances for CMS	No	Subpart FFFFF specifies record requirements; see § 63.7842.
§ 63.10(c)(15)	Use of SSM Plan	No, for new or reconstructed sources which commenced construction or reconstruction after August 16, 2019. For all other affected sources, Yes on or before January 11, 2021 and No thereafter	
§ 63.10(d)(5)	Periodic SSM Reports	No, for new or	See § 63.7841(b)(4) for

R006874

Citation	Subject	Applies to Subpart FFFFF	Explanation
§ 63.10(d)(5)(ii)	Immediate SSM Reports	No, for new or reconstructed sources which commenced construction or reconstruction after August 16, 2019. For all other affected sources, Yes on or before January 11, 2021 and No thereafter	
§ 63.10(e)(3)	Excess Emission Reports	No	Subpart FFFFF specifies reporting requirements; see § 63.7841.
§ 63.11	Control Device Requirements	No	Subpart FFFFF does not require flares.
§ 63.12	State Authority and Delegations	Yes	
§ 63.13-§ 63.16	Addresses, Incorporations by Reference, Availability of Information and Confidentiality, Performance Track Provisions	Yes	

R006875

Footnotes

1. The Court has affirmed this approach of implementing CAA section 112(f)(2)(A): NRDC v. EPA, 529 F.3d 1077, 1083 (DC Cir. 2008) ("If EPA determines that the existing technology-based standards provide an 'ample margin of safety,' then the Agency is free to readopt those standards during the residual risk rulemaking.").
Back to Citation

2. The UFIP sources are BF bleeder valve unplanned openings (also known as slips), BF bleeder valve planned openings, BF bell leaks, BF casthouse fugitives, BF iron beaching, BF slag handling and storage operations, and BOPF shop fugitives.
Back to Citation

3. Letter and attachment from P. Balserak, AISI, Washington, DC, to C. French, U.S. EPA, Research Triangle Park, NC. 34 pages. February 4, 2019. (Docket ID Item No. EPA-HQ-OAR-2002-0083-1014).
Back to Citation

4. The EPA is required by court order to complete the RTR for the Integrated Iron and Steel Manufacturing Facilities source category by May 5, 2020. Calif. Communities Against Toxics v. Wheeler, No. 1:15-cv-00512, Order (D.D.C. March 13, 2017, as modified February 20, 2020).
Back to Citation

5. The Court upheld this approach to CAA section 112(f)(2) in NRDC v. EPA, 529 F.3d 1077, 1083 (D.C. Cir. 2008): "If EPA determines that the existing technology-based standards provide an 'ample margin of safety,' then the Agency is free to readopt those standards during the residual risk rulemaking."
Back to Citation

6. Stockholm Convention on Persistent Organic Pollutants (Pops), Texts and Annexes. Revised in 2017. Published by the Secretariat of the Stockholm Convention, Geneva, Switzerland. May 2018. Available at: http://www.pops.int (http://www.pops.int).
Back to Citation

7. Ooi, T. C. and L. Lu. Formation and mitigation of PCDD/Fs in iron ore sintering. Chemosphere 85 291-299. 2011.
8. Boscolo, M.E., Padoano, and S. Tommasi. Identification of possible dioxin emission reduction strategies in preexisting iron ore sinter plants. Institute of Materials, Minerals and Mining. Published by Maney on behalf of the Institute. Ironmaking and Steelmaking. 15:35:11.The Charlesworth Group, Wakefield, UK. October 19, 2007.
9. Lanzerstorfer, C. State of the Art in Air Pollution Control for Sinter Plants. Chapter 18, in Ironmaking and Steelmaking Processes. P. Cavaliere, Ed. Springer International Publishing, Springer Nature, Switzerland AG. 2016.
Back to Citation

10. Best Available Techniques (BAT) Reference Document for Iron and Steel Production. Industrial Emissions Directive 2010/75/EU (Integrated Pollution Prevention and Control). R. Remus, M. A. Aguado-Monsonet, S. Roudier, and L. D. Sancho. European Commission, Joint Research Centre, Institute for Prospective Technological Studies. European IPPC Bureau, Seville, Spain. Luxembourg Publications Office of the European Union. doi:10.2791/97469. 2013.
Back to Citation

11. Telecommunication. Raymond, G., RTI International, Research Triangle Park, North Carolina, with C. Allen, Carbon Activated Corporation, Blasdell, New York. January 27, 2020.
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12. On April 21, 2020, shortly before this rule was signed, the U.S. Court of Appeals for the D.C. Circuit issued an opinion in LEAN v. EPA (No. 17-1257) in which the court held that the EPA has an obligation to set standards for unregulated pollutants as part of technology reviews under CAA section 112(d)(6). At the time of signature, the mandate in that case had not been issued and the EPA is continuing to evaluate the decision.
Back to Citation

13. Basic oxygen process furnace group is defined to be the collection of BOPF shop steelmaking operating units including the BOPF primary units (BOPF emissions from oxygen blow for iron refining); BOPF secondary units (secondary fugitive emissions in the shop from iron charging, steel tapping, and auxiliary processes not elsewhere controlled); ladle metallurgy units; and HMTDS and slag skimming units that are operating at the time of each mercury test sequence.
Back to Citation

14. Westlin, P., and R. Merrill. Data and procedure for handling below detection level data in analyzing various pollutant emissions databases for MACT and RTR emissions limits. U.S. EPA, Research Triangle Park, North Carolina. December 13, 2011 (revised April 5, 2012) (Docket ID Item No. EPA-HQ-OAR-2002-0083-0857).
Back to Citation

15. "Comments of the American Iron and Steel Institute and United States Steel Corporation on Proposed National Emission Standards for Hazardous Air Pollutants: Integrated Iron and Steel Manufacturing Facilities Residual Risk and Technology Review 84 FR 42 (/citation/84-FR-42),704 (/citation/84-FR-704) (Aug. 16, 2019) and Notice of Comment Period Reopening 84 FR 53 (/citation/84-FR-53),662 (/citation/84-FR-662) (Oct. 8, 2019)." Docket ID No. EPA-HQ-OAR-2002-0083. Submitted November 7, 2019.
Back to Citation

16. Clean Air Act National Stack Test Guidance. U.S. Environmental Protection Agency, Washington, DC. April 27, 2009. (Docket ID Item No. EPA-HQ-OAR-2002-0061). https://www.epa.gov/sites/production/files/2013-09/documents/stacktesting_1.pdf (https://www.epa.gov/sites/production/files/2013-09/documents/stacktesting_1.pdf).
Back to Citation

17. See the report, EPA Region V Enforcement Summary—UFIP Opacity from Integrated Iron and Steel Facility Violation Reports—2007 through 2014. (Docket ID Item No. EPA-HQ-OAR-2002-0083-0997.)
Back to Citation

18. The five currently unregulated UFIP sources are BF bleeder valve unplanned openings (also known as slips), BF bleeder valve planned openings, BF bell leaks, BF iron beaching, and BF slag handling and storage operations.
Back to Citation

[FR Doc. 2020-09753 (/d/2020-09753) Filed 7-10-20; 8:45 am]

BILLING CODE 6560-50-P

217/782-2113

CONSTRUCTION PERMIT

PERMITTEE

U. S. Steel-Granite City Works
Attn: Jill Foust, Environmental Director
1951 State Street
Granite City, Illinois 62040

Application No.: 10080022 I.D. No.: 119813AAI
Applicant's Designation: Date Received: January 27, 2011
Subject: NO_x RACT Control - FGR Installation on Boilers 11 and 12
Date Issued: February 9, 2011
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 installation of Flue Gas Recirculation (FGR) systems on Boilers 11 and 12, as described in the above-referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s):

1.1 Description

This permit authorizes installation of Flue Gas Recirculation (FGR) systems on existing Boilers 11 and 12 (the affected boilers). These systems would be installed on these boilers, which only fire natural gas, coke oven gas and blast furnace gas to enable compliance with 35 IAC 217, Subparts D and E, which establish requirements that reflect Reasonably Available Control Technology (RACT) for boilers related to emission of nitrogen oxide (NO_x). To comply with these rules, the Permittee must also install Continuous Emissions Monitoring System (CEMS) to monitor NO_x emissions of each affected boiler.

1.2 Coordination with Other Permits

This permit does not affect other applicable requirements for the affected boiler as set forth in existing permits for the boilers.

1.3 Requirements of 35 IAC Part 217 Subparts D and E

a. Pursuant to 35 IAC 217.150, 217.152, and 217.160, by the applicable compliance date for 35 IAC Part 217 Subparts D and E, the Permittee shall comply with applicable requirements of these rules for the affected boilers, including:

i. Compliance with the applicable NO_x emissions limitation in lb/mmBtu, calculated in accordance with 35 IAC 217.164(b), on an ozone season (May 1 through September 30) and annual basis. [35 IAC 217.164(b)]

ii. Operation of each affected boiler in a manner consistent with good air pollution control practices to minimize NO_x emissions. [35 IAC 217.150(e)]

iii. Certifying to the Illinois EPA that the affected boilers will be in compliance with the applicable emissions limitation of 35 IAC 217.164 by the applicable compliance date. [35 IAC 217.152 and 217.155(b)]

iv. Installation, operation and maintenance of a Continuous Emissions Monitoring System (CEMS) on each affected boiler to measure emissions of NO_x, with accompanying recordkeeping and reporting for the operation and maintenance of each CEMS. [35 IAC 217.157(a)(2) and 217.156(b)(9), (b)(10) and (j)]

1.4 Recordkeeping Requirements

Beginning on the applicable compliance date for 35 IAC Part 217 Subparts D and E, the Permittee shall maintain the following records for the affected boilers in addition to other required records:

a. The following operating information for each affected boiler:

i. Usage of each type of fuel (natural gas, coke oven gas and blast furnace gas), in million ft^3 per month and million ft^3 per year.

ii. The actual heat input in mmBtu per ozone season and mmBtu per year, for each fuel, with supporting documentation for the heat content of each fuel.

iii. The applicable NO_x emission limitation in lb/mmBtu for each ozone season and each calendar year, calculated in accordance with 35 IAC 217.164(b).

b. The Permittee shall maintain the following records related to NO_x emissions from each affected boiler:

i. The average hourly NO_x emission data.

ii. The ozone season and annual NO_x emissions (pounds).

iii. The ozone season average and annual average NO_x emission rates (lbs/mmBtu heat input) calculated within 30 days of the end of the averaging periods (i.e. calculated by October 30 for ozone season averaging period and by January 30 for annual averaging period).

c. The Permittee shall keep inspection, maintenance, and repair logs with dates and the nature of such activities for each affected boiler.

1.5 Reporting Requirements

a. If there is any deviation of the requirements of this permit, as determined by the records required by this permit or by other means, the Permittee shall promptly report to the Illinois EPA as specified below until such time the affected boilers with FGR systems are addressed by an operating permit. The report shall include a description of the deviation, the probable cause of the deviation, corrective actions taken, and any preventive measures taken.

i. Deviations from the NOx emission limitation in 35 IAC 217.164(b) shall be reported within 30 days of such occurrence.

ii. Other deviations shall be reported in a semi-annual report.

1.6 Expiration of Construction Permit and Authorization to Operate

a. This permit will expire if the installation of FGR systems on the affected boilers is not begun by December 31, 2014. This condition supersedes Standard Condition 1.

b. If installation of FGR systems is begun in a timely manner, the Permittee is allowed to operate the affected boilers with FGR systems under this permit until an operating permit is issued addressing the requirements of 35 IAC Part 217, Subparts D and E for the affected boilers. This condition supersedes Standard Condition 6.

Please note that this permit does not provide authorization for continued operation of the affected boilers during startup and malfunction/breakdown with NO_x emissions in violation of 35 IAC 217.164(b), as requested in the application pursuant to 35 IAC Part 201, Subpart I. This is because the provision of 35 IAC Part 201, Subpart I, cannot be applied to emission standards that apply on a seasonal and annual basis, as higher emissions during a period of startup or malfunction/breakdown cannot be directly correlated with a violation of the applicable standard.

If you have any questions on this permit, please contact Manish Patel at 217/782-2113.

Edwin C. Bakowski, P.E. Date Signed: _____
Manager, Permit Section
Division of Air Pollution Control

ECB:CPR:MNP:jws

cc: FOS - Region 3, Illinois EPA
CAAPP Permit File - 96030056

State of Illinois
ENVIRONMENTAL PROTECTION AGENCY

Mary A. Gade, Director
217/782-2113

2200 Churchill Road, Springfield, IL 62794-9276

CONSTRUCTION PERMIT

RECEIVED

PERMITTEE

Granite City Division of
National Steel Corporation
Attn: Fred Steinkuehler
20th & State Streets
Granite City, Illinois 62040

Application No.: 94090026 I.D. No.: 119813AAI
Applicant's Designation: BOF089458C Date Received: September 7, 1994
Subject: Fourth Electrostatic Precipitator - BOF
Date Issued: December 1, 1994
Location: 20th & Omaha Street, Granite City

Permit is hereby granted to the above-designated Permittee to CONSTRUCT emission source(s) and/or air pollution control equipment consisting of a fourth electrostatic precipitator (ESP) to provide additional control for BOF operations as described in the above-referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s):

1. This permit is issued based upon the addition of a fourth ESP to provide additional control for BOF operations without any increase in the emissions of regulated air pollutants into the atmosphere.

2a. The Permittee shall keep operating records and a maintenance log for each BOF ESP which includes the following:

i. Operating time of the BOF;

ii. Operating time of the capture systems;

ii. Operating time of each ESP;

iv. All routine and nonroutine maintenance performed, including dates and duration of outages, inspection schedule, repair actions, and replacements.

b. These records shall be maintained at a readily accessible location at the site for a period of three years and shall be made available for inspection and copying by the agency during daily working and/or operating hours upon request.

If you have any questions on this, please call Jim Ross at 217/782-2113.

COPY

Original Signed by
Donald E. Sutton, P.E.

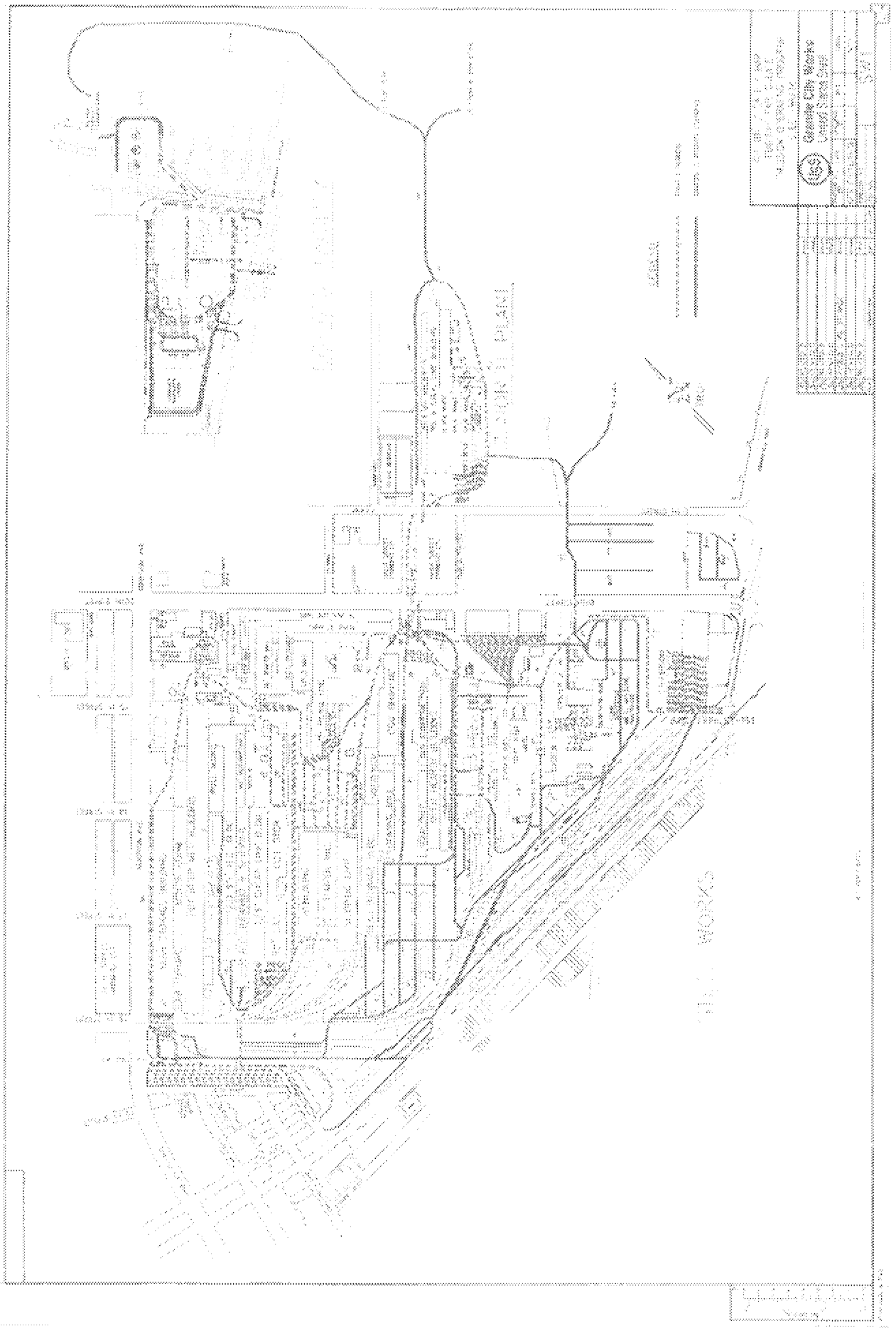
Donald E. Sutton, P.E.
Manager, Permit Section
Division of Air Pollution Control

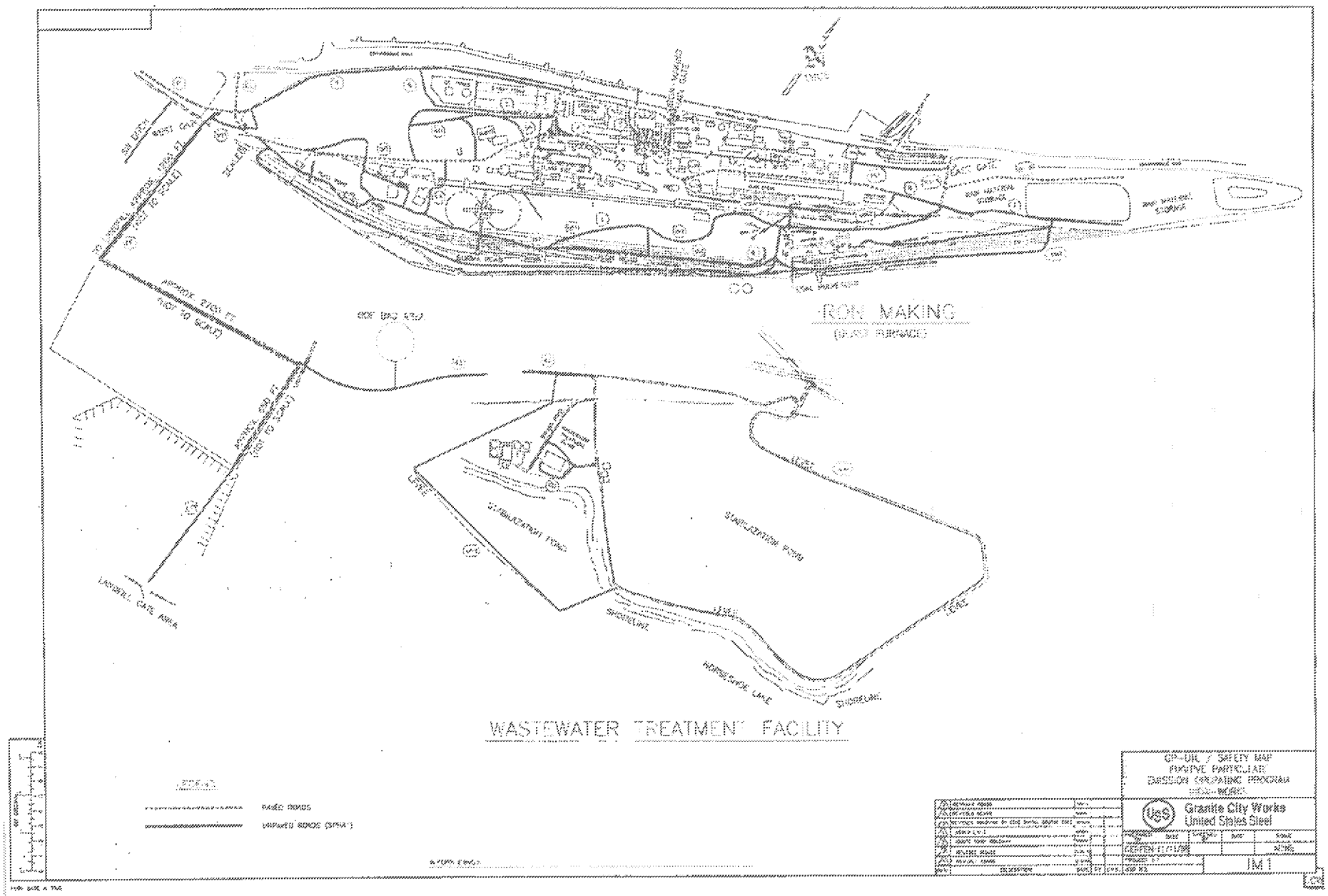
DES:JRR:sad/0523Q,43-44sp

cc: Region 1

Fugitive PM Operating Prog

R006884

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WASTEWATER TREATMENT FACILITY
PAVED ROADS
UNPAVED ROADS (DIRT)
GP-08 / SAFETY MAP
POSITIVE PARTICULATE
EMISSION CREDITING PROGRAM
Granite City Works
United States Steel
M 1

R006885

114813AAL

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

February 22, 2021

Illinois Environmental Protection Agency - Air Compliance Unit
Bureau of Air
Compliance & Enforcement Section (MC 40)
1021 North Grand Avenue East
Springfield, Illinois 62702

CERTIFIED MAIL NO. 7019 0700 0002 2686 7890

Subject: ~~113813AAI~~ - **U. S. Steel – Granite City Works (GCW)**
Fugitive Particulate Matter Operating Program
Revision Notification

To Whom It May Concern:

The Fugitive Particulate Matter Operating Program was revised and is submitted for review per Section 6.3.2 d of the source's CAAPP permit and per IAC 212.312. This is the eighteenth revision to the original plan. Should you have any questions regarding this submittal please contact me at (618) 451-3217 or via email at amespy@uss.com

Sincerely,

Alexander Espy

Alexander Espy
U. S. Steel Granite City Works
Environmental Engineer

Attachments

cc: Illinois Environmental Protection Agency
Division of Air Pollution Control
1101 Eastport Plaza Drive
Suite 100
Collinsville, Illinois 62234

Certified Mail No. 7019 0700 0002 2686 7906

U. S. Steel Corporation Granite City Works

Fugitive Particulate Matter Operating Program

Pursuant to CAAPP permit section 5.3.2 (Fugitive Dust)

And

35 IAC 212.309

Fugitive Dust

a. This Fugitive Particulate Matter Operating Program has been prepared by the United States Steel, Granite City Works Facility. It has been designed to significantly reduce fugitive particulate matter emissions pursuant to [35 IAC 212.309(a)]. At a minimum, this operating program includes the provisions identified in 35 IAC 212.310(a) through (g) and the following:

   i. A detailed description of the best management practices utilized to achieve compliance with 35 IAC 212.304 through 212.308 and 212.316.

   ii. Estimated frequency of application of dust suppressants by location; and

   iii. Such other information as may be necessary to facilitate the Illinois EPA's review of the operating program.

b. Pursuant to 35 IAC 212.312, the operating program shall be amended from time to time by the Permittee so that the operating program is current. Such amendments shall be consistent with the requirements set forth by CAAPP permit condition 5.3.2 and shall be submitted to the Illinois EPA within 30 calendar days of such amendment. The amendments will be implemented upon submittal and the IEPA will have 30 calendar days from receipt to express written disapproval. Upon receiving disapproval, U.S. Steel is required to revise and resubmit the operating program within 30 calendar days of receipt of notification. If no disapproval is received, the amendments will be automatically incorporated by reference into the CAAPP operating permit.

c. In addition to the items described above in (a), the following additional plans and programs as part of the Fugitive Particulate Matter Operating Program are included:

   i. Housekeeping program [7.13.5(a)(1)(B)]
   ii. Road Cleaning Program. [7.13.5(d)]
   iii. Onsite fugitive dust control program [7.13.9(b)]

UNITED STATES STEEL CORPORATION

GRANITE CITY WORKS

FUGITIVE PARTICULATE MATTER OPERATING PROGRAM

Revision No. 18

February 2021

Housekeeping program

7.13.5(a)(i)(B)

The Permittee shall sweep or flush at least every day the paved access area below the BOF ESP where ESP dust collection bags (i.e., super-sacks, storage bags or other containers for ESP dust) are used, stored and transported.

For Non-roadway areas below and around the BOF ESP. This plan contains at a minimum the following:

Location	Task	Frequency
Ground and other accessible areas where dust may gather	Swept or cleaned[1]	Daily
Dust Collection Bags	Inspect[2]	Daily
Dust Collection Bags	Inspect[3]	After removal from, and connection to ESP hopper discharge
Paved access area below the BOF ESP	Sweep or flush[4]	Daily

1. Cleaning practice in such a manner to minimize dust escape into the atmosphere
2. Check for rips, tears or insecure connection to ESP hoppers
3. Replace torn bags, transport in a covered truck.
4. For the Paved access area below the BOF ESP where ESP dusts, collection bags (i.e., super-sacks, storage bags or other containers for ESP dust) are used, stored and transported.

Road Cleaning Program
Off-Site Fugitive Dust

7.13.5(d)

Road Cleaning Program (Permit# 060'70088)

a. Pursuant to the Road Cleaning Program required by permit #06070088, the Permittee shall comply with the following control requirements (for purposes of this condition affected road segments are those identified below in (iii)(A):

i. Good air pollution control practices shall be implemented to minimize and reduce nuisance dust from the affected road segments.

ii. Cleaning of affected road segments shall be performed using vacuum cleaning equipment (such as Enviro-Whirl). Any dust laden air shall be vented through a filtering system on the vacuum cleaning equipment before discharge to atmosphere.

The handling of material collected by vacuum cleaning equipment during road cleaning shall be enclosed or shall utilize spraying, pelletizing, screw conveying or other equivalent methods to control PM emissions from transfer of material for disposal.

iii. Affected road segments shall be cleaned on the following frequency except during extended periods of inclement weather that act to prevent emissions of fugitive dust from the affected road segments or upon road closure outside of USS control:

A. Cleaning on a twice weekly basis:

Road Segment	Segment Boundaries
Madison Ave	16th & 20th Streets
Central 20th Street	Madison St. & USS Gate
East 20th Street	USS Gate & Rte 203
21st Street	Rte 203 and Monroe St.
North Edwardsville Rd	20th & Nameoki (Rte 203)

B. Cleaning on a twice monthly basis:

Road Segment	Segment Boundaries
Rock Road	Rte 3 & W. 20th St. (Overpass Approach)
West 20th St.	Rte 3 & Rock Road
Rock Road	W. 20th & Benton St. (Railroad Overpass)
Niedringhaus	Benton St. and 16th St.
16th Street	Niedringhaus & Madison St.
South Edwardsville Rd	20th & McCambridge Ave (Rte 203)
McCambridge Ave	Edwardsville Rd (Rte 203) & 2nd St.
Route 162	Nameoki Rd (Rte 203) & Railroad Tracks
Benton Street	Rock Rd. and Niedringhaus

On-site fugitive dust control program
212.309, 212.310, and 212.312
7.13.9(b)

The following is a description of the revised State Implementation Plan Fugitive Emissions Operating Program for United States Steel Corporation – Granite City Works (the Company). This is revision 17 to the original version of this Program, submitted for Agency review in 1981.

This revised Operating Program is submitted for Agency review per Section 212.309, 212.310, and 212.312 of Subpart K of the Illinois Pollution Control Board (IPCB) Air Pollution Rules and Regulations. The revised information required by Section 212.310 of the above-cited rules and regulations follows:

a. United States Steel Corporation
Granite City Works
20th & State Streets
Granite City, Illinois 62040

b. Michael Patton
General Manager

c. The "South Plant" is no longer a part of the facility. Therefore, the roads associated with the South Plant are no longer treated. Attached are Figures that identify the areas that are treated. All plant roadways, including normal traffic pattern roadways, storage piles, access areas around storage piles and conveyor loading operations are indicated on the figures. The lengths and widths of the roadways are attached in a separate table.

d. The locations of unloading and transporting operations with pollution control equipment are included on the map.

e. Pursuant to Subpart K of the IPCB Air Pollution Rules and Regulations, the Company's Operating Program for the control of fugitive particulate matter for normal traffic pattern roads and parking areas consists of a chemical dust suppressant application program for unpaved areas and a water flushing/sweeping program for paved areas. The chemical dust suppressant is applied and the water flushing is accomplished through the use of tank trucks. Sweeper trucks are also employed.
Two spray trucks and one sweeper are employed on the Iron Making side of the plant. Two spray trucks and two sweepers are employed on the Steel Making side of the plant.
When water or sweeper trucks are not available due to maintenance, rental units are employed with similar capacity and spray patterns. Unloading and transporting operations for materials collected by pollution control equipment are enclosed and/or utilize screw conveyors. Crushers, screeners, conveyor transfer points, conveyors, storage bins and fine product loading operations are either sprayed, use choke feeding, employ baghouses or are treated equivalently. Engineering specifications for pollution control equipment used by the Company are included with the Company's applications for Construction and Operating Permits.

f. All normal traffic pattern paved roads in the Steelworks and North Plant areas, with exceptions discussed below, will be flushed with water or swept every two days unless the road is unused (e.g., over weekends, idled and untraveled areas). All normal traffic pattern paved roads in the Blast Furnace area, with exceptions discussed below, will be flushed with water or swept three times per week, unless the road is unused (e.g., coal haul roads, idled and untraveled areas). The unpaved normal traffic pattern roadways will be treated with a chemical dust suppressant.

three times per month. All paved parking lots will be swept or flushed regularly, as needed.

Plant roads indicated on the cited figure, submitted as part of this revision, which are not normal traffic pattern roads will be treated on an as-needed basis.

The roads in the coil storage area (roads CC1-CC5) and the pickle line entry end (road 84) will be swept/flushed three times per week.

Due to excess coke at the facility due to factors including the temporary idling of the blast furnaces, coke storage in the former coal handling area will take place temporarily. Coke storage will also temporarily take place in several other locations including near the east gate, west gate, gantry area, coke handling area, Cogen area, Burma Road and along the high road. As of March 2, 2015 U. S. Steel is no longer producing coke at Granite City Works. Coke is still received from Sun Coke. Coke produced from the SunCoke facility is collected in the SunCoke bunker. Coke is removed from the coke bunker by the moveable conveyor which is positioned directly over #5 belt. Coke is transported by #5 belt directly to #16 belt that feeds the shaker/screener. The moveable conveyor can also deposit coke onto the ground where it is moved by front end loader and delivered to the #5 belt pit where it is sent to the screener/shaker operation via #16 belt. Coke is then delivered into the high line coke bunker. Coke is then transported via the furnace coke car and delivered to the highline furnace pits.

Coke received by truck from outside sources is unloaded onto the ground and stored in piles. From here, the coke is loaded by front end loader and delivered to the #5 belt pit where it is sent to the screener/shaker operation via #16 belt. Coke is then delivered into the high line coke bunker. Coke is then transported via the furnace coke car and delivered to the highline furnace pits.

Transportation will use defined paved and unpaved roadways, mentioned above, which shall be treated or cleaned to minimize emissions per the plan. Water will be used around the piles working face area to control emissions during the loading process as necessary. There will be daily operator inspections of the roadways and around the piles working face to determine if treatment is necessary.
It is not common practice in steelmaking facilities in other jurisdictions to treat coke storage piles. Coke is not a fine material and treatment will only take place if operator inspections indicate the necessity for treatment.

Additionally, plant speed limits are set at a maximum of 15 mph except where lesser values are noted. Minimizing speed is an additional fugitive dust control. Plant Security monitors and enforces the speed limit throughout the facility.

Once per week, the Environmental Department will perform an inspection of the plant roads and material storage areas and piles. The Environmental Department will contact the Ironmaking or Steelmaking Road Coordinators where additional treatment and/or watering are required. In addition, plant personnel continuously monitor fugitive dust in their respective areas and contact Environmental and the Ironmaking Manager as necessary.

The above treatment plan will be followed unless weather related conditions render treatment unnecessary.

Should any significant changes be made to the Operating Program herein described, the Program will be amended pursuant to Section 212.312 and submitted to the Illinois EPA for review.

This February of 2021 (Revision 18) version of the Company's State Implementation Plan Fugitive Particulate Emissions Operations Program supersedes all previously submitted operating programs.

Blast Furnace (Ironmaking) Roads

Segment ID	Type	Frequency	Description	Dimensions
Y	Unpaved	3/Mon	Road parallel to Rt 203 from spray pond to west gate	30' X 0.45mi
LF Gate area	Unpaved	As Necessary	Landfill Gate	50' X 300'
1	Unpaved	As Necessary	Work area at pellet feeder	30' X 200'
7	Unpaved	As Necessary	Coal loading road from coal piles to coal handling	30' X 0.09mi
8	Unpaved	As Necessary	Road from Hot Car Shed coal storage	30' X 0.09mi
CM1	Unpaved	3/Mon	Coal loading road from coal piles to coal handling	40' X 0.20mi
CM2	Unpaved	3/Mon	Coal loading road from coal piles to coal handling	40' X 0.20mi
9	Unpaved	3/Mon	Exit road from coke field onto high road	30' X 200'
CS-2	Unpaved	3 / Mon	East end paved road to High Road	30' X 0.40mi
CS-2 (High Road)	Unpaved	3 / Mon	High Road	50' X 0.60mi
Burma Road	Unpaved	As Necessary	East end of High Road behind pellet unloading to Stein scale	25' X 0.68mi
DS1	Unpaved	As Necessary	Desulf Plant Road from east gate	25' X 0.10mi
6	Unpaved	As Necessary	End of segment Z to oil tech to segment Y	20' X 0.11mi
14	Unpaved	As Necessary	Brick shed to furn maint under highline	20' X 0.07mi
RS1	Unpaved	As Necessary	Radiation Source Loop	25' X 200'
FF	Unpaved	3 / Mon	West Gate to Landfill Turnoff	47' X 0.70mi
LF1	Unpaved	3 / Mon	Turnoff from FF to landfill	30' X 0.81mi
OF1	Unpaved	3/Mon	Entrance to ore field to one way exit to high road	30' X 0.18mi
OF2	Unpaved	3/Mon	Ore field exit to 16 conveyor	30' X 0.18mi
Scale Road	Unpaved	As Necessary	From CS2 to Stein scale	25' X 0.11mi
Manley Road	Unpaved	As Necessary	CS2 behind brick shed to wedge	15' X 0.10mi
40	Unpaved	3 / Mon	Scrap haul from crest of hill to DD	30' X 0.08mi
43	Unpaved	As Necessary	From landfill turnoff of FF to WWTP oil and chip	22' X 0.80mi
GG	Unpaved	1 / Qtr	Area around WWTP	50' X 0.11mi
WWTP By-Pass	Unpaved	As Necessary	Bike trail to WWTP Building	25' X 0.20mi
5	Paved	5 / week	Segment at track shack	25' X 100'
CS1-A	Paved	As Necessary	East gate straight to mule track	25' X 350'
CS1-B	Paved	As Necessary	East gate east parallel to Rt162	25' X 450'

V-PS	Paved	As Necessary	Coke oven pusher side road	30' X 0.30mi
V-CSP	Paved	As Necessary	Coke Bunker to Main Trunk	30' X 0.10mi
V-CSU	Unpaved	As Necessary	Quench Tower to Coke Bunker	30' X 0.20mi
DD	Paved	5 / week	Fork at carpenter bldg to west gate	40' X 0.45mi
EE	Paved	5 / week	West gate to Rt 203	30' X 350'
P	Paved	5 / week	West gate to Rt 203 at storeroom gate	30' X 220'
Z	Paved	5 / week	Fork south in front of spray ponds	12' X 350'
X	Paved	5 / week	A fur s ag pit to fork	30' X 0.09mi
W	Paved	5 / week	West gate to west quencher , Yard Maint area	30' X 0.10mi
56	Paved	5 / week	Stein slag haul hill	30' X 0.09mi
51	Paved	5 / week	Main gate towards labor shack, south to fork	30' X 0.09mi
WWTP Main Rd	Oil & Chip	NA	Rt 162 to WWTP Building	50' X 0.90mi
LV-1	Unpaved	As Necessary	Levee around the Blast Furnace Lagoon	50' X 0.80mi
LV-2	Unpaved	As Necessary	Levee around the Steel Works Lagoon	50' X 0.80m
Steelworks Ditch Cleanout	Unpaved	As Necessary	From 90' opening to the first whistle	40' X 0.33mi
BOF Bag Area	Unpaved	As Necessary	BOF Dust Recycle	30' x 200'

Steelmaking Roads

Segment ID	Type	Frequency	Description	Dimensions
5	Unpaved	As Necessary	DMQC to coil storage area	60' X 200'
6	Unpaved	As Necessary	North Plant gate area	100' X 200'
8	Unpaved	3/Mon	Road between old blooming mill stripper yard	24' X 0.2mi
9 (E)	Unpaved	3/Mon	E. W. road at south end of blooming mill slab yard	30' X 0.09mi
10	Paved	3/Mon	BOF/Caster Road N.&S. extensions	40' X 0.12mi
12 (N)	Unpaved	3 / Mon	Slag Pot Hauling road	28' X 0.11mi
13 (E)	Unpaved	3/Mon	BOF Material Handling road	30' X .18mi
14	Unpaved	3 / Mon	Truck scale-Standard Gauge Alt. Gate	18' X .2mi
15	Unpaved	As Necessary	Standard Gauge to Atlantic St	25' X 0.2mi
17 (E)	Unpaved	3/Mon	Main Cross Road	50' X 0.65mi
18	Unpaved	As Necessary	Coil area south of CRF	100' X 200'
19	Unpaved	As Necessary	Caster Water Treatment Road	27' X 0.10mi
20	Unpaved	3/Mon	South End of BOF Roadway	20' X .18mi
21	Unpaved	3/Mon	90 inch Building Roadway	25' X 0.18mi

22	Paved	As Necessary	Caster Quadrangle area	36' X 100'
23	Unpaved	2/Mon	North End BOF Slag Pot Area	50' X 150'
24	Unpaved	2 / Mon.	BOF Precip area	25' X 200'
25	Unpaved	2 / Mon.	HRF DOCKS 8b,9b area	50' X 100'
26	Unpaved	3/Mon	LMF Roadway	30' X 200'
27	Unpaved	As Necessary	Area North End old open hearth	20' X 80'
28	Paved	As Necessary	Area north end of BOF	15' X 60'
29	Unpaved	As Necessary	Coil area by Hot Strip	40' X 500'
31	Unpaved	2 / Mon.	North Plant North end area	250' X 250'
34	Unpaved	As Necessary	Hot Strip Slab Yard	50' X 200'
35	Paved	2 / Week	Coil Storage Lane (Old 72 Line)	40' X 0.12mi
36	Paved	2 / Week	Coil Storage Lane (Old 72 Line)	40' X 0.12mi
38	Unpaved	As Necessary	Old 90 Inch Area	18' X .10mil
44	Unpaved	2 / Mon.	Carpenter/Paint shop road	40' X 325'
45	Unpaved	As Necessary	Blooming Mill Slab Yard (Water)	150' X 200'
46	Unpaved	As Necessary	Omaha Lead (Water) Road Shoulder under open hearth	15' X .2mi
47	Unpaved	As Necessary	Material Handling (Water)	30' X 250'
48	Unpaved	As Necessary	North Plant West Side	18' X 0.28mi
49	Unpaved	As Necessary	North Plant- East end to Stein property (NP Block G Road)	28' X 0.20mi
51	Unpaved	3 / Mon	North Plant Yard to 21st street gate	28' X 0.10mi
52	Paved	7/Week	Hot Strip Slab Hauler Turnaround	115' X 70'
K1	Unpaved	2/Mon	Kress Road K1 and Loop	50' X 0.15mi
K2	Unpaved	3/Mon	Kress Road	50' X 0.16mi
K3	Unpaved	2/Mon	Kress Road	50' X 0.05mi
K4	Unpaved	2/Mon	Kress Road	50' X .11mi
K5	Unpaved	2/Mon	Kress Road	50' X .18mi
K6	Unpaved	3 / Mon	Kress Road - Designated Plant Traffic Roadway	50' X 0.14mi
K7	Unpaved	2/Mon	Kress Road	50' X 0.14mi
K8	Unpaved	2/Mon	Kress Road	50' X 0.10mi
K9	Unpaved	2/Mon	Kress Road	50' X 0.20mi
K10	Unpaved	2/Mon	Kress Road	50' X .09mi
K11	Unpaved	2/Mon	Kress Road	50' X .07mi
K12	Unpaved	2/Mon	Kress Road	50' X .07mi
K13	Unpaved	2/Mon	Kress Road	50' X 0.11mi

K14	Unpaved	2/Mon	Kress Road	50' X 0.1 mi
K15	Unpaved	2/Mon	Kress Road	50' X 0.1 mi
K16	Unpaved	As Necessary	Kress Road	50' X .10 mi
K17	Unpaved	As Necessary	Kress Road	50' X 400'
K18	Unpaved	As Necessary	Kress Road	50' X 400'
K19	Unpaved	As Necessary	Kress Road	50' X 400'
70 (O)	Paved	7 / Week	Atlantic St. Gate to Slag Haul Road	25' X 0.19mi
71	Paved	7 / Week	Spray Garage to LMF	50' X .09mi
72	Paved	7 / Week	Road to precip from main road including road under precip	40' X .14mi
73 (M & K)	Paved	7 / Week	Nash St gate to road spray garage to BOF materia handling	50' X .2mi
74 (D)	Paved	7/Week	16th Gate to scale	25' X 0.30mi
75 (F & G)	Paved	7 / Week	GOG to CC6 road to scale, Beanery road,CC6 rd, 23C area	35' X .2mi
76 (S & J)	Paved	7 / Week	Road between GOG warehouse and old stripper yard	30' X 270'
77	Paved	3 / Week	Road south of CR0'	30' X .04mi
78	Paved	3 / Week	Rigger shop dock 16D, 17D, to tar and chip road	50' X 100'
79	Paved	3 / Week	Docks 10B-11B	50' X 250'
80 (H)	Paved	1 / Month	Hot Strip tar and chip	25' X 0.90mi
81 (T)	Paved	3/Week	North plaid road , gate to rear	28' X 0.35mi
82 (B)	Paved	3/ Week	Nash St	325' X 225'
CC1 & CC5	Paved	3 / Week	CC1 & CC5	25' X0.05mi
CC2 - CC4	Paved	3 / Week	CC2-CC4	25' X 0.08mi
83	Paved	1 / Week	Road between BOF,Caster	30' X 0.07mi
84	Paved	3 / Week	Pickle Line Entry	50' X 105'
CC6	Paved	3 / Week	Coil load out to paved road at SW garage	40' X 0.38mi
86	Paved	As Necessary	16th St staging area from gate to truck scale	75' X .11mi
CoGen1	Paved	2 / Month	Around CoGen Building and segment at Cooling Tower	25' X 1200'
CoGen2	Unpaved	As Necessary	East end of cooling tower to trailer parking lot	25' X 400'
CoGen3	Unpaved	As Necessary	Roadway around Ameren breaker yard	25' X 685'
CoGen4	Unpaved	As Necessary	Turnoff Stein Property to Cogen Property Area	30' X 0.3mi

Onsite and Offsite Fugitive Dust Control Program
Permit #95010001

Unpaved Roads that are a part of U.S. Steel's normal traffic patterns; (including roads B,C,E,N,F-F, and CS(2)); a chemical dust suppressant shall be applied on the following schedule;

Segment	Task	Frequency
13 (E)	Apply Chemical Dust Suppressant	3 x per Month As Necessary During Idle.
12 (N)	Apply Chemical Dust Suppressant	3 x per Month
F-F[1]	Apply Chemical Dust Suppressant	2 x per Month
CS(2) [1]	Apply Chemical Dust Suppressant	2 x per Month
G-G[1]	Apply Chemical Dust Suppressant	Quarterly
17 (L)	Apply Chemical Dust Suppressant	4 x per Month
V-CS Unpaved	Apply Chemical Dust Suppressant	As Necessary
All others[1]	Apply Chemical Dust Suppressant	As necessary

1. 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 site fugitive dust control.

Paved Roadways and Areas. Paved roadways and areas shall be maintained in good condition. Paved roadways and other areas shall be swept or flushed as follows;

Segment	Task	Frequency
74 (D)	Swept or flushed	3 DAYS/WEEK
73 (K)	Swept or flushed	3 DAYS/WEEK
73 (M)	Swept or flushed	3 DAYS/WEEK
75 (F)	Swept or flushed	3 DAYS/WEEK
75 (G)	Swept or flushed	3 DAYS/WEEK
76 (J)	Swept or flushed	3 DAYS/WEEK
82 ®	Swept or flushed	3 DAYS/WEEK
70 (O)	Swept or flushed	3 DAY/WEEK
P	Swept or flushed	As Necessary
V-FS	Swept or flushed	As Necessary
V-CS Paved	Swept or flushed	As Necessary
W	Swept or flushed	As Necessary
X	Swept or flushed	As Necessary
Z	Swept or flushed	As Necessary
D-D	Swept or flushed	2 DAYS/WEEK
E-E	Swept or flushed	3 DAYS/WEEK
CS(1)	Swept or flushed	As Necessary
76 (S)	Swept or flushed	3 DAY/WEEK
81 (T)	Swept or flushed	1 DAY/WEEK
80 (H)	Swept or flushed	1/Month
All gate areas leading from the steelworks area.	Swept or flushed	3 DAYS/WEEK
All gate areas leading from the Iron making area	Swept or flushed	3 DAYS/WEEK

The above On-Site dust control measures shall be conducted to maximize their effectiveness by performing said measures when the roads or areas are not obstructed by parked vehicles and by preferentially using filter sweeping(e.g.,Enviro-Whirl sweeper)for the gate areas, the roads and areas surrounding the BOF shop and BOF ESP.

Applicable Limits

Total PM/PM10 from the roadways at the source shall not exceed 27 tons/year. Compliance with the annual limits shall be determined based on a calendar year. (Condition 7.13.6)

Fugitive Particulate Matter emissions from any storage pile shall not exceed 10%, to be measured four feet from the pile surface. [7.13.3.(d)(i)]

Fugitive Particulate Matter emissions from any roadway or parking area shall not exceed 5%. [7.13.3.(d)(ii)]

Fugitive Particulate Matter emissions from any other unassigned activity shall not exceed 20%. [7.13.3.(d)(iii)]

Testing Requirements

Method 9 opacity observations shall be conducted in accordance with procedures published in 40 CFR Part 60 Appendix A.

The Opacity shall be measured during representative weather and operating conditions determined by a qualified observer, as further specified below, pursuant to Section 39.5(7)(d) of the Act.

Requirement	Frequency	Method	Duration
Each Roadway or Parking Area[1]	Annual	9	

[1]Unpaved roadways or parking areas, the reading shall not be conducted within three days of the application of any dust suppressants.
[2]The duration of such daily observations of these activities shall be at least 3 hours or unless operation ceases for the day and conducted when these activities are actually performed. For clarity, the observer will remain on-site to ensure observation of all storage piles active during the three hour period.
[3]All opacity readings conducted on visible emissions generated by vehicular traffic on roadways, parking areas and heavy equipment traffic associated with storage piles, shall be in accordance with the procedures specified in 35 IAC 212.109.
[4]All opacity readings on storage piles shall be measured four feet above the pile surface.

Silt Loading Measurement tests shall be repeated at least every three years pursuant to the Road Cleaning Program of Condition 7.13.5 (d). A compliance test was completed in July 2015

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	Omaha St and Monroe St.
North Edwardsville Rd	20th & Nameoki (Rte 203)

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

The above fugitive dust control measures are to be implemented and executed in addition to the control measure(s) identified in the PM10 contingency plan.

Monitoring Requirements (7.13.8)

Affected Activity	Frequency	Method
Landfill[2]	Annual	22
Vehicular Traffic[2]	Annual	22
Unloading Operations[3]	Monthly	Visual Rating
Storage Piles and Associated Activities[2]	Annual	22
Benching Areas[2]	Annual	22

[1] At least one activity listed above needs to be completed during each quarter.

Inspections performed once per calendar month during receipt of the truck unloading each contracted supply of coal.

[3] Inspections conducted quarterly, while the affected activities are in use. Method 22 observations shall be conducted during the operation of each activity for a minimum of 18 minutes, or for activities that operate on a batch basis, for a minimum of six consecutive batches. If visible emissions are observed, the Permittee shall take corrective action within 2 hours to return the status of the operation to no visible emissions or observations of opacity by Method 9 shall be conducted. For the purpose of this condition, returning the status of operations to no visible emissions does not include, for any activity, temporary idling of lack of operation between batches.

Short-term construction emissions and impacts will occur while the coke and co-generation facilities are being built. The construction site is located in a quarry area where active particulate emissions already occur. It is likely that new short-term daily construction impacts will not exceed those already occurring from current quarry activities. Therefore, short-term construction impacts should be minimal.

8.3 Local Visibility and Sensitive Area Impacts

There are a number of potentially threatened and endangered species in Madison County (www.eslarp.uiuc.edu/la/la437-f95/reports/faunaflora/main.html) including birds, mussels, flowers, herbs, and grasses. Many of these have been identified in the cataloging efforts associated with the Great American Bottoms project noted as occurring near the cities of East St. Louis, Cahokia, Fairview Heights, Belleville, Granite City, and Collinsville.

Further, agriculture and saleable crops are found in Madison County. Therefore, the potential was considered for impacts from the GECC project to impact both threatened and endangered species as well as agricultural products. However, given the localized impacts of the GECC project emissions, the overall reduction in emitted pollutants associated with the project, and the current industrial usage of the area, impacts from the project should be minimal beyond the current industrial area and, therefore, should not impact sensitive areas.

Aesthetically the new buildings and structures are low-profile and few and when built will be located proximate the existing GCW buildings and structures. Therefore, local impact to aesthetic views from the project will be minimal.

Steam is a common byproduct of coke and steel production. Because of the location of the GECC project, the additional steam produced will be minimal compared to that of GCW and therefore of little impact to visibility.

The GECC project will increase PM to the atmosphere, which can cause light scattering and reduced visibility nearby. Many of the activities associated with the project and



User Name: Sally Anne Carter
Date and Time: Tuesday, April 16, 2024 3:58:00PM CDT
Job Number: 222095768

Document (1)

1. *United States v. EME Homer City Generation, L.P., 727 F.3d 274*
   Client/Matter: -None-

Caution
As of: April 16, 2024 8:58 PM Z

United States v. EME Homer City Generation, L.P.

United States Court of Appeals for the Third Circuit

May 15, 2013, Argued; August 21, 2013, Filed

Nos. 11-4406, Nos. 11-4407, Nos. 11-4408

Reporter
727 F.3d 274 *; 2013 U.S. App. LEXIS 17477 **; 43 ELR 20194; 77 ERC (BNA) 1449; 2013 WL 4437219

UNITED STATES OF AMERICA, COMMONWEALTH OF PENNSYLVANIA, DEPARTMENT OF ENVIRONMENTAL PROTECTION; STATE OF NEW YORK; STATE OF NEW JERSEY, (Intervenors in District Court) v. EME HOMER CITY GENERATION, L.P.; HOMER CITY OL1, LLC; HOMER CITY OL2, LLC; HOMER CITY OL3, LLC; HOMER CITY OL4, LLC; HOMER CITY OL5, LLC; HOMER CITY OL6, LLC; HOMER CITY OL7, LLC; HOMER CITY OL8, LLC; NEW YORK STATE ELECTRIC AND GAS CORPORATION; PENNSYLVANIA ELECTRIC COMPANY, United States of America, Appellant;UNITED STATES OF AMERICA, COMMONWEALTH OF PENNSYLVANIA, DEPARTMENT OF ENVIRONMENTAL PROTECTION; STATE OF NEW YORK; STATE OF NEW JERSEY, (Intervenors in District Court) v. EME HOMER CITY GENERATION, L.P.; HOMER CITY OL1, LLC; HOMER CITY OL2, LLC; HOMER CITY OL3, LLC; HOMER CITY OL4, LLC; HOMER CITY OL5, LLC; HOMER CITY OL6, LLC; HOMER CITY OL7, LLC; HOMER CITY OL8, LLC; NEW YORK STATE ELECTRIC AND GAS CORPORATION, State of New York, Appellant;UNITED STATES OF AMERICA, COMMONWEALTH OF PENNSYLVANIA, DEPARTMENT OF ENVIRONMENTAL PROTECTION; STATE OF NEW YORK; STATE OF NEW JERSEY, (Intervenors in District Court) v. EME HOMER CITY GENERATION, L.P.; HOMER CITY OL1, LLC; HOMER CITY OL2, LLC; HOMER CITY OL3, LLC; HOMER CITY OL4, LLC; HOMER CITY OL5, LLC; HOMER CITY OL6, LLC; HOMER CITY OL7, LLC; HOMER CITY OL8, LLC; NEW YORK STATE ELECTRIC AND GAS CORPORATION, Commonwealth of Pennsylvania, Department of Environmental Protection; State of New Jersey, Appellants

Prior History: [**1] On Appeal from the United States District Court for the Western District of Pennsylvania. District Court No. 2-11-cv-00019. District Judge: The Honorable Terrence F. McVerry.

United States v. EME Homer City Generation L.P., 823 F. Supp. 2d 274, 2011 U.S. Dist. LEXIS 117644 (W.D. Pa. 2011)

Core Terms

clean air, current owner, Plant, modification, modified, former owner, district court, emissions, permits, violations, injunction, pollution, canons, constructed, compliance, permitting process, operating permit, authorize, conditions, install, regulated, incomplete, injunctive relief, new source, preconstruction, limits, air pollution, emitting, ongoing, terms

Case Summary

Overview

HOLDINGS: [1]-The district court properly dismissed the EPA's claims that the current owners of a coal-fired power plant violated the prevention of significant deterioration (PSD) program as the plain text of *42 U.S.C.S. § 7475(a)* did not prohibit operating a facility without best available control technology or a PSD permit; [2]-Pennsylvania's state implementation plan merely paralleled the PSD requirements and did nothing to transform the PSD permitting requirements into operating conditions; [3]-The claims against the plant's former owners were dismissed as the text of *42 U.S.C.S. § 7413* did not authorize an injunction against former owners and operators for a wholly past PSD violation, even if that violation caused ongoing harm; [4]-The Title V claims were properly dismissed as the district court lacked jurisdiction under *42 U.S.C.S. § 7607(b)(1)*.

Outcome

Order affirmed.

LexisNexis® Headnotes

Environmental Law > Air Quality > Prevention of Significant Deterioration

HN1[] Air Quality, Prevention of Significant Deterioration

Under 42 U.S.C.S. § 7475(a), no major emitting facility may be constructed or modified unless it meets various prevention of significant deterioration (PSD) requirements, including obtaining a PSD permit and installing best available control technology (BACT)-based emission controls. That provision prohibits constructing a facility without obtaining a PSD permit or using BACT, and while construction is defined to include modifications, 42 U.S.C.S. § 7479(2)(C), it does not include operation. And § 7475(a) does not exactly try to hide its exclusive link to construction and modification: after all, the section is titled "preconstruction requirements," not "preconstruction and operational requirements. In short, nothing in the text of 42 U.S.C.S. § 7475 even hints at the possibility that a fresh violation occurs every day until the end of the universe if an owner that lacks a construction permit operates a completed facility. Instead, the violation is complete when construction or modification commences without a permit in hand.

Environmental Law > Air Quality > Prevention of Significant Deterioration

HN2[] Air Quality, Prevention of Significant Deterioration

Although 42 U.S.C.S. § 7475(a) refers only to construction, the Clean Air Act defines construction as including modification of an existing pollution source. 42 U.S.C.S. § 7479(2)(C).

Environmental Law > Air Quality > Prevention of Significant Deterioration

HN3[] Air Quality, Prevention of Significant Deterioration

Congress's choice to explicitly refer to operating conditions elsewhere, but not in 42 U.S.C.S. § 7475(a), can only be deliberate, especially in such comprehensive legislation. The court cannot override that choice.

Environmental Law > Air Quality > Prevention of Significant Deterioration

HN4[] Air Quality, Prevention of Significant Deterioration

The United States Environmental Protection Agency and States can take such measures as necessary to prevent the construction or modification of a source to which the prevention of significant deterioration (PSD) requirements apply. 42 U.S.C.S. § 7477. The Clean Air Act authorizes citizen suits against any person who proposes to construct or constructs (or, by definition, proposes to modify or modifies) a facility without a required PSD permit or violates any condition of a PSD permit. 42 U.S.C.S. § 7604(a)(3). Nowhere do these provisions authorize enforcement against a person who operates a source without satisfying applicable PSD requirements. a source violating the PSD requirements.

Environmental Law > Air Quality > Operating Permits

Environmental Law > Air Quality > Prevention of Significant Deterioration

HN5[] Air Quality, Operating Permits

42 U.S.C.S. § 7604(a)(1) merely creates a private cause of action against a person who is required to (but does not) obtain a permit as a condition of operations. It does not say that a prevention of significant deterioration permit is, in fact, a condition of operations.

Environmental Law > Air Quality > Operating Permits

Environmental Law > Air Quality > Prevention of Significant Deterioration

HN6[] Air Quality, Operating Permits

As the United States Court of Appeals for the Eighth

Circuit explained, even though the preconstruction permitting process may establish obligations which continue to govern a facility's operation after construction, that does not necessarily mean that such parameters are enforceable independent of the Clean Air Act's permitting process. In other words, just because the prevention of significant deterioration (PSD) program requires a source to obtain a permit that sets some operating conditions does not mean that the PSD program requires a source without a permit to comply with operating conditions. Indeed, even the United States Environmental Protection Agency's own regulations distinguish between unlawful modifications and unlawful operations.

Environmental Law > Air Quality > Operating Permits

Environmental Law > Air Quality > Prevention of Significant Deterioration

HN7[] **Air Quality, Operating Permits**

See *40 C.F.R. § 52.21(r)(1)*.

Environmental Law > Air Quality > Prevention of Significant Deterioration

HN8[] **Air Quality, Prevention of Significant Deterioration**

42 U.S.C.S. § 7475(a) does not say that a violation starts when a major emitting facility is constructed or modified without meeting the prevention of significant deterioration (PSD) requirements. Rather, *§ 7475(a)* prohibits modifying and constructing facilities without satisfying the PSD requirements.

Environmental Law > Air Quality > Prevention of Significant Deterioration

HN9[] **Air Quality, Prevention of Significant Deterioration**

Under *42 U.S.C.S. § 7475(a)(4)*, no major emitting facility may be constructed unless the proposed facility is subject to the best available control technology for each regulated pollutant. The best available control technology requirement is simply part of *42 U.S.C.S. § 7475*'s prohibition on construction, not operation.

Environmental Law > Air Quality > Prevention of Significant Deterioration

HN10[] **Air Quality, Prevention of Significant Deterioration**

The best available control technology requirement is not a freestanding operational requirement. And as the United States Court of Appeals for the Seventh Circuit illustrated, it would not violate *42 U.S.C.S. § 7475* even if the owners ripped out or deactivated the best available control technology after finishing construction, (though it might violate some other law).

Governments > Legislation > Interpretation

HN11[] **Legislation, Interpretation**

One of the most basic interpretive canons is that a statute should be construed so that no part will be inoperative or superfluous, void or insignificant.

Environmental Law > Air Quality > Prevention of Significant Deterioration

HN12[] **Air Quality, Prevention of Significant Deterioration**

42 U.S.C.S. § 7475(a)(4) is no more than a congressional mandate to require constructed and modified facilities in attainment areas to use best available control technology rather than an alternative emissions standard, such as the more-stringent lowest achievable emission rate, which does not require a cost-benefit analysis and applies to nonattainment areas exceeding the national ambient air quality standards.

Governments > Legislation > Interpretation

HN13[] **Legislation, Interpretation**

Where the language of a provision is sufficiently clear in context and not at odds with the legislative history, there is no occasion to examine the additional considerations of policy that may have influenced the lawmakers in

their formulation of the statute.

Environmental Law > Air Quality > Enforcement > General Overview

HN14[] **Air Quality, Enforcement**

The United States Environmental Protection Agency (EPA) is statutorily empowered to require any source owner or operator, regulated party, or any person who the EPA Administrator believes may have information necessary for implementing the Clean Air Act and determining violations, that is, nearly anyone in the United States, on a one-time, periodic, or continuous basis to keep records, make reports, and submit to inspections, monitoring, and emissions sampling, and provide such other information as the Administrator may reasonably require. *42 U.S.C.S. § 7414(a)*. States, as the Clean Air Act's primary enforcers, have similarly broad investigative powers.

Governments > Legislation > Interpretation

HN15[] **Legislation, Interpretation**

The court cannot modify the statute: if an intentional choice reflecting a compromise, the court cannot adjust the bargain Congress has struck; if an oversight, the court cannot usurp legislative authority to fix the omission.

Environmental Law > Air Quality > Prevention of Significant Deterioration

HN16[] **Air Quality, Prevention of Significant Deterioration**

Pennsylvania's state implementation plan merely parallels the Clean Air Act's prevention of significant deterioration (PSD) requirements and does nothing to transform the PSD permitting requirements into operating conditions.

Environmental Law > Air Quality > Prevention of Significant Deterioration

HN17[] **Air Quality, Prevention of Significant Deterioration**

The Pennsylvania state implementation plan does authorize the Pennsylvania Department of Environmental Protection to issue an operating permit to an existing and operating source that is out of compliance with the Clean Air Act or the regulations thereunder. *25 Pa. Code § 127.445(a)*. But that provision, which allows the Department to issue corrective operating permits for sources lacking required prevention of significant deterioration (PSD) permits, hardly requires the owners and operators to apply for PSD permits as a condition of operation.

Environmental Law > Air Quality > Prevention of Significant Deterioration

HN18[] **Air Quality, Prevention of Significant Deterioration**

42 U.S.C.S. § 7475(a) unambiguously prohibits only constructing or modifying a facility without meeting prevention of significant deterioration requirements.

Administrative Law > Judicial Review > Standards of Review > Rule Interpretation

HN19[] **Standards of Review, Rule Interpretation**

Auer deference is warranted only when the language of the regulation is ambiguous.

Administrative Law > Judicial Review > Standards of Review > Deference to Agency Statutory Interpretation

HN20[] **Standards of Review, Deference to Agency Statutory Interpretation**

The court need reach the Chevron deference question only if the statutory language is ambiguous.

Environmental Law > Air Quality > Prevention of Significant Deterioration

HN21[] **Air Quality, Prevention of Significant Deterioration**

The text of the Clean Air Act does not authorize an injunction against former owners and operators for a wholly past prevention of significant deterioration violation, even if that violation causes ongoing harm.

Civil Procedure > Appeals > Standards of Review > General Overview

HN22[] **Appeals, Standards of Review**

The United States Court of Appeals for the Third Circuit may affirm the district court's decision on any ground supported by the record.

Environmental Law > Air Quality > Enforcement > Civil Actions

HN23[] **Enforcement, Civil Actions**

The Clean Air Act authorizes the United States Environmental Protection Agency (EPA) to bring a civil enforcement action when any person has violated a permit or state implementation plan, has violated any requirement in certain subchapters of the Clean Air Act (including the prevention of significant deterioration program), or attempts to construct or modify a major stationary source in any state that the EPA Administrator has found out of compliance with the new source review program. *42 U.S.C.S. § 7413(a)(5), (b)(1)-(3)*. That same provision limits a district court's jurisdiction to awarding certain kinds of relief. District courts have jurisdiction only to restrain such violation, to require compliance, to assess such civil penalty, to collect certain fees owed the United States, and to award any other appropriate relief. *42 U.S.C.S. § 7413(b)*. Each type of relief in this list (except for civil penalties is necessarily forward-looking. A district court, for example, cannot collect fees that were owed to the United States in the past but are no longer owed. And with time travel yet to be discovered, it is impossible to restrain a violation that occurred 20 years ago. Likewise, courts cannot require compliance from defendants who are not currently violating the Clean Air Act and who cannot violate the Act in the future because they no longer own or operate the source.

Governments > Legislation > Interpretation

HN24[] **Legislation, Interpretation**

Under the canon of ejusdem generis, a general term (any other appropriate relief) following a series of specific items (restrain such violation, require compliance, and so on) is confined to covering subjects comparable to the specifics it follows.

Governments > Legislation > Interpretation

HN25[] **Legislation, Interpretation**

Congress does not intend every seemingly open-ended phrase to be read narrowly. From time to time, a broadly worded statutory term is intended to be just that, broad.

Governments > Legislation > Interpretation

HN26[] **Legislation, Interpretation**

Just as the court typically uses ejusdem generis to ensure that a general word will not render specific words meaningless, the opposite is also true: general phrases cannot be so narrowly construed that they become meaningless.

Governments > Legislation > Interpretation

HN27[] **Legislation, Interpretation**

Not every general or vague phrase following an enumerated list is a catch-all. Some statutes use a general phrase not as a residual category intended to be a more general description of the preceding terms, but instead use each of the terms, including the general phrase, as independent and unrelated statutory categories.

Governments > Legislation > Interpretation

HN28[] **Legislation, Interpretation**

Sometimes a catch-all statute is just a catch-all.

Governments > Legislation > Interpretation

HN29[] **Legislation, Interpretation**

As judicial precedent consistently reminds courts, no legislation pursues its purposes at all costs. That principle applies even to remedial statutes (and what laws are not designed to remedy some problem?). It frustrates rather than effectuates legislative intent simplistically to assume that whatever furthers the statute's primary objective, such as remedying environmental harms, must be the law.

Governments > Legislation > Interpretation

HN30[] **Legislation, Interpretation**

Not all interpretive rules are created equal. Some are descriptively justified, establishing rules about how Congress and the public use language as well as regularizing the courts' approach to some recurring sources of ambiguity in English syntax. Examples of those language-based heuristics include the presumptions that words used in a statute are to be given their ordinary meaning, that identical words used in different parts of the same statute have the same meaning, that statutory text should not be interpreted in a way that makes part of it redundant, unnecessary, or meaningless, that adjectives and other modifiers refer only to the last antecedent, and that a general catch-all should be interpreted in light of any preceding specific terms. Others are normatively justified, designed to achieve certain policy goals that courts have identified. The most familiar example is the rule of lenity. And the remaining canons are hybrids whose scope can be fully explained only by a combination of descriptive and normative justifications.

Governments > Legislation > Interpretation

HN31[] **Legislation, Interpretation**

Consistent with the United States Court of Appeals for the Third Circuit's focus on determining the meaning of the text itself, it turns to the descriptive canons first whenever it confronts a statute it must interpret. If the court's descriptive tools settle the meaning, then the court's task is complete. In such a case, the court does not even consider interpretive tools partially or purely based on normative goals.

Civil Procedure > Remedies > Injunctions > Mandatory Injunctions

HN32[] **Injunctions, Mandatory Injunctions**

A mandatory injunction is an extraordinary remedial process.

Civil Procedure > ... > Injunctions > Grounds for Injunctions > Likelihood of Success

HN33[] **Grounds for Injunctions, Likelihood of Success**

A plaintiff must first establish a successful claim on the merits against a party before being eligible to obtain injunctive relief against that party.

Civil Procedure > Remedies > Injunctions > General Overview

HN34[] **Remedies, Injunctions**

The United States Court of Appeals for the Third Circuit has never upheld an injunction where the claimed injury constituted a loss of money, a loss capable of recoupment in a proper action at law.

Environmental Law > Air Quality > Operating Permits

HN35[] **Air Quality, Operating Permits**

As the United States Courts of Appeals for the Seventh, Eighth, and Ninth Circuits have held, Title V of the Clean Air Act channels challenges to applications and permits into an administrative review process that is reviewable exclusively by the courts of appeals, not collaterally in civil or criminal enforcement actions in the district courts.

Environmental Law > Air Quality > Operating Permits

HN36[] **Air Quality, Operating Permits**

42 U.S.C.S. § 7661d establishes a comprehensive system for the United States Environmental Protection Agency's (EPA's) review of Title V applications and

proposed permits. Congress entrusted state permitting authorities with initial responsibility to make best available control technology determinations case by case. Title V of the Clean Air Act requires these state permitting authorities to submit permit applications and proposed permits to affected states and the EPA for review. 42 U.S.C.S. § 7661d(a)(1). The permitting authority must give the states an opportunity to review the application or proposed permit and submit written recommendations; if the authority declines to adopt any state recommendation, it must notify that state and the EPA and explain its reasoning.

Environmental Law > Air Quality > Operating Permits

HN37[] Air Quality, Operating Permits

As to the United States Environmental Protection Agency's (EPA's) review under Title V of the Clean Air Act, the EPA Administrator has a duty to object to any permit that contains provisions she determines to be not in compliance with the Clean Air Act. 42 U.S.C.S. § 7661d(b)(1). If the Administrator objects, then the permit may not be issued unless it is revised to meet the objections. 42 U.S.C.S. § 7661d(b)(3), (c). And if the permitting authority has already issued the permit, then the Administrator must modify, terminate, or revoke such permit, and the permitting authority may only issue a permit revised to satisfy the objection. If the EPA does not object, then any person may petition the Administrator within 60 days after the expiration of the 45-day review period to object on the public's behalf. 42 U.S.C.S. § 7661d(b)(2). The Administrator must then grant or deny the petition within 60 days. Any denial of such petition shall be subject to judicial review under 42 U.S.C.S. § 7607.

Environmental Law > Air Quality > Enforcement > Civil Actions

Environmental Law > Air Quality > Operating Permits

HN38[] Enforcement, Civil Actions

42 U.S.C.S. 7607(b)(1) authorizes direct review of the United States Environmental Protection Agency Administrator's decision in the courts of appeals. Such review may take place only in the court of appeals; 42 U.S.C.S. § 7607(b)(2) divests the district courts of jurisdiction over the Administrator's decision. Consequently, Congress created a use it or lose it provision for reviewing the EPA's failure to object to a proposed Title V permit. If review of the Administrator's decision not to object to a Title V application or permit could have been obtained through this process, then that challenge cannot be brought in an enforcement proceeding.

Environmental Law > Air Quality > Enforcement > Civil Actions

HN39[] Enforcement, Civil Actions

The United States Environmental Protection Agency has authority to bring a civil enforcement action against a person who, among other things, has violated, or is in violation of, any other requirement or prohibition of various subchapters, including Title V of the Clean Air Act. 42 U.S.C.S. § 7413(b)(2). The plain text of Title V, in turn, lists only two ways in which it can be violated: operating without a Title V permit or violating the terms of a Title V permit while operating a source. 42 U.S.C.S. § 7661a(a).

Environmental Law > Air Quality > Enforcement > Civil Actions

Environmental Law > Air Quality > Operating Permits

HN40[] Enforcement, Civil Actions

As the United States Court of Appeals for the Seventh Circuit has explained, there is simply no indication that Congress expressly or by implication meant to authorize the United States Environmental Protection Agency (EPA) to bring an enforcement action against current owners, who have been operating under a permit valid on its face and never before challenged. To be sure, as the EPA points out, Title V of the Clean Air Act requires permits to include enforceable emission limitations and other such conditions as are necessary to assure compliance with applicable requirements of the Clean Air Act. 42 U.S.C.S. § 7661c(a). But just because the statute requires complete permits does not mean that incomplete permits are actionable in an enforcement action. Indeed, 42 U.S.C.S. § 7661a(a)'s failure to make it unlawful to transgress this complete-permit

requirement requires the United States Court of Appeals for the Third Circuit to conclude that such conduct is not a civilly enforceable violation of Title V.

Environmental Law > Air Quality > Operating Permits

HN41[↓] **Air Quality, Operating Permits**

Title V of the Clean Air Act does not make submitting an incomplete permit application unlawful. The plain text of *42 U.S.C.S. § 7661a(a)* does not list submitting incomplete permit applications as a violation of Title V.

Civil Procedure > Appeals > Reviewability of Lower Court Decisions > Preservation for Review

HN42[↓] **Reviewability of Lower Court Decisions, Preservation for Review**

Arguments not developed in district court are forfeited on appeal.

Counsel: David J. Hickton, Paul E. Skirtich, Office of United States Attorney, Pittsburgh, PA; Robert J. Lundman [ARGUED], United States Department of Justice, Environment & Natural Resources Division, Washington, DC; John Sither, L. Katherine Vanderhook-Gomez, United States Department of Justice, Environmental Enforcement Section, Washington, DC, Counsel for Appellant United States of America.

Richard P. Dearing, Claude S. Platton [ARGUED], Monica B. Wagner, Office of Attorney General of the State of New York, New York, NY; Michael Heilman, Commonwealth of Pennsylvania, Department of Environmental Resources, Pittsburgh, PA; Michael J. Myers, Office of Attorney General of New York, Environmental Protection Bureau, Albany, NY; Jon C. Martin, Lisa J. Morelli, Office of Attorney General of New Jersey, Division of Law, Trenton, NJ, Counsel for Appellants.

Stephen J. Bonebrake, Andrew N. Sawula, Schiff Hardin, Chicago, IL; Kevin P. Holewinski, Jones Day, Washington, DC; James J. Jones, Rebekah B. Kcehowski, Jones Day, Pittsburgh, [**2] PA; Brian J. Murray, Jones Day, Chicago, IL; Beth M. Kramer, Jeffrey Poston, Chet M. Thompson [ARGUED], Crowell & Moring, Washington, DC; Peter T. Stinson, W. Alan Torrance, Dickie, McCamey & Chilcote, Pittsburgh, PA; John P. Elwood [ARGUED], Kevin A. Gaynor, Benjamin S. Lippard, Jeremy C. Marwell, Vinson & Elkins, Washington, DC; Paul D. Clement, David Z. Hudson, Bancroft, Washington, DC; Paul E. Gutermann, Akin, Gump, Strauss, Hauer & Feld, Washington, DC, Counsel for Appellees.

Judges: Before: SMITH, FISHER, and CHAGARES, Circuit Judges.

Opinion by: SMITH

Opinion

[*277] SMITH, *Circuit Judge.*

The owners of a coal-fired power plant failed both to obtain a preconstruction permit and to install certain pollution-control technology before making changes to the plant. The Environmental Protection Agency and several states say the owners were required to do so. But the EPA[1] did not cry foul until more than a decade after the changes, well after the owners had sold the plant. Now the EPA wants to force the former owners to obtain the missing [*278] preconstruction permit and to install the missing pollution controls on a plant they no longer own or operate. And they seek damages and an injunction against the current owners who neither [**3] owned nor operated the plant when it was allegedly modified illegally. The relief now sought would require us to distort plain statutory text to shore up what the EPA views as an incomplete remedial scheme. That we cannot do, and so we will affirm the District Court's dismissal of their claims.

I.

A. The Homer City Generation Power Plant goes online in 1969, and Congress enacts the Clean Air Act.

In the 1960s, the Pennsylvania Electric Company (Penelec) and the New York State Electric & Gas Corporation (NYSEG) built the Homer City Generating Station ("the Plant"), a coal-burning power plant in Indiana County, Pennsylvania. JA66. The Plant's first

[1] For readability, "the EPA" refers to both the EPA and the states unless otherwise specified.

two burners went online at the end of the decade. *Id.* At that time, the Clean Air Act was little more than a federally funded research program on air pollution, the EPA did not exist, and the few enforceable standards in place did not affect the Plant's construction and operation. *See* Air Quality Act of 1967, *Pub. L. No. 90-148, 81 Stat. 485-507* (expanding studies into air pollutants, emissions, and control techniques); Clean Air Act Amendments of 1966, **[**4]** *Pub. L. No. 89-675, 80 Stat. 954-55*; Clean Air Act of 1963, *Pub. L. No. 88-206, 77 Stat. 392-401*; Air Pollution Control Act of 1955, *Pub. L. No. 84-159, 69 Stat. 322* (providing funds for federal research into air pollution).

B. Congress enacts the Clean Air Act, which grandfathers pre-existing pollution sources (like the Plant) out of its requirements until they are "modified."

1. The Clean Air Act of 1970 sets up the modern federalism-based framework.

While the Plant ramped up operations over the next two decades, Congress enacted three amendments to the Clean Air Act transforming it into the comprehensive regulatory scheme it is today. It is necessary, then, to take a minor detour through those legislative changes.

These amendments reach back to 1970 when Congress converted the Act from a federal research program on air pollution into the federalist enforcement framework still in place today. Clean Air Act of 1970, *Pub. L. No. 91-604*. The 1970 version charged the soon-to-be[2] EPA with setting national maximum permissible levels of common pollutants for any given area—called National Ambient Air Quality Standards, or NAAQS (pronounced "knacks"). *See* *42 U.S.C. § 7409(a)—(b)* (requiring the **[**5]** EPA to choose levels that "allow[] an adequate margin of safety" required "to protect the public health" (quoting *42 U.S.C. § 7409(b)(1)*). The EPA designates "nonattainment" areas within each state where a regulated pollutant levels exceeds the NAAQS (so called because the areas are not attaining the EPA's standards). *42 U.S.C. § 7407(d)*.

The states then take primary responsibility (if they want it[3] for choosing how to **[*279]** meet the NAAQS within their borders. *See* *Train v. Natural Res. Def. Council, Inc., 421 U.S. 60, 63-67, 95 S. Ct. 1470, 43 L. Ed. 2d 731 (1975)*. They do so by creating State Implementation Plans, or SIPs. In their SIPs, states "choose which individual sources within [their borders] must reduce emissions, and by how much." *EME Homer City Generation L.P. v. EPA, 696 F.3d 7, 13, 402 U.S. App. D.C. 383 (D.C. Cir. 2012)*. For instance, a state "may decide to impose different emissions limits on individual coal-burning power plants, natural gas-burning **[**6]** power plants, and other sources of air pollution, such as factories, refineries, incinerators, and agricultural activities." *Id.* A state must submit its SIP to the EPA for review and approval whenever the NAAQS are updated, *see* *42 U.S.C. § 7410(a)(1)*, and each SIP must meet certain requirements, *see id.* *§§ 7410(a)(2)*, *7471*.

2. The 1977 amendments create the Prevention of Significant Deterioration (PSD) pre-construction permit program.

The 1970 framework merely prevented pollution sources from exceeding the NAAQS. It did not prevent new construction or modifications that would "gray out" areas with clean air as long as the pollution did not exceed the NAAQS. *See* Craig N. Oren, *Prevention of Significant Deterioration: Control-Compelling Versus Site-Shifting*, *74 Iowa L. Rev. 1, 9 (1988)*. At least that was the consensus before federal courts interpreted the Clean Air Act as requiring the EPA to "prevent deterioration of [the nation's] air quality, no matter how presently pure that quality in some sections of the country happens **[**7]** to be." *Sierra Club v. Ruckelshaus, 344 F. Supp. 253, 255 (D.D.C. 1972)*, *aff'd*, 41 U.S.L.W. 2255 (D.C. Cir. Nov. 1, 1972) (per curiam), *aff'd by an equally divided court sub nom.* *Fri v. Sierra Club, 412 U.S. 541, 93 S. Ct. 2770, 37 L. Ed. 2d 140 (1973)* (per curiam) (Powell, J., recused). To enforce that interpretation, Congress created a program for reviewing the effect of new pollution sources on existing air quality before they are constructed. Oren, *Prevention of Significant Deterioration*, *74 Iowa L. Rev. at 10*.

[2] President Nixon did not create the EPA until later in 1970 after Congress declared a national environmental policy. *See* National Environmental Policy Act of 1969, *42 U.S.C. §§ 4321-4347*. Before the EPA, federal environmental responsibilities were decentralized among various executive agencies.

[3] If a state refuses to participate, the EPA takes over and regulates pollution sources directly. *EME Homer City Generation, L.P. v. EPA, 696 F.3d 7, 12, 402 U.S. App. D.C. 383 (D.C. Cir. 2012)*.

Congress divided this aptly named New Source Review program into two permit programs. For areas with unclean air—called "nonattainment" areas because they are not attaining the NAAQS—the Nonattainment New Source Review program ensures that new emissions will not significantly hinder the area's progress towards meeting the NAAQS. For areas with clean air—"attainment" areas—the Prevention of Significant Deterioration (PSD) program ensures that any new emissions will not significantly degrade existing air quality.[4] The PSD program stands at the center of this case.

The PSD program requires operators of pollution sources in attainment areas to obtain a permit from the state or the EPA before constructing or modifying a "major emitting facility" (which emits significant air pollution even with pollution controls installed). *See* 42 U.S.C. §§ 7475(a) (setting permitting requirements), 7479(1) (defining "major emitting facility"). This "case-by-case" permitting process "tak[es] into account energy, environmental, **[*280]** and economic impacts and other costs," 40 C.F.R. § 52.21(b)(12); 42 U.S.C. §§ 7479, 7602(k), to determine the "best available control technology" (BACT)[5] for controlling every regulated pollutant at the facility to a specified limit, 42 U.S.C. § 7475(a)(4).[6] In keeping with the Clean Air Act's federalist framework, Congress required states to implement the PSD program in their SIPs. *See* 42 U.S.C. § 7410(a)(2)(D)(i)(II), (a)(2)(J).

3. The 1990 amendments add an operating-permit program.

Such was the Clean Air Act until 1990. That year, Congress passed its third and latest round of major amendments. **[**10]** In addition to other practical problems that arose after the 1977 amendments, citizens, regulators, and even the owners and operators of pollution sources had difficulty knowing which of the Clean Air Act's many requirements applied to a particular pollution source. Sierra Club v. Johnson (Sierra Club 11th Cir.), 541 F.3d 1257, 1261 (11th Cir. 2008); Hon. Henry A. Waxman, *An Overview of the Clean Air Act Amendments of 1990*, 21 Envtl. L. 1721, 1747 (1991). After all, the only requirements easily discoverable were those expressly listed in the preconstruction permits issued under the New Source Review program; any other applicable requirements under the Clean Air Act were scattered among separate records, permits, and other documents, if they were recorded at all. Sierra Club 11th Cir., 541 F.3d at 1261; Waxman, *An Overview of the Clean Air Act Amendments of 1990*, 21 Envtl. L. at 1747.

Congress fixed that problem by enacting Title V. *See* Operating Permit Program, 57 Fed. Reg. at 32,351 (explaining that Title V's goals are "[i]ncreased source accountability and better enforcement"). Title V "requires all major sources of air pollution to obtain operating permits" that "'consolidate into **[**11]** a single document (the operating permit) all of the clean air requirements applicable to a particular source of air pollution.'" *Sierra Club 11th Cir.*, 541 F.3d at 1260 (quoting Sierra Club v. Ga. Power Co., 443 F.3d 1346, 1348-49 (11th Cir. 2006)); *see* Pub. L. No. 101-549, §§ 501-02, 104 Stat. 2399, 2635-36 (codified at 42 U.S.C. § 7661a(a)). Title V "does not generally impose new substantive air quality control requirements," Sierra Club 11th Cir., 541 F.3d at 1260, but does require the source to obtain an operating permit that "assures compliance . . . with all applicable requirements," 40 C.F.R. § 70.1(b). Among the many requirements included in an operating permit are PSD emission limits (if applicable). Sierra Club 11th Cir., 541 F.3d at 1260. As with the PSD program, Title V's

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[4] These programs are not necessarily mutually exclusive. It is possible for the same area to be classified as a nonattainment area for some pollutants **[**8]** and as an attainment area for others. *See, e.g.*, United States v. DTE Energy Co., 711 F.3d 643, 644 n.1 (6th Cir. 2013) (noting that Monroe, Michigan, "falls into both categories depending on the pollutant").

[5] BACT is something of a misnomer. It does not refer to any specific technology, but rather to a specified **[**9]** emissions limit for each pollutant that reflects which pollution-control technology will be used. *See* 40 C.F.R. § 52.21(b)(12) (defining BACT as an "emissions limitation" based on the "maximum degree of reduction for each [regulated] pollutant" that "would be emitted from any proposed major stationary source or major modification").

[6] For comparison, BACT is not the only standard used in the Clean Air Act. In nonattainment areas, sources are required to attain the lowest achievable emission rate (LAER). *See* 42 U.S.C. § 7503; Citizens Against Ruining the Environment v. EPA, 535 F.3d 670, 674 n.3 (7th Cir. 2008). At least in theory, LAER is a stricter standard than BACT. Whereas BACT factors in a limited cost-benefit analysis, LAER requires sources to use whatever technology achieves the lowest emission rate contained in a SIP or possible in practice, regardless of costs. *See* 42 U.S.C. §§ 7501(3), 7503(a)(2). As a result, determining LAER for any particular pollutant does not require a case-by-case determination, unlike BACT.

operating permit program **[*281]** became a required element of SIPs. *See* 42 U.S.C. § 7661a.

C. Penelec and NYSEG modify the Plant during the 1990s but do not apply for a PSD permit, though they later apply for a Title V permit.

None of these comprehensive reforms initially affected the operation of the Homer City Generation Power Plant by Penelec and NYSEG. Congress had grandfathered pre-existing pollution sources, **[**12]** including the Plant, out of the PSD requirements "until those sources [we]re modified in a way that increases pollution." *Sierra Club 11th Cir.*, 541 F.3d at 1261; *see also United States v. Cinergy Corp.*, 458 F.3d 705, 709 (7th Cir. 2006).

But the Plant's sidelined status came to a halt in the 1990s. In 1991, 1994, 1995, and 1996, Penelec and NYSEG allegedly made various changes to the Plant's boilers that increased net emissions of sulfur dioxide and particulate matter.[7] Those changes were allegedly "major modifications" triggering the PSD permitting requirements and requiring the use of BACT. JA66-67, 81-82, 84-85. But at the time, Penelec and NYSEG believed their changes were "routine maintenance" exempted from the PSD program. Oral Arg. Tr. at 36:5-11; *see* 40 C.F.R. § 60.14(e)(1) ("The following shall not, by themselves, be considered modifications under this part: (1) Maintenance, repair, and replacement which the Administrator determines to be routine for a source category . . ."). So they did not apply for a PSD permit and instead continued to operate the modified Plant as though it were still exempt from the PSD program and BACT-based emissions controls. In 1995, Penelec and **[**13]** NYSEG applied for an operating permit as required by Title V. Because they never received a PSD pre-modification permit containing BACT-based emissions limits for the Plant their Title V operating permit application did not include any PSD-based requirements or BACT-based emissions limits. JA83-84, 86-87.

D. EPA announces an "unprecedented" initiative to enforce the Clean Air Act. Meanwhile, the Former Owners sell the Plant to the Current Owners, after which Pennsylvania approves the Plant's Title V permit.

While Penelec and NYSEG waited for Pennsylvania and the EPA to issue its Title V operating permit, the EPA rolled out a new enforcement initiative that eventually ensnared the Plant's operations. In 1999, the EPA "jointly announced what they called an 'unprecedented action'"—civil enforcement actions against seven electric utility companies and the Tennessee Valley Authority for Clean Air Act violations dating back more than twenty years at thirty-two power plants across ten states. Margaret Claiborne Campbell **[**14]** & Angela Jean Levin, *Ten Years of New Source Review Enforcement Litigation*, 24 Nat. Resources & Env't 16 (2010). That action was merely the first in what would become "the largest, most contentious industry-wide enforcement initiative in EPA history" to retroactively target violations of the New Source Review program:

> [A]ll involve virtually identical allegations. In each case, EPA alleges that the replacement of parts, typically boiler components or portions or components, at existing electric generating units amounted to "major modifications" of those units, triggering new source permitting **[*282]** and regulatory requirements. According to EPA, failure to obtain preconstruction permits constitutes a continuing violation, rendering ongoing operation of the units unlawful.

Id.

The same year as the EPA's announcement, Penelec and NYSEG sold the Plant to EME Homer City Generation, L.P. Two years later, EME Homer City needed to raise capital, so it entered a sale-leaseback transaction with Homer City Owner-Lessors 1 through 8 ("Homer City OLs"): EME Homer City sold the Plant to the Homer City OLs, who simultaneously leased it back to EME Homer City. As a result, Penelec and NYSEG became the former **[**15]** owners and operators ("Former Owners"), and EME Homer City and the Homer City OLs became the current owners and operators ("Current Owners"). Despite these transfers, no one sought a PSD permit or installed BACT.

In 2004, the Pennsylvania Department of Environmental Protection finally approved the Title V permit application (for which the Former Owners had applied nine years earlier) and issued the Title V permit to the Current Owners. JA80. Because there was no PSD permit, the issued Title V permit did not include any PSD requirements or BACT requirements.

[7] These modifications included replacing economizers, modifying ductwork, and installing new reheat temperature-control dampers and internal boiler supports. JA66-67, 81-82, 84-85.

E. In 2011, as part of that initiative, the EPA and the States sue the Former and Current Owners.

By 2004, the Plant had become "one of the largest air pollution sources in the nation," annually releasing nearly 100,000 tons of sulfur dioxide, which "contribut[es] to premature mortality, asthma attacks, acid rain, and other adverse effects in downwind communities and natural areas." JA67. With its pollution catching the EPA's attention, the Plant became a target of the agency's new enforcement initiative.

In 2008, the EPA notified the Current and Former Owners of their alleged violations (as required by the Clean Air Act) before eventually **[**16]** suing them in the Western District of Pennsylvania in January 2011.[8] According to the EPA, the Former Owners had violated (1) the PSD program by *modifying* the Plant without a PSD permit and without installing BACT-based emissions controls before modifying the Plant and (2) Title V by submitting an incomplete operating-permit application that omitted the Plant's modifications and proposed BACT controls. The Current Owners, on the other hand, had allegedly violated (1) the PSD program by *operating* the Plant after it had been modified without BACT controls installed or a PSD permit and (2) Title V by operating in accordance with their facially valid but inadequate operating permit (inadequate because it failed to include any of the applicable PSD permit requirements or require the use of BACT). JA81-83, 84-86. The EPA sought injunctive relief against the Former and Current Owners as well as civil penalties against the Current Owners for their past five years of operation. JA88-89.[9]

[*283] That was only the beginning. New York, New Jersey, and the Pennsylvania Department of Environmental Protection filed motions to intervene as plaintiffs, which the District Court granted. *See* JA91-130, 195-223. These States alleged the same violations as the EPA[10] and raised state-law claims that concededly rise or fall with the federal claims.

The Former and Current Owners moved to dismiss the complaint under *Federal Rule of Civil Procedure 12(b)(6)* for failure to state a claim. The District Court granted that motion in its entirety and dismissed the EPA's claims in October 2011. *See* JA6. In a nutshell, the District Court held that the five-year statute of limitations had expired on the civil-penalty PSD claims against the Current Owners because the PSD program imposes only prerequisites to construction and modification, not ongoing conditions of operation. And because the Current Owners were not the ones to modify the Plant, they could not be liable for violating the PSD requirements and thus injunctive relief was also unavailable against them. The District Court also declined to enjoin the Former Owners because they no longer owned or operated the Plant and thus posed no risk of violating the PSD program in the future. JA28-32.

As to the Title V operating permit claims, the Current Owners could not be liable because Title V does not transform **[**19]** the PSD requirements into operating duties and does not permit a collateral attack on a facially valid permit. JA32-36. Likewise, the Former Owners could not be held liable because all that Title V prohibits is operating a source out of compliance with the operating permit. The Former Owners never owned or operated the Plant after the Title V permit was issued. JA32.

The EPA and States appealed.[11]

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[8] This three-year gap between the notice of violations and the lawsuit is not abnormal. The notice-of-violation requirement, tracking the federalism-based structure of the rest of the Clean Air Act, affords states **[**17]** the opportunity to take the lead in enforcement by giving the alleged violators an opportunity to negotiate a solution to the violations with their states. The EPA's enforcement authority is a backstop.

[9] Because the Clean Air Act does not contain a statute of limitations, the general federal five-year statute of limitations applies to any claim for civil penalties. *See 28 U.S.C. § 2462* (establishing a general five-year statute of limitations for "an action, suit or proceeding for the enforcement of any civil fine, penalty, or forfeiture, pecuniary or otherwise"). The EPA did not seek civil penalties from the Former Owners because the five-year statute of limitations for civil penalties had expired. JA82-89.

[10] The States' allegations differed from the EPA's in only one respect: according to the States, the Former Owners modified the Plant (and thus **[**18]** triggered the PSD requirements) not only in 1991 and 1994 as alleged by the EPA, but also in 1995 and 1996. As all the parties agree, this difference is irrelevant to our analysis.

[11] Because the EPA's and States' PSD claims arise under federal law, the District Court had federal-question jurisdiction under *28 U.S.C. § 1331*. *See Landsman & Funk PC v. Skinder-Strauss Assocs., 640 F.3d 72, 82 n.8 (3d Cir. 2011)* (explaining that federal-question jurisdiction under *§ 1331* extends only to "cases 'in which a well-pleaded complaint establishes either [1] that federal law creates the cause of

II.

The EPA asks us to reverse the District Court's dismissal of its PSD preconstruction-permit claims and Title V operating-permit claims against the Former and Current Owners. We will affirm the District Court's dismissal in its entirety.

A. PSD Claims

1. Against the Current Owners

The EPA contends that the Current Owners violated the PSD program by operating **[*284]** the Plant while failing to use BACT and satisfy the PSD requirements. As relief, the EPA seeks $37,500 (the maximum daily civil penalty[12] for each day that the Current Owners operated the Plant for the five years preceding this lawsuit (the statute of limitations for civil penalties). They also want a permanent injunction ordering the Current Owners to obtain a PSD permit and install BACT.

The District Court dismissed these claims, reasoning that failure to comply with the PSD program is a one-time violation that occurs only at the time of construction or modification (here, 1996 at the latest). Consequently, it concluded that the Current Owners did not violate the PSD program because they did not modify the Plant; the Former Owners did.[13] But if, as the EPA urges, the PSD program imposes operating duties, then a new violation occurs each day that the Current Owners operated the Plant without BACT or a PSD permit (subject, of course, to the five-year statute of limitations). The claims against the Current Owners thus rise or fall on the answer to a single question: Does the PSD program prohibit operating a facility without BACT or a PSD permit?

We agree with the unanimous view of the other courts of appeals that have addressed this question. The PSD program's plain text requires the answer be "no." *HN1*[↑] Under 42 U.S.C. § 7475(a), "[n]o major emitting facility . . . may be constructed [or modified[14]] . . . unless" it meets various PSD requirements, including obtaining a PSD permit and installing BACT-based emission controls. That provision prohibits "construct[ing]" a facility **[**23]** without obtaining a PSD permit or using BACT, and while "construction" is defined to include "modifications," *see* 42 U.S.C. § 7479(2)(C), it does not include "operation." And § 7475(a) does not exactly try to hide its exclusive link to construction and modification: after all, the section is titled "Preconstruction Requirements"—not "Preconstruction and Operational Requirements." In short, "[n]othing in the text of § 7475 even hints at the possibility that a fresh violation occurs every day until the end of the universe if an owner that lacks a construction permit operates a completed facility." *United States v. Midwest Generation, LLC*, 720 F.3d 644, 647 **[*285]** (7th Cir. 2013); *see also* Sierra Club v.

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action or [2] that the plaintiff's right to relief necessarily depends on resolution of a substantial question of federal law.'" (quoting *Franchise Tax Bd. v. Constr. Laborers Vacation Trust*, 463 U.S. 1, 28, 103 S. Ct. 2841, 77 L. Ed. 2d 420 (1983)). Given those federal anchor claims, the District Court had supplemental jurisdiction under 28 U.S.C. § 1367 over the state-law claims. Because the District Court's order dismissing **[**20]** the EPA's and States' claims was a final order, we have appellate jurisdiction under 28 U.S.C. § 1291. As we explain in Part II.B, however, the District Court lacked jurisdiction over the EPA and States' Title V claims.

[12] Although the statute sets the maximum civil penalty at $25,000 "per day for each violation," 42 U.S.C. § 7413(b), Congress has since directed each federal agency to regularly adjust for inflation statutory civil penalties that **[**21]** can be imposed under laws it administers. Federal Civil Penalties Inflation Adjustment Act of 1990, 28 U.S.C. § 2461 note, *amended by* Debt Collection Improvement Act of 1996, 31 U.S.C. § 3701 note. Effective after January 12, 2009, the inflation-adjusted maximum daily civil penalty under the Clean Air Act is $37,500. 40 C.F.R. § 19.4.

[13] The EPA does not argue that the Clean Air Act imposes successor liability on the Current Owners **[**22]** for the Former Owners' alleged violation of the PSD Program. *Compare* 42 U.S.C. § 7413(b) (authorizing the EPA to enforce the Clean Air Act against a "person that is the owner or operator" of a "major emitting facility" only if "*such person*" has committed a violation (emphasis added)), *with* 42 U.S.C. § 9607(a) (providing a list of "persons"—explicitly including current owners or operators and any person who owned or operated the facility when the hazardous substances were disposed—who can be held liable under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) for remediation costs). Nor does the EPA argue that the Former Owners' liability under the Clean Air Act was transferred to the Current Owners as part of the Plant's sale.

[14] *HN2*[↑] Although **[**24]** § 7475(a) refers only to construction, the Clean Air Act defines construction as including modification of an existing pollution source. 42 U.S.C. § 7479(2)(C); Envtl. Def. v. Duke Energy Corp., 549 U.S. 561, 568, 127 S. Ct. 1423, 167 L. Ed. 2d 295 (2007).

McCullough, 184 F.3d 236, 240 (3d Cir. 1999) (*HN22*[↑] "[W]e may affirm [the District Court's decision] on any ground supported by the record.").

HN23[↑] The **[**46]** Clean Air Act authorizes the EPA to bring a civil enforcement action when any person has violated a permit or SIP, has violated any requirement in certain subchapters of the Clean Air Act (including the PSD program), or "attempts to construct or modify a major stationary source" in any state that the EPA Administrator has found out of compliance with **[*292]** the New Source Review program. *42 U.S.C. § 7413(a)(5)*, *(b)(1)—(3)*. That same provision limits a district court's jurisdiction to awarding certain kinds of relief. District courts have jurisdiction only "to restrain such violation, to require compliance, to assess such civil penalty, to collect [certain] fees owed the United States," and "to award any other appropriate relief." *Id. § 7413(b)*. Each type of relief in this list (except for civil penalties[20] is necessarily forward-looking. A district court, for example, cannot "collect" fees that were owed to the United States in the past but are no longer owed. And with time travel yet to be discovered, it is impossible to "restrain" a violation that occurred twenty years ago. Likewise, courts cannot "require compliance" from defendants who are not currently violating the Clean Air Act and **[**47]** who cannot violate the Act in the future because they no longer own or operate the source. *Cf. Gwaltney of Smithfield, Ltd. v. Chesapeake Bay Found., Inc., 484 U.S. 49, 59, 108 S. Ct. 376, 98 L. Ed. 2d 306 (1987)* (interpreting the Clean Water Act's citizen-suit provision, which authorizes citizens to seek civil penalties against a person who "is in violation" of the Act, and concluding that this phrase "makes plain" that the "harm sought to be addressed by the citizen suit [must] lie[] in the present or the future, not the past").

The only remaining term in the statute—"any other appropriate relief"—might initially appear to give district courts broad authority to fashion injunctive relief against former owners and operators. But this general catch-all cannot be read so broadly as to authorize an injunction for completed violations. *HN24*[↑] Under the canon of *ejusdem generis*, a "general **[**48]** term" ("any other appropriate relief") following a "series of specific items" ("restrain such violation," "require compliance," and so on) "is confined to covering subjects comparable to the specifics it follows." *Hall Street Assocs., LLC v. Mattel, Inc., 552 U.S. 576, 586, 128 S. Ct. 1396, 170 L. Ed. 2d 254 (2008)*; *see also Wash. State Dep't of Soc. & Health Servs. v. Guardianship Estate of Keffeler, 537 U.S. 371, 385, 123 S. Ct. 1017, 154 L. Ed. 2d 972 (2003)* (interpreting "other legal process" as limited to "some judicial or quasi-judicial mechanism" transferring property to discharge liability to be consistent with the preceding terms "levy, attachment, [and] garnishment"); *Circuit City Stores, Inc. v. Adams, 532 U.S. 105, 114-15, 121 S. Ct. 1302, 149 L. Ed. 2d 234 (2001)* (interpreting "any other class of workers engaged in foreign or interstate commerce" after "seamen" and "railroad employees" as covering only transportation workers).

Of course, *HN25*[↑] Congress does not intend every seemingly open-ended phrase to be read narrowly. *See Ali v. Fed. Bureau of Prisons, 552 U.S. 214, 226, 128 S. Ct. 831, 169 L. Ed. 2d 680 (2008)* ("[W]e do not woodenly apply limiting principles every time Congress includes a specific example along with a general phrase."). **[**49]** From time to time, a broadly worded statutory term is intended to be just that—broad. For example, Congress sometimes inserts "technically unnecessary" examples along with a general description of those examples not because it intends the general term to be narrow, but instead "out of an abundance of caution" to ensure the general term will be interpreted as capturing those examples. *Fort Stewart Sch. v. Fed. Labor Relations Auth., 495 U.S. 641, 646, [*293] 110 S. Ct. 2043, 109 L. Ed. 2d 659 (1990)*; *see also Circuit City Stores, Inc., 532 U.S. at 140* & n.4 (Souter, J., dissenting) (declining to apply *ejusdem generis* where the statute indicates a "special reason for emphasizing specific examples of a statutory class" that "negate[s]" a narrow interpretation of the general term). In addition, *HN26*[↑] just as we "typically use *ejusdem generis* to ensure that a general word will not render specific words meaningless," *CSX Transp., Inc. v. Ala. Dep't of Revenue, 131 S. Ct. 1101, 1113, 179 L. Ed. 2d 37 (2011)*, the opposite is also true: general phrases cannot be so narrowly construed that they become meaningless, *see Christopher v. SmithKline Beecham Corp., 132 S. Ct. 2156, 2171, 183 L. Ed. 2d 153 (2012)* (citing *United States v. Alpers, 338 U.S. 680, 682, 70 S. Ct. 352, 94 L. Ed. 457 (1950)*).[21] And finally,

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in general to remedy ongoing harm from wholly past violations.

[20] Civil penalties are the only type of relief in this list that can be imposed for past violations. That fact does not change our analysis because the separate five-year statute of limitations authorizes civil penalties for violations up to five years in the past, and civil penalties—as opposed to injunctive relief—are necessarily retrospective.

[21] The EPA does not argue that our interpretation of "any other appropriate relief" in *§ 7413(b)* leaves that phrase meaningless. In any event, without speculating too much on

like the EPA's own regulation at 40 C.F.R. § 52.21(r)(1), the Pennsylvania SIP requires sources to operate in compliance with their application for plan approval and "the conditions in the plan approval issued by the Department"—which does not prohibit operation without an approved plan (or PSD permit). 25 Pa. Code § 127.25. To be sure, HN17[↑] the Pennsylvania SIP does authorize the Department to "issue an operating permit to an existing and operating source that is out of compliance with . . . the Clean Air Act or the regulations thereunder." 25 Pa. Code § 127.445(a). But that provision, which *allows the Department* to issue corrective operating permits for sources lacking required PSD permits, hardly *requires the owners and operators* to apply for PSD permits as a condition of operation.

The Pennsylvania SIP's omission of any language imposing an operational duty to obtain an approved plan (or PSD permit) aligns this case with the Eighth and Eleventh Circuits' decisions, both of which refused to infer ongoing obligations from SIPs with similar language. Otter Tail Power Co., 615 F.3d at 1015; Nat'l Parks 11th Cir., 502 F.3d at 1323-25. That same omission distinguishes this case from the Sixth Circuit's decision in *National Parks Conservation Association v. Tennessee Valley Authority*, which interpreted the Tennessee SIP's unique language as "establish[ing] that the duty to obtain a construction permit containing the proper emissions limits is ongoing, even *post*-construction." Nat'l Parks Conservation Ass'n v. Tenn. Valley Auth., 480 F.3d 410, 419 (6th Cir. 2007); *see also* Midwest Generation, LLC, 720 F.3d at 64 ("[T]he [S]ixth [C]ircuit's decision rests on Tennessee statutes and implementation plans that require certain sources to *use* [BACT] . . . .").

In short, HN18[↑] § 7475(a) unambiguously prohibits only constructing or modifying a facility without meeting **[**43]** PSD requirements.[17] **[*291]** The Current Owners have done neither; they have only operated the Plant. As a result, the District Court correctly dismissed the civil-penalty and injunctive relief sought against the Current Owners.[18]

2. Against the Former Owners

That leaves the PSD claims against the Former Owners. Although the EPA has been less than forthcoming about what its proposed injunction would accomplish, it has offered two possibilities: **[**45]** (1) ordering the Former Owners to install BACT at the Plant, and (2) ordering the Former Owners to purchase emissions credits and retire them unused, effectively reducing the amount of sulfur dioxide that facilities elsewhere in the nation can emit. The District Court dismissed this request for a permanent injunction, concluding that mandatory injunctions are available only for ongoing violations and "the Former Owners' alleged PSD violations constituted wholly[] past failures to obtain pre-construction permits that did not constitute continuing violations." JA29. We will affirm that dismissal on a narrower ground. HN21[↑] The text of the Clean Air Act does not authorize an injunction against former owners and operators for a wholly past PSD violation, even if that violation causes ongoing harm.[19] *See* Tourscher v.

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[17] The EPA relies on various regulations that purport to create operational duties to obtain a PSD permit and use BACT. With these regulations in hand, it claims *Chevron* deference for the regulations' interpretation of the Clean Air Act and *Auer* deference for its interpretation of those regulations. This argument fails at each step. First, the cited regulations unambiguously track the PSD program in prohibiting only construction or modification, not operation, without getting a PSD permit or using BACT. *See* Otter Tail Power Co., 615 F.3d at 1016-17. Second, the EPA is not entitled to Auer deference because the regulations are clear. Christensen v. Harris Cnty., 529 U.S. 576, 588, 120 S. Ct. 1655, 146 L. Ed. 2d 621 (2000) (HN19[↑] "*Auer* deference is warranted only when the language of the regulation is ambiguous."). Third, even if the regulations were ambiguous, we would still not defer to the EPA's interpretation of the PSD regulations as imposing operational duties because such an interpretation would contradict **[**44]** the unambiguous text of § 7475(a). Heggans v. Comm'r of Soc. Sec., 694 F.3d 287, 295 (3d Cir. 2012) (HN20[↑] "[W]e need reach the [*Chevron*] deference question only if the statutory language is ambiguous.").

[18] The EPA does not argue that the statute of limitations should be equitably tolled—an argument we need not address. *See* Michael J. Cole, A Blueprint for EPA: How the Agency Can Overcome the Statute of Limitations When Enforcing PSD Under the Clean Air Act, 31 Utah Envtl. L. Rev. 181, 192 (2011) (arguing that "courts should toll the statute of limitations for a power plant's PSD violations if the plant fails to disclose to the state authorities that it undertakes a major modification"); *see also* Knight v. Brown Transp. Corp., 806 F.2d 479, 484 (3d Cir. 1986) (acknowledging that equitable tolling applies where the defendant had a duty to disclose information to the plaintiff and the defendant's failure to disclose information prevented the plaintiff from realizing that he had a claim).

[19] Because we base our conclusion solely on the statutory text of the Clean Air Act, we express no opinion on the District Court's conclusion that mandatory injunctions are not available

even directly revise the SIP if necessary. 40 C.F.R. § 51.166(a)(3).

Nor is the EPA unable to know which sources are modified or constructed. To be sure, sources are not required to report or obtain a PSD permit for routine maintenance that they believe falls below a "major modification." But that does not consign the EPA to playing whack-a-polluter by [**37] guessing which sources should be the target of its enforcement efforts. HN14[↑] The EPA is statutorily empowered to require any source owner or operator, regulated party, or any person "who the Administrator believes may have information necessary" for implementing the Clean Air Act and determining violations—that is, nearly anyone in the United States—"on a one-time, periodic, or continuous basis" to keep records, make reports, and submit to inspections, monitoring, and emissions sampling, and "provide such other information as the Administrator may reasonably require." 42 U.S.C. § 7414(a). States, as the Clean Air Act's primary enforcers, have similarly broad investigative powers. Given the breadth of these powers, we see no reason why the EPA and States lack authority to require the advance reporting of some or all proposed changes to facilities, whether or not they rise to a modification.

At the end of the day, there may or may not be a reasonable explanation for Congress's choice not to impose the PSD requirements as operational conditions. On one hand, the Clean Air Act was not designed solely for the purpose of saving the environment at all costs. Like any legislation, it is a congressional [**38] compromise between competing purposes—in the Clean Air Act's case, "between interests seeking strict schemes to reduce pollution rapidly" and other "interests advancing the economic concern that strict schemes would retard industrial development." Chevron U.S.A., Inc. v. Natural Res. Def. Council, Inc., 467 U.S. 837, 847, 104 S. Ct. 2778, 81 L. Ed. 2d 694 (1984). As a result, Congress designed the Clean Air Act to protect the nation's air quality and to protect the "reasonable expectations of facility operators" and the "significant investment of regulatory resources made by state permitting agencies." Otter Tail Power Co., 615 F.3d at 1022. [**39] That compromise might well be reflected in the omission of PSD requirements as operational conditions: If the EPA does not object within five years of the completion of a facility's modification, then it loses the right to seek civil penalties under the statute of limitations, but can still obtain an injunction requiring the owner or operator to comply with the PSD requirements. But when more than five years have passed since the end of construction and the facility has been taken over by new owners and operators, the Clean Air Act protects their reasonable investment expectations.

On the other hand, perhaps the omission of PSD requirements as operational conditions was simply an oversight. Congress pieced together the Clean Air Act over decades as it reacted to the latest regulatory obstacles. And there is some evidence that whenever the topic of the PSD permitting process arose, Congress simply assumed that a PSD permit would be issued before construction or modification began. *See* H.R. Rep. No. 95-294, at 144-45 (1977), *reprinted in* 1977 U.S.C.C.A.N. 1077, 1223-24; S. Rep. No. 95-127, at 32 (1977); H.R. Rep. No. 95-564, at 153 (1977) (Conf. Rep.), *reprinted in* 1977 U.S.C.C.A.N. 1502, [**40] 1533; *see also* Julie Martin, Note, *Enforcement for Construction Without PSD Permit and BACT [*290] Compliance*, 16 N.Y.U. Envtl. L.J. 563, 619 (2008) (explaining that because of Congress's assumption, the "Clean Air Act does not explicitly address the possibility of a facility's construction and eventual operation without the requisite permission to install uncontrolled emissions sources"). Either way, HN15[↑] we cannot modify the statute: if an intentional choice reflecting a compromise, we cannot adjust the bargain Congress has struck; if an oversight, we cannot usurp legislative authority to fix the omission. *See, e.g.*, Rodriguez, 480 U.S. at 526 ("Deciding what competing values will or will not be sacrificed to the achievement of a particular objective is the very essence of legislative choice—and it frustrates rather than effectuates legislative intent simplistically to assume that *whatever* furthers the statute's primary objective must be the law.").

Aside from the federal statutes and regulations, the EPA turns to the Pennsylvania SIP as a source of freestanding PSD requirements.[16] But HN16[↑] Pennsylvania's SIP merely parallels the Clean Air Act's PSD requirements and does nothing to transform the PSD [**41] permitting requirements into operating conditions. For example, 25 Pa. Code § 127.11 prohibits a person from "caus[ing] or permit[ting] *the construction or modification*"—not operation—"of an air contamination source" unless the Pennsylvania Department of Environmental Protection has approved the source's plan for construction or modification. And

[16] The EPA has approved Pennsylvania's SIP. *See* **40 C.F.R. §§ 52.2020-52.2063**; [**42] 37 Fed. Reg. 10,842, 10,889 (May 31, 1972); 49 Fed. Reg. 33,127 (Aug. 21, 1984); 61 Fed. Reg. 39,597 (July 30, 1996).

BACT requirement is simply part of § 7475's prohibition on construction—not operation. Otherwise, § 7475(a)(4) would declare that "[n]o major emitting facility . . . may be constructed *or operated* . . . unless (4) the proposed facility is subject to" BACT. As is, though, HN10[↑] the BACT requirement is "not a freestanding [operational] requirement." Otter Tail Power Co., 615 F.3d at 1016. And as the Seventh Circuit illustrated, it would not violate § 7475 even "[i]f the owners ripped out or deactivated the best available control technology after finishing construction," (though it might violate some other law). Midwest Generation, LLC, 720 F.3d at 647; *see* Alaska Dep't of Envtl. Conservation v. EPA, 540 U.S. 461, 484, 124 S. Ct. 983, 157 L. Ed. 2d 967 (2004) (describing subsections (a)(1) and (a)(4) as creating an "express preconstruction requirement" **[**33]** to include "a BACT determination in a facility's PSD permit").

Even if we take the EPA's argument on its own terms and ignore the construction limitation preceding subsection (4), the argument ignores the word "proposed." 42 U.S.C. § 7475(a)(4). After all, if the BACT requirement is interpreted as a freestanding requirement separate from the PSD permitting process, then facilities that never obtained PSD permits would have to apply BACT as a condition of operations after construction is completed. But if construction is completed, then the facilities are no longer "proposed" **[*288]** facilities, making that word meaningless. *See* Corley v. United States, 556 U.S. 303, 314, 129 S. Ct. 1558, 173 L. Ed. 2d 443 (2009) (HN11[↑] "[O]ne of the most basic interpretive canons [is] that [a] statute should be construed . . . so that no part will be inoperative or superfluous, void or insignificant." (internal quotation marks and citations omitted)). HN12[↑] Subsection (4) is no more than a congressional mandate to require constructed and modified facilities in attainment areas to use BACT rather than an alternative emissions standard—such as the more-stringent lowest achievable emission rate (LAER), which does not require a cost-benefit analysis and applies **[**34]** to nonattainment areas exceeding the NAAQS.

Apart from any issue of statutory interpretation, a freestanding BACT requirement would not survive in the real world. BACT determinations are products of the permitting process, "tailored to each facility 'on a case-by-case basis'" using cost-benefit analysis specific to each pollution source. Otter Tail Power Co., 615 F.3d at 1017 (quoting 42 U.S.C. § 7479(3)); *see also* 40 C.F.R. § 52.21(b)(12) (similar). There is no statutory or regulatory provision (outside of some individual states' SIPs) for obtaining a BACT determination outside of the PSD permitting process. Without an issued PSD permit, there are no BACT emission limits to violate. Tellingly, the EPA cannot explain what the BACT limits are for the Plant in this case because the permitting process has not occurred. *See* U.S. Reply Br. at 10 ("BACT is typically specified during the permitting process. . . . [But] the precise BACT standard for a particular source need not be pre-determined for an operator to violate the BACT obligation.").

Without supporting statutory text, the EPA falls back on (and the States primarily rely upon) policy arguments. Given the clarity of the statute, these **[**35]** concerns have no place in the process of statutory interpretation. Rodriguez v. United States, 480 U.S. 522, 526, 107 S. Ct. 1391, 94 L. Ed. 2d 533 (1987) (HN13[↑] "Where, as here, the language of a provision . . . is sufficiently clear in context and not at odds with the legislative history, . . . [there is no occasion] to examine the additional considerations of policy that may have influenced the lawmakers in their formulation of the statute." (alterations in original) (internal quotation marks and citations omitted)). But lest one be concerned that the EPA's parade of horribles may come to pass, such fears are inflated. First, it is not true that "a company that modifies a facility without obtaining a PSD permit or installing [BACT] pollution controls would be subject to a maximum total penalty of [only] $37,500" (the maximum daily fine). U.S. Br. at 46; States Br. at 60. Like Rome, facilities are not built—or modified—in a day. It is possible that the maximum daily fine accrues each day the owner or operator spends modifying or constructing the facility—from the beginning of construction to the end of construction. An owner or operator who modifies a facility every day for a year without satisfying the PSD requirements **[**36]** presumably commits a violation every day and is subject to one year's worth of daily fines—or more than $13 million.

But even assuming that the EPA is correct that only a single daily fine applies, that penalty is not "laughably inadequate to encourage PSD compliance." *Id.* Congress has endowed the EPA with other tools to deter would-be violators—from injunctive remedies that include terminating new construction and requiring extensive modifications, *see* 42 U.S.C. § 7477, to criminal penalties against those who "knowingly violate[]" the Clean Air Act, including by failing to obtain a PSD permit before construction or modification, *see* 42 U.S.C. § 7413(c)(1). **[*289]** And its enforcement arsenal is not limited to violators. If a state under-enforces the Clean Air Act or its own SIP, the EPA can take action to bring the SIP into compliance and can

Clean Air Act Amendments of 1990) (emphasis added).

The EPA considers this statement proof that Congress deliberately omitted "operation" from the EPA's § 7477 enforcement authority because it believed the EPA "already ha[d] that authority," not to eliminate such authority. Oral Arg. Tr. at 12:15-20. But proof it is not. As is always the case with Congress's rejection of an amendment, its meaning is elusive. Perhaps Congress rejected the amendment because it disagreed with the amendment's legal directive and did not want to adopt that directive as law. *See* Doe v. Chao, 540 U.S. 614, 622, 124 S. Ct. 1204, 157 L. Ed. 2d 1122 (2004) ("This [interpretation] is underscored by drafting history showing that Congress cut out the very

[*286] The EPA responds by identifying other provisions that purport to turn the PSD requirements into operational conditions. It points to § 7604(a)(1), which authorizes citizen suits for violations of "an emission **[**29]** standard or limitation," which is defined to include "any requirement to obtain a permit as a condition of operations," 42 U.S.C. § 7604(f)(4). But HN5[↑] § 7604(a)(1) merely creates a private cause of action against a person who is required to (but does not) obtain a permit as a condition of operations. It does not say that a PSD permit is, in fact, a condition of operations.

The EPA takes the next logical step, arguing that obtaining a PSD permit—and not just the PSD requirements themselvse—is itself a condition of operations, notwithstanding all the plain text to the contrary. The agency's argument is simple: obtaining a PSD permit is a condition of operating a source because PSD permits impose some operational conditions on the sources they govern. For example, § 7475(a)(1) requires the permit to "set[] forth emission limitations" that will govern post-construction operation. Subsection (a)(4) requires that the source be subject to BACT-based emission controls. And subsection (a)(7) sets ongoing monitoring requirements during post-construction operation.

But Ockham's Razor reminds us that simplicity in argument, without more, is no barometer of merit. HN6[↑] As the Eighth Circuit explained, "[e]ven **[**30]** though the preconstruction permitting process may establish obligations which continue to govern a facility's operation after construction, that does not necessarily mean that such parameters are enforceable independent of the permitting process." Otter Tail Power Co., 615 F.3d at 1017. In other words, just because the PSD program requires a source to obtain a permit that sets some operating conditions does not mean that the PSD program requires a source without a permit to comply with operating conditions. **[*287]** Indeed, even the EPA's own regulations distinguish between unlawful modifications and unlawful operations:

> HN7[↑] Any owner or operator who *constructs or operates* a source or modification *not in accordance with the [PSD] application . . . or with the terms of any approval to construct*, or any owner or operator of a source or modification . . . *who commences construction . . . without applying for and receiving* approval [under the PSD program], shall be subject to appropriate enforcement action.

40 C.F.R. § 52.21(r)(1) (emphasis added). Had the EPA wanted to make operating without a required PSD permit unlawful, the last half of this regulation would use the term "operates" just like the **[**31]** first half does: "any owner or operator of a source or modification . . . who commences construction *or operates a source or modification* without applying for and receiving approval [under the PSD program]." But the regulation does not say that.

Alternatively, the EPA argues that § 7475(a) is merely a rule of timing that starts the PSD permitting requirements at the time of construction or modification. Yet HN8[↑] § 7475(a) does not say that "a violation starts when a major emitting facility is constructed or modified without" meeting the PSD requirements. Rather, § 7475(a) prohibits modifying and constructing facilities without satisfying the PSD requirements. More to the point, this timing argument is just a repackaging of its contention that § 7475(a) imposes operational conditions.

Similar reasons doom the EPA's argument that BACT is a freestanding requirement that applies to operating sources regardless of whether a source obtains a PSD permit before construction or modification. For this proposition, the EPA quotes § 7475(a)(4)'s statement that a "proposed facility *is subject* to the best available control technology for each [regulated] pollutant" (emphasis added). That present-tense **[**32]** language might seem to create an ongoing obligation to use BACT regardless of a PSD permit's terms or existence. Except that the subsection says more than the language EPA quotes. HN9[↑] Under § 7475(a)(4), "[n]o major emitting facility . . . may be constructed . . . unless (4) the proposed facility is subject to the best available control technology for each [regulated] pollutant." The

Otter Tail Power Co., 615 F.3d 1008, 1015 (8th Cir. 2010) (agreeing with the Eleventh Circuit that operating a modified facility without a PSD permit is simply "not articulated as a basis for a violation" (quoting Nat'l Parks & Conservation Ass'n v. Tenn. Valley Auth. (Nat'l Parks 11th Cir.), 502 F.3d 1316, 1323 (11th Cir. 2007))). Instead, "[t]he violation is complete when construction [or modification] commences without a permit in hand." Midwest Generation, LLC, 720 F.3d at 647.

Section 7475's omission of any reference to "operation" takes on dispositive significance given that other parts of the Clean Air Act establish operational conditions by "employing plain and explicit language." Otter Tail Power Co., 615 F.3d at 1015. Two examples suffice: 42 U.S.C. § 7411(e) makes it "unlawful . . . to operate" a facility in violation of New Source Performance Standards. Title V similarly prohibits any person from "operat[ing]" a source "except in compliance with a [Title V operating] permit" and notes in the very next sentence that nothing in Title V "shall be construed to alter the applicable requirements of [the PSD program] that a permit *be obtained before construction or modification*." 42 U.S.C. § 7661a(a) (emphasis added). HN3[↑] Congress's choice to explicitly refer to operating conditions elsewhere, but not in § 7475(a), can only be deliberate, especially in such comprehensive legislation. Barnhart v. Sigmon Coal Co., 534 U.S. 438, 452, 122 S. Ct. 941, 151 L. Ed. 2d 908 (2002) ("When **[**25]** Congress includes particular language in one section of a statute but omits it in another section . . . , it is generally presumed that Congress acts intentionally and purposely[.]" (internal quotation marks and citations omitted)). We cannot override that choice. *See* Otter Tail Power Co., 615 F.3d at 1015 ("Where Congress has intended to establish operational conditions under the Clean Air Act, it has clearly said so. But it has not done so for the PSD program.").

The PSD program's enforcement provisions confirm this. HN4[↑] The EPA and States can "take such measures . . . as necessary *to prevent* the construction or modification" of a source to which the PSD requirements apply. 42 U.S.C. § 7477 (emphasis added). The Act authorizes citizen suits "against any person who *proposes to construct or constructs*" (or, by definition, proposes "to modify or modifies") a facility without a required PSD permit or violates any condition of a PSD permit. 42 U.S.C. § 7604(a)(3) (emphasis added). Nowhere do these provisions authorize enforcement against a person who "operates" a source without satisfying applicable PSD requirements.[15] a source violating the PSD requirements. In explaining this choice, the **[**26]** Conference Report stated that the House amendment

> recognizes existing law which allows EPA to initiate enforcement actions against sources that are being constructed or modified in violation of new source requirements, *and leaves intact the current interpretation of the Agency that allows action against sources that are operating in violation of new source requirements.*

136 Cong. Rec. 36007, 36086 (Oct. 27, 1990) (Chaffee-Baucus Statement of Senate Managers, S. 1630, The

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[15] The EPA relies on an isolated piece of legislative history from the 1990 amendments to show that Congress intended to authorize the EPA to prevent sources from operating out of compliance with the PSD requirements. In 1990, the EPA's enforcement authority under 42 U.S.C. § 7477 authorized it to "take such measures . . . as necessary to prevent the construction" of a source violating the PSD requirements. As part of the 1990 changes, Congress considered and rejected a Senate amendment that would have added the terms "operation" and "modification" such that § 7477 would have authorized the EPA to "take such measures . . . as necessary to prevent the construction, operation, **[**27]** or modification of a major emitting facility." S. Rep. No. 101-228, at 376 (1989), reprinted in 1990 U.S.C.C.A.N. 3385, 3759. Instead, Congress adopted a House amendment that added the term "modification" but not the term "operation." H.R. Rep. No. 101-490(I) § 609 (1990), reprinted in 1990 WL 258792, at *178. That amendment gave § 7477 its current form, which authorizes the EPA to "take such measures . . . as necessary to prevent the construction or modification" of language in the bill that would have authorized any presumed damages."). Equally as likely, however, is that Congress rejected the amendment agreeing with the legal principle in the amendment but believing that the amendment was unnecessary because the statute already expressed that principle. Here, the situation is even murkier because Congress enacted the 1990 amendments under the assumption that all sources would receive a required PSD permit before construction or modification began. *See infra* discussion at pp. 31-32. Therefore, Congress's otherwise-absolute statement might reflect a narrower belief that the EPA could enforce the PSD requirements against sources operating in violation of their PSD permit—an uncontroversial **[**28]** proposition. Given the statute's clarity, we need not try to recreate what the Conference Report meant by this statement. *See* Marx v. Gen. Revenue Corp., 133 S. Ct. 1166, 1172, 185 L. Ed. 2d 242 (2013) ("[W]e assum[e] that the ordinary meaning of [the statutory] language accurately expresses the legislative purpose." (internal quotation marks and citations omitted)).

[50]** HN27[] not every general or vague phrase following an enumerated list is a catch-all. Some statutes use a general phrase not as a residual category intended to be a more general description of the preceding terms, but instead use each of the terms, including the general phrase, as independent and unrelated statutory categories. *See Ali, 552 U.S. at 226* (declining to apply *ejusdem generis* to the "disjunctive" phrase "any officer of customs or excise or any other law enforcement officer"); *Watt v. W. Nuclear, Inc., 462 U.S. 36, 44 n.5, 103 S. Ct. 2218, 76 L. Ed. 2d 400 (1983)* (declining to apply *ejusdem generis* to the phrase "coal and other minerals").

Yet HN28[] sometimes a catch-all is just a catch-all. That is true here. "Any other appropriate relief" follows "a list of specific items separated by commas." *Ali, 552 U.S. at 225*. As the word "other" demonstrates, this general phrase is a residual category of the same type as the preceding items (namely, kinds of relief). *Id.* The specific types of relief do not overlap or otherwise suggest that they are mere examples of "any . . . appropriate relief." Consequently, any injunctive relief available under this residual phrase must be limited to ongoing violations, consistent with the specific forward-looking injunctive remedies that precede it. The EPA disagrees, insisting on a broad and flexible interpretation of "any appropriate relief." Wielding a separate canon of interpretation, the EPA argues that remedial statutes like the Clean Air Act must be interpreted broadly to effectuate their remedial purposes. As an initial matter, we doubt that such a broad interpretive rule can be justified on its own terms. *See Fla. Dep't of Revenue v. Piccadilly Cafeterias, Inc., 554 U.S. 33, 51, 128 S. Ct. 2326, 171 L. Ed. 2d 203 (2008)* **[**52]** (rejecting this canon's application to a statute that Congress had more than a "single purpose" in enacting (internal quotation marks and citation omitted)). HN29[] As the Supreme Court has consistently reminded courts, "no legislation pursues its purposes at all costs." *Pension Benefits Guar. Corp. v. LTV Corp., 496 U.S. 633, 646, 110 S. Ct. 2668, 110 L. Ed. 2d 579 (1990)* (quoting *Rodriquez, 480 U.S. at 525-26*); *see also ETC v. Actavis, Inc., 133 S. Ct. 2223, 2242, 186 L. Ed. 2d 343 [*294] (2013)* (Roberts, C.J., dissenting); *Dolan v. United States, 560 U.S. 605, 130 S. Ct. 2533, 2647, 177 L. Ed. 2d 108 (2010)* (Roberts, C.J., dissenting); *Woodford v. Ngo, 548 U.S. 81, 117, 126 S. Ct. 2378, 165 L. Ed. 2d 368 (2006)* (Stevens, J., dissenting). That principle applies even to remedial statutes (and what laws are not designed to remedy some problem?). "[I]t frustrates rather than effectuates legislative intent simplistically to assume that *whatever* furthers the statute's primary objective"—such as remedying environmental harms—"must be the law." *Rodriquez, 480 U.S. at 525-26*.

But even if such an interpretive rule were a justifiable one, it would not trump the textual clues to the contrary. HN30[] Not all interpretive rules are created equal. Some are descriptively justified, establishing rules about how Congress and the public use **[**53]** language as well as "regularize[ing] the courts' approach to some recurring sources of ambiguity in English syntax." Caleb Nelson, Statutory Interpretation 82 (2011); *see also* Stephen F. Ross, *Where Have You Gone, Karl Llewellyn? Should Congress Turn Its Lonely Eyes to You?*, *45 Vand. L. Rev. 561, 563 (1992)* (proposing this distinction); Cass R. Sunstein, *Interpreting Statutes in the Regulatory State*, *103 Harv. L. Rev. 405, 454-60 (1989)* (similar). Examples of those language-based heuristics include the presumptions that "words used in a statute are to be given their ordinary meaning," *Burns v. Alcala, 420 U.S. 575, 581, 95 S. Ct. 1180, 43 L. Ed. 2d 469 (1975)*, that "identical words used in different parts of the same statute" have the same meaning, *IBP, Inc. v. Alvarez, 546 U.S. 21, 34, 126 S. Ct. 514, 163 L. Ed. 2d 288 (2005)*, that statutory text should not be interpreted "in a way that makes part of it redundant," unnecessary, or meaningless, *Nat'l Ass'n of Home Builders v. Defenders of Wildlife, 551 U.S. 644, 669, 127 S. Ct. 2518, 168 L. Ed. 2d 467 (2007)*, that adjectives and other modifiers refer only to the last antecedent, *see Jama v. Immigration & Customs Enforcement, 543 U.S. 335, 342-43, 125 S. Ct. 694, 160 L. Ed. 2d 708 (2005)*, and—most relevant here—that a general catch-all should be interpreted in light of **[**54]** any preceding specific terms. Others are normatively justified, designed to achieve certain policy goals that courts have identified. Nelson, *Statutory Interpretation* 82 ("[A]t least some of the canons . . . put thumbs on the scale in favor of certain substantive policies[,] . . . telling courts how to proceed when their information about the enacting legislature's likely intent has run out."). The most familiar example is the rule of lenity. And the remaining canons are hybrids whose

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questions not before us, we can readily conceive of injunctive relief for an ongoing violation that does not either "restrain" that violation or "require compliance." For instance, an owner or operator with an ongoing violation might be ordered not only to correct the violation and bring its pollution into compliance with any emission requirements, but also place it on a probationary period requiring more stringent **[**51]** monitoring, submission to regular inspections, or reporting all changes to its facility to prevent future violations.

scope can be fully explained only by a combination of descriptive and normative justifications. See Nelson, *Statutory Interpretation*, 138, 146 (cataloguing the various canons and offering the saving canon and constitutional-avoidance doctrine as two examples of hybrid canons).

HN31[↑] Consistent with our focus on determining the meaning of the text itself, we turn to our descriptive canons first whenever we confront a statute we must interpret. *See id. at 228* ("[T]here is fairly widespread agreement that so-called 'descriptive' canons occupy a higher place in the interpretive hierarchy than so-called 'normative' canons."); *id. at 229* ("To the extent that a single canon serves both 'descriptive' and 'normative' **[**55]** goals, moreover, courts should try to avoid letting the canon's normative aspirations swamp the descriptive force of other canons."). If our descriptive tools settle the meaning, then our task is complete. In such a case, we do not even consider interpretive tools partially or purely based on normative goals. *See, e.g., United States v. Wells, 519 U.S. 482, 499, 117 S. Ct. 921, 137 L. Ed. 2d 107 [*295] (1997)* ("The rule of lenity applies only if, after seizing everything from which aid can be derived, . . . we can make no more than a guess as to what Congress intended." (internal quotation marks and citations omitted)).

Such is the case here. Our descriptive tools of interpretation clarify any vagueness in the phrase "any other appropriate relief." As we have explained, the canon of *ejusdem generis* requires us to interpret this catch-all as permitting forward-looking relief, consistent with the preceding types of relief in the list. Allowing the EPA's remedial-purpose canon to trump *ejusdem generis* would amount to little more than disguising a purpose-driven interpretation as a canon. The PSD program's other enforcement provision confirms the prospective nature of injunctive relief allowed. *Section 7477* authorizes "injunctive **[**56]** relief[] as necessary to prevent the construction or modification of [certain] major emitting facilit[ies]." An injunction to remedy modifications completed in the past without a PSD permit cannot "prevent" the construction.

And even if the phrase "any other appropriate relief" can include injunctions against former owners and past violators, the requested injunctions in this case are not "appropriate." Whatever the breadth of that phrase, it would not be "appropriate" for a district court to award relief that is impossible to fulfill. Ordering the Former Owners to install BACT on a plant they no longer own, operate, or have access to is just the sort of impossible relief that would not be "appropriate." That is especially so given that HN32[↑] a "mandatory injunction . . . is an extraordinary remedial process." *Morrison v. Work, 266 U.S. 481, 490, 45 S. Ct. 149, 69 L. Ed. 394 (1925)* (Brandeis, J.); *United States v. Bigan, 274 F.2d 729, 733 (3d Cir. 1960)* (same).

The EPA tries to cure this impropriety in two ways. First, it proposes that the District Court enjoin the Current Owners to cooperate with the Former Owners to install BACT. Or, the EPA suggests, the District Court can order the Former Owners to pay the Current **[**57]** Owners for the cost of BACT and order the Current Owners to install it.

Both of these proposals suffer from the same flaw. As we have already held, the Current Owners cannot be held liable for violating the PSD or BACT requirements. If the Current Owners cannot be held liable, then the District Court has no authority to enjoin them at all. *See Ciba-Geigy Corp. v. Bolar Pharm. Co., Inc., 747 F.2d 844, 850 (3d Cir. 1984)* (holding that HN33[↑] a plaintiff must first establish a successful claim on the merits against a party before being eligible to obtain injunctive relief against that party). Without the cooperation of the Current Owners, the Former Owners "would not be able to comply with a court order directing [them] to install pollution control measures, because [they] no longer control[] the plant." *N.J. v. Reliant Energy Mid-Atlantic Power Holdings, LLC, 2009 U.S. Dist. LEXIS 91617, 2009 U.S. Dist. LEXIS 91617, 2009 WL 3234438, at *17 (E.D. Pa. 2009)*. Given these constraints on remedying the Former Owners' past alleged violations of the PSD program and the EPA's failure to allege "a continuing violation or the likelihood of a future violation," injunctive relief against the Former Owners "will not redress [the public's] injury." *Steel Co. v. Citizens for a Better Env't, 523 U.S. 83, 109, 118 S. Ct. 1003, 140 L. Ed. 2d 210 (1998)*.

Second, **[**58]** the EPA proposes that the District Court order the Former Owner to purchase and retire emissions credits to offset pollution elsewhere in the nation. This proposal fares no better. Such injunctive cap-and-trade relief is the equivalent of awarding monetary relief and **[*296]** "could not reasonably be characterized as an injunction." *United States v. Midwest Generation, 781 F. Supp. 2d 677, 685 (N.D. Ill. 2011), aff'd on other grounds by 720 F.3d 644, 648*; *see In re Arthur Treacher's Franchisee Litig., 689 F.2d 1137, 1145 (3d Cir. 1982)* (HN34[↑] "[W]e have never upheld an injunction where the claimed injury constituted a loss of money, a loss capable of recoupment in a proper

action at law."). It would amount to little more than an end-run around the five-year statute of limitations on "any civil fine, penalty, or forfeiture, pecuniary or otherwise." 28 U.S.C. § 2462.

In fact, the inspiration for this suggested relief comes from Title IV of the Clean Air Act—a program regulating acid rain and deposition and an entirely different one than the Former Owners allegedly violated. Had Congress intended to authorize an emissions-credit marketplace for the PSD program (Title II) like the one established for **[**59]** the sulfur dioxide allowance program (Title IV), it would have done so. Since Congress deliberately omitted such an allowance program from the PSD program, we will not import it under the guise of injunctive relief.

Indeed, when Congress has wanted to authorize mandatory remedial injunctions in other environmental statutes, it has done so expressly. *See* 42 U.S.C. § 9607(a)(2) (extending liability under CERCLA to "any person who at the time of disposal of any hazardous substances owned or operated any facility at which such hazardous substances were disposed of"); 33 U.S.C. § 1321(b)(9) (broadly authorizing orders to "mitigate the damage to the public health or welfare caused by [a] discharge"). Congress chose not to extend such remedial authority to the Clean Air Act.

Finally, and tellingly, the EPA concedes that in the forty-plus years of the Clean Air Act, no court has ever approved such an injunction against former owners. *See* Oral Arg. Tr. at 16:19-21. We decline to be the first.

B. Title V Claims

In addition to its PSD claims, the EPA alleges that the Current and Former Owners violated the Title V operating-permit program. The Former Owners' Title V application was allegedly incomplete **[**60]** because it did not include applicable PSD requirements or BACT controls. And the Current Owners' facially valid permit is supposedly inadequate because it omits the same requirements—even though the EPA approved the application, issued the permit, and recently renewed the permit without objection. The District Court dismissed these claims on the merits, concluding that Title V does not make incomplete applications and permits civilly actionable. We agree with the District Court's dismissal, but for a more fundamental reason: the District Court lacked jurisdiction over these claims.[22] *See* In re Flat Glass Antitrust Litig., 288 F.3d 83, 88 n.5 (3d Cir. 2002) (explaining our "independent responsibility" to confirm our appellate jurisdiction and the District Court's jurisdiction (quoting In re Ford Motor Co., 110 F.3d 954, 958-59 (3d Cir. 1997))).

HN35[] As the Seventh, Eighth, and Ninth Circuits have held, Title V channels challenges to applications and permits into an administrative review process that is reviewable **[**61]** exclusively by the courts of appeals, **[*297]** not collaterally in civil or criminal enforcement actions in the district courts. Otter Tail Power Co., 615 F.3d at 1020; Romoland Sch. Dist. v. Inland Empire Energy Ctr., LLC, 548 F.3d 738, 742-43 (9th Cir. 2008); United States v. AM Gen. Corp., 34 F.3d 472, 475 (7th Cir. 1994); *see also* N.Y. Pub. Interest Research Grp., Inc. v. Johnson, 427 F.3d 172, 185 (2d Cir. 2005) ("[A]n enforcement proceeding does not relieve the EPA of its obligations under the permitting process."). We begin with HN36[] § 7661d, which establishes a comprehensive system for the EPA's review of Title V applications and proposed permits. "Congress entrusted state permitting authorities with initial responsibility to make BACT determinations 'case by case.'" Alaska Dep't of Envtl. Conservation, 540 U.S. at 488 (quoting 42 U.S.C. § 7479(3)). Title V requires these state permitting authorities to submit permit applications and proposed permits to affected states and the EPA for review. 42 U.S.C. § 7661d(a)(1). The permitting authority must give the states an opportunity to review the application or proposed permit and submit written recommendations; if the authority declines to adopt **[**62]** any state recommendation, it must notify that state and the EPA and explain its reasoning. *Id.* HN37[] As to the EPA's review, the Administrator has a duty to object to "any permit [that] contains provisions" she determines to be "not in compliance with" the Clean Air Act. *Id.* § 7661d(b)(1). If the Administrator objects, then the permit may not be issued unless it is revised to meet the objections. *Id.* §§ 7661d(b)(3), (c). And if the permitting authority has already issued the permit, then the Administrator must "modify, terminate, or revoke such permit," and the permitting authority may only issue a permit revised to satisfy the objection. *Id.* If the EPA does not object, then "any person may petition the Administrator within 60 days after the expiration of the 45-day review period" to object on the public's behalf.

[22] To the District Court's credit, it "harbor[ed] substantial subject-matter jurisdiction concerns as to its authority to decide" the Title V claims for the same reasons we express here.

Id. § 7661d(b)(2). The Administrator must then grant or deny the petition within 60 days. *Id.* "Any denial of such petition shall be subject to judicial review under" 42 U.S.C. § 7607. *Id.*

HN38[↑] Section 7607(b)(1), in turn, authorizes direct review of the Administrator's decision in the courts of appeals. *Id.* § 7607(b)(1) ("A petition for review of . . . any other final action of the Administrator **[**63]** under [the Clean Air Act] (including any denial or disapproval by the Administrator under [Title V]) . . . may be filed only in the United States Court of Appeals for the appropriate circuit . . . ."); Otter Tail Power Co., 615 F.3d at 1020; Romoland, 548 F.3d at 743. Such review may take place *only* in the court of appeals—subsection (b)(2) divests the district courts of jurisdiction over the Administrator's decision. 42 U.S.C. § 7607(b)(2) ("Action of the Administrator with respect to which review could have been obtained under paragraph (1) shall not be subject to judicial review in civil or criminal proceedings for enforcement."). Consequently, Congress created a "use it or lose it" provision for reviewing the EPA's failure to object to a proposed Title V permit. Romoland, 548 F.3d at 755. If review of the Administrator's decision not to object to a Title V application or permit "could have been obtained" through this process, then that challenge cannot be brought in an enforcement proceeding.

Here, the EPA claims that the Current Owners' Title V permit, though facially valid, is missing applicable PSD requirements and BACT controls. And the EPA (but not the States) claims that the **[**64]** Former Owners' Title V application was incomplete because it omitted those same requirements. But each of these **[*298]** claims "amounts to an allegation that the permit 'is not in compliance with the requirements of'" the Clean Air Act, "claim[s] which could have been pressed during the permitting process." Otter Tail Power Co., 615 F.3d at 1020. If the EPA Administrator believed the application or permit was deficient, Title V required her to object during the permitting process. 42 U.S.C. § 7661d(b)(1). Yet twice she chose not to—either during the original permitting process from 1995 to 2004 or again when the Current Owners' permit was renewed in 2012. And those failures to object "could have been" directly reviewed in this Court through the exclusive process established by Title V. Consequently, § 7607(b)(2) divests the District Court of jurisdiction over the EPA's collateral challenges to the Former Owners' application and the Current Owners' permit.[23]

The EPA musters three cases that purportedly support such collateral challenges in enforcement proceedings. U.S. Opening Br. at 57; *see* Sierra Club v. EPA (Sierra Club 6th Cir.), 557 F.3d 401, 405-11 (6th Cir. 2009); Citizens Against Ruining the Env't v. EPA, 535 F.3d 670, 678 (7th Cir. 2008); Sierra Club 11th Cir., 541 F.3d at 1267. But those cases say no such thing. None of them addresses § 7607's jurisdiction-stripping provision or even whether a district court has jurisdiction over collateral challenges to Title V permits and applications in enforcement actions. They instead interpret one of the statutory triggers for the EPA Administrator's duty to object to a Title V application or permit during the administrative review process: whether a private petitioner has sufficiently "demonstrated" that the application or permit does not comply with the Clean Air Act such that the Administrator must object. *See* 42 U.S.C. § 7661d(b)(2). In fact, in each of these cases, the party seeking review of the Administrator's failure to object did so by petitioning for direct review in the court of appeals—consistent with **[**66]** our interpretation of § 7607. *See* Sierra Club 11th Cir., 541 F.3d at 1263; Citizens Against Ruining the Env't, 535 F.3d at 674; Sierra Club 6th Cir., 557 F.3d at 405.

The elimination of district-court jurisdiction over collateral challenges to Title V permits and applications is further confirmed by Congress's omission of any civil cause of action for submitting incomplete applications or operating under a validly issued but incomplete permit. HN39[↑] The EPA has authority to bring a civil enforcement action against a person who, among other things, "has violated, or is in violation of, any other requirement or prohibition of [various subchapters, including Title V]." 42 U.S.C. § 7413(b)(2). The plain text of Title V, in turn, lists only two ways in which it can be violated: operating without a Title V permit or violating the terms of a Title V permit while operating a source. *See id.* § 7661a(a) (making it "unlawful for any person to violate any requirement of a permit issued under this subchapter, or to operate [a source] except in compliance with a permit issued by a permitting authority under this subchapter").

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[23] Given § 7607(b)(2)'s unambiguous elimination of the District Court's jurisdiction in this case, we do not defer to the EPA's contrary interpretation. *See* Hagans v. Comm'r of Soc. Sec., 694 F.3d 287, 295 (3d Cir. 2012) ("[W]e need reach **[**65]** the deference question only if we find the statutory language is ambiguous.").

What that text does not include as a violation, however, is operating in accordance **[**67]** with a facially valid but inadequate Title V permit. *HN40*[↑] As the Seventh Circuit has explained, there is simply no "indication that Congress expressly or by implication meant to authorize the EPA" to **[*299]** bring an enforcement action against current owners, who have "been operating under a permit valid on its face and never before challenged." *AM Gen. Corp., 34 F.3d at 475*; *see also United States v. Cemex, Inc., 864 F. Supp. 2d 1040, 1050 (D. Colo. 2012)* ("The Court sees no possible interpretation of this language that would permit a cause of action for the failure to obtain a 'proper' operating permit."). To be sure, as the EPA points out, Title V requires permits to include "enforceable emission limitations . . . and other such conditions as are necessary to assure compliance with applicable requirements of [the Clean Air Act]." *42 U.S.C. § 7661c(a)*. But just because the statute requires complete permits does not mean that incomplete permits are actionable in an enforcement action. Indeed, *§ 7661a(a)*'s failure to make it unlawful to transgress this complete-permit requirement requires us to conclude that such conduct is not a civilly enforceable "violation" of Title V. *See Sebelius v. Cloer, 133 S. Ct. 1886, 1894, 185 L. Ed. 2d 1003 (2013)* **[**68]** ("Where Congress includes particular language in one section of a statute but omits it in another section of the same Act, it is generally presumed that Congress acts intentionally and purposely in the disparate inclusion or exclusion." (internal quotation marks and citation omitted)).

HN41[↑] Nor does Title V make submitting an incomplete permit application unlawful. The plain text of *§ 7661a(a)* does not list "submitting incomplete permit applications" as a violation of Title V. Of course, as the EPA points out, Title V requires a permit application to include a "compliance plan describing how the source will comply with all applicable requirements [in the Clean Air Act]." *42 U.S.C. § 7661b(b)(1)*. Again, the fact that Congress chose to include this complete-application requirement but did not include the failure to satisfy that requirement as a violation of Title V must be presumed deliberate. In short, Congress's decision not to authorize district-court actions for incomplete applications or validly issued but inadequate permits makes it unsurprising that *§ 7607* **[**69]** divests the district courts of jurisdiction over such collateral challenges. The thoroughness of the administrative review process—combined with the mandatory denial of applications and proposed permits as well as the mandatory revocation of prematurely issued, non-compliant permits—indicates Congress's contemplation that deficiencies in Title V applications and proposed permits would come to light and be corrected through this administrative process.

On the other hand, consider the problems that would arise if applications and permits could be challenged in an enforcement proceeding. The EPA could bring parallel suits—an enforcement proceeding in the district court to challenge the Title V permit and direct review by the court of appeals to challenge the Administrator's failure to object during the administrative process. Such "simultaneous suits by multiple parties raising the same or similar issues" would "not only waste judicial resources, but could also result in inconsistent decisions." *Otter Tail Power Co., 615 F.3d at 1022*; *Romoland, 548 F.3d at 755*. More importantly, "allow[ing] plaintiffs to raise issues resolved during the permitting process long after that process is complete **[**70]** would upset the reasonable expectations of facility operators and undermine the significant investment of regulatory resources made by state permitting agencies." *Otter Tail Power Co., 615 F.3d at 1022*. Nor does this exclusive review process prevent the EPA from correcting deficiencies in a permit application or from fixing an inadequate Title V permit. If the application or proposed permit is deficient, the EPA must deny it or require supplemental information **[*300]** during the permitting process. *See 42 U.S.C. § 7661d(b)(1)*. And the threat of criminal charges confronts any person who knowingly submits a deficient application. *42 U.S.C. § 7413(c)(2)(A)*. Even if the deficiencies are overlooked and remain undiscovered until after the permit is issued—as they allegedly were in this case—the proper avenue is for the EPA or states to reopen the permit to add any "applicable requirement" that was omitted during the permitting process. *40 C.F.R. § 70.7(f)*; *see also 42 U.S.C. § 7661d(e)*; *25 Pa. Code §§ 127.542, 127.543*.

Consequently, the District Court lacked jurisdiction over the EPA's Title V claims.[24]

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[24] The EPA spars with the Current Owners over whether the Current Owners are insulated from liability **[**71]** by Title V's safe-harbor provision. Title V contains two permit shields—one that precludes Title V liability if an owner or operator "compli[es] with a permit issued in accordance with" Title V, and a second that insulates an owner or operator from liability for violating "other applicable provisions" of the Clean Air Act if it complies with a Title V permit that either expressly includes those provisions or states that they are inapplicable. *42 U.S.C. § 7661c(f)*. But these permit shields are merely sideshows. Even assuming the EPA is correct that neither permit shield protects the Current Owners, the availability of this defense

C. State-Law Claims

The Pennsylvania Department of Environmental Protection and New York also appeal the dismissal of various state-law claims under the Pennsylvania Air Pollution and Control Act, Pennsylvania SIP, and common-law public nuisance. They concede that these claims track the federal claims. *See* Dist. Ct. Op., JA36; States Br. at 67. And to the extent the state-law claims differ from the federal ones, the District Court found that **[**72]** "[t]hese claims were not thoroughly developed." *Id.* We will affirm their dismissal. *See* Steagald v. United States, 451 U.S. 204, 209, 101 S. Ct. 1642, 68 L. Ed. 2d 38 (1981) (holding that HN42[↑] arguments not developed in district court are forfeited on appeal); In re Ins. Brokerage Antitrust Litig., 579 F.3d 241, 262 (3d Cir. 2009) ("A fleeting reference or vague allusion to an issue will not suffice to preserve it for appeal[.]").

III.

In an age when coal-burning power plants mingle with electric cars and when our scientific understanding of the planet grows at the same exponential rate that our natural resources deteriorate, protecting the environment is an almost-fearsome responsibility. But when Congress's statutory directives are at issue, that responsibility must yield to our duty to follow our coordinate branch's commands. Those commands could not be plainer here. We will affirm the District Court's order dismissing the EPA's and States' claims.

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has no bearing on whether § 7607 strips district courts of jurisdiction over collateral challenges to Title V permits.

BEFORE THE ADMINISTRATOR
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

IN THE MATTER OF:	)	
	)	ORDER RESPONDING TO
UNITED STATES STEEL	)	PETITIONER'S
CORPORATION – GRANITE CITY	)	REQUEST THAT THE
WORKS	)	ADMINISTRATOR
	)	OBJECT TO ISSUANCE OF STATE
CAAPP No. 96030056	)	OPERATING PERMIT
Proposed by the Illinois	)	
Environmental Protection Agency	)	Petition Number V-2009-03
	)	

ORDER GRANTING IN PART AND DENYING IN PART PETITION FOR OBJECTION TO PERMIT

INTRODUCTION

On September 3, 2009, pursuant to its authority under the Illinois Clean Air Act Permitting Program (CAAPP), the Illinois Environmental Protection Act, 415 ILCS 5/39.5, title V of the Clean Air Act (Act), 42 U.S.C. §§ 7661-7661f, and the United States Environmental Protection Agency's (EPA) implementing regulations in 40 C.F.R. part 70 (part 70), the Illinois Environmental Protection Agency (IEPA) issued a title V operating permit to United States Steel Corporation – Granite City Works (USS). USS is an integrated steel manufacturing facility that involves raw material processing/preparation, coke production, coke oven gas by-products recovery plant, iron production, steel production, and steel finishing.

On October 1, 2009, the Interdisciplinary Environmental Clinic at the Washington University School of Law submitted to EPA on behalf of the American Bottom Conservancy (Petitioner) a petition requesting that EPA object to the USS title V permit pursuant to section 505(b)(2) of the Act, 42 U.S.C. § 7661d(b)(2), and 40 C.F.R. § 70.8(d). Petitioner alleges that (1) the permit fails to include all applicable permits and permit requirements; (2) the permit fails to provide periodic monitoring sufficient to assure compliance; (3) the permit lacks compliance schedules to remedy all current violations; (4) the permit unlawfully exempts emissions during startup, shutdown, and malfunctions (SSM); (5) the permit fails to include compliance assurance monitoring (CAM) requirements; and (6) numerous permit provisions are not practically enforceable.

EPA has reviewed Petitioner's allegations pursuant to the standard set forth in section 505(b)(2) of the Act, 42 U.S.C. § 7661d(b)(2), which requires the Administrator to issue an objection if the petitioner demonstrates to the Administrator that the permit is not in compliance with the applicable requirements of the Act. *See also* 40 C.F.R. § 70.8(d); *New York Public Interest Research Group* v. *Whitman,* 321 F.3d 316, 333, n. 11 (2d Cir. 2003).

Based on a review of the available information, including the petition, the permit record, and relevant statutory and regulatory authorities and guidance, I grant Petitioner's request in part and deny it in part, for the reasons set forth in this Order.

STATUTORY AND REGULATORY FRAMEWORK

Section 502(d)(1) of the Act, 42 U.S.C. § 7661a(d)(1), requires each state to develop and submit to EPA an operating permit program to meet the requirements of title V. EPA granted final full approval of the Illinois title V operating permit program effective November 30, 2001. 66 Fed. Reg. 62946 (December 4, 2001).

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 necessary to assure compliance with applicable requirements of the Act, including the requirements of the applicable State Implementation Plan (SIP). *See* sections 502(a) and 504(a) of the Act, 42 U.S.C. §§ 7661a(a) and 7661c(a). The title V operating permit program generally does not impose new substantive air quality control requirements (referred to as "applicable requirements"), but does require that permits contain monitoring, recordkeeping, reporting, and other requirements sufficient to assure compliance with applicable requirements. 57 Fed. Reg. 32250, 32251 (July 21, 1992). One purpose of the title V program is to "enable the source, States, 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.

Under section 505(a) of the Act, 42 U.S.C. § 7661d(a), and the relevant implementing regulations at 40 C.F.R. § 70.8(a), states are required to submit each proposed title V operating permit to EPA for review. Upon receipt of a proposed permit, EPA has 45 days to object to final issuance of the permit if EPA determines the permit is not in compliance with applicable requirements or the requirements of part 70. 40 C.F.R. § 70.8(c). Section 505(b)(2) of the Act provides that, if EPA does not object to a permit on its own initiative, any person may petition the Administrator, within 60 days of expiration of EPA's 45-day review period, to object to the permit. 42 U.S.C. § 7661d(b)(2); *see also* 40 C.F.R. § 70.8(d). The petition must "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)." 42 U.S.C. § 7661d(b)(2). In response to such a petition, the Administrator must issue an objection if a petitioner demonstrates that a permit is not in compliance with the requirements of the Act. *Id.; see also* 40 C.F.R. § 70.8(c)(1); *New York Public Interest Research Group, Inc.* v. *Whitman*, 321 F.3d at 333, n. 11. Under section 505(b)(2) of the Act, 42 U.S.C. § 7661d(b)(2), the burden is on the petitioner to make the required demonstration to EPA. *Sierra Club* v. *Johnson*, 541 F.3d 1257, 1266-1267 (11th Cir. 2008); *Citizens Against Ruining the Environment* v. *EPA*, 535 F.3d 670, 677-678 (7th Cir. 2008); *Sierra Club* v. *EPA*, 557 F.3d 401, 406 (6th Cir. 2009); *McClarence* v. *EPA*, 596 F.3d 1123, 130-31 (9th Cir. 2010) (discussing the burden of proof in title V petitions). If, in responding to a petition, EPA objects to a permit that has already been issued, EPA or the

permitting authority will modify, terminate, or revoke and reissue the permit consistent with the procedures set forth in 40 C.F.R. §§ 70.7(g)(4), (5)(i) - (ii) and 70.8(d).

BACKGROUND

USS first applied in March 1996 for a CAAPP title V permit. IEPA determined in May 1996 that the application was complete and published a draft permit for public comment in 2003. USS submitted a supplemental permit application in 2007 to address maximum achievable control technology (MACT) standards. IEPA considered this application a supplement to the 1996 application and, therefore, did not perform a second completeness determination. IEPA issued a new draft CAAPP permit and Project Summary (IEPA's Statement of Basis) for public comment in October 2008. IEPA held a public hearing regarding the new draft permit on December 2, 2008, and provided follow-up answers in January 2009 to questions it could not answer at the time of the hearing. Subsequently, on February 27, 2009, Petitioner submitted written comments on the draft permit to IEPA. EPA received the proposed permit for its 45-day review on June 19, 2009. EPA did not object to the permit, and IEPA issued the final CAAPP permit for the facility, along with a response to public comments, on September 3, 2009.

Under the statutory timeframe in section 505(b)(2) of the Act, 42 U.S.C. § 7661d(b)(2), October 2, 2009, was the deadline to file a petition requesting that EPA object to the final USS permit. Petitioner submitted its petition to EPA on October 1, 2009. Accordingly, EPA finds that Petitioner timely filed its petition.

ISSUES RAISED BY THE PETITIONER

I. The Permit Fails to Include All Applicable Permits and Permit Requirements

Petitioner's Allegations:

Petitioner alleges that IEPA did not include all applicable requirements in the USS title V permit. Petition at 6-9. Specifically, Petitioner points to the emission reduction credits in the IEPA-issued construction permits[1] for cogeneration and the coke plant/coke conveyance system projects[2] (coke plant project permits) that were under construction at the time Petitioner submitted its petition. Petitioner claims that the requirements contained in the permits are applicable requirements, as that term is defined at 415 ILCS 5/39.5(1) and 40 C.F.R. § 70.2,

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[1] Petitioner refers to the following four IEPA-issued new source review permits:
Permit No. 06070022 – Emission Reduction Credits Permit issued January 18, 2007;
Permit No. 06070023 – Cogeneration Project Permit issued January 30, 2008;
Permit No. 06070088 – Coke Conveyance System Permit issued March 13, 2008; and
Permit No. 06070020 – Coke Plant Permit issued March 13, 2008 to Gateway Energy &Coke Company, c/o SunCoke Company.

[2] One of the four permits to which Petitioner cites, Permit No. 06070020, was issued to SunCoke Company. However, in Permit No. 06070020 and in Permit No. 06070088, issued to USS for construction of a coke conveyance system, IEPA noted that the two modifications are considered a single project for purposes of new source review applicability. *See* Permits No. 06070020 and No. 06070088, both at 4.

because IEPA issued the permits pursuant to the State's SIP-approved new source review (NSR) program for major sources and the delegated prevention of significant deterioration (PSD) program. *Id.* at 6-7. Petitioner asserts that the coke plant project constitutes a major source of particulate matter of 2.5 microns or less ($PM_{2.5}$) in a $PM_{2.5}$ nonattainment area, and thus could not proceed without "offsets" of other $PM_{2.5}$ emissions from USS. Petitioner claims that the coke plant project permits reference the IEPA-issued emission reduction credit permit because it provided some of the necessary offsets. *Id.* at 7. Petitioner further claims that, because the provisions of the cogeneration project and coke plant project permits that enabled the project to avoid major NSR are minor source permit requirements, they also must be included in the USS title V permit. *Id.* at 7-8. Petitioner asserts that both the cogeneration and coke plant projects under construction at the time Petitioner submitted the petition rely on netting to avoid major NSR permit requirements. Petitioner alleges that, for a source to rely on netting to avoid permit requirements, it must be bound legally to undertake the emission reductions before it commences construction. *Id.* at 8.

EPA Response:

A title V permit must include all applicable requirements. *See* 40 C.F.R. §§ 70.5(c)(4) and 70.6(a)(1). The term "applicable requirement," as defined in 40 C.F.R. § 70.2 and Illinois' CAAPP regulations, includes "any term or condition of any preconstruction permits issued pursuant to regulations approved or promulgated through rulemaking under title I, including parts C or D, of the Act." In addition, both part 70 and Illinois' CAAPP regulations include in the definition of "applicable requirement" those requirements that will become effective during the term of the title V permit. *See* 40 C.F.R. §§ 70.2, 70.5(c)(4) and (8), and 415 ILCS 5/39.5. In its Responsiveness Summary on this issue, IEPA stated that the "CAAPP permit for U.S. Steel reflects only current operations. [Both the cogeneration and coke plant projects] permitted through construction permits [cited by Petitioner in its comments] are under construction and not operable yet." Responsiveness Summary at 24-25. IEPA did not provide any legal justification for its position that the permit only needed to reflect current operations, nor did it dispute that the PSD permits contained applicable requirements. The facilities that are the subject of the more recently issued NSR permits are [considered by IEPA to be] part of the source that is covered by the title V operating permit under review in this action. Thus by failing to include the provisions of the NSR permits in the title V permit, IEPA has acted contrary to both part 70 and Illinois' CAAPP regulations that define the term "applicable requirement."[3] Based on EPA's and

[3] In stating that the USS CAAPP permit reflects current operations and that sources covered by the preconstruction permits were still under construction, it is possible that IEPA was intending to refer to 40 C.F.R. §70.5(a)(1)(ii). That provision states in relevant part: "Part 70 sources required . . . to have a permit under the preconstruction review program approved into the applicable implementation plan under part C or D of title I of the Act [i.e., the New Source Review program], shall file a complete application to obtain the part 70 permit or permit revision within 12 months after commencing operation or on or before such earlier date as the permitting authority may establish. Where an existing part 70 permit would prohibit such construction or change in operation, the source must obtain a permit revision before commencing operation."

EPA's proposed part 70 rule stated that any source required to have a preconstruction permit under the NSR program would be subject to the part 70 program, but the proposed rule did not address the timing of a title V application. *See* 57 Fed. Reg. 32250, 32271. EPA included 40 C.F.R. 70.5(a)(1)(ii) in the final rule to address this issue and situations where a source had no title V permit or such permit was not up for revision, or where the

Illinois' definition of "applicable requirement," as described above, the emission reduction credits and all other terms of the construction permits issued pursuant to SIP-approved programs are applicable requirements and, as such, must be included in the title V operating permit. I therefore grant the petition on this issue, and direct IEPA to include the requirements for the emission reduction credits in the USS CAAPP permit, as well as all other requirements of the pre-construction permits cited by Petitioner at pages 6 and 9 of the petition.[4] *See In the Matter of Wisconsin Public Service Corporation's JP Pulliam Power Plant*, Petition Number V-2009-01 (June 28, 2010) at 3-5.

II. The Permit Fails to Provide Periodic Monitoring Sufficient to Assure Compliance

Petitioner's Allegations:

Petitioner claims that the USS CAAPP permit does not meet the periodic monitoring requirements of part 70 for various requirements applicable to the coal handling operations, the coke production operations, the coke oven gas by-products recovery plant, the blast furnaces, the basic oxygen furnaces, the continuous casting operations, the hot strip mills, the finishing operations, the boilers, the internal combustion engines, and the gasoline storage and dispensing operations. Petition at 9-28. Petitioner claims that permitting authorities must take the following three steps to satisfy the monitoring requirements of title V:

1. Under 40 C.F.R. § 70.6(a)(3)(i)(A), where existing regulations or underlying permits prescribe monitoring that is appropriate to the timeframe of the emission

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source's existing permit would prohibit construction or a change in operation. As EPA explained in the final rule, a source must submit a title V application generally within 12 months after the date on which the source becomes subject to the title V program. *Id.* at 32272. The Act implies that a source becomes subject to the title V program when operations commence. *Id.* Therefore, a source that receives a preconstruction permit and will be newly subject to title V generally would have 12 months after commencing operation to submit a title V application. 40 C.F.R. § 70.5(a)(1)(ii) follows this reading of the statute, and it "prevents the source from being subject to an enforcement action during the 12-month period that it operates before it applies for an operating permit." *Id.* This rule also addresses when an existing title V source would need to apply for a title V permit revision, and provides that (except in situations where the part 70 permit would prohibit such construction or change in operation) the source must submit its application within 12 months of commencing operations. *Cf.* 40 C.F.R. § 70.7(f)(1)(i).

Importantly, 40 C.F.R. § 70.5(a)(1)(ii) does not provide an exception to the definition of "applicable requirement." Nor is it an exemption from the Act's requirement that all title V permits include conditions to assure compliance with all "applicable requirements . . . including the requirements of the applicable implementation plan." *See* 42 U.S.C. § 7661b. 40 C.F.R. § 70.5(a)(1)(ii) does not apply in a situation where a permitting authority is issuing a title V permit to a source and the source holds preconstruction permits that have been issued. The preconstruction permits are applicable requirements, as noted above, and nothing in the Act or the regulations allows a permitting authority to exclude them from the title V permit.

[4] Petitioner suggests that the terms of the preconstruction permits would not be federally enforceable until they were incorporated into USS's title V permit. *See* Petition at p. 8. EPA disagrees with this assertion. EPA has the authority to enforce preconstruction permits issued pursuant to delegated PSD programs or to SIP-approved major and minor NSR programs regardless of whether they are incorporated into title V permits. *See* Section 113(a)(1) and (a)(3) of the Act, 42 U.S.C. § 7413(a)(1) and (a)(3).

limit and sufficient to assure compliance, the permitting authority must properly incorporate that monitoring requirement into the title V permit.

2. Under 40 C.F.R. § 70.6(a)(3)(i)(B), where there is no previously-established monitoring requirement to correspond to an emission limit, the permitting authority 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."

3. Under 40 C.F.R. § 70.6(c)(1), where there exists a previously-established monitoring requirement corresponding to an emission limit, but that monitoring is not sufficient to assure compliance with limit, the permitting authority must supplement monitoring to assure such compliance.

Petition at 9, citing *Sierra Club v. EPA*, 536 F.3d 673 (D.C. Cir. 2008), *CITGO Refining and Chemicals Company L.P.*, Petition No. VI-2007-01 (May 28, 2009) at 7 and *Premcor Refining Group, Inc.*, Petition No. VI-2007-02) at 7 (May 28, 2009). Petitioner asserts that the United States Court of Appeals for the District of Columbia Circuit made clear in *Sierra Club* that the Act requires augmentation of monitoring requirements where requirements exist but are not adequate to ensure compliance, (Petition at 10, quoting *Sierra Club*, 536 F.3d at 678) and that the Illinois Environmental Protection Act also mandates supplemental monitoring where necessary to ensure compliance. *Id.*, quoting 415 ILCS 5/39.5(7)(b).

Petitioner asserts that the USS CAAPP permit contains numerous conditions that establish emission limits but lack periodic monitoring requirements sufficient to assure compliance with the limits. *Id.* Petitioner also asserts that the Project Summary contains conclusory statements about the monitoring requirements but no justifications for IEPA's monitoring choices, and that IEPA must satisfy the monitoring requirements and provide a rationale for the monitoring, as required by part 70. *Id.* at 11-12. Finally, Petitioner alleges that IEPA failed to respond to its significant comments regarding the adequacy of monitoring in the USS CAAPP permit. *Id.* at 11-12.

EPA Response:

EPA's part 70 monitoring rules (40 C.F.R. § 70.6(a)(3)(i)(A) and (B) and 70.6(c)(1)) are designed to address the statutory requirement that "[e]ach permit issued under [title V] shall set forth . . . monitoring . . . requirements to assure compliance with the permit terms and conditions." 42 U.S.C. § 7661c(c). As a general matter, permitting 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). *See CITGO* at 6-7.

In addition to meeting these three steps, the rationale for the monitoring requirements selected by a permitting authority must be clear and documented in the permit record (e.g., in the statement of basis). 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. The monitoring 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. The preceding list of factors provides the permitting authority with a starting point for its analysis of the adequacy of the monitoring; the permitting authority also may consider other site-specific factors. *CITGO* at 7-8.

Further, IEPA has an obligation to respond adequately to significant comments on the draft title V permit. Section 502(b)(6) of the Act, 42 U.S.C. § 7661a(b)(6), requires that all title V permit programs include adequate procedures for public notice regarding the issuance of title V operating permits, "including offering an opportunity for public comment." *See* 40 C.F.R. § 70.7(h). It is a general principle of administrative law that an inherent component of any meaningful notice and opportunity for comment is a response by the regulatory authority to significant comments. *Home Box Office v. FCC*, 567 F.2d 9, 35 (D.C. Cir. 1977) ("the opportunity to comment is meaningless unless the agency responds to significant points raised by the public."). *See, also, In the Matter of Louisiana Pacific Corporation*, Petition Number V-2006-3 (Nov. 5, 2007), at 4-5.

The petition sets out approximately 50 instances in the USS title V permit where Petitioner claims IEPA has failed to include sufficient monitoring to assure compliance and/or where IEPA has failed to justify the required monitoring. These issues are addressed below. In sum, in the instances described below where I grant on the monitoring issues raised by Petitioner, IEPA must ensure it has: (1) satisfied the monitoring requirements of 40 C.F.R. § 70.6(a)(3)(i)(A) and (B) and (c)(1); (2) provided a rationale for the monitoring requirements placed in the permit (*see* 40 C.F.R. § 70.7(a)(5)); and (3) responded to significant comments. *CITGO* at 8.

A. Coal Handling Operations

Petitioner's Allegations:

Petitioner alleges that the permit does not include periodic monitoring sufficient to assure compliance with the emission limit for particulate matter of 10 microns or less (PM_{10}) found in Condition 7.1.3(f) of the permit. Petition at 12. Petitioner states that the permit only requires inspections of control equipment and related recordkeeping but does not require any actual

monitoring. Petitioner concludes that, because USS must meet the emission limit for PM_{10} on an hourly basis, the permit must be revised to require additional periodic monitoring, such as a continuous emission monitoring system (CEMS) for particulate matter (PM), to assure compliance with the limit. *Id.*

EPA Response:

In its Responsiveness Summary, IEPA claims that the "[r]ecordkeeping requirements of Conditions 7.1.10(b), (d), 5.9.3(d) and inspection requirements of Condition 7.1.8 are sufficient to satisfy requirements of 39.5(7)(d) of the Act and ensure that control device is operated properly." Responsiveness Summary at 27. IEPA's response simply recites the monitoring requirements. IEPA did not provide a sufficient analysis to demonstrate how the monitoring requirements in the USS permit assure compliance with the terms and conditions of the permit, or yield reliable data from the relevant time period that is representative of compliance with the permit in either its Project Summary or its responses to Petitioner's comment.[5] IEPA's response to Petitioner's comment was silent on how Conditions 7.1.10(b) and (d), 5.9.3(d) and the inspection requirements of Condition 7.1.8 are sufficient to assure compliance with the related emissions requirements. Therefore, I grant the petition on this issue.

Petitioner also argues that CEMS should be considered the means to comply with the periodic monitoring requirements of part 70. Although CEMs may be the preferred type of monitoring in some instances, they are not always necessary to assure compliance with applicable requirements. Section 504(b) of the Act, 42 U.S.C. § 7661c(b), provides that "continuous emissions monitoring need not be required if alternative methods are available that provide sufficiently reliable and timely information for determining compliance." *See also, In the Matter of Alliant Energy WPL - Edgewater Generating Station*, Petition Number V -2009-02 (August 17, 2010), at 11.

Petitioner has neither identified an applicable requirement that compels the use of CEMS nor demonstrated that a CEM is the only monitoring that can assure compliance with this particular emission limit. I am ordering IEPA either to explain how the USS permit provides adequate monitoring or to modify the permit to ensure that it contains monitoring sufficient to

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[5] As discussed above, if the applicable requirement contains no periodic monitoring, the permitting authority must add periodic monitoring to the title V permit "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). If the applicable requirement contains some periodic monitoring, but that monitoring is not sufficient to assure compliance with permit terms and conditions, permitting authorities must, "[c]onsistent with paragraph (a)(3) . . . ," add monitoring "sufficient to assure compliance with the terms and conditions of the permit." 40 C.F.R. § 70.6(c)(1). Both of these monitoring rules (40 C.F.R. §§ 70.6(a)(3)(i)(A) and (B) and 70.6(c)(1)) are designed to address the statutory requirement that "[e]ach permit issued under [title V] shall set forth . . . monitoring . . . requirements to assure compliance with the permit terms and conditions." CAA section 504(c). Thus, in evaluating whether the permit contains monitoring sufficient to assure compliance under 40 CFR 70.6(c)(1), EPA believes it is appropriate to consider whether such monitoring is "sufficient to yield reliable data from the relevant time period that are representative of the source's compliance with the permit."

assure compliance with the terms and conditions of the permit. Therefore, I deny the claim seeking an order that IEPA must require the use of CEMS in the USS CAAPP permit.

B.1. Coke Production - Coke Oven Charging, Leaks from Doors, Leaks from Lids, and Leaks from Offtakes

Petitioner's Allegations:

Petitioner alleges that the permit does not include periodic monitoring sufficient to assure compliance with visible emission (VE) limits found in Conditions 7.2.3-1(a) and (c), 7.2.3-2(a) and (b), 7.2.3-3(a) and (b), and 7.2.3-4(a) and (b) of the permit. Petition at 12. Petitioner states that the VE limits are based on state regulations and a state-issued permit for Coke Oven Battery B. *Id.* Petitioner further claims that Condition 7.2.14 provides monitoring methods, but does not require the permittee to monitor for compliance with the VE limits. *Id.* Petitioner notes that IEPA states in its Responsiveness Summary that "daily testing of visual emissions are required by condition 7.2.7-3(a) pursuant to 40 C.F.R. part 63, Subpart L," (sic), but claims that, because the emission limits are not based on and are not equivalent to the limits in the federal MACT regulations, IEPA's statement is unclear. *Id.*, quoting Responsiveness Summary at 27.

EPA Response:

IEPA did not provide an analysis to demonstrate how the monitoring requirements in the USS permit are sufficient to assure compliance with the VE limits, or are sufficient to yield reliable data from the relevant time period that is representative of compliance with the permit in either its Project Summary or its response to Petitioner's comments. In any case, as noted above, part 70 requires an analysis in the statement of basis or permit record of how the monitoring is sufficient to assure compliance with permit terms and conditions, or sufficient to yield reliable data from the relevant time period that is representative of compliance with the permit, including any augmentation of monitoring requirements where the state has found that monitoring in applicable requirements is not adequate to assure compliance. 40 CFR § 70.6(a)(3)(i)(B), 70.6(c)(1) and 70.7(a)(5). IEPA's response to Petitioner's comment simply recited the monitoring requirements in the permit and was silent on how the monitoring requirements of 40 C.F.R. part 63, subpart L are related to the emissions requirements in the permit. Therefore, I grant the petition on this issue.

B.2. Coke Production - Combustion (Battery) Stack

Petitioner's Allegations:

Petitioner alleges that the permit does not include periodic monitoring sufficient to assure compliance with the PM emission limits found in Condition 7.2.3-7(a)(i) and (c) of the permit. Petition at 13. Petitioner asserts in both instances that the permit requires a single performance test one year before the renewal date of the permit, even though the PM limits require continuous compliance. *Id.* Petitioner claims that IEPA states in the Responsiveness Summary that "CEMs are generally not required for periodic monitoring." *Id.*, quoting Responsiveness Summary at 26-27. Petitioner claims IEPA's response did not provide an analysis to demonstrate how the

monitoring requirements in the USS permit are sufficient to assure compliance with the terms and conditions of the permit. Furthermore, Petitioner alleges that PM CEMs should be required because they are both available and feasible. *Id.*

EPA Response:

In its Responsiveness Summary, IEPA states that "Condition 7.2.7(d) of the final CAAPP addresses testing requirements for coke oven combustion stacks." Responsiveness Summary at 27. IEPA's response simply recites the monitoring requirements in the permit. IEPA did not provide in its response an analysis to demonstrate how the monitoring requirements in Condition 7.2.7(d) of the USS permit are sufficient to assure compliance with the terms and conditions of the permit or are sufficient to yield reliable data from the relevant time period that is representative of compliance with the permit. Therefore, I grant the petition on this issue.

Petitioner also asserts that CEMS be considered the means to comply with the periodic monitoring requirements of Part 70. As noted above, although CEMs may be the preferred type of monitoring in some instances, they are not always necessary to assure compliance with permit terms and conditions. Section 504(b) of the Act provides that "continuous emissions monitoring need not be required if alternative methods are available that provide sufficiently reliable and timely information for determining compliance." 42 U.S.C. § 7661c(b). *See also, In the Matter of Alliant Energy WPL - Edgewater Generating Station*, Petition Number V -2009-02) (August 17, 2010), at 11.

Petitioner has neither identified an applicable requirement that compels the use of CEMS nor demonstrated that a CEMS is the only monitoring that can assure compliance with the applicable requirements. I am ordering IEPA either to explain how the USS permit provides adequate monitoring or to modify the permit to ensure that it contains monitoring sufficient to assure compliance with the associated permit terms and conditions. Therefore, I deny the claim seeking an order that IEPA must require the use of CEMS in the USS CAAPP permit.

B.3. Coke Production - Bypass/Bleeder Stack Flare

Petitioner's Allegations:

Petitioner alleges that the permit does not include periodic monitoring sufficient to assure compliance with the VE limit found in Condition 7.2.3-8(b) of the permit. Petition at 14. Petitioner claims that, although the permit references the federal MACT regulation that specifies monitoring for visible emissions from flares, the permit does not expressly require USS to monitor flare emissions to assure compliance with the limit. *Id.* Petitioner argues that IEPA's statement in the Responsiveness Summary, that "40 CFR 63.309(h) does not specify the frequency of no visible emissions observations," is inadequate. *Id.*, quoting Responsiveness Summary at 27. Petitioner concludes by asserting that IEPA is required to add periodic monitoring requirements to the permit or provide additional information to justify the monitoring required in the permit. *Id.* at 14.

EPA Response:

IEPA did not explain how the monitoring requirements in the USS permit are sufficient to assure compliance with the associated permit terms and conditions. The fact that 40 C.F.R. § 63.309(h) does not specify a monitoring frequency does not end the analysis. As the permitting authority, IEPA must determine whether the monitoring included in a regulation is sufficient to assure compliance with the permit terms and conditions. If it is not, the permitting authority must supplement the monitoring. Therefore, I grant the petition on this issue.

C. Coke Oven Gas By-Products Recovery Plant

Petitioner's Allegations:

Petitioner alleges that the permit's annual opacity reading requirement for the coke oven by-products flare is not frequent enough to assure compliance with the VE limit found in Condition 7.3.10(a)(i) of the permit. Petition at 14. Petitioner asserts that daily or more frequent monitoring such as the use of video monitoring is reasonable to assure compliance with visible emission limits for flares. *Id.* Petitioner further claims that IEPA's rationale for the monitoring associated with condition 7.3.10(a)(i) is unclear. *Id.* Petitioner notes that IEPA stated in its Responsiveness Summary that "[f]laring events are not frequent due to the use of this material as a fuel." *Id.*, quoting Responsiveness Summary at 28. Petitioner concludes that, to assure that monitoring requirements are sufficient, IEPA must clearly explain the frequency and duration of flaring events, and must provide additional information to justify the monitoring requirements associated with Condition 7.3.10(a)(i).

EPA Response:

In its Responsiveness Summary, IEPA states that "[r]egular monthly ignition system inspections… would assure that flare system operates properly. Video monitoring of flare is not needed due to established testing provisions of Condition 7.3.8(c)(vi), inspection requirements of Condition 7.3.9 and the recordkeeping requirements of Condition 7.3.11(c)(iv)(D)." Responsiveness Summary at 28. While IEPA addressed why it thought video monitoring is not needed, IEPA's response did not provide an analysis to demonstrate how the annual opacity reading or the monthly ignition system inspections are sufficient to assure compliance with the no visible emission limit or are sufficient to yield reliable data from the relevant time period that is representative of compliance with the permit. IEPA refers to the frequency of flaring events but does not provide any support for this and how it justifies an annual reading. Therefore, I grant the petition on this issue.

D.1. Blast Furnace - Control Equipment

Petitioner's Allegations:

Petitioner alleges that the permit does not include periodic monitoring sufficient to assure compliance with the PM emission limit found in Condition 7.4.3-1(a)(ii)(A) of the permit. Petition at 15. Petitioner asserts that a one-time performance test during the permit term (once every 5 years) does not constitute periodic monitoring. *Id.* Petitioner further asserts that IEPA's

rationale for the monitoring requirements associated with Condition 7.4.3-1(a)(ii)(A) is inadequate. *Id.*

EPA Response:

In its Responsiveness Summary, IEPA states that "the monitoring and testing procedures outlined in Subsection 7.4 of the final CAAPP and the MACT standard are sufficient enough to demonstrate continuous compliance with the applicable emission standards." Responsiveness Summary at 29. IEPA's response recites the monitoring requirements and asserts that they are sufficient. IEPA's response does not provide an analysis to demonstrate how a performance test once every 5 years as required in the USS permit is sufficient to assure compliance with the terms and conditions of the permit, or is sufficient to yield reliable data from the relevant time period that is representative of compliance with the permit in either its Project Summary or its responses to Petitioner's allegations. Therefore, I grant the petition on this issue.

D.2. Blast Furnaces – Opacity

Petitioner's Allegations:

Petitioner alleges that the weekly opacity readings required in the permit are not sufficient to assure compliance with the visible emission limit found in Condition 7.4.3-1(d)(ii) of the permit. Petitioner also states that IEPA's response confuses matters as it refers to once-a-permit-term monitoring based on a MACT standard. Petitioner requests daily or more frequent opacity monitoring, including the use of video monitoring. Petition at 15.

EPA Response:

In addition to Condition 7.4.7-2(b)(i)(C)(1), which requires weekly opacity observations, IEPA refers in its Responsiveness Summary to once-a-permit-term monitoring in Condition 7.4.7-2(a)(ii). "[40 C.F.R. §] 63.7821(c) requires that '…For each emission unit equipped with a baghouse, you must conduct subsequent performance tests no less frequently than once during each term of your title V operating permit.' Therefore, Condition 7.4.7-2(a)(ii) of the final CAAPP correctly identifies frequency of subsequent testing. The IEPA believes that the monitoring and testing procedures outlined in Subsection 7.4 of the final CAAPP and the MACT standard are sufficient enough to demonstrate continuous compliance with the applicable emission standards." Responsiveness Summary at 29. EPA agrees it is unclear what monitoring requirements apply for purposes of the visible emission limit. Moreover, IEPA's response simply recites the monitoring requirements and concludes that they are sufficient. IEPA's response did not provide an analysis to demonstrate how the monitoring requirements in the USS permit are sufficient to assure compliance with the terms and conditions of the permit or are sufficient to yield reliable data from the relevant time period that is representative of compliance with the permit in either its Project Summary or its responses to Petitioner's comments. Therefore, I grant the petition on this issue.

D.3 Blast Furnace - Excess Gas Flare

Petitioner's Allegations:

Petitioner alleges that the annual opacity observations and monthly inspections of the flare ignition system required in the permit are not sufficient to assure compliance with the no visible emission limit found in Condition 7.4.5-4(e) of the permit, which applies on a continuous basis. Petitioner requests daily or more frequent monitoring, including the use of video monitoring. Petition at 15-16.

EPA Response:

In its Responsiveness Summary, IEPA states that "Condition 7.4.7-1 of the final CAAPP establishes monthly inspection requirements of the flare's ignition system. Condition 7.4.7-2(c) of the final CAAPP requires annual observations of a flare by using USEPA Method 22. Video monitoring of flare is not needed due to the inspection and testing requirements referenced above." Responsiveness Summary at 28. IEPA's response simply recites the monitoring requirements, but does not provide an analysis to demonstrate how the monitoring requirements in the USS permit are sufficient to assure compliance with the terms and conditions of the permit, or are sufficient to yield reliable data from the relevant time period that is representative of compliance with the permit in either its Project Summary or its responses to Petitioner's comments. Therefore, I grant the petition on this issue.

D.4 Blast Furnaces – Production and Emission Limits

Petitioner alleges that the permit does not include periodic monitoring sufficient to assure compliance with the emission limits in Conditions 7.4.6(b)-(g) for the blast furnaces and related operations. Petitioner alleges that compliance with these conditions is demonstrated through the use of iron production records and emission factors established in PSD permit 95010001. Petition at 16. Petitioner alleges that neither the title V nor the PSD permit identifies the source of the emission factors. Further, Petitioner asserts that neither the Project Summary nor the Responsiveness Summary provides evidence that the emissions factors are representative of the emissions at the USS facility. *Id.* Petitioner concludes that IEPA must provide additional information about the source of the data used to calculate the emission factors and must clearly explain how the use of the emission factors is sufficient to assure compliance with the associated emission limits. *Id.* at 17. Petitioner makes additional specific allegations for each emission limit in the sections below.

a. Casthouse Baghouse (Furnace Tapping) Captured Emissions

Petitioner's Allegations:

Petitioner alleges that the permit record does not provide a clear rationale for the monitoring requirements for the PM_{10} emission limit found in Condition 7.4.6(b) of the permit as it relies on an emission factor from an unspecified source. *Id.* Petitioner further disagrees with IEPA's explanation that, in addition to the use of emission factors, testing requirements based on federal MACT regulations will be used to assure compliance with the PM_{10} emission limit in Condition 7.4.6(b), stating that the testing requirements are based on federal MACT regulations

which do not apply to this permit condition. *Id.* Petitioner asserts that IEPA must provide additional information to justify this monitoring condition. *Id.*

EPA Response:

In its Responsiveness Summary, IEPA states that "The IEPA believes that the monitoring and testing procedures outlined in Subsection 7.4 of the final CAAPP and the MACT standard are sufficient enough to demonstrate continuous compliance with the applicable emission standards." Responsiveness Summary at 29. IEPA did not provide an analysis to demonstrate how the monitoring requirements in the USS permit are sufficient to assure compliance with the PM_{10} emission limits, or are sufficient to yield reliable data from the relevant time period that is representative of compliance with the permit in either its Project Summary or its response to Petitioner's comments. IEPA's response to Petitioner's comment simply recited the monitoring requirements in the permit and was silent on how the monitoring requirements of the MACT are related to the emissions requirements in the permit.

The record for the USS permitting action does not specify the origin of the emission factors. It is not clear whether the emission factors used by IEPA are indicative of the emissions at USS's facility. IEPA has failed to provide an explanation why use of the emission factors is adequate to assure compliance. With a few exceptions, EPA does not recommend the use of emission factors to develop source-specific permit limits or to determine compliance with permit requirements. *In the Matter of Tesoro Refining and Marketing Co, Martinez, California Facility,* Petition Number IX-2004-6 (March 15, 2005) at 32. I grant the petition on the monitoring issues related to such use of emission factors. IEPA either must justify in the record why these emission factors are representative of USS's operations (i.e., representative to yield reliable data from the relevant time period representative of the sources compliance), and provide sufficient evidence to demonstrate that the emissions will not vary by a degree that would cause an exceedance of the standards, or IEPA must determine and adequately support another mechanism to assure compliance with the applicable emission limits from the underlying construction permit. Furthermore, if IEPA can adequately justify the use of emission factors as a compliance mechanism, it also should require USS to confirm the appropriateness of the emission factors such as through the use of stack testing using EPA-approved methods on a periodic basis, as operations and equipment change or deteriorate over time.

Petitioner's Allegations:

Petitioner alleges that the permit record does not provide a clear rationale for the monitoring requirements for the sulfur dioxide (SO_2) emission limit found in Condition 7.4.6(b) of the permit as it relies on an emission factor from an unspecified source. Petition at 17. Petitioner asserts that IEPA must provide additional information to justify this monitoring condition. *Id.*

EPA Response:

In its Responsiveness Summary, IEPA refers to the monitoring for a different unit, the iron spout baghouse. Responsiveness Summary at 29. The record does not specify the origin of

the emission factors. It is not clear whether the emission factors used by IEPA are indicative of the emissions at USS's facility. IEPA has failed to provide an explanation why use of the emission factors is adequate to assure compliance. Therefore, I grant the petition on this issue.

Petitioner's Allegations:

Petitioner alleges that the permit record does not provide a clear rationale for the monitoring requirements for the nitrogen oxides (NO_x) emission limit found in Condition 7.4.6(b) of the permit as it relies on an emission factor from an unspecified source. Petition at 18. According to Petitioner, IEPA has not provided further information on the "initial testing data" referenced in the Responsiveness Summary, making it difficult to determine whether testing is representative of NO_x emissions from the casthouse baghouse. Petitioner asserts that a margin of compliance is not a sufficient basis for a determination that emissions will not change over the life of the permit. *Id.* Petitioner further claims that IEPA's rationale for the monitoring requirements associated with the NO_x emission limit in Condition 7.4.6(b) is far too general. Petitioner concludes that IEPA must provide additional information to justify this monitoring condition or must revise the permit to require additional periodic monitoring. *Id.*

EPA Response:

In its Responsiveness Summary, IEPA states "The initial testing data indicates the actual level of NOx emissions from casthouse baghouse is almost three times lower than the allowable levels established in this condition. Therefore, application of CEMS is unnecessary. The IEPA believes that the monitoring and testing procedures outlined in Subsection 7.4 of the final CAAPP and the MACT standard are sufficient enough to demonstrate continuous compliance with the applicable emission standards." Responsiveness Summary at 30. EPA agrees that the record does not specify the origin of the emission factors. It is not clear whether the emission factors used by IEPA are indicative of the emissions at USS's facility. IEPA has failed to provide an explanation why use of the emission factors is adequate to assure compliance. Therefore, I grant the petition on this issue. Absent appropriate permit conditions limiting operations and inputs, initial testing data cannot be assumed to reflect the potential for variability in emissions. Operating conditions may change and a margin of compliance alone is not a sufficient safeguard in light of this potential for variability in operations and inputs, and consequently, emissions.

Petitioner's Allegations:

Petitioner alleges that the permit record does not provide a clear rationale for the monitoring requirements for the volatile organic material (VOM) emission limit found in Condition 7.4.6(b) of the permit as it relies on an emission factor from an unspecified source. Petition at 18. According to Petitioner, IEPA has not provided further information on the "initial testing data" referenced, making it difficult to determine whether testing is representative of VOM emissions under maximum operating conditions of the blast furnaces. Petitioner asserts that a margin of compliance alone is not a sufficient basis to determine that emissions will not change over the life of the permit. *Id.* Petitioner concludes that IEPA must provide additional

information to justify this monitoring condition or must revise the permit to require additional periodic monitoring. *Id.* at 18-19.

EPA Response:

In its Responsiveness Summary, IEPA states that "The initial testing data indicates the actual level of VOM emissions from casthouse baghouse is eight times lower than the allowable levels established in this condition. Because of such large margin of compliance, the IEPA does not support suggestions of VOM annual tests." Responsiveness Summary at 30. EPA agrees that the record does not specify the origin of the emission factors. It is not clear whether the emission factors used by IEPA are indicative of the emissions at USS's facility. IEPA has failed to provide an explanation why use of the emission factors is adequate to assure compliance. Therefore, I grant the petition on this issue.

b. Blast Furnace Uncaptured Fugitive Emissions

Petitioner's Allegations:

Petitioner alleges that the permit record does not provide a clear rationale for the monitoring requirements for the SO_2 emission limit found in Condition 7.4.6(c) of the permit as it relies on an emission factor from an unspecified source. Petition at 19. Petitioner asserts that IEPA must provide additional information to justify this monitoring condition. *Id.*

EPA Response:

In its Responsiveness Summary, IEPA states "condition 7.4.7-2(b)(i) of the final CAAPP establishes weekly visual observations of fugitive emissions released from the casthouse and supported by appropriate recordkeeping." Responsiveness Summary at 30. Condition 7.4.7-2(b)(i) of the final CAAPP refers to opacity testing. IEPA's response did not provide an analysis to demonstrate how the opacity monitoring requirements in the USS permit are sufficient to assure compliance with the uncaptured SO_2 emissions, or are sufficient to yield reliable data from the relevant time period that is representative of compliance with the permit in either its Project Summary or its responses to Petitioner's comments. The record also does not specify the origin of the emission factors. It is not clear whether the emission factors used by IEPA are indicative of the emissions at USS's facility. IEPA has failed to provide an explanation why use of the emission factors is adequate to assure compliance. Therefore, I grant the petition on this issue.

Petitioner's Allegations:

Petitioner alleges that the permit record does not provide a clear rationale for the monitoring requirements for the NO_x emission limit found in Condition 7.4.6(c) of the permit as it relies on an emission factor from an unspecified source. Petition at 19. Petitioner asserts that IEPA must provide additional information to justify this monitoring condition. *Id.*

EPA Response:

In its Responsiveness Summary, IEPA states "condition 7.4.7-2(b)(i) of the final CAAPP establishes weekly visual observations of fugitive emissions released from the casthouse and supported by appropriate recordkeeping." Responsiveness Summary at 31. Condition 7.4.7-2(b)(i) of the final CAAPP refers to opacity testing. IEPA's response did not provide an analysis to demonstrate how the opacity monitoring requirements in the USS permit are sufficient to assure compliance with the uncaptured NO_x emissions, or are sufficient to yield reliable data from the relevant time period that is representative of compliance with the permit in either its Project Summary or its responses to Petitioner's comments. The record also does not specify the origin of the emission factors. It is not clear whether the emission factors used by IEPA are indicative of the emissions at USS's facility. IEPA has failed to provide an explanation why use of the emission factors is adequate to assure compliance. Therefore, I grant the petition on this issue.

Petitioner's Allegations:

Petitioner alleges that the permit record does not provide a clear rationale for the monitoring requirements for the VOM emission limit found in Condition 7.4.6(c) of the permit as it relies on an emission factor from an unspecified source. Petition at 19. Petitioner asserts that IEPA must provide additional information to justify this monitoring condition. *Id.*

EPA Response:

In its Responsiveness Summary, IEPA states "condition 7.4.7-2(b)(i) of the final CAAPP establishes weekly visual observations of fugitive emissions released from the casthouse and supported by appropriate recordkeeping." Responsiveness Summary at 31. Condition 7.4.7-2(b)(i) of the final CAAPP refers to opacity testing. IEPA's response did not provide an analysis to demonstrate how the opacity monitoring requirements in the USS permit are sufficient to assure compliance with the uncaptured VOM emissions, or are sufficient to yield reliable data from the relevant time period that is representative of compliance with the permit in either its Project Summary or its responses to Petitioner's comments. The record also does not specify the origin of the emission factors. It is not clear whether the emission factors used by IEPA are indicative of the emissions at USS's facility. IEPA has failed to provide an explanation why use of the emission factors is adequate to assure compliance. Therefore, I grant the petition on this issue.

c. Blast Furnace Charging Emissions

Petitioner's Allegations:

Petitioner alleges that the permit record does not provide a clear rationale for the monitoring requirements for the PM_{10} emission limit found in Condition 7.4.6(d) of the permit as it relies on an emission factor from an unspecified source. Petition at 19. Petitioner asserts that IEPA must provide additional information to justify this monitoring condition. *Id.*

EPA Response:

In its Responsiveness Summary, IEPA states that "Condition 7.4.11(f) of the final CAAPP does require [USS] to keep records of iron pellets charged to Blast Furnace. These records in conjunction with established emission factors are sufficient to establish actual emissions and to meet monitoring requirements pursuant 39.5(7)(d)(ii) of the Act. Also, iron pellet charging does not have individual emission stack and that makes testing impossible." Responsiveness Summary at 32. EPA agrees that IEPA's response did not provide an analysis to demonstrate how the monitoring requirements in the USS permit are sufficient to assure compliance with the terms and conditions of the permit, or are sufficient to yield reliable data from the relevant time period that is representative of compliance with the permit in either its Project Summary or its responses to Petitioner's comments. The record also does not specify the origin of the emission factors. It is not clear whether the emission factors used by IEPA are indicative of the emissions at USS's facility. IEPA has failed to provide an explanation why use of the emission factors is adequate to assure compliance. Therefore, I grant the petition on this issue.

d. Slag Pits Emissions

Petitioner's Allegations:

Petitioner alleges that the permit record does not provide a clear rationale for the monitoring requirements for the PM_{10} emission limit found in Condition 7.4.6(e) of the permit as it relies on an emission factor from an unspecified source. Petition at 20. Petitioner asserts that IEPA must provide additional information to justify this monitoring condition. *Id.*

EPA Response:

In its Responsiveness Summary, IEPA states that "Condition 7.4.11(g) of the final CAAPP does require [USS] to keep records of slag processed. These records in conjunction with established emission factors are sufficient to establish actual emissions and to meet monitoring requirements pursuant 39.5(7)(d)(ii) of the [Illinois Environmental Protection] Act. Also, slag pits do not have emission stack and that makes testing impossible." Responsiveness Summary at 32. EPA agrees that IEPA's response did not provide an analysis to demonstrate how the monitoring requirements in the USS permit are sufficient to assure compliance with the terms and conditions of the permit, or are sufficient to yield reliable data from the relevant time period that is representative of compliance with the permit in either its Project Summary or its responses to Petitioner's comments. The record also does not specify the origin of the emission factors. It is not clear whether the emission factors used by IEPA are indicative of the emissions at USS's facility. IEPA has failed to provide an explanation why use of the emission factors is adequate to assure compliance. Therefore, I grant the petition on this issue.

Petitioner's Allegations:

Petitioner alleges that the permit record does not provide a clear rationale for the monitoring requirements for the SO_2 emission limit found in Condition 7.4.6(e) of the permit as

it relies on an emission factor from an unspecified source. Petition at 20. Petitioner asserts that IEPA must provide additional information to justify this monitoring condition. *Id.*

EPA Response:

In its Responsiveness Summary, IEPA states "condition 7.4.7-2(b)(i) of the final CAAPP establishes weekly visual observations of fugitive emissions released from the casthouse and supported by appropriate recordkeeping." Responsiveness Summary at 31. Condition 7.4.7-2(b)(i) of the final CAAPP refers to opacity testing for the casthouse. Neither IEPA's Project Summary nor its response to Petitioner's comments provided an analysis to demonstrate how the opacity monitoring requirements in the USS permit are sufficient to assure compliance with the uncaptured SO_2 emissions for the slag pits, or are sufficient to yield reliable data from the relevant time period that is representative of compliance with the permit. The record also does not specify the origin of the emission factors. It is not clear whether the emission factors used by IEPA are indicative of the emissions at USS's facility. IEPA has failed to provide an explanation why use of the emission factors is adequate to assure compliance. Therefore, I grant the petition on this issue.

e. Iron Spout Baghouse Captured Emissions

Petitioner's Allegations:

Petitioner alleges that the permit record does not provide a clear rationale for the monitoring requirements for the PM_{10} emission limit found in Condition 7.4.6(f) of the permit as it relies on an emission factor from an unspecified source. Petition at 20. Petitioner also claims that the Responsiveness Summary is confusing regarding this monitoring requirement because it suggests that testing requirements from federal MACT requirements will be used to assure compliance with the PM_{10} emissions limit in Condition 7.4.6(e). *Id.* Petitioner asserts that IEPA must provide additional information to justify this monitoring condition. *Id.*

EPA Response:

In its Responsiveness Summary, IEPA states that the "Condition 7.4.9(a)(ii) of the final CAAPP clearly identifies that each baghouse is equipped with a bag leak detection system. IEPA believes that the monitoring and testing procedures outlined in Subsection 7.4 of the final CAAPP and the MACT standard are sufficient enough to demonstrate continuous compliance with the applicable emission standards." Responsiveness Summary at 32. IEPA did not provide an analysis to demonstrate how the monitoring requirements in the USS permit are sufficient to assure compliance with the PM_{10} emissions limits, or are sufficient to yield reliable data from the relevant time period that is representative of compliance with the permit in either its Project Summary or its response to Petitioner's comments. IEPA's response to Petitioner's comment simply recited the monitoring requirements in the permit and was silent on how the monitoring requirements of the MACT are related to the emissions requirements in the permit.

Further, the permitting record does not specify the origin of the emission factors. It is not clear whether the emission factors used by IEPA are indicative of the emissions at USS's facility.

IEPA has failed to provide an explanation why use of the emission factors is adequate to assure compliance. Therefore, I grant the petition on this issue.

Petitioner's Allegations:

Petitioner alleges that the permit record does not provide a clear rationale for the monitoring requirements for the SO_2 emission limit found in Condition 7.4.6(f) of the permit as it relies on an emission factor from an unspecified source. Petition at 20. Petitioner asserts that IEPA must provide additional information to justify this monitoring condition. *Id.* at 20-21.

EPA Response:

In its Responsiveness Summary, IEPA refers to the monitoring for a different unit, the casthouse baghouse. *See* Responsiveness Summary at 31. IEPA's response did not provide an analysis to demonstrate how the monitoring requirements in the USS permit are sufficient to assure compliance with the terms and conditions of the permit, or are sufficient to yield reliable data from the relevant time period that is representative of compliance with the permit in either its Project Summary or its responses to Petitioner's comments. The record also does not specify the origin of the emission factors. It is not clear whether the emission factors used by IEPA are indicative of the emissions at USS's facility. IEPA has failed to provide an explanation why use of the emission factors is adequate to assure compliance. Therefore, I grant the petition on this issue.

f. Iron Pellet Screen Emissions

Petitioner's Allegations:

Petitioner alleges that the permit record does not provide a clear rationale for the monitoring requirements for the PM_{10} emission limit found in Condition 7.4.6(g) of the permit as it relies on an emission factor from an unspecified source. Petition at 21. Petitioner asserts that IEPA must provide additional information to justify this monitoring condition. *Id.*

EPA Response:

In its Responsiveness Summary, IEPA states that "Condition 7.4.11(h) of the final CAAPP does require [USS] to keep records of iron pellets screened. These records in conjunction with the established emission factors are sufficient to establish actual emissions and to meet monitoring requirements pursuant 39.5(7)(d)(ii) of the Act. Also, pellet screening does not have individual emission stack and that makes testing impossible." Responsiveness Summary at 33. EPA agrees that IEPA's response did not provide an analysis to demonstrate how the monitoring requirements in the USS permit are sufficient to assure compliance with the terms and conditions of the permit, or are sufficient to yield reliable data from the relevant time period that is representative of compliance with the permit in either its Project Summary or its responses to Petitioner's comments. The record also does not specify the origin of the emission factors. It is not clear whether the emission factors used by IEPA are indicative of the emissions

at USS's facility. IEPA has failed to provide an explanation why use of the emission factors is adequate to assure compliance. Therefore, I grant the petition on this issue.

E.1. Basic Oxygen Furnaces (BOF) – Opacity

Petitioner's Allegations:

Petitioner alleges that the permit record does not provide a clear rationale for the frequency of the monitoring requirements for the opacity limit found in Condition 7.5.3-1(c)(iv) of the permit. Condition 7.5.3-1(c)(iv) sets an opacity limit of 20 percent based on 3 minute averages for any secondary emissions that exit any opening in the basic oxygen process furnace (BOPF) shop or any other building housing the BOPF or BOPF shop operation. Condition 7.5.7-2(d) requires weekly opacity observations for uncaptured roof monitor emissions unless a previous observation measures opacity of 20 percent or more. If a previous observation measures opacity of 20 percent or more, daily monitoring is required until five consecutive observations are less than 20 percent. Petition at 21. Petitioner alleges that daily observations using EPA Method 9 are supported by EPA's April 18, 1997, *Region 7 Policy on Periodic Monitoring for Opacity* (Region 7 guidance) for title V permits, and that the permit must be revised to require at least daily opacity observations to assure compliance with the limit. Petitioner asserts that IEPA must provide additional information to justify the monitoring frequency given in the permit.

EPA Response:

In its Responsiveness Summary, IEPA states that "Condition 7.5.7-2(d) of the final CAAPP identifies frequency (weekly and daily) of roof monitor opacity visual observations." Responsiveness Summary at 37. EPA agrees that IEPA's response did not provide an analysis to demonstrate how the frequency of the monitoring requirements in the USS permit is sufficient to assure compliance with the terms and conditions of the permit, or are sufficient to yield reliable data from the relevant time period that is representative of compliance with the permit in either its Project Summary or its responses to Petitioner's comments. Therefore, I grant the petition on this issue. However, I note that the Region 7 guidance, which recommends daily observations for opacity monitoring, provides guidance to permitting authorities, but does not contain any requirements; therefore, IEPA does not have to use the monitoring methods discussed in the Region 7 guidance. Regardless of the monitoring method it includes in the USS permit, IEPA must fully explain the bases for and sufficiency of its choice of monitoring.

Petitioner's Allegations:

Petitioner alleges that the permit lacks periodic monitoring requirements sufficient to assure compliance with the opacity limit found in Condition 7.5.3-1(f) of the permit. Petition at 21. Petitioner asserts that IEPA must provide additional information to justify this monitoring condition. *Id.*

EPA Response:

In its Responsiveness Summary, IEPA states that "MACT presented in Subpart FFFFF does not require visual observation frequencies other than those established in the permit. Condition 7.5.7-1(c)(1) of the final CAAPP identifies frequency (weekly) of opacity readings from BOF shop openings. This is sufficient to yield compliance with Condition7.5.3-1(f)." Responsiveness Summary at 37. IEPA did not provide an analysis to demonstrate how the monitoring requirements in the USS permit are sufficient to assure compliance with the visible emissions limit in 7.5.3-1(f), or are sufficient to yield reliable data from the relevant time period that is representative of compliance with the permit in either its Project Summary or its response to Petitioner's comments. IEPA's response to Petitioner's comment simply recited the monitoring requirements in the permit and was silent on how the monitoring requirements of 40 C.F.R. part 63, subpart FFFFF are related to the emissions requirements in the permit. Therefore, I grant the petition on this issue.

E.2. Basic Oxygen Furnaces – Production and Emission Limits

Petitioner alleges that the permit does not include periodic monitoring sufficient to assure compliance with the emission limits in conditions 7.5.6(c)-(i) for the basic oxygen furnaces and related operations. Petition at 22. Petitioner alleges that compliance with these conditions is demonstrated through the use of steel production records and emission factors established in PSD permit 95010001. *Id.* Petitioner alleges that neither the title V nor the PSD permit identifies the source of the emission factors. Further, Petitioner asserts that neither the Project Summary nor the Responsiveness Summary provides evidence that the emissions factors are representative of the emissions at the USS facility. *Id.* Petitioner concludes that IEPA must provide additional information about the source of the data used to calculate the emission factors and must clearly explain how the use of the emission factors is sufficient to assure compliance with the associated emission limits. *Id.* Petitioner raises specific issues for each emission limit, and they are discussed in the sections below.

a. BOF Electrostatic Precipitator (ESP) Stack Emissions

Petitioner's Allegations:

Petitioner alleges that the permit record does not provide a clear rationale for the monitoring requirements for the NO_x limit found in Condition 7.5.6(c) of the permit. Condition 7.5.6(c) sets a NOx emission limit of 69.63 tpy for the BOF ESP stack. Petitioner alleges that both the Project Summary and the Responsiveness Summary fail to include information necessary to justify the use of the NO_x emission factor to assure compliance with the limit. According to IEPA, the emission factor is based on the testing of NO_x emissions performed by the source. However, IEPA does not provide information on the testing data used to develop the emission factors, other than the fact that testing occurred. *Id.* Petitioner asserts that IEPA must provide additional information to justify these monitoring conditions. *Id.*

EPA Response:

In its Responsiveness Summary, IEPA states that "NO_x emission limits and emission factor had been established in the production increase construction permit 95010001 and based

on the testing of NO_x emissions performed by the source. This data along with the steel production records are sufficient to meet monitoring requirements pursuant 39.5(7)(d)(ii) of the Act." Responsiveness Summary at 33. However, IEPA has not made clear how the emission factors are indicative of the emissions at USS's facility, since it has failed to include in either the Responsiveness Summary or the permit record specific information on the testing of NOx emissions or references to the tests performed. IEPA has failed to explain how the use of the emission factors in conjunction with the production records is adequate to assure compliance. Therefore, I grant the petition on this issue.

Petitioner's Allegations:

Petitioner alleges that the permit record does not provide a clear rationale for the monitoring requirements for the VOM limit found in Condition 7.5.6(c) of the permit. Condition 7.5.6(c) sets a VOM emission limit of 10.74 tpy for the BOF ESP stack. Petitioner alleges that both the Project Summary and the Responsiveness Summary fail to include information necessary to justify the use of the VOM emission factor to assure compliance with the limit. Petition at 22-23. According to IEPA, the emission factor is based on the testing of VOM emissions performed by the source. However, IEPA does not provide information on the testing data used to develop the emission factors, other than the fact that testing occurred. A single stack test cannot reflect the variability in emissions throughout the range of operating conditions of the blast furnaces or the potential for emissions to change over time. Petitioner asserts that IEPA must provide additional information to justify these monitoring conditions. *Id.*

EPA Response:

In its Responsiveness Summary, IEPA states that "VOM emission limits and emission factor had been established in the production increase construction permit 95010001 and based on the testing of VOM emissions performed by the source. This along with the steel production records are sufficient to meet monitoring requirements pursuant 39.5(7)(d)(ii) of the Act. 35 IAC 219.301 regulates organic photochemical reactive materials (mostly solvents) and/or organic materials having odor nuisance. Organic solvents are not used at BOF and no odor problems directly attributed to BOF have been adjudicated or confirmed." Responsiveness Summary at 34. However, IEPA has not made clear in the permitting record how the emission factors are indicative of the emissions at USS's facility, since it has failed to include in either the Responsiveness Summary or the permit record specific information on the testing of NOx emissions or references to the tests performed. IEPA has failed to explain how the use of the emission factors in conjunction with the production records is adequate to assure compliance. Therefore, I grant the petition on this issue.

Petitioner's Allegations:

Petitioner alleges that the permit record does not provide a clear rationale for the monitoring requirements for the carbon monoxide (CO) limit found in Condition 7.5.6(c) of the permit, stating that both the Project Summary and the Responsiveness Summary fail to include information necessary to justify the use of the CO emission factor to assure compliance with the limit. According to IEPA, the emission factor is based on the testing of CO emissions performed

by the source and has a margin of compliance of ten times the actual emissions measured during a stack test. However, IEPA does not provide information on the testing data used to develop the emission factors, other than the fact that testing occurred. Petition at 23. Petitioner asserts that IEPA must provide additional information to justify these monitoring conditions. *Id.*

EPA Response:

In its Responsiveness Summary, IEPA states that "CO emission limit and emission factor had been established in the production increase construction permit 95010001 and based on the testing of CO emissions performed by the source (actual stack test results conducted in October 2006 demonstrate CO emission 10 times lower than established 95010001 permit). All these, along with the steel production records, are sufficient to meet monitoring requirements pursuant 39.5(7)(d)(ii) of the Act." Responsiveness Summary at 34. However, IEPA has not made clear in the permitting record how the emission factors are indicative of the emissions at USS's facility, since it has failed to include in either the Responsiveness Summary or the permit record specific information on the testing of CO emissions or references to the tests performed. IEPA has failed to explain how the use of the emission factors in conjunction with the production records is adequate to assure compliance. In addition, although IEPA states that there is a large margin of compliance (stating actual emissions are ten times lower than the permit limit), there is no information in either the Responsiveness Summary or the permit record which addresses the variability in emissions. Therefore, I grant the petition on this issue.

Petitioner's Allegations:

Petitioner alleges that the permit record does not provide a clear rationale for the monitoring requirements for the lead limit found in Condition 7.5.6(c) of the permit, stating that both the Project Summary and the Responsiveness Summary fail to include information necessary to justify the use of the lead emission factor to assure compliance with the limit. Furthermore, Petitioner is concerned that the emissions limit is much higher than necessary given the emission factor cited by the permit. Petition at 23. Petitioner asserts that IEPA must provide additional information to justify these monitoring conditions. *Id.*

EPA Response:

In its Responsiveness Summary, IEPA states that "The most significant source of lead emissions from BOF shop is a BOF ESP stack (see Condition 7.5.6(c)). The initial testing data indicates the actual level of lead emissions from ESP stack is around 3.5% of the allowable levels established in this condition." Responsiveness Summary at 35. However, IEPA does not make clear in the permitting record how the emission factors are indicative of the emissions at USS's facility or how the use of the emission factors in conjunction with the production records is adequate to assure compliance. IEPA has failed to provide an explanation why use of the emission factors is adequate to assure compliance. Therefore, I grant the petition on this issue.

b. BOF Roof Monitor Emissions

Petitioner's Allegations:

Petitioner alleges that the permit record does not provide a clear rationale for the monitoring requirements for the lead limit found in Condition 7.5.6(d) of the permit as it relies on an emission factor from an unspecified source. Although IEPA responds that there is a generous margin of compliance between actual testing emissions data and the emissions limit given in the permit, Petitioner alleges that IEPA has provided no further information to explain the source of these conservative estimates and how they are sufficient to assure compliance with the limit. Petition at 24. Petitioner asserts that IEPA must provide additional information to justify these monitoring conditions. *Id.*

EPA Response:

In its Responsiveness Summary, IEPA states that its limits are "based on conservative estimates whereas the actual emissions still maintain a generous margin of compliance." Responsiveness Summary at 35. The record does not specify the origin of the emission factors. It is not clear whether the emission factors used by IEPA are indicative of the emissions at USS's facility. IEPA has failed to provide the source of the emission factors and explain how the use of the emission factors in conjunction with production records is adequate to assure compliance. IEPA must also explain in the record how the margin of compliance is adequate, and that variability in emissions will not result in an exceedance of the emission limits. Therefore, I grant the petition on this issue.

c. Desulfurization and Reladling (Hot Metal Transfer) Emissions

Petitioner's Allegations:

Petitioner alleges that the permit record does not provide a clear rationale for the monitoring requirements for the VOM limit found in Condition 7.5.6(e) of the permit, stating that both the Project Summary and the Responsiveness Summary fail to include information necessary to justify the use of the VOM emission factor to assure compliance with the limit. Petition at 24. Petitioner alleges that, although IEPA claims that its emission limit is based on engineering estimates, it does not explain what engineering estimates were used to develop the emission limit and how those estimates are representative of desulfurization and reladling emissions at USS's facility. Petitioner asserts that IEPA must provide additional information to justify these monitoring conditions. *Id.*

EPA Response:

In its Responsiveness Summary, IEPA states that "VOM emission limits and emission factor had been established in the production increase construction permit 95010001 and based on the testing of VOM emissions performed by the source. This along with the steel production records are sufficient to meet monitoring requirements pursuant 39.5(7)(d)(ii) of the Act." Responsiveness Summary at 34. It is not clear whether the emission factors used by IEPA are indicative of the emissions at USS's facility. IEPA has failed to provide the source of the emission factors or engineering estimates and explain how the use of the emission factors in

conjunction with production records is adequate to assure compliance. Therefore, I grant the petition on this issue.

Petitioner's Allegations:

Condition 7.5.6(e) sets a lead emission limit of 0.09 tpy for desulfurization and reladling (hot metal transfer) emissions. Petitioner alleges that IEPA has not provided a clear rationale for the monitoring requirements associated with this limit as it relies on an emission factor from an unspecified source. The Responsiveness Summary states that the limit is "based on conservative estimates where as the actual emissions still maintain a generous margin of compliance."However, Petitioner alleges that IEPA has provided no further information to explain the source of these conservative estimates and how they are sufficient to assure compliance with the limit. Petitioner asserts that IEPA must provide additional information to justify the monitoring requirements associated with this condition. Petition at 24. Petitioner asserts that if IEPA cannot provide sufficient justification, the permit must be revised to require additional periodic monitoring, such as an annual stack test, to assure compliance with the lead limit. *Id.*

EPA Response:

In its Responsiveness Summary, IEPA states that "All other much smaller limits for lead emissions listed by commenter are based on conservative estimates where as the actual emissions still maintain a generous margin of compliance." Responsiveness Summary at 35.

In the case of the USS permit action, the record does not specify the origin of the emission factors. It is not clear whether the emission factors used by IEPA are indicative of the emissions at USS's facility. IEPA has failed to provide the source of the emission factors and an explanation of why the use of the emission factors is adequate to assure compliance. IEPA must also explain in the record how the margin of compliance is adequate, and that variability in emissions will not result in an exceedance of the emission limits. Therefore, I grant the petition on this issue.

d. BOF Additive System Emissions

Petitioner's Allegations:

Petitioner alleges that the permit record does not provide a clear rationale for the monitoring requirements for the PM_{10} limit found in Condition 7.5.6(f) of the permit, stating that both the Project Summary and the Responsiveness Summary fail to include information necessary to justify the use of the emission factor to assure compliance with the limit. Petition at 25. Petitioner asserts that IEPA must provide additional information to justify these monitoring conditions. *Id.*

EPA Response:

In its Responsiveness Summary, IEPA states that "The quantity of PM10 emissions from the BOF Additive system controlled by a hopper baghouse when compared to the BOF primary operations is minor. PM10 emission factors, along with the steel production records, are sufficient to meet monitoring requirements pursuant 39.5(7)(d)(ii) of the Act. Coupled with inspection requirements, the likelihood of exceedance is minimal." Responsiveness Summary at 36. The record does not specify the origin of the emission factors. It is not clear whether the emission factors used by IEPA are indicative of the emissions at USS's facility. IEPA has also failed to explain how the use of the emission factors in conjunction with production records is adequate to assure compliance. Therefore, I grant the petition on this issue.

e. Flux Conveyor, Transfer Pits, and Binfloor Emissions

Petitioner's Allegations:

Petitioner alleges that the permit record does not provide a clear rationale for the monitoring requirements for the PM_{10} limit found in Condition 7.5.6(g) of the permit, stating that both the Project Summary and the Responsiveness Summary fail to include information necessary to justify the use of the emission factor to assure compliance with the limit. Petition at 25. Petitioner asserts that IEPA must provide additional information to justify these monitoring conditions. *Id.*

EPA Response:

In its Responsiveness Summary, IEPA states that "PM10 emission factors, along with the steel production records, are sufficient to meet monitoring requirements pursuant 39.5(7)(d)(ii) of the Act. Coupled with inspection requirements, the likelihood of exceedance is minimal." Responsiveness Summary at 36. The record does not specify the origin of the emission factors. It is not clear whether the emission factors used by IEPA are indicative of the emissions at USS's facility. IEPA has also failed to explain how the use of the emission factors in conjunction with production records is adequate to assure compliance. Therefore, I grant the petition on this issue.

f. Emissions from the Argon Stirring Station and Material Handling Tripper

Petitioner's Allegations:

Petitioner alleges that the permit record does not provide a clear rationale for the monitoring requirements for the PM_{10} limit found in Condition 7.5.6(i) of the permit, stating that both the Project Summary and the Responsiveness Summary fail to include information necessary to justify the use of the emission factor to assure compliance with the limit. Petition at 25. Petitioner asserts that IEPA must provide additional information to justify these monitoring conditions. *Id.*

EPA Response:

In its Responsiveness Summary, IEPA states that "PM10 emission factors, along with the steel production records, are sufficient to meet monitoring requirements pursuant 39.5(7)(d)(ii)

of the Act. Coupled with inspection requirements, the likelihood of exceedance is minimal." Responsiveness Summary at 36. The record does not specify the origin of the emission factors. It is not clear whether the emission factors used by IEPA are indicative of the emissions at USS's facility. IEPA has also failed to explain how the use of the emission factors in conjunction with production records is adequate to assure compliance. Therefore, I grant the petition on this issue.

F.1. Continuous Casting - Opacity

Petitioner's Allegations:

Petitioner alleges that the permit record does not provide a clear rationale for the monitoring requirements for the five percent opacity limit for the continuous caster spray chambers or continuous casting operations set in Condition 7.6.3-1(b)(ii) of the permit. Petition at 25. According to Petitioner, the USS permit requires weekly opacity observations for uncaptured roof monitor emissions, or daily observations if a previous observation measured five percent opacity or more, until five consecutive readings measure less than five percent opacity. *Id.* Petitioner asserts that IEPA has not provided a rationale that demonstrates that this monitoring is "sufficient to yield reliable data from the relevant time period that are representative of the source's compliance with the permit." *Id.* Petitioner concludes that IEPA must revise the permit to require at least daily opacity observations to assure compliance with the opacity limit. *Id.*

EPA Response:

In its Responsiveness Summary, IEPA states that "Changes have been made. Condition 7.6.8-1(c)(i) of the final CAAPP identifies frequency (weekly and daily) of opacity reading from continuous casting operations." Responsiveness Summary at 38. In addition, IEPA refers to previous responses in which it contends that there is no stack in which to install a monitor or to perform a stack test. *Id.* Although IEPA addressed why it believed a continuous opacity monitor is not necessary, IEPA's response did not provide an analysis to demonstrate how the weekly (and potentially daily) opacity observations are adequate to assure compliance with the five percent opacity limit, or are sufficient to yield reliable data from the relevant time period that is representative of compliance with the permit in either its Project Summary or its responses to Petitioner's comments. IEPA refers to the frequency of the opacity readings from continuous casting operations, but does not provide any support for how it justifies the weekly (or daily) readings. Therefore, I grant the petition on this issue.

F.2. Continuous Casting - Production and Emission Limits

Petitioner's Allegations:

Petitioner alleges that the permit does not include periodic monitoring sufficient to assure compliance with the PM_{10} and NO_x emission limits in Conditions 7.6.7(a)-(e) for the continuous casting and related operations. Petitioner alleges that compliance with this condition is demonstrated through the use of steel production records and emission factors established in PSD permit 95010001. Petition at 25. Petitioner alleges that neither the title V nor the PSD

permit identifies the source of the emission factors. Further, Petitioner asserts that neither the Project Summary nor the Responsiveness Summary provides evidence that the emissions factors are representative of the emissions at USS's facility. *Id.* at 25-26. Petitioner concludes that IEPA must provide additional information about the source of the data used to calculate the emission factors and must clearly explain how the use of the emission factors is sufficient to assure compliance with the associated emission limits. *Id.* at 26.

EPA Response:

In its Responsiveness Summary regarding Condition 7.6.7(b), IEPA asserts that "No changes were made. There is no stack for caster molds with which to install a monitor and/or perform a stack test. Emission factors and recordkeeping requirements are sufficient to yield compliance with Condition 7.6.7(b)." For Conditions 7.6.7(a-e), IEPA responds, "No changes were made. Number of operations from above do not have individual stacks and emissions associated with those units are uncaptured and/or not controlled. Emission factors, recordkeeping requirements and opacity reading are sufficient to yield compliance with different emission limits of Condition 7.6.7." Responsiveness Summary at 38.

The permit record does not specify the origin of the emission factors. It is not clear whether the emission factors used by IEPA are indicative of the emissions at USS's facility. IEPA has also failed to explain how the use of the emission factors in conjunction with production records is adequate to assure compliance. Therefore, I grant the petition on this issue.

G.1. Hot Strip Mill - Slab Reheat Furnaces

Petitioner's Allegations:

Petitioner alleges the permit does not include periodic monitoring sufficient to assure compliance with the PM_{10} limit in Condition 7.7.3-1. Petition at 26. The requirement to test once in five years at the time of renewal of the title V permit for compliance with this condition does not constitute period monitoring and is not "sufficient to yield reliable data from the relevant time period that are representative of the source's compliance with the permit." *Id.* Petitioner concludes that, because USS must comply with the PM limit on a continuous basis, the permit must require additional periodic monitoring such as the use of a PM CEMS to assure compliance with the limit. *Id.*

EPA Response:

In its Responsiveness Summary, IEPA states that "Changes have been made. Condition 7.7.8(d) of the final CAAPP establishes frequency of testing PM 10 emissions (once in five years at the time of CAAPP renewal) from slab reheat furnaces. Also, PM CEM's do not measure PM10 directly." Responsiveness Summary at 39. Although IEPA addresses why it believes a CEMS is not necessary, IEPA's response did not provide an analysis to demonstrate how the testing once every five years is adequate to assure compliance with the PM_{10} limit, or is sufficient to yield reliable data from the relevant time period that is representative of compliance with the permit in either its Project Summary or its responses to Petitioner's comments. IEPA

refers to the frequency of the PM_{10} readings from the hot strip mill slab reheat furnace operations, but does not provide any support for this or how it justifies the testing frequency of once every five years. Therefore, I grant the petition on this issue.

Petitioner also suggests that CEMS be considered the means to comply with the periodic monitoring requirements of part 70. Although CEMS may be the preferred type of monitoring in some instances, they are not always necessary to assure compliance with applicable requirements. Section 504(b) of the Act provides that "continuous emissions monitoring need not be required if alternative methods are available that provide sufficiently reliable and timely information for determining compliance." 42 U.S.C. § 7661c(b). *See also, In the Matter of Alliant Energy WPL - Edgewater Generating Station*, Petition Number V -2009-02) (August 17, 2010), at 11.

Petitioner has neither identified an applicable requirement that compels the use of CEMS nor demonstrated that a CEMS is the only monitoring that can assure compliance with the applicable requirements. I am ordering IEPA either to explain how the USS permit provides adequate monitoring or to modify the permit to ensure that it contains monitoring sufficient to assure compliance with the applicable requirements. Therefore, I deny the claim in the petition seeking an order that IEPA must require the use of CEMS in the USS CAAPP permit.

G.2. Hot Strip Mill - Production and Emission Limits

Petitioner's Allegations:

Petitioner asserts that the permit does not include periodic monitoring sufficient to assure compliance with the PM_{10} emission limits found in Condition 7.7.7(b) of the permit. Petition at 26. Petitioner claims that, although Condition 7.7.7(b) requires compliance with a maximum hourly heat input limit, Condition 7.7.10(b) requires only that USS keep a monthly log of fuel usage. *Id.* at 26-27. Petitioner asserts that the permit must contain an hourly fuel usage recordkeeping requirement.

EPA Response:

In its Responsiveness Summary, IEPA states that "Condition 7.7.7(b) of the final CAAPP was revised in order to remove obsolete total heat input of all reheat slab furnaces (1915 million BTU per hour). Current total maximum heat input is 1/3 lower than that limit." Responsiveness Summary at 39. IEPA concedes that the previous limit was obsolete. However, its response did not provide an analysis to demonstrate how the new heat input limit is adequate to assure compliance with the PM_{10} limit, nor explain why the monthly fuel log is sufficient to assure compliance with the permit terms or yield reliable data from the relevant time period that is representative of compliance with the permit in either its Project Summary or its responses to Petitioner's comments. Therefore, I grant the petition on this issue.

H. Finishing Operations

Petitioner's Allegations:

Petitioner claims that the permit does not include periodic monitoring sufficient to assure compliance with the hydrochloride (HCl) limits contained in Condition 7.8.5(a) of the permit. The petitioner states that it is unclear why the USS permit provides for an alternative testing schedule in Condition 7.8.8(a)(iii), which requires HCl performance testing "either annually or according to an alternative schedule that is approved by the applicable permitting authority, but no less frequently than every 2 ½ years or twice per Title V permit term." Petition at 27. Petitioner asserts that, if the permitting authority approved an alternate testing schedule, as allowed by Condition 7.8.8(a)(iii), the public would not know what testing frequency was required. *Id.* Petitioner concludes that the permit must be revised to require HCl performance testing on at least an annual basis. *Id.*

EPA Response:

In its Responsiveness Summary, IEPA states that "Changes have been made. Condition 7.8.8(1) and (b) of the final CAAPP adopts a 2.5 year interval between the tests required by 40 CFR 63.1161 and 63.1162. This schedule is in line with an option established by 63.1162(a)(1). The IEPA retains the rights to request more frequent tests, if needed." Responsiveness Summary at 39. Although IEPA refers to the underlying applicable requirement option, it did not provide an analysis to demonstrate how the new time interval is adequate to assure compliance with the HCl limit, nor explain why the monitoring is sufficient to yield reliable data from the relevant time period that is representative of compliance with the permit in either its Project Summary or its responses to Petitioner's comments. Therefore, I grant the petition on this issue.

I.1. Boilers - PM_{10} Emission Limit

Petitioner's Allegation:

Petitioner claims the permit does not include periodic monitoring sufficient to assure compliance with the PM_{10} emission limit for the boilers in Condition 7.10.3(b)(ii). Petition at 27. Petitioner states that the emission limit must be met on a continuous basis but that the permit only requires performance testing once every five years. Petitioner argues this one-time test does not constitute periodic monitoring and is not sufficient to assure compliance. Petitioner argues the permit must be revised to require additional periodic monitoring, such as the use of a PM CEMS. *Id.*

EPA Response:

In its Responsiveness Summary, IEPA states: "This regulation [40 C.F.R. § 63.1162] will never become applicable because the boilers are only allowed to burn gaseous fuels .... This was done to limit the requirements associated with case-by-case determination." IEPA's response did not provide an analysis demonstrating how performance testing once every five years is sufficient to assure compliance with a limit that applies on a continuous basis. IEPA also states that the boilers will only be allowed to burn gaseous fuels. The intent of this sentence is unclear. It appears IEPA is asserting that burning of gaseous fuels only will result in PM_{10} emissions that are below the limit, but IEPA has not provided any support for such a conclusion. It is also unclear why IEPA believes 40 C.F.R. § 63.1162 is not applicable if the boilers are limited to burning gaseous fuel. Therefore, I grant the petition on this issue.

Petitioner also concludes that CEMS be considered the means to comply with the periodic monitoring requirements of part 70. Although CEMS may be the preferred type of monitoring in some instances, they are not always necessary to assure compliance with applicable requirements. Section 504(b) of the Act, 42 U.S.C. § 7661c(b), provides that "continuous emissions monitoring need not be required if alternative methods are available that provide sufficiently reliable and timely information for determining compliance." 42 U.S.C. § 7661c(b). *See also, In the Matter of Alliant Energy WPL - Edgewater Generating Station*, Petition Number V -2009-02 at 11 (August 17, 2010). Petitioner has neither identified an applicable requirement that compels the use of CEMS nor demonstrated that a CEM is the only monitoring method that can assure compliance with the applicable requirements. I am ordering IEPA either to explain how the USS permit provides adequate monitoring or to modify the permit to ensure that it contains monitoring sufficient to assure compliance with the applicable requirements. Therefore, I deny the claim in the petition seeking an order that IEPA must require the use of CEMS in the USS CAAPP permit.

I.2 Boilers - CO Emission Limit

Petitioner's Allegation:

Petitioner claims the permit lacks periodic monitoring sufficient to assure compliance with the CO emission limit for the affected boilers in Condition 7.10.3(e). Petition at 27. Petitioner claims IEPA has not provided a clear rationale supporting the monitoring requirements associated with the limit. *Id.*

EPA Response:

In its Responsiveness Summary, IEPA refers to a "case-by-case determination permit that requires a CO CEMS and some testing as well." Responsiveness Summary at 40. The permit to which IEPA refers is a permit which it is preparing pursuant to section112(g) of the Act, 42 U.S.C. § 7412(g). However, IEPA has yet to issue this permit; therefore, the terms of the permit are not effective. It does not appear that IEPA has included any of the terms of this draft section 112(g) permit in the CAAPP permit. I grant the petition on this issue. IEPA must explain what monitoring is required by the CAAPP permit, and how the monitoring required by the permit is sufficient to assure compliance with the permit condition or yields reliable data from the relevant time period that are representative of the source's compliance with the permit.

J. Internal Combustion Engines

Petitioner's Allegation:

Petitioner claims that the permit requires USS to demonstrate compliance with Condition 7.11.7(b) for PM, CO, NO_x, and SO_2 emission limits for the emergency generator through the use of emergency generator operation records and emission factors identified in the permit. Petition at 28. Petitioner notes the USS permit indicates the emission factors were established in permit 000600003, but that neither of the permits, nor the Responsiveness Summary, identifies the source of the emission factors. Petitioner argues that the use of emission factors from unknown sources cannot be assumed to assure compliance with emission limits. Petitioner asserts that IEPA must provide additional information to justify the monitoring requirements. *Id.*

EPA Response:

In its Responsiveness Summary, IEPA states that the permit "requires a stack testing of emergency generator if the total operation exceeds 500 hr/yr .... Under normal/actual operation scenario, this emergency generator is used only several hours per day." Responsiveness Summary at 41. IEPA failed to address Petitioner's comment that the limits in permit 000600003, and compliance with those limits, were based on emission factors of unknown origin. IEPA has also not explained how the monitoring requirements in the permit are sufficient to assure compliance with the limits. Although IEPA stated in its response that stack testing is required if operation exceeds 500 hours in a year, it is not clear how this testing is sufficient to assure compliance with the limits. Condition 7.11.7(a) limits the operation of the emergency generator to 500 hours per year. Therefore, the stack testing to which IEPA refers is only applicable if the source exceeds its operational limit. I grant on this issue and order IEPA to provide an adequate explanation of whether the monitoring in the permit, including the use of emission factors, is sufficient to assure compliance with the CO emission limit.

K. Gasoline Storage and Dispensing

Petitioner's Allegation:

Petitioner claims that the permit fails to include adequate periodic monitoring to assure compliance with the hourly discharge limit on organic material into the atmosphere in Condition 7.12.3(b)(ii). Petition at 28. Petitioner argues that IEPA has failed to adequately justify how the use of the TANKS program and monthly throughput information is sufficient to assure compliance with an hourly discharge limit. *Id.* Petitioner further asserts that monthly gasoline throughput records do not appear to constitute "reliable data from the relevant time period that are representative of the source's compliance with the permit." *Id.* Petitioner concludes that IEPA must provide additional information to justify the monitoring requirements associated with this condition. *Id.*

EPA Response:

In its Responsiveness Summary, IEPA stated that no changes were made because "compliance . . . is achieved by using TANKS program and monthly gasoline throughput, considering that station [is] in service for 24 hours/day. Recordkeeping requirements of Condition 7.12.9 and compliance procedures of Condition 7.12.12 are sufficient to meet monitoring requirements." IEPA's response merely restates the monitoring requirements in the permit, but does not provide an analysis to demonstrate how the TANKS program and information on monthly gasoline throughput is adequate to assure compliance with the hourly discharge limit, or why these requirements are sufficient to yield reliable data from the relevant time period that is representative of compliance with the permit in either its Project Summary or its responses to Petitioner's comments. Therefore, I grant the petition on this issue.

III. The Permit Lacks Compliance Schedules to Remedy All Current Violations

Petitioner's Allegations:

Petitioner raises two issues with regards to compliance schedules, alleging that a) the permit forgoes a required enforceable compliance schedule in favor of an unacceptable "under review" compliance provision, and b) there are 21 additional instances of current noncompliance given by two notices of violations (NOVs), one given in January 2009 and the other in March 2009. Petition at 28. These are discussed in more detail below.

A. Compliance Schedule

Petitioner's Allegations:

Petitioner states that IEPA and USS entered into a consent order in December 2007 that required USS to submit to IEPA a detailed compliance schedule regarding air pollution violations for basic oxygen furnace operations by March 31, 2008, and to implement the schedule by June 30, 2008. Petition at 29, citing Consent Order 05-CH-750, *Illinois ex. rel. Lisa Madigan v. U.S. Steel Corporation, Inc.*, Dec. 18, 2007, Circuit Court, Third Judicial Circuit, Madison County, Illinois. Petitioner alleges that the permit and Responsiveness Summary show that USS had not submitted an approvable schedule at the time of permit issuance. *Id.* Petitioner claims that by issuing a final permit without making an approved compliance schedule available for review, IEPA deprived the public of an opportunity to comment on a critical aspect of the permit. *Id.* at 29-30.

EPA Response:

EPA believes that, because consent decrees (CD) reflect the conclusion of a judicial or administrative process resulting from the enforcement of "applicable requirements" under the Act, all CAA-related requirements in such CDs are appropriately treated as "applicable requirements" and must be included in title V permits, regardless of whether the applicability issues have been resolved in the CD. This view is consistent with: (1) EPA's part 70 regulations, (*see, e.g.*, 40 C.F.R. § 70.5(c)(8) (compliance schedules "shall resemble and be at least as stringent as that contained in any judicial consent decree or administrative order to which the source is subject")); (2) statements EPA made at the time these regulations were issued, (*see, e.g.*, 57 Fed. Reg. 32250, 32255 (July 21, 1992) (preamble to the 1992 final part 70 rule) ("[s]ources seeking to obtain or renew a part 70 permit cannot be shielded from enforcement actions alleging violations of any applicable requirements (including orders and consent decrees) that occurred before, or at the time of, permit issuance.")); and (3) EPA's practice implementing title V. *See, e.g., In the Matter of East Kentucky Power Cooperative, Inc. Hugh L. Spurlock Generating Station Maysville, Kentucky*, Petition IV-2006-4 (August 30, 2007), at 17 ("should the proposed consent decree be entered by the court in the related enforcement action, [the State and the source] would need to appropriately respond by incorporating the compliance schedule(s) required by the consent decree into the permit."); *In the Matter of Dynergy Northeast Energy Generation*, Petition No. II-2001- 06, at 29-30 ("conditions from [a] 1987 Consent Decree are applicable requirements that must be included in [the source's] title V permit."); *see also Sierra Club v. EPA*, 557 F.3d 401, 411 (6th Cir. 2008) (noting EPA's view that, once a CD is final, it will be incorporated into the source's title V permit). *See also* EPA's discussion in the *CITGO* at 12-13.

EPA's regulations at 40 C.F.R. § 70.6(c)(3) require that title V permits contain "[a] schedule of compliance consistent with [section] 70.5(c)(8)." In turn, section 70.5(c)(8) requires, among other things, that compliance schedules "shall resemble and be at least as stringent as that contained in any judicial consent decree or administrative order to which the source is subject." 40 C.F .R. § 70.5(c)(8)(iii)(C). *CITGO* at 12-13.

In response to this issue, IEPA noted that USS had submitted a revised compliance schedule under the consent order in July 2009 and that this revised document was under review. The terms of the consent order, however, are applicable requirements that are not reflected in the permit. The consent order required USS to implement the terms of the compliance schedule by June 30, 2008. As IEPA explained, though, the compliance schedule was still under review at the time of permit issuance. If a source is not in compliance with an applicable requirement at the time of permit issuance, EPA's regulations require that a title V permit contain a "schedule of compliance consistent with [40 C.F.R.] § 70.5(c)(8)." See 40 C.F.R. § 70.6(c)(3). This schedule of compliance must include "an enforceable sequence of actions with milestones, leading to compliance." See 40 C.F.R. § 70.5(c)(8)(iii)(C). *CITGO* at 12-13. EPA therefore grants the petition on this issue and directs IEPA to issue a permit that assures compliance with the December 18, 2007, consent order.

B. Notices of Violation

Petitioner's Allegations:

Petitioner further references two NOVs issued to USS by IEPA in January and March 2009 after IEPA issued the draft CAAPP permit and Project Summary. *Id.* at 30. Petitioner concludes that, given these allegations of violations, "it is vital that USEPA require IEPA to develop approved, enforceable schedules of remedial measures with milestones leading to compliance...." *Id.*

EPA Response:

The issuance of an NOV, and reference to information contained therein, are generally not, by themselves, sufficient to satisfy the demonstration requirement under section 505(b)(2) of the Act, 42 U.S.C. § 7661d(b)(2). *See, generally, In the Matter of Georgia Power Company, Bowen Steam - Electric Generating Plant, et al,* (January 8, 2007 at 5-9); *In the Matter of East Kentucky Power Cooperative, Inc., Hugh L. Spurlock Generating Station,* Petition No. IV-2006-4 (August 30. 2007) at 13-18. Section 113(a)(1) of the Act, 42 U.S.C. § 7413(a)(1), provides that, "[w]henever, on the basis of any information available to the Administrator, the Administrator finds that any person has violated or is in violation of any requirement or prohibition of an applicable implementation plan or permit, the Administrator shall [issue an NOV]." An NOV is simply one early step in EPA's process of determining whether a violation has, in fact, occurred. This step is commonly followed by additional investigation or discovery, information gathering, and an exchange of views, all of which occur in the context of an enforcement proceeding, and are important means of fact-finding under our system of civil litigation. An NOV is not a final agency action and is not subject to judicial review. It is well recognized that no binding legal consequences flow from an NOV, and an NOV does not have the force or effect of law. *See PacifiCorp* v. *Thomas,* 883 F.2d 661 (9th Cir. 1988); *Absetec*

Constr. Servs. v. EPA, 849 F.2d 765, 768-69 (2nd Cir. 1988); *Union Elec. Co.* v. *EPA*, 593 F.2d 299, 304-06 (8th Cir. 1979); and *West Penn Power Co.* v. *Train*, 522 F.2d 302, 310-11 (3rd Cir. 1975). *See also, Sierra Club* v. *Johnson*, 541 F.3d at 1267; *Sierra Club* v. *EPA*, 557 F.3d at 406-409.

EPA may consider the issuance of an NOV or filing of a complaint as a relevant factor when determining whether the overall information presented by a petitioner - in light of all the factors that may be relevant - demonstrates the applicability or violation of a requirement for title V purposes. Other factors that may be relevant in this determination include the quality of the information; whether the underlying facts are disputable; the types of defenses available to the source; and the nature of any disputed legal questions, all of which EPA would consider within the constraints of the title V process. See *Sierra Club v. EPA*, 557 F.3d at 406-07. If in any particular case these factors are relevant and the petitioner does not present information concerning them, then EPA may find that the petitioner has failed to present sufficient information to demonstrate that a requirement is applicable or has been violated.

Another factor EPA considers is that the Act's enforcement and permitting authorities are complementary and it is reasonable to give full effect to both. See, e.g., *Sierra Club v. EPA*. 557 F.3d at 405-412 (discussing several aspects of the relationship between the enforcement and permitting authorities and processes). The Act provides EPA relatively short time periods in which to review title V permits. Under section 505(b)(1), EPA has only 45 days to review a proposed permit and determine if an objection is necessary. Similarly, under section 505(b)(2), EPA has only 60 days to review a petition seeking an objection and to determine if a petitioner has demonstrated the permit does not comply with the requirements of the Act. Congress deliberately established these short timeframes consistent with its intent that title V permitting be streamlined. The permit process may not allow EPA to fully investigate and analyze contested allegations. In contrast, the Act provides EPA with broad enforcement authority and several tools to resolve issues of compliance. For example, section 114 of the Act authorizes EPA to issue administrative information requests. And the enforcement process can involve significant information gathering through discovery, expert testimony, hearing, and the like.

In evaluating the nature of demonstration burden under section 505(b)(2) of the Act, EPA also considers the potential impact enforcement cases and title V decisions have on one another as illustrated by the following example. EPA could bring a civil judicial enforcement action for violations by a source of an applicable requirement or permit condition. The source and EPA could then be engaged in litigation over the merits of the allegations in EPA's complaint. Should EPA prevail in that enforcement proceeding, or should the source and EPA propose to settle their difference, then the court would enter judgment in the form of an order or consent decree requiring that the source achieve compliance, either pursuant to the terms of a compliance order, or, at a minimum, by a certain date. Separately, in the context of the issuance of a title V permit to the same source, the permitting authority may determine (on its own or as a result of an EPA objection) that the source is not in compliance with the applicable requirement or permit condition that is the subject of the enforcement proceeding, and require in the title V permit that the source achieve compliance pursuant to a schedule of compliance. Under such circumstances the source could challenge the permit, petition EPA for relief, and appeal to the appropriate circuit court. The source and EPA could then find themselves in two separate for a litigating essentially the same issue -- whether an applicable requirement or permit condition was violated

and the appropriateness of a compliance schedule -- which risks potentially different and conflicting results.

Considering all these factors, EPA determines that the petition has failed to demonstrate that a compliance schedule is necessary. Petitioner here has only cited to unresolved NOVs issued to USS and has not provided any further information seeking to demonstrate noncompliance. The petition is denied on this issue.

IV. The Permit Unlawfully Exempts Emissions During Startup, Shutdown, and Malfunction

A. Exemptions from MACT Standards During Periods of Startup, Shutdown and Malfunctions Based on EPA's General Duty Standard Are Invalid

Petitioner's Allegations:

Petitioner claims that numerous provisions in the permit unlawfully exempt USS from otherwise-applicable MACT standards during periods of SSM. Petitioner cites to a December 2008 decision by the District of Columbia Court of Appeals, *Sierra Club v. EPA*, 551 F.3d 1019 (D.C. Cir. 2008), which vacated specific regulations at 40 C.F.R. § 63.6(f)(1) and (h)(1) that had exempted sources from complying with otherwise-applicable MACT standards. Petitioner argues that the logic of the Court's opinion applies equally to all exemptions from MACT limits during periods of SSM, and is not limited to the specific regulations challenged. Petitioner also cites to a July 22, 2009, letter from Adam Kushner, the director of EPA's Office of Civil Enforcement ("Kushner letter"). Petitioner argues that the Kushner letter supports its broader view of the *Sierra Club* decision, noting that the letter states: "EPA recognizes that the legality of such source category-specific provisions [i.e., an exemption during periods of SSM] may now be called into question." Petition at 31.

Furthermore, Petitioner claims that nine permit terms[6] illegally allow for broad exemptions from permit requirements during periods of SSM and IEPA's response to comments falls short of adequately explaining why these SSM exemptions are legally or factually justified pursuant to 40 C.F.R. § 70.7(a)(5). *Id.* at 32-33.

EPA Response:

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[6] Petitioner refers to the following permit terms:
Condition 7.2.5-4 - coke oven batteries shutdown and malfunction;
Condition 7.3.5 - by-product recovery plant shutdown and malfunction;
Condition 7.4.5-2.b.i - blast furnace process shutdown and malfunction;
Condition 7.4.5-2.c - blast furnace process startup;
Condition 7.5.5-2.b - basic oxygen furnace shutdown and malfunction;
Condition 7.6.5.a - continuous casting operations shutdown and malfunction;
Condition 7.7.5 - slab reheat furnaces startup;
Condition 7.10.3.g - boilers startup; and
Condition 7.10.3.h.i - boilers shutdown and malfunction.

As Petitioner summarizes, in the *Sierra Club* decision, the D.C. Circuit vacated the SSM exemption contained in 40 C.F.R. § 63.6(f)(1) and (h)(1), which were two provisions of EPA's general provisions regarding MACT standards. When incorporated into MACT regulations for specific source categories, these two provisions exempted sources from the requirements to comply with otherwise-applicable MACT standards during periods of SSM. Following the vacatur of 40 C.F.R. § 63.6(f)(1) and (h)(1), sources (nor permitting authorities) could not rely on these provisions as a basis for an exemption during periods of SSM.

As an initial response to this issue, IEPA noted that the mandate in the case (making the decision effective) had not yet been issued and that it was not making any changes to the permit. EPA finds the state's response to be reasonable. EPA agrees that 40 C.F.R. § 63.6(f)(1) and (h)(1) remained in effect until the D.C. Circuit issued the mandate in *Sierra Club*. See Kushner letter at 2. The mandate did not issue until October 16, 2009, and the USS permit was issued on September 3, 2009. Therefore at the time IEPA issued the USS permit, 40 C.F.R. §63.6(f)(1) and (h)(1) were in effect. It was reasonable for IEPA not to take action in response to the court's decision since the mandate had not been issued at the time of permit issuance. Therefore, Petitioner's claim is denied.

However, since the mandate has now been issued, EPA will address the substance of Petitioner's claim. The vacatur of 40 C.F.R. § 63.6(f)(1) and (h)(1) affected only those MACT standards that incorporated those provisions by reference and contained no other regulatory text excusing compliance during SSM events. The Kushner memo contains tables that provided EPA's initial analysis on whether or not specific MACT standards would be affected by the vacatur. In response to Petitioner's comment, it appears IEPA did review specific MACT standards and the tables in the Kushner letter in addressing the permit conditions identified by Petitioner. IEPA determined that only one of the conditions in question would be affected by the mandate. IEPA found that the SSM exemption in 40 C.F.R. part 63, subpart CCC (Steel Pickling) would be affected once the mandate issued. EPA has reviewed the permit conditions raised by Petitioner and concurs with IEPA that 40 C.F.R. part 63, subpart CCC is the only MACT standard to which USS is subject that has been affected following the issuance of the mandate. EPA has granted other issues in the Petition and ordered IEPA to address them. In that process, EPA recommends that IEPA reopen the USS permit and clarify that the SSM exemption is not available under 40 C.F.R. part 63, subpart CCC.

Finally, EPA disagrees with Petitioner's suggestion that the *Sierra Club* decision applies equally to all SSM exemptions in MACT standards. The D.C. Circuit had before it only the specific language of 40 C.F.R. § 63.6(f)(1) and (h)(1), and the decision is limited to those provisions. Thus, only those MACT standards that relied exclusively on 40 C.F.R. § 63.6(f)(1) and (h)(1) to exempt sources from MACT standards during periods of SSM are affected by the vacatur. While EPA acknowledged in the Kushner letter that the legality of SSM exemption provisions had been called into question, EPA continues to believe that SSM exemptions that are not based on 40 C.F.R. § 63.6(f)(1) and (h)(1) remain in effect until they are changed. EPA is in the process of evaluating SSM exemptions in MACT standards on a case-by-case basis and is addressing emissions during period of SSM in each standard.

B. Exemptions During Periods of Startup, Shutdown and Malfunctions Based on State Law Are Also Invalid

Petitioner's Allegations:

Petitioner claims that nine permit terms[7] illegally allow for broad exemptions from permit requirements during periods of SSM and IEPA's response to comments falls short of adequately explaining why these SSM exemptions are legally or factually justified pursuant to 40 C.F.R. §70.7(a)(5). Petition at 32-33.

EPA Response:

The Illinois SIP provision at 35 IAC § 201.262 provides that a permitting authority shall not authorize a permittee to operate in violation of emission limits and standards during startups unless the permittee has affirmatively demonstrated that it has made all reasonable efforts to, among others, minimize excess emissions. The USS permit contains a determination that the source already has made a demonstration that it has made all reasonable efforts to minimize startup emissions, duration of startups and frequency of startups. However, neither the permit nor the permit record (e.g., a statement of basis) provide any information about, or explanation of, how IEPA determined in advance that the permittee met its burden of affirmatively demonstrating that it had complied with the affirmative defense requirements of the permit. EPA is granting the petition and requiring IEPA to explain how it determined in advance that the permittee had met the requirements of the Illinois SIP at 35 IAC § 201.262, or otherwise make appropriate changes to the permit and explain how the permit ensures compliance with the requirement of the SIP. *See In the Matter of Midwest Generation LLC - Joliet Generating Station (Joliet),* Petition Number V-2004-3 (June 24, 2005), at 15.

The Illinois SIP provision at 35 IAC § 201.262 also provides that a permitting authority shall not authorize a permittee to operate in violation of emission limits and standards during malfunctions or breakdowns unless the permittee has submitted proof that continued operation is required to provide essential service, or to prevent risk of injury to personnel or severe damage to equipment. To authorize continued operation of units in violation of applicable standards, IEPA must have received proof that such operation is necessary to provide essential services, or to prevent injury to personnel or severe damage to equipment. The specific proof required in each instance usually will depend on the nature and the cause of the malfunction or breakdown. Thus, a determination that the permittee has met the requirements of 35 IAC § 201.262 to authorize continued operations during malfunction or breakdowns is a case-by-case determination. EPA therefore is granting the petition and requiring IEPA either to explain in the statement of basis how it determined in advance that the permittee had met the requirements of the Illinois SIP at 35 IAC § 201.262, or to specify in the permit that continued operation during malfunction or

[7] Petitioner refers to the following permit terms:
Condition 7.2.5-4 - coke oven batteries shutdown and malfunction;
Condition 7.3.5 - by-product recovery plant shutdown and malfunction;
Condition 7.4.5-2.b.i - blast furnace process shutdown and malfunction;
Condition 7.4.5-2.c - blast furnace process startup;
Condition 7.5.5-2.b - basic oxygen furnace shutdown and malfunction;
Condition 7.6.5.a - continuous casting operations shutdown and malfunction;
Condition 7.7.5 - slab reheat furnaces startup;
Condition 7.10.3.g - boilers startup; and
Condition 7.10.3.h.i - boilers shutdown and malfunction.

breakdown will be authorized on a case-by-case basis if the source meets the SIP criteria. *See Joliet* at 16.

V. The Permit Fails to Include Compliance Assurance Monitoring Requirements

Petitioner's Allegations:

Petitioner claims that the compliance assurance monitoring (CAM) rule requirements found at 40 C.F.R. part 64 apply to USS because USS filed an initial CAAPP application after April 20, 1998. Petition at 33. Petitioner disputes IEPA's statement in the Project Summary that USS submitted its initial CAAPP application prior to April 1998. *Id.* Petitioner claims that National Steel Corporation[8] submitted a CAAPP application for the Granite City Works in March 1996, and IEPA deemed the application complete in May 1996. However, according to Petitioner, IEPA never acted on the May 1996 application. *Id.* Petitioner asserts that, pursuant to the Illinois CAAPP statute, IEPA's failure to act on the 1996 complete permit application within 18 months constituted final agency action on that application. *Id.* Petitioner further alleges that, because IEPA did not act on the 1996 application within the required 18 months of submission, the application cannot be considered the application for the draft USS CAAPP permit that IEPA made available for public comment in 2008. *Id.* at 34. Petitioner notes that, in May 2007, more than 9 years after the trigger date for CAM inclusion, USS submitted a CAAPP permit application to IEPA, which USS designated as the "initial application." *Id.* Petitioner claims that there are substantial differences between the 1996 and 2007 applications and highlights the 11 years between the two application submissions. *Id.* Petitioner asserts that, had IEPA issued a CAAPP permit with a five-year term in response to the 1996 application in a timely manner, USS would have submitted an application for a renewal permit in 2001, 3 years after the date the CAM rules were triggered. *Id.* Finally, Petitioner alleges that IEPA did not adequately respond to its comments on this issue. *Id.* According to Petitioner, IEPA stated in its Responsiveness Summary that the 1996 application "with a number of updates" was "the only one considered" in issuing the permit at issue. *Id.*, quoting Responsiveness Summary at 43, comment 70. Petitioner notes that IEPA further stated in the Responsiveness Summary that "most of the sources that would be subject to CAM are already covered by a MACT standard and therefore CAM would not be applicable...." *Id.* Petitioner asserts that this is untrue, citing to a number of conditions in the permit[9] that, it claims, are subject to CAM. *Id.* at 34-35.

EPA Response:

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[8] USS purchased National Steel Corporation, which was in bankruptcy, in May 2003.

[9] Petitioner refers to the following terms:
Condition 7.3.4.c - coke by-product recovery plant;
Condition 7.6.4.e - continuous casting;
Condition 7.7.4.e - slab reheat furnaces;
Condition 7.8.4.e - finishing operations;
Condition 7.9.4.e - wastewater treatment plant;
Condition 7.10.4.c – boilers; and
Condition 7.11.4.b – engines.

In general, the CAM rules require a title V applicant to submit as part of its application monitoring provisions that satisfy the requirements of 40 C.F.R. § 64.3, which the permitting authority places into the title V permit to assure compliance with applicable requirements. *See* 40 C.F.R. §§ 64.4 and 64.6. CAM applies to initial title V permits if, by April 20, 1998, the application was not yet filed or the permitting authority had not yet determined that the application was complete; if the permit has significant permit revisions; or if there are renewals of existing permits. 40 C.F.R. § 64.5(a).

National Steel submitted an initial title V permit application to IEPA in 1996. IEPA found the application complete and made a draft permit available for public comment, but did not issue a final permit. On May 29, 2007, several years after it had purchased National Steel, USS submitted an application that indicated on the cover page that it was an application for an initial title V permit, but that included only information necessary for IEPA to include conditions from the MACTs to which the Granite City Works had become subject since 1996. IEPA treated the 2007 application as an amendment to the 1996 application, and, therefore, did not do a completeness determination.

Petitioner has not demonstrated that the CAM requirements applied to the USS permit at the time it was issued. The length of time that elapses between the submission of a title V application and permit issuance is not relevant in regards to whether or not CAM applies. 40 C.F.R. § 64.5 requires CAM for sources that, among other things, apply for an initial title V permit after April 20, 1998. USS, as National Steel, applied for an initial title V permit in May of 1996, well before the CAM applicability deadline. USS had an obligation to update its permit application before IEPA noticed the draft title V permit for public comment on October 15, 2008. *See* 40 C.F.R. § 70.5(b). USS updated its application in 2007 with information on MACT requirements. However, the fact that a source becomes subject to a MACT standard does not, by itself, trigger CAM applicability. *See* 40 C.F. R. § 64.2(b)(i). Petitioner has not demonstrated that USS met any of the criteria that trigger CAM applicability.

Petitioner also suggests that 415 ILCS 5/39.5-5(j) prohibits IEPA from acting on a permit application if it has not done so within 18 months of the completeness determination. EPA disagrees with Petitioner's interpretation of the SIP language. 415 ILCS 5/39.5-5(j) provides that

> [IEPA] shall issue or deny the CAAPP permit within 18 months after the date of receipt of the complete CAAPP application..... Where the Agency does not take final action on the permit within the required time period the permit shall not be deemed issued; rather the failure to act shall be treated as a final permit action.

EPA reads this language to say that IEPA can be sued to take action on the languishing permit application, not that the permit is denied because 18 months has elapsed. This is consistent with section 502(b)(7) of the Act, which is intended to ensure against unreasonable delay by permitting authorities. Under section 502(b)(7) of the Act, state programs must provide that a failure to act on a permit application (whether initial or renewal) by the stated deadlines "shall be treated as a final permit action solely for purposes of obtaining judicial review . . . to require that

action be taken by the permitting authority." EPA reads 415 ILCS 5/39.5-5(j) as implementing section 502(b)(7) of the Act.

Given the reasons cited above, I deny the petition on this issue. Petitioner has not demonstrated that CAM applied to USS for the purposes of this permit.[10]

VI. Numerous Permit Provisions Lack Practical Enforceability

Petitioner claims that numerous permit provisions lack practical enforceability. Petition at 35. Petitioner asserts that a title V permit must be sufficiently clear and specific to ensure that all applicable requirements contained therein are enforceable as a practical matter. According to Petitioner, to achieve practical enforceability, a title V permit must accurately describe operational requirements and limitations on emissions for a facility, including any alternative processes that the permitting state has selected. *Id.*, citing 40 C.F.R. § 70.6(a)(1)(iii) and (a)(3). Petitioner alleges that many provisions of the permit lack one or more of the conditions necessary for practical enforceability and must be revised. *Id.*

A. The Permit Fails to Appropriately Incorporate Plans by Reference

Petitioner's Allegations:

Petitioner claims that the CAAPP permit does not sufficiently identify the plans or portions of plans that are incorporated into the USS title V permit by reference. *Id.* at 36. Petitioner asserts that IEPA must incorporate clearly and on the face of the permit, rather than in the Responsiveness Summary, the following plans:

1. fugitive particulate matter operating plan;
2. PM10 contingency measure plan;
3. episode action plan;
4. soaking plan; and
5. work practice plan. *Id.* at 36-37.

EPA Response:

In its Responsiveness Summary, IEPA stated that

> IEPA approval is not required for a plan for fugitive PM operating program. The only requirement is for a review of the plan.... Incorporation by reference is the act of including a second document within another document by only mentioning the second document. If done properly, the entire second document became a part of the main

[10] 40 C.F. R. §64.5(c) states: "... if a part 70 or 71 permit is reopened for cause by EPA or the permitting authority pursuant to § 70.7(f)(1)(iii) or (iv), ... the applicable agency may require the submittal of information under this section for those pollutant-specific emissions units that are subject to [Part 64] and that are affected by the permit reopening." This regulation authorizes IEPA to incorporate CAM if it chooses to do so during a permit reopening. See also section 64.5(a)(2).

document. In order for a document to be properly incorporated by reference, there are 3 criteria: 1) document have existed at the time the main document was created; 2) the main document must describe the particular document to be incorporated with enough specificity to be identified; and 3) must clearly identify the intent that the document be incorporated by reference.

However, this differs from how EPA specifies incorporating documents by reference.

EPA has discussed incorporation by reference in several guidance documents and title V orders. *See e.g., White Paper 2*; *In the Matter of Tesoro Refining and Marketing,* Petition No. IX-2004-6 (March 15, 2005)(*Tesoro*), at 9; *In the Matter of Proposed Clean Air Act Title V Operating Permit Issued to Premcor Refining Group, Inc., for Operation of Port Arthur Refinery*, Petition No. VI-2007-2 (February 16, 2007), at 29. Incorporation by reference may be appropriate where the cited requirement is part of the public docket or is otherwise readily available, clear and unambiguous, and currently applicable. *Tesoro* at 9. As EPA explained in *White Paper 2,* it is important to exercise care to balance the use of incorporation by reference with the need to issue permits that are clear and meaningful to all affected parties, including those who must comply with or enforce their conditions. *White Paper* 2 at 34-38. See also *Tesoro* at 8. In order for incorporation by reference to be used in a way that fosters public participation and results in a title V permit that assures compliance with the Act, it is important that: (1) referenced documents be specifically identified; (2) descriptive information such as the title or number of the document and the date of the document be included so that there is no ambiguity as to which version of a document is being referenced; and (3) citations, cross references, and incorporations by reference are detailed enough that the manner in which any referenced material applies to a facility is clear and is not reasonably subject to misinterpretation. *See White Paper* 2 at 37.

Regarding the five plans identified in the petition, IEPA only provided general information in the USS title V permit about what it intended to incorporate by reference. In particular,

1. IEPA incorporated the fugitive particulate matter operating plan into the permit in Condition 5.3.3. The permit requires that the plan contain the minimum provisions identified in 35 IAC 212.310, amended from time-to-time, and submitted to IEPA. Neither the permit nor the SIP requires IEPA's approval of the plan. The permit, however, did not refer to a specific version of the plan nor did it provide sufficient descriptive information about the plan or its requirements.

2. IEPA incorporated the PM10 contingency measure plan into the permit in Condition 5.3.4. The permit requires USS to implement the approved plan upon notification by IEPA. The permit, however, did not refer to a specific version of the plan nor did it provide sufficient descriptive information about the approved plan or its requirements.

3. IEPA incorporated the episode action plan into the permit in Condition 5.3.9, not Condition 5.3.10 as cited in the petition. The permit requires USS maintain a

written episode action plan at the source and on file with IEPA which contains the information specified in 35 IAC 244.144. The permit, however, did not refer to a specific version of the plan nor did it provide sufficient descriptive information about the plan or its requirements.

4. IEPA incorporated the soaking plan into the permit in Condition 7.2.5-1(b)(i). The permit requires that an initial soaking plan be submitted to IEPA for review prior to resumption of operation of the battery based on design information and supplemented as needed with a revised soaking plan. The permit, however, did not refer to a specific version of the plan nor did it provide sufficient descriptive information about the plan or its requirements.

5. IEPA incorporated the work practice plan into the permit in Condition 7.2.5-2. The permit requires that USS maintain a written emission control work practice plan for the affected battery designed to achieve compliance with visible emission limitations for doors, topside port lids, offtake systems, and charging operations under 40 C.F.R. part 63, subpart L. Condition 7.2.5-2 (b) contains the minimum elements of the plan. Conditions 7.2.5-2 (c) and (d) include the requirements for implementing and revising the plan respectively. The permit, however, did not refer to a specific version of the plan nor did it provide sufficient descriptive information about the plan or its requirements.

Without specific identifying information (such as document date) and a sufficient description of the plan and its requirements, it is not possible to tell which version of the plan applies to USS and what requirements USS must meet pursuant to the plan. IEPA's incorporation is ambiguous and leaves room for misinterpretation and misunderstanding about what exactly is required of USS. As noted by *White Paper 2*, this can create difficulties for all parties, including those who enforce the permit. The ambiguous incorporation also greatly hinders meaningful public participation. Therefore, I grant the petition on this issue. If IEPA wants to use incorporation by reference for these plans, EPA recommends it do so consistent with the three principles from *White Paper 2* and the *Tesoro* Order so that there is no ambiguity as to which version of a document is being referenced.

B. Vague Provisions in the Permit Are Not Practically Enforceable

Petitioner's Allegations:

Petitioner claims that permit conditions must contain sufficient detail to ensure that the source and the public clearly understand permit obligations and compliance evaluation procedures. Petition at 37. Petitioner claims that the phrase "demonstrate that all reasonable steps" [11] from Condition 7.7.5(a) and "took all reasonable steps" from Condition 9.10.2.a.iv lacks specificity and therefore are not practically enforceable. *Id.*

[11] Both the permit and the SIP at 35 IAC § 201.262 require the permittee to "demonstrate that all reasonable *efforts* are made to minimize startup emissions, duration of individual startups and frequency of startups." Although

EPA Response:

In its Responsiveness Summary, IEPA stated that "'Proper working order' and 'Reasonable steps' are direct citations of applicable regulations; no changes were made." Responsiveness Summary at 50. The Illinois SIP at 35 IAC § 201.262 provides that a permitting authority shall not authorize a permittee to operate in violation of emission limits or standards during startups unless the permit applicant "has affirmatively demonstrated that all reasonable efforts have been made to minimize startup emissions, duration of individual startups and frequency of startups." As discussed above, EPA is granting the petition as to permit Condition 7.7.5 and requiring IEPA to explain how it determined in advance that the permittee had met this requirement of the Illinois SIP, or otherwise make appropriate changes to the permit and explain how the permit ensures compliance with the requirement of the SIP.

Condition 7.7.5(a), which is derived from the SIP and is listed as a term or condition of the broad authorization in Condition 7.7.5, provides that "[t]his authorization does not relieve the Permittee from the continuing obligation to demonstrate that all reasonable efforts are made to minimize startup emissions, duration of individual startups and frequency of startups. . . ." Condition 7.7.5(b) provides broad minimum measures, presumably intended to provide some assurance that USS must make reasonable efforts to minimize emissions. It appears that IEPA intended these conditions to support IEPA's advance determination that USS has made the affirmative showing required by the SIP. But IEPA does not explain how these conditions support the broad advance authorization.

Further, in *In the Matter of Midwest Generation, LLC, Fisk Generating Station*, Petition No. V-2004-1 (March 25, 2005) (*Fisk*), EPA noted that for the permit to be practicably enforceable and ensure compliance with this SIP requirement, it must "include the startup procedures in the permit, or include minimum elements of the startup procedures that would 'affirmatively demonstrate that all reasonable efforts have been made to minimize startup emissions, duration of individual startups and frequency of startups.'" *Fisk* at 14. I direct IEPA, in responding to the grant with regard to the broad advance authorization addressed in IV.B. above, to evaluate whether, and ensure that, any permit conditions regarding startup are practicably enforceable.

With respect to Condition 9.10.2.a.iv, this provision is required by section 39.5(7)(k) of the Illinois Environmental Protection Act. Section 39.5(7)(k) is not an applicable requirement as defined at 40 C.F.R. 70.2. EPA notes that section 504(a) of the Act requires, among other things that, each title V permit shall include "enforceable" emissions limitations and standards and other provisions "as are necessary to assure compliance with applicable requirements" of the Act. Petitioner has not demonstrated that Condition 9.10.2.a.iv relates to an applicable requirement, and has not otherwise demonstrated that the condition is not in compliance with the Act.

Petitioner discusses the phrase "demonstrate that all reasonable steps," EPA believes Petitioner's issue is still relevant.

CONCLUSION

For the reasons set forth above and pursuant to Section 505(b)(2) of the Clean Air Act and 40 C.F.R. § 70.8(d), I hereby grant in part and deny in part the petition filed by Robert R. Kuehn on behalf of the American Bottom Conservancy objecting to the title V operating permit issued to the United States Steel Corporation-Granite City Works.

Dated: 1/31/11

Lisa P. Jackson
Administrator

BEFORE THE ADMINISTRATOR
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

IN THE MATTER OF:	)	
	)	ORDER RESPONDING TO
UNITED STATES STEEL	)	PETITIONER'S
CORPORATION – GRANITE CITY	)	REQUEST THAT THE
WORKS	)	ADMINISTRATOR
	)	OBJECT TO ISSUANCE OF STATE
CAAPP Permit No. 96030056	)	OPERATING PERMIT
Proposed by the Illinois	)	
Environmental Protection Agency	)	Petition Number V -2011-2
	)	

ORDER GRANTING IN PART AND DENYING IN PART PETITION FOR OBJECTION TO PERMIT

INTRODUCTION

On May 2, 2011, pursuant to its authority under the Illinois Clean Air Act Permitting Program (CAAPP), the Illinois Environmental Protection Act, 415 ILCS 5/39.5, title V of the Clean Air Act (Act), 42 U.S.C. §§ 7661-7661f, and the United States Environmental Protection Agency's (EPA) implementing regulations in 40 C.F.R. Part 70 (Part 70), the Illinois Environmental Protection Agency (IEPA) issued a title V operating permit to United States Steel Corporation – Granite City Works (USGW). Located in Granite City, Madison County, Illinois, USGW manufactures iron and steel products. USGW's manufacturing processes involve raw material processing and preparation, coke production, coke oven gas by-products recovery, iron production, steel production, and steel finishing.

On August 16, 2011, the Interdisciplinary Environmental Clinic at the Washington University School of Law submitted to the EPA on behalf of the American Bottom Conservancy (the Petitioner) a petition requesting that EPA object to issuance of the USGW title V permit pursuant to section 505(b)(2) of the Act and 40 C.F.R. § 70.8(d). The Petitioner alleges that (1) the permit's use of emission factors fails to provide periodic monitoring designed to ensure compliance with permit limits and lacks practical enforceability; (2) several permit limits lack adequate periodic monitoring requirements to ensure compliance with the limits; (3) the permit fails to respond to EPA's Order dated January 21, 2011, with respect to excess emissions associated with startup, breakdown, and malfunctions; and (4) the permit fails to respond to EPA's Order to include applicable requirements from the related construction permit for a new

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Gateway Energy & Coke Company coke plant that IEPA considers to be part of the USGW facility.

EPA has reviewed the Petitioner's allegations pursuant to the standard set forth in section 505(b)(2) of the Act, which requires the Administrator to issue an objection if the petitioner demonstrates to the Administrator that the permit is not in compliance with the requirements of the Act. *See also* 40 C.F.R. § 70.8(d); *New York Public Interest Research Group* v. *Whitman*, 321 F.3d 316, 333 n.11 (2d Cir. 2003).

Based on a review of the available information, including the petition, the permit record, and relevant statutory and regulatory authorities and guidance, I grant in part and deny in part the Petitioner's request to object for the reasons set forth in this Order.

STATUTORY AND REGULATORY FRAMEWORK

Section 502(d)(1) of the Act, 42 U.S.C. § 7661a(d)(1), calls upon each state to develop and submit to EPA an operating permits program intended to meet the requirements of title V of the Act. EPA granted final full approval of the Illinois title V operating permit program effective November 30, 2001. 66 Fed. Reg. 62946 (December 4, 2001).

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 necessary to assure compliance with applicable requirements of the Act, including the requirements of the applicable State Implementation Plan (SIP). *See* sections 502(a) and 504(a) of the Act, 42 U.S.C. §§ 7661a(a) and 7661c(a). The title V operating permit program generally does not impose new substantive air quality control requirements (referred to as "applicable requirements"), but does require that permits contain monitoring, recordkeeping, reporting, and other requirements sufficient to assure compliance with applicable requirements. 57 Fed. Reg. 32250, 32251 (July 21, 1992). One purpose of the title V program is to "enable the source, states, 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.

Under section 505(a) of the Act, 42 U.S.C. § 7661d(a), and the relevant implementing regulations at 40 C.F.R. § 70.8(a), states are required to submit each proposed title V operating permit to EPA for review. Upon receipt of a proposed permit, EPA has 45 days to object to final issuance of the permit if EPA determines the permit is not in compliance with applicable requirements or the requirements of Part 70. 40 C.F.R. § 70.8(c). Section 505(b)(2) of the Act provides that, if EPA does not object to a permit on its own initiative, any person may petition

the Administrator, within 60 days of expiration of EPA's 45-day review period, to object to the permit. 42 U.S.C. § 7661d(b)(2); *see also* 40 C.F.R.§ 70.8(d). The petition must "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)." 42 U.S.C. § 7661d(b)(2). In response to such a petition, the Administrator must issue an objection if a petitioner demonstrates that a permit is not in compliance with the requirements of the Act. *Id.; see also* 40 C.F.R. § 70.8(c)(1); *New York Public Interest Research Group, Inc.* v. *Whitman,* 321 F.3d 316, 333 n.11 (2nd Cir. 2003). Under section 505(b)(2) of the Act, 42 U.S.C. § 766ld(b)(2), the burden is on the petitioner to make the required demonstration to EPA. *Sierra Club* v. *Johnson,* 541 F.3d 1257, 1266-1267 (11th Cir. 2008); *Citizens Against Ruining the Environment* v. *EPA,* 535 F.3d 670, 677-678 (7th Cir. 2008); *Sierra Club* v. *EPA,* 557 F.3d 401, 406 (6th Cir. 2009); *MacClarence* v. *EPA,* 596 F.3d 1123, 130-31 (9th Cir. 2010) (discussing the burden of proof in title V petitions). If, in responding to a petition, EPA objects to a permit that has already been issued, EPA or the permitting authority will modify, terminate, or revoke and reissue the permit consistent with the procedures set forth in 40 C.F.R. §§ 70.7(g)(4), (5)(i)-(ii) and 70.8(d).

BACKGROUND

USGW first applied for a title V permit (also called CAAPP permit) in March 1996. IEPA determined in May 1996 that the application was complete and published a draft permit for public comment in 2003. USGW submitted a supplemental permit application in 2007 to address maximum achievable control technology (MACT) standards. IEPA considered this application a supplement to the 1996 application and, therefore, did not perform a second completeness determination. IEPA issued a new draft title V permit and Project Summary (IEPA's Statement of Basis) for public comment in October 2008. IEPA held a public hearing regarding the new draft permit on December 2, 2008, and provided follow-up answers in January 2009 to questions it could not answer at the time of the hearing. Subsequently, on February 27, 2009, the Petitioner submitted written comments on the draft permit to IEPA. EPA received the proposed permit for its 45-day review on June 19, 2009. EPA did not object to the permit, and IEPA issued the final title V permit for the facility, along with a response to public comments, on September 3, 2009.

On October 1, 2009, Robert R. Kuehn, on behalf of the American Bottom Conservancy, submitted a petition requesting that EPA object to the USGW title V permit pursuant to section 505(b)(2) of the Act, 42 U.S.C. § 766ld(b)(2), and 40 C.F.R. § 70.8(d). *See In the Matter of United States Steel Corporation – Granite City Works,* Petition Number V-2009-03 (January 31, 2011). The petition alleged that (1) the permit failed to include all applicable permits and permit requirements; (2) the permit failed to provide periodic monitoring sufficient to assure

compliance; (3) the permit lacked compliance schedules to remedy all current violations; (4) the permit unlawfully exempted emissions during startup, shutdown, and malfunctions; (5) the permit failed to include compliance assurance monitoring requirements; and (6) numerous permit provisions were not practically enforceable. *Id.* at 1. On January 31, 2011, EPA granted in part and denied in part the petition, pursuant to section 505(b)(2) of the Act and 40 C.F.R. § 70.8(d) (2011 Order). The 2011 Order directed IEPA to issue a revised permit that satisfies EPA's objections consistent with the 2011 Order and the procedures set forth in 40 C.F.R. §§ 70.7(g)(4), (5)(i)-(ii) and 70.8(d).

On March 16, 2011, IEPA issued a draft revised title V permit and a Statement of Basis for public comment in response to the 2011 Order. IEPA invited public comment on the draft revised permit during the period March 16, 2011, through March 25, 2011. On March 25, 2011, the Petitioner submitted written comments on the draft revised permit to IEPA. EPA did not receive a proposed permit for its 45-day review, and did not object to the permit. IEPA issued the final revised title V permit, along with a response to public comments, on May 2, 2011.[1] IEPA made a number of improvements in the permit in response to EPA's 2011 Order.

Under the statutory timeframe in section 505(b)(2) of the Act, 42 U.S.C. § 7661d(b)(2), August 16, 2011, was the deadline to file a petition requesting that EPA object to the final USGW permit. The Petitioner submitted its petition to EPA on August 16, 2011. Accordingly, EPA finds that the Petitioner timely filed its petition.[2]

Environmental Justice Considerations

In the Introduction Section of its petition, which precedes the specific claims, the Petitioner describes the area surrounding the Granite City facility as an overburdened community, and states that, "[d]ue to the living conditions in and around Granite City, this permit must be reviewed in the environmental justice context." Petition at 4. The Petitioner cites to Executive Order 12898, and states that environmental justice is a "key component of federal decisionmaking." *Id.* In these introductory comments, the Petitioner states:

[1] Also in October 2009, USGW petitioned the Illinois Pollution Control Board (Illinois PCB) to review the USGW title V permit, challenging certain terms and conditions of the permit. USGW requested Illinois PCB to stay the effective date of the permit until the permit appeal was resolved. The Illinois PCB granted a full stay of the USGW title V permit on November 19, 2009, pending resolution of the permit appeal. The permit appeal was resolved with the issuance of the revised CAAPP permit on May 2, 2011. Thus, the USGW title V permit became effective for the first time on May 2, 2011.

[2] Prior to filing its petition, Petitioner contacted EPA on May 16, 2011, inquiring about EPA's view of the deadline to file a petition to object to the final revised title V permit for USGW, in light of IEPA's failure to provide a proposed permit to EPA for review under section 505(a) of the Act, 42 U.S.C. § 7661d(a), and the implementing regulations at 40 C.F.R. § 70.8(a). EPA responded to Petitioner's inquiry on June 16, 2011, and stated that EPA would accept a petition to object through August 16, 2011. Petitioner submitted its petition to EPA on August 16, 2011; therefore, the petition is timely.

> While ABC appreciates that environmental justice considerations do not provide a basis for creating new emission limits in the context of this Title V/CAAPP permit, the compelling environmental justice circumstances inform the necessity for adequate periodic monitoring and practical enforceability to ensure that USS-GCW actually complies with all applicable emission limits.

Id at 5. The Petitioner's specific monitoring and practical enforceability claims are raised in Section II of the petition, and are summarized in the Issues Raised by the Petitioner in Sections II-IV of this order.

Executive Order 12898, signed by President Clinton on February 11, 1994, focuses federal attention on the environmental and human health conditions of minority populations and low-income populations with the goal of achieving environmental protection for all communities. Executive Order (EO) 12898 also is intended to promote non-discrimination in federal programs substantially affecting human health and the environment, and to provide minority and low-income communities access to public information on, and an opportunity for public participation in, matters relating to human health or the environment. It generally directs federal agencies to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations. Attention to environmental justice in the implementation of federal environmental programs is a priority for EPA. *See generally*, Office of Environmental Justice *Plan EJ 2014* (September 2011) (outlining EPA's efforts to promote environmental justice and identifying environmental justice and permitting as a focus area).[3]

Environmental justice issues can be raised and considered in the context of a variety of actions carried out under the Act. Title V generally does not impose new, substantive emission control requirements, but provides for a public and governmental review process and requires title V permits to assure compliance with all underlying applicable requirements. *See, e.g., In the Matter of Marcal Paper Mills*, Petition No. II-2006-01 (Order on Petition) (November 30, 2006), at 12. Title V can help promote environmental justice through its underlying public participation requirements and through the requirements for monitoring, compliance certification, reporting and other measures intended to assure compliance with applicable requirements.

The Petitioner has not raised any specific claim regarding environmental justice, and has not identified any distinct environmental justice-related duty or responsibility it believes Illinois has violated. Rather, as noted above, the Petitioner states that "[d]ue to the living conditions in and around Granite City, [the USGW permit] must be reviewed in an environmental justice context."

[3] This document is available at http://www.epa.gov/environmentaljustice/resources/policy/plan-ej-2014/plan-ej-2011-09.pdf).

Petition at 4. The Petitioner asserts that environmental justice considerations heighten the already strong legal requirements to ensure that USGW is operating within its permit limits. *Id.* at 5. The Petitioner also states that based on available demographic and health information, "there is a compelling need for full public disclosure, detailed statements of the legal and factual bases for all permit conditions, and careful, extensive monitoring of USGW's air pollution emissions." *Id.* at 5-6. Finally, the Petitioner summarizes its title V claims, stating:

> The revised permit fails to require USS-GCW to conduct monitoring sufficient to determine whether it is complying with its emission limitations, contains compliance loopholes regarding excess emissions, and fails to include all applicable requirements.

Petition at 7. EPA has thoroughly reviewed and evaluated the title V objections submitted by the Petitioner, discussed below. EPA acknowledges that the immediate area around the USS-GCW facility is home to a high density of low-income and minority populations and a concentration of industrial activity, and thus raises potential environmental justice concerns. Focused attention to the adequacy of monitoring and other compliance assurance provisions is warranted in this context. As explained below, where the Petitioner has demonstrated that the permit fails to assure compliance with applicable requirements, EPA is granting the petition.

ISSUES RAISED BY THE PETITIONER

I. The Revised Permit's Use of Emission Factors Fails to Provide Periodic Monitoring Designed to Ensure Compliance with Permit Limits, and Lacks Practical Enforceability.

The Petitioner raises four issues regarding the revised permit's use of emission factors for periodic monitoring. The Petitioner alleges that a) IEPA states that "emission factors" set forth in the permit are actually permit limits, but because what IEPA calls "traditional emission factors" are tools for calculating emissions rather than emission limits, and since the permit repeatedly uses the phrase "emission factor" without expressly indicating that they are indeed enforceable limits, the permit language could undermine the enforceability of the emission factor limits; b) as issued, the revised permit lacks periodic monitoring requirements to ensure compliance with the "emission factor" limits as well as many of the corresponding "maximum emission" limits in the permit; c) the permit inappropriately authorizes USGW to set, unilaterally, without IEPA review and approval and without notice to or input from EPA or the public, the emission factors that will be used to determine whether its operations comply with permit limits; and d) the permit is entirely silent on periodic monitoring to ensure compliance with the emission limits in Conditions 7.5.6.c-g, governing basic oxygen furnace operations. Petition at 7-13. These allegations are discussed in more detail below.

I.A. IEPA States that "Emission Factors" Set Forth in the Permit are Actually Permit Limits but the Permit Language Could Compromise the Practical Enforceability of those Limits.

The Petitioner's Allegations:

The Petitioner alleges that IEPA did not substantively revise the emission factor provisions contained in the following permit conditions as directed by EPA in the 2011 Order: Conditions 7.1.6.b.i-iv (emission limits for the blast furnace and steel making material handling operations, basic oxygen furnace (BOF) additive system, flux conveyor and transfer points, and iron pellet screen); Conditions 7.4.6.b-f (emission limits for blast furnace operations: casthouse baghouse, blast furnace uncaptured fugitives, blast furnace charging, slag pits, and iron spout baghouse); Conditions 7.5.6.c-g (emission limits for BOF operations: BOF electrostatic precipitator (ESP) stack, BOF roof monitor, hot metal desulfurization and hot metal transfer, hot metal charging and ladle slag skimming, and argon stirring station and material handling tripper (Ladle Metallurgy Baghouse # 2)); and Conditions 7.6.6.a-e (emission limits for continuous casting operations: deslagging station (Baghouse #1) and associated material handling system, caster molds, casters spray chambers, slab cut-off, and slab ripping).[4] Petition at 9. The Petitioner claims that instead of changing the emission factor provisions, IEPA offered in its response to comments a different explanation of the intended function of those provisions. *Id.* The Petitioner alleges that, according to IEPA, the "emission factors" provisions in the permit were actually emission limits ("emission factor limits" or "factor limits") rather than periodic monitoring mechanisms. *Id.* (citing IEPA's Response to Comments at 4-7). The Petitioner agrees that the numerous permit conditions that set forth "emission factors" actually express enforceable emission limits, but argues that the permit language could undermine the enforceability of the emission factor limits. *Id.* at 10. The Petitioner points to the confusion that could be caused by IEPA's reference to "traditional emission factors," which are tools for calculating emissions rather than emission limits, and the permit's repeated use of the phrase "emission factor" without express indication that these terms are indeed enforceable limits. *Id.* The Petitioner claims that while the revised permit adopts the "emission factor" language from the underlying production increase permit,[5] that language is not dispositive and is not adequate to ensure enforceability, because the fact that "emission factors" are actually limits is not evident

[4] Petitioner notes that IEPA relocated the following provisions in the revised permit: iron pellet screen emissions provision was moved from the blast furnace section, condition 7.4.6.g, to material handling and processing section, condition 7.1.6.b.v., and continuous casting production and emission limits from underlying permit 95010001 were moved from condition 7.6.7 to condition 7.6.6. Petition at 8.

[5] Petitioner is referring to Construction Permit 95010001, which was originally issued on January 25, 1996, 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). IEPA determined that the increases in emissions of SO_2 and CO from the project covered under this construction permit were significant under the Prevention of Significant Deterioration (PSD) rules in 40 C.F.R. § 52.21. Therefore, Permit 95010001 contains PSD terms and conditions for CO and SO_2 and non-PSD terms and conditions for other regulated pollutants.

on the face of the permit. *Id.* According to the Petitioner, IEPA must incorporate the understanding expressed in the Response to Comments directly into the revised permit. *Id.*

EPA Response:

The Petitioner has questioned the practical enforceability of the limits stated as "emission factors" and the corresponding "maximum emissions" limits in a number of permit conditions derived largely from Construction Permit 95010001. In the 2011 Order, I granted the Petitioner's request to object to the permit's use of unsupported emission factors in certain conditions of the initial permit, based on EPA's understanding that the specific, numerical emission factors in the permit were to be used in periodic monitoring to assure compliance with the "maximum emissions" limits expressed in tons per year.[6] 2011 Order at 13-33. IEPA has since clarified that these specific, numerical emissions factors are in fact emission limits, and are not used for periodic monitoring. Response to Comments at 4-5. IEPA states that comments related to emission factors "appear to reflect a misunderstanding about the specific, numerical 'emission factors' in the revised CAAPP Permit." *Id.* IEPA explains that the numerical "emission factors" specified in the permit should be treated as emission limits, similar to the limits on annual emissions from those operations, and that the revised permit requires recordkeeping of the actual emission factors that are used on a routine basis to determine actual emissions. *Id.*

The Petitioner states that the revised permit uses the term "emission factor" in numerous places without clearly distinguishing whether that term refers to emission factors (that are used to verify compliance with emission limits) or if it refers to emission limits. However, the Petitioner has also stated that "ABC accepts IEPA's explanation, and agrees that the numerous permit conditions that set forth 'emission factors' actually express enforceable emission limits." Petition at 10. For each condition containing the term "emission factor" that the Petitioner has cited, the plain face of the permit condition states that emissions "shall not exceed the following limits."[7] Also, the permit record clearly explains that in the cited provision, the terms "emission factors" and "maximum emissions" are actually emission limits. The Petitioner has not demonstrated that the use of the term "emission factors" in the permit conditions would render the requirements unenforceable in practice. EPA finds that the provisions cited by the Petitioner accurately reflect the underlying applicable requirements from Construction Permit 95010001. Therefore, I deny the petition with respect to the permit's use of the term "emission factor" to describe both emission limits and monitoring methodology. However, because I am granting the Petition on other issues as described below, which will necessitate changes to the permit, IEPA

[6] EPA granted Petitioner's request to object with respect to the permit's use of unsupported emission factors in each of the following conditions of the initial permit: conditions 7.4.6.b-g – blast furnace emissions; conditions 7.5.6.c-i – basic oxygen furnace emissions; conditions 7.6.7.a-e – continuous casting emissions; condition 7.11.7.b – internal combustion engine (emergency generator) emissions. These emission factors are expressed primarily as pounds per ton of production.

[7] Conditions 7.1.6.b.i-iv; Conditions 7.4.6.b-f ; Conditions 7.5.6.c-g; and Conditions 7.6.6.a-e.

may wish to take this opportunity to change the term "emission factors" to clarify that the emission factors are, in fact, limits.

I.B-D. As Issued, the Revised Permit Lacks Periodic Monitoring Requirements to Ensure Compliance with the "Emission Factor" Limits as Well as Many of the Corresponding "Maximum Emission" Limits in the Permit.

The Petitioner's Allegations:

The Petitioner alleges that the revised permit lacks periodic monitoring provisions for many of the emission limits (both "emission factor'' limits and maximum emission limits) from permit 95010001. Petition at 10-11. The Petitioner alleges that while the permit record states that emission factors will be used to determine compliance with many of the emission limits from permit 95010001, neither IEPA nor EPA nor the public knows what emission factors will be used to determine whether USGW is complying with many of the emission limits from permit 95010001. *Id.* at 10-11. The Petitioner alleges that the revised permit as issued fails to explain what the emission factors will be or whether they will be representative of [USGW's] operations." *Id.* at 11-12.

The Petitioner further alleges that the revised permit authorizes USGW to set, unilaterally, without IEPA review and approval and without notice to or input from EPA or the public, the emission factors that will be used to determine whether USGW's operations comply with permit limits. *Id.* at 11-12. The Petitioner claims the revised permit authorizes USGW to determine its own compliance test and allows USGW to determine and notify IEPA in the future, by no later than January 2012 (or 30 days after the effective date of the permit, whichever is later), of the emission factors that USGW deems appropriate for determining compliance with the emission limits from permit 95010001. *Id.* at 11-12 (citing Condition 5.9.6.c). The Petitioner claims the revised permit's only provisions regarding USGW's accountability for complying with the emission factor limits are the requirements that it maintain records indicating how it decides to determine compliance with those limits, and update those records as necessary. *Id.* (citing Conditions 7.1.9.h. 7.3.10.e.vi, 7.4.9.i, 7.6.9.c, and 7.10). The Petitioner alleges that the revised permit's reliance solely on a "to be determined later" approach to periodic monitoring falls far short of the periodic monitoring requirements of title V of the Act. *Id.* at 10-11. The Petitioner claims there is no provision for IEPA to review and approve, or require USGW to revise, the emission factors that USGW chooses, nor is there any provision for EPA or the public to comment on the emission factors that USGW elects to use for periodic monitoring of the emission limits from permit 95010001. *Id.* at 11. The Petitioner claims this type of periodic monitoring is not practically enforceable, and fails to ensure enforceability. *Id* at 12.

The Petitioner also alleges that the permit lacks any provision that specifically addresses compliance with the emission limits in Conditions 7.5.6.c-g, governing BOF operations. *Id.* at 11-13. The Petitioner alleges that although the revised permit contains emission factor limits and corresponding maximum emission limits for the BOF operations in Conditions 7.5.6.c-g, it does not contain periodic monitoring requirements for BOF operations. *Id.* at 12-13. The Petitioner asserts that this "omission is particularly glaring in light of the significant emissions associated with, and spotty compliance history of, the facility's BOF operations." *Id.*

The Petitioner requests EPA to object to the revised permit and require IEPA to include periodic monitoring provisions in the permit, rather than simply create a mechanism for them to be determined at a later date. *Id.* at 12.

EPA Response:

Section 504(c) of the CAA requires all title V permits to contain monitoring requirements to assure compliance with permit terms and conditions. 42 U.S.C. § 7661c(c). EPA's Part 70 monitoring rules (40 C.F.R. § 70.6(a)(3)(i)(A) and (B) and 70.6(c)(1)) must be interpreted to carry out section 504(c) of the Act's directive. *Sierra Club* v. *EPA*, 536 F.3d 673 (D.C. Cir. 2008). As a general matter, permitting 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). *In the Matter of CITGO Refining & Chemicals Co.*, Petition No. VI-2007-01 (Order on Petition) (May 28, 2009) at 6-7 (*CITGO Order*).

The rationale for the monitoring requirements selected by a permitting authority must be clear and documented in the permit record (*e.g.*, in the Statement of Basis). *See* 40 C.F.R. § 70.7(a)(5); *see also CITGO Order* at 7. Furthermore, permitting authorities do not have the discretion to issue a permit without specifying the monitoring methodology needed to assure compliance with applicable requirements in the title V permit. *In the Matter of Wheelabrator Baltimore, L.P., Permit No. 24-510-01886* (Order on Petition) at 10 (April 14, 2010) (*Wheelabrator*). In *Wheelabrator*, the permit condition in question required the source to develop a way to convert data in order to demonstrate compliance with Prevention of Significant Deterioration (PSD) emission limits. *Id.* at 11. Both the establishment and approval by the permitting authority of this conversion method were to occur "outside of the title V permitting

process." *Id.* EPA found this methodology "inconsistent with the requirements of section 504(c) of the Act to include – *in the title V permit* – monitoring to assure compliance with applicable requirements," and instructed the permitting authority to revise the permit to explicitly include the conversion method that would assure compliance with the emission limits. *Id.* (emphasis in original).

The recordkeeping requirements requiring USGW to keep on file the emission factors used for the purpose of periodic monitoring are not sufficient to assure compliance with the emission factor limits. The permit conditions do not contain monitoring sufficient to assure compliance with the emission factors limits. The record for the USGW permitting action does not specify a preliminary set of IEPA-approved emission factors that will be used by USGW to demonstrate compliance, how the emission factors were derived, whether the emission factors are indicative of the emissions at the USGW facility, or an explanation of why use of the emission factors is adequate to assure compliance with the emission factor and maximum annual limits. The recordkeeping requirements in the permit do not specify the emission factors or equations that USGW intends to use to demonstrate that emissions from the affected emission units are complying with the permit limits in Conditions 7.1.6(b)(i)-(iv), 7.4.6(b)-(f), 7.5.6(c)-(g), and 7.6.6(a)-(e). The permit does not specify how IEPA and USGW plan to determine actual emissions from the source to demonstrate compliance with these permit limits.

In response to public comment, IEPA stated that the permit includes procedural requirements to facilitate supervision of emission factors by IEPA "and potential public involvement." Response to Comments at 29-30, 61 (citing Condition 5.9.6(c)).[8] IEPA explained that the submittal of copies of such records to IEPA "will facilitate oversight or surveillance" by IEPA of the emission factors used by USGW, and will enable the public to readily obtain copies of these records under Illinois' Freedom of Information Act and to review these records. *Id.* IEPA explained in the Statement of Basis that USGW will reevaluate emission factors "that are used to routinely determine emissions for comparison to permit limits" when "new data becomes available to assure that the [emission factors] that it uses are adequate, *i.e.*, they do not understate emissions." Statement of Basis at 145. However, the permit does not specify how IEPA will assure that emission factors used to verify compliance with the "emission factor" or the "maximum emissions" limits are representative of USGW's operations. Because the permit does not explicitly require IEPA's review and approval of the emission factors prior to their use by the

[8] Condition 5.9.6(c) of the permit states: "For certain records related to emission factors or emission rates required to be kept by this permit for various emission units at this source, as specifically identified in other conditions of this permit, the Permittee shall submit a copy of the records to the Illinois EPA as provided below: i) Copies of initial records shall be submitted to the Illinois EPA within 15 days of the date that the Permittee prepares these records for subject unit(s), which shall in no case be later than January 20, 2012, or 30 days after the effective date of this permit, whichever date is later. ii) Thereafter, copies of revised records shall be submitted to the Illinois EPA with the emission test reports for subject emission unit(s) if the records were revised as a consequence of emission testing or otherwise within 15 days of the date that the Permittee completes the preparation of revised records for subject unit(s)." Permit at 34.

source, the source could select whichever emission factor appears to demonstrate compliance. The permit also does not provide a means for the public to comment or EPA to review the monitoring methodology chosen by the source, *i.e.*, the selected emission factors.

In short, the permit fails to specify the monitoring methodology and also fails to provide a mechanism for review of the methodology by IEPA, the public, and EPA after the permit is issued. It is impossible to know whether the periodic monitoring chosen by the source assures compliance with the permit terms and conditions as required by 40 C.F.R. §§ 70.1(b) and 70.6(c)(1) because that monitoring has not been determined yet. IEPA must determine and adequately support a mechanism to assure compliance with the applicable emission limits in Conditions 7.1.6(b)(i)-(iv), 7.4.6(b)-(f), 7.5.6(c)-(g), and 7.6.6(a)-(e). IEPA must include in the permit itself the monitoring methodology for determining compliance with these limits. If using emission factors, IEPA must propose the actual emission factors in the permit or supporting permit record, and provide supporting documentation for the accuracy and appropriateness of those emission factors, such as historical source test data or other available information. If source test data are not readily available for a specific emission unit, as IEPA asserts, other sources of emission factors (including published literature and material and energy balances) must be reviewed and cited for acceptable emission factors prior to issuing the permit.

For the reasons provided above, I grant this claim and direct IEPA to specify in the permit and make available for public comment the emission factors or equations that USGW initially intends to use to demonstrate compliance with emission factor limits and maximum emission limits contained in the permit conditions identified by the Petitioner, including a clear explanation of how the emission factors will be used to determine compliance. IEPA should also specify in the permit and make available for public comment a provision on how the emission factors or equations will be updated as new emissions information becomes available for the affected operations. Alternatively, IEPA must specify an alternative periodic monitoring methodology in the permit that is adequate to demonstrate compliance with the permit limits cited by the Petitioner.

With regard to the BOF operations, the recordkeeping requirements (Condition 7.5.9.f) existed in the public comment version of the revised permit but were omitted in the final permit, on which the petition was based. IEPA subsequently revised the permit on May 3, 2012, and included the missing condition. The Petitioner's claim that the permit does not have any recordkeeping or periodic monitoring requirements for the BOF limits is therefore moot because IEPA has added the same recordkeeping requirements for those limits as it has for similar limits, as discussed above.

II. Several Additional Permit Limits Lack Adequate Periodic Monitoring Requirements.

As further discussed below, the Petitioner alleges that the revised permit's periodic monitoring requirements are not sufficient to assure compliance with emission limits contained in the following conditions of the revised permit:

II.A. Condition 7.3.3.f - Coke Oven Gas Flare

The Petitioner's Allegations:

The Petitioner alleges that the frequency of required opacity observations for the coke oven gas (COG) flare is inadequate to assure continuous compliance with the opacity limit for the COG flare. Petition at 13. The Petitioner claims that the permit's requirement for USGW to conduct monthly visible emissions observations of the COG flare, followed by opacity observations if visible emissions are observed, is inadequate to assure compliance with the 30 percent opacity limit for the COG flare. *Id.* (referring to Condition 7.3.3.f, which sets a 30 percent opacity limit for the COG flare, and Condition 7.3.8.c, which requires monthly visible emissions observations of the flare followed by opacity observations if visible emissions are observed).

The Petitioner alleges that although the permit requires that two of the twelve observations per year occur during wind speeds of at least 16 miles per hour (mph), IEPA has not demonstrated that the monitoring frequency is sufficient to assure continuous compliance with the opacity limit. *Id.* The Petitioner states that "[v]ariations in the size, shape, and combustion efficiency of the flare, and the potential for visible emissions to occur, are not limited to the two times a year that [USGW] is required to perform observations of the flare at elevated wind speeds." *Id.* According to the Petitioner, unless more frequent monitoring is required, emissions from the COG flare have the potential to exceed the 30 percent opacity limit without observation or documentation by the facility. *Id.* at 14. The Petitioner claims IEPA has not demonstrated that monthly observations of the flare are "sufficient to yield reliable data from the relevant time period that are representative of the source's compliance with the permit." *Id.* (quoting 40 C.F.R. § 70.6(a)(3)(i)(B)).

The Petitioner requests EPA to object to the permit and direct IEPA to demonstrate how the monitoring requirements in the permit are sufficient to assure compliance with the 30 percent opacity limit for the COG flare or, failing that, require additional periodic monitoring for the COG flare. *Id.*

EPA Response:

During the public comment period, the Petitioner commented that IEPA's lack of periodic monitoring for the COG flare's 30 percent opacity limit is unacceptable and asserted that IEPA's

reasoning that the permit would prohibit visible emissions from the COG flare is unsound. Response to Comments at 18 (citing Statement of Basis at 81). The Petitioner stated in its comments, "The permit should require routine opacity observations, such as daily observations, to assure compliance with 35 IAC 212.123." *Id.* The Petitioner also commented that annual observations for visible emissions from the flare are not frequent enough because "factors such as high wind speed could negatively affect the flare's combustion efficiency, increasing the potential for visible emissions from the flare." *Id.* at 19. In response to the Petitioner's comments on this issue, IEPA revised the permit and required monthly observations for the COG flare for the presence of visible emissions, immediately followed by opacity observations if visible emissions are present. IEPA explained in the Response to Comments and Statement of Basis that these observations for visible emissions would be adequate periodic monitoring to address the opacity limit despite high wind speeds because "multiple observations would occur each year under a variety of wind speed conditions." IEPA also revised the permit to require at least two of the observations for visible emissions each year to occur during conditions of elevated wind speed (defined by IEPA as at least 16 miles per hour). While the Petitioner acknowledged IEPA's explanation and the permit's revised monitoring requirements, the Petitioner did not specify in the petition a monitoring frequency that it considers adequate. The Petitioner merely stated that "Unless more frequent monitoring is required, emissions from the flare have the potential to exceed the 30 percent opacity limit without observation or documentation by the facility." Petition at 14.

Although the Petitioner suggested in its comments that the draft permit should require daily observations for visible emissions, the Petitioner did not propose an alternate testing frequency in its petition nor did the Petitioner provide an analysis of why an alternate testing frequency was more appropriate for this specific emissions unit. As a threshold matter, EPA has previously determined that flare performance is not significantly affected by wind speeds up to 22 mph. *See Parameters for Properly Designed and Operated Flares, Report for Flare Review Panel*, EPA Office of Air Quality Planning and Standards (OAQPS) (April 2012)[9] Furthermore, IEPA did explain that multiple observations under a variety of wind speed conditions would occur. IEPA also revised the permit to require observations at elevated wind speed, which it defines as at least 16 mph. Therefore, it is reasonable to conclude that the monitoring requirements in the revised permit are sufficient to assure compliance. Because IEPA has explained in the permit record why the revised permit's periodic monitoring requirements are sufficient to yield reliable data from the relevant time period that are representative of the source's compliance with the COG opacity limits, consistent with 40 C.F.R. § 70.6(a)(3)(i)(B), and the Petitioner has not demonstrated that an alternate testing frequency is more appropriate, I deny the petition with respect to the above monitoring claims.

[9] This document is available at http://www.epa.gov/ttn/atw/flare/2012flaretechreport.pdf.

II.B. Condition 7.4.3.b.i - Uncaptured Blast Furnace Casthouse

The Petitioner's Allegations:

The Petitioner alleges that the frequency of required opacity observations for the blast furnace casthouse is inadequate to assure continuous compliance with the 20 percent opacity limit for the blast furnace casthouse.[10] Petition at 14. The Petitioner alleges that the permit's requirement for USGW to conduct opacity observations for uncaptured particulate matter from any opening in a blast furnace casthouse on at least five out of seven operating days or weekly, depending on the previous opacity observations, is inadequate to assure continuous compliance with the 20 percent opacity limit for uncaptured particulate matter from the blast furnace casthouse. *Id.* (referring to Condition 7.4.3.b.i, which sets a 20 percent opacity limit for uncaptured particulate matter from any opening in a blast furnace casthouse, and Condition 7.4.7.b.i, which requires opacity observations on at least five out of seven operating days or weekly, depending on the previous opacity observations).

The Petitioner alleges that the permit relies on recordkeeping for "process upsets" and occurrences of "additional opacity," yet it neither defines "process upsets" nor "additional opacity." *Id.* at 14-15. The Petitioner states: "Because the permit fails to define 'process upsets' or 'additional opacity,' the conditions under which [USGW] is required to keep records of its casthouse operations are not clearly specified." *Id.* at 15 (quoting Condition 7.4.9(h)(vii)). The Petitioner claims that as a result of this alleged deficiency, Condition 7.4.9.h.vii lacks practical enforceability. *Id.*

The Petitioner also alleges that even if the permit defined "process upsets" and "additional opacity," Condition 7.4.9(h)(vii) assumes that USGW detects all of the upsets that result in additional opacity, which is not necessarily true. *Id.* The Petitioner further claims that even if USGW records an upset associated with increased opacity emissions, "it is unclear whether the facility is required to record an actual opacity observation for uncaptured blast furnace casthouse emissions or simply provide a general 'discussion' of opacity as a part of the recordkeeping requirements." *Id.* The Petitioner claims that without an actual opacity observation, "these records will not provide sufficient information to determine compliance with the opacity limit." *Id.* Consequently, according to the Petitioner, IEPA has not demonstrated that recordkeeping for upsets in combination with opacity observations on a weekly or daily basis, depending on prior opacity observations, is sufficient to yield reliable data from the relevant time period that are representative of the source's compliance with the permit. *Id.* (citing 40 C.F.R. § 70.6(a)(3)(i)(B)). The Petitioner requests EPA to object to the issuance of the permit and direct

[10] The blast furnace casthouse is subject to 40 C.F.R. Part 63, Subpart FFFFF (National Emission Standards for Hazardous Air Pollutants for Integrated Iron and Steel Manufacturing Facilities), which is the source of the 20 percent opacity limit. *See* 40 C.F.R. § 63.7790(a) and Paragraph 7 of Table 1 of 40 C.F.R. Part 63, Subpart FFFFF.

IEPA to demonstrate how the monitoring requirements in the permit are sufficient to assure compliance with the limit or, failing that, require additional periodic monitoring. *Id.*

EPA Response:

During the public comment period, the Petitioner commented that IEPA had not supported its requirements in the permit that sometimes require opacity observations on at least five out of seven operating days and sometimes require opacity observations on a weekly basis. Response to Comments at 21. The Petitioner's comments observed that the permit allows weekly observations where prior observations show a margin of compliance, *i.e.*, that the opacity is less than 18 percent. *Id.* The Petitioner commented that IEPA's explanation that adjusting the frequency of monitoring based on prior observations because violations "would be expected to result from a gradual deterioration of the capture system and/or pollution prevention measures for the casthouse" is inconsistent with prior violations at this unit. *Id.* The Petitioner's comments stated that two prior incidences of violations at the unit occurred because of "upsets" or "unknown causes," not because of a gradual deterioration of the system. *Id.* The Petitioner suggested that the permit should require daily observations to assure compliance with the standard. *Id.* In response to the Petitioner's comments on this issue, IEPA revised the permit to require enhanced recordkeeping requirements for the blast furnace casthouse. IEPA explained that although violations of the opacity limits can result from "upsets," requiring relevant records for operation of the casthouse is more effective in identifying upsets than more frequent opacity observations. *Id.* at 21-22. According to IEPA, direct recordkeeping would potentially address all upset events whereas opacity observations would only identify incidents of excess opacity coinciding with the periods when opacity observations are being conducted. *Id.* IEPA also explained that weekly opacity observations will enable the source to make timely repairs or take other appropriate actions in response to elevated levels of opacity before actual opacity would ever exceed 20 percent. Statement of Basis at 87.

The Petitioners have not demonstrated that the selected monitoring is inadequate. As an initial matter, EPA notes that while the Petitioner acknowledged IEPA's explanation and the permit's recordkeeping requirements, the Petitioner did not specify in the petition a monitoring frequency that it considers adequate. The Petitioner largely recited its comments on the draft permit and IEPA's response before concluding that "IEPA has not demonstrated that recordkeeping for upsets in combination with opacity observations on a weekly or daily basis, depending on prior opacity observations is 'sufficient to yield reliable data from the relevant time period that are representative of the source's compliance with the permit.'" Petition at 14-15. Although the Petitioner suggested in its comments that the draft permit should require daily observations for visible emissions, the Petitioner did not propose an alternate testing frequency in its petition, nor did the Petitioner provide an analysis of why an alternate testing frequency was more appropriate for this specific emissions unit other than merely stating that the permit's testing frequency in

combination with recordkeeping for "process upsets" is inadequate. Moreover, the Petitioner's allegation in its petition that Condition 7.4.9.h.vii (recordkeeping requirements for the blast furnace casthouse) lacks practical enforceability because the permit fails to define "process upsets" is without merit. In response to public comment, IEPA defined "upsets" as "sudden, transitory events that are not related to deterioration of the capture and control systems on the casthouse ... [such as] the missed stop on 'B' Furnace..." Response to Comments at 21 and FN 39.[11]

The Petitioner has not demonstrated that IEPA's explanations in the Response to Comments and Statement of Basis are unreasonable. The Petitioner has not demonstrated that the frequency of opacity observations for uncaptured emissions from the blast furnace casthouse is inadequate to assure continuous compliance with the 20 percent opacity limit for the blast furnace casthouse. The Petitioner has also failed to specify what frequency of observations or records would be adequate. For the above reasons, I deny the petition with respect to these monitoring claims.

II.C. Conditions 7.4.5-3.c and 7.4.5-3.d.i.A - Blast Furnace Gas Flares

The Petitioner's Allegations:

The Petitioner alleges that the frequency of required visible emissions observations for the blast furnace gas (BFG) flares (BFG Flare #1 and BFG Flare #2) is inadequate to assure continuous compliance with the no visible emissions limits for the BFG flares. Petition at 15. The Petitioner alleges that the permit's requirement for USGW to conduct monthly visible emissions observations of the BFG flares, followed by opacity observations if visible emissions are observed, with at least two observations made during elevated wind speeds of at least 16 mph each year, is inadequate to assure continuous compliance with the visible emissions limits for the BFG flares. *Id.* (referring to Conditions 7.4.5-3.c and 7.4.5-4.d.i.A, which prohibit BFG Flare #1 and BFG Flare #2 from emitting any visible emissions, except for periods not to exceed a total of 5 minutes during any 2 consecutive hours, and Condition 7.4.7.d, which requires monthly visible emissions observations, followed by opacity observations if visible emissions are observed, with at least two observations made during elevated wind speeds of at least 16 mph each year). The Petitioner alleges that, as in the case of the COG flare, variation in the size, shape, and combustion efficiency of the flares and the potential for visible emissions to occur is not limited to the two times a year that USGW is required to perform observations of the flares at elevated wind speeds. *Id.* at 16. The Petitioner asserts that unless more frequent monitoring is required, emissions from BFG Flare #1 and BFG Flare #2 have the potential to produce visible emissions without proper observation or documentation by the facility. *Id.*

[11] In addition, the permit states that "process upsets" include "refractory clay falling into the trough during a missed stop." Permit at 176.

The Petitioner alleges IEPA has not demonstrated that monthly observations of the BFG flares are "sufficient to yield reliable data from the relevant time period that are representative of the source's compliance with the permit." *Id.* (citing 40 C.F.R. § 70.6(a)(3)(i)(B)). The Petitioner requests EPA to object to the permit and direct IEPA to demonstrate how the monitoring requirements in the permit are sufficient to assure compliance with the limits or, failing that, require additional periodic monitoring. *Id.*

EPA Response:

During the public comment period, the Petitioner commented that while the permit prohibits visible emissions from BFG flares 1 and 2 at all times except for periods not to exceed a total of five minutes during any two consecutive hours, the periodic monitoring to assure compliance with this requirement requires observations for visible emissions to be conducted on an annual basis. Response to Comments at 22-23. The Petitioner commented that IEPA has not adequately explained how annual observations would be sufficient to yield reliable data from the relevant time period that is representative of the source's compliance with the applicable visible emissions standard. *Id.* The Petitioner also noted that high wind speed negatively affects the combustion efficiency of the flares, increasing the potential for visible emissions. *Id.* The Petitioner suggested that the revised permit should require more frequent observations of the flare, such as daily observations. *Id.* In response to the Petitioner's comments on this issue, IEPA revised the permit to require monthly observations of each BFG flare for the presence of visible emissions followed by opacity observations if visible emissions are observed. IEPA also amended the revised permit to require multiple opacity observations each year under a variety of wind speed conditions. IEPA explained that more frequent opacity observations are not necessary because, unlike petroleum refinery gas and other waste gases, BFG does not vary significantly in composition and heat content. *Id.* IEPA also stated that it is expected, at least initially, that USGW will elect to verify proper operation of BFG Flare #1 by daily inspections to confirm the presence of a flame at the flare tip. *Id.* at FN 45.

The Petitioner has not demonstrated how IEPA's explanation in response to public comments is deficient or what level of additional monitoring is necessary. The Petitioner merely acknowledges IEPA's explanation in the Response to Comments that "variability in the composition of BFG is not likely to result in visible emissions from the flares" and that "environmental factors such as elevated wind speed may impact the combustion efficiency of the [BFG flares] and potentially lead to visible emissions," but does not suggest a monitoring frequency that would be more appropriate for these flares. Although the Petitioner suggested in its comments that the draft permit should require daily observations for visible emissions, IEPA explained in the permit record why the revised permit's monthly monitoring frequency, with some visible emissions observations occurring at high wind speeds, is sufficient to yield reliable data from the relevant time period that are representative of the source's compliance with the

opacity limits. The Petitioner did not explain why a specific alternate testing frequency was more appropriate for this specific emissions unit. Because IEPA has responded to the Petitioner's comments on this issue, and the Petitioner has not demonstrated how the revised monitoring requirements are deficient, I deny the petition with respect to these monitoring claims.

II.D. Conditions 7.7.3.b and 7.7.3.g - Slab Reheat Furnaces

The Petitioner's Allegations:

The Petitioner alleges that the use of semi-annual opacity observations to determine compliance with the PM_{10} emission limits for the slab reheat furnaces, with PM_{10} testing only upon IEPA's request, does not constitute adequate periodic monitoring. Petition at 16. Specifically, the Petitioner claims the monitoring requirements in Condition 7.7.9.a, requiring semi-annual opacity observations for each affected slab reheat furnace unless no visible emissions are observed during the first 12 minutes of observation, with testing for emissions from the slab reheat furnaces only required upon written request from IEPA, are not sufficient for demonstrating compliance with the PM_{10} emission limits in Conditions 7.7.3.b and 7.7.3.g.[12] *Id.*

While acknowledging IEPA's explanation that it is appropriate for the permit to "rely primarily on observations of visible emissions and opacity as those observations will directly confirm good combustion and proper operation," the Petitioner asserts that "[w]ithout an established correlation between opacity and PM_{10} emissions, it is unclear how compliance with the PM_{10} limits will be determined based on opacity observations of the slab reheat furnaces if opacity is observed." *Id.* at 16-17 (quoting Response to Comments at 25). The Petitioner alleges that the permit does not specify an opacity level that would correspond to an exceedance of the PM_{10} limits in Conditions 7.7.3.b and 7.7.3.g. *Id.* at 17. Pointing to IEPA's statement that "some opacity" from the slab reheat furnaces "should not be considered a significant departure from the normal conditions of a furnace," the Petitioner alleges that "there is no discussion of the range of opacity levels associated with normal conditions of the [slab reheat furnaces] or how those opacity levels compare to the PM_{10} limits." *Id.* (citing Response to Comments at 25). The Petitioner alleges IEPA has not demonstrated that semi-annual opacity observations are "sufficient to yield reliable data from the relevant time period that are representative of the source's compliance with the permit." *Id.* (citing 40 C.F.R. § 70.6(a)(3)(i)(B)). The Petitioner requests EPA to object to the permit and direct IEPA to demonstrate how the monitoring requirements in the permit are sufficient to assure compliance with the limits or, failing that, require additional periodic monitoring. *Id.*

[12] Condition 7.7.3.b sets a PM_{10} emission limit of 38.7 ng/J (0.09 lb/mmBtu) of heat input for the slab reheat furnaces and condition 7.7.3.g sets a PM_{10} emission limit of 22.9 mg/scm (0.01 gr/scf) for the slab reheat furnaces. If visible emissions are not observed, then neither PM_{10} limit applies.

EPA Response:

EPA previously objected to the initial permit because IEPA failed to provide adequate support for the periodic monitoring associated with the PM_{10} emission limit for the slab reheat furnaces. 2011 Order at 29-30. In response to the 2011 Order, IEPA added requirements to Conditions 7.7.8(a)-(b) and 7.7.9(a)-(b) of the revised permit. Statement of Basis at 154. The revised permit changed the PM_{10} testing requirement for the slab reheat furnaces from once in five years to "upon written request." In addition, Condition 7.7.9(a) of the revised permit requires semi-annual opacity observations to determine compliance with the PM_{10} emission limits in addition to the initial opacity tests required by Condition 7.7.8(c). IEPA explained that it removed the mandatory testing requirement for the reheat furnaces because the testing for Reheat Furnace 4 conducted in August 2010 effectively served to fulfill this requirement over the five year term of the title V permit. Response to Comments at 25-26.

During the public comment period, the Petitioner commented that opacity observations are insufficient to assure compliance with the PM_{10} limits on the slab reheat furnaces because there is no way to derive PM_{10} emissions from opacity observations. Response to Comments at 24. Recognizing that the permit had changed from the one previously issued in 2009, which required PM_{10} testing once every five years, the Petitioner commented that one past test result does not guarantee that PM_{10} emissions will not exceed limits in perpetuity, even with the demonstration of a large measure of compliance. *Id.* The Petitioner suggested that the revised permit should require PM_{10} emission testing in the event that visible emissions are observed from a furnace. *Id.* In response to the Petitioner's comments on this issue, IEPA stated that since all four reheat furnaces fire COG and natural gas, and because the testing of Reheat Furnace 4 in August 2010 showed compliance with applicable PM_{10} standards "with a substantial margin of compliance," the testing of Reheat Furnace 4 eliminated support for a requirement for testing emissions of PM_{10} from the remaining three slab reheat furnaces during the term of the title V permit. Response to Comments at 25-26. IEPA further stated that it is sufficient that the visible emissions observations be conducted on a semi-annual basis, as only gaseous fuels are used in the reheat furnaces. IEPA explained that since particulate emissions from the slab reheat furnaces result from combustion of gaseous fuel in the furnaces, it is appropriate to rely on opacity observations as the principal element of periodic monitoring for PM_{10} emissions from the slab reheat furnaces since those observations will directly confirm good combustion and proper operation. Response to Comments at 24-25. IEPA stated that the emissions of particulate matter from the reheat furnaces are minimized as the furnaces are fired with gaseous fuels. *Id.*

It is clear from the permit record that IEPA determined that for these specific emission units, good combustion is the key to maintaining low PM_{10} emissions from the furnaces. Therefore, as explained by IEPA, the role of observations of visible emissions and opacity would be to confirm

that the furnaces are operating in a manner such that the quantitative measurements of particulate matter emissions during testing should be considered to reflect or be representative of their emissions. Response to Comments at 24. The permit record indicates that the PM_{10} emissions testing conducted in August 2010 on Reheat Furnace 4 confirmed IEPA's prior assessment that PM_{10} emissions from the reheat furnaces are expected to be low since the PM_{10} emissions result from combustion of gaseous fuel. [13] IEPA acknowledged that a precise rate of particulate matter emissions "cannot be mathematically derived from the opacity of emissions," but added that such precision is not needed to utilize opacity as an element of periodic monitoring. Response to Comments at 25. Additionally, in defending its reliance on prior source test results on Reheat Furnace 4 as an indication of future compliance with the applicable PM_{10} limits, IEPA stated:

> While an emission test that shows compliance does not guarantee that emissions will not exceed an applicable limit in perpetuity, even when the particular test shows a large margin of compliance....such a test is nevertheless a strong indication of future compliance over the limited five-year term of a CAAPP permit. This is especially true in the absence of factors that would introduce significant variability into the emission rate of a unit, notably the performance of add-on control equipment. As such, as applied to [particulate matter] emissions of the reheat furnaces, which are not equipped with particulate control equipment, this observation in this comment is not of any particular value as related to the Monitoring requirements for these furnaces... Moreover, as all four reheat furnaces fire COG and natural gas and the testing of Furnace 4 showed compliance with applicable [particulate matter] standards with a substantial margin of compliance, the testing of Reheat Furnace 4 also eliminated support for a requirement for testing emissions of PM_{10} from Furnace 1, 2 or 3 during the term of this CAAPP permit.

Id. at 25-26.

Although one prior source test on an emission unit does not necessarily assure future compliance with emission limits, EPA believes that PM_{10} emissions from typical slab reheat furnaces result primarily from combustion of fuels in the reheat furnaces. Consequently, the types of fuels burned in the furnaces have a direct impact on the amount of PM_{10} emissions emitted by the furnaces. Pursuant to Condition 7.7.6(b) of the USGW permit, the slab reheat furnaces are only allowed to burn natural gas and COG as a fuel. Permit at 229. Because the USGW permit only allows combustion of gaseous fuels in the slab reheat furnaces, and since combustion of gaseous fuels generally results in lower PM_{10} emissions than liquid or solid fuels (*e.g.*, fuel oil or coal), EPA expects that future PM_{10} emissions from these units would be low compared to what

[13] IEPA provided data from the most recent emission testing for Reheat Furnace 4, in August 2010, which showed that measured particulate matter emissions were less than a fraction of the applicable standards, with a compliance margin of over 90 percent. Statement of Basis at 108, FN 124.

emissions would be if the units were allowed to burn liquid or solid fuels. It is thus reasonable for opacity observations to be used as a periodic monitoring tool for PM_{10} emissions from the slab reheat furnaces.

Without an established mathematical correlation between opacity and PM_{10} emissions, it is generally difficult to calculate a precise amount of PM_{10} emissions corresponding to a specific opacity level. However, IEPA has provided several reasons why a correlation is not necessary for these specific emission units, including the observed historical performance of these units, previous source test data, the absence of factors that would introduce significant variability into the PM_{10} emission rates (e.g., no add-on control equipment on any of the units), and the fact that the units will only burn gaseous fuels which generally results in low PM_{10} emissions. Response to Comments at 25. In its petition, the Petitioner has failed to demonstrate that the bases laid out by IEPA are unreasonable and that the prescribed monitoring for the slab reheat furnaces is inadequate to assure compliance with the PM_{10} limits. The Petitioner has not refuted IEPA's assertion that since the slab reheat furnaces only burn gaseous fuels, they are expected to have very low PM_{10} emissions relative to the applicable PM_{10} standard – at least over the five-year term of the permit.

The Petitioner has failed to provide an analysis to demonstrate how the required visible emissions monitoring is inadequate to assure compliance with the PM_{10} limit or is insufficient to yield reliable data from the relevant time period that is representative of compliance with the PM_{10} limit. For the above reasons, I deny the petition with respect to these monitoring claims.

III. The Revised Permit Fails to Respond to EPA's Order with Respect to Excess Emissions Associated with Startup, Breakdown, and Malfunctions.

The Petitioner's Allegations:

The Petitioner alleges that IEPA failed to correct deficiencies with the permit's startup, breakdown and malfunctions (SSM) provisions as directed by the 2011 Order. Petition at 17-24.[14] The Petitioner alleges that the revised permit authorizes USGW to operate in excess of emission limits during malfunctions or breakdowns, and to violate limits during startup, in advance of those events having occurred and without having received event-specific information required by the Illinois SIP. *Id.* at 17; 23 (citing 35 IAC § 201.262 and Conditions 7.2.5-4, 7.2.5-5.a, 7.3.5, 7.4.5-2.b.i.A, 7.4.5-2.b.ii.A, 7.5.5-2.b.i, 7.7.5.a, 7.10.3.i, and 7.10.3.j). The Petitioner alleges IEPA did not implement any of the permissible options directed by EPA in the 2011 Order; namely (1) explain how IEPA determined in advance that USGW had already satisfied

[14] The Petitioner generally alleges USGW failed to satisfy the SIP's startup, shutdown, and malfunction (SSM) provisions. We note that the SIP at 35 IAC §§ 201.261, 201.262, and 201.265 specifically contains provisions related to startup, breakdown, and malfunction.

the requirements of 35 IAC § 201.262; or (2) make changes to the permit to ensure that IEPA authorizations are granted only after receiving and considering factual support specific to each SSM event. *Id.* at 17-18 (citing the 2011 Order at 39-40).

Noting that IEPA disavowed having made any advance determinations that USGW has already satisfied the SIP's SSM requirements, the Petitioner alleges that IEPA made no material changes to the permit conditions, and instead IEPA emphasized the recordkeeping and reporting requirements it added to the revised permit. *Id.* at 18 (citing Statement of Basis at 36-38 and Response to Comments at 37-38). The Petitioner asserts that IEPA's interpretation of the permit's SSM conditions is inconsistent with the permit conditions themselves and with the underlying SIP provisions. *Id.* at 19. According to the Petitioner, most people reading the permit without the benefit of the Statement of Basis and Response to Comments would not reach the same conclusions as IEPA regarding the permit's SSM provisions. *Id.* at 20. The Petitioner alleges that the minor wording changes IEPA made to the permit seem only to reinforce the concern that IEPA has pre-approved emission violations during startup. *Id.* at 19. The Petitioner states that although IEPA removed the word "violation" from the malfunction conditions, the revised permit nonetheless pre-approves USGW's operation in excess of permit limits. *Id.* The Petitioner explains, "[b]ecause the permit is enforceable and the Statement of Basis and Response to Comments are not, the permit conditions that expressly authorize [USGW] "to violate" or "to operate in excess of" emission limits, are at best ambiguous - if not directly contradictory to IEPA's off-permit explanations." *Id.* at 20.

The Petitioner further alleges that despite IEPA's off-permit explanation of the nature of the advance authorization granted in the permit, IEPA did not follow the Illinois SIP procedures when it granted USGW advance permission to violate or operate in excess of permit limits during SSM events. *Id.* at 19-24. The Petitioner explains that USGW's application to continue operation during SSM events did not comply with the Illinois SIP since it did not provide all of the information required by the Illinois SIP, such as the anticipated quantities of emissions during malfunction or breakdown and the specific measures USGW would take to minimize the length and frequency of emissions during SSM events. *Id.* at 21-23 (citing 35 IAC §§ 201.261 and 201.262), and CAAPP permit application, Request to Continue Operation During Malfunction or Breakdown, Coke Quenching at 1. The Petitioner requests EPA to object to the revised permit and direct IEPA to revise the permit language to comply with the Act and the Illinois SIP. *Id.* at 24.

EPA Response:

The Petitioner has raised questions concerning whether IEPA is appropriately interpreting and implementing the SSM provisions of the Illinois SIP. EPA notes that at the time of the 2011 Order, IEPA had not presented an interpretation of its SIP at 35 IAC §§ 201.261 and 201.262 in

the USGW permit record. In responding to the 2011 Order, however, IEPA explained its interpretation of the provisions for malfunction, breakdown, and startup events in its SIP at 35 IAC §§ 201.261 and 201.262 regarding USGW's permit application and permit conditions. IEPA explained that the authorization provided during the permitting stage is not a pre-determination that the source's exceedances do not constitute a violation of the standards. [15]

As a preliminary matter, EPA believes that the permit conditions at issue are worded in a manner consistent with IEPA's stated interpretation of its SIP. Consistent with IEPA's interpretation, EPA notes that the Illinois SIP at 35 IAC §§ 201.261 and 201.262 allows the source to request advance permission to continue operation during startups and malfunctions and requires that such authorization must be obtained at the permitting stage. According to 35 IAC § 201.265, the granting of permission to operate during a malfunction or breakdown, or to violate applicable state standards during startup is a *prima facie* defense to an enforcement action. In keeping with the two-step process delineated by IEPA in its Statement of Basis and Response to Comments, the permit provides authorization for USGW to operate "in excess" or "in violation" of standards, but makes clear that such authorization "does not shield the Permittee from enforcement for any such violation and only constitutes a *prima facie* defense to such an enforcement action provided that the Permittee has fully complied with all terms and conditions connected with such authorization." *See, e.g.,* Permit at 75. IEPA explained that "[g]enerally, these terms and conditions require efforts to minimize emissions as well as recordkeeping and reporting for malfunction, breakdown and startup events." Response to Comments at 38. The permit contains requirements for records of malfunctions or breakdowns. The permit conditions for the coke oven batteries, blast furnace operations, slab reheat furnaces, and boilers contain requirements to follow startup procedures, as well as recordkeeping and reporting requirements.

The Petitioner has demonstrated, however, that even accepting IEPA's interpretation of the SIP as a two-step process, USGW's application for authorization to emit in excess of the emissions limitations does not comply with the Illinois SIP at 35 IAC § 201.261(1) regarding the information required to be furnished in order to receive preauthorization to operate during startup, breakdown, and malfunction events. Accordingly, IEPA did not comply with the Illinois SIP at IAC § 201.262 regarding the standards for granting USGW advance permission to operate during startup, breakdown, and malfunction events.[16] Because the granting of approval to

[15] EPA notes that issues regarding whether the existing provisions in the Illinois SIP comply with the Act are outside the scope of the present review. EPA has entered into a settlement agreement which, among other matters, obligates EPA to respond to a petition for rulemaking from the Sierra Club concerning existing provisions in SIPs related to excess emissions from sources during periods of startup, shutdown, or malfunction that may be contrary to the Act and EPA's policies addressing such emissions. In addition to other matters, the Sierra Club petition referenced in the settlement agreement requests EPA to examine whether the regulations at 35 IAC §§ 201.261, 201.262 and 201.265 are consistent with the Act.

[16] IAC § 201.262 provides that permission shall not be granted to allow violation of the applicable state standards during startup unless the applicant has affirmatively demonstrated that all reasonable efforts have been made to minimize startup emissions, duration of individual startups and frequency of startups. USGW did not quantify

operate is contained within the permit's terms and conditions and such approval is dependent on the adequacy of the source's application for authorization, the Petitioner has also demonstrated that the permit's terms and conditions are flawed. The Petitioner has demonstrated that IEPA failed to follow its SIP where it approved an application that does not provide the specific information required by the SIP for approval to continue to operate during a malfunction or breakdown event and to exceed the applicable standard during a startup event. USGW's application did not comply with the plain language of the SIP's requirements for a request for permission because it did not include the required information regarding anticipated quantities of emissions, among other things. Therefore, I grant the petition with respect to the Petitioner's claim that the USGW application for permission to continue operations during startup, breakdown, and malfunction events did not include all of the information required by the Illinois SIP; consequently, I also grant the Petitioner's claim regarding the inadequacy of the permit's terms and conditions, insofar as they approved USGW's application for permission. IEPA may not, in accordance with the plain language of its SIP, grant permission to USGW to operate during startup, breakdown, and malfunction events absent an application from USGW that contains all of the information required by the Illinois SIP at IAC § 201.261(1) and IAC § 201.262, including anticipated quantities of emissions during malfunctions and breakdowns, and a full accounting of all measures undertaken to minimize startup emissions, duration of individual startups and frequency of startups.

IV. The Revised Permit Fails to Respond to EPA's Order to Include Applicable Requirements.

The Petitioner's Allegations:

The Petitioner alleges that IEPA has not adequately responded to the 2011 Order that granted the Petitioner's request to object with respect to IEPA's failure to include applicable requirements from four new source review permits in the initial title V/CAAPP permits. Petition at 24-25 (citing the 2011 Order at 3-5). The Petitioner claims the revised permit includes requirements from three of those permits, but does not include any requirements from the coke plant permit issued March 13, 2008, to Gateway Energy & Coke Company c/o SunCoke Company (Gateway). *Id.* at 24. The Petitioner alleges that IEPA did not address the Gateway coke oven permit in the Statement of Basis, except to state that it would be issuing a separate title V/CAAPP permit to Gateway for its coke oven plant at the USGW facility. *Id.* at 24-25.

startup emissions in their startup, breakdown, and malfunction application as required by IAC § 201.261(1). IEPA has not explained how it determined that USGW had affirmatively demonstrated that all reasonable efforts have been made to minimize startup emissions, duration of individual startups and frequency of startups.

The Petitioner specifically takes issue with "the interminable delay in issuing" a separate permit to Gateway for the operations it controls. *Id.* The Petitioner explains that it is now more than three years since IEPA issued a major new source review construction permit for Gateway, and two years since IEPA issued the initial title V permit for the several operations at USGW, yet IEPA has not even issued a draft title V permit for the Gateway coke oven plant. *Id.* The Petitioner claims IEPA made no commitment as to when such permit might be issued. *Id.* The Petitioner requests EPA to object to the permit and direct IEPA to promptly issue a title V permit for the Gateway coke oven plant, with specified deadlines for issuing the draft and final versions of that permit. *Id*

EPA Response:

In response to public comment on this matter, IEPA stated that Gateway will be issued a separate title V permit. Response to Comments at 48. IEPA stated that the title V permit that IEPA will eventually issue to Gateway will contain applicable requirements relative to that facility and need not be addressed in the permitting action for USGW. *Id.* Additionally, Condition 5.1.7 of the USGW permit provides that Gateway has elected to obtain a separate title V permit for its operations.

Permitting authorities may issue multiple title V permits to a single title V source so long as each facility's compliance obligations are clear, and so long as all applicable requirements are contained in a title V permit. *See In re: Shaw Industries, Inc., Plant No. 80, Dalton, Georgia Carpet Manufacturing*, Pet. No. IV-2001-9 (November 15, 2002), at 4-5; *In re: Shaw Industries, Inc., Plant No. 2, Dalton, Georgia Manufacturing*, Pet. No. IV-2001-10 (November 15, 2002), at 4-5; see also 40 CFR 70.2 ("*Part 70 permit* or *permit* (unless the context suggests otherwise) means any permit or group of permits covering a part 70 source that is issued, renewed, amended, or revised pursuant to this part."). [17] The Petitioner has not demonstrated that IEPA's plan to issue a separate CAAPP permit for Gateway is unreasonable, or inconsistent with previous EPA orders and guidance. Although in its 2011 Order EPA instructed IEPA to include in the USGW title V permit the requirements contained in Permit 06070020, the coke plant permit for Gateway, in responding to comments on this issue at that time, IEPA had not expressed its plan to issue a title V permit for Gateway. Therefore, it was reasonable at that time to require IEPA to include the requirements of the Gateway coke plant permit into the USGW title V permit. Concerning whether there has been an impermissible delay in issuing the Gateway title V permit, the Petitioner has not demonstrated that this is a deficiency in the permit at issue in this petition. The petition before EPA does not concern the Gateway title V permit,

[17] *See also* the following EPA memoranda: Steven Riva, Chief, Permitting Section, Air Programs Branch, Region 2, to Michael Rodburg, Esq., November 25, 1997; Cheryl Newton, Chief, Permits and Grants Section, Region 5, to Robert Hodanbosi, Chief, Division of Air Pollution Control, Ohio EPA , July 15, 1997; Matt Haber, Chief, Permits Office, Region 9, to Jennifer Schlosstein, November 27, 1996.

which has not been issued. Therefore, I deny the petition with respect to the Petitioner's claim that the USGW permit must include requirements from construction permits issued to Gateway.

V. CONCLUSION

For the reasons set forth above and pursuant to section 505(b)(2) of the CAA and 40 C.F.R. § 70.8(d), I hereby grant in part and deny in part the Petition dated August 16, 2011.

DEC -3 2012

Date

Lisa P. Jackson
Administrator

Patel, Minesh

From: Rutherford, Cari
Sent: Monday, July 24, 2023 9:46 AM
To: Patel, Minesh
Cc: Marr, Bill; Schnepp, Jason; Stewart, Tamara
Subject: Revised Modeling Memorandum for US Steel - ID 119813AAI
Attachments: Modeling Memorandum - US Steel - 119813AAI - Revised 07-24-2023.pdf

Minesh,

Please find attached a revised modeling memorandum for the US Steel project related to Permit #95010001.

If you have any questions, please let me know.

Thank you,
Cari

Cari Rutherford
Environmental Protection Specialist IV
Illinois EPA | Bureau of Air | Modeling Unit
phone: 217-524-4789

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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

MEMORANDUM

DATE: November 16, 2022

REVISED: July 24, 2023

TO: Minesh Patel, Construction Unit, Permits/BOA

FROM: Tamara Stewart and Cari Rutherford, Modeling Unit, Permits/BOA

SUBJECT: U.S. Steel Corporation - Granite City Works (ID 119813AAI), Application for Revisions to Permit 95010001, Air Quality Analysis for Carbon Monoxide

This memorandum addresses the Illinois EPA (IEPA) Modeling Section's (Permits) review of the Air Quality Analysis for carbon monoxide (CO) submitted by U.S. Steel - Granite City Works (US Steel). US Steel submitted this analysis as part of an application for revisions to Construction Permit/PSD Approval 95010001. In this application, among other requested revisions to this permit, US Steel requests increases in the allowable CO emissions as provided by this permit.

The Granite City Works are in Granite City, Madison County, Illinois. Madison County was designated as attainment for CO air quality in 1996, when Permit 95010001 was originally issued. It continues to be an attainment area for CO. Permit 95010001 was originally issued January 25, 1996. It authorized an increase in iron and steel production at the Granite City Works. The project was a major modification for CO under the PSD rules.[1]

As related to CO emissions, the application for revisions to Permit 95010001 does not involve any proposed physical changes to the Granite City Works. Rather, the application reflects new data for the CO emissions of units powered by natural gas and by blast furnace gas (BFG) – a byproduct of blast furnace operation. Updated emissions information is based on the availability of new emission factors and unit testing results which indicate that CO emissions are substantially greater than were originally represented.

Modeling Review

The air quality analysis and additional impacts analysis for CO were performed for US Steel by a consultant, RTP Environmental Associates, Inc. (RTP). RTP submitted its analyses to the IEPA in October 2022. By an email dated October 10, 2022, RTP submitted supplementary information in an updated report for the additional impacts analysis. The air quality analysis for CO and the additional impacts analysis have each been reviewed by the IEPA and are described in the following sections.

[1] The Project addressed by Permit 95010001 was also a major modification for sulfur dioxide (SO_2) under PSD. In the current application, US Steel has not requested increases in permitted annual SO_2 emissions, as currently authorized by Permit 95010001.

CO Air Quality Analysis

Proposed changes to CO emission factors for gaseous fuels will result in higher short-term emission rates for natural gas- and BFG-burning emission units at the Granite City Works. RTP performed an air quality analysis to ensure that the CO concentrations resulting from proposed CO limits listed in the application for revisions would not cause or contribute to a NAAQS violation. Below is a summary of the modeling tools and inputs used by RTP to conduct the air quality analysis for 1-hour and 8-hour CO averaging times:

- RTP used AERMOD (AMS/EPA Regulatory Model), version 22112. AERMOD is a state and federally approved regulatory model described in 40 CFR Appendix W to Part 51 as appropriate for use in regulatory applications. The audit runs conducted by IEPA also used the same version of AERMOD.

- AERMOD modeling files used IEPA and USEPA recommended regulatory options, which simulate phenomena such as atmospheric stability, plume rise, and downwash.

- Five years of meteorology, representative of the local area, were applied to the modeling. National Weather Service meteorological data files for years 2016 through 2020 were obtained from the National Centers for Environmental Information (NCEI) and consisted of surface data collected at the St. Louis Lambert International Airport in St. Louis, Missouri and upper air data collected at the National Weather Service Office in Lincoln, Illinois. RTP processed the meteorological data with AERMET, version 21112. IEPA audit runs used meteorological data from the same surface and upper air stations but were processed with AERMET, version 22112.

- National Elevation Data (NED) terrain elevations from USGS were processed using the most recent version of AERMAP (v. 18081) to develop the receptor terrain elevations and hill height scales required by AERMOD.

- RTP made use of multiple Cartesian grids in their distribution of receptors. The following receptor grid densities were used:

    - 50 meter spacing of receptors along the facility's fence line

    - 100 meter spacing of receptors from the facility's fence line out to 3 kilometers

    - 250 meter spacing of receptors from 3 kilometers out to 5 kilometers

    - 500 meter spacing of receptors from 5 kilometers out to 15 kilometers

- During its review, IEPA modeling determined that the receptor grid used by RTP was sufficient to characterize the impacts of the facility on CO air quality as the grid accounts for modeled impacts up to 15 km away from the facility. RTP-modeled significant impacts for the 8-hour CO averaging time did not extend beyond 1.5 km away from the

facility. RTP modeling did not show any significant impacts for the 1-hour CO averaging time.

- The approximate site elevation at the Granite City Works is 126.5 meters above mean sea level and the surrounding terrain is largely uniform.

- RTP used USEPA's Building Profile Input Program (BPIPPRM) to determine good engineering practice (GEP) stack heights and the appropriate building downwash parameters to model building wake effects.

- RTP considered the region to be rural, and accordingly, sources were modeled without implementing the AERMOD urban option. The Modeling Unit confirmed the acceptability of this classification with an independent Auer's analysis. The Modeling Unit's results of this analysis indicated that the area is 49.95% rural and 50.05% urban, with much of the rural area comprised of developed, low intensity land cover, 22.43%. The Modeling Unit developed additional modeling to evaluate differences between use and non-use of the urban option. Analysis results support the acceptability of using the rural option as modeled NAAQS concentrations were more conservative (higher) under this option.

Significant Impact Analysis

RTP performed a significant impact analysis to determine whether more detailed modeling would be required for CO. Table 1 lists results from this analysis. The maximum 1-hour and 8-hour CO impacts shown in the table reflect the net change in air quality that would result from proposed revisions to the modification permitted under the 1996 permit. Modeled results for the 8-hour CO averaging period exceeded the significant impact level (SIL) threshold of 500 $\mu g/m^3$ and required a cumulative analysis.

Table 1
Significant Impact Analysis Results

Pollutant	Averaging Period	Maximum Modeled Impact ($\mu g/m^3$)	Significant Impact Level ($\mu g/m^3$)	Cumulative Impact Analysis Required?
CO	1-Hour	1157	2,000	No
	8-Hour	692	500	Yes

IEPA modeled results were similar to those reported by RTP in its air quality analysis. IEPA's maximum modeled impacts for CO were 1,158 $\mu g/m^3$ for the 1-hour averaging period and 694 $\mu g/m^3$ for the 8-hour averaging period.[2]

[2] Differences in Modeling Unit and consultant data pre-processing activities may yield similar, but not identical modeled impacts in AERMOD. As one example, the Modeling Unit provides PSD applicants with stage 3 surface parameters, but applicants are expected to independently develop their own meteorology files for use in AERMOD.

Cumulative Impact Analysis for the NAAQS

RTP addressed CO emitting operations at the Granite City Works in its cumulative impact analysis. RTP also included background emission inventories for CO furnished by IEPA's Modeling Unit and the Missouri Department of Natural Resources (MDNR). These background inventories conservatively included all nearby sources within 50 km of the Granite City Works. Additionally, RTP used background data (for years 2016-2018) obtained from a nearby IEPA ambient air monitoring station in East St. Louis (AQS Site # 17-163-0010) which was about 9 km to the south.

Based on significant impact analysis results, only the 8-hour CO averaging period required a cumulative analysis. Table 2 summarizes the results from RTP's cumulative impact analysis. Modeled concentrations represent the maximum highest-second-high value over the five-year meteorological data set (years 2016-2020).

Table 2
Cumulative Impact Analysis Results

Pollutant	Averaging Period	Modeled Concentration ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Maximum Total Concentration ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
CO	8-Hour	2,045[1]	1,646[a]	3691	10,000

(1) Highest 2nd high value over 5 years of meteorological data

(a) Highest 2nd high concentration over 3 years of monitoring data

While the results of this analysis indicate that the project would not exceed the NAAQS for the 8-hour CO averaging period, IEPA has noted some deficiencies in the cumulative impact analysis that was performed by RTP. Primarily, the analysis does not account for the CO emissions of the facility.

The analysis fails to account for uncaptured CO emissions from the Casthouse on the Blast Furnaces and the Basic Oxygen Furnaces (BOF), even though the application indicates there are uncaptured emissions from both units. The uncaptured emissions from the Casthouse are mentioned in Section 4.4 of the 2022 application. While the 2022 application failed to address uncaptured emissions from the BOF, the application failed to show 100 percent capture of emissions from the units, and it neglected to explain why uncaptured CO emissions would not be present. The uncaptured CO emissions from the Casthouse and the BOF should have been addressed in the cumulative impact analysis.

The application also does not address CO emissions from the former by-product Coke Oven Batteries at Granite City Works, even though these batteries operated when this Project was originally permitted in 1996. The analysis does incorporate emissions from new coke oven batteries (owned and operated by Gateway Energy & Coke) that are adjacent to the Granite City Works, however, these units did not directly replace the shutdown units. The new batteries and

the old batteries operated concurrently for a period of several years before US Steel shut down its coke oven batteries in 2015. The 2022 application fails to explain why the cumulative impact analysis should not consider the CO emissions from the shutdown Coke Oven Batteries.

Additionally, the cumulative impact analysis uses a background concentration from an ambient monitoring station over the three-year period from 2016 to 2018. While the modeling demonstration utilized five years of meteorological data from 2016 to 2020, this background concentration does not represent the most recent three-year period. Due to this, the meteorological data utilized by RTP is not representative of the area's current ambient air quality.

The deficiencies discussed above should have been addressed in RTP's analysis of the Project's impact on ambient air quality.

CO Additional Impacts Analysis

US Steel is proposing revisions to existing CO limits for some of its emission units. Because the proposed net increase of CO exceeds the CO significant emission rate, RTP developed an additional impacts analysis for CO. In this analysis, RTP assessed whether any additional impacts to soils and vegetation would occur as a result of the requested CO emissions' increase.

Granite City Works is an existing facility, and the increasing permitted CO emissions should not be expected to result in any industrial, commercial, or residential growth. The revised permit that is requested would address levels of CO emission from the facility that are already occurring. CO is not bio accumulative and at ambient levels does not adversely affect vegetation. CO does not impact visibility. Likewise, CO emissions are not included in visibility screening tools such as USEPA's VISCREEN model.[3] As such, no visibility analysis was deemed necessary.

As previously discussed by the IEPA in its memorandum of October 7, 2020, US Steel's discussion regarding soils, vegetation, and local growth is acceptable.

Summary

While the air quality analysis submittal by US Steel indicates that the Project will not adversely impact CO NAAQS, the deficiencies noted above should have been addressed by US Steel in its cumulative impact analysis.

[3] Visibility screening tools consider the effects of aerosol species such as sulfates and nitrates — and the gaseous species that interact to form these aerosols. Level-1 analyses conducted with the USEPA VISCREEN model use particulate and NOx emissions to assess visibility impacts for Class I areas. The CALPUFF photochemical model uses emissions from the gaseous species SO_2, NOx, and HNO_3, as well as emissions from SO_4 and NO_3 particulates to assess Class I area visibility impacts.

cc: Jason Schnepp, Construction Unit Manager, Permits/BOA
Bill Marr, Section Manager, Permits/BOA

Patel, Minesh

From: Romaine, Chris
Sent: Friday, July 21, 2023 3:54 PM
To: LaDonna Driver; David W Hacker (DWHacker@uss.com); Campbell, Colin; Gurinder (Gary) Saini; Hardin, Christopher W; Piscitelli, Alexis S; karmentrout@uss.com
Cc: Patel, Minesh
Subject: FW: U.S. Steel Corporation: 119813AAI, 95010001
Attachments: US Steel - Public Notice Denial.pdf

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

MEMORANDUM

DATE: May 1, 2019

FROM: Donna Lee Jones, U. S. Environmental Protection Agency

TO: Integrated Iron and Steel (I&S) Residual Risk and Technology Review (RTR) Project File

SUBJECT: Development of Emissions Estimates for Fugitive or Intermittent HAP Emission Sources for an Example I&S Facility for Input to the RTR Risk Assessment

1.0 INTRODUCTION

This memorandum describes the development of emissions estimates for unmeasured fugitive or intermittent particulate matter (UFIP) that contains metal hazardous air pollutant (HAP) for an example facility in the Integrated Iron and Steel Industry (I&S) for purposes of the Risk and Technology Review (RTR) of the National Emission Standards for Hazardous Air Pollutants (NESHAP) for this industry (see 40 CFR, part 63, subpart FFFF). EPA conducted a preliminary industry-wide risk assessment performed to fulfill the Clean Air Act (CAA) requirements in section 112(f)(2) for the risk review portion of the RTR using test data from mostly stack sources submitted in response to an information collection request (ICR) sent to the I&S industry in 2010. (EPA, 2018) Because UFIP are difficult to measure and quantify, and the agency does not have reliable data for UFIP emissions, these type of sources were not included in the preliminary facility-wide risk assessment. Using the HAP emissions estimates for UFIP described in this document, risk modeling of the additional HAP emissions for UFIP estimated for the Example I&S Facility was performed to inform our assessment the potential risks due to these emissions sources in the I&S industry. See the following memoranda for detailed information on the procedures used to estimate point source emissions for this facility as well as all I&S facilities: *"Integrated Iron and Steel Risk and Technology Review Point Source Data Summary,"* and *"Summary of Integrated Iron and Steel Point Source Emissions Estimates for Risk and Technology Review."*

The following are seven UFIP emissions sources identified for the I&S industry. Note that two of the seven sources (Basic Oxygen Process Furnace (BOPF) Shop Fugitives and Blast Furnace Casthouse Fugitives) are currently regulated by opacity standards in the NESHAP, where opacity is a surrogate for metal HAP.

- Blast Furnace Unplanned Openings, i.e., Slips (intermittent, at bleeder valve stack)
- Blast Furnace Planned Openings (intermittent, at bleeder valve stack)
- Blast Furnace Bell Leaks (fugitive)
- Blast Furnace Slag Handling and Storage (fugitive)
- Blast Furnace Casthouse Fugitives (regulated)
- Benching of Iron from Blast Furnaces (fugitive)
- BOPF Shop Fugitives (regulated)

The I&S Facility EPA selected to use as the Example for modeling risk from both point and nonpoint sources is one of the largest in terms of production capacity of the eleven facilities in the I&S industry with four Blast Furnaces, two BOPF, and two Sinter Plants. In addition, the Example I&S Facility has blast furnace stoves for each blast furnace, desulfurization processes for the iron produced, and rolling operations for steel. The Example I&S Facility is one of only three I&S facilities that have sinter plant operations. Actual HAP emissions in 2011 for the Example I&S Facility were 84 tons per year (TPY) in 2011, based on stack test data submitted to the EPA in 2011. (EPA, 2018) Of the total HAP measured from stack sources, 51 TPY were from the sinter plants at the Example I&S Facility and 3 TPY were from other iron and steel operations. Allowable

emissions estimated for 2011 were 110 TPY HAP, with 56 TPY from sinter plants and 54 TPY from iron and steel operations.

The following (Section 2) describes the processes in the I&S industry where emissions from UFIP are thought to occur, Section 3 explains the estimates of particulate matter (PM) emission factors used to estimate UFIP emissions at the Example I&S Facility, Section 4 presents the HAP to PM ratios used to estimate HAP emissions from PM emissions estimates, described in Section 3, and the resulting HAP emissions estimated for the Example I&S Facility. Section 5 presents the modeling parameters used to model risk from UFIP sources at the Example I&S Facility. The results from risk modeling the Example I&S Facility are shown in Section 6. Comparison of the risk modeling results to data from an ambient monitor near the Example Facility is discussed in Section 7. References can be found in Section 8.

2.0 BACKGROUND ON I&S PROCESSES WITH UFIP EMISSIONS

This section describes the processes in the I&S industry where emission releases from UFIP occur. As noted above, BOPF Shop and Blast Furnace Casthouse Fugitives are regulated by opacity standards. Five UFIP sources are unregulated, of which three sources are fugitive: Benching of Iron, Blast Furnace Bell Leaks, and Slag Handling and Storage. The two remaining unregulated sources are intermittent but released through relief-valve stacks: Blast Furnace Planned and Unplanned Openings (Slips). These seven UFIP are described below.

2.1 Fugitives at Regulated Sources

The regulated UFIP fugitives from the Blast Furnace Casthouse and BOPF result from less than 100 percent capture by the control systems in place at various emission points within the buildings that include primary furnace operations, such as charging and tapping, and secondary emissions, such as hot metal (iron) transfer, desulfurization and skimming (DMTDS). Fugitive emissions leave the buildings through roof vents but also through open doors and other building openings.

2.2 Fugitives at Unregulated Sources

The unregulated UFIP emissions result from Benching, Blast Furnace Bell Leaks, and Slag Handling and Storage. Benching of iron occurs when the iron being produced in the Blast Furnace does not have any place to go. Frequently, this occurs when the steelmaking process at the BOPF stops suddenly and cannot receive the molten iron. In this situation, the iron is dumped, or "benched", on the ground, typically near the Blast Furnace. Fugitive PM emissions result from the impact of the iron on the ground as well as the initial high temperature of the iron, which causes fumes to be emitted from the pile of molten iron until it cools to ambient temperature. Most, if not all, of the emissions are expected to be metal particulate with some gaseous sulfur dioxide emissions.

Blast Furnace Bells (large and small) are part of raw material hoppers for some Blast Furnaces. The typical double bell systems are arranged in a type of lock system on top of the Blast Furnace so that raw materials can be charged into the Blast Furnace without allowing the solid raw material or furnace gas to escape into the atmosphere. The bells look like inverted cones with flat tops and, hence, appear like hills. The raw material or "charge" is first placed in the small bell's open hopper. The small bell is on top of the large bell, and the large bell's hopper is closed during filling of the small bell hopper. After filling the small bell hopper, its top is closed to the atmosphere, then its bottom opens into the top of the large bell. After the charge material is transferred to the large bell, its top is closed and its bottom is opened to allow the charge to enter the furnace. Exhaust air from the furnace is released into the large bell hopper when the top of the furnace is opened to prepare for charging. The exhaust air exits through "uptake" ducts prior to the opening of the small bell.

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The large Blast Furnace Bell contacts the top of the furnace via a metal seal so that most of the Blast Furnace gas and PM emissions evacuated into the uptakes is cleaned of PM by control devices. However, there is typically a narrow gap between the bell seal and the furnace that has been estimated to be about 50 micrometers (µm).(EPA, 1978) Notable leaks in the Blast Furnace Bells occur when the large bell seal wears down over time and the gap is enlarged allowing gas (and PM) to escape to the atmosphere. It is estimated that the large bell seals need to be replaced every 5 years; therefore, leaks can occur if the seals are not replaced on time or as needed for high wear situations.(EPA, 1978) Leaking of large bell seals at the furnace/bell seal interface can be visible to an observer.(EPA, 2016)

Slag is the substance skimmed from the surface of the metal produced in blast furnaces and BOPFs that contains impurities as well as components of the raw materials. Slag is a molten liquid solution of (mostly) silicates and metal oxides with some elemental metal HAP that solidifies upon cooling.(EPA, 2006) The slag leaves the furnaces in troughs (called "runners") and is transported to receiving locations directly outside the buildings. The slag is typically dumped from the runners into front-end loaders that transport the slag to pits located near the blast furnace. Sometimes the slag pit is immediately adjacent to the blast furnaces and the trough empties directly into the slag pit. Emissions from slag is thought to consist of three distinct steps that can generate fugitive PM (and metal HAP) emissions: (1) dumping of slag into pits (note that almost all current II&S facilities report using water spray to cool the hot slag when it leaves the blast furnace to minimize PM fumes and other PM emissions (EPA, 2018), (2) slag storage in open pits where wind and weather conditions can disturb the slag surface in the open pits and generate fugitive PM emissions (because the slag becomes solid soon after delivery to the slag pit, no fuming PM emissions are expected on a long term basis); and (3) slag removal from the slag pit with front-end loaders to be processed for recycling or removal from the facility.

2.3 Intermittent Stack Emissions at Unregulated Sources

Blast Furnace Planned and Unplanned Openings are intermittent and unregulated blast furnace emissions that are released through pressure release-valve stacks at the top of the ductwork (uptakes) used to transmit Blast Furnace gas to the PM and gas cleaning systems, and then onto the Blast Furnace stoves.[1]

Blast Furnace Unplanned Openings occur when raw materials loaded in the top of the furnace fail to descend smoothly in the furnace and bind together to form a "bridge" and "hang" (i.e., accumulate) in one position in the furnace. When a "hang" eventually falls, or "slips," it creates a pressure surge above the standard operating pressure that is automatically relieved out of "bleeder" valve stacks located at the top of the uptakes, about 200 feet above the ground and 100 feet above the top of the Blast Furnace. The slip can send uncontrolled Blast Furnace PM and gas into the atmosphere in the form of a large dust cloud. A slip, also called a "dirty gas bleeder valve opening", can last anywhere between three seconds and 10 minutes. The casthouse, where opacity is measured to fulfill the NESHAP requirements, surrounds the bottom section of the Blast Furnace and rises to about 100 feet above the ground, well below the bleeder stacks. Blast Furnace Unplanned Openings occur only occasionally, with fewer slips occurring with better quality raw material and more attentive furnace operation to enable early action to avoid slips.

Blast Furnace Planned Openings are similar to Blast Furnace Unplanned Openings, but because they are planned, the furnace conditions can be prepared before the bleeder valves are opened and emissions can be maximized. The most common reason to open bleeder valves is for repair of pipes (called "tuyeres") used for cooling or for injecting oxygen. Operators also may open the bleeder valves prior to other maintenance on the furnace or the stoves. In these procedures, the furnace is turned down to low idle before the relief valves are opened, hence the lower emissions during planned openings.

[1] Blast Furnace stoves recover heat from Blast Furnace gas for return to the Blast Furnace or for use in other processes at the plant. Blast Furnace stoves are unregulated sources of HAP; these units were tested in 2011 and included in the industry-wide risk modeling for the RTR.

3.0 PM EMISSIONS AND ACTIVITY FACTORS FOR UFIP

To determine the possible impact of UFIP emissions on the risk assessment for HAP in the II&S industry, it was necessary to pick the best available PM emissions factors. Therefore, the PM emission factors, and capture and control efficiencies described here were taken primarily from a relatively recent EPA document (EPA, 2006), although this document used the 1995 update of EPA's AP-42 section for the II&S industry (Section 12.5(EPA, 1995)) as its primary source of data. Because the 2006 document was developed by the EPA after the II&S MACT was promulgated and was based on an expert evaluation of the available emission information, it is considered the most reliable source of information about PM emissions for the II&S industry available to EPA and, hence, the most reliable information for UFIP sources. However, even the 1995 AP-42, the primary reference for the 2006 document, relied upon 1970 data in some cases. Other data that were used to estimate UFIP emissions were taken from reliable sources in the literature. In some cases, for the purposes of the II&S RTR, an emission factor from AP-42 for one II&S source was used for other II&S sources based on good engineering judgement (GEJ). Whenever possible, the original source of data referenced by the documents were obtained and reviewed; these references are cited in this document along with the 1995 AP-42 document. Also, where available, AP-42 emission factor quality ratings are provided. Emission factors that were not considered as accurate or representative of the current industry-wide performance are described in **Appendix A**.

Many of the emission factors were in terms of weight of PM per ton of iron, steel, or slag produced. To determine annual emissions, only the production of the Example II&S Facility and its operating units were needed. For intermittent emission sources, the frequency and duration of UFIP events were needed. In these cases, information on the emissions "activity," as it is called, was obtained from data reported by II&S facilities in 2011 (EPA, 2018), EPA regional enforcement activities.(EPA, 2016) or directly from representatives in the II&S industry.(AISI, 2017) In the remaining cases, estimates of emissions activity were made from GEJ based on EPA knowledge of the current industry.

The subsections below describe how HAP and PM emissions estimates were developed for UFIP at the Example II&S Facility. Step-by-step explanations are provided on the development of the PM emission factors and activity factors used to generate PM estimates for UFIP sources at the Example II&S Facility. **Table 1** summarizes the PM emission factors obtained or developed from the best available references to estimate UFIP emissions for the Example II&S Facility. **Table 2** summarizes the activity factors used to estimate PM emissions from UFIP sources at the Example II&S Facility on an annual basis. **Table 3** shows the resulting PM emissions estimates at the Example II&S Facility, as developed from the PM emission and activity factors shown in the previous two tables. The last column in **Table 3** shows the PM emission estimates for UFIP only, where point source PM emissions from the BOPF Shop and Blast Furnace Casthouse were removed to avoid double counting.

3.1 BOPF Shop Fugitives

The PM emission factors developed to estimate BOPF Shop fugitives for the Example II&S facility were based on a composite of uncontrolled emission factors for various BOPF operating activities and assumptions of capture and control efficiency (C&C). Uncontrolled emission factors from AP-42 for tapping, charging, and HMTDS (0.92, 0.60, 1.3 lb PM/ton, respectively) were used for these BOPF activities with the assumption of 95 percent C&C by various local hoods that capture the exhaust particles and route them to control devices, such as electrostatic precipitators (ESPs) and scrubbers. While the EPA 2006 document assumed 95 percent C&C, stating that "a well-designed and operated capture and control system can achieve a reduction of 95 percent or more (from the uncontrolled case) in filterable PM and HAP metal emissions from

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Table 1. Estimated Emission Factors for UFIP Sources in the H&S Industry[a]

UFIP Source		PM Emission Factor	Units	EQ[b]	Calculation
BOPF Shop Fugitives	Charging and HMTDS Tapping Oxygen blow	0.085 (g) 0.029 (h) 0.29 (o)	lb/ton steel lb/ton steel lb/ton steel	D	Sum (in T/yr) of (321 lb PM/ton uncontrolled charging and HMTDS at mix and degree of steel, mix steady (AP-42 (EPA, 1995), at no per emission CAA (EPA, 1995; EPA, 2016)) + (5.7 lb uncontrolled PM at open BOP before control device during oxygen blow, at 20 lb/ton (AP-42 (EPA, 1995); uncontrolled, assuming 99 percent CAA) + (0.8 lb
Blast Furnace Casthouse Fugitives		0.10	lb/ton iron	B	0.8 lb/ton uncontrolled (AP-42 (EPA, 1995)) with 93 percent overall CAA (baghouse controlled, 98 percent of time) and 75 percent overall CAA (in-house suppressed when skid (98 percent of time) (EPA, 1995; EPA, 2016))
Breaching of Iron		0.19	lb/ton iron	A	0.19 lb/ton iron Breaching using value for HMTDS (AP-42 (EPA, 1995))
Blast Furnace Bell Leaks		0.052	lb/ton iron	D	Seven assessments of the height of slips for Blast Furnace #10 = 0.0 lb/ton (BPA, 1975; EPA, 1976) from (AP-42 (EPA, 1995)) distributed equivalently over 5 yrs of typical BH and shutdown and using average value of 4 yrs (1 to 5 yrs, range)
Slag Handling & Storage	Dump pen ove	0.20	lb/ton slag	D	Surface and silt (0.13 lb PM/ton slag) from slag pours (Table 11.19.2-2 (AP-42 (EPA, 1995)) and blast furnace gas PM scrubbing slag (0.4 lb/ton) (EPA, 2016), for total of 0.53 lb/ton, per reference. See Appendix B for details of calculation.
Blast Furnace Unplanned Openings		206	lb/slip (EPA, 2016)	--	Sum of Stokes PM for 1 ton (AP-42 (EPA, 1995)) and blast furnace gas PM scrubbing slip for 4 tons/slip (EPA, 2016), for total of 5 tons/slip, per reference. See Appendix B for details of calculation.
Blast Furnace Planned Openings		10	lb/ton iron (EPA, 2016)	--	Sum of Stokes PM for 1 ton (AP-42 (EPA, 1995)) and PM from blender valve gas for 10 tons/slip (EPA, 2016), for total of 11 tons/slip, per reference. See Appendix B for details of calculation.

[a] All values from reference (EPA, 2016), which relied heavily on (AP-42 (EPA, 1995)), unless otherwise referenced or noted.

[b] Equality (EQ) rating is designated in (AP-42) and applies to (AP-42) factors only. Any additional assumptions, e.g., degree of capture and control (CAA) or engineering judgement, adds additional areas for potential error.

[c] Engineering judgement based on EPA knowledge of the industry, includes (AP-42) referenced, and 2011 EPA survey of the industry (EPA, 2016).

[d] Stokes' equation: "Terminal velocity of small spherical particles, based on gravitational settling and viscous drag forces, used to calculate the theoretical settling velocity of particles in a fluid medium."

[e] Slag pen vents are thought to be significant fugitive dust emission sources. The discharging of the molten slag from the transfer ladles into the slag pens is also expected to be significant emissions and is assumed to be a source for the purposes of this inventory.

Table 2. Activity Factor Development for UFIP Sources at an Example H&S Facility in the H&S Industry

UFIP Source	Activity Factor[a]	Units	Assumptions
BOPF Shop Fugitives			
Oxygen Blow	5,871,382	steel, TPY	Split among BOPF Shops by portion of steel production rate
Tapping	5,871,382	steel, TPY	Split among BOPF Shops by portion of steel production rate
Charging & HMTDS	5,121,867	iron, TPY	Split among BF by portion of iron production, as feed from the blast furnace
Blast Furnace Casthouse Fugitives	5,121,867	iron, TPY	Split among Blast Furnace Cathouses by portion of iron production rate
Breaching of Iron	700	iron, TPY	Amount of iron breached/yr, per Blast Furnace (with average of industry data over seven years (2003-2009, 4,827 tons) (AISI, 2017))
Blast Furnace Bell Leaks	1,978,577[c]	iron, TPY	Split among each of three Blast Furnaces with seals by portion of iron production rate
Slag Handling & Storage	970,407[c]	slag, TPY	Split among each of three Blast Furnaces slag pits by portion of iron production rate
Blast Furnace Planned Openings	156	relines/year	3 openings/week, 52 weeks/yr, for each Blast Furnace[b]
Blast Furnace Unplanned Openings	48	slips/year	Combination of low (2 slips/month) and high (6 slips/month) slip rates (EPA, 2016) where half the year is assumed as high rate and half at low rate, for each Blast Furnace[b]

[a] Activity factors for steel and steel production are based on the response by the Example H&S Facility to a 2011 EPA survey of the industry and updates from 2016. (EPA, 2016)

[b] Engineering judgement based on knowledge of the industry

[c] Two Blast Furnaces (#14, #4, at 61 percent of iron) do not have bell seals and slag from Blast Furnace #13 (39 percent) goes directly to a granulator instead of Slag Handling and Storage; therefore, these units do not have emissions. Consequently the facility throughput of iron and slag at 5,121,867 TPY and 1,978,409 TPY, respectively, used as activity factors for these sources are reduced.

Table 3. Estimated PM Emissions for Seven UFIP Sources at the Example H&S Facility

UFIP Source	PM Emissions[a] (TPY)		
	Per Unit[b]	Total Facility[c]	
		Point+UFIP Sources[d]	UFIP Sources Only[d]
BOPF Shop Fugitives	--	1,234	1,146
Blast Furnace Casthouse Fugitives	--	256	230
Blast Furnace Bell Leaks	--	16	No change
Slag Handling & Storage	--	172	No change
Breaching of Iron (4 units)	0.087	0.27	No change
Blast Furnace Unplanned Openings (4 units)	4.9	20	No change
Blast Furnace Planned Openings (4 units)	3.2	13	No change
Total		1,690	1,596

[a] Emissions are calculated by multiplying the emission factor by the activity factor and converting the emissions to pounds to tons (2000 lb/ton) where needed.

[b] These emissions were calculated per unit and multiplied by the number of units to produce the facility total.

[c] Entries are rounded.

[d] Data from "All Emission Sources," were estimated from the UFIP emission factors, which included PM emissions from point source control devices as well as UFIP sources. Therefore, to eliminate double counting in the risk modeling of the Example Facility for PM-related HAP emissions from control devices at the BOPF Shop and Blast Furnace Casthouse, the total PM estimated from emission factors was reduced by the PM emissions measured at point source control devices during source testing for the BTR, at 26 and 68 TPY, respectively.

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these sources," many facilities in the post-MACT compliance era now report greater than 98 percent C&C in permits and inventories (EPA, 2006; EPA, 2018) However, 95 percent C&C was used as a conservative estimate of capture and control device operation for estimating the emissions for this source. In addition, BOPF Shop Fugitives include the uncaptured emissions from the top of the BOPF that occur due to incomplete capture by hooding during oxygen blows. The most significant emissions from the BOPF occur during the oxygen blow period from the primary hood capture system located directly over the open mouth of the furnaces that routes PM to control devices. For these emissions, the C&C efficiency was assumed to be 99 percent because facilities need to comply with opacity MACT limits during the oxygen blow so high capture efficiency is essential. An AP-42 emission factor of 28.5 lb PM/ton steel(EPA, 1995) was used for uncontrolled BOPF emissions during oxygen blow.

In all BOPF Shops, there are iron-related activities as well as steel-related activities. Both charging and HMTDS are iron-related whereas tapping and oxygen blow are related to steel production. To estimate fugitive PM emissions from the BOPF Shop for the Example H&S Facility, the uncontrolled PM emission factors in AP-42 for these activities, in lb PM per ton of product (iron or steel) were multiplied by 0.05 (1-0.95) uncaptured PM, when 95 percent C&C was assumed, or a factor of 0.01 (1- 0.99) when 99 percent C&C was assumed, to produce controlled emission factors of 0.046, 0.03, 0.065, and 0.29 lb PM/ton for tapping, charging, HMTDS, and oxygen blow, respectively, as shown in **Table 1**.

The PM emission factors were multiplied by the amount of steel or iron produced per year, as shown in **Table 2**, to estimate the annual PM emissions for the Example H&S Facility. Using the steel production value of 5,871,382 tons per year (TPY) and the iron production value of 5,121,867 (EPA, 2018) produces an estimate of fugitive BOPF Shop emissions of 1,214 TPY PM from all sources, as follows: {[(0.046+0.29) *5,871,382) + (0.095*5,121,867)]/ 2000}. This value is shown in the "All Sources" column in **Table 3**. This estimate of fugitive emissions from the BOPF Shop then was reduced by the amount of PM attributed to point source control devices, which were included in the emission factor. For BOPF at the Example Facility, the point source PM emissions were measured at 68 TPY PM in the ICR testing. The estimated total PM from UFIP from BOPF Shops at the Example Facility was reduced from 1,214 TPY to 1,146 TPY to account for point sources, as shown in **Table 3** in the "UFIP Sources Only" column.

For purposes of risk modeling of the Example Facility, the estimated HAP related to PM emissions of UFIP from BOPF Shop Fugitives were apportioned to each shop according to the portion of steel produced by each BOPF and then split evenly between two vents for each of the two BOPF Shops. The point source HAP from BOPF Shop control devices were modeled as measured. Development of HAP emission estimates are discussed in **Section 4**.

3.2 Blast Furnace Casthouse Fugitives

The PM emission factor developed to estimate Blast Furnace Casthouse Fugitives for the Example H&S facility was based on an uncontrolled AP-42 emission factor of 0.6 pounds (lb) PM per ton of iron for Blast Furnace Casthouse emissions with the assumption of 95 percent C&C from hoods that capture the exhaust PM and route it to baghouses used as control devices, and 75 percent C&C for blast furnaces that use fume suppressants for PM control.(EPA, 2006) At the example facility, approximately 60 percent of the iron is produced in blast furnaces that use fume suppressants and approximately 40 percent of the iron is produced in a blast furnace that uses a baghouse. This results in a Blast Furnace Casthouse fugitive PM emission factor for the Example H&S Facility of 0.10 lb PM/ton iron [60 percent*0.6*(1-0.95) +40 percent*0.6*(1-0.75)] as shown in **Table 1**. The PM emission factor was multiplied by the amount of iron processed by the Example H&S Facility, at 5,121,867 TPY (EPA, 2018), shown in **Table 2**, to estimate total annual PM emissions from Blast Furnace Casthouse fugitives for the Example H&S facility, at 256 TPY of PM [(0.1*5,121,867)/2000], shown in **Table 3**. This estimate of fugitive emissions from the Blast Furnace Casthouse then was reduced by the amount of PM attributed to point source control devices, which were included in the emission factor. For Blast Furnace

Casthouses at the Example Facility, the point source PM emissions were measured at 26 TPY PM in the ICR testing. The estimated total PM from UFIP from Blast Furnace Casthouse at the Example Facility was reduced from 256 TPY to 230 TPY to account for point sources, as shown in **Table 3** in the "UFIP Sources Only" column.

For purposes of risk modeling of the Example Facility, the estimated HAP emissions from PM UFIP from Blast Furnace Casthouse were apportioned to each casthouse according to the portion of steel produced by each Blast Furnace. The point source HAP from Blast Furnace control devices were modeled as measured.[2] Development of HAP emission estimates are discussed below in **Section 4**.

Estimated fugitive emissions of the Blast Furnace Casthouse were reduced by the amount of PM attributed to point source control devices or measures, such as fume suppressants. For Blast Furnace Casthouses at the example facility, the point source PM was estimated to be 26 TPY PM. Therefore, the estimated total PM from Blast Furnace Casthouse at the example facility was reduced from 256 TPY to 230 TPY as shown in the last column in **Table 3**.

3.3 Beaching of Iron (Fugitives)

There were no emission factors available in EPA documents or the literature to estimate PM emissions from Beaching. The AP-42(EPA, 1995) emission factor for fugitive emissions from hot metal transfer (HMT) of iron was used as a close approximation of the fugitive emissions from iron that is beached, at 0.19 lb PM/ton iron, as shown in **Table 1**. The steel industry provided historical information for beaching at a blast furnace of 4,827 tons beached over a 7-year period (2003 to 2009) for an average of approximately 700 tons beached per year per blast furnace and an average of one beaching event per year (AISI, 2017).

Multiplying the emission factor of 0.19 lb PM/ton iron by 700 tons per year results in an estimate of 0.067 tons/yr. PM emissions [(0.19*700)/2000] for beaching iron at one blast furnace at the Example H&S Facility. The total estimated PM emissions from Beaching at all four blast furnaces at the Example H&S Facility were estimated by multiplying the annual PM emissions for one blast furnace by a factor of four for a total of 0.27 TPY, as shown in **Table 3**.

3.4 Blast Furnace Bell Leaks (Fugitives)

There were no accurate emission factors available for Blast Furnace Bell Leaks.[3] Therefore, as an estimate of PM fugitives from Blast Furnace Bell Leaks, the upper end of the range in emissions for Blast Furnace Unplanned Openings was used, where the range in slips was 0.0046 to 0.046 lb PM/ton of iron (as "hot metal" from EPA, 1976/EPA, 1976) the original slip reference in AP-42). The upper value was taken as the maximum "leak" rate and distributed exponentially from zero to 5 yrs of a typical bell seal lifetime, where a new bell seal is assumed to not release any appreciable PM in the first year. The middle value at end of year three (1 to 5 yr. range), at 0.012 lb PM/ton iron (shown in **Table 1**) was used to represent the average bell leak rate for modeling purposes. The graph used to determine the middle (3-yr) value is shown in **Appendix C**.

The PM emission factor for Blast Furnace Bell Leaks was multiplied by the amount of iron produced by the two Blast Furnaces with bells at Example H&S Facility, at 1,978,577 TPY (EPA, 2018), to estimate annual PM emissions from Blast Furnace Bell Leaks for the Example H&S Facility, of 12 TPY [(0.012*1,978,577)/2000], shown in **Table 3**. The total estimated PM emissions from Blast Furnace Leaks at the Example H&S Facility were apportioned for purposes of the risk modeling to each of the two Blast Furnaces according to the portion of iron produced by each furnace.

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[2] This is mathematically equivalent to using emission factors for fume suppressant or fabric filters, as appropriate, with iron production at each furnace. The composite emission factor approach allows comparison to other UFIP emission factors.

[3] See Appendix A for other emission factors that were reviewed and are used.

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3.5 Slag Handling and Storage Fugitives

There were no accurate emission factors available for all three steps in slag processing,[1] therefore, emission factors developed for other B&S sources were used as surrogates to estimate fugitive emissions from slag processing, as described above in **Section 2.2**. For Steps (1), the transfer of slag from front end-loaders into the slag pit, and (2), open storage of the slag in pits, an emission factor developed for slag in slag runners (Trozzo, 1983) was used, at 0.13 lb PM/ton of slag, to estimate fugitive PM emissions for Slag Handling and Storage at the Example B&S Facility. For Step (3), the AP-42 (EPA, 1995) emission factor for batch drop of high-silt material via front-end loader, at 0.026 lb PM/ton slag, was used to estimate fugitive PM emissions from removal of slag from the pit for further processing. The composite PM emission factor developed for Slag Handling and Storage at the Example B&S Facility was 0.29 lb PM/ton slag as the sum of PM emission factors from all three steps (0.13+0.13+0.026), as shown in **Table 1**. Using the amount of slag processed at three of the slag pits at the Example B&S Facility, at 970,407 TPY shown in **Table 2**, the total annual PM emissions from slag handling at the Example B&S Facility was estimated at 141 TPY: [(0.29*970,407)/2000],[1] as shown in **Table 3**. For the purposes of risk modeling, the total estimated PM emissions from Slag Handling and Storage at the Example B&S Facility were apportioned to each of the three slag pits according to the portion of iron produced by each blast furnace.

3.6 Blast Furnace Unplanned Openings (Intermittent)

An emission factor of 206 lb PM/slip was developed for Blast Furnace Unplanned Openings from the information and assumptions listed below. See **Appendix B** for additional details of the Unplanned Opening calculations.

- The slip occurs over a total of five seconds, where the first second consists of high PM-loaded blast from the "slipped" material in the blast furnace and the next four seconds includes high PM-laden blast furnace air.
- The initial blast in the first second of the slip is estimated to be 87 lb/slip, the AP-42 (EPA, 1995) slip emission factor typically used by industry, EPA, and state and local agencies to date.
- After the first five seconds, in the next four seconds, PM from blast furnace air accompanying the slip is estimated by multiplying a typical gas flowrate (EPA, 2016) (3300 ft^3/sec) by a high PM loading, approximated by applying a factor of 10 to a typical PM level (AISI, 2017) (0.0089 lb/ft^3 x 10 = 0.089 lb/ft^3), and then by four seconds.
- The resulting slip emissions is estimated to be 87 + 119 (4*0.089*3300) = 206 lb/slip, as shown in **Table 1**.

Annual PM emissions from Blast Furnace Unplanned Openings from one Blast Furnace were estimated for the Example B&S Facility using observation made by EPA field staff, (EPA, 2016) where the low end of slip frequency was 2 times per month and high end was 6 slips per month. For modeling purposes, the number of slips for the Example B&S Facility was estimated by using the low end of the slip frequency range for half the year, at 2 slips per month, and the high end, at 6 slips per month, for the other half of the year, for a total of (6*2+6*6) 48 slips per year for one Blast Furnace, as shown in **Table 2**. Multiplying the number of slips for one Blast Furnace by the amount of PM estimated for a slip results in an estimate of annual PM emissions of 4.9 TPY [48*206/2000]. The total estimated PM emissions from Blast Furnace Unplanned Openings at the Example B&S Facility were estimated by multiplying the annual emissions for slips at one blast furnace by a factor of four for each of the four furnaces for a total of 20 TPY, as shown in **Table 3**.

[1] This is mathematically equivalent to applying the emission factor of 0.29 lb PM/ton slag to the slag produced at each blast furnace. The composite emissions were used for simplicity and because only the total amount of slag at the Example B&S Facility was known.

3.7 Blast Furnace Planned Openings (Intermittent)

Because the Blast Furnace can be prepared in advance for a planned opening, much less PM is expected to be emitted during Blast Furnace Planned Openings than with Blast Furnace Unplanned Openings. During a planned opening, PM is emitted from blast furnace bleeder stacks in a similar manner as with a Blast Furnace Unplanned Opening described above, but without the high PM from the slipped burden. An emission factor of 41 lb PM/planned opening was developed for Blast Furnaces at the Example B&S Facility from the information and assumptions listed below. See **Appendix B** for additional details of Blast Furnace Planned Opening calculations.

- The opening occurs over a total of 120 seconds, where the 1st second consists of the PM in the bleeder headspace and the next 119 seconds includes PM-laden blast furnace air.
- The initial blast in the first second of the opening is estimated from the volume of 6000 ft^3 of bleeder valve headspace and a typical PM loading (AISI, 2017) of 0.0089 lb/ft^3, at 54 lb PM.
- In the next 119 seconds, PM emitted from the blast furnace, at a lower gas flow rate due to "turn down" activities, that accompanies the opening is estimated by multiplying 1/10 of the typical gas flowrate (EPA, 2016) (at 330 ft^3/sec) by the PM loading of 0.0089 lb/ft^3, and then by 119 seconds.
- The resulting Planned Opening emissions is estimated to be 54 lb PM+ 35.3 (0.0089*330*119) = 41 lb PM/opening, as shown in **Table 1**.

Because there are numerous reasons why a Blast Furnace might be opened during the year, Blast Furnace Planned Openings were estimated to occur at a higher rate than Blast Furnace Unplanned Openings. The EPA field staff experience with the number of planned openings at B&S plants is that these events range from 1 to 5 times a week, with an average of 3 times a week, (EPA, 2016) as shown in **Table 2**. To estimate annual PM emissions from Blast Furnace Planned Openings at the Example B&S Facility, the PM emission factor of 41 lbs. per opening was multiplied by an estimate of 3 openings per week for a total of 156 openings per year (52*3=156 openings/yr.). The estimated annual PM emissions from one Blast Furnace due to Planned Openings at the Example B&S Facility was then 3.2 TPY [41*156/2000] and 13 TPY for all four blast furnaces, as shown in **Table 3**. For modeling purposes, the total PM emissions at the Example B&S Facility from Blast Furnace Planned Openings were apportioned to each blast furnace by the portion of iron produced at each furnace.

4.0 DEVELOPMENT OF HAP EMISSION ESTIMATES FOR UFIP

The HAP emissions for UFIP were estimated from PM emissions as described above and HAP/PM ratios primarily developed from point source B&S test data from 2011 (EPA, 2018) used in the preliminary risk estimate. **Table 4** shows which process units in the 2011 test data were used to estimate HAP/PM ratios for the UFIP sources. The HAP/PM ratios for six of the seven UFIP sources were developed from the 2011 test data for either the BOPF or the Blast Furnace. The HAP/PM ratios for these UFIP sources were expected to be similar to the HAP/PM ratios for the point source units because the UFIP emissions originate from these point sources.

A composite HAP/PM profile was developed from primary and secondary HAP and PM point source emissions at the BOPF at the Example B&S Facility, as shown in **Table 5**, to estimate BOPF Shop Fugitives. A composite HAP/PM profile was developed from Blast Furnace HAP and PM point source emissions at the Example B&S Facility as shown in **Table 6**. These HAP/PM factors were used for the UFIP sources of Blast Furnace Cast House fugitives, Benching, Bell Leaks, Unplanned Openings, and Planned Openings.

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Table 4. Data Source for HAP/PM Ratios for UFIP Sources

UFIP Source	Data Used for HAP/PM Ratios (EPA, 2018)
BOPF Shop Fugitives	BOPF tests
Blast Furnace Casthouse Fugitives	Blast Furnace tests
Beaching of Iron	Blast Furnace tests
Blast Furnace Bell Leaks	Blast Furnace tests
Slag Handling & Storage	Literature slag data (EPA, 1977); Blast Furnace tests
Blast Furnace Planned Openings	Blast Furnace tests
Blast Furnace Unplanned Openings	Blast Furnace tests

Table 5. HAP/PM Ratios from Stack Testing of BOPFs at the Example II&S Facility (EPA, 2018)

HAP	HAP/PM Ratio
Antimony	2.1E-04
Arsenic	5.8E-05
Beryllium	5.0E-06
Cadmium	7.4E-04
Chromium III	5.2E-04
Chromium VI	4.8E-04
Cobalt	6.2E-05
Lead	8.2E-03
Manganese	2.0E-02
Mercury	1.2E-03
Nickel	9.0E-04
Selenium	3.3E-05
Sum HAP/PM Ratios	3.2E-02
Average HAP/PM Ratio	2.7E-03

Table 6. HAP/PM Ratios from Stack Testing at Blast Furnaces at the Example II&S Facility (EPA, 2018)

HAP	HAP/PM Ratio
Antimony	7.2E-04
Arsenic	1.8E-02
Beryllium	2.6E-05
Cadmium	2.1E-04
Chromium	9.4E-03
Chromium VI	7.3E-05
Cobalt	1.7E-04
Lead	8.5E-04
Manganese	5.4E-03
Mercury	2.2E-04
Nickel	2.5E-03
Selenium	5.3E-05
Sum HAP/PM Ratios	3.7E-02
Average HAP/PM Ratio	3.1E-03

Table 7. Estimated HAP/PM Ratios for Slag Pits from the Literature[a] for Four HAP Compared to Blast Furnace HAP/PM Ratios from 2011 Testing[b]

HAP	HAP/PM Ratio		Scaling Factor: Blast Furnace to Slag HAP/PM Ratios
	Slag Pit[a]	Blast Furnace[b]	
Chromium	5.0E-05	9.4E-03	189
Lead	2.0E-05	8.5E-04	43
Manganese	3.0E-03	5.4E-03	2
Nickel	8.0E-04	2.5E-03	3
Average HAP/PM Scaling Factor			59

[a] EPA, 1977.
[b] EPA, 2018.

The blast furnace at the example facility had the highest arsenic to PM ratio for the blast furnaces in the current II&S industry, although lower than another facility in the same company which closed before the risks were evaluated for the II&S RTR. See **Appendix D** for a list of these arsenic PM factors.

For slag handling and storage, HAP/PM ratios for slag emissions of four metal HAP (chromium (total), lead, manganese, and nickel) were obtained from a 1977 EPA document (EPA, 1977) **Table 7** shows the HAP/PM ratios for four HAP in slag from the 1977 EPA document (EPA, 1977) and the HAP/PM ratios for the same four HAP from the 2011 Blast Furnace test data. Because the blast furnace emitted all 11 metal HAP, it was expected that slag also included all 11 metal HAP. Therefore, the HAP/PM ratios for slag processing for the seven other metal HAP were estimated from scaling factors developed by comparing the HAP/PM ratios for Slag to the Blast Furnace HAP/PM ratios, also shown in **Table 7**. The overall average scaling factor, at 1/59 or 0.017 was used to estimate Slag HAP/PM ratios for the seven other metal HAP not included in the literature. **Table 8** shows the Slag HAP/PM factors for each of the 11 metal HAP with the source of the HAP/PM ratio noted (from the 1977 EPA document (EPA, 1977) or estimated using the average Blast Furnace-to-Slag scaling factor from **Table 7**). To split the total chromium value from the literature into Cr-III and Cr-VI for risk modeling purpose, the split between Cr-III and Cr-VI from the Blast Furnace data for the Example II&S Facility was used, at 99.2 percent for Cr-III and 0.8 percent for Cr-VI

To estimate the amount of HAP for each UFIP, the PM estimates in **Table 3** were multiplied by the HAP/PM ratios for each HAP shown in **Tables 5, 6, or 8**, as appropriate, to produce an estimate of annual HAP emissions for the seven UFIP sources, as shown in **Table 9**, for each HAP. For modeling purposes, HAP emissions were apportioned to each process unit in one of two ways. For HAP/PM emission factors that were expressed in total TPY iron or steel produced, the PM and HAP were apportioned to each unit by its portion of total production. For Blast Furnace Casthouse Fugitives and Blast Furnace leaks, the apportioning was as follows between the Blast Furnaces at the Example facility: BF-4, 21 percent, BF- 6, 19 percent, BF-8, 20 percent, and BF-14, 40 percent. For the BOPF, the apportioning was as follows between the BOPFs at the Example facility: BOPF #1, 44 percent (North stack, 22 percent, South stack, 22 percent); QBOPF #2, 56 percent (East stack, 28 percent, West stack, 28 percent). **Table 10** shows the UFIP emissions combined with the point source emissions for the II&S Example Plant, by HAP. **Table 11** shows the UFIP and point source emissions by emissions unit.

5.0 MODELING PARAMETERS FOR RISK MODELING OF UFIP SOURCES

This section presents the modeling parameters for the risk modeling of the UFIP sources. **Table 12** shows the modeling parameters for all seven UFIP sources at the Example II&S Facility. Below is a discussion of the various modeling parameters.

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Table 8. Estimated HAP/PM Ratios for Slag Pits

HAP[a]	HAP/PM Ratio	Data Source	
		Literature Only[a]	Scaling Factor[b]
Antimony	1.2E-05		√
Arsenic	3.0E-04		√
Beryllium	4.3E-07		√
Cadmium	3.6E-06		√
Chromium III	5.0E-05	√[c]	
Chromium VI	3.8E-07	√[c]	
Cobalt	2.9E-06		√
Lead	2.0E-05	√	
Manganese	3.0E-03	√	
Mercury	3.7E-06		√
Nickel	8.0E-04	√	
Selenium	8.9E-07		√
Sum HAP/PM Ratios	4.2E-03		
Average HAP/PM Ratio	3.0E-04		

[a] EPA, 1977.

[b] HAP/PM ratios were estimated in some cases by scaling down the Blast Furnace HAP/PM ratios from the 2011 test data (EPA, 2018) using a *scaling factor* developed from the average of the Slag HAP/PM ratios for four HAP in the literature (EPA, 1977) as compared to the HAP/PM ratios in the 2011 test data for Blast Furnaces (EPA, 2018), equal to 50, as shown in Table 9.

[c] EPA, 2018.

[d] Speciated using the total chromium HAP/PM factor (EPA, 1977) and chromium speciation from the 2011 Blast Furnace test data (EPA, 2018), as follows: Cr III: 99.2 percent; Cr-VI: 0.8 percent.

Table 9. Estimated HAP Emissions for Seven UFIP Sources at the Example HAPs Facility

HAP	HAP Emissions (TPY)							
	BOPF Shop	BF Casthouse	BF Reaching	BF Leaks	BF Fugitives Operation	BF Planned Operation	Slag Pits	Total HAP
Antimony	0.15	0.16	0.000037	0.00006	0.011	0.0092	0.0017	0.35
Arsenic	0.0012	3.8	0.00047	0.23	0.35	0.27	0.043	5.0
Beryllium	0.00005	0.00005	0.0000012	0.000003	0.000042	0.000035	0.0000069	0.0001
Cadmium	2.1	0.018	0.0000056	0.00025	0.0043	0.0027	0.00036	1.2
Chromium	1.2	2.2	0.00035	0.13	0.58	0.13	0.0002[b]	3.9
Chromium VI	0.16	0.017	0.0000054	0.00013	0.0017	0.0009[b]	0.0000[b]	0.2
Cobalt	0.10	0.038	0.000003	0.00020	0.0043	0.0022	0.000029	0.15
Lead	2.1	0.20	0.00013	0.0018	0.017	0.011	0.00158	2.3
Manganese	20	1.5	0.00018	0.0065	0.11	0.0029	0.31	22
Mercury	1.1	0.050	0.0000076	0.00026	0.0043	0.00126	0.000393	1.5
Nickel	0.96	0.50	0.000068	0.0011	0.0050	0.0033	0.31	1.7
Selenium	0.052	0.012	0.0000014	0.000061	0.00103	0.000018	0.000013	0.065
Total HAP	29	8.6	0.0009	0.45	0.74	0.45	0.80	39

Note: Emissions (TPY) were calculated on a 4-decimal basis for intermediate purposes only and are included in the Chromium (VI) emissions value. Total HAP includes only Chromium (Total), therefore, summing data in the columns will not equal the total.

5.1 Temperature

All stack temperatures used in risk modeling of the UFIP sources, except Slag Pits, were the same as the HAP/PM data source shown in **Table 4**, i.e., BOPF Shop Fugitives exhaust temperature is same as BOPF Shop roof vent; Blast Furnace Casthouse Fugitives and remaining UFIP are the same temperature as the Blast Furnace Casthouse roof vent. Although Reaching may have initial temperatures that are higher than the Blast Furnace Casthouse roof vent, they may have lower temperatures than the Blast Furnace Casthouse roof vent for the remaining period; therefore, the Blast Furnace Casthouse roof vent temperature was considered a good approximation for all Blast Furnace-related UFIP sources (except Slag Pits) for the purposes of the example plant modeling.

For Slag Pits, an average temperature of 900°F was obtained from the average temperature measured by an employee at the Example Facility on March 26, 2018. (AISI, 2018) The employee obtained thermography images throughout the course of the day at one of the slag pits to determine an estimated average slag pit temperature range. Thermal measurements and images of an operating slag pit were taken at 7 a.m., 9 a.m., 11 a.m., and 1 p.m. with a *Flir T420 Thermal Imaging Camera* and are shown in **Appendix E**, with thermal images paired with visible images (i.e., photographs) at the time of the measurements. The average temperature, at approximately 900°F, is a conservatively low estimate because the thermal imaging camera has an upper

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Table 10. Estimated Actual Emissions for UFIP and Point Sources, by HAP

HAP[a]	Total Actual HAP Emissions (TPY)			
	UFIP	Point Sources		All
		Iron & Steel	Sinter Plant	
Antimony	0.45	0.036	0.0041	0.49
Arsenic	5.0	0.47	0.070	5.5
Beryllium	0.015	0.0023	0.00034	0.018
Cadmium	1.2	0.062	0.0020	1.2
Chromium	3.8	0.45	0.048	4.3
Chromium (VI)	0.42	0.014	0.019	0.46
Chromium III	3.4	0.43	0.029	3.8
Cobalt	0.15	0.014	0.0023	0.16
Lead	13	0.74	0.071	14
Manganese	23	1.2	0.32	25
Mercury	1.5	0.084	0.0036	1.6
Elemental Gaseous Mercury	1.2	0.067	0.0029	1.3
Gaseous Divalent Mercury	0.14	0.0084	0.00036	0.15
Particulate Divalent Mercury	0.15	0.0084	0.00036	0.16
Nickel	1.7	0.22	0.017	1.9
Selenium	0.067	0.035	0.010	0.11
Hydrogen Cyanide	--	0.00014	--	0.00014
Hydrochloric Acid	--	--	0.25	0.25
Benzene	--	--	6.8	6.8
Toluene	--	--	4.6	4.6
Ethyl Benzene	--	--	2.6	2.6
Xylenes (isomers)	--	--	5.2	5.2
Naphthalene	--	--	1.9	1.9
PAH[b]	--	--	0.68	0.68
Dioxin/furans[b]	--	--	0.000043	0.000043
Carbonyl Sulfide	--	--	28	28
Total HAP by Source Type (TPY)	**50**	**3.3**	**51**	**104**
Total HAP (TPY)	**104**			

[a] Chromium VI values and individual mercury species are displayed on separate rows for information purposes only. Total HAP includes only values for chromium (Total) and mercury (Total); therefore, summing data in the columns will not equal the indicated totals.
[b] PAH is the total emissions of sixteen individual polycyclic aromatic hydrocarbons (not including naphthalene). Dioxin/furans are the total emissions of seventeen individual dioxin/furan congeners.

Table 11. Estimated Emissions With and Without UFIP at Example Facility, by Source

Source	HAP Emissions (TPY)					
	Actuals			Allowables		
	Stack	UFIP	Stack+UFIP	Stack	UFIP	Stack+UFIP
BOPF Shop	1.9	39	41	42	39	81
Blast Furnace Casthouse	0.96	8.6	9.5	11	8.6	20
Reaching of iron	--	0.0099	0.0099	--	0.0099	0.0099
Blast Furnace Bell Leaks	--	0.45	0.45	--	0.45	0.45
Blast Furnace Unplanned Openings	--	0.74	0.74	--	0.74	0.74
Blast Furnace Planned Openings	--	0.48	0.48	--	0.48	0.48
Slag Processing (Slag Pits)	--	0.58	0.58	--	0.58	0.58
Blast Furnace Stoves	0.46	--	0.46	0.46	--	0.46
Cooling Tower	0.00014	--	0.00014	0.00014	--	0.00014
Sinter Plants	51	--	51	56	--	56
Subtotal - No Sinter Plants	**3.3**	**50**	**53**	**54**	**50**	**103**
Overall Total with Sinter Plants	**54**	**50**	**104**	**109**	**50**	**159**

Table 12. Modeling Parameters Used for UFIP Sources[a]

UFIP Source	Location	Flowrate (ft³/sec)	Velocity (ft/s)	Diameter (ft.)	Area (ft²)	Height (ft.)	Fugitive Width (ft.)
BOPF Shop Fugitives[c]	BOPF	3,516 – 5,330	37 - 56	12, 13	NA	98 - 147	NA
BF Casthouse Fugitives[c]	BF	5,655, 8,888	50, 67	11, 12	NA	128 - 152	NA
Beaching of Iron	Near BF	zero[b]	zero[b]	NA	NA	35	35
BF Bell Leaks	BF	12[e]	60[e]	0.5[e]	0.2[e]	BF +50	NA
Slag Handling & Storage	Near BF	zero[b]	zero[b]	NA	2,100	164	NA
BF Unplanned Openings	BF	3800[e]	800	2.2[e]	3.7[d]	BF+100	NA
BF Planned Openings	BF	330[e]	80.8[e]	2.2[e]	3.7[d]	BF+100	NA

[a] NA = Not applicable. All temperatures are same as original source, i.e., BOPF Shop = BOPF fugitives; BF Casthouse = Blast Furnace (BF) Casthouse Fugitives and remaining UFIP. BOPF Shop Fugitives and BF Casthouse Fugitives have same modeling parameters as BOPF and BF roof monitors.

[b] Default value used for this type of source.

[c] Calculated from the other parameters.

[d] Estimated from EPA field observations or field reports[,] roof flash used not defined[,] or CBI.

range of 1202°F for accuracy. However, because Slag Pits were modeled as 2-dimensional fugitive sources, temperature was not needed in modeling of slag pits. The high temperature and resulting buoyancy support the plume height estimated below, which is a significant level above ground.

5.2 Stack and Release Heights

The BOPF Shop Fugitives and Blast Furnace Casthouse Fugitives were given the same stack height as the individual BOPF and Blast Furnaces stacks or roof vents since these exhaust streams are emitted at the same point. For Beaching, the release height is the same as the other two dimensions of the pile of iron, at 35 feet, because for modeling purposes this source is considered a cubic 3-D source. For Slag Processing, the height used in modeling (50 meters) was consistent with SIP guidance for Indiana in 2003. (EPA, 2003) Bell Leaks were assigned a height of 50 feet above each Blast Furnace Casthouse roof vent, as an estimate based on the roof vent height. Unplanned Openings and Planned Openings were assigned a height 100 feet above the Blast Furnace Casthouse roof vent for same reason and also as relative to the Bell Leak height. For slag pits, a height of 164 feet was used, as estimated by EPA in SIP guidance for Indiana in 2003. (EPA, 2003)

5.3 Diameter of Stack/Release Point

For the BOPF Shop Fugitives and Blast Furnace Casthouse Fugitives, these points again were given the same diameters as the individual BOPF and Blast Furnaces stacks or roof vents since these exhaust streams are emitted at the same point. For Beaching and Slag Processing, because these are fugitive 2-D and 3-D sources, no diameter is needed. For Blast Furnace Leaks, Unplanned Openings and Planned Openings, the diameter (or area) of the bleeder valve stacks were known through EPA field activities. (EPA, 2016) In the case where area was known, the diameter was calculated based on geometry and the assumption of circular stacks.

5.4 Locations (Latitude and Longitude) and Fugitive Widths

For the BOPF Shop Fugitives and Blast Furnace Casthouse Fugitives, these points again were given the same location (latitude and longitude) as the individual BOPF and Blast Furnaces stacks or roof vents because these exhaust streams are emitted at the same point. Because the locations of Beaching events were not known, the Beaching release locations used were the same as the Blast Furnace Casthouses for each Blast Furnace. For Slag Processing, the Slag Pit was used in the modeling file as the release point for all emissions from Slag Processing for simplification. The location of each Slag Pit (latitude and longitude) was obtained using Google

Earth.[24] The slag pit modeling dimensions were made consistent with SIP guidance for Indiana in 2003, at 40 ft. by 53 ft. (EPA, 2003) The location of Blast Furnace Bell leaks, Unplanned Openings, and Planned openings were assigned the same location as the Blast Furnace Casthouses.

5.5 Flowrate and Velocity

For the BOPF Shop Fugitives and Blast Furnace Casthouse Fugitives, these points again were given the same flowrate and velocity as the individual BOPF and Blast Furnaces stacks or roof vents since these exhaust streams are subject to the same building exhaust rates. For Beaching and Slag Handling and Storage, the default modeling flowrate and velocity for fugitive sources was used, equal to zero. For Blast Furnace Unplanned Openings, the flowrate was considered to be ten times the Blast Furnace unit flowrate, as obtained from a January 2014 letter from A.K. Steel (Middletown) to EPA field staff. (EPA, 2016) Velocity then was obtained by calculation from the area and flowrate [flowrate (ft³/sec) ÷ area (ft²) = velocity (ft./sec)]. For Blast Furnace Planned Openings, the flowrate from A.K. Steel (Middletown), as above, was used directly without multiplying by ten because these openings are not accompanied by high flow or pressure. The A.K. Steel velocity was considered a good estimate to represent the industry. Velocity then was obtained by calculation from the area and flowrate, as above. The velocity of Blast Furnace Bell Leaks was estimated from EPA field observations; (EPA, 2016) the flowrate was calculated from release area (calculated from diameter) and velocity [flowrate (ft³/sec) = area (ft²) * velocity (ft./sec)].

6.0 RISK ANALYSIS

The estimated emissions for UFIP sources at the Example Facility, described in early sections of this memorandum, and modeling parameters for UFIP sources described above were combined in a modeling file with point source data for the Example Plant to create a complete dataset of potential emission points at the Example Facility. See Appendix F for the Example Facility UFIP Risk Modeling Database.

An inhalation screening risk analysis was conducted with the complete Example Facility modeling file using EPA's AERMOD[5] risk model to determine the effect of adding UFIP emissions to the risk previously determined for the point sources in the source category at the Example Facility. Following the same approach used in determining category-specific risks, an estimate of inhalation risks resulting from point source plus UFIP emissions at the Example Facility was conducted. Because of uncertainties in developing the UFIP emission estimates, explained in Section 4, Development of HAP Emission Estimates for UFIP, the risk results using UFIP emission estimates were used to estimate uncertainty in the point source risk estimates and not to directly quantify facility or source category-specific risks.

Table 13 presents the results of the inhalation risk analysis for the Example Facility with UFIP and point source emissions. For reference, results are presented both with and without UFIP emissions, i.e., point sources only. Table 14 shows the individual UFIP source contribution to risk. Cancer risks based on actual emissions were shown to increase from 2-in-1 million to 27-in-1 million when considering the UFIP emissions. Noncancer Hazard Index (HI) increased from 0.03 to 0.4 when considering the UFIP emissions for this facility. Acute noncancer HI_{REL} (HI) increased from <1 to 3 when considering UFIP emissions of arsenic. Likewise, population risks greater than 1-in-1 million also increased when considering the UFIP emissions. Multipathway risks were not explicitly calculated with the additional estimated actual emissions of UFIP. However, based upon the increase in certain metal emissions (arsenic and mercury), we could expect those risks to increase as well, although not linearly with emission changes. Details of the risk analysis including estimates of risk with

[5] The air dispersion model AERMOD, used by the HEM-3 model, is one of the EPA's preferred models for assessing air pollutant concentrations from industrial facilities. U.S. EPA, Revision to the Guideline on Air Quality Models: Adoption of a Preferred General Purpose (Flat and Complex Terrain) Dispersion Model and Other Revisions (70 FR 68218, November 9, 2005).

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Table 13. Inhalation Risk Results for Actual Estimated Emissions from the Example Facility

Example Facility Emission Sources (Actuals)	Inhalation Chronic Cancer				Inhalation Chronic Noncancer			Acute Noncancer	
	MIR (in 1-M)	Incidence	Pop >1	Pop >10	MIR (HI)	Target Organ	Pop >1	Max (HQ)	Pollutant
Point Sources Only	2	0.010	14880	6	0.025	DEV	0	0.3	Arsenic
UFIP & Point	24	0.12	400,000	54,000	0.4	DEV	1	3	Arsenic

Note: DEV means "developmental" effects on target organ.

Table 14. Inhalation Risk Results for Fugitive Sources at the Example Facility by UFIP Source

UFIP Emission Source	Estimated Inhalation Cancer Risk	
	MIR per million	Percent Total MIR
BF Casthouse fugitives)	12	50%
BOF Shop fugitives)	5	21%
BF Bell Leaks (fugitives)	2.3	9%
All Point Sources combined	1.9	8%
BF Planned Openings (intermittent)	1.2	5%
BF Unplanned Openings/Slips (intermittent)	0.9	4%
Bb Slag Handling (fugitives)	0.8	3%
BF Reheating (intermittent, fugitive)	0.5	2%
Total	24	100%

allowables emissions can be found in the report entitled: "*Residual Risk Assessment for the Integrated Iron and Steel Manufacturing Source Category in Support of the Risk and Technology Review 2019 Proposed Rule.*"

7.0 COMPARISON OF MONITORING DATA TO MODELING RESULTS

Predictions of air concentrations using EPA's AERMOD* risk model for the Example Facility with and without UFIP sources were compared to monitoring data from the "Ballpark" monitoring location (Gary, Indiana, monitor at 4th Ave/Railcats 18-089-0032). Daily monitor data were used only where arsenic (As), lead (Pb), and manganese (Mn) data were all available. Although monitor data for Pb and Mn in later years were available, arsenic data was only available for 2010-2011; therefore, only 2010 and 2011 monitor data were used to compare to the 2010 through 2011 modeling data.

The monitor data included PM-10 particulate data for As, Pb, and Mn, and total suspended particulate (TSP) for Pb and Mn. Because the arsenic monitor data were only available as PM10 and the model input is total arsenic, these data needed to be converted to TSP data in order to compare to the model results. A scale-up factor for TSP to PM-10 based only on Pb (2.14) was developed from 2010 through 2011 monitor data. Manganese monitor data were not used to develop the scale-up factor due to the significant difference between the monitor and model data (factor of 9). **Appendix G** shows the calculations used determine the scale-up factor.

Table 15 shows the ambient monitor data compared to the Example Facility modeling estimates for As, Pb, and Mn. The model predictions are closest to the ambient monitor when UFIP are included in the emissions estimate, especially for Pb and As, where As is the high-risk HAP at the Example Facility. This shows that UFIP emissions should be included in facility emissions estimates to get a more accurate estimate of emissions and risk. The Mn results shown in **Table 15** suggest that the model may be underestimating these emissions for the Example Facility or, alternatively, there are other sources of Mn in the area which are detected by the ambient monitor. Nevertheless, the risks due to Mn emissions at the Example Facility are quite low (maximum noncancer HI = 0.07). Therefore, even if Mn emissions were 9 times higher, reflecting the monitor levels, the maximum noncancer HI for Mn would not be greater than 1.

* The American Meteorological Society/Environmental Protection Agency Regulatory Model Improvement Committee (AFRMIC) was formed to introduce state-of-the-art modeling concepts into the EPA's air quality models. Through AERMIC, a modeling system, AERMOD, was introduced that incorporated air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment of both surface and elevated sources, and both simple and complex terrain.
https://www.epa.gov/scram/air-quality-dispersion-modeling-preferred-and-recommended-models#aermod

R007021

MEMORANDUM

DATE: May 1, 2019

FROM: Donna Lee Jones, OAQPS/US EPA; Brian Dickens and Patrick Miller, EPA Region V/US EPA; Gabrielle Raymond, RTI International

TO: Integrated Iron and Steel (II&S) Residual Risk and Technology Review (RTR) Project File

SUBJECT: Technology Review for the Integrated Iron and Steel NESHAP

1.0 BACKGROUND AND INTRODUCTION

This memorandum describes the results of the technology review of the processes and practices in the Integrated Iron and Steel Manufacturing (II&S) industry as part of the Residual Risk and Technology Review (RTR) of the National Emission Standards for Hazardous Air Pollutants (NESHAP) for the Integrated Iron and Steel Manufacturing (II&S) industry (40 CFR, part 63, subpart FFFFF). In accordance with section 112 of the Clean Air Act (CAA), on May 20, 2003, the U.S. Environmental Protection Agency (EPA) established a NESHAP for the II&S industry (68 FR 27646). The 2003 II&S NESHAP regulates the following emission sources and establishes maximum achievable control technology (MACT) standards, as appropriate: blast furnace (BFs); basic oxygen process furnace (BOPF); hot metal transfer, desulfurization and skimming units (HMTDS); ladle metallurgy operations; and sinter plant emission sources that included the sinter plant windbox exhaust stream, sinter plant discharge end, and sinter cooler. These sources are considered point sources because emissions are collected and routed through a control device with an exhaust stack. The point sources are controlled by baghouses, electrostatic precipitators (ESPs), scrubbers, and fume/flame suppressants (at BFs only). The HAP metals controlled via PM standards in the MACT include antimony, arsenic, beryllium, cadmium, chromium, cobalt, lead, manganese, mercury, nickel, and selenium.

Under section 112(f)(2) of the CAA, the EPA is required to perform a residual risk analysis of MACT standards within eight years of promulgation. In addition, the EPA is required to perform a technology review of MACT standards every eight years under section 112(d)(6) of the CAA. For purposes of the RTR, the EPA sent an information collection request (ICR) to the 11 facilities in the II&S industry in 2011 that included a questionnaire and a source test request. The II&S ICR was sent under the authority of section 114 of the CAA (42 U.S.C. 7414) to acquire the necessary data for the RTR and to evaluate certain regulatory reconsideration efforts described above.

The EPA's technology review focuses on the identification and evaluation of developments in practices, processes, and control technologies that have occurred since the MACT standards were promulgated. In addition to reviewing the practices, processes, and control technologies that were considered at the time the NESHAP was originally developed (or last updated), a variety of data sources are reviewed in the investigation of potential practices, processes, or controls to consider. Where developments in technology are identified, their technical feasibility, and estimated costs and other impacts are analyzed. The emission reductions associated with applying each development are also considered. This analysis informs EPA's decision as to whether it is necessary to revise the emissions standards. The appropriateness of applying controls to new sources versus retrofitting existing sources are taken into account in these decisions.

For the technology review, as per CAA section 112 (d)(6), any of the following can be considered to be a development:

- Any add-on control technology or other equipment that was not identified and considered during development of the original MACT standards;
- Any improvements in add-on control technology or other equipment (that were identified and considered during development of the original MACT standards) that could result in additional emissions reduction;
- Any work practice or operational procedure that was not identified or considered during development of the original MACT standards;
- Any process change or pollution prevention alternative that could be broadly applied to the industry and that was not identified or considered during development of the original MACT standards; and
- Any significant changes in the cost (including cost effectiveness) of applying controls since the MACT (including controls considered during the development of the original MACT standards).

The technology review for the II&S NESHAP revealed three areas for potential update of the NESHAP: (1) methods to control fugitive and intermittent metal HAP from II&S processes; (2) change in pollution control technology for BF metal HAP from fume/flame suppressants to local capture of fugitives and control with a baghouse (fabric filter); and (3) process modifications on sinter plant operations to reduce emissions of dioxins/furans. These three areas of the technology review are discussed in the sections below along with the EPA recommendations.

2.0 NONPOINT EMISSION SOURCES FROM BF CASTHOUSE AND BOPF SHOP

Under the technology review for the II&S NESHAP, the EPA identified control measures for unmeasurable fugitive and intermittent particulate (UFIP) emission sources of HAP emissions (also called "nonpoint" sources) at II&S facilities that included BF casthouse fugitives and BOPF shop fugitives. Although these two emission sources are regulated under the NESHAP with opacity standards, as a surrogate for metal HAP, the infrequent opacity measurements[1] and the difficulty in controlling fugitive emissions has made residual fugitive emissions a frequent occurrence noticeable by EPA enforcement staff.. The nature of the fugitive emission sources are described in more detail below. Estimates of PM and HAP emissions from these UFIP sources are discussed in the technical memorandum titled *Development of Emissions Estimates for Fugitive or Intermittent HAP Emission Sources for an Example II&S Facility for Input to the RTR Risk Assessment*. (EPA, 2019a)

The control measures for UFIP emissions from the BF casthouse and BOPF shop the fall under "control work practice or operational procedure that was not identified or considered during development of the original MACT standards" described above as one area of technology review. The information that informed this part of the II&S technology review was obtained primarily from the extensive experience of regional EPA inspectors of II&S facilities who work in the EPA Region V, where 9 of 11 of the II&S facilities are located and where most (85%) of the BF and BOPF are located.

The work practices identified for UFIP sources that could achieve metal HAP (and particulate matter (PM)) reductions include: additional opacity measurements; increased maintenance; and development of operating plans to insure the work practices are performed regularly; earlier repair of equipment. The sections below describe the types of fugitive emissions at these sources and control measures identified for reducing the UFIP emissions and the EPA recommendations for control of UFIP emissions in the II&S industry. The costs of the control measures are discussed in the technical memorandum titled *Cost Estimates and Other Impacts for the Integrated Iron and Steel Risk and Technology Review*. (EPA, 2019b)

[1] Under the subpart FFFFF NESHAP, opacity measurements are required once every 5 years or every 2.5 years without a Title V, to be performed during source tests at control devices for PM emissions.

2.1 Description of the UFIP Sources

The following are definitions of II&S processes used in this discussion:

- BF is a major II&S process unit where molten iron is produced from raw materials such as iron ore, lime, sinter, and coke.
- BF casthouse is the structure that houses the lower portion of the BF and encloses iron and slag transport operations
- BOPF is a major II&S process where steel is made from molten iron, scrap steel, and alloys..
- BOPF Shop is the structure that houses the entire BOPF and auxiliary activities, such as hot iron transfer, skimming and desulfurization of the iron.

2.1.1 BF Casthouse Fugitives

The BF produces iron from raw materials of iron ore, limestone, dolomite, sinter, and coke. The casthouse encloses the area around the base of the furnace that includes multiple processes where PM can be released. The majority of the PM emissions from BFs occur during tapping when molten iron and slag are removed from the furnace and transported from the furnace to points outside the casthouse. PM is emitted at the taphole, from iron and slag troughs, from runners that transport iron and slag, and from the ladle that receives the molten iron. These emissions include flakes of graphite (carbon) called "kish" that is released as the metal cools (because the solubility of carbon in the metal decreases as it cools) and metal oxides that form when the reduced metal (e.g., iron, manganese) reacts with oxygen in the air. Factors affecting these emissions include the duration of tapping, exposed surface area of metal and slag, length of runners, and the presence/absence of runner covers and flame or fume suppression, which reduce contact of the iron with air.

Most II&S facilities use local capture of PM and other emissions, with subsequent routing to a baghouse located outside the casthouse. These emissions are called primary emissions and considered point sources when emitted from the control device stacks. A few facilities use fume or flame suppression to reduce generation of emissions from the runners that transport the iron and slag outside the casthouse. These emissions are mostly emitted via roof vents at the top of the casthouse and also considered point sources. The fume/flame suppressant control process is described below in **Section 3.0** in more detail. The current NESHAP has PM limits for both controlled emission sources from the BF casthouse.

The regulated UFIP fugitives from the BF casthouse result from less than 100 percent capture by the systems in place at various emission points within the buildings. The casthouses at II&S facilities are similar to gigantic barns with multiple openings for emissions to escape to the atmosphere. These openings can be the roof monitor (vent), windows, general exhaust fans, and/or missing wall sheeting. The UFIP emissions from the BF casthouse can be large and are considered an under-regulated emission source. **Table 2-1** shows the estimated HAP (and PM) emissions that are believed to be still uncontrolled from this nonpoint source. The point source emissions from BF control devices are included for comparison. For details on estimates of these emissions, see the technical memorandum titled *Cost Estimates and Other Impacts for the Integrated Iron and Steel Risk and Technology Review*. (EPA, 2019b)

2.1.2 BOPF Shop Fugitives

The BOPF is the steel making furnace at II&S facilities. One or more BOPF are housed in a structure called the BOPF Shop. The BOPF Shop includes both iron and steel operations that can generate emissions. The BOPF Shop receives the hot iron metal from the BF that is transported via "torpedo" cars to the BOPF shop ladle. The reladling generally takes place under a hood to capture these emissions. Desulfurization of the hot

Table 2-1. Total Estimated Point and Nonpoint HAP and PM Emissions for Two Process Units in the II&S Industry

Source	Source Type	Emissions (TPY)[a,b]	
		HAP[c]	PM
BF Casthouse Fugitives	nonpoint[a]	51	1,379
BF Control Device	point[b]	1.6	109
BOPF Shop Fugitives	nonpoint[a]	226	7,014
BOPF Group Control Device	point[b]	12	728

[a] Nonpoint source emissions were estimated using emission factors derived from or found in the literature and EPA reports. (EPA 2019a)

[b] Point source emissions were taken from source tests report submitted for the II&S ICR. (EPA, 2019c)

[c] The HAP emissions were estimated from HAP/PM ratios developed from the II&S ICR. (EPA, 2019a)

iron metal may occur in the BOPF Shop using various reagents such as soda ash, lime, and magnesium. Desulfurization may take place at various locations at an II&S facility; however, if the location is the BOPF shop, then it is most often done at the reladling station to take advantage of the fume collection system at that location. Skimming of slag from the molten iron also removes sulfur from the steelmaking process and is normally done occurs in the ladle, under a hood.

The emissions from steelmaking in the BOPF are from charging of molten iron, metal scrap, and alloys to the furnace; introducing oxygen into the furnace to refine the iron (called oxygen blow), tilting the BOPF vessel to obtain a sample and check temperature, tapping of the molten steel into a ladle, and pouring residual slag into a slag pot. Exhaust PM and gases from the steelmaking furnace itself are captured at the opening to the BOPF and routed to PM control devices. These emissions are called primary emissions and are considered point sources after emission from the control device stacks. Numerous capture systems within the BOPF Shop collect emissions from the iron and steel processes done in open ladles, from material transfer, or charging and tapping. These captured emissions also are routed to PM control devices. These emissions are called secondary emissions and are considered point sources after emission from the control device stacks. The current NESHAP has PM limits for both primary and secondary emissions from the BOPF Shop.

The unregulated UFIP fugitives from the BOPF Shop result from less than 100 percent capture by the systems in place at various emission points within the buildings. The BOPF Shops at II&S facilities are similar to gigantic barns with multiple openings for emissions to escape to the atmosphere. These openings can be the roof monitor (vent), windows, general exhaust fans, and/or missing wall sheeting. The nonpoint HAP (and PM) emissions from the BOPF Shop can be large, as shown in **Table 2-1**, above, that includes the emissions from BOPF point source control devices for comparison. For details on estimates of these emissions, see the technical memorandum titled *Cost Estimates and Other Impacts for the Integrated Iron and Steel Risk and Technology Review*. (EPA, 2019b).

2.2 Control of HAP Emissions from UFIP Sources

This section discusses the control measures identified for the nonpoint sources of BF Casthouse and BOPF Shop, described in **Section 2.1**. The costs of some of these control measures are discussed in the technical memorandum titled *Cost Estimates and Other Impacts for the Integrated Iron and Steel Risk and Technology Review*. (EPA, 2019b). The EPA recommendations for control measures are discussed in **Section 2.5**, below.

The following are definitions of II&S processes used in this discussion:

- Corrective Action means the design, operation and maintenance changes that are taken, consistent with good engineering practice, to reduce or eliminate the likelihood of the recurrence of the primary cause and any other contributing cause(s) of an event identified by a root cause analysis as having resulted in a discharge of pollutants from an affected facility in excess of specified thresholds.
- Root Cause Analysis are actions taken to determine the cause of an exceedance in emissions and to determine appropriate corrective action. The root cause analysis and initial corrective action analysis should be completed and initial corrective actions taken in a timely manner after determining there is an exceedance.

2.2.1 BF Casthouse Fugitives

The opacity limit in the II&S NESHAP for monitoring fugitive PM emissions from the BF casthouse is less than 20 percent during thirty 6-minute tests, as 6-minute averages, from any opening in the casthouse, and between the casthouse and the furnace shell during tapping (once per Title V permit cycle, e.g., 5 years or every 2.5 years without a Title V permit). To better monitor fugitive emissions, opacity could be measured more often during events expected to produce high opacity, such as tapping, where opacity could be monitored four taps per week from casthouse roof vents. In order to determine the true emissions, all other openings to the casthouse should be closed. Use of EPA Method Alt-082 (DOCS) rather than EPA Method 9 would ensure accurate emissions are measured and would reduce the amount of facility labor needed to take the measurements. In addition, preventive measures can be done to reduce generation of emissions that contribute to opacity. These measures include keeping iron and slag runner covers in place at all times except when runner or cover is being repaired or removed for inspection purposes (with a repair time limit, such as 2 hours).

To identify all potential opacity sources and measures to reduce fugitive emissions, the facility could develop and operate according to a "BF Casthouse Operating Plan" to minimize fugitive emissions, to include:

- Identification of each opening in casthouse;
- Number of opacity readers needed and method of making observations;
- Locations and status of each runner cover;
- Schedule for inspection of casthouse for openings and leaks above 12 feet high, where all openings are closed (except for roof monitor) during the opacity observations;
- Procedures to ensure all doors and other openings are closed during all transfer operations; and
- Procedures to ensure that runner covers are in place on top of runners at all times except when runner or cover is being repaired or removed for inspection purposes (specify a repair or observation limit, such as 2 hours).

2.2.2 BOPF Shop Fugitives

The opacity limit in the II&S NESHAP for monitoring fugitive PM emissions is less than 20 percent during thirty 3-minute tests, as 3-minute averages, from any opening in the casthouse, and between the casthouse and the furnace shell during tapping (once per Title V permit cycle, e.g., 5 years or every 2.5 years without a Title V permit). To better monitor fugitive emissions, opacity could be measured more often during events expected to produce high opacity, such as tapping, where opacity could be monitored 4 taps per week from casthouse roof vents. In order to determine the true emissions, all other openings to the casthouse should be closed. Use of EPA Method Alt-082 (DOCS) rather than EPA Method 9 would ensure accurate emissions are measured and would reduce the amount of facility labor needed to take the measurements.

In addition, preventive measures can be done to reduce generation of emissions that contribute to opacity. These measures include keeping iron and slag runner covers in place at all times except when runner or cover is being repaired or removed for inspection purposes (2-hour repair limit). To identify all potential opacity sources and measures to reduce fugitive emissions, the facility could develop and operate according to a "BOPF Shop Operating Plan" to minimize fugitive emissions, to include:

- List all events that generate visible emissions (including slopping) and state the steps the company will take to reduce the incidence rate.
- Minimum hot iron pour/charge rate (minutes).
- Schedule of regular inspections of BOP Shop for openings and leaks above 12 feet high with all openings closed (except for roof monitor).
- Optimize positioning of hot metal ladles with respect to the hood face and furnace mouth.
- Optimize furnace tilt angle during charging.
- Prohibit burning material, such as bags, pallets and other material in the shop.
- Keep all openings closed except when in use, especially during transfer operations. (Does not include roof monitors.)
- Continuously monitor opacity from all openings with EPA Method Alt-082 (camera); re-evaluate use of monitor every two years (alternative is Method 9).
- Use higher draft velocities to capture more fugitive emissions at a given distance from the hood.
- Perform a ventilation study to maximize secondary (fugitive) emissions capture by hooding.
- Install additional equipment to minimize fugitive emissions:
    - Add extension (flanges) from primary hood into charging and tapping aisles for better draft and to shorten distance to emission source.
    - Add extension of pouring spout on hot metal charging ladle to move emission point closer to or under hood.
    - Add small openings in furnace doors to allow monitoring of temperature and other parameters to avoid opening doors.
    - Add wall partitions or ducts to direct air into local hoods to prevent escape from building.
    - Add canopy hoods to enhance fugitive collection for local hoods.

2.3 Opacity Implementation Issues

2.3.1 Opacity Monitoring

Given the history of numerous opacity violations at II&S facilities at BF casthouses and the BOPF shop roof monitors, the use of a camera to measure opacity, as in EPA Alternative Method 082 using a digital opacity camera system (DOCS), as taken from ASTM D7520-13, is considered an alternate to EPA Reference Method 9 and an improvement in the reliability and accuracy of opacity monitoring. The recently promulgated Ferromanganese RTR rule, published on June 30, 2015 (80 FR 37366), required opacity monitoring to be conducted according to ASTM D7520-13.[2] For II&S facilities, the DOCS also could be used to determine the opacity from bleeder valve openings which are difficult to observe because they are either unplanned or occur during shutdown activities. The DOCS method provides reliable, unbiased opacity readings and is an improvement in the transparency of opacity monitoring results.

[2] For the Ferroalloys Final RTR rule (80 FR 37366), the EPA required facilities to use the DOCS once per week for one entire furnace cycle (about 90 minutes), for each furnace building. One facility had three buildings; therefore, the rule requires them to use the DOCS about 270 minutes per week for the entire facility. The EPA also stated in the rule that after 26 weeks of compliant weekly opacity readings, facilities can reduce to monthly readings.

2.3.2 Location of Opacity Measurements

It is commonly known to EPA inspectors that II&S facilities only read opacity at BF casthouse roof monitors and ignore emissions from openings on the sides of the casthouse and from the gap between the casthouse and the furnace. To improve the opacity monitoring from casthouses, a facility's standard operating procedures (SOP) can include identification of all openings in the casthouse that could emit opacity, identifying which openings typically have the highest opacity, and specifying which openings to be observed for opacity concurrently as a group of openings. The II&S facility SOP can identify the openings and groups of openings to be measured for opacity on a casthouse drawing; the SOP could then be reviewed and approved by their management and delegated permit authority.

When conducting Method 9 for visible emission observations of a group of openings, the reader must look at the point of highest opacity. Therefore, the EPA Method 9 or visible emission (VE) report for a group of openings might contain a "mixture" of 15-second readings, where each 15-second reading may indicate the instantaneous opacity from a location on the casthouse several feet away from other readings. It is important to note that most often there are many openings in a casthouse and it would be necessary to perform any required readings in series or to use several readers for the different groups being read at the same time. While this may increase costs above the current practice, this practice will ensure opacity is measured from any and all opening in the casthouse.

The II&S facilities could consider using EPA Alternative 082 (DOCS) to monitor the opacity from these sources instead of Method 9. One of the benefits of EPA Alternative 082 is that many more openings can be viewed at one time, possibly saving the company money in the long term. Also, when a DOCS is used, the images of one observation can be reanalyzed if EPA or delegated authority believes the point of highest opacity was not used in calculating the opacity. The ability to reanalyze opacity readings provides the opportunity for better agreement of observations and the casthouse opacity limit. The DOCS provides a more objective, better substantiated opacity readings compared to Method 9 and would improve transparency of opacity monitoring results.

2.4 Cost-effectiveness of Selected Control Measures for Nonpoint Sources

The following are the selected control measures for UFIP sources that were analyzed for cost-effectiveness under a technology review conducted as per requirements in CAA section 112 (d)(6). The costs and emission impacts of application of these selected control measures are summarized below in **Section 2.4.2**.

2.4.1 Control Measures for BF Casthouse Fugitives and BOPF Shop Fugitives

Work Practices for BF Casthouse Fugitives

- Develop and operate according to a "BF Casthouse Operating Plan" to minimize fugitive emissions and detect openings and leaks;
- Measure opacity frequently during the tapping operation (*e.g.*, during four taps per month) with all openings closed (except for roof monitor) using EPA Method Alt-082 (camera) or Method 9;
- Keep doors and other openings, except roof monitors, closed during all transfer operations to extent feasible and safe; and
- Keep runner covers in place at all times except when runner or cover is being repaired or removed for inspection purposes (2-hour repair or observation limit).

Work Practices for BOPF Shop Fugitives

- Develop and operate according to a "BOPF Shop Operating Plan" to minimize fugitive emissions and detect openings and leaks;
- BOPF Shop Operating Plan may include:
  - List of all events that generate visible emissions (VE), including slopping, and steps company will take to reduce incidence rate;
  - Minimize hot iron pour/charge rate (minutes).
  - Schedule of regular inspections of BOPF shop structure for openings and leaks to the atmosphere;
  - Optimize positioning of hot metal ladles with respect to hood face and furnace mouth;
  - Optimize furnace tilt angle during charging;
  - Keep all openings, except roof monitors, closed, especially during transfer, to extent feasible and safe;
  - Use higher draft velocities to capture more fugitives at a given distance from hood, if possible; and
- Monitor opacity periodically (*e.g.*, once per month) from all openings with EPA Method Alt-082 (camera) or with EPA Method 9.

2.4.2 Reductions in Emissions from Work Practices for Two UFIP Sources

To assess the emission reductions from application of the work practices for the two nonpoint sources, estimates of control efficiency are needed. The control efficiency of the work practices for BF Casthouse are expected to range from 50 to 80 percent based on engineering judgement and EPA experience with work practices in general. Therefore, an average value of 70 percent efficiency was used to estimate impacts of the work practices for the BF Casthouse. For the BOPF Shop, because of the difficulty in implementing BOPF Shop work practices, a slightly lower average control efficiency of 65 percent was used for this nonpoint source. **Table 2-2** shows the estimated HAP emissions for the two nonpoint sources before control (from **Table 2-1,** above) and after implementation of the work practices using estimates of control efficiency described above.

2.4.3 Cost-Effectiveness of Work Practices for Two UFIP Sources

Equipment and operating costs for the work practices to control the two sources of UFIP emissions were obtained from vendors of equipment, as available, or were estimated using good engineering judgement (GEJ) along with experience with the industry. Similarly, labor estimates were based on EPA experience with the tasks needed to be performed to either operate equipment or perform VE and opacity tests. **Table 2-3** shows the estimated labor, capital, and annual costs of the work practices for the two nonpoint sources in the II&S industry based on the unit costs (shown in **Appendix A**) and the number of units at the facilities in the industry (shown in **Appendix B**). Details of the costs and labor for the control measures for the two UFIP sources are shown in **Appendix C** and discussed in detail the technical memorandum cited above and titled *Cost Estimates and Other Impacts for the Integrated Iron and Steel Risk and Technology Review*. (EPA, 2019b)

The estimated effectiveness of the work practices to reduce HAP emissions for each of the two nonpoint sources and the costs are combined in a ratio to produce a cost-effectiveness factor. **Table 2-4** shows the cost-effectiveness (CE) of control of HAP emissions at each for each the two nonpoint source using the work practices described above and the HAP emission reductions shown in **Table 2-2**. The CE values per ton HAP removed are $3,412 per ton HAP removed for BOPF Shop Fugitives and $32,960 per ton HAP removed from BF Casthouse.

Table 2-2. Estimated HAP Emissions Before and after Control Using Work Practices at Nonpoint Sources from BF Casthouse and BOPF Shop at 11 II&S Facilities

Nonpoint Source	HAP Emissions (TPY)			
	Before Control	% Control	After Control	Reductions
BF Casthouse Fugitives	51	70%	15	36
BOPF Shop Fugitives	226	65%	79	147
Total	**277**		**94**	**183**

Note: Totals may not appear to sum correctly due to rounding. Details on these estimates can be found in an EPA technical memorandum. (EPA, 2019b).

Table 2-3. Costs of Work Practices at Two Nonpoint Sources in the II&S Industry

Nonpoint Source	Total Industry Costs		
	Labor	Capital	Annual
BF Casthouse Fugitives	$348,548	$960,000	$1,183,981
BOPF Shop Fugitives	$82,825	$480,000	$500,541
Total Costs	**$431,373**	**$1,440,000**	**$1,684,522**

Note: Totals may not appear to sum correctly due to rounding. Details on these estimates can be found in an EPA technical memorandum. (EPA, 2019b).

Table 2-4. Cost-Effectiveness of Work Practices at Two Nonpoint Sources in the II&S Industry

Nonpoint Source	Annual Costs	HAP Reductions (TPY)	Cost Effectiveness $/ton HAP removed
BF Casthouse Fugitives	$1,183,981	36	$32,960
BOPF Shop Fugitives	$500,541	147	$3,412
Total	**$1,684,522**	**183**	**9,225**

Note: Totals may not appear to sum correctly due to rounding. Details on these estimates can be found in an EPA technical memorandum. (EPA, 2019b).

2.5 Conclusion Regarding Control of Nonpoint Emissions at the BF Casthouse and BOPF Shop

There are many uncertainties in the baseline UFIP emissions, the estimated reductions from the work practices, and the control costs. There are also uncertainties regarding the effect the WPs would have on facility operations, economics and safety. After considering all the information described above, the EPA has not proposed any standards for these two nonpoint sources under section 112(d)(6). However, we are asking for comments in the proposed rule on this issue that we will consider before finalizing the rule.

3.0 BF FUME/FLAME SUPPRESSANT CONTROL

The point sources at II&S facilities are controlled by baghouses, ESP, scrubbers, and fume/flame suppressants (fume/flame). Baghouses, ESPs and scrubbers all have approximately similar control efficiencies. The choice for air pollution control device (APCD) in some applications is restricted for safety reasons by the type and configuration of the furnaces; these decisions are reflected in the type of APCD used in the industry today. Developments in practices, processes or technologies available for these sources or APCD were not found. However, fume/flame used for control of fugitive BF casthouse emissions are estimated to have only 75 percent control of PM, whereas control with baghouses is estimated to have 95 percent control. (EPA, 2006) Seven II&S BFs at four II&S facilities use fume/flame suppressants for control of emissions from their BFs. There are 13 BFs that have baghouses at the other seven facilities. Therefore, under a technology review, we evaluated the cost-effectiveness of upgrading the control of fugitive PM and PM/HAP metal emissions at BFs from fume/flame suppression to baghouses.

Most emissions from the BF casthouse occur from tapping the molten iron (product) and slag (waste) to remove these materials from the furnace. Emissions occur a number of sources: at the taphole on the BF: from open troughs (runners) that transport the iron and slag; from open ladles that receives the molten iron; and open iron transport systems (torpedo cars). These emissions are controlled in the II&S industry in one of two fundamentally different ways: fume and flame techniques, or conventional ventilation practices that route PM-laden air to APCD such as baghouses. Fume suppression consists of blowing natural gas over the open equipment which retards vaporization and prevents emissions. With flame suppression, the natural gas is ignited with accompanying oxygen consumption that suppresses the formation of metal oxide emissions. In more efficient control practices, local ventilation practices, such as localized hooding and other area ventilation techniques, are used to collect the emissions from the open BF equipment and route to a baghouse. Alternatively, the casthouse may be totally enclosed and evacuated to an APCD, however, this may have worker safety issues.

The primary source of emissions data, flowrates, and cost parameters for the cost analysis for replacing fume/flame with baghouses was the responses to a CAA section 114 information collection request (ICR) sent to the II&S industry in 2011 that included a questionnaire and a source test request. The EPA sent out the II&S ICR under the authority of section 114 of the CAA (42 U.S.C. 7414) to acquire the necessary data for the RTR. The questionnaire portion of the II&S ICR requested inventory, process, and APCD information about the emission units at II&S facilities. The source test request portion of the II&S ICR described the source tests, the test methods to be used, the pollutants to test, and other details concerning the requested testing. Copies of the II&S ICR and responses received by EPA are included in docket for this rule (Docket ID #EPA-HQ-OAR-2002-0083). The BF units with fume/flame could not be tested during the II&S ICR, as such their emissions were estimated from similar units at the facility or overall average industry emissions values. For further details see the technical memorandum titled *Integrated Iron and Steel Risk and Technology Review: Point Source Data Summary*. (EPA, 2019c)

As part of this technology review, costs were estimated to upgrade each unit (i.e., fume/flame BF) to a baghouse to increase control of PM. Cost per facility will range from 1 to 3 times unit costs, depending on the number of units at the facility. Costs incurred by other II&S facilities currently using baghouses were used to estimate costs for the fume/flame upgrades.

3.1 Cost Escalation Factors

The cost data received in the II&S ICR were reported in various dollar years. The cost escalation factors in **Table 3-1** from U.S. Bureau of Economic Analysis (BEA, 2018) were used to convert all costs to 2017 dollars.

Table 3-1. Cost Escalation Factors

Year	Gross Domestic Product	Cost Escalation Factor 2017 GDP/Year X GDP
2004	84.78	1.273271998
2007	92.486	1.16718206
2011	98.118	1.100185491
2017	107.948	1

Table 3-2. II&S Total Installed Capital Cost Data per BF Unit with Baghouse

Facility	BF & Baghouse	Total Installed Capital Cost	Total Installed Capital Cost [Year]	Total Installed Capital Cost [2017]
AM-BurnsHarbor-IN	**BF C Baghouse**	**$15,000,000**	**2007**	**$17,507,731**
AM-BurnsHarbor-IN	BF D Baghouse	$15,000,000	2007	$17,507,731
AM-IndianaHarbor-E	West Baghouse	$15,539,000	2011	$17,095,782
AM-IndianaHarbor-E	East Baghouse	$15,099,000	2011	$16,611,701
AM-IndianaHarbor-W	IH4 BF Casthouse Baghouse	$12,000,000	2011	$13,202,226
USS-Ecorse-MI	B2 BF Casthouse Baghouse	$10,200,000	2004	$12,987,374

3.2 Total Installed Capital Cost for BFs with Baghouse

Table 3-2 summarizes the data on total installed capital costs for installing baghouses on BFs that was reported in the II&S ICR by facilities that already have BF equipped with baghouses. The capital costs provided by ArcelorMittal Burns Harbor, IN, for their BF C baghouse was chosen as a representative unit to estimate the installed capital cost because the facility's documentation of the costs reflected the ductwork needed to route fugitive PM from the casthouse to a baghouse, as follows: "emissions from C BF taphole and tilting runner on both the east and west casthouse floors routed to BF C baghouse."

3.3 Operating Parameters from the II&S ICR

Operating parameters reported in the II&S ICR by other facilities with BFs controlled by baghouses were used in the unit-level cost calculations for upgrading BF units with fume/flame to baghouses. **Table 3-3** summarizes the flowrate data in the II&S ICR used to calculate average flowrates per baghouse and overall average flow at the BF. **Table 3-4** summarizes the typical bag life (years) data received in the II&S ICR that were used to calculate the average typical bag life per BF with baghouses. **Table 3-5** summarizes the II&S ICR data on gross air-to-cloth ratio in feet per minute (fpm) used to calculate an average gross air-to-cloth ratio per BF with a baghouse.

3.4 Unit Costs for Upgrading BFs Using Fume/Flame to a Baghouse

The unit cost factors are shown in **Table 3-6** for upgrading BF units with fume/flame to baghouse using baghouse installed costs from ArcelorMittal Burns Harbor, IN, for their BF C baghouse (see **Table 3-2**), and other costs and operating parameters reported by other II&S facilities with baghouses shown in **Tables 3-3 through 3-5.** Unless otherwise indicated, cost factors and algorithms were obtained from EPA Control Cost Manual. (EPA, 2002; EPA, 2018)

Table 3-3. II&S Flowrate Data for BF Controlled with Baghouses

Facility	BF & Baghouse	Flow Actual (acfm)	Flow Dry Standard (dscfm)
AKS-Middletown-OH	#3 BF Casthouse/Baghouse	338,415	300,883
AM-BurnsHarbor-IN	BF C Castfloor Baghouse	361,030	339,320
AM-BurnsHarbor-IN	BF D Cast floor Baghouse	373,831	348,622
AM-IndianaHarbor-E	IH7 BF East Casthouse Baghouse	258,167	212,567
AM-IndianaHarbor-E	IH7 BF West Casthouse Baghouse	360,300	309,800
AM-IndianaHarbor-W	IH4 BF Casthouse Baghouse	245,852	211,372
AKS-Dearborn-MI	C Furnace East & North Casthouse Baghouse	415,916	385,360
USS-Braddock-PA	BH-1 BF Casthouse Baghouse	245,631	225,958
USS-Ecorse-MI	D4 BF Casthouse Baghouse	285,325	250,552
USS-Gary-IN	No. 14 BF Casthouse Baghouse	478,747	408,247
USS-GraniteCity-IL	Casthouse Baghouse	282,389	246,226
USS-GraniteCity-IL	Iron Spout Baghouse	74,592	60,418
Average		**310,016**	**274,944**

Table 3-4. II&S Typical Bag Life (years) per BF Unit with Baghouse

Facility	BF & Baghouse	Typical Bag Life (years)
AKS-Middletown-OH	BF Casthouse Baghouse	5
USS-Braddock-PA	BF Casthouse Baghouse #1	4
USS-Ecorse-MI	B2 BF Casthouse Baghouse	4
USS-Ecorse-MI	D4 BF Casthouse Baghouse	4
USS-Gary-IN	No. 14 BF Casthouse Baghouse	2
USS-GraniteCity-IL	Iron Spout Baghouse	2
USS-GraniteCity-IL	Cast House Baghouse	2
Average		**3**

Table 3-5. II&S Typical Bag Life(Years) per BF Unit with Baghouse

Facility	BF & Baghouse	Gross Air-to-Cloth Ratio (fpm)
USS-Braddock-PA	BF Casthouse Baghouse #1	7.22
USS-Ecorse-MI	D4 BF Casthouse Baghouse	5.38
USS-GraniteCity-IL	Iron Spout Baghouse	4.50
AM-IndianaHarbor-W	IH4 BF Casthouse Baghouse	4.00
USS-Ecorse-MI	B2 BF Casthouse Baghouse	3.50
USS-GraniteCity-IL	Cast House Baghouse	2.86
AM-IndianaHarbor-E	East Baghouse	2.50
AM-BurnsHarbor-IN	BF C Baghouse	3.93
AM-BurnsHarbor-IN	BF D Baghouse	3.93
AM-IndianaHarbor-E	West Baghouse	4.20
AKS-Middletown-OH	BF Casthouse Baghouse	4.41
USS-Gary-IN	No. 14 BF Casthouse Baghouse	4.43
Average	**4.2**	

3.5 HAP Emissions and Reductions with Upgrade to Baghouse Controls

The estimated BF HAP and PM emissions with 75 percent control by fume/flame are shown in **Table 3-7** along with emissions after upgrade with baghouses at 95 percent capture and control. The estimated uncontrolled emissions are shown, which were back-calculated from controlled emissions. The increase in controlled emissions when upgrading from fume/flame to a baghouse is calculated by the difference between the 75 percent and 95 percent controlled emissions and also is shown in **Table 3-7**. See **Appendix D, Tables D-1** through **D-4** for the individual HAP under each of these scenarios. Note that only divalent mercury as PM is included in this analysis because only this species can be controlled by PM control devices.

3.6 Unit, Average Facility, Industry Costs and Cost Effectiveness

The annual and capital costs of control are shown in **Table 3-8** by unit for an average facility and for the total industry based on 8 new units. The emissions of HAP and PM before and after control in the industry are also shown, along with cost effectiveness of controlling HAP and PM.

Costs per-unit for converting from fume/flame control to baghouses are estimated to be $18 million in capital costs and $2.7 million in annual costs. The four facilities with fume/flame controls would require from 1 to 3 baghouses in the upgrade, with two facilities needing 2 baghouses. Costs for an average facility, based on upgrading two BF units, are estimated to be $35 million in capital costs and $5.4 million in annual costs. Total industry costs are estimated to be $140 million in capital costs and $22 million annual costs for all 8 baghouses. The estimated cost-effectiveness of upgrading from fume/flame control to baghouses is $4,100 per pound ($/lb) of metal HAP and $93/lb PM ($8,200,000/ton metal HAP and $186,000/ton PM).

3.7 Conclusion Regarding Fume/flame Suppressants

Because the cost-effectiveness of retrofit of fume/flame control to baghouses is high, upgrade of fume/flame controlled BF units is not cost-effective and, therefore, is not being proposed.

Table 3-6. Cost Factors for Upgrading BF Units with Fume/Flame to Baghouses

Parameter		Value	Source/Reference
Capital Costs			
Process Parameters	Operating hours, hr/yr	8,760	
	Exhaust flow, acfm	310,016	Developed from II&S stack test flowrates for BF Baghouse
Unit Cost Parameters	Electricity cost, $/kwh	$0.070	Ferroalloy (EPA, 2015a) and BSCP (EPA, 2015b)
General	Waste disposal cost, $/ton	$33	Ferroalloy (EPA, 2015a) and BSCP (EPA, 2015b)
	Operator wage rate, $/hr	$27.79	Mean hourly wage, from Bureau of Labor Statistics, May 2017, Industrial Engineering Technician (BLS, 2017)
	Maintenance wage rate, $/hr	$30.57	Assume 10 percent higher than operator rate
	Capital recovery factor--system	0.0802	Assume 20-year equipment life and 5% interest (FRED, 2018)
	Uncontrolled PM emissions, lb/hr	4.18	Calculated from average II&S BF FS PM data
	HAP control efficiency, percent	95	Assume same as PM (EPA, 2006)
Design and Operating Parameters	Fan hp	170	BSCP (EPA, 2015b)
	Total hp for other motors	30	BSCP (EPA, 2015b)
	Operator labor, hr/shift	2.3	Assume 2 times maintenance labor
	Maintenance labor, hr/shift	1.13	Ferroalloy (EPA, 2015a) and BSCP (EPA, 2015b)
	Bag life, yr	3	Average from II&S ICR responses
	Gas-to-cloth ratio (gross), ft/min	4.2	Average from II&S ICR responses
	Bag area, ft^2	24.25	Ferroalloy (EPA, 2015a), BSCP (EPA, 2015b)
	Compressed air, ft^3/1,000 ft^3 gas	0.9	BSCP (EPA, 2015b)
	Time to replace bags, hr/bag	2.25	BSCP (EPA, 2015b)
	Calculated parameters		
Calculated Parameters	Waste, lb/hr	396.8	Waste (PM) calculated from uncontrolled PM emissions (*lb/hr*) * PM control efficiency (95%)
Cost Factors	Bag fabric cost, $/$ft^2$	$8.15	BSCP (EPA, 2015b)
	Compressed air, $/1,000 ft^3	$0.24	Energy Tips – Compressed Air (NCDPPEA, 2004)
	Capital recovery factor—bags	0.231	Assume 5-year equipment life and 5% interest (FRED, 2018)
Total Capital Investment		**$17,507,731**	Representative BF Baghouse from II&S ICR responses

(continued)

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Parameter		Value	Source/Reference
Annual Costs			
	Operating labor	$68,468	Calculated from operator labor (*hr/shift*) / 8 * operating hours (*hr/yr*) * operator wage rate (*$/hr*)
	Supervisory labor	$10,270	15 percent of operator labor
	Maintenance labor	$37,657	Calculated from maintenance labor (*hr/shift*) / 8 * operating hours (*hr/yr*) * maintenance wage rate (*$/hr*)
	Maintenance materials	$37,657	100 percent of maintenance labor
	Electricity	$91,432	Hp (fan hp + total hp for other motors) * 0.745 kW/hp * electricity cost (*$/kwh*) * operating hours (*hr/yr*)
	Compressed air	$35,196	Compressed air (ft^3/*1,000* ft^3) / 1000 * exhaust flow (*acfm*) * compressed air (*$/1,000* ft^3) / 1000 * 60 * operating hours (*hr/yr*)
	Annualized replacement bags	$138,950	Exhaust flow (*acfm*) / gas-to-cloth ratio-gross (*ft/min*) * bag fabric cost ($/$$ft^2$) * capital recovery factor—bags
	Annualized bag replacement labor	$48,356	Exhaust flow (*acfm*) / gas-to-cloth ratio-gross (*ft/min*) / bag area (ft^2) * time to replace bags (*hr/bag*) * maintenance wage rate (*$/hr*) * capital recovery factor—bags
	Waste disposal	$56,481	Waste PM (*lb/hr*) * operating hours (*hr/yr*) * waste disposal cost (*$/ton*) / 2000
	Overhead	$92,431	60 percent of labor and maintenance materials
	Administrative charges	$350,155	2 percent of TCI
	Property taxes	$175,077	1 percent of TCI
	Insurance	$175,077	1 percent of TCI
	Capital recovery	$1,401,309	Capital recovery factor-system * (TCI - (Annualized replacement bags * capital recovery factor-bags) – (Annualized bag replacement labor * capital recovery factor--bags))
Total Annual Cost, $/yr		**$2,718,601**	Calculated from sum of all annual costs

Note: Unless otherwise indicated, cost factors and algorithms were obtained from EPA Control Cost Manual. (EPA, 2002; EPA, 2018)

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Table 3-7. Summary of BF Emissions Before and After Control by Fume/flame and Baghouses

Facility & BF	HAP (TPY)				PM (TPY)			
	Un-controlled	75% Control	95% Control	Removed with Upgrade	Un-controlled	75% Control	95% Control	Removed with Upgrade
AKS Amanda BF-E	0.78	0.19	0.039	0.16	75	19	4	15
AKS Amanda BF-N	0.78	0.19	0.039	0.16	75	19	4	15
AM-Cleveland C5 BF	0.79	0.20	0.039	0.16	76	19	4	15
AM-Cleveland C6 BF	0.59	0.15	0.030	0.12	56	14	3	11
AM-INH-W IH3 BF	0.23	0.058	0.012	0.046	34	8	2	7
USS Gary #4 BF	3.6	0.90	0.18	0.72	97	24	5	19
USS Gary #6 BF	3.1	0.78	0.16	0.63	84	21	4	17
USS Gary #8 BF	3.3	0.83	0.17	0.67	89	22	4	18
Totals	13	3.3	0.7	2.6	585	146	29	117

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4.0 PROCESS MODIFICATIONS TO REDUCE DIOXIN/FURAN EMISSIONS AT SINTER PLANTS

Potential process modifications to reduce the amount of dioxin/furans emitted from sinter plants was investigated in the II&S technology review for the RTR. Although add-on controls are available, the focus for the technology review was on process modifications because add-on control devices for dioxin/furan emission control were shown not to be cost-effective at sinter plants at II&S facilities during the ample margin of safety analysis for this rule.[3] For details of this analysis, see the memorandum titled Ample Margin of Safety Analysis for Point Sources in the II&S Industry in the docket for this rule. (EPA, 2019d)

The sections below discuss various process modifications to reduce dioxin/furan emissions from sinter plants that were found in European literature and applied to European iron and steel facilities. There are no control techniques specific to dioxin/furan emission control reported in use at the three remaining II&S facilities in the U.S. with sinter plants nor in the U.S. literature. The II&S NESHAP includes limits for the oil content of the sinter feed, at 0.02 percent, and a limit on volatile organic compounds (VOC), at 0.2 lb/ton, to control the emissions of organic HAP. Facilities can choose to comply with either limit to fulfill the NESHAP requirements for organic HAP. PM are controlled at sinter plants II&S facilities

4.1 Summary of Sintering Process

Sintering at II&S facilities recovers the raw material value of many waste materials generated at iron and steel plants that would otherwise be landfilled or stockpiled. An important function of the sinter plant is to return waste iron-bearing materials to the blast furnace to produce iron. Another function is to provide part or all of the flux material (e.g., limestone, dolomite) for the ironmaking process. Feed material to the sintering process includes ore fines, reverts (including blast furnace dust, mill scale, and other byproducts of steelmaking), recycled hot and cold fines from the sintering process, and trim materials (calcite fines, and other supplemental materials needed to produce a sinter product with prescribed chemistry and tonnage). Emissions from the sinter plants include PM that contains HAP metals originating in the steelmaking process. Other emissions are VOC and other organic HAP, such as dioxin/furans, from tars and oils in the sinter feed material that also originate in the steelmaking processes.

The waste materials to be sintered are proportioned and mixed to prepare a chemically uniform feed to the sinter strand, so that the sinter will have qualities desired for satisfactory operation of the blast furnace. The sintering machine accepts feed material and conveys it down the length of a moving strand. Near the feed end of the grate, the bed is ignited on the surface by gas burners and, as the mixture moves along on the traveling grate, air is pulled down through the mixture to burn the fuel by downdraft combustion; either coke oven gas or natural gas may be used for fuel to ignite the undersize coke or coal in the feed. As the grates move continuously over a series of windboxes toward the discharge end of the strand, the combustion front in the bed moves progressively downward. This creates sufficient heat and temperature to agglomerates the fine particles, forming a cake of porous clinker, and providing the strength and other properties needed for use in the blast furnace.

The sinter machine strand is composed of pallets which ride on rails over the windboxes. Each pallet has a grated bottom, open ends where the cars come together, and sideboards of maximum height for the sinter bed. The windboxes provide for a controlled distribution of combustion air as it is drawn through the sinter bed. Air is drawn down through the burden, into the windboxes and through an initial separator to a large fan. Very coarse particles are recovered in the windboxes. Other somewhat less coarse particles are removed by the

[3] Cost-effectiveness of add-on controls (activated carbon injection prior to baghouse) used for dioxin/furan emission control at II&S sinter plants is $188 trillion per ton of dioxin/furans, as toxic equivalents (TEQ).

Table 3-8. Impacts of Upgrade from BF Fume/Flame at II&S Facilities to Baghouses

Item		By Pollutant	
		HAP	PM
Unit Costs[a]	Capital	$17,507,731	
	Annual	$2,718,601	
Average Facility Costs[b]	Capital	$35,015,462	
	Annual	$5,437,202	
Industry Costs[c]	Capital	$140,061,847	
	Annual	$21,748,810	
Total Industry Emissions TPY	Flame/Fume 75% control[d]	3.3	146
	Baghouse 95% control[d]	0.7	29
	Removed	2.7	117
Cost-effectiveness	CE $/ton	$8,210,257	$185,765
	CE $/lb	$4,105	$93

[a] Based on 2011 II&S ICR data standardized to $2017.
[b] Based on upgrading two BF units. Facilities ranged from 1 to 3 BFs with fume/flame, where two of the four facilities have 2 BFs with fume/flame.
[c] Based on adding 8 baghouses at 7 BF with 8 roof monitors/stacks at four facilities.
[d] Assumes fume/flame at 75% overall control and baghouse capture and control at 95% overall (EPA, 2006).

separator. After the fan, the gases are further cleaned before discharge to the atmosphere. Each sinter strand generally has 12 to 22 windboxes. The height of the sinter bed varies between 9 and 24 inches.

Several factors can affect the PM emissions from sinter plants, and consequently, the emissions of HAP metals in the PM. For example, PM emissions from the windbox are affected by the amount of fines (e.g., dust recovered by from control devices in steelmaking processes) and their particle size distribution. The composition of the feed material, such as the amount of manganese and lead, also affects the quantity of HAP that comprise the PM emitted from the sinter plant. Operating parameters, such as the bed air flow rate, bed depth, proper proportioning and mixing of the feed materials, and condition of the grate and machine seals affect the generation of PM from the windboxes.

Emissions of hydrocarbons, pyrolysis products, and products of incomplete combustion are also affected by the feed composition, especially the amount of oily material in the feed, as well as by the combustion conditions. Hydrocarbon vapors, identified by a bluish plume, originate from oil in the feed when it is vaporized on the sinter strand ahead of the flame front and is evaporated or pyrolyzed. The oil in the feed originates from oily mill scale, blast furnace sludge, and coke breeze, which may contain tarry material and oil absorbed from the sump used to recover the waste from the furnaces for use in the sinter plant. The organic HAP compounds that are released in trace amounts from the sinter plant (mostly windbox exhaust) include polycyclic organic matter (such as polynuclear aromatic hydrocarbons (PAHs) and chlorinated dibenzodioxins and furans (dioxin/furans)), and VOCs such as benzene, carbon disulfide, toluene, and xylene.

4.2 Potential Process Modifications at Sinter Plants for Dioxin/Furan Control

The types of process modifications used to control dioxin/furans at sinter plants fall into the following areas listed below. (Boscolo, 2007; Ooi, 2011; Lanzerstorfer, 2016). Details of these areas are discussed in Section 4.2.

- Selection and preparation of input materials
- Additions to input mix
- Process control
- Process changes

4.3 Details of Potential Process Modifications at Sinter Plants for Dioxin/Furan Control

4.3.1 Selection and Preparation of Input Materials

Techniques used to reduce dioxin/furans from sinter plants include de-oiling mill scale (and all inputs) before feeding to the sinter plant to reduce the precursors of dioxin/furans (Boscolo, 2007) and restricting or eliminating ESP dust in sinter plant feed (Lanzerstorfer, 2016). Using alternative fuels, such as anthracite coal instead of coke (Boscolo, 2007), is another technique to reduce dioxin/furans; however, this is likely to increase VOCs. (Ooi, 2011) The use of uniform fine grained ores has been found to reduce dioxin/furans. (Boscolo, 2007)

4.3.2 Additions to Input Mix

The addition of urea to the sinter plant feed has been found to reduce dioxin/furans emissions from 40 percent to 60 percent (Boscolo, 2007; Long, 2011). There are disadvantages to this technique, however. (EU, 2013) There is a detrimental effect on performance of ESPs at sinter plants if ESPs are used for sinter plant PM control (note: ESPs are not used at sinter plants in U.S.); the exhaust plume plant tends to become highly visible, leading to complaints from public; and ammonia is emitted.

Other nitrogen compounds, such as monoethanolamine (MEA), triethanolamine (TEA) can be used instead of urea. Control efficiencies typically are lower than with urea. (Lanzerstorfer, 2016).

4.3.3 Process Control

A number of approaches are used to optimize the process to lower dioxin/furans emissions. These include: (1) numerical optimization (Lanzerstorfer, 2016; Chen, 2008; Cavaliere, 2011); (2) process stabilization (Boscolo, 2007); and (3) continuous monitoring (Boscolo, 2007). These are discussed below.

- *Numerical optimization* is the use of computerized programs that optimize key sinter plant parameters simultaneously in (close to) real time. An example is the software called modeFRONTIER (ESTECO). This technique has been shown to achieve up to 90 percent reduction in dioxin/furans. (Cavaliere, 2011).

- Ensuring a *stable and consistent operation of the sinter strand* has been shown to be successful in controlling dioxin/furans emissions. This techniques focuses on the following process parameters: flame front; speed of the strand; number of pauses; composition of the mix: height of the sinter bed; minimization air-in leakage through sinter bed; and gas temperature. (Boscolo, 2007)

- *Continuous monitoring* of key process parameters, such as damper positions, suction, water flow, and exhaust opacity, have been used to reduce dioxin/furans emissions. (Boscolo, 2007)

4.3.4 Process Modifications

Modification of the process, although likely more expensive than other techniques, has been shown to achieve reductions in dioxin/furans emissions. Process modifications include various methods of wind box recirculation and in situ chemical treatment of the windbox exhaust. Both these techniques are discussed below.

Windbox Gas Recirculation

Windbox gas recirculation is the partial recirculation of windbox exhaust back into the process with in most cases hooding over parts or all of the strand. Three of these system are EOS, LEEP, and EPOSINT and are discussed below. (Brunnbauer, 2006; Lanzerstorfer, 2016)

- EOS: Part of the off-gas collected in the wind boxes is recirculated after de-dusting into a hood covering the whole sinter strand. The required O2 content in the hood atmosphere is achieved by the controlled addition of fresh air. Thus, only a reduced amount of off-gas has to be discharged through the main stack. This technique has been shown to provide 63 percent control. (Lanzerstorfer, 2016)

- LEEP: Recirculates the off-gas with the highest pollutant concentrations and energy content (wind box gas from second half of the sinter strand) into hoods covering the whole length of the sinter strand. Off-gas from wind boxes in first half of the sinter strand is discharged. Because temperature of off-gas in first half is substantially lower than the temperature of second half, a heat exchanger is used to reduce the difference by heating-up the off-gas from the first half to a temperature above the acid dew point (to prevent corrosion). This technique has been shown to provide 80 percent control. (Lanzerstorfer, 2016)

- EPOSINT: Recirculates off-gas from last two wind boxes; adds to off-gas from first half of the sinter strand, thus increasing the temperature of off-gas gas from first half without a heat exchanger. The hood above the sinter strand does not cover the whole strand but leaves the last quarter of strand uncovered. Additional high temperature air from sinter cooler outlet added to recycled off-gas. The control efficiency of this technique was not reported. (Lanzerstorfer, 2016).

Chemical Treatment of Windbox Exhaust

Experimental testing has shown that dioxin/furnaces can be reduced with MEA and TEA dissolved in water and sprayed onto windbox exhaust via nozzles during the sintering process. This technique was reported to achieve 90 percent control at a facility during the test program. (Lanzerstorfer, 2016)

4.4 European Union Recommendations for Best Available Techniques

The recommendations by the European Union (EU) for control of dioxin/furans emissions from sinter plants include many of the techniques described above. The best available techniques (BAT) from the EU are as follows (EU, 2013):

- Partial recycling of waste gas, where some portions of the sinter waste gas recirculated to sintering process. (23 BAT)

- Avoidance of raw materials which contain dioxin/furans and PCB, or their precursors; suppression of dioxin/furans formation by addition of nitrogen compounds; and waste gas recirculation, as above. (24 BAT)

- Injection of adsorption agents into waste gas duct of the sinter strand before dedusting with a bag filter. Dioxin/furans emission levels should be <0.05 – 0.2 ng TEQ/m3. (25 BAT)

- Lowering hydrocarbon content of sinter feed and pretreatment of recycled process residues. (Oil content of recycled process residues should be <0.5 percent and the content of the sinter feed <0.1 percent). (31 BAT)

4.5 Conclusions of Technology Review for Control of Dioxin/furans Emissions at Sinter Plants

Although the literature shows that there are many techniques to control dioxin/furan emissions from sinter plants, with some techniques more developed than others, the success of application of these techniques to U.S. II&S facilities is unknown. And, also, because the cost impacts of the European process modification techniques are not known, the cost-effectiveness of application of these techniques to U.S. II&S facilities is also not known. Therefore, modification of the current sinter plant process to control dioxin/furan emissions is not being proposed.

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APPENDIX A:
EMISSION UNIT COSTS FOR TWO NONPOINT SOURCE

Table A-1. Estimated Emission Unit Costs for Work Practices at Two Nonpoint Sources

Nonpoint Source	Emission Unit Costs		
	Annual Labor	Capital	Total Annual Costs
BF Casthouse	$14,523	$40,000	$49,333
BOPF Shop	$6,902	$40,000	$41,712
Total Emission Unit Costs	**$21,425**	**$80,000**	**$91,045**

Note: Details can be found in Appendix C and an EPA technical memorandum. (EPA, 2019b).

APPENDIX B:
NUMBER OF UNITS PER FACILITY USED TO REPRESENT THE II&S INDUSTRY

Table B-1. Number of Nonpoint Emission Units per Facility Type and Total Industry

Nonpoint Source	Number of Emission Units			
	Example Facility[a]	Average Facility[a]	10 Average Facilities[b]	Total 11 II&S Facilities[b]
BF Casthouse Fugitives	4	2	20	24
BOPF Shop Fugitives	2	1	10	12

[a] The example and average facility profiles are based on the example facility and the average number of installed units in the industry, excluding the example facility, as discussed in an EPA technical memorandum. (EPA, 2019b)

[b] The total II&S industry includes the example facility and ten other II&S facilities represented by the average facility.

Table B-2. II&S Industry Units per Facility (from 2011 II&S ICR)

Facility		No. BOPF Shops	No. BF
Facilities Included in "Average" Facility	AKS-Ashland-KY	1	1
	AKS-Dearborn-MI	1	1
	AKS-Middleton-OH	1	1
	AM-BurnsHarbor-IN	1	2
	AM-Cleveland-OH	2	2
	AM-IndianaHarbor-E	2	1
	AM-IndianaHarbor-W	1	2
	USS-Braddock-PA	1	2
	USS-Ecorse-MI	1	2
	USS-GraniteCity-IL	1	2
	Total of Average Facilities	**12**	**16**
	Average Facility	1.2	1.6
	RTR Average Facility	1	2
Example Facility	USS-Gary-IN	2	4
	RTR Example Facility	2	4

APPENDIX C:
COST DETAILS FOR WORK PRACTICES FOR TWO NONPOINT SOURCES

Summary of Annualized Capital & Annual Operating Costs
Camera Method Opacity (EPA Alt-082)[a]

Cost Item[b]	Cost (2017$)	Comments[c]
Capital Costs		
Total Capital Investment (TCI)	$40,000	See worksheet for details of costs.
Capital Recovery Factor (CRF)	0.080243	[(IN*(1+IN)^LIF)/((1+IN)^LIF-1)]*TCI,[d] 5% interest (IN)[e]
Total Capital Recovery (TCR)	$3,210	TCI*CRF
Administrative charges (ADM)	$800	2%*TCI.
Property taxes (TAX)	$400	1%*TCI
Insurance (INS)	$400	1%*TCI
Annualized Capital Cost, $/yr	$4,810	TCR+ADM+TAX+INS
Operating Costs		
Control device specific costs	NA	See worksheet for details of costs.
Consulting Costs, $/yr.	$30,000	See worksheet for details of costs.
Total Annual O&M Cost, $/yr[a]	$30,000	Control device + consulting.
Total Annualized Capital Costs, $/yr	**$34,810**	Annualized capital + Annual O&M

[a] NA = Not applicable. Complete breakdown of costs located in camera worksheet. Labor is addressed separately in labor worksheet.

[b] No maintenance (or overhead), electricity, or waste disposal are needed, therefore, are not shown.

[c] Cost procedures from EPA Cost Manual at https://www.epa.gov/sites/production/files/2017-12/documents/epaccmcostestimationmethodchapter_7thedition_2017.pdf

[d] Lifetime (LIF) of capital investment estimated at 20 years.

[e] Interest rate taken from https://fred.stlouisfed.org/series/PRIME. December 31, 2018.

Worksheet for Capital and Annual Costs of Nonpoint Source Work Practices:
Measuring Opacity of Fugitives at BF Casthouse or BOPF Shop (EPA Method Alt-082 Opacity)

Cost Item	Unit Cost	Quantity	Total Cost	Frequency	One Time Costs	Annual Costs
Start-up Costs						
User Subscription (# users)	$4,995	1	$4,995	Annual	--	$4,995
Data Collection Training (# users)	$495	3	$1,485	Once	$1,485	--
User web training and online support (12 months)	$4,995	1	$4,995	Annual	--	$4,995
Site survey for camera placement	$5,000	1	$5,000	Once	$5,000	--
Travel for site survey and training	$2,500	2	$5,000	Once	$5,000	
Subtotal Start-up Cost			**$21,475**		**$11,485**	**$9,990**
Software Services						
Storage and Retrieval/100 records (# users)	$49	3	$147	Annual	--	$147
ALT 082 Certified Opacity (# images)	$25	20	$500	Annual	--	$500
Annual Opacity Lab Service Fee, one building (480 images/wk[a])	$0.75	24,960	$18,720	Annual	--	$18,720
NESHAP report with rolling high 6 minute average	$15,000	1	$15,000	Once	$15,000	
Subtotal Software Services			**$34,367**		**$15,000**	**$19,367**
Hardware						
Video camera with weather dome[b]	$3,750	2	$7,500	Once	$7,500	$0
Miscellaneous installation costs[c]	$5,000	1	$5,000	Once	$5,000	--
General purpose hand-held camera & tripod (off-shelf), as spare	$895	1	$895	Once	$895	$0
Subtotal Hardware			**$13,395**		**$13,395**	**$0**
Total Startup Capital and One-time Costs (one building)					**$39,880**	
Total Annual Service Cost (one building)						**$29,357**

[a] Based on opacity assessments for one hour twice a week, with observation @15 seconds (240 images per day). Facility worker labor assessed elsewher

[b] Assumes 20-yr life of video camera based on vendor-provided estimate.(Virtual Technology, 2019)

[c] Estimate that includes wiring, installation of network configuration and linkage from facility computers to vendor.

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Labor Costs for Nonpoint Source Work Practices for One Unit

Nonpoint Sources	Labor for Nonpoint Work Practices at One Unit						Total Labor	
	Steel Worker		Environmental Worker		Manager			
	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost
BF Casthouse Fugitives	114	$6,553	114	$7,472	4	$499	232	$14,523
BOP Shop Fugitives	48	$2,759	48	$3,146	8	$997	104	$6,902
Total Cost ($)	**162**	**$9,312**	**162**	**$10,617**	**12**	**$1,496**	**336**	**$21,425**

Note: Labor rates from "BLS National Occupational Employment and Wage Estimates," at link below, with 110 percent markup to produce "loaded" wages. https://www.bls.gov/oes/current/oes_nat.htm. See Wage Rate table.

Source	Employee Hours/yr.				Explanation
	Ind.	Env.	Mgr.	Sum	
BF Casthouse	114	114	4	232	20 hrs plan, opacity test with camera at 3 locations at shop 4x a week. 1 hr per test set-up steel and environmental workers; management review quarterly.
BOP Shop	48	48	8	104	20 hr plan, 2 hr/month oversight plan shared by steel and environmental worker; opacity test with camera. 1hr/wk set-up steel&env worker, 8 hr management review.
Total	162	162	12	336	

Nonpoint Sources	Labor Breakdown for Work Practices at One Unit				Total Annual Hours
	Plan	Review/Oversight		Opacity Tests[b]	
		Manager	Workers[b]		
BF Casthouse Fugitives	20	4	--	208	232
BOP Shop Fugitives	20	8	24	52	104
Total	**40**	**12**	**24**	**260**	**336**

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APPENDIX D: FUME/FLAME CONTROL COST DETAILS

Table D-1. BF Fume HAP Emissions – Estimated Uncontrolled (TPY)

HAP	AKS-Ashland-KY Amanda		AM-Cleveland-OH		AM-IN Harbor-W	USS-Gary-IN		
	East Casthouse	North Casthouse	C-5 BF Casthouse	C-6 BF Casthouse	IH3 BF Casthouse	No. 4 BF Casthouse	No. 6 BF Casthouse	No. 8 BF Casthouse
Antimony	1.76E-02	1.76E-02	1.79E-02	1.33E-02	7.23E-03	6.96E-02	6.01E-02	6.41E-02
Arsenic	1.61E-01	1.61E-01	1.64E-01	1.22E-01	1.05E-03	1.71E+00	1.47E+00	1.57E+00
Beryllium	1.15E-03	1.15E-03	1.16E-03	8.66E-04	1.67E-04	2.49E-03	2.15E-03	2.29E-03
Cadmium	7.96E-03	7.96E-03	8.08E-03	6.01E-03	6.67E-04	2.04E-02	1.76E-02	1.88E-02
Chromium (VI)	3.23E-02	3.23E-02	1.16E-01	8.62E-02	2.58E-03	7.06E-03	7.92E-01	6.50E-03
Chromium III	1.14E-01	1.14E-01	3.28E-02	2.44E-02	2.07E-02	9.17E-01	6.09E-03	8.45E-01
Cobalt	6.24E-03	6.24E-03	6.34E-03	4.71E-03	3.31E-03	1.64E-02	1.42E-02	1.51E-02
Lead	3.70E-02	3.70E-02	3.76E-02	2.80E-02	1.02E-02	8.28E-02	7.15E-02	7.62E-02
Manganese	2.84E-01	2.84E-01	2.88E-01	2.14E-01	1.64E-01	5.27E-01	4.56E-01	4.86E-01
Mercury (PM)	5.93E-04	5.93E-04	6.03E-04	3.59E-03	1.67E-04	1.70E-02	1.47E-02	1.56E-02
Nickel	7.33E-02	7.33E-02	7.44E-02	5.54E-02	1.42E-02	2.47E-01	2.14E-01	2.28E-01
Selenium	4.23E-02	4.23E-02	4.30E-02	3.20E-02	7.65E-03	5.14E-03	4.44E-03	4.73E-03
Total HAP	**0.78**	**0.78**	**0.79**	**0.59**	**0.23**	**3.6**	**3.1**	**3.3**
Total PM	**75**	**75**	**76**	**56**	**34**	**97**	**84**	**89**

Note: Uncontrolled emissions were back-calculated from controlled emissions, assuming 75% control by flame/fume.

Table D-2. BF HAP Emissions – 75 Percent Control with Fume/Flame

HAP	AKS-Ashland-KY Amanda BF		AM-Cleveland-OH		AM-IN Harbor-W	USS-Gary-IN		
	East Casthouse	North Casthouse	C-5 BF Casthouse	C-6 BF Casthouse	IH3 BF Casthouse	No. 4 BF Casthouse	No. 6 BF Casthouse	No. 8 BF Casthouse
Antimony	4.40E-03	4.40E-03	4.47E-03	3.32E-03	1.81E-03	1.74E-02	1.50E-02	1.60E-02
Arsenic	4.03E-02	4.03E-02	4.09E-02	3.04E-02	2.61E-04	4.27E-01	3.68E-01	3.93E-01
Beryllium	2.87E-04	2.87E-04	2.91E-04	2.16E-04	4.17E-05	6.23E-04	5.38E-04	5.74E-04
Cadmium	1.99E-03	1.99E-03	2.02E-03	1.50E-03	1.67E-04	5.11E-03	4.41E-03	4.70E-03
Chromium (VI)	8.07E-03	8.07E-03	2.90E-02	2.15E-02	6.45E-04	1.76E-03	1.98E-01	1.62E-03
Chromium III	2.85E-02	2.85E-02	8.19E-03	6.09E-03	5.16E-03	2.29E-01	1.52E-03	2.11E-01
Cobalt	1.56E-03	1.56E-03	1.58E-03	1.18E-03	8.29E-04	4.11E-03	3.55E-03	3.78E-03
Lead	9.26E-03	9.26E-03	9.41E-03	7.00E-03	2.56E-03	2.07E-02	1.79E-02	1.91E-02
Manganese	7.09E-02	7.09E-02	7.20E-02	5.36E-02	4.09E-02	1.32E-01	1.14E-01	1.21E-01
Mercury (PM)	1.48E-04	1.48E-04	1.51E-04	8.97E-04	4.17E-05	4.24E-03	3.66E-03	3.91E-03
Nickel	1.83E-02	1.83E-02	1.86E-02	1.38E-02	3.54E-03	6.18E-02	5.34E-02	5.69E-02
Selenium	1.06E-02	1.06E-02	1.07E-02	7.99E-03	1.91E-03	1.28E-03	1.11E-03	1.18E-03
Total HAP	**0.19**	**0.19**	**0.20**	**0.15**	**0.058**	**0.90**	**0.78**	**0.83**
Total PM	**19**	**19**	**19**	**14**	**8.4**	**24**	**21**	**22**

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Table D-3. BF HAP Emissions – 95 Percent Control with Baghouses

HAP	AKS-Ashland-KY		AM-Cleveland-OH		AM-IN Harbor-W	USS-Gary-IN		
	Amanda BF							
	East Casthouse	North Casthouse	C-5 BF Casthouse	C-6 BF Casthouse	IH3 BF Casthouse	No. 4 BF Casthouse	No. 6 BF Casthouse	No. 8 BF Casthouse
Antimony	8.80E-04	8.80E-04	8.94E-04	6.65E-04	3.61E-04	3.48E-03	3.00E-03	3.20E-03
Arsenic	8.06E-03	8.06E-03	8.19E-03	6.09E-03	5.23E-05	8.53E-02	7.37E-02	7.86E-02
Beryllium	5.73E-05	5.73E-05	5.82E-05	4.33E-05	8.34E-06	1.25E-04	1.08E-04	1.15E-04
Cadmium	3.98E-04	3.98E-04	4.04E-04	3.01E-04	3.34E-05	1.02E-03	8.82E-04	9.41E-04
Chromium (VI)	1.61E-03	1.61E-03	5.79E-03	4.31E-03	1.29E-04	3.53E-04	3.96E-02	3.25E-04
Chromium III	5.70E-03	5.70E-03	1.64E-03	1.22E-03	1.03E-03	4.59E-02	3.05E-04	4.22E-02
Cobalt	3.12E-04	3.12E-04	3.17E-04	2.36E-04	1.66E-04	8.22E-04	7.09E-04	7.57E-04
Lead	1.85E-03	1.85E-03	1.88E-03	1.40E-03	5.12E-04	4.14E-03	3.58E-03	3.81E-03
Manganese	1.42E-02	1.42E-02	1.44E-02	1.07E-02	8.18E-03	2.64E-02	2.28E-02	2.43E-02
Mercury (PM)	2.97E-05	2.97E-05	3.01E-05	1.79E-04	8.34E-06	8.49E-04	7.33E-04	7.81E-04
Nickel	3.66E-03	3.66E-03	3.72E-03	2.77E-03	7.08E-04	1.24E-02	1.07E-02	1.14E-02
Selenium	2.12E-03	2.12E-03	2.15E-03	1.60E-03	3.83E-04	2.57E-04	2.22E-04	2.37E-04
Total HAP	**0.039**	**0.039**	**0.039**	**0.030**	**0.012**	**0.18**	**0.16**	**0.17**
Total PM	**3.7**	**3.7**	**3.8**	**2.8**	**1.7**	**4.9**	**4.2**	**4.5**

Table D-4. HAP Emissions Decrease from 75 Percent to 95 Percent Control Efficiency

HAP	AKS-Ashland-KY		AM-Cleveland-OH		AM-IN Harbor-W	USS-Gary-IN		
	Amanda BF							
	East Casthouse	North Casthouse	C-5 BF Casthouse	C-6 BF Casthouse	IH3 BF Casthouse	No. 4 BF Casthouse	No. 6 BF Casthouse	No. 8 BF Casthouse
Antimony	3.52E-03	3.52E-03	3.58E-03	2.66E-03	1.45E-03	1.39E-02	1.20E-02	1.28E-02
Arsenic	3.22E-02	3.22E-02	3.27E-02	2.44E-02	2.09E-04	3.41E-01	2.95E-01	3.14E-01
Beryllium	2.29E-04	2.29E-04	2.33E-04	1.73E-04	3.34E-05	4.98E-04	4.30E-04	4.59E-04
Cadmium	1.59E-03	1.59E-03	1.62E-03	1.20E-03	1.33E-04	4.09E-03	3.53E-03	3.76E-03
Chromium (VI)	6.45E-03	6.45E-03	2.32E-02	1.72E-02	5.16E-04	1.41E-03	1.58E-01	1.30E-03
Chromium III	2.28E-02	2.28E-02	6.55E-03	4.87E-03	4.13E-03	1.83E-01	1.22E-03	1.69E-01
Cobalt	1.25E-03	1.25E-03	1.27E-03	9.43E-04	6.63E-04	3.29E-03	2.84E-03	3.03E-03
Lead	7.41E-03	7.41E-03	7.52E-03	5.60E-03	2.05E-03	1.66E-02	1.43E-02	1.52E-02
Manganese	5.67E-02	5.67E-02	5.76E-02	4.29E-02	3.27E-02	1.05E-01	9.11E-02	9.71E-02
Mercury (PM)	1.19E-04	1.19E-04	1.21E-04	7.17E-04	3.34E-05	3.39E-03	2.93E-03	3.13E-03
Nickel	1.47E-02	1.47E-02	1.49E-02	1.11E-02	2.83E-03	4.95E-02	4.27E-02	4.56E-02
Selenium	8.46E-03	8.46E-03	8.59E-03	6.39E-03	1.53E-03	1.03E-03	8.88E-04	9.46E-04
Total HAP	**0.16**	**0.16**	**0.16**	**0.12**	**0.046**	**0.72**	**0.63**	**0.67**
Total PM	**15**	**15**	**15**	**11**	**6.7**	**19**	**17**	**18**

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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

Source Identification No.: 119813AAI
Application/Permit No.: 96030056

Illinois Environmental Protection Agency
Bureau of Air, Permit Section
P.O. Box 19276
1021 North Grand Avenue East
Springfield, Illinois 62791-9276

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Introduction

This document is the Statement of Basis that has been prepared in conjunction with the planned issuance of a revised Clean Air Act Permit Program ("CAAPP") permit for US Steel Corporation, Granite City Works ("US Steel"). A Statement of Basis is a support document that is meant to provide a narrative of the legal and factual basis underlying the planned issuance of a CAAPP permit. As the Statement of Basis is only an informational document, it is not a part of the CAAPP permit and it does not create any binding or enforceable rights or duties independent of the permit.

US Steel operates an integrated iron and steel mill in Granite City, Madison County, Illinois. Because of the type and quantity of emissions generated by this source, US Steel is required to obtain an operating permit under Illinois' CAAPP administered by the Illinois EPA.

The CAAPP generally requires that major stationary sources of regulated air pollutants apply for and obtain a CAAPP permit for their operations. CAAPP permits contain conditions identifying all applicable requirements under the federal Clean Air Act ("CAA") and the state Environmental Protection Act ("Act"). Testing, monitoring, compliance procedures, recordkeeping and reporting requirements are also established, as required or necessary, to assure compliance and accomplish the purposes of the Illinois CAAPP. The terms and conditions of a CAAPP permit are enforceable by the Illinois EPA, USEPA and the public.

The Illinois EPA previously issued a CAAPP permit to US Steel on September 3, 2009. US Steel filed an appeal with the Illinois Pollution Control Board ("PCB") challenging certain conditions of the issued permit and obtained an order from the PCB staying the effectiveness of the permit. In addition, a public petition requesting an objection to the permit was filed with USEPA on October 1, 2009. On January 31, 2011, USEPA took final action on the petition, granting it in part and denying it in part.

Following a review of USEPA's response to the petition, the Illinois EPA has elected to revise the CAAPP permit issued to US Steel. The revised CAAPP permit that the Illinois EPA intends to issue is being preceded by a 10-day comment period in accordance with Section 39.5(9)(g) of the Act. The revised CAAPP permit and this Statement of Basis are being mailed to persons who participated in the earlier comment period. These and other relevant documents are also being placed in repositories

I. General Information

A. Applicant and Source Information

US Steel Corporation
Granite City Works
20th and State Streets
Granite City, Illinois 62040

ID No: 119813AAI
SIC Code: 3312 – Integrated Steel Mill
County: Madison

Responsible Official

Richard E. Veitch, General Manager
(618)451-3456

B. Facility Description

US Steel Corporation's ("US Steel" or "source") Granite City Works is an integrated iron and steel mill producing flat rolled steel products. The principal operations at this facility are: (1) Coke Production (Coke Ovens and Coke Byproduct Plant), (2) Iron Production (Blast Furnaces), (3) Steel Production (Basic Oxygen Process Shop), (4) Steel Finishing, (5) Boilers, and (6) Handling and Processing of Bulk Materials. In addition, the roadways at the facility and nearby public roadways serving the facility emit fugitive dust due to vehicle traffic and entrainment of dust deposited on the road surface. More detailed descriptions of the various operations and emission units at the facility are found in the conditions of the revised CAAPP permit that provide "Descriptions" of units.

Coke Production (Coke Ovens and Coke Byproducts Plant)
Coke is manufactured at the facility for use in the blast furnaces in which iron is produced. Coke is an essential raw material in the operation of the blast furnaces, as it is the reducing agent that removes oxygen from the iron ore charged to the furnaces. The coke also serves as the fuel that provides heat to the furnaces.

Coke is produced by "cooking" appropriate coal at an elevated temperature to drive off the volatile fraction of the coal. There are two types of coke ovens, byproduct recovery ovens and heat recovery ovens. In byproduct recovery ovens, the combustible byproduct gas from the coking process is sent to a byproduct plant to recover certain chemicals in the gas. The processed gas is then used as fuel, both in the coke ovens themselves and at other units at the facility. In heat recovery coke ovens, the gas from the coking process is all immediately burned at the coke plant, with the energy value of this combustible gas recovered as steam. Coke is produced by both types of coke ovens, in batches, in four steps: 1) The charging of coal into a hot oven; 2) The actual coking of the coal in the oven; 3) The removal or pushing of the finished coke from the oven; and 4) The cooling or quenching of the hot coke with water in a separate quench station. This facility

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has two batteries of byproduct recovery ovens. The source also has three new batteries of heat recovery ovens that began operation in late 2009, which are operated by a separate company, Gateway Energy and Coke. The coke from these new batteries is transferred by conveyor to the blast furnaces at the facility. Those batteries will be the subject of a separate CAAPP Permit issued to Gateway and will not be described further in this document.

By-product coke ovens are indirectly heated through combustion flues in the refractory work around each of the ovens. The flues from all the ovens exhaust through a common "main stack." The principal fuel used to heat the ovens is coke oven gas. At this facility, the coke oven gas may be supplemented with natural gas and blast furnace gas, a byproduct from the blast furnaces at the facility. Emissions from heating the coke ovens are controlled by work practices to avoid leaks in the refractory that enable some of the raw coke oven gas to go directly into the flues, bypassing the byproduct plant. Heating emissions are also controlled as raw coke oven gas and blast furnace gas are processed or cleaned to remove entrained particulate before being used as fuel. At this facility, coke oven gas is also normally further processed in a Desulfurization System to remove sulfur, lowering the SO_2 emissions that accompany its use as fuel.

In addition to combustion emissions from heating the ovens, which occur at the combustion or main stack, each of the steps in the production cycle in a byproduct coke oven poses issues for emissions. The ovens are charged by pouring coal into the ovens through ports on the top of the ovens. Emissions are minimized by equipment design and work practices that reduce the escape of coal dust. While the coal is being coked, leaks in the seals around doors and ports on the ovens will result in emissions. This is because the ovens are designed to operate at a slight positive pressure to prevent air from entering the ovens and to facilitate collection of the raw coke oven gas for processing in the byproducts plant. The emissions from leaks are minimized by the design features of the ovens and work practices to prevent and plug leaks. The emissions from pushing coke are minimized by practices to ensure that the coal is fully coked before being removed from an oven. Pushing emissions are also controlled by a mobile control system, with hooding and an associated scrubber that travel along with the coke receiving car. Emissions from quenching are controlled by requirements for the quality of quench water and a quench tower over the quench station, with a row of baffles to capture particulate matter.

At the byproducts plant, the collected coke oven gas from the ovens is processed to recover certain chemicals for sale, including coal tar, benzene, and ammonium sulfate. Emissions of vapors from the various vessels in the byproducts plants are generally controlled by gas blanketing systems. These systems exhaust back into the raw coke oven gas stream, so that vapors are ultimately controlled by combustion when the gas is used as fuel.

Any excess coke oven gas, which cannot be used as fuel at the facility, is disposed of by combusting it in a flare. This controls the organic compounds in the gas and converts the sulfur in the gas, which is generally present as hydrogen sulfide, to less noxious SO_2.

There are also two emergency by-pass flares, one on each of the coke oven batteries. Like the flare at the byproducts plant, these flares are safety devices. In the event of an upset, they are used to maintain the pressure in the coke oven gas collection system at a safe level by combusting some of the coke oven gas.

Iron Production (Blast Furnaces)

Blast furnaces are tall, cylindrical, stationary furnaces. The charge materials (iron ore, coke, limestone and other flux material) are fed into the furnace at the top through a double-bell lock system. Heated air is blown into the furnace through nozzles or tuyeres near the bottom of the furnaces. In the furnaces, the coke undergoes partial combustion to carbon monoxide providing the heat to melt the charge as well as reducing the iron ore to elemental iron. Molten iron and slag accumulate at the bottom of the furnace and are removed periodically by tapping the furnace. The hot, carbon monoxide rich exhaust from the furnace, known as blast furnace gas, goes into a duct at the top of the furnace, to be cooled and cleaned prior to use as fuel at the facility. Any excess blast furnace gas, which cannot be used as fuel, is disposed of by combustion in a flare.

Emissions occur from blast furnaces during the periodic tapping of the furnaces, when molten iron and slag are exposed to the atmosphere as they drain from a furnace and flow in troughs to vessels for transport. Covers and other measures are used to reduce the formation of emissions during tapping. At this facility, emissions are also controlled as tapping occurs in the casthouse, a covered area between the two blast furnaces at the facility, which is equipped with fabric filters or baghouses. The casthouse itself is exhausted to the large Casthouse Baghouse. Additional hooding is present at the iron spouts, where molten iron is poured into the "torpedo" rail cars, which are used to transport molten iron to the Basic Oxygen Process Shop. The hooding over the iron spouts exhaust to another baghouse, the Iron Spout Baghouse.

Emissions also occur from the stoves used to heat the blast air going into the furnaces. These stoves are fired with blast furnace gas. The blast furnace gas is cleaned to remove entrained dust before it is used as fuel. Otherwise, this dust would accumulate and interfere with the operation of the stoves.

Steel Production (Basic Oxygen Furnace (BOF) Shop and Continuous Casters

Iron produced at the blast furnaces is converted to steel in the Basic Oxygen Process Furnace (BOPF) or Basic Oxygen Furnace (BOF) Shop. The BOF Shop houses the hot metal desulfurization station, the basic oxygen furnaces (BOF), the ladle metallurgy furnace and the argon stirring stations. The steel is then cast into slabs in associated continuous casters.

At the BOF Shop, molten iron is first processed at the desulfurization station to reduce its sulfur content. This occurs in batches using desulfurization agents, such as lime, that react with sulfur dissolved in the molten iron. Molten iron from the blast furnace in torpedo cars is transferred to a ladle. The agents are then added to the molten iron with a lance. The sulfur-laden slag that is formed floats on the surface of the iron and is skimmed off the iron into a slag pot. The particulate emissions from the transfer of molten iron to ladles and the desulfurization and slag skimming processes are controlled by separate baghouses.

The desulfurized iron then goes to the BOF furnaces for conversion to steel. This occurs when oxygen injected into the molten metal reacts with carbon and silicon dissolved in the iron, driving these materials out of the metal, converting it to steel. Iron is processed in these furnaces in batches or heats that last less than an hour. The first step in a heat is charging a furnace. The furnace is tilted and molten iron is poured into the furnace from a ladle. Scrap metal is also emptied into the

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furnace from large buckets. The emissions associated with charging are controlled by large hoods located above the furnaces that capture particulate matter. These hoods are ducted to an electrostatic precipitator ("ESP"). The next step is the actual conversion into steel, when oxygen is blown into the molten metal. A cover is placed on the furnace and an oxygen lance is introduced through a port in the cover. The associated emissions are directly controlled as the furnace is exhausted through a second port in the cover of the furnace that is ducted to the ESP. In addition, hooding over the furnaces captures most of the emissions that escape direct capture. The final step in a heat, when the "blow" is complete, is tapping the furnace. The furnace is again tilted, now in the direction opposite that for charging, the slag on top of the molten steel is poured into a slag pot, and then the steel itself is poured into another ladle. In addition to the hooding over the furnaces, tapping emissions are captured by local hoods over the pouring area, which also go to the ESP. The capture of emissions from the furnaces is facilitated as the roof over the furnaces is open to the atmosphere only through a roof monitor at the peak of the roof.

At the ladle metallurgy furnace and argon stirring stations, final adjustments are made to the composition of the molten steel from the BOFs. The composition of the metal in the ladle is first analyzed. Appropriate amounts of alloy material are then added to achieve the desired composition. This occurs in the ladle metallurgy furnace if the steel has cooled and must be brought back up to temperature. Otherwise, alloy materials are added at the argon stirring stations, where the steel is then "stirred" by injecting inert argon gas into the steel to disperse the alloy materials in the molten steel and maintain a uniform temperature. Emissions from these stations are controlled by another baghouse.

In the continuous caster, molten steel is formed into solid slabs, which may be sold or further processed in finishing operations at the facility. Molten steel from the ladle metallurgy station is poured into the continuous caster and steel slabs of the desired cross-section and length are produced. This is accomplished by passing the molten steel through a water-cooled die, further cooling the steel strand leaving the die with water sprays, and finally cutting the strand into sections of the desired length. The design of the continuous casting process reduces emissions because it minimizes exposure of molten steel to the atmosphere.

Finishing Operations (Reheat Furnaces, Rolling Mills and Galvanizing)
In the finishing departments, slabs are heated and then rolled or milled into sheet metal that is sold in large coils. The slabs are first heated in gas-fired "reheat furnaces" to a temperature at which the steel is malleable and can be readily processed in a rolling mill. Low- NO_x combustion techniques are employed at the reheat furnaces to control emissions of NO_x.

In the rolling mills, the hot steel slabs are reduced in thickness by being repeatedly passed through a series of heavy rollers to form sheet metal of the desired thickness and width. This sheet metal may then undergo galvanization, with the application of a thin film of zinc to the surfaces of the metal to prevent corrosion. A preliminary step in galvanization is "pickling," the processing of metal in acid baths to remove rust and oil from the surface. The cleaned metal is then heated and submerged in molten zinc. Oil may then be applied to the zinc coated metal to further protect against corrosion. Emissions from pickling are controlled by scrubbers. The various melting kettles, furnaces and heaters in the galvanizing process are all natural gas-fired. The largest furnace has a catalytic converter to reduce emissions of NO_x.

Utility Operations (Boilers)
Boilers at the facility provide the steam needed for certain process operations at the facility, as well as for some space heating. Two older boilers produce low-pressure steam and are fired by natural gas, coke oven gas, and blast furnace gas. A new "Cogeneration Boiler" (also known as Power Boiler 1) began operation in 2009. This boiler produces high-pressure steam used to generate electricity for the facility, with the low-pressure steam from the turbine-generators then being available for process operations and heating. The emissions from the boilers are generally minimized through fuel quality and good combustion practices.

Handling and Processing of Bulk Materials
Various bulk materials involved in the production of iron and steel are handled at the facility, including iron ore, scrap iron, coal, coke and limestone. These materials must be unloaded, held in storage piles or silos, and moved around the plant by various conveyor systems. Certain materials, like coal for coke ovens, must be processed by screening and crushing, before use. Slag from furnaces must also be handled and processed for use as construction aggregate or disposal. The particulate emissions from these emission units are controlled by various measures, specific to the unit, that act to minimize emissions. Baghouses are also used to control emissions from some emission units, such as the pulverizer used for final grinding of the coal feed to the coke ovens.

Vehicle Traffic on Roadways
Vehicle traffic on roadways, including the heavy equipment used to transport slag, around the facility results in emissions of fugitive dust. On paved roadways, these emissions are minimized by vacuum sweeping on a regular basis to remove silt from the road surface. On unpaved roadways and open areas, emissions are minimized by regular applications of water and surfactants.

C. Source Designation

Under the Illinois CAAPP, two or more facilities can be considered a single stationary source for purposes of CAAPP permitting if they: (1) belong to the same industrial grouping or, alternatively, operate in a support facility relationship, (2) are located on contiguous or adjacent properties, and (3) are under common control/ownership. All three of these criteria must be met in order to consider separate facilities as one source.

For purposes of CAAPP permitting, the following facilities are considered part of a single stationary source with US Steel:

Stein Steel Mill Services (I.D. 119813AAD) located at 20th Street and Edwardsville Road in Granite City – Handling of Basic Oxygen Furnace (BOF) slag.

Granite City Slag, LLC (I.D. 119040ATP) located at 20th Street and Edwardsville Road in Granite City – Handling of blast furnace slag.

AKJ Industries, Inc. (I.D. 119040AEB) located at 20th Street and Edwardsville Road in Granite City – Processing by-product stream from the

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coke by-product recovery plant

Oil Technology, Inc. (I.D. 119040ATG) located onsite of US Steel (Route 203) in Granite City – Processing recovered waste oil for recycling.

Tube City, IMS (I.D. 119040ATL) located at 2500 East 23rd Street in Granite City – Handling of scrap metals.

Gateway Energy & Coke Co., LLC (I.D. 119040ATN) located at 2585 Edwardsville Road in Granite City – Production of coke in new heat recovery coke oven batteries.[1]

These facilities should be considered part of a single source with US Steel based on the CAAPP's definition of "source" and the accompanying definition of "support facility." *See*, Section 39.5(1) of the Act. This determination is based on the following factors: (1) each of the facilities possess supporting or mutually-dependent relationships with US Steel, (2) the facilities are contiguous or adjacent to the US Steel facility, and (3) the facilities are contractually intertwined with, and/or co-dependent upon, US Steel such as to provide the latter with presumptive or actual control over decisions affecting operation and compliance with environmental regulations.

Although considered a part of US Steel, it is appropriate that each of these other facilities, with their different responsible officials, is permitted individually under the CAAPP. This approach is consistent with the Illinois EPA's past permitting practice, as well as available USEPA guidance on single source permitting under the Title V program. Accordingly, these other facilities are not addressed in the revised CAAPP permit that the Illinois EPA intends to issue nor in this accompanying Statement of Basis.

D. Area Classification

Madison County, Illinois is currently designated as moderate nonattainment for the 8-hour ozone National Ambient Air Quality Standard (NAAQS), nonattainment for the NAAQS for particulate matter less than 2.5 micrograms, and as nonattainment for the lead NAAQS. Madison County is in attainment with or not classifiable under the NAAQS for all other criteria pollutants.

E. Major Source Status

This source is a major source based on emissions of various regulated pollutants, including NO_x, PM, SO_2, VOM, CO, hazardous air pollutants ("HAPs"), and greenhouse gases ("GHG").

F. Annual Emissions

The actual annual emissions of different pollutants from this facility as reported in the five most recent Annual Emission Reports (AER) submitted by US Steel, are provided below. (The AER for 2010 is not due until May 1, 2011.)

Pollutant	Annual Emissions (tons/year)				
	2009[a]	2008	2007	2006	2005
CO	4,644	11,915	12,503	12,644	12,614
NO_x	1,315	3,427	3,677	3,767	3,643
PM	372.8	1,039	1,103	1,122	1,119
SO_2	1,428	5,613	6,187	5,971	6,075
VOM	72	222.7	230.6	245.9	240.6
HAPs[b]	5.1	39.3	45.0	33.6	29.1
CO_2e[c]	143,568	420,109	293,189	-	-

a. Emissions were lower in 2009 than in other years because the facility did not operate for much of the year due to the general economic downturn.
b. Total emissions of the four HAPs emitted in the greatest amounts for each year.
c. Emissions of greenhouse gases (GHG), in carbon dioxide equivalents (CO_2e), based on emission data that US Steel has voluntarily submitted since 2007, when such data was first requested by the Illinois EPA.

G. Chronology of Events

Initial CAAPP Permit

In March 1996, the Illinois EPA received a CAAPP application for the Granite City Division of the National Steel Corporation, who was then the owner and operator of the facility. This application was timely submitted in accordance with the requirements of the CAAPP, which had become effective in Illinois following USEPA's interim approval of the program on March 15, 1995.

The Illinois EPA received over 730 initial applications for CAAPP permits from subject sources in Illinois. The application for the source was one of the last initial CAAPP applications reviewed and processed by the Illinois EPA. In the intervening years, the source was purchased by US Steel Corporation and the pending CAAPP application originally submitted for the source was transferred to US Steel as the new owner and operator of the Granite City Works.

The Illinois EPA subsequently prepared a draft CAAPP permit for US Steel and the public comment period for the draft permit commenced in mid October 2008. A public hearing was held on December 2, 2008. After the close of the comment period and a review of the public comments, the Illinois EPA prepared a proposed CAAPP permit and sent it to USEPA in mid June 2009 for a 45-day review, during which USEPA did not object to the proposed CAAPP permit. Following USEPA's review period, the Illinois EPA prepared its formal response to comments raised by the public and the applicant during the public comment period on the draft CAAPP permit. The Illinois EPA issued the CAAPP permit and an accompanying Responsiveness Summary on September 3, 2009.

Petition to Object before USEPA Administrator

The American Bottom Conservancy ("ABC") filed a Petition to Object ("Petition") with the USEPA in October 2009 requesting that USEPA object to the CAAPP permit issued to US Steel. The Petition asserted that the CAAPP permit failed to incorporate all "applicable requirements."

[1] Gateway Energy & Coke Co. began operation in November 2009. The company submitted its CAAPP application on October 29, 2010, but no final action on the application has been taken by the Illinois EPA as yet. The assigned application number is 10100044.

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including terms and conditions of prior state construction permits, failed to include the requisite Periodic Monitoring requirements and lacked required compliance schedules. The Petition also claimed that the CAAPP permit inappropriately allowed excess emissions during malfunction, breakdown and startup, failed to include compliance assurance monitoring, and contained terms and conditions that are not practically enforceable.

Permit Appeal before Illinois PCB

In a parallel state process, US Steel filed a Petition for Review ("permit appeal") before the PCB in October 2009, challenging certain terms and conditions of the issued CAAPP permit. Among other things, the permit appeal contested the imposition of certain testing, monitoring, record-keeping and reporting conditions. US Steel also disputed the manner in which certain state and federal requirements, including prior state construction permits, were addressed in the CAAPP permit and opposed the incorporation of certain compliance obligations from a recent state Consent Order. US Steel also generally asserted that the permit contained various typographical errors, mistakes and omissions.

US Steel also filed an accompanying motion with the PCB in the permit appeal proceeding seeking to stay the effectiveness of the issued CAAPP permit. On November 19, 2009, the PCB granted a full stay of the CAAPP permit pending the resolution of the permit appeal, finding that the permit had been automatically stayed under Section 10-65(b) of the Illinois Administrative Procedure Act. The permit appeal is currently pending before the PCB. It is anticipated that the Illinois EPA's planned issuance of a revised CAAPP permit as a consequence of USEPA's Petition Response discussed below will result in the permit appeal being dismissed by the PCB or withdrawn by US Steel.

USEPA Petition Response

On January 31, 2011, the USEPA responded to the Petition, denying in part and granting in part, the arguments raised by ABC. To summarize USEPA's response to the Petition ("Order"), USEPA refused to object to certain aspects of the issued CAAPP permit challenged by ABC. For example, USEPA concluded that a compliance schedule was not necessary to address pending Notices of Violations involving US Steel. USEPA also generally denied ABC's argument that the issued CAAPP permit improperly exempted certain emissions units from NESHAP standards during periods of startup, shutdown and malfunctions ("SSM").

The Order also granted the Petition with respect to certain aspects of the permit. For example, USEPA found that the CAAPP permit failed to include specific "applicable requirements" derived from conditions contained within certain preconstruction permits. Additionally, USEPA found that the CAAPP permit failed to adequately identify certain plans and/or plan requirements that were incorporated by reference into the permit and, further, that the CAAPP permit failed to contain enforceable steps and milestones for the terms of an existing consent order. USEPA also concluded that it could not determine whether the CAAPP permit established sufficient Periodic Monitoring requirements for numerous emission units. Citing a lack of sufficient explanation in the Illinois EPA's response to comments, the Oder directs the Illinois EPA to address this issue with greater specificity and analysis.

Current Permitting Action

The Illinois EPA must address the objections from the ABC petition that were granted by USEPA in its Order. Detailed discussions for each point are provided elsewhere in this Statement of Basis. The Illinois EPA's overall approach to the Order is summarized below.

Consistent with the Order's discussion concerning the meaning of "applicable requirements," the Illinois EPA intends to revise US Steel's CAAPP permit to impose updated terms from a previous consent order, including a schedule of measures with enforceable milestones that US Steel is currently implementing. In addition, the Illinois EPA intends to revise the CAAPP permit to reflect requirements from Title I construction permits issued by the Illinois EPA. This incorporation of relevant permit conditions from construction permits is not being limited to the specific New Source Review ("NSR") permits cited by Petition, but will encompass other relevant conditions from construction permits issued by the Illinois EPA in the intervening period since the Petition.

Additionally, the permit revisions that the Illinois EPA intends to make will follow current USEPA guidance regarding the "incorporation by reference" of certain plans or programs that relate to applicable requirements. Further, the revised CAAPP permit will clarify that the startup, shutdown and malfunction ("SSM exemption") formerly contained in the general provisions of the federal National Emissions Standards for Hazardous Air Pollutants ("NESHAP") rules is not applicable for US Steel's pickling line, which is units subject to the NESHAP, 40 CFR 63Subpart CCC.

The Illinois EPA has given considerable attention to the subject of Periodic Monitoring, which constituted a substantial component of ABC's Petition and USEPA's Order. In this permitting action, the Illinois EPA has explained in significantly greater detail in this Statement of Basis both the practical and technological reasons justifying the inclusion of certain Periodic Monitoring requirements established in the CAAPP permit, including the approach to and use of selected emission factors. At the same time, various enhancements or supplements will be made to monitoring, testing recordkeeping and reporting requirements so that Periodic Monitoring under US Steel's CAAPP permit is sufficient to assure compliance with applicable requirements.

In this action, the Illinois EPA is also addressing new "applicable requirements" that have become effective under the Act and the CAA since the filing of the Petition. The revised CAAPP permit will contain requirements from revisions to 35 IAC Part 217, Nitrogen Oxide Emissions. Revisions to these state rules were adopted August 20, 2009, subjecting certain emission units at this facility to additional emission standards and control measures for emissions of nitrogen oxides ("NO_x"). As the revised rules have not been approved by USEPA as part of Illinois' State Implementation Plan ("SIP"), the relevant conditions contained in this revised CAAPP permit are designated as state-only conditions, as provided for by Section 39.5(7)(m) of the Act.

This permitting action also addresses rules adopted by USEPA in June 2010 for the permitting of emissions of GHG. Those rules established a phased approach to permitting major sources of emissions of GHG under the CAA. However, there are currently no emission standards or other regulatory obligations relating to emissions of GHG that constitute "applicable requirements" for this facility. Accordingly, the revised CAAPP permit appropriately would not contain any substantive requirements for emissions of GHG.

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Finally, NESHAP rules for industrial, commercial, and institutional boilers and process heaters were adopted by USEPA on February 21, 2011 (40 CFR 63 Subpart DDDDD). The revised CAAPP permit would include condition addressing these new NESHAP rules. The adoption of these rules by USEPA also eliminates any need for a case-by-case determination of Maximum Achievable Control Technology ("MACT") by the Illinois EPA, pursuant to Section 112(j) of the CAA and Section 39.5(19)(b) of the Act.[2]

The Illinois EPA plans to proceed with revisions to the US Steel permit under the procedures set forth in the CAAPP.[3] In general, this permit revision is an outgrowth of USEPA's public petition process. As set forth in the CAAPP, if a public petition objecting to a CAAPP permit is granted by USEPA after the permit has already been issued, the Illinois EPA is authorized to revise and resubmit the CAAPP permit to USEPA. *See generally*: Section 39.5(9)(e)-(g) of the Act and 35 IAC 252.301.[4] This authority, which effectively allows for a formal reconsideration of the issued permit, presents an opportunity for the Illinois EPA to reconcile its permitting decision with USEPA's Order. The CAAPP does not specify a time-frame for making such revisions; however, federal requirements provide that a permit authority must act within 90 days to address USEPA's concerns relating to a petition.[5]

Moreover, it is important to note that this permit revision is a continuation of the initial CAAPP permit proceeding, which stands in contrast to other proceedings addressed separately under the CAAPP.[6] Notwithstanding the time and resources that have gone into processing US Steel's application and issuance of a CAAPP permit to US Steel, with the issuance of the USEPA's Order, the process of creating an initial CAAPP permit for US Steel is now incomplete. This situation is due, in part, to the administrative processes of the CAAPP and corresponding federal Title V program, including the public petition process, that serve to ensure that a CAAPP permit complies with all legal requirements.[7] In any event, it is hoped that this further permitting action will bring

[2] The Illinois EPA had previously been prepared to make a case-by-case MACT determination for subject emission units at the facility, addressing US Steel's pending application for a future significant modification to the CAAPP permit. That permitting transaction was not finalized and is now no longer necessary.

[3] The CAAPP, codified in state law at Section 39.5 of the Act, was enacted by the Illinois General Assembly in 1992 to fulfill the requirements of Title V of the Clean Air Act Amendments of 1990 and USEPA's implementing regulations under 40 CFR Part 70. As previously noted, USEPA granted final interim approval of the CAAPP on March 7, 1995. USEPA later granted full approval of the program, effective November 30, 2001, confirming that the minimum program elements required by Title V and Part 70 had been met.

[4] The process outlined in the CAAPP and implementing regulations essentially mirrors the procedures governing public petitions set forth in 40 CFR Part 70. *See generally*: 40 CFR 70.8(c)-(d).

[5] Under the federal requirements of Title V and Part 70, the failure of the permit authority to submit a revised permit within 90 days of receipt of USEPA's objection results in USEPA assuming responsibility for resolving any deficiencies with the CAAPP permit. *See*, Section 505(c) of the Clean Air Act, *see generally*, 40 CFR 70.8(d) and 70.7(g)(4) and (5). Courts have yet to rule as to whether the 90-day requirement is a jurisdictional requirement, though litigation is repeatedly moving forward in one or more federal district courts.

[6] Under the CAAPP, and as reflected in the various program elements of Part 70, this proceeding for an initial CAAPP permit is distinct from the proceedings governing CAAPP renewals, amendments, modifications (i.e., minor and significant) and reopenings.

[7] The nature of this proceeding is also partially owing to the operation of a state law that automatically stayed the earlier permit pending administrative review. For a CAAPP permit that is not yet in effect, the use of procedures for renewals, amendments, modifications, or reopenings are not applicable, as such procedures are more appropriately reserved for permits that are both final and effective.

to a close those procedures of the CAAPP relating to the issuance of US Steel's initial CAAPP permit.[8]

As required by the CAAPP, the planned revision of the CAAPP permit is being accompanied by the opportunity for further public comment by the Permittee and any person who previously participated in the public comment process. Other people that are interested may also submit comments. US Steel's CAAPP permit previously underwent the full range of procedures associated with an initial CAAPP permit proceeding, including a public comment period and a public hearing. The procedures for this permit revision under the CAAPP now consist simply of a 10-day comment period, as provided by Section 39.5(9)(g) of the Act. Notice of the comment period has been provided to US Steel and all persons who participated in the earlier public comment process.

II. Environmental Justice

US Steel is located in a potential environmental justice ("EJ") community.[9] Given the location of this facility in a potential EJ area and significant public interest in the permitting of this facility, the Illinois EPA held an initial public hearing and solicited public input in the CAAPP permitting process beginning in October 2008. The Illinois EPA extended the comment period to provide more time for the public to review material related to the permit including any additional information gathered through the Freedom of Information Act (FOIA) process. A written Responsiveness Summary was prepared in which the Illinois EPA, to the best of its ability, responded to questions raised during the public hearing and in written comments.

While the Illinois EPA is sensitive to the location of this facility in a potential EJ community, Title V does not provide for substantive emission control requirements beyond those arising under currently applicable regulations. Thus, when issuing a CAAPP permit for this facility, the Illinois EPA does not have the authority to impose additional emission control requirements to reduce emissions beyond the levels provided for by applicable state and federal regulations. At the same time, CAAPP permits do not allow for additional emissions.

Having a facility subject to a CAAPP permit provides benefits for air quality, the public and the environment generally. CAAPP permits require more reporting on a facility's compliance status than is required by underlying state operating permits. For example, the requirements for semi-annual reports for all monitoring and annual compliance certifications only become applicable upon the effectiveness of a CAAPP permit. In addition, CAAPP permits generally provide clarity and awareness of applicable regulations and the mechanisms by which sources must comply with these regulations. CAAPP permits add to the compliance checks put on facilities. Where a facility

[8] If the Illinois EPA fails to address USEPA's concerns identified in the Order, the regulations governing USEPA's oversight of Title V charge that agency with the task of making further revisions to the US Steel CAAPP permit. *See*, 40 CFR 70.7(g)(5) and 71.4(e).

[9] The Illinois EPA's EJ-Public Participation Policy (www.epa.state.il.us/environmental-justice/public-participation-policy.pdf) states that "a 'potential' EJ community is a community with a low-income and/or minority population greater than twice the statewide average. In addition, a community may be considered a potential EJ community if the low-income and/or minority population is less than twice but still greater than the state-wide average and it has identified itself as an EJ community."

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has outstanding compliance deficiencies, CAAPP permits may establish compliance schedules and other additional conditions for monitoring and reporting.

With this Statement of Basis, the Illinois EPA has made very clear the applicable emission limitations, standards, and other enforceable terms and conditions, as well as attendant monitoring, reporting, recordkeeping, and certifications to assure compliance. The Illinois EPA has provided an explanation of same, as well a justification for why the conditions that assure compliance are appropriate. The level of detail in the Statement of Basis is atypically involved and is in recognition of the public interest in the permitting of this complex facility in a potential EJ community. The Statement of Basis has been provided to the USEPA for its review. A copy has also been provided to each person who participated in the earlier public comment period for the CAAPP permit for this facility. The extremely detailed explanation of the requirements, particularly Periodic Monitoring, applicable to US Steel is intended to further meaningful public participation.

II. Compliance and Enforcement History

A. Closed/Resolved Federal Enforcement Cases

United States of America v. National Steel Corporation, No. 97-850, United States District Court for the Southern District of Illinois, filed May 20, 1998
This enforcement action involved alleged violations of the Illinois State Implementation Plan (SIP) opacity limitations applicable to basic oxygen furnace (BOF), violations of state construction permit conditions and SIP emission limits applicable to coke manufacturing operations; and violations of the National Emission Standards for Hazardous Air Pollutants (NESHAP) applicable to coke oven batteries and coke by-product recovery plants.

To resolve this matter, National Steel Corporation was required to certify that its BOF and its coke manufacturing facility were in compliance with all applicable laws, regulations and permits. In addition, National Steel was required to perform a Supplemental Environmental Project that reduced fugitive dust emissions from the coil storage area and adjoining roadways. Given National Steel completed all required measures consistent with the consent decree, the United States filed a motion to terminate the consent decree that was subsequently approved by the court.

United States of America v. National Steel Corporation, No. 81-3009, United States District Court for the Southern District of Illinois, filed May 18, 1991
This enforcement action alleged certain violations of the Illinois SIP, including Coke Oven Batteries B and C for charging emissions, Coke Oven Battery B for stack emissions and the BOF for main stack and roof monitor emissions. The consent decree contained compliance schedules for the BOF shop, the coke oven batteries, the continuous caster, the sinter plant, and the blast furnaces. In addition, National Steel was required to develop a preventative maintenance program covering the control equipment set forth in the consent decree. Lastly, the consent decree included coke oven inspection procedures, stack testing procedures, special baghouse procedures, and visible emission inspection procedures. In 1981, the Illinois EPA subsequently intervened in the proceeding resulting in a supplement to the consent decree including additional coke oven battery requirements.

In 1984, a second amended consent decree was filed requiring the installation of an emission control system for Blast Furnace A and B. In addition, the second amended consent decree set emission limitations for the blast furnace gas cleaning device and for fugitive emissions from the blast furnace cast house. This consent decree also contained a program to control fugitive dust emissions to be maintained for a period of 10 years unless subsequently modified. Many of these consent decree provisions were codified in the Illinois' SIP (See, 35 IAC Part 212 Visible and Particulate Matter Emissions, Subpart R Primary and Fabricated Metal Products and Machinery Manufacture) and were also included in various construction and operating permits.

Except as discussed in the following paragraph, the Consent Decree terminated six months following a demonstration of compliance with emissions limitations at each covered unit. By way of letter dated May 20, 1985, National Steel informed the USEPA that it would cease submitting progress reports as the source had complied with all required emission limitations.

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In 1992, a third amended consent decree authorized the disconnection and removal of the slab ripping baghouse to allow for the construction of a new continuous caster facility. In conjunction with the removal of the slab ripping baghouse, the consent decree required additional fugitive dust control measures on an unpaved road referred to as Section F in order to suppress PM emissions. Subsequently, Section F was paved and additional fugitive dust control enhancements were included in the production increase permit (Construction Permit 95010001).

B. Closed/Resolved State Enforcement Cases

People of the State of Illinois v. Granite City Division of the National Steel Corporation, Madison County No. 89-MR-489, filed March 17, 1992
This enforcement action alleged operations caused emissions of smoke and other particulate matter in excess of regulatory standards and permit conditions. The consent order required National Steel to pay a civil penalty but did not require the performance of any technical requirements.

People of the State of Illinois v. United States Steel Corporation, Madison County No. 05-CH-750, filed September 14, 2005
The initial action alleged air pollution, permit, and operating violations at the ladle metallurgy facility, air pollution and permit violations at the coke oven pushing operations, the blast furnaces, A and B, the exhausters of the coke oven by-products plant, and the slag skimming station baghouse; and air pollution and operating violations of the coke oven doors.

The action was amended to include additional allegations of air pollution violations due to the release of coke oven gas from the coke oven gas-holding tank and excessive uncaptured emissions at the BOF. In addition, the second supplemental complaint alleged permit and prevention of significant deterioration violations from the combustion of blast furnace gas.

The consent order required US Steel to submit a compliance schedule for incorporation into US Steel's CAAPP permit. The planned revised CAAPP permit contains compliance schedules for both the BOF and blast furnaces derived through the orders entered under this enforcement action. The compliance schedule for the BOF has been updated from that which appeared in the earlier CAAPP permit. This compliance schedule for the BOF may be completed during the timeframe for the planned issuance of a revised CAAPP permit. As such, the schedule may not appear in any revised CAAPP permit. Copies of the order establishing this schedule and progress reports evidencing compliance forthwith are contained in the record for this permitting transaction.

C. Present Federal Enforcement Cases

On September 30, 2009, the USEPA issued a Notice of Violation and Finding of Violation ("NOV/FOV") for violations of the CAA, the NESHAP for Iron and Steel Manufacturing Facilities, 40 CFR Part 63 Subpart FFFFF ("Iron & Steel MACT"), the NESHAP for Coke Oven Batteries, 40 CFR Part 63 Subpart L ("Coke Oven Batteries MACT"), and the Illinois SIP. USEPA alleged that US Steel had not properly controlled emissions from its blast furnace casthouse, basic oxygen furnace shop and Coke Oven Battery A. In addition, USEPA alleged that

the source failed to apply for and obtain the proper air pollution control permit for Blast Furnace B. Lastly, USEPA alleged that the source failed to complete all required inspections and failed to comply with various operating and maintenance plans.

On April 23, 2010, US Steel responded to the NOV/FOV. As of March 1, 2011, USEPA had not filed a complaint against US Steel for the alleged violations.

D. Present State Enforcement Cases

On January 29, 2009, the Illinois EPA issued a violation notice (VN) for alleged violations of the Act, state and federal regulations, and operating permit conditions. Specifically, the Illinois EPA alleged fugitive dust violations, inspection and maintenance deficiencies, excessive use of the emergency reladling station and charging of Batteries A and B off the collecting mains. On March 12, 2009, the Illinois EPA issued another VN for alleged violations of the Act, state and federal regulations, and operating permit conditions. In this VN, the Illinois EPA addressed excess emissions from coke oven doors on Battery B and visible emissions from the #2 Tar Dehydrator Tank and deficiencies in the records for the leak detection and repair ("LDAR") program for the coke by-product recovery plant. On August 30, 2010, the Illinois EPA referred the source to the Illinois Attorney General's Office for the above violations.

On November 05, 2010, the Illinois EPA issued a VN for alleged violations of the Act, state and federal regulations, and operating permit conditions. Specifically, the Illinois EPA addressed excess PM emissions from the #3 mobile control system for pushing emission and excess emissions from the coke oven doors on Battery A and Battery B. The violations alleged in this VN have not yet been referred to the Illinois Attorney General's Office under the process for state enforcement under Section 31(a) of the Act.

E. Compliance Schedule

The identification of non-compliance and/or the issuance of a notice of violation or a violation notice and reference to information contained therein, alone, is not sufficient to satisfy the demonstration required under Section 505(b)(2) of the CAA for the inclusion of an approvable compliance schedule in a Title V permit. This alleged non-compliance is simply an early stage in the larger enforcement process of determining whether a violation, in fact, has occurred. This information noted above in Subsection C and D is, therefore, insufficient to warrant a compliance schedule without further investigation by appropriate enforcement staff at the state or federal level. Such an investigation typically involves additional information gathering sessions and exchanges that are part of the enforcement process and not a part of the permitting process. This stage of the enforcement proceeding is considered a critical step of fact finding under civil litigation procedures and affords the source its required due process. Neither the issuance of an notice of violation or a violation notice or the identification of alleged non-compliance has the force or effect of law and therefore is not subject to judicial review at this early stage.

If the Illinois EPA were to consider this information as a factor regarding applicable requirements for purposes of the planned revised CAAPP permit, other relevant considerations would need to be taken into account such as: 1) the quality and source of the information, 2) whether the facts are

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disputable, 3) any defenses available to the source and 4) the nature of any disputed legal arguments. These factors may not be readily discernable at this early stage and would need to be considered within the constraints of the CAAPP permitting process. Section 39.5 of the Act and 40 CFR Part 70 do not contemplate this type of judicial review in the context of CAAPP or Title V permitting and do not provide the requisite authority to proceed with such investigation. As such, Illinois EPA must consider the potential impact that enforcement and permitting have on one another. Where there is a pending or active enforcement case at the same time as a permitting action, the source and the State of Illinois or United States could easily find themselves litigating the same matters in different venues with the risk of different and conflicting results.

Therefore, while nothing in the Act would prohibit the Illinois EPA from including a compliance schedule in the permit for the issues referenced in Subsection C and D, the question that presents itself is whether the inclusion of a compliance schedule is mandatory, particularly when such information is available before the matter has been adjudicated and required actions to achieve compliance have yet to be identified. USEPA has stated, in a number of petition responses regarding this topic of discretionary versus mandatory compliance schedules, it is entirely appropriate for the permitting authority to allow an enforcement case to take its course and to wait to see whether an order results. At that time, the Title V permit may be reopened to include a compliance schedule.

Based on the foregoing, it is the Illinois EPA's preliminary decision to wait until the enforcement cases identified in Subsections C and D have been resolved and/or adjudicated before including any necessary compliance schedule in a CAAPP permit for the facility. In the meantime, Condition 9.1.4 would be included in the planned revised CAAPP permit, which provides that any permit shield or the revised CAAPP permit, itself, may not be used as a defense during any enforcement proceedings and that the requirements of any compliance schedule will be complied with at the appropriate time.

III. Terms and Conditions of Title I Permits (Title I Conditions)

CAAPP permits must address all "applicable requirements," which includes the terms and conditions of preconstruction permits issued under regulations approved by USEPA in accordance with Title I of the CAA. (*See* definition of applicable requirements in Section 39.5(1) of the Act) Preconstruction permits, commonly referred to in Illinois as construction permits, derive from the New Source Review ("NSR") permit programs required by Title I of the CAA. These programs include the two major NSR permit programs: 1) the Prevention of Significant Deterioration ("PSD") program,[10] and the nonattainment NSR program.[11] These programs also encompass state construction permit programs for projects that are not major.

The incorporation, or carry-over, of terms or conditions from previous Title I permits into Title V permits typically does not occur on a wholesale basis. Recognizing that construction permits may frequently contain obsolete or extraneous terms and conditions, USEPA has emphasized that only "environmentally significant terms" from previous preconstruction permits must be carried over into Title V permits. *See,* White Paper for Streamlined Development of Part 70 Permit Applications, dated July 10, 1995. Permitting authorities generally focus on those conditions from Title I permits that establish mandatory emission limits under the CAA (i.e., Best Available Control Technology or Lowest Achievable Emissions Rate), mandatory requirements established under a provision of the State Implementation Plan, and voluntary limits and constraints accepted by a source to avoid the applicability of certain regulatory or program requirements

In the CAAPP or Illinois's Title V permit program, the Illinois EPA's practice is to identify requirements that are carried over from an earlier Title I permit into a new or renewed CAAPP permit as "TI" conditions (i.e., Title I conditions). Title I conditions that are revised as part of their incorporation into a CAAPP permit are further designated as "TIR." Title I conditions that are newly established through a CAAPP permit are designated as "TIN." It is important that Title I Conditions be identified in a CAAPP permit because these conditions will not expire when the CAAPP permit expires. Because the underlying authority for Title I Conditions comes from Title I of the CAA and their initial establishment in Title I permits, the effectiveness of TI Conditions derives from Title I of the CAA rather than being linked to Title V of the CAA. For "changes" to be made to Title I conditions, they must either cease to be applicable based on obvious circumstances, e.g., the subject emission unit is permanently shut down, or appropriate Title I procedures must be followed to change the conditions.[12]

[10] The federal PSD program, 40 CFR 52.21, applies in Illinois. The Illinois EPA administers PSD permitting for major projects in Illinois pursuant to a delegation agreement with USEPA.

[11] Illinois has a state nonattainment NSR program, pursuant to state rules, Major Stationary Sources Construction and Modification ("MSSCM"), 35 IAC Part 203, which have been approved by USEPA as part of the State Implementation Plan for Illinois.

[12] For example, as part of the further consideration of Periodic Monitoring for the reheat furnaces in response to the USEPA's Order (Item II, G.2), the Illinois EPA also determined that several Title I conditions for the reheat furnaces in the current CAAPP permit (current Conditions 7.7.7(a) through (e) and associated Condition 7.7.7(f)) should not be retained in the revised permit as these conditions are wholly obsolete. These limitation originated in a state operating permit in which they appear to have been intended to facilitate compliance with the PM standard in 35 IAC 212.322. For this purpose, the amount of COG that could be fired by the furnaces was limited in relative terms, as a percentage of the total amount of fuel fired in the furnaces. It should be noted that this condition does not restrict the maximum heat input to the reheat furnaces. It also does restrict the PM emission rate from firing of COG. While both a maximum combined heat input rate (1915 million Btu per hour) and a COG PM emission rate (0.044 lb/mmBtu) are mentioned in

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The issued CAAPP permit incorporated, or carried over, a number of Title I Conditions. In the planned revised CAAPP permit, the Illinois EPA would also include Title I conditions from newly issued construction permits, as listed below. The specific Title I conditions that have been carried over into the planned revised CAAPP permit from these construction permits are identified either through the heading for the condition, in the text of the condition, or in a note accompanying the condition. These Title I conditions were included in the revised CAAPP permit in response to the Order. In Section I of the Order, USEPA considered whether conditions from certain construction permits issued to US Steel still constituted applicable requirements even though the construction or modification was not yet complete and the project was not yet operational. USEPA found that those construction permits for "pending projects," like construction permits for projects that are complete and operational, also establish applicable requirements for this facility. Accordingly the Title I conditions from those construction permits and other construction permits issued since the original CAAPP permit was issued must be carried over into the revised CAAPP permit for this facility.

this condition, this occurred in a phrase that explains part of the basis or derivation of the actual restriction in the condition. This explanatory phrase, as it is merely explanatory, is not an enforceable component of the condition. These limitations acted to address the ratio of different fuels fired in the reheat furnaces, presumably on an mmBtu basis. For example, when COG and natural gas were fired, the only scenario that is now even possible, COG was restricted to no more than 83.6 percent of the heat input to the reheat furnaces. This limitation originated from Condition 2 in state operating permit, Operating Permit 72080038, as renewed on February 15, 1996. This condition provided that "The C O G heat input fraction from firing C O G in conjunction with N G. shall not exceed 0.863 based on a maximum heat input to the 3 slab heating furnaces of 1915 million Btu per hour and a calculate particulate emission rate of 0.044 pounds of particulate per million Btu per a stack test of 3-28-89."

As these limitations are obsolete, any need to establish Periodic Monitoring for these limitations would be appropriately dealt with by removing them from the revised CAAPP permit. These limitations are generally obsolete as they address firing of fuel oil in the reheat furnaces. Accordingly, they were developed based on a combined rated heat input for the furnaces of 1915 mmBtu per hour, considering the heat input for both the gas and oil fired burners on the furnaces. However, oil firing is no longer possible and the current combined capacity of the reheat furnaces based on firing of only gaseous fuels is 1461 mmBtu/hr. (See Condition 7.7.2 of the permit). Thus these limitations were not developed for and do not now appropriately address the current configuration of the reheat furnaces. In this regard, the limitations are also based on a PM emission rate, 0.044 lb/mmBtu, for firing of COG developed from emission testing in 1989. The age of that emission data is problematic. More importantly, the limitations would not consider or appropriately adjust for current data for the PM emission rate from firing of COG, as would be required to be determined as part of the Periodic Monitoring for the reheat furnaces.

Finally, the development or derivation of these limitations may also have been flawed. They appear to have been developed assuming that when the reheat furnaces operate at their maximum operating rate in terms of steel slabs processed, tons per hour, the furnaces would also be fired at their rated heat input capacity. However, the furnaces likely had surplus or overlapping heat input capacity, given historical firing of both oil and gaseous fuels, and the presence of several heating zones in each furnace, each with separate burners.

The limitations were also developed approaching the reheat furnaces as similar emission units for purposes of 35 IAC 212.322. However, these furnaces have separate stacks and different physical capacities and rated firing rates. These limitations also only addressed the maximum operation of the furnaces and did not consider the effect of lower process rates on the allowable PM emission rates. This is relevant as the relationship in 35 IAC 212.322 between the process weight rate and allowable PM emissions is not linear. Thus, the restrictions in the limitations at most only accurately addressed and were really appropriate for the reheat furnaces when operating at their maximum operating rates.

Newly Issued Construction Permits*		
Permit No.	Date Issued	Subject
06070022	1-16-2008	Emission Reduction Projects
06070023	1-30-2008	Cogeneration Boiler Project
06070088	3-13-2008	Coke Conveyance System
08060026	7-7-2010	New Quench Towers for Existing Quench Stations
08110016	9-30-2009	Fourth Fan for the Precipitator for the Basic Oxygen Furnaces
09030019	3-17-2009	Carbon Adsorbers for Coke By-Product Recovery Plant
10100042	1-7-2011	Portable Boilers 1 - 4
10080021	1-12-2011	Steam Rings for the Basic Oxygen Process Furnaces
10080022	2-9-2011	NO_x RACT Control – FGR Installation on Boilers 11 and 12

* Provisions from Construction Permit 07030008, for an "NSCR System for #4 COG Booster Pump," was not addressed as the engine for this pump has been replaced with an electric motor.

To implement the major NSR permit programs, Illinois' Title I permits must commonly include limits on the amounts of different pollutants emitted by the new or modified emission units that comprise the proposed projects addressed by the permits, defining their permitted emissions.[13, 14] As a general matter, the Periodic Monitoring for limits on emissions established in construction permits would be provided by the Monitoring that would required for these emission units related

[13] In Illinois' NSR permit program for non-major or "minor" projects, the amounts of pollutants that are permitted to be emitted or the "permitted emissions" from projects must be addressed during permitting. This is because the applicability thresholds for the major source NSR programs are based on annual emissions of proposed projects, in tons per year. Accordingly, Title I permits for proposed projects commonly include emissions limits that establish or memorialize the permitted emissions of the various new and modified emission units that are involved in projects. These permitted emissions then serve in place of the "theoretical" potential emissions of a project when addressing NSR applicability. This is generally beneficial as the permitted emissions allowed by the permit provide a clear statement of the maximum amounts of emissions that are allowed, which can then be routinely used in subsequent permitting and in air quality planning activities by the Illinois EPA. The Illinois EPA also does not need to make or review a determination of theoretical potential emissions during permitting, for which there may be disagreements between the Illinois EPA and the source. The Illinois EPA also does not need to subsequently reevaluate the potential emissions of permitted emission units, in response to changes in the operation of a source. The limits on permitted emissions in Title I permits are advantageous to sources as projects that would otherwise be subject to major NSR permitting due to their theoretical potential emissions are only subject to minor NSR permitting. Even for projects that are subject to major NSR permitting for certain pollutants, limits for permitted emissions of other pollutants are advantageous to the source as those limits reduce the extent of major NSR permitting for a project.

Illinois' major NSR permits also have limits for the permitted emissions of the different emission units that comprise a project. Rather than addressing applicability of NSR, these limits serve to implement the substantive requirements of NSR. In particular, the amount of emissions for which different emission units are permitted is a critical element of the air quality analysis that must precede the issuance of a permit for a proposed project under the PSD rules. The permitted emissions may also have a role in determining the appropriate emission control technology to be selected on a case-by-case for a proposed project during permitting. The permitted emissions of a proposed project may also be of interest or concern to members of the public as it constitutes basic information about the project and they must consider whether to comment upon the proposed issuance for the project.

[14] The nature of the limits set in Title I permits has also evolved both as the NSR permit programs have developed and as the administration of these permit programs has developed and improved. Accordingly, more recent Title I permits may have limits and associated compliance procedures that are more carefully thought out and developed than the limits in earlier Title I permits. Limits in earlier Title I may be more developed by more developed by A key For example, over time

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to applicable regulatory standards and other emission control requirements, together with specific recordkeeping for the emissions factors and "throughput" of the units (i.e., the amount of material handled by these units or hours of operation). Recordkeeping would also be required for the determination of the actual amounts of emissions, for direct comparison to the applicable permit limits. The Periodic Monitoring for the operation of the subject emission units as related to other applicable requirements would verify proper operation of the units and serve to confirm that established emission factors for such units are appropriately used to determine the amount of emissions. The presence of these limits on the amount of emissions from such units does not necessitate additional or more frequent Monitoring for the operation of these units. As emissions of the units would be calculated using emission factors, the other information needed to determine actual emissions is their throughput or amount of material that is handled, with the actual emissions being the product of the applicable emission factor and the throughput or activity of a unit.[15] The Periodic Monitoring specifically for permit limits on the amount of emissions would entail the necessary records for the throughput of the subject units. The Monitoring would also include recordkeeping for the calculated emissions, as needed for direct comparison to the established permit limits.

When emission factors are used to calculate emissions, the critical element of the calculations is the emission factors that are selected for use. The revised CAAPP permit would require the Permittee to keep a file containing the emission factor(s) that it uses to determine actual emissions for purposes of determining compliance with permit limits. These records would also have to include the basis or supporting documentation for the selected factor(s). This would assure that the selected emission factors are memorialized in writing, along with factual basis for the emission factors. This would make the relevant supporting information available to the Illinois EPA personnel as well to the source's staff, both present and future, for their review and use. The permit would also accommodate changes to "established" factors by the source if new information may become available.[16] Changes to these "established" emission factors would also be required to be documented, with explanation and supporting data, and linked to a particular date.[17] A change to

[15] The exception to this practice would be pollutants for which the emissions of a pollutant from an emission units are determined by a "material balance" approach. In particular, when a sulfur containing fuel is used, the emissions of sulfur dioxide (SO_2) are calculated from the sulfur content of the fuel and the amount of fuel that is used. In the absence of add-on control equipment for SO_2 emissions (or the presence of sorbent materials in the flue gas of a unit that act to abate SO_2 emissions), the SO_2 emissions of a unit may be directly calculated from the sulfur contained in the fuel. As the molecular weight of SO_2 is twice that of sulfur, the SO_2 emissions of a unit are twice the sulfur in the fuel used by the unit.

The circumstances are similar for VOM solvents in coatings and inks. The VOM emissions from use of these materials are often the direct result of the VOM content of the coating. In some cases, this relationship is not quite as simple as some of the VOM originally present in the materials may chemically react in the film of coating or be bound into the substrate.

[16] The simplest example of circumstances in which an established emission factor must be reevaluated is the performance of emission testing for the emission unit that is subject to the permit limit. Other circumstances would include emission testing of similar emission units, as might occur either at the facility or at other units operated by US Steel, when testing at those other units was the basis of the current factor. Established emission factors would also have to be reevaluated if USEPA revises its *Compilation of Air Pollutant Emission Factors*, AP-42, and that compilation was the basis of the current factor.

[17] The date that the emission factor used for a particular unit is changed may be significant. A change in an emission factor can result from a change in an emission unit or associated control equipment or control practices, so that the new emission factor would supersede the former factor on the date when the underlying change to the unit was made. A change in an emission factor can also reflect the availability of new information and better data. In such case, a change

to the established emission factor that the source uses would be mandatory, with adoption of a new established emission factor, if it is determined that the current emission factor would understate actual emissions.[18]

A similar approach would also generally be used when a permit sets limits on the short-term emissions of an emission unit. The revised permit would require recordkeeping, with accompanying supporting analysis and documentation for the maximum short-term emission rate and typical emission rate. These records would work with the records for other applicable requirements that apply to such a unit to assure compliance with the short-term emission limits.

This approach to Periodic Monitoring for permit limits on emissions is dictated by the nature of the subject units and the available methodology to determine the actual emissions of these units. It is also consistent with the basis by which these limits were established in the underlying construction permits, as they were developed using emission factors. It is not feasible or practical to conduct direct monitoring of emissions to determine compliance with permit limits nor would it be reasonable to do so even if feasible.[19] This is particularly true as limits are established that address uncaptured emissions or fugitive PM, as defined by 35 IAC 211.2490, such as the limits established for the new coke conveyance system. Stacks are not present on this system as are essential for instrumental emissions monitoring. Fugitive PM emissions from material handling operations and road dust are routinely determined using established emission factors and emission determination methodology developed by USEPA.[20] As stacks are present on process and fuel combustion units at this facility that are subject to permit limits, technologies and procedures have not been developed for the use of continuous PM emissions monitoring systems on those units. As a technical matter, an essential prerequisite for any such PM monitoring, which is not yet satisfied for continuous PM monitoring, would be a demonstration that available monitoring technologies can be operated and maintained to provide reliable information on PM emissions when applied to the exhaust of a material handling operations. Moreover, even if continuous PM monitoring were feasible for the emission units at this facility, the effort entailed in applying current continuous PM monitoring methods, which have been developed for use on large coal-fuel fired boilers, to processed and emission units at the facility would be excessive.[21] Proper operation of these units

to the emission factor may have retroactive implications for the emissions of the unit, especially if the former emission factor understated actual emissions of a unit.

[18] The relevant criterion for a mandatory change to an established emission factor is if the factor understates actual emissions. The permit would not preclude use of emission factors that overstate actual emission factors. In particular, the source need not adjust the established emission factor after every emission test if the established emission factor has conservatively been set at a level above all the test results, e.g., at the level of the applicable emission standard.

[19] Monitoring for the mass of emissions, as needed to determine compliance with emission limit set by construction permits, is more complicated than emissions monitoring. It entails not only measuring the concentration of a pollutant or loading in the exhaust but also monitoring for the flow rate of the units, as needed to determine the mass of emissions of a pollutant.

[20] Refer to Section 13.2, Introduction to Fugitive Dust Sources, in USEPA's *Compilation of Air Pollutant Emission Factors*, AP-42.

[21] On facilities where continuous emissions monitors are used, these monitors are often serve functions that are different from or in addition to determining compliance with permit limits on emissions. For example, emission monitoring for the SO_2 under the federal Acid Rain Program provides accurate quantification of SO_2 emissions. Accurate data on SO_2 emission is essential under the market-based provisions of the Acid Rain Program where sources must hold allowances for their SO_2 emissions and sell or trade allowances that they do not need cover their own emissions. In the absence of the Acid Rain program, such monitors would not necessarily be needed to address compliance with applicable state emission standards for SO_2 if an emission unit were being fired on low-sulfur

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and their associated control devices can be readily verified by much simpler methods. In addition, the permit limits for emissions of PM and other pollutants were generally developed from data that was considered to represent the emission rate or emission factor that would be present when a unit and its associated control measures would be operating properly.

As such, it is appropriate for the Periodic Monitoring to address compliance with permit limits on emissions to focus and rely upon Monitoring to verify proper operation of units and their control equipment. This is provided by the Periodic Monitoring that would be provided for the regulatory emission standards and other control requirements that apply to the units. This Monitoring would require appropriate combinations of inspections, observations, emission testing and recordkeeping to verify the proper operation of different units as related to control of their emissions. As emission testing would be required as part of that Monitoring, it would also provide confirmation that the emission factors being used by the source to address emissions of a unit for purposes of emission limits are suitable and do not understate the actual emissions of the unit. This approach to Periodic Monitoring for emission units subject to permit limits on the amount of emissions, relying upon emission factors, production rates, and control efficiencies has been upheld by USEPA. *See* Order Responding to Petitioner's Request that the Administrator Object to Issuance of State Operating Permit, In the Matter of East Kentucky Power Cooperative, Inc. (USEPA, Dec. 14, 2009); (where USEPA reasonably relied on emission factors along with recordkeeping to demonstrate compliance with emission limitations).[22]

It should also be clearly understood that certain terms and conditions in Title I permits may pose issues or concerns for Periodic Monitoring that that are not present for applicable requirements that were developed by rulemaking. However, this is because of the nature of Title I permitting, Title I permits must set certain emission limits that are very different from emission standards that are established by rulemaking. Rulemaking are generally focused on regulating or controlling the emissions of particular pollutants from a particular category or categories of emission units. During rulemaking, the emission units that will actually be subject to regulation may be considered and the scope of regulation may be adjusted. The emission standards that are finally adopted will consider the nature of the emissions from the units, how they might appropriately be controlled and in what terms emission standards should be set.[23] [24] By contrast, the scope of Title I permits is set

compliance cost, without use of flue gas desulfurization system. Even if a source were using a scrubber for compliance, less rigorous monitoring for the SO_2 emissions, in lb/mmBtu, would be feasible if the source were not required to quantify its mass of SO_2 emissions, in tons per year.

[22] It should be recognized that this approach to permit limits does not decouple the ongoing Monitoring for such limits from the actual operation of such units. This is because the appropriate emission factor used to determine actual emissions can differ based on how a unit is operated. For example, if the normal emission factor for a unit is predicated on control of PM emissions by a baghouse and the unit operates during a period when the baghouse is damaged, it is appropriate for the emissions during such period to be calculated using a higher factor that accounts for actual condition of the baghouse during such period.

[23] For example, the NESHAP for Integrated Iron and Steel Manufacturing, 40 CFR 63 Subpart FFFFF, regulates uncaptured emissions of particulate matter from units at BOF shops with standards that address the opacity of those emissions. This NESHAP does not set quantitative standards on the amounts or mass of particulate emissions, in pounds per ton of steel processed or the concentration of particulate in the exhaust, in gr/scf. This NESHAP also does not address emissions of pollutants other than particulate, such as NO_x or SO_2, from units at BOF shops.

[24] In the context of this discussion, requirements that are set as BACT or LAER during permitting are appropriately thought of as "regulatory limits." This is because these requirements are the result of a specific evaluation of appropriate control technology for a particular emission units.

by the emission units that will comprise the particular projects and the provisions of the NSR programs, which act to dictate that quantitative emission limits must be set for those units in the Title I permits. Accordingly, because of the nature of Title I permitting, certain terms and conditions in Title I permits may pose issues for Periodic Monitoring that are not present for applicable requirements that were developed by rulemaking. Title I permits must set limits for certain emission units for which testing of emissions is not feasible or impractical. Most significantly, limits must be set for certain emission units that lack stacks, for which it is not possible to obtain measurements of exhaust or air flow rates and calculate the mass of emissions.[25] Limits must also be set for uncaptured emissions from certain units, which bypass the stack, for which measurements of emissions are also not possible. Limits may also be set for certain units for which the emissions are negligible, either in absolute terms or relative to the emissions of the principal emission units and emission streams at a facility.[26]

[25] Measurements of the mass of emissions (e.g., emissions in pounds or kilograms per hour or other time period) are conducted by measuring the concentration of a pollutant in the exhaust stream from an emission unit and the flow rate or volume of the air or exhaust stream. Both measurements are necessary as the mass of emissions is the product of the two measurements, concentration multiplied by flow rate.

[26] This also has implications for the projected emissions of certain units are determined by applicants, as then transformed into limits in a construction permit. In addition to being developed from emission factors, data for projected emissions may be based on projections or extrapolations of emission test data from "similar" emission units at other sources, engineering calculations, or engineering estimates. The normal practice in making such projections is to be conservative, i.e., err on the side of overstating emissions.

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IV. Periodic Monitoring

Pursuant to Section 504(c) of the Clean Air Act, a Title V permit must set forth monitoring requirements, commonly referred to as "Periodic Monitoring," to assure compliance with the terms and conditions of the permit. A general discussion of Periodic Monitoring is provided below. The Periodic Monitoring that is proposed for specific operations and emission units and at this facility is discussed in Attachment C of this Statement of Basis. Attachment C provides a narrative discussion of and justification for the elements of Periodic Monitoring that would apply to the different emission units and types of emission units at the facility.

As a general matter, the required content of a CAAPP permit with respect to such Periodic Monitoring is addressed in Section 39.5(7) of the Environmental Protection Act (Act).[27] Section 39.5(7)(b) of the Act[28] provides that in a CAAPP permit,

> The Agency shall include among such conditions applicable monitoring, reporting, record keeping and compliance certification requirements, as authorized by paragraphs d, e, and f of this subsection, that the Agency deems necessary to assure compliance with the Clean Air Act, the regulations promulgated thereunder, this Act, and applicable Board regulations. When monitoring, reporting, record keeping and compliance certification requirements are specified within the Clean Air Act, regulations promulgated thereunder, this Act, or applicable regulations, such requirements shall be included within the CAAPP permit.

Section 39.5(7)(d)(ii) of the Act further provides that a CAAPP permit shall,

> Where the applicable requirement does not require periodic testing or instrumental or noninstrumental monitoring (which may consist of recordkeeping designed to serve as monitoring), require Periodic Monitoring sufficient to yield reliable data from the relevant time period that is representative of the source's compliance with the permit… ."

Accordingly, the scope of the Periodic Monitoring that must be included in a CAAPP permit is not restricted to monitoring requirements that were adopted through rulemaking or imposed through permitting. When applicable regulatory emission standards and control requirements or limits and control requirement in relevant Title I permits are not accompanied by compliance procedures, it is necessary for Monitoring for these standards, requirements or limits to be established in a CAAPP permit.[29, 30] Monitoring requirements must also be established when standards and control

[27] The provisions of the Act for Periodic Monitoring in CAAPP permits reflect parallel requirements in the federal guidelines for State Operating Permit Programs, 40 CFR 70.6(a)(3)(i)(A), (a)(3)(i)(B) and (c)(1).

[28] Section 39.5(7)(p)(ii) of the Act also provides that a CAAPP permit shall contain "Compliance certification, testing, monitoring, reporting and record keeping requirements sufficient to assure compliance with the terms and conditions of the permit."

[29] The classic example of regulatory standards for which Periodic Monitoring requirements must be established in a CAAPP permit are state emission standards that pre-date the 1990 Clean Air Act Amendments that were adopted without any associated compliance procedures.[30] Periodic Monitoring must also be established in a CAAPP permit when standards and limits are accompanied by compliance procedures but those procedures are determined to be inadequate to assure compliance with the applicable standards or limits.

[30] Another example of emission standards for which requirements must be established as part of Periodic Monitoring is certain NSPS standards that require initial performance testing but do not require periodic testing or other measures to address compliance with the applicable limits on a continuing basis.

requirement are accompanied by compliance procedures but those procedures are not adequate to assure compliance with the applicable standards or requirements.[31, 32] For this purpose, the requirements for Periodic Monitoring in a CAAPP permit may include requirements for emission testing, emissions monitoring, operational monitoring, non-instrumental monitoring, and recordkeeping for each emission unit or group of similar units at a facility, as required by rule or permit, as appropriate or as needed to assure compliance with the applicable substantive requirements. Various combinations of monitoring measures will be appropriate for different emission units depending on their circumstances, including the substantive emission standards, limitations and control requirements to which they are subject.

What constitutes sufficient Periodic Monitoring for particular emission units, including the timing or frequency associated with such Monitoring requirements, must be determined by the permitting authority based on its knowledge, experience and judgment.[33] For example, as Periodic Monitoring must collect representative data, the timing of Monitoring requirements need not match the averaging time or compliance period of the associated substantive requirements, as set by the relevant regulations and permit provisions. The timing of the various requirements making up the Periodic Monitoring for an emission unit is something that must be considered when those Monitoring requirements are being established. For this purpose, Periodic Monitoring often consists of requirements that apply on a regular basis, such as routine recordkeeping for the operation of control devices or the implementation of the control practices for an emission unit. For certain units, this regular monitoring may entail "continuous" monitoring of emissions, opacity or key operating parameters of a process or its associated control equipment, with direct measurement and automatic recording of the selected parameter(s). As it is infeasible or impractical to require emissions monitoring for most emission units, instrumental monitoring is more commonly conducted for the operating parameters of an emission unit or its associated control equipment. Monitoring for operating parameter(s) serves to confirm proper operation of equipment, consistent with operation to comply with applicable emission standards and limits. In certain cases, an applicable rule may directly specify that a particular level of an operating parameter be maintained, consistent with the manner in which a unit was being operated during emission testing. Periodic Monitoring may also consist of requirements that apply on a periodic basis, such as inspections to verify the proper functioning of an emission unit and its associated controls.

The Periodic Monitoring for an emission unit may also include measures, such as emission testing, that would only be required once or only upon specific request by the Illinois EPA. These requirements would always be accompanied by Monitoring requirements would apply on a regular

[31] The need to establish Monitoring requirements as part of Periodic Monitoring when existing compliance procedures are determined to be inadequate, as well as when they are absent, was confirmed by the federal appeals court in Sierra Club v. Environmental Protection Agency, 536 f 3d 673, 383 U.S. App. D.C. 109.

[32] The need to establish Monitoring requirements as part of Periodic Monitoring is also confirmed in USEPA's Petition Response. USEPA explains that "… if there is periodic monitoring in the applicable requirements, but that monitoring is not sufficient to assure compliance with permit terms and conditions, permitting authorities must supplement monitoring to assure such compliance." Petition Response, page 6.

[33] The test for the adequacy of "Periodic Monitoring" is a context-specific determination, particularly whether the provisions in a Title V permit reasonably address compliance with relevant substantive permit conditions. 40 CFR 70.6(c)(1), *see also* 40 CFR 70.6(a)(3)(i)(B), *see also, In the Matter of CITGO Refinery and Chemicals Company L.P.*, Petition VI-2007-01 (May 28, 2009); *see also, In the Matter of Waste Management of LA, L.L.C. Woodside Sanitary Landfill & Recycling Center, Walker, Livingston Parish, Louisiana*, Petition VI-2009-01 (May 27, 2010); *see also, In the Matter of Wisconsin Public Service Corporation's JF Pulliam Power Plant*, Petition V-2009-01 (June 28, 2010)

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basis. When emission testing or other measure is only required upon request by the Illinois EPA, it is included as part of the Periodic Monitoring for an emission unit to facilitate a response by the Illinois EPA to circumstances that were not contemplated when Monitoring was being established, such as the handling of a new material or a new mode of operation. Such Monitoring would also serve to provide further verification of compliance, along with other potentially useful information. As emission testing provides a quantitative determination of compliance, it would also provide a determination of the margin of compliance with the applicable limit(s) and serve to confirm that the Monitoring required for an emission unit on a regular basis is reliable and appropriate. Such testing might also identify specific values of operating parameters of a unit or its associated control equipment that accompany compliance and can be relied upon as part of regular Monitoring.

There are a number of considerations or factors that are or may be relevant when evaluating the need to establish new monitoring requirements as part of the Periodic Monitoring for an emission unit. These factors include: 1) The nature of the emission unit or process and its emissions; 2) The variability in the operation and the emissions of the unit or process over time; 3) The use of add-on air pollution control equipment or other practices to control emissions and comply with the applicable substantive requirement(s); 4) The nature of that control equipment or those control practices and the potential for variability in their effectiveness; 5) The nature of the applicable substantive requirement(s) for which Periodic Monitoring is needed; 6) The nature of the compliance procedures that specifically accompany the applicable requirements; 7) The type of data that would already be available for the unit; 8) The effort needed to comply with the applicable requirements and the expected margin of compliance; 9) The likelihood of a violation of applicable requirements; 10) The nature of the Periodic Monitoring that may be readily implemented for the emission unit; 11) The extent to which such Periodic Monitoring would directly address the applicable requirements; 12) The nature of Periodic Monitoring commonly required for similar emission units at other facilities and in similar circumstances; 13) The interaction or relationship between the different measures in the Periodic Monitoring for an emission unit; and 14) The feasibility and reasonableness of requiring additional measures in the Periodic Monitoring for an emission unit in light of other relevant considerations [34]

The Illinois EPA has developed the revised CAAPP permit for US Steel's Granite City Works to include appropriate Periodic Monitoring for the various emission units at this facility. As compared to the original CAAPP permit issued to this source, this permit would include additional requirements for testing and instrumental and non-instrumental monitoring for certain emission units at the source, to assure that the permit would require sufficient Periodic Monitoring. For example, the permit would include additional requirements for inspections for the Basic Oxygen Furnaces (BOF) to address substantive requirements related to opacity of the exhaust through the roof monitor on the BOF Shop. The permit would now also include detailed provisions for Periodic Monitoring for the various material handling and processing operations at the facility.

As already explained, the Periodic Monitoring the various emission units at this facility is

[34] A number of these factors are specifically listed by USEPA in its Petition Response. USEPA also observes that the specific factors that it identifies in its Petition Response with respect to Periodic Monitoring provide "... the permitting authority with a starting point for its analysis of the adequacy of the monitoring, the permitting authority also may consider other site-specific factors." Petition Response, page 7

discussed in Attachment C. The discussions in this attachment focus on the need to establish Periodic Monitoring in the revised CAAPP permit, either as the applicable rules are not accompanied by compliance procedures or the relevant compliance procedures set by rule for the applicable regulatory standards and requirements are insufficient and must be supplemented in the CAAPP permit. The detailed discussions in this attachment also focus on emission limits and control requirements set in construction permits that address certain emission units, which requirements were established during permitting rather than by rulemaking. As already discussed, one factor in the need to supplement the compliance procedures that accompany the substantive emissions control requirements that apply to an emission unit is the nature and rigor of the compliance procedures and other related requirements established by applicable rules. In addition to establishing compliance procedures, e.g., provisions for inspections, testing and recordkeeping, to accompany emission standards, applicable rules may also establish "work practice" requirements that function to facilitate compliance with the applicable emission standards. These requirements may consist of broad obligations to operate and maintain emission units and associated control equipment in order to minimize emissions, as present in the federal NSPS and NESHAP standards. Work practice requirements may also specify actions by a source, such as preparation and implementation of written procedures for a unit or control equipment that constitute proper operation for control of emissions. As such work practices address all operation of an emission unit, these practices generally act to reduce the need to supplement the compliance procedures for an emission unit when Periodic Monitoring is being established.

As a general matter, it should also be noted that as related to the recordkeeping that would be required as Periodic Monitoring, there are also some common features in these records that are directly tied to the other elements of the Periodic Monitoring for an emission unit. When particular measures or "actions" are required as elements of the Periodic Monitoring for a unit, these measures and actions must always be accompanied by certain records that appropriately document that those measures and actions have been performed, as well as by records for the specific data or information that was measured or collected. As a general matter, specific work practices that are required by rules are accompanied by appropriate records for the type of work practice, as also specified by rule. For example, for the leak detection and repair program that is required at the coke by-product recovery plant, the applicable rules require detailed records for this program, including identification of components covered by this program and records for the periodic instrumental measurements that must be conducted to identify leaking components. All written plans or procedures that the source must prepare and follow for certain emission units or activities also become records that the source must retain. As these related records are always required when certain substantive requirements apply, these records generally are not further addressed in the unit-specific discussions in Attachment C.

Similarly, all inspections of emission units or control equipment that would be required as Periodic Monitoring must be accompanied by records for the inspections. These records must identify who performed the inspection, what was inspected, and what was seen or observed. All observations for visible emissions must be accompanied by records for the performance of the observations. These records must include items such as the name and identity of the observer, the time of the observations, the emission units for which observations were performed, and, if visible emissions were observed, the units and emission points from which visible emissions were seen. All required emission tests and other performance tests must be accompanied by formal test reports, which

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become records for such testing that the source must retain. These test reports must include not only results of the tests but information describing the operational conditions of the subject emission unit when testing was conducted and information documenting that appropriate testing methodology was followed. Similar records must also be kept when sampling and analysis as required for particular parameters. For required continuous monitoring systems, records are required for the operation and maintenance of the systems, as well as records for the measured parameter, which for continuous monitoring must generally be automatically recorded. For other required instrumentation, records must also be kept for the operation and maintenance of the instrumentation, as well as for the measured parameter periodically recorded if not automatically recorded. The need for these "related records" is readily apparent as they provide necessary records to accompany actions and activities that are being required as Periodic Monitoring. Again, as these related records are always required when inspections, testing, sampling and analysis, monitoring, or instrumentation are required as part of the Periodic Monitoring for an emission unit, these records generally are not further addressed in the unit-specific discussions in Attachment C.

In addition, when certain regulatory provisions would apply to an emission unit, they are always accompanied by certain records. In particular, as provided for by 35 IAC Part 201, Subpart H, the permit contemplates or "prepares for" potential violations of certain state emission standards by certain emissions unit during startup or in the event of a malfunction or breakdown. (See also discussions at Section ?? of this Statement of Basis.) When such violations are contemplated by the permit during the startup of an emission unit, detailed records are required related to the startup of the unit. When such violations are contemplated for malfunction and breakdown events, detailed records are required for such events. In either case, a maintenance and repair log may also be required for the unit, as may be relevant to show that the unit has been properly maintained and repaired so as to reduce the likelihood of events that would result in violations. Again, these related records generally are not further addressed in the unit-specific discussions in Attachment C.

It should also be noted that, as reporting may also be considered a part of Periodic Monitoring, there are some reports that the source would always be required to submit and certain reports that are directly tied to the applicable regulatory standards that apply to an emission unit. Prompt reporting of deviations is always required. Monitoring reports are required on a semi-annual basis. Annual compliance reports, in which a source must certify to and explain the compliance status during the previous year of the various emission units at a facility, are also always required. In addition certain emission standards also require specific reports that address operation or emissions of subject units or their compliance status. For example, for both the blast furnaces and the BOF shop, semi-annual compliance reports are required by the applicable NESHAP standards, 40 CFR 63 Subpart FFFFF.

Finally, it should be understood that as observations for opacity, observations for the presence of visible emissions, emission testing, or opacity monitoring are required as Periodic Monitoring for emission units, these activities must be conducted in accordance with standard methodologies and procedures developed by USEPA for such activities. In particular, observations of the opacity of emissions must be conducted in accordance with USEPA Method 9. Method 9 requires that observations of opacity be made by an individual whose ability to reliably observe and "read" opacity has been certified in accordance with Method 9. Observations for visible emission must be conducted in accordance with USEPA Method 22, unless other more specific methods apply (e.g., USEPA Method 303 for observations for visible emissions at coke oven batteries). Appropriate test methods adopted by USEPA must generally be used for testing emissions of different pollutants. Emission testing must also generally be conducted at the maximum operating range of emission units and other conditions that would be representative of future operation of the units and associated emission control equipment. Opacity monitoring systems must also be operated and maintained in accordance with applicable performance specifications and quality assurance procedures adopted by USEPA for such monitoring.

For specific information about the Periodic Monitoring that is proposed for the various emission units at this facility, refer to Attachment C. Attachment C also provides a narrative discussion and justification for the elements of Periodic Monitoring that would apply to the various types of units at the facility. As already explained, the narrative discussions in this attachment focus on the need to establish Monitoring requirements to accompany the applicable compliance procedures set by rule, either as the applicable rules lack such procedures or such procedures may be insufficient.

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V. Reporting

Among other terms and conditions, CAAPP permits contain reporting obligations to assure compliance with applicable requirements. These reporting obligations are generally four-fold. More specifically, each CAAPP permit sets forth any reporting requirements specified by state or federal law or regulation, requires prompt reports of deviations from applicable requirements, requires reports of deviations from required monitoring and requires a report certifying the status of compliance with terms and conditions of the CAAPP permit over the calendar year.

The number and frequency of reporting obligations in any CAAPP permit is source-specific. That is, the reporting obligations are directly related to factors, including the number and type of emission units and applicable requirements, the complexity of the source and the compliance status. This four-fold approach to reporting is common to virtually all CAAPP permits as described below. Moreover, this is the approach established in the planned revised CAAPP permit for US Steel.

Regulatory Reports

Many state and federal environmental regulations establish reporting obligations. These obligations vary from rule-to-rule and thus from CAAPP source to CAAPP source and from CAAPP permit to CAAPP permit. The variation is found in the report triggering events, reporting period, reporting frequency and reporting content. Regardless, the CAAPP makes clear that all reports established under applicable regulations shall be carried forward into the CAAPP permit as stated in 39.5(7)(b) of the Act. Generally, where sufficiently detailed to meet the exacting standards of the CAAPP, the regulatory reporting requirements are simply restated in the CAAPP permit. Depending on the regulatory obligations, these regulatory reports may also constitute a deviation report as described below.

The revised CAAPP permit for US Steel would embody all regulatory reporting as promulgated under federal and state regulations under the CAA and the Act. Depending on the frequency of the report, the regulatory report may also satisfy the prompt reporting obligations discussed below. These reports must be certified by a responsible official.

These reports are generally found in the reporting sections for each emission unit group. The various regulatory reporting requirements are summarized in the table at the end of this Reporting Section.

Deviation Reports (Prompt Reporting)

Section 39.5(7)(f)(ii) of the Act mandates that each CAAPP Permit require prompt reporting of deviations from the permit requirements.

Neither the CAAPP nor the federal rules upon which the CAAPP is based and was approved by USEPA define the term "prompt". Rather, 40 CFR Part 70.6(a)(3)(iii)(B) intended that the term have flexibility in application. The USEPA has acknowledged for purposes of administrative efficiency and clarity that the permitting authority (in this case, Illinois EPA) has the discretion to define "prompt" in relation to the degree and type of deviation likely to occur at a particular source. The Illinois EPA follows this approach and defines prompt reporting on a permit-by-

permit basis. In instances where the underlying applicable requirement contains "prompt" reporting, the Illinois EPA typically incorporates the pre-established time frame in the CAAPP permit (e.g. a NESHAP or NSPS deviation report). Where the underlying applicable requirement fails to explicitly set forth the time frame for reporting deviations, the Illinois EPA generally uses a time frame of 30 days to define prompt reporting of deviations.

This approach to prompt reporting of deviations as discussed herein is consistent with the requirements of 39.5(7)(f)(ii) of the Act as well as 40 CFR Part 70 and the CAA. The reporting arrangement is designed so that the source will appropriately notify the Illinois EPA of those events that might warrant attention. The timing for these event-specific notifications is necessary and appropriate as it gives the source enough time to conduct a thorough investigation into the causes of an event, collecting any necessary data, and developing preventive measures, to reduce the likelihood of similar events, all of which must be addressed in the notification for the deviation, while at the same time affording regulatory authority and the public timely and relevant information. The approach also affords the Illinois EPA and USEPA an opportunity to direct investigation and follow-up activities, and to make compliance and enforcement decisions in a timely fashion .

The CAAPP permit for US Steel would require prompt reporting as required by the Act in the fashion described in this subsection. In addition, pursuant to 39.5(7)(f)(i), this CAAPP permit would also require the source to provide a summary of all deviations with the semi-annual monitoring report. These reports must be certified by a responsible official, and are generally found in the reporting sections for each emission unit group.

Semi-Annual Monitoring Reports

Section 39.5(7)(f)(i) of the Act mandates that each CAAPP permit require a report relative to monitoring obligations as set forth in the permit. Depending upon the monitoring obligation at issue, the semi-annual monitoring report may also constitute a deviation report as previously discussed. This monitoring at issue includes instrumental and non-instrumental emissions monitoring, emissions analyses, and emissions testing established by state or federal laws or regulations or as established in the CAAPP permit. This monitoring also includes recordkeeping. Each deviation from each monitoring requirement must be identified in the relevant semi-annual report. These reports provide a timely opportunity to assess for compliance patterns of concern. The semi-annual reports shall be submitted regardless of any deviation events. Reporting periods for semi-annual monitoring reports are January 1 through June 30 and July 1 through December 31 of each calendar year. Each semi-annual report is due within 30 days after the close of reporting period. The reports shall be certified by a responsible official.

The CAAPP permit for US Steel would require such reports at Condition 8.6.1.

Annual Compliance Certifications

Section 39.5(7)(p)(v) of the Act mandates that each CAAPP permit require a source to submit a certification of its compliance status with each term and condition of its CAAPP permit. The reports afford a broad assessment of a CAAPP sources compliance status. The CAAPP requires that this report be submitted, regardless of compliance status, on an annual basis. Each CAAPP permit requires this annual certification be submitted by May 1 of the year immediately following

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the calendar year reporting period. The report shall be certified by a responsible official.

The CAAPP permit for this source would require such a report at Condition 9.8.

TABLE V.1 Regulatory Reports

CAAPP Condition	Regulatory Reference	Substance of Required Report
5.3.9	40 CFR 63.7500(a)(1)	Comprehensive report on energy assessment for Subpart DDDDD
5.10.2	35 IAC Part 254	Annual Emission Report
5.10.4(a), 7.1.10(a)(i), 7.13.10(a)	35 IAC 212.316(g)(5)	Annual and Quarterly report for fugitive dust control requirements
5.10.4(b), 7.1.10(a)(i)	35 IAC 212.324(g)(6)	When pollution control equipment was not in operation
5.10.5(a), 7.2.10(f), 7.2.10(g), 7.3.11(e), 7.4.5.2(b)(x)(D), 7.5.10(g), 7.10.3(j), 7.10.10(d)	35 IAC 201.263	Malfunction/breakdown (state rules)
5.10.5(b)	40 CFR 63.10(d)(5)	SSM (Federal)
5.10.7	40 CFR 63.9(h)(2)(ii) and 63.7530	Notification of Compliance Status report (Subpart DDDDD)
7.2.10(b)	40 CFR 63.7536(a)	When emission limitations, O/M requirements are not met
7.2.10(e)	40 CFR 63.7341(a)(3) and (4)	Quarterly and semi-annual compliance reports for battery stacks and semiannual compliance reports for all other affected sources
7.2.10(d)(i)	40 CFR 63.311(d)	Semi-annual compliance certification
7.2.10(d)(ii)	40 CFR 63.311(e)	Venting report
7.3.6(c)	40 CFR 61.355(a)(4) and 61.357	Reports on exceedance of 1 t on/yr of the generated benzene waste
7.3.11(a)(i)	40 CFR 61.138(f)	Semi-annual report on leaks, defects, results of performance tests
7.3.12(b)(ii)	40 CFR 61.247(b)	Semi-annual reports on leaks, repairs, shutdown
7.4.10(a)(i), 7.5.8(c)(iv)(D), 7.5.10(a)(i)	40 CFR 63.7541	Semi-annual compliance reports
7.4.10(a)(iii)	40 CFR 63.10(d)(5)(ii)	Immediate SSM reports
7.7.14(d), 7.8.14(d), 7.10.12(a)(ii)(D)	35 IAC 217.156	Testing protocols, emissions exceedance
7.8.3(c)	40 CFR 63.7640(a)(10)(vi)	Annual reports (if required) for tune-ups
7.8.13(b)	40 CFR 63.1164	SSM reports, progress reports, immediate reports, etc.
7.10.3(a)(i)	40 CFR 7550	Deviation reports

VI. Start-up/Shutdown/Malfunction Breakdown

A. SIP Start-up/Malfunction-Breakdown Authorization

The Illinois EPA does not provide for "automatic exemptions" within CAAPP permits for operation with excess emissions during malfunction/breakdown or startups. The permits and the language regarding such exemptions are consistent with the Illinois SIP and federal guidance on the topic. An explanation of Illinois' SIP and its permitting practice is provided below.

Illinois' SIP at 35 IAC 201.149 prohibits continued operation of an emission unit during malfunction or breakdown of the unit or associated air pollution control equipment, or startup of an emission unit or associated air pollution control equipment, if such operation would cause a violation of applicable emission standards or limitations absent express permit authorization (emphasis added). Further provisions pertaining to such permit authorization are set forth in 35 IAC Part 201, Subpart I. These provisions make clear that the process in Illinois for addressing malfunction/breakdown and startup is in two steps. The first step, as set forth at 35 IAC 201.261, consists of seeking authorization by means of an application for permit to prospectively make a claim of malfunction/breakdown or startup. Pursuant to the provisions for malfunction/breakdown, the application shall include an explanation of why continued operation is necessary; the anticipated nature, quantity and duration of emissions; and measures that will be taken to minimize the quantity and duration of emissions. Pursuant to the applicable regulation, for startup, the application shall include a description of the startup procedure, duration and frequencies of startups, type and quantity of emissions during startups, and efforts to minimize emissions, duration and frequency. These regulatory requirements are acknowledged by the CAAPP, pursuant to Section 39.5(5)(s) of the Act. Absent a request for authorization in an application for a CAAPP permit that satisfies both the requirements for application content and the standards for granting, and, after Agency review, an express grant of such authorization in a CAAPP permit issued by Illinois EPA, a CAAPP source cannot make a claim of malfunction/breakdown or startup under Illinois regulations.

The second phase of Illinois' process for operation with excess emissions during malfunction/breakdown or startup, as set forth at 35 IAC 201.262, addresses the showing that must be made in order to make a viable claim of malfunction/breakdown or startup. Pursuant to the regulations for malfunction/breakdown, this showing consists of a demonstration that operation was necessary to prevent injury to persons or severe damage to equipment, or was required to provide essential services. There are two elements to the required showing, "need" and "function". For startup, it shall consist of a demonstration that all reasonable efforts have been made to minimize emissions from the startup event, to minimize the duration of the event, and to minimize the frequency of such events. To a certain extent, this showing may be evaluated on past practice. However, this showing is also prospective, like the showing for malfunction/breakdown, as it relates to future events, which and whose exact circumstances are not known, and which, in fact, may or may not occur.

The approach taken by Illinois' regulation can be distinguished from and contrasted with that of the federal NESHAP regulations, under 40 CFR Part 63. These federal regulations address excess emissions during malfunction (and shutdown) or startup without the initial step required by

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Illinois' rules. This is because all sources are able to claim exclusion from an otherwise applicable standard during a malfunction or startup event. The validity of the claims is then subject to scrutiny by USEPA and the state enforcement authority, as to the acceptability of a source's claim that an incident should qualify for an exemption. That is, that the excess emissions could not be readily prevented and were not contrary to good air pollution control practices. In fact, this case-by-case scrutiny is the second step provided for in Illinois' regulations. This "federal approach" is set forth in the planned revised CAAPP permit for select emission units that are subject to certain NESHAPs. Violations of applicable NESHAP emission limits are governed by the "federal approach." Violations of emissions standards found in state air pollution control regulations at 35 IAC Subtitle B chapter c are governed by the SIP approach.

For those units for which US Steel seeks malfunction/breakdown or startup authorization under Illinois' SIP, the CAAPP permit application contains complete Forms 204-CAAPP and 203-CAAPP, respectively entitled Request To Continue To Operate During Malfunction And Breakdown and Request To Operate During Startup of Equipment. These forms seek the specific information required by the relevant state regulation. Again, that information is an explanation of why continued operation is necessary; the anticipated nature, quantity and duration of emissions; and measures that will be taken to minimize the quantity and duration of emissions for malfunctions and breakdowns. It is a description of the startup procedure, duration and frequencies of startups, type and quantity of emissions during startups, and efforts to minimize emissions, duration and frequency for start-up. Accordingly, US Steel seeks malfunction/breakdown as well as startup authorization in accordance with applicable Illinois regulation. Illinois EPA thoroughly reviewed this information against the SIP. Based on its review, the planned revised CAAPP permit would grant authorization to the facility to make a claim of malfunction/breakdown or startup. That the planned revised CAAPP permit affords such authorization, does not equate to an "automatic exemption." The grant of such initial authorization is fully consistent with long standing practice in Illinois permitting and enforcement. Due to the size and complexity of the source and the inability to simply shutdown equipment or the level of hazards associated with improper start-up or shutdown, the source may experience excess emissions due to events that cannot be readily anticipated or reasonably avoided. However, the facility is also fully aware that it may be held accountable for any excess emissions that occur regardless of any such authorization.

Neither the provisions in the SIP nor the provisions in the CAAPP permit delineating the elements for a viable claim of malfunction/breakdown or startup translate into any advanced determination on excess emissions. Rather, together the regulations and the CAAPP permit simply provide a framework whereby a source may have an opportunity to make a claim of malfunction/ breakdown or startup, with the viability of such claim subject to specific review against the requisite requirements. Indeed, 35 IAC 201.265 clearly states that violating an applicable state standard even if consistent with any expression of authority regarding a malfunction/breakdown or startup set forth in a permit shall only constitute a prima facie defense to an enforcement action for violation of said regulation. The malfunction/breakdown or startup authorization provided in the planned revised CAAPP permit does not provide shields from state emission standards that may be violated during said events. Rather, the source is subject to the applicable limitations or standards on any malfunction/breakdown or startup authorization included within the permit. As a result, any excess emissions during these events would constitute violations potentially subject to

enforcement action.

For any source that receives such authorization, the type of authorization (i.e., malfunction/breakdown or startup), the emission units for which authorization has been received, and the conditions under, and manner in which such authorization may be utilized are clearly set forth in the CAAPP permit. The origin of these authorizations is 35 IAC 201.149.

B. Federal Start-up/Shutdown/Malfunction Provisions

As originally adopted, the General Provisions of the NESHAP, 40 CFR Part 63 Subpart A (40 CFR 63.6(f) and (h)) provided that the limits of the NESHAP generally did not apply during startup, shutdown and malfunction (SSM) events (the "SSM Exemption") unless otherwise provided in a particular subpart for a particular category of source or emissions unit.[15] However, in December 2008, a US Court of Appeals decision in *Sierra Club v. EPA*, 551 F 3d 1019 (D.C. Cir. 2008), vacated this SSM Exemption.[16]

On July 22, 2009, Adam Kushner, Director of the Office of Civil Enforcement of the USEPA issued guidance identifying the categories of sources that would no longer be exempt from applicable numerical NESHAP standards during startup, shutdown, and malfunction as a result of the vacatur of the SSM exemption (the SSM Vacatur). This guidance states that the SSM vacatur immediately affects only the NESHAP standards for source categories that both (i) incorporate the SSM Exemption by reference and (ii) contain no other regulatory text that provides an exemption or exception from otherwise applicable limits during startup, shutdown or malfunction events. The NESHAP standards for many source categories contain such separate category-specific exemption language for startup, shutdown and malfunction events. These provisions were not at issue in the *Sierra Club* case and decision, and accordingly those separate provisions would not be affected by the vacatur of the SSM Exemption in 40 CFR 63 Subpart A. The guidance identifies the NESHAP standards for various categories of sources that would be affected by the SSM vacatur and the standards for other categories of sources that would not be affected ("Table 1" and "Table 2," respectively, of the guidance).[17]

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[15] During startup, shutdown and malfunction, a source was instead required to minimize emissions of subject emissions units in a manner consistent with good air pollution control practice. A startup shutdown and malfunction plan must be maintained by a source setting forth how it operate emission units to maximize emissions during events, ideally so that they are not accompanied by any violations of the applicable standards. Finally, the term "malfunction" is also narrowly defined under the NESHAP. Malfunctions only include events that are sudden, infrequent and not reasonably preventable. Events that are caused, even in part, by poor maintenance or careless operation are not malfunctions for purposes of any SSM exemption.

[16] The *Sierra Club* decision has created concern for the sources that are subject to NESHAP standards and have relied upon the SSM Exemption. For some source categories, the technological capability to maintain compliance with numerical NESHAP standards during SSM events may not currently exist. Numerical standards were also adopted without critical consideration necessarily having been given to whether those standards could reasonably and appropriately be met during startup, shutdown or malfunction events. Consequently, the vacatur of the SSM Exemption creates uncertainty and concern about how to apply these NESHAP standards pertaining to such events.

[17] The USEPA guidance contains a caveat. USEPA recognizes that the source category-specific SSM exemption provisions may be challenged separately. As such, the analysis in its guidance could be subject to change. USEPA indicates that it intends to evaluate which source category-specific SSM exemption provisions should be revised. The Illinois EPA is not aware of any such specific challenges that have been made to source category-specific SSM exemption provisions in the NESHAP.

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Illinois EPA has followed USEPA's guidance in preparing the planned revised CAAPP permit. For the NESHAP for Steel Pickling, 40 CFR 63 Subpart CCC there is no longer a SSM exemption as this NESHAP is listed in "Table 1" of USEPA's guidance as being impacted by the SSM vacatur. Accordingly, the limits of 40 CFR 63 Subpart CCC now apply at all times (See Condition 7.8.5-1(b) of the planned revised CAAPP permit). For the recently adopted NESHAP for Boilers and Process Heaters, 40 CFR 63 Subpart DDDDD, there is likewise no SSM exemption. This standard is not directly addressed by USEPA's guidance for the SSM vacatur as it was only recently adopted. However, this standard, as adopted, does not include any provisions that exempt sources from compliance with its limits during SSM.[38] The balance of the NESHAPs to which this facility is subject are not affected by the SSM vacatur. That is, the facility is subject to NESHAP standards that contain category-specific SSM exemption and are listed in Table 2 of USEPA's guidance for the SSM vacatur.

[38] In its adoption of 40 CFR 63 Subpart DDDDD, the USEPA has responded to the decision in *Sierra Club v EPA*. USEPA has not provided an SSM exemption in this new standard. The newly established emission limits and the applicable operating limits would apply during SSM. However, for malfunctions, the USEPA does recognize that in certain circumstances, subject to appropriate actions by the source, and subject to prompt notification to the relevant air pollution control authority, a source may, in an enforcement action, assert an affirmative defense to a claim for civil penalties for violations of limits under this NESHAP that are caused by a malfunction (See 40 CFR 63.7501).

VII. Incorporation by Reference

In its Order issued on January 31, 2011, USEPA found that the Illinois EPA did not properly incorporate certain documents into the CAAPP permit.[39] USEPA acknowledged that the five plans and/or programs (commonly referred to as "plans") identified by the Petition were incorporated by reference into the CAAPP permit. However, USEPA concluded that the CAAPP permit did not appropriately refer to the specific documents or materials that represented these plans by identifying their respective dates, titles or contents. In the absence of sufficiently descriptive terms, USEPA reasoned that the public might be confused as to which version of a plan was being incorporated or as to the actual contents of the plan.

The Illinois EPA has reviewed the USEPA Order on this subject, as well as the *White Paper 2* and past petition responses by the Administrator. Based on this guidance, it is recognized that Title V permit authorities may, within their discretion, incorporate plans by reference. As recognized in the *White Paper 2*, permit authorities can effectively streamline the contents of a Title V permit, avoiding the inevitable clutter of restated text and preventing unnecessary delays where, as here, permit issuance is subject to a decision deadline.[40] However, it is also recognized that the benefits of incorporation of plans must be carefully balanced by a permit authority with its duty to issue permits in a way that is "clear and meaningful" to the Permittee and the public.[41]

The criteria that are mentioned in USEPA's Order stress the importance of identifying, *with specificity*, the object of the incorporation.[42] The Illinois EPA agrees that such emphasis is generally consistent with USEPA's pronouncements in previous guidance and, in fact, was expressly acknowledged in the Responsiveness Summary for the original CAAPP permit. However, as the earlier permit may have lacked reference to certain manifest attributes of the incorporated document, such as its date and title, the revised CAAPP permit will include them. This action should ensure that both the Permittee and public are not confused as to which version of a plan is being incorporated into the CAAPP permit.

For each condition incorporating a plan, the Illinois EPA is also briefly describing the general manner in which the plan applies to the source. Identifying the nature of the source activity, the

[39] *See*, Order at pages 42-44. The cited documents included the following US Steel plans and/or programs: Fugitive Particulate Matter Operating Program, the PM10 Contingency Measure Plan, the Episode Action Plan, the Soaking Work Practice Plan for implementing 40 CFR Subpart CCCCC and the Work Practice Plan for implementing 40 CFR Subpart L.

[40] Among other things, USEPA observed that the stream-lining benefits can consist of "reduced cost and administrative complexity, and continued compliance flexibility ..." *White Paper 2*, page 41.

[41] *See*, In the Matter of Tesoro Refining and Marketing, Petition No. IX-2004-6, Order Denying in Part and Granting in Part Petition for Objection to Permit, at page 8 (March 15, 2005), *see also*, *White Paper 2* at page 39 ("reference must be detailed enough that the manner in which any referenced materials applies to a facility is clear and is not reasonably subject to misinterpretation").

[42] The Order provides that permit authorities must ensure the following: "(1) referenced documents be specifically identified, (2) descriptive information such as the title or number of the document and the date of the document be included so that there is no ambiguity as to which version of the document is being referenced, and (3) citations, cross references, and incorporations by reference are detailed enough that the manner in which any referenced material applies to a facility is clear and is not reasonably subject to misinterpretation." *See*, Petition Response at page 43, citing *White Paper 2* at page 37.

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regulatory requirements or the nature of the equipment associated with the plan is a recommendation of the *White Paper 2* and should adequately address USEPA's concerns from the Order.[43] The Illinois EPA has stopped short of enumerating the actual contents of a plan, as restating them in the permit would plainly defeat the purpose of incorporating the document by reference and be contrary to USEPA guidance on the subject.[44]

Some plans may need to be revised from time to time, as occasionally required by circumstance or by underlying rule or permit requirement. Except where expressly precluded by the relevant rules, the revised CAAPP permit allows the Permittee to make future changes to a plan without undergoing formal permit revision procedures. This approach will allow US Steel flexibility to make required changes to a plan without separately applying for a revised permit and, similarly, will lessen the impacts that could result for the Illinois EPA if every change to a plan's contents required a permitting transaction.[45] Changes to the incorporated plans during the permit term are automatically incorporated into the revised CAAPP permit unless the Illinois EPA expresses a written objection. The exception to this practice is the PM_{10} Contingency Measure Plan, for which a permit revision is needed for any changes to the plan.[46]

The revised CAAPP permit incorporates by reference the following plans: the Fugitive Particulate Matter Operating Program, the PM_{10} Contingency Plan, the Episode Action Plan and a Work Practices Plan relating to 40 CFR Subpart L.[47] After further reconsideration, the Illinois EPA has elected not to proceed with incorporating the Soaking Plan for implementing 40 CFR Subpart CCCCC into the CAAPP permit. The plan does not contain the type of information that is integral to assuring compliance with applicable requirements, including emissions limitations, compliance certification, testing monitoring, reporting or recordkeeping requirements, and is indistinguishable from other types of plans (such as operating and maintenance plans and SSM plans) [48]that USEPA has historically concluded need not be incorporated into Title V permits.[49]

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[43] *See, White Paper 2* at page 39.

[44] Nothing in USEPA guidance, including the *White Paper 2* or previous orders responding to public petitions, supports the notion that permit authorities incorporating a document by reference must also restate contents of a given plan in the body of the Title V permit. Such an interpretation contradicts USEPA recognition that permit authorities need not restate or recite an incorporated document so long as the document is sufficiently described. *White Paper 2* at page 39; *see also*, In the matter of Consolidated Edison Co. of New York, Inc., 74th St. Station, Petition No. II-2001-02, Order Granting in Part and Denying in Part Petition for Objection to Permit at page 16 (February 19, 2003).

[45] This approach is consistent with USEPA guidance, which has previously embraced a similar approach to certain SSM plans. *See*, Letter and Enclosures, dated May 20, 1999, from John Seitz, Director of Office of Air Quality Planning and Standards, to Robert Hodanbosi and Charles Lagges, STAPPA/ALAPCO, pages 9-10 of Enclosure B

[46] The PM10 Contingency Measure Plan is not being provided the same flexibility with respect to revising the plan's contents, as the underlying SIP rule treats the contents of the plan as federally enforceable. Any future revisions to this plan during the permit term are required to undergo procedures for permit modification. *See*, Condition 5.3.3(d).

[47] Each incorporated plan addressed by this Section of the Statement of Basis is part of US Steel's permit file. As such, these plans are available to any person interested in viewing the contents of a given plan may do so at the public repository during the comment period or, alternatively, may request a copy of the same from the Illinois EPA under the Freedom of Information Act. See also 71 FR 20447.

[48] *See*, Letter and Enclosures, dated May 20, 1999, from John Seitz, Director of Office of Air Quality Planning and Standards, to Robert Hodanbosi and Charles Lagges, STAPPA/ALAPCO, page 9 of Enclosure B

[49] In the most recent final rulemaking for 40 CFR 63, Subpart A – General Provisions, the US EPA dealt with the need for SSM Plans to be available, the level of detail in an SSM necessary for purposes including permitting and whether a SSM Plan is tantamount to a compliance schedule necessary for incorporation into a Title V permit. USEPA concluded that SSM Plans need not be mandatorily available for public access but rather must be made available upon

request by the permitting authority. In addition, these plans do not contain enforceable requirements necessary to demonstrate compliance with the general duty clause at 63.6(e)(1)(i) and are therefore not applicable requirements. Lastly, SSM Plans are not of the same ilk as a compliance schedule required in 502(b)(8) or 503(c) of the CAA or 40 CFR 70.5(c)(8) as the criteria for such documents are clearly distinguishable for each. *See*, FR Vol. 71, No 76/Thursday, April 20, 2006 (pg. 20447 and 20449 – 20451); FR Vol. 70, No. 145/Friday, July 29, 2005 (pg. 43993 – 43994); FR Vol. 67, No. 236/Monday December 9, 2002 (pg. 72880). Therefore, the Illinois EPA has concluded that these plans are not required to be incorporated by reference or any of the content of such plans need be incorporated into the CAAPP permit.

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VIII. Applicable Requirements for Emissions of Greenhouse Gases (GHG)

On June 3, 2010, USEPA adopted rules for the initial permitting of major sources of emissions of greenhouse gases (GHG). *See*, 75 FR 31514-31608. Prompted by the earlier adoption of GHG emissions standards for motor vehicles under Title II of the CAA, the USEPA's rules implement a two-phased program for permitting major sources of GHG under Title V permit programs.[50] As Illinois EPA is planning to issue a revised CAAPP permit for US Steel during the first phase of the rules, GHG emissions must be addressed during this CAAPP permitting action.[51] Annual Emission Reports submitted to the Illinois EPA by US Steel, which detail the facility's actual annual emissions of GHG, provide the necessary data to appropriately address emissions of GHG in the revised CAAPP permit.[52] The data in these reports clearly show the facility is a major source for emissions of GHG.

The new federal rules also require subject Title V sources to comply with any applicable GHG-related requirements that arise from other CAA programs.[53] However, there are currently no emission standards or other regulatory obligations relating to GHG that constitute "applicable requirements" for this facility. For this reason, the planned revised CAAPP permit for US Steel does not contain any substantive requirements for GHG. At the federal level, the only venue that could potentially establish GHG-related requirements at this time is the PSD program. As of January 2, 2011, sources triggering PSD must evaluate GHG emissions resulting from projects that trigger the major source or major modification rules.[54] US Steel has neither constructed such a project, nor received a permit authorizing such a project, since January 2, 2011, to the present, and therefore has not triggered any GHG-related requirements under the PSD program.

There are no other GHG-related requirements established under the CAA that are applicable to US Steel at this time. In particular, the mandatory reporting rule for GHG promulgated by USEPA in 2009 [*see generally*, 40 CFR Part 98] is not an applicable requirement and therefore would not be included in the revised CAAPP permit for this facility.

[50] The new rules apply the first phase of permitting to sources already subject to Title V by virtue of their conventional, non-GHG pollutants. As noted above, these sources are expected to address GHG in their permitting applications and to comply with any substantive requirements for GHG that have been established through other CAA programs such as PSD. The second phase of permitting that begins July 1, 2011, essentially applies the same requirements to sources who will become subject to Title V based on their GHG emissions alone (i.e., existing or newly constructed sources with a potential to emit of equal to or greater than 100,000 tons per year of CO_2e and 100 tons per year of GHG on a mass basis).

[51] USEPA has stated that the first phase of its new rules requires existing Title V sources to address GHG in their Title V applications by citing to any pollutants for which the Title V source is major and to all regulated air pollutants. *See*, PSD and Title V Permitting Guidance for Greenhouse Gases, prepared by the Office of Air Quality Planning and Standards, page 51 (November 2010).

[52] Based on emission data voluntarily submitted by US Steel in its Annual Emission Reports, the facility is a major source of GHG emissions, with actual emissions of greenhouse gases, in carbon dioxide equivalents, that are typically in the range of 300,000 to 400,00 tons per year.

[53] *See generally*, PSD and Title V Permitting Guidance for GHG at pages 53-56.

[54] A major source subject to PSD based on potential emissions of a non-GHG pollutant and potential emissions of GHG equal or greater than 75,000 tons per year of CO_2e is required to address GHG emissions in evaluating control options and associated monitoring, reporting, etc. for any construction of a new major source or a major modification of an existing major source.

There are also no GHG-related requirements under the Act or contained within Illinois' SIP that apply to the facility at this time. Other state laws or regulations in Illinois relating to GHG, including efforts to reduce emissions of GHG under authority other that the Act, do not constitute applicable requirements under the CAAPP.

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Attachment A: Summary of Source-Wide Requirements

a. The source-wide emissions control programs and planning requirements that apply to this facility, as addressed in Sections 5 of the revised CAAPP permit, are identified below.

Table A.1 Applicable Emission Control Programs

Program/Plan	Applicable
Emissions Reduction Market System (ERMS)	No
Nitrogen Oxides (NO_x) Trading Program	No
Acid Rain Program	No
Fugitive Particulate Matter (PM) Operating Program	Yes
Risk Management Plan (RMP)	Yes
PM_{10} Contingency Measure Plan	Yes

b. The following table indicates source-wide site-specific requirements addressed in Section 5 of the revised CAAPP permit.

Table A.2 Site Specific Requirements

Non-Applicable Rules and Requirements w/justification
• The following source-wide state non-applicability rules (with certain exemptions) being established in the proposed permit (See Condition 5.4 for more details): • 35 IAC 212.321 and 212.322 • 35 IAC 212.324 • 35 IAC Part 219 Subpart PP and Subpart TT
Title I Conditions and/or Synthetic Minor Limits
• Source-wide Title I limits and conditions are being carried over from previously issued Title I permits (See Condition 5.6.3 for details). • Source-wide "synthetic minor" conditions not being established
Control Requirements and Work Practices
• Maintenance and repair and requirements for control equipment established in 35 IAC 212.324(f) (See Condition 5.5 for details).
Testing, Monitoring, Recordkeeping, and Reporting
• Testing: COG flow meters (See Condition 5.7 for details)
• Monitoring: Annual benzene waste quantity determination at the source is monitored by the methods and procedures of 40 CFR 61.355 and described in Condition 5.7(c). • Monitoring: Concentration of H_2S content in COG (See Condition 5.8)

• Recordkeeping: Records of the source-wide annual HAP emissions shall be kept by the source based on the individual HAP emissions from certain operations • Recordkeeping: Copy of the most current version of the fugitive particulate matter operating plan (See Condition 5.9.3(a)) • Recordkeeping: Copy of the current PM_{10} contingency plan (See Condition 5.9.3(b)). • Recordkeeping: Operating records required by 35 IAC 212.316 for the fugitive particulate matter operating program (See Condition 5.9.3(c)). • Recordkeeping: Operating and maintenance records for control equipment required by 35 IAC 212.324 (See Condition 5.9.3(d)). • Recordkeeping: Records required by FESOP permit 94120017 (See Condition 5.9.4). • Recordkeeping: Records required by 40 CFR 61.356 (Benzene Waste Operations, Subpart FF)(See Condition 5.9.5).
• Reporting: Reports required by FESOP permit 94120017 (See Condition 5.10.3) • Reporting: Quarterly reports(See Condition 5.10.4) • Reporting: Reports required by 40 CFR 61.357 (Benzene Waste Operations, Subpart FF) (See Condition 5.10.5) • Reporting: Reports on malfunctions and breakdowns (See Condition 5.10.6) • Reporting: Reports on startups (See Condition 5.10.7)

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Attachment B: Summary of Regulatory and Title I Requirements for Emission Units

The following tables include information on the requirements that apply to various groups of significant emission units at this source, as addressed in Section 7 of the revised CAAPP permit

Table B.1 (Section 7.1 of the revised CAAPP permit)

Emission Units	
Name	Material Handling and Processing Operations (coal handling and processing; blast furnace and steelmaking material handling)
Emission Control Equipment	Baghouse (Coal Pulverizer) Baghouses (New Coke Conveyance System) Trackhopper Baghouse (Steelmaking) Bin Floor Baghouse (Steelmaking) Baghouse #1 (Steelmaking)
Applicable Emission Standards	
Emission Limits & Requirements	• 35 IAC 212.301: No visible fugitive emissions at the property line • 35 IAC 212.316(b): 10% opacity for fugitive PM from crushing and screening operations • 35 IAC 212.316(f): 20% opacity for fugitive PM from transfer operations • IAC 212.321(a) and 212.322(a): Process weight rule • 35 IAC 212.458(b)(7): 0.01 gr/scf for stack PM_{10} emissions • 35 IAC 212.309, 212.310 and 212.312: fugitive PM operating program • 35 IAC 212.324(f): maintenance and repair requirements for air pollution control equipment • 35 IAC 212.307: transporting and unloading operations shall be enclosed or utilize spraying, pelletizing, screw conveying or other equivalent methods
Streamlining of Standards	• N/A
Non-Applicability Provisions	
	• 35 IAC 212.324(b) is not applicable to these operations. Pursuant to 35 IAC 212.324(a)(3), the operations are subject to 35 IAC Part 212, Subpart R, "Primary and Fabricated Metal Products and Machinery Manufacture"
Title I Conditions	
	• Permit 06070088 (Condition 7.1.6(a) of CAAPP permit) • Permit 95010001 (Condition 7.1.6(b) of CAAPP permit)
Compliance Procedures	
Recordkeeping	• Records for control equipment pursuant to 35 IAC 212.324(g) • Records for dust control implementation pursuant to 35 IAC 212.316(g)(5)
Reporting	• Reports for dust control implementation pursuant to 35 IAC 212.316(g)(2)

Table B.2 (Section 7.2 of the draft permit)

Emission Units	
Name	Coke Oven Batteries A and B
Emission Control Equipment	• Emergency Bypass Flares (Batteries A and B) • Mobile Venturi Scrubber – PCS Cars #3 and #4 (Coke Pushing) • Tower and Baffles (East Quench Station, under construction) • Tower and Baffles (West Quench Station)
Applicable Emission Standards	

Emission Limits & Requirements	• Coke Oven Charging:
	  • 35 IAC 212.443(b)(1)(A): Duration of visible emissions shall not exceed 125 seconds for 5 consecutive charges
	  • 40 CFR 63.304(b)(2) (iv): No more than 12 seconds of visible emissions per charge
	• Leaks from Doors:
	  • 35 IAC 212.443(d): Visible emissions from no more than 10 percent of all coke oven doors
	  • 40 CFR 63.304(b)(3)(ii): 3.3 percent leaking coke oven doors
	• Leaks from Lids
	  • 35 IAC 212.443(e): Visible emissions from no more than 3 percent of all coke oven lids
	  • 40 CFR 63.304(b)(2)(i): No more than 0.4 percent leaking topside port lids
	• Leaks from Offlakes
	  • 35 IAC 212.443(f): Visible emissions from no more than 10 percent of all coke oven offlake piping
	  • 40 CFR 63.304(b)(2)(iii): 2.5 percent leaking offlake system(s)
	• Coke Oven Pushing
	  • 35 IAC 212.443(c)(1)(A): for uncaptured emissions, 20 percent opacity
	  • 35 IAC 212.443(c)(2): for the control system (captured emissions) 0.040 pounds PM per ton of coke pushed and 20 percent opacity
	  • 40 CFR 63.7290(a)(4): 0.04 lb PM per ton of coke pushed
	• Coke Quenching
	  • 40 CFR 63.7295(a)(1)(i): concentration of total dissolved solids in quenching water no more than 1,100 mg/l
	  • 40 CFR 63.7295(b): for towers with baffles, no more than 5 percent of the cross sectional area may be uncovered; baffles shall be washed once per day; inspection and repair requirements of baffles
	  • 35 IAC 212.443(h)(1): baffles shall cover 95 percent or more of cross sectional area
	  • 35 IAC 212.443 (h)(2): concenration of total dissolved solids in quench water no more than 1,200 mg/l
	• Combustion Stack (Battery Stack)
	  • 35 IAC 212.243(a): emissions of PM to exceed 110 mg/dscm (0.05

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	gr/dscf) and 30 percent opacity • 40 CFR 63.7296: Daily average 15 percent opacity on a normal coking cycle and 20 percent opacity on battery-wide extended coking • Bypass/Bleeder Stack • 40 CFR 63.307(a)(1): bypass flare system is capable of controlling 120 percent of normal gas flow generated by batteries
35 IAC Part 201 Subpart I	• Possible violation of state standards during startup • Possible violation of state standards during malfunction/ breakdown
Streamlining of Standards	• N/A
Non-Applicability Provisions	
	• 35 IAC 212.324 is not applicable pursuant to 35 IAC 212.324(a)(3), as the operations are subject to 35 IAC Part 212, Subpart R • 35 IAC 212.321 and 35 IAC 212.322 are not applicable pursuant to 35 IAC 212.441 as the operations are subject to 35 IAC 212.443
Title I Conditions	
Permit C8080048 (Battery B)	• Limit on coal throughput • Visible emissions shall not exceed a total of 55 seconds during 5 consecutive charges • No visible emissions from more than 5 percent of the door areas • No visible emissions from more than 1 percent of the charging ports or lids • No visible emissions from more than 4 percent of the offtake piping • Pushing scrubber : 0.040 pounds of PM per ton of coke pushed • Pushing uncaptured fugitive emissions: 20 percent opacity
Permit 82060043	• Non-sulfate PM emissions of the combustion stack on Battery B not shall exceed 0.03 gr/dscf
Permit 88070071	• At least 95 percent of the ovens on Battery B and 90 percent of the ovens on Battery A shall push into a quench car
Operating Limits	
Pushing	• 40 CFR 63.7323: For the scrubber for pushing, comply with site-specific operating limits for pressure drop and scrubber water flow rate.
Work Practices	
Soaking Plans	• Comply with the work practice standards for fugitive pushing emissions as specified by 40 CFR 63.7291 • Pursuant to 40 CFR 63.7294(a), operate coke ovens pursuant to a written work practice plan for soaking (soaking plan)
Work Practice Plan	• Pursuant to 40 CFR 63.306(a), for affected units subject to the 40 CFR 63 Subpart L, maintain a written emission control work practice plan (work practice plan) for the affected battery designed to achieve compliance with visible emission limitations for doors, topside port lids, offtake systems, and charging operations under 40 CFR 63 Subpart L.
Startup, Shutdown and Malfunction Plan	• Pursuant to 40 CFR 63.7310, for affected units subject to 40 CFR 63 Subpart CCCCC, develop and implement a written startup, shutdown and malfunction plan according to the provisions in 40 CFR 63.6(e)(3).

	• 40 CFR 63.310: Startup, Shutdown and Malfunction requirements
Compliance Procedures	
Observations for Visible Emissions and Leaks	• 40 CFR 63.309(a): daily observations (performance tests) conducted by a certified observer each day, 7 days per week for each battery. • 40 CFR 63.308: for the collecting mains, daily inspections for leaks and promptly repair any leaks as specified by 40 CFR 63.308(a) through (d)
Opacity Observations	• 35 IAC 212.443(c)(1)(B): Opacity observations for uncontrolled pushing emissions by a qualified observer located in a position where the oven being pushed, the coke receiving car and the path to the quench tower are visible.
Emission Testing	• 40 CFR 63.7321: For each control device subject to a PM emission limit in 40 CFR 63.7290(a), periodic performance tests no less frequently than twice (at mid-term and renewal) during each term of the Title V permit.
Opacity Monitoring	• 40 CFR 63.7330(e): For each combustion stack, continuous opacity monitoring (COMS) in accordance with 40 CFR 63.7331(j)
Operational Monitoring	• 40 CFR 63.7330(b) and 63.7330(d): For pushing, for each scrubber and each capture system, continuous operational monitoring in accordance with the requirements of 40 CFR 63.7331
Inspections	• 40 CFR 63.7295(b): for the quench tower, inspections on at least a monthly basis for damaged or missing baffles and initiate repair or replacement within 30 days, which shall be completed as soon as practicable, as specified by 40 CFR 63.7295(b)(3) and (4)
Recordkeeping	• 40 CFR 63.7342 and 63.7343: • Copy of each notification and report; • Records of performance tests, performance evaluations, and opacity observations; • Monitoring data for each COMS or CPMS • 40 CFR 63.311(f) and (g) • A copy of the work practice plan; • The design drawings and engineering specifications for the bypass/bleeder stack flare system • Records of the total annual coke production at batteries "A" and "B" (ton/yr) and separately for the battery "B".
Reporting	• 40 CFR Part 63, Subpart CCCCC (40 CFR 63.7341): • Quarterly compliance reports for battery stacks and semiannual compliance reports for all other affected sources; • Immediate startup, shutdown, and malfunction report; • Part 70 monitoring report • 40 CFR Part 63, Subpart L (40 CFR 63.311): • Semiannual compliance certification; • Report for venting of coke oven gas other than through a flare system.

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Table B.3 (Section 7.3 of the draft permit)

Emission Unit	
Name	Coke By-Product Recovery Plant
Emission Control Equipment	• Steam Blanketing (By-Product Recovery) • Clean Gas Blanketing and Steam Blanketing (Light Oil Processing) • Negative Pressure Systems (Coal Tar Processing) • Closed System and Thermal Oxidizer (COG Desulfurization System)
Applicable Emission Standards	
Emission Limits & Requirements	• 40 CFR 61.132 and 61.133: No detectable emissions (above 500 ppm) for control systems and various individual components, work practice standards, inspections and repair requirements • 40 CFR 61.135(d): For exhausters, detectable emissions are established at above 10,000 ppm • 40 CFR Part 61, Subpart V: Methods of determining detectable emissions for the operations in benzene service • 40 CFR Part 61, Subpart FF: Pursuant to 61.355(a)(5), records of the total annual benzene waste generated on site. Current amount of the benzene waste generation stays below 1.1 ton/yr. • 35 IAC 214.301: SO_2 emissions shall not exceed 2000 ppm • 35 IAC 212.123(a): No opacity greater than 30 percent for COG desulfurization, COG flare and by-product recovery plant
35 IAC Part 201, Subpart I	• Possible violation for state standards during malfunction/breakdown for COG flare
Streamlining	• N/A
Non-Applicability Provisions	
	• 35 IAC 219.120 not applicable. Pursuant to 35 IAC 219.119(b), vessels located at coke by product recovery plants are not subject • 35 IAC 219.121 not applicable. Liquids kept in the tanks are not the product of petroleum refinery, pursuant to the definition of VPL/petroleum liquids in 35 IAC Part 211
Title I Conditions	
Permit 06070022	• Production and operating limits • Limits on H_2S content in the raw and cleaned COG • PM_{10} and SO_2 emission limits for the thermal oxidizer
Operating Limits	
	• COG flare: shall be operated with no visible emissions

Table B.4 (Section 7.4 of the draft permit)

Emission Unit	
Name	Blast Furnaces "A" and "B"
Emission Control Equipment	• Casthouse Baghouse and Iron Spout Baghouse (Blast Furnace Casthouse)
Applicable Emission Standards	
Emission Limits & Requirements	• 35 IAC 212.445(a): Uncaptured PM emissions from any opening in a cast house shall not exceed 20 percent opacity • 35 IAC 212.445(b)(1): Controlled PM emissions from the tap hole, trough, runners or iron/slag spouts shall not exceed 0.023 g/dscm (0.010 gr/dscf) • 35 IAC 212.445(b)(2): Opacity from control equipment used to collect PM from the tap hole, trough, runners or spouts shall not exceed 10 percent • 35 IAC 212.123(a): Opacity from other processes shall not exceed 30 % • 35 IAC 214.301: SO_2 emissions shall not exceed 2000 ppm • 40 CFR 63.7790(a), paragraph 7 of Table 1: PM emissions from a control device at each casthouse shall not exceed 0.01 gr/dscf, and uncaptured secondary emissions shall not exceed opacity greater than 20 percent
35 IAC Part 201, Subpart I	• Possible violation for state standards during startup • Possible violation for state standards during malfunction/breakdown
Streamlining	• N/A
Non-Applicability Provisions	
	• 35 IAC 212.324 is not applicable, pursuant to 35 IAC 212.324(a)(3) as the affected operations are subject to the limit of 35 IAC Part 212, Subpart R • 35 IAC Part 216.121: Blast furnace processes are not fuel combustion as defined in 35 IAC 211.2470 • 35 IAC 212.321 and 212.322 are not applicable pursuant to 35 IAC 212.441 as the operations are subject to 35 IAC 212.445
Title I Conditions	
Permit 95010001	• Limit on daily iron production • Limit at limit of pellets use • Limits on emission of the casthouse and iron spout baghouses • Limits on uncaptured emissions from the casthouse • Limits on emission from blast furnace charging and the slag pits
Permit 06070023	• PM content of the BFG burned shall not exceed 0.01 grains/dscf
Operating Limits	

Casthouse and Iron Spout Baghouse	• 40 CFR 63.7831: Monitored parameters:
	  • Motor amperage (Casthouse and Iron Spout baghouses)
	  • Damper positions (Iron Spout baghouse)
	  • Blast furnace B tilt runner damper position (Iron Spout baghouse)

Work Practices	
Operation and	• Pursuant to 40 CFR 63.7800, blast furnace processes shall be operated in

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Maintenance Plan	accordance with an Operation and Maintenance plan
Startup, Shutdown and Malfunction Plan	• Pursuant to 40 CFR 63.7810 (c), the Permittee shall implement a written SSM plan for the blast furnace casthouse

Table B.5 (Section 7.5 of the draft permit)

Emission Unit	
Name	Basic Oxygen Furnace Processes
Emission Control Equipment	• Reladle/Desulfurization Baghouse (Hot Metal Transfer and Hot Metal Desulfurization Stations) • Skimmer Baghouse (Slag Skimming Station) • Electrostatic Precipitator (BOF #1 and #2) • Baghouse #2 (Ladle Metallurgy Furnace Station and Argon Stirring Stations)
Applicable Emission Standards	

Emission Limits & Requirements	• 35 IAC 212.446(a): For charging, refining and tapping, PM emissions shall not exceed the allowable emission rate specified by 35 IAC 212.322
	• 35 IAC 212.446(b)(1): PM emissions from hot metal transfers shall be collected and ducted to control equipment and emissions shall not exceed 0.03 gr/dscf
	• 35 IAC 212.446(c): Opacity from openings in the BOF shop: 20 percent
	• 35 IAC 212.458(b)(23): Emissions of PM_{10} from all BOF operations shall not exceed 60 lbs/hr and 0.225 lbs/ton of total steel produced, whichever is more stringent
	• 35 IAC 212.123(a): Opacity shall not exceed 30 percent
	• 35 IAC 214.301: SO_2 emissions shall not exceed 2000 ppm
	• 40 CFR 63.7790(a), paragraph 9 through 12 of Table 1:
	  • PM emissions from a BOF primary control: 0.02 gr/dscf;
	  • PM emissions from each metal transfer, slag skimming and hot metal desulfurization operation control devices: 0.03 gr/dscf
	  • PM emissions from an LMF control device: 0.01 gr/dscf
	  • Opacity from the openings in the BOF building: 20 percent
	• 40 CFR 63.7790(b)(3): Opacity from electrostatic precipitator shall not exceed 10 percent on an hourly average basis

35 IAC Part 201, Subpart I	• Possible violation for state standards during malfunction/breakdown
Streamlining	• N/A
Non-Applicability Provisions	
	• 35 IAC 212.324 is not applicable, pursuant to 35 IAC 212.324(a)(3) are the affected operations are subject to the emission limitations of 35 IAC Part 212, Subpart R • 35 IAC Part 216.121: BOF processes are not fuel combustion as defined in 35 IAC 211.2470 • Except as specified, 35 IAC 212.321 and 212.322 are not applicable pursuant to 35 IAC 212.441 to operations subject to 35 IAC 212.446
Title I Conditions	
Permit 95010001	• Limit on daily steel production • Total annual emissions for each regulated air pollutant emitted by BOF • Limits for emissions from the BOF ESP Stack

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	• Limits for emissions from the BOF roof monitor • Limits for emissions hot metal desulfurization and hot metal transfer • Limits for hot metal charging and ladle slag skimming • Limits for emissions from argon stirring stations & material handling • Minimum set points for the operation of BOF vessels • Limits on total annual emissions from blast furnace operations
Permit 83050042	• PM emissions from the ladle metallurgy station • Maximum hourly production rate for argon stirring, ladle reheater, alloy addition, ladle slag skimming and hot metal desulfurization
Work Practices	
Operation and Maintenance Plan	• Pursuant to 40 CFR 63.7810. BOF processes shall be operated in accordance with an Operation and Maintenance plan
Startup, Shutdown and Malfunctions Plan	• Pursuant to 40 CFR 63.7810 (c), development and implementation of a written SSM plan

Table B.6 (Section 7.6 of the draft permit)

Emission Unit	
Name	Continuous Casting
Emission Control Equipment	• Baghouse #1 (Deslagging Station)
Applicable Emission Standards	
Emission Limits & Requirements	• 35 IAC 212.458(b)(7): Emissions of PM_{10} shall not exceed 0.01 gr/scf • 35 IAC 212.458(b)(8) Opacity for continuous caster spray chambers or continuous casting operations shall not exceed 5 percent • 35 IAC 212.123(a): No opacity greater than 30 percent for continuous casting
35 IAC Part 201, Subpart I	• Possible violation for state standards during malfunction/breakdown
Streamlining	• N/A
Non-Applicability Provisions	
	• 35 IAC 212.324 is not applicable pursuant to 35 IAC 212.324(a)(3), as the caster operations are subject to 35 IAC Part 212, Subpart R • 35 IAC 212.309 and 212.310 are not applicable. Continuous casting is not identified in 35 IAC 212.304 through 212.308 • 40 CFR 63 Subpart FFFFF: Continuous casting is not defined as part of BOPF and shop ancillary operations in 40 CFR 63.7782(c)
Title I Conditions	
Permit 95010001	• Limits of total emissions of from continuous casting • Limits on emissions from deslagging station & material handling • Limits on emissions of from caster molds • Limits on emissions of from casters spray chambers • Limits on emissions of from slab cut-off

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Table B.7 (Section 7.7 of the draft permit)

Emission Unit	
Name	Hot Strip Mill
Emission Control Equipment	N/A
Applicable Emission Standards	
Emission Limits & Requirements	• 35 IAC 212.458(b)(10): Emissions of PM_{10} shall not exceed 0.09 lbs/mmBtu of heat input • 35 IAC 212.321(a) and 212.322(a): PM limit based on process weight rate • 35 IAC 214.301: SO_2 emissions shall not exceed 2000 ppm • 35 IAC 212.123(a): Opacity shall not exceed 30 percent
35 IAC Part 201, Subpart I	• Possible violation for state standards during startup
Streamlining	• N/A
Non-Applicability Provisions	
	• 35 IAC 212.324 is not applicable, pursuant to 35 IAC 212.324(a)(3), as the affected operations are subject to the emission limitations of 35 IAC Part 212, Subpart R • 40 CFR 63 Subpart FFFFF: Slab reheat furnaces are not defined as part of BOPF or Blast Furnace operations in 40 CFR 63.7782(c)
Title I Conditions	
Permit 06070022	• Total annual usage of fuels • Limits on NO_x emission rate (lbs/mmBtu) of each reheat furnace • Limits on monthly and annual NO_x emissions

Table B.8 (Section 7.8 of the draft permit)

Emission Unit	
Name	Finishing Operations
Emission Control Equipment	Two Fume Scrubbers (HCL Pickling Line); Fume Scrubber (Galvanizing Line #7A); Fume Scrubber (Galvanizing Line #8); and NO_x Catalytic Converter (Galvanizing Line #8)
Applicable Emission Standards	
Emission Limits & Requirements	• 35 IAC 212.458(b)(7): Emissions of PM_{10} shall not exceed 0.01 gr/scf • 35 IAC 212.321(a): Process weight rate (cleaner section, two galvanizing pot of Galvanizing Line #7A and coating operations) • 35 IAC 212.322(a): Process weight rate (cleaner section, galvanizing pots and the melting kettle of Galvanizing Line #8) • 35 IAC 219.204(d): VOM content of coatings shall not exceed 1.7 lb/gal • 35 IAC 212.123(a): Opacity shall not exceed 30 percent • 40 CFR 63.1157(a): HCL concentration in the gases exiting pickling line shall not exceed 18 ppmv
35 IAC Part 201, Subpart I	• N/A
Streamlining	• N/A
Non-Applicability Provisions	
	• 35 IAC 212.324 is not applicable, pursuant to 35 IAC 212.324(a)(3) as the affected operations are subject to the emission limitations of 35 IAC Part 212, Subpart R • 40 CFR 63 Subparts SSSS and MMMM: Protective oils, as coating, are excluded from the definition of coating under these Subparts • 35 IAC 212.321 and 212.322: Pickling line is not subject pursuant to 35 IAC 266.190
Title I Conditions	

Permit 95010005	• Galvanizing Line #8 – Operating & Emission Limits
	  • Maximum firing rates of fuel combustion units (the furnace, space heaters, and building and storage area heaters)
	  • Combined natural gas usage (for heaters
	  • Production rates of the melting kettle
	  • Limits for CO, PM/PM_{10}, VOM, NO_x, SO_2 from fuel combustion units (furnace, space heaters, drying oven and storage area heaters, and miscellaneous heaters
	  • PM limits for cleaner section and melting kettle

Work Practices	
Operation and Maintenance Plan	• Pursuant to 40 CFR 63.1160(b), scrubbers for pickling line must be operated in accordance with an Operation and Maintenance plan Cleaning of the scrubber internals

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Table B.9 (Section 7.9 of the draft permit)

Emission Unit	
Name	Wastewater Treatment
Emission Control Equipment	N/A
Applicable Emission Standards	
Emission Limits & Requirements	None
Non-Applicability Provisions	
	• 40 CFR 61 Subpar FF: Excluded from operating and control requirements based on the total benzene waste generated at the source is less than 11 tons/year • 40 CFR 63 Subpar QQ: 40 CFR 61 Subpart FF does not have reference to Subpart QQ
Compliance Procedures	
	None

Table B.10 (Section 7.10 of the draft permit)

Emission Units	
Name	Boilers and associated Cooling Tower
Emission Control Equipment	Flue Gas Recirculation (planned for Boilers 11 and 12)
Applicable Emission Standards	
Emission Limits & Requirements	• 35 IAC 212.458(b)(9): For Boilers #11 and #12, emissions of PM_{10} shall not exceed 0.075 lbs/mmBtu of heat input from burning of COG • 35 IAC 214.421: For Boilers #11 and #12, emissions of SO_2 shall not exceed the limits calculated from the equations for multiple burning fuels • 35 IAC 212.123(a): For Boilers #11 and #12, opacity shall not exceed 30 percent • 35 IAC 212.122(a): For Boiler #1, opacity shall not exceed 20 percent • 35 IAC 216.121: CO emissions shall not exceed 200 ppm
35 IAC Part 201, Subpart I	• Possible violation for state standards during startup • Possible violation for state standards during malfunction and breakdown
Streamlining	• N/A
Non-Applicability Provisions	
	• 35 IAC 212.324 is not applicable pursuant to 35 IAC 212.324(a)(3), as the boilers are subject to the limitations of 35 IAC Part 212, Subpart R • 35 IAC 217.141 is not applicable to Boilers #11 and #12 because each boiler's heat input capacity is less than 250 mmBtu/hr • 35 IAC 217.121 is not applicable to Boiler #1because the used fuel is not a "fossil fired fuel" as defined by 35 IAC 211.2425 • 40 CFR 60, Subpart Da: Boiler #1 is not an electric utility steam generating unit • 40 CFR 60 , Subpart Db, PM standards: Boiler #1 does not fire solid or liquid fuels • 40 CFR 60 , Subpart Db, NO_x standards: Boiler's #1 annual capacity factor for natural gas is 10 percent or less • 35 IAC 219.986(d): Cooling tower does not cool process water • 40 CFR 63, Subpart Q: Cooling tower does not use chromium-based water treatment chemicals
Title I Conditions	

Permit 06070023	• Galvanizing Line #8 – Operating/Production Limits:
	  • Maximum hourly firing rate of Boiler #1
	  • Maximum hourly design BFG input of Power Boiler #1
	  • Annual natural gas and BFG fuel usage for Power Boiler #1
	  • Limits for the emission rates (lbs/mmBtu) of Power Boiler #1
	  • Limits on emissions for Power Boiler #1
	  • Dissolved solids content in the circulated water in the cooling tower
	  • Limits on PM emissions from the cooling tower

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Table B.11 (Section 7.11 of the revised CAAPP permit)

Emission Unit	
Name	Internal Combustion Engine
Emission Control Equipment	None
Applicable Emission Standards	
Emission Limits & Requirements	• 35 IAC 212.458(b)(7): Emissions of PM_{10} shall not exceed 0.01 gr/scf • 35 IAC 212.123(a): Opacity shall not exceed 30 percent • 35 IAC 214.301: SO_2 emissions shall not exceed 2000 ppm
35 IAC Part 201, Subpart I	• N/A
Streamlining	• N/A
Non-Applicability Provisions	
	• 35 IAC 212.324 is not applicable pursuant to 35 IAC 212.324(a)(3), as the affected engine is subject to the limits of 35 IAC Part 212, Subpart R • 35 IAC Part 217 is not applicable because engines are not addressed by Part 217 • 35 IAC 212.321 is not applicable, an engine does not have a process weight rate as defined in 35 IAC 211.5250 • 35 IAC 216.121, the engine is not by definition a fuel combustion emission unit • 40 CFR 63 Subpart ZZZZ because the engine is not a spark ignition engine • 40 CFR 60, Subpart IIII: engine was manufactured before 2006 and not modified thereafter
Title I Conditions	
Permit 00060003	• Limits on emissions • Limits on hours of operation per year

Table B.12 (Section 7.12 of the draft permit)

Emission Unit	
Name	Gasoline Storage and Dispensing
Emission Control Equipment	Vapor Balance System on Larger Tanks
Applicable Emission Standards	
Emission Limits & Requirements	• 35 IAC 219.122(b): each tank shall be equipped with a submerged loading • 35 IAC 219.583(c)(1): control system for vapor displacement during filling and equipped with pressure/vacuum relief valves • 35 IAC 219.585(a): requirements and the limits on the pressure of gasoline being dispensed
35 IAC Part 201, Subpart I	• N/A
Streamlining	• N/A
Non-Applicability Provisions	
	• 40 CFR 60 Subpart Kb, 35 IAC 219.121, and 35 IAC 219.122(a): size of the storage tanks less than applicability thresholds established by these standards • 35 IAC 219.581 and 219.582: by definition not part of bulk gasoline plant or bulk gasoline terminals • 35 IAC 219.301: organic material (gasoline) is not used by the tanks for production/operating purposes but temporary stored at these tanks

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Table 8.13 (Section 7.13 of the draft permit)

Emission Unit	
Name	Fugitive Dust
Emission Control Equipment	None
Applicable Emission Standards	
Emission Limits & Requirements	* 35 IAC 212.309, 212.310, 212.312: fugitive operating program * 35 IAC 212.316: a) no more than 10 percent opacity from a storage pile; b) no more than 5 percent opacity from a roadway or parking area; c) no more than 20 percent opacity from other fugitive activities
35 IAC Part 201, Subpart I	* N/A
Streamlining	* N/A
Non-Applicability Provisions	
	* N/A
Title I Conditions	
Permit 95010001	* Annual PM/PM_{10} emission limit from all roadways at the source
Work Practices	
Operating Program	* Fugitive Dust Operating Program pursuant to 35 IAC 212.309

Attachment C: Detailed Description And Explanation of Proposed Periodic Monitoring

C.1 Material Handling Operations (Section 7.1 of the revised permit)

a Periodic Monitoring Requirements

The Periodic Monitoring for material handling operations would include the following:

- Monthly inspection of new coke conveyor system
- Quarterly inspection of control measures, including the following:
  - For all units, confirm proper operation of unit and control measures
  - For crushers and pulverizers, also confirm choke feeding
  - For conveyors, also confirm that covers and dribble pans are present and in good condition
  - For baghouses, check differential pressure, dust removal system, compressed air system, bag conditions, fan condition and structural components
- Annual observations of opacity
- Emissions testing
  - For selected emission units controlled by baghouses, "baseline" testing of PM emissions with concurrent opacity observations
- Recordkeeping
  - Records for implementation of control measures
  - Records for maintenance and repair activities
  - Records for malfunctions resulting in excess emissions
- Reporting
  - Standard Reports (Deviations Reports, Monitoring Reports and Annual Reports)
  - Quarterly and Annual Reports, as required by 35 IAC 212.316(g)(1) and (5)

b. Justification for Periodic Monitoring for Material Handling And Processing Operations

To provide Periodic Monitoring for the material handling and processing operations, the permit would impose various requirements on the source for inspections, observations for visible emissions and opacity, testing of emissions, recordkeeping, and reporting. As necessary to provide Periodic Monitoring for these operations, the permit would go beyond and supplement the compliance procedures established by applicable rules. The combination of requirements selected as Periodic Monitoring is appropriate given the nature of these emission units and the associated emission control measures. Particulate emissions from handling many of the bulk materials used at this facility, including coke, iron ore pellets, and limestone, are minimal or readily controlled by the nature of the material and the nature of the equipment handling them. For handling of certain other materials or processing of materials, various practices that are simple, readily implemented and reliable are available to reduce the amount of dust that is generated or is emitted and comply

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with applicable standards and permit limits.

The primary approach to Periodic Monitoring for these operations would be recordkeeping to document that the associated control measures are being implemented properly so as to comply with all applicable emission standards and control requirements. This recordkeeping is facilitated as some material handling operations, like the new coke conveyor, are sources of fugitive particulate matter and must be operated in accordance with a formal Operating Program for control of emissions of fugitive dust pursuant to 35 IAC 212.309. (See also Section 7.13 of the permit.) This recordkeeping is facilitated as emission control equipment is used on other material handling operations, such as the material handling systems that support steelmaking operations. The state rules that apply to these operations, 35 IAC 212.324(f) and (g), require practices for these operations, with associated recordkeeping, to assure proper operation of emission control equipment, including regular inspection of control equipment and expeditious repairs, unless the operation is shutdown.

1. Fugitive particulate matter material handling units (units without stacks)

State Emission Standards

Limits for opacity (35 IAC 212.316(b)/Condition 7.1.3(b) and 35 IAC 212.316(f)/Condition 7.1.3(c)) -stack emissions and fugitive emissions) – The required Operating Program for control of fugitive dust, pursuant to 35 IAC 212.309, would serve to address the opacity standards that apply to fugitive emissions from material handling and processing operations as this Program must be designed to significantly reduce fugitive particulate matter emissions from subject operations. Among other things, this Operating Program must identify the practices that the source is using to control fugitive emissions from operations such as conveyors, screens, crushers, and conveyor transfer points. Pursuant to 35 IAC 212.310(e), this includes a detailed description of the "…management practices utilized to achieve compliance with this Subpart [35 IAC Part 212, Subpart K] including an engineering specification of particulate collection equipment, application systems for water, oil, chemicals and dust suppressants utilized and equivalent methods utilized." Pursuant to 35 IAC 212.316(g)(1) and (2), the source must keep records documenting implementation of its Operating Program. The Periodic Monitoring for these operations would also require the source to conduct periodic inspections, with formal observations for visible emissions and/or opacity for these operations. These inspections will provide further verification that the material handling operations and associated control measures are being properly operated. For conveyors and transfer points, this would include confirmation that covers and dribble pans are in place. For crushers and pulverizers, these inspections would confirm that choke feeding is present. These inspections will also provide direct verification of compliance with applicable emission standards that are expressed in terms of opacity, as well as verify that the provisions in the Operating Program ensure compliance with these standards. To address compliance with applicable opacity standards, these inspections would include formal observations for visible emissions conducted in accordance with Method 22. If visible emissions are observed from unit(s), the source must conduct formal observations for opacity in accordance with Method 9 for these unit(s) to provide a direct verification of compliance with the applicable emission standards. Given the nature of these units and the associated control measures and the fact that these inspections and observations are a secondary element of the Periodic Monitoring for these units,

these inspections would generally be required to be conducted on a quarterly basis. Inspections would be required more frequently for the new coke conveyor system, which is subject to more stringent requirements. This combination of provisions provides a structured approach to these operations that is sufficient to serve as Periodic Monitoring.

Fugitive dust control program (35 IAC 212.309(a)/Condition 5.3.2) – This standard requires that emissions of material handling operations that are "fugitive dust" emission units that at the facility be controlled in accordance with a "Operating Program" prepared by the source that is designed to significantly reduce fugitive particulate matter emissions from the facility. Among other things, this Operating Program must identify the practices that the source is using to control emissions of fugitive dust from the various operations. Pursuant to 35 IAC 212.310(e), this includes a detailed description of the "…management practices utilized to achieve compliance with this Subpart [35 IAC Part 212, Subpart K] including an engineering specification of particulate collection equipment, application systems for water, oil, chemicals and dust suppressants utilized and equivalent methods utilized." Pursuant to 35 IAC 212.316(g)(1) and (2), the source must keep records documenting implementation of its Operating Program. Pursuant to 35 IAC 212.316(g)(5), the source must report deviations from this Program on a quarterly basis. As detailed recordkeeping is required for implementation of the Program, as well as lapses in implementation, the Periodic Monitoring for this requirement is sufficient.

Limit on PM (35 IAC 212.321/Condition 7.1.3(d) and 35 IAC 212.322/Condition 7.1.3(e)) –These state rules, commonly referred to as the "process weight rate" rules, limit the mass or amount of PM emissions from the affected operations, in pounds per hour, relative to the amount of material handled or processed by an operation or its "process weight rate" (PWR). The Periodic Monitoring to address other applicable state emission standards would serve to provide Monitoring to address these rules. Given the nature of these operations and the PWR rules, the PWR rules do not actually constrain the PM emissions of the units as a practical matter. The lowest allowable emission rate for PM set by the PWR rules for an emission unit or group of similar units ducted to a common control system is 0.55 pounds per hour.[35] Accordingly, the Periodic Monitoring for other applicable state emission standards also serves as Monitoring for the PWR rules.

2. "Other" material handling emissions units (emission units with stacks)

PM (stack emissions) – The Periodic Monitoring for the subject emission units that are controlled with baghouses, i.e., the coal crushers and material handling operations in the steelmaking area, would also require the source to conduct periodic internal inspections of the baghouses that are used to control emissions from these units. These inspections would address the conditions of the filter bags and other features of the baghouses that are relevant to proper operation, such as the bag cleaning systems and dust removal systems. These inspections will provide further verification for the proper operation of these baghouses, as well as identify the need for preventative maintenance or repair to the baghouses to maintain proper operation. Given the given the nature of materials

[35] Given the amount of material handled by the subject emission units, 35 IAC 212.321 and 212.322 would set an allowable emission rate for particulate matter (PM) that is much greater than the minimum 0.55 pounds per hour allowed. For example, for existing emission units, for a nominal PWR of 100 ton per hour, 35 IAC 212.322 would set an allowable PM emission rate of 51.2 pounds per hour. For new emission units, for a PWR of 100 tons per hour, 35 IAC 212.321 would set an allowable PM emission rate of 29.5 pounds per hour.

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handled by the emission units that are controlled by baghouses, these inspections would be required to be conducted on a quarterly basis. This frequency should enable deterioration in the components of the baghouses for subject units to be identified and appropriately addressed before any deterioration could lead to actual problems in the actual operation of the baghouses.

The Periodic Monitoring for the material handling operations equipped with baghouses, which have stack emissions, would also include provisions for the source to conduct emissions testing for certain operations. These measurements for particulate matter emissions would provide direct verification of compliance with the substantive standard that applies to the stack emissions from the subject operations, e.g., PM_{10} emissions of no more than 0.01 gr/scf, pursuant to 35 IAC 212.458(b)(2). Given the nature of the subject operations and the use of baghouses to control emissions, only "baseline" emission testing is required within 30 months of the effectiveness of the permit. Emission testing is only one element of Periodic Monitoring for these emission units and a single test is sufficient to verify that the baghouses are capable of complying with applicable emission standards if properly operated, which would be confirmed in day-to-day practice by the other elements of Periodic Monitoring for the units.[56]

Limits for opacity from fugitive emissions (35 IAC 212.316(b)/ Condition 7.1.3(b)) – Periodic observations for visible emissions, followed by observations for opacity is visible emissions are present, would serve as Periodic Monitoring, in a manner similar to that for fugitive particulate matter emission units.

Note: The stack emissions from these units readily comply with 35 IAC 212.123(a), which limits opacity to 30 percent. The Periodic Monitoring for the stack emissions of PM and fugitive PM emissions, if any, will also serve to address 35 IAC 212.123(a).

Limit on PM (35 IAC 212.321/Condition 7.1.3(d) and 35 IAC 212.322/Condition 7.1.3(e)) –As already discussed, these state "process weight rate" rules do not actually constrain the PM emissions of the units as a practical matter. Accordingly, the Periodic Monitoring for other applicable state emission standards will also serve as Monitoring to assure compliance with the PWR rules.

Permit Limits (Construction Permit 95010001)

Limits on PM emissions (Condition 7.1.8(b)) - The Periodic Monitoring for the operation of the emission units that are subject to limits on the amount of PM emissions would build upon the Monitoring related to other applicable requirements. That Monitoring would verify proper operation of the units and serve to confirm that established emission factors for such units are appropriately used to determine the amount of emissions. For example, as already discussed, those Periodic Monitoring requirements would include recordkeeping related to proper operations of

[56] In addition, the PM emissions from certain material handling operations, such as the BOF Hopper (baghouse) would be negligible. The PM emission factor and emission limit for this operation, which were established in a PSD permit (Construction Permit No. 95010001), were developed using Section 11.2.3-3 of AP-42 (subsequently moved to Section 13.2.4 of AP-42.) The emission factor and limit were incorporated from an existing construction permit, relying on the associated application. The monitoring and recordkeeping requirements provided in Condition 7.5.6(a) are sufficient. In addition, compliance with the PM10 emission limit is addressed by the production limits in Conditions 7.5.6(a)(i) and (ii) (Construction Permit No. 95010001) and the requirement to keep production records.

control equipment to comply with emission standards for the rate of PM emissions (gr/scf). Periodic inspections and observations for visible emissions or opacity would also be required. Testing of PM emissions for selected material handling operations, including several operations that are subject to permit limits, would also be required to verify that these operations comply. The presence of limits set in permits on the amounts of PM emissions from such units does not necessitate additional or more frequent Monitoring for the operation of these units to address their emission rates. Rather, as emission of the units would be calculated using emission factors, the other information needed to determine actual emissions are those emission factors and the throughput or amount of material that is handled, with the actual PM emissions being the product of the applicable emission factor and the throughput or activity of a unit. The Periodic Monitoring specifically for permit limits on the amount of emissions would entail the necessary records for the emission factors that are used to determined PM emissions and the throughput of the subject units. The Monitoring would also include recordkeeping for the actual emissions, calculated from this data, as needed for direct comparison to the established permit limits.

When emission factors are used to calculate emissions, the critical element of the calculations is the emission factors that are selected for use. The revised CAAPP permit would require the Permittee to keep a file containing the PM emission factor(s) that it uses to determine actual emissions of material handling operations for purposes of determining compliance with permit limits. These records would also have to include the basis or supporting documentation for the selected factor(s). This would assure that the selected emission factors are memorialized in writing, along with factual basis for the emission factors. This would make the relevant supporting information available to the Illinois EPA personnel as well to the source's staff, both present and future, for their review and use. The permit would also accommodate changes to "established" factors by the source if new information may become available.[57] Changes to these "established" emission factors would also be required to be documented, with explanation and supporting data, and linked to a particular date.[58] A change to the established emission factor that the source uses would be mandatory, with adoption of a new established emission factor, if it is determined that the current emission factor would understate actual emissions.[59]

3. Permit for the New Coke Conveyance System (Construction Permit 06070088)

Operational Limit (Condition 7.1.6(a)) - The permit limits the amount of coke handled by the new

[57] The most obvious situation in which an established emission factor must be reevaluated is when emission testing is conducted for the emission unit that is subject to the permit limit. Other circumstances would include emission testing of similar emission units, as might occur either at the facility or at other units operated by US Steel, when testing at those other units was the basis of the current factor. Emission factors would also have to be reevaluated if USEPA revises its Compilation of Air Pollutant Emission Factors, AP-42, and it was the basis of the current factor.

[58] The date that the emission factor used for a particular unit is changed may be significant. A change in an emission factor can result from a change in an emission unit or associated control equipment or control practices, so that the new emission factor would supersede the former factor on the date when the underlying change to the unit was made. A change in an emission factor can also reflect the availability of new information and better data. In such case, a change to the emission factor may have retroactive implications for the emissions of the unit, especially if the former emission factor understated actual emissions of a unit.

[59] The relevant criterion for a mandatory change to an established emission factor is if the factor understates actual emissions. The permit would not preclude use of emission factors that overstate actual emission factors. In particular, the source need not adjust the established emission factor after every emission test if the established emission factor has conservatively been set at a level above all the test results, e.g., at the level of the applicable emission standard.

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coke conveyance system, which transfers coke produced by Gateway Energy to the facility. Periodic Monitoring for this requirement would be provided by recordkeeping for the amount of coke that is handled. This is appropriate as this limit addresses the throughput of this system on an annual basis. In addition, reliable throughput data for this system is also important to the source as it must pay for the coke that it receives from Gateway Energy.

Operational Requirements (Condition 7.1.5(d)(i)(B)) - The permit requires that the day bins that are part of the new coke conveyance system must be vented to a control device that is operated in accordance with good air pollution control practice. Periodic Monitoring for this operational requirement is provided as this requirement overlaps applicable regulatory requirements of 35 IAC 212.324(f) and (g).

Prohibition on Visible Emissions (Condition 7.1.5(d)(i)(A) and (ii)) – The permit prohibits visible fugitive emissions from the conveyors and the day bins that make up the new coke conveyance system. Observations for the presence of visible emissions from these units to address this requirement may be readily conducted. The applicable procedure, Method 22, provides that such observations may be made by any individual that is capable of discerning the presence of visible emission, unlike Method 9, which requires that observations for opacity to be made by an individual who has been trained and certified to make such observations. Accordingly, the Periodic Monitoring for this requirement would be provided by the Monitoring for the applicable state opacity standards.

Limit for PM/PM_{10} Emission Rate (Condition 7.1.5(d)(iii)) - The permit limits PM/PM_{10} emissions from the control devices on the new coke conveyance system to 0.005 gr/scf. The emission testing for this baghouse, as required by the construction permit, to verify compliance with this permit limit and 35 IAC 212.458(b)(7) confirms compliance, with filterable PM emissions that are less than 0.1 pounds per hour.[69] As this limit is in the same terms as 35 IAC 212.458(b)(7) (i.e., gr/scf) and is applicable to a filter or baghouse, the Periodic Monitoring for this limit would be provided by the Monitoring for 35 IAC 212.458(b)(7).

Limits on amount of PM Emissions (Condition 7.1.6(a)(ii)) – As is generally the approach for permit limits on the amount of emissions from emission units, the Periodic Monitoring for these permit limits for PM/PM_{10} emissions from the new coke conveyance system would build on the Monitoring related to other applicable requirements for this system. To specifically address the permit limits, relevant records would be required for the throughput of this system, the emission factors used by the Permittee to calculate emissions from the system, and actual emissions for comparison to applicable limits. This is sufficient Periodic Monitoring for compliance with these permit limits, particularly as emissions of the system must be well controlled with enclosure and baghouse and visible emissions are not allowed.

[69] Data from emission testing of the baghouses in April 2010 follows:

Emission Test Data for the Coke Conveyance System Baghouses					
PM (filterable)			PM (filterable and condensable)		
Measured (gr/scf)	Allowed* (gr/scf)	Margin	Measured (gr/scf)	Allowed* (gr/scf)	Margin
0.00052	0.005	85%	0.0021	0.005	58%

* Emission rate set by the construction permit. The applicable state standard limits emissions of PM (filterable) to 0.01 gr/scf.

C.2 Coke Production (Coke Oven Batteries) (Section 7.2 of the revised permit)

a. Periodic Monitoring Requirements

The Periodic Monitoring for operations at the coke oven batteries would include the following:

- ✓ Opacity Monitoring
  - For each combustion stack, continuous opacity monitoring
- ✓ Observations for Visible Emissions and Opacity
  - For charging operations, daily observations for the duration of visible emissions
  - For oven doors, topside port lids and offtakes of ovens, daily observations for leaks (visible emissions)
  - For pushing operations, daily opacity observations for at least four consecutive pushes, with opacity observations for all ovens conducted at least every 90 days
  - For the collecting mains on the batteries, daily observations for leak
- ✓ Inspections
  - For the quench towers, monthly inspection for damaged or missed baffles
  - For the pushing operation, monthly inspection of the capture system
- ✓ Sampling and Analysis of Quench Water
  - Sampling of the total dissolved solids concentration in the quench water at least five days per week
  - Weekly samples and analyses of quench water for total dissolved solids
- ✓ Emission Testing Requirements
  - For coke pushing, testing of PM emissions from the mobile scrubber system at least every 30 months
  - For the coke oven combustion stacks, testing of emissions of PM, VOM, CO, and NO_x in the year prior to expiration of this permit

  Note: In addition, for the West Quench Station, after construction of the new low-emission quench tower is complete, testing of particulate emissions is required within two years of initial start up of the new tower
- ✓ Recordkeeping
  - Engineering specifications for flare systems
  - Malfunction and breakdown events
  - Records of maintenance activities
  - Production/operating data of different activities
- ✓ Reporting
  - Standard Reports (Deviations Reports, Monitoring Reports and Annual Reports)
  - Quarterly and semiannual compliance reports (Subpart CCCCC)

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b. Justification for Periodic Monitoring for Coke Oven Batteries

To provide Periodic Monitoring for the two existing coke oven batteries, the permit would impose various requirements on the source for observations for visible emissions or leaks, observations of opacity, inspections, sampling and analysis of quench water, emission testing, recordkeeping, and reporting. As necessary to provide Periodic Monitoring, the requirements imposed by the permit would go beyond and supplement the compliance procedures established by applicable rules.

For the coke oven batteries, the applicable emission standards that are of particular concern are the NESHAP standards that address "coke oven emissions" and loss of coke oven gas (COG) directly to the atmosphere. These NESHAP standards set rigorous requirements to minimize these emissions given the potential threat they may pose to public health. Careful operation and maintenance of coke oven batteries is necessary to comply with these requirements. However, the relevant NESHAP standards also establish rigorous compliance procedures for these operations of concern and for other operations at the batteries that are subject to NESHAP standards. 40 CFR 63 Subparts L for Coke Oven Batteries addresses emissions from charging, leaks from coke oven doors, topside port lids, and offtake systems, and bypass/bleeder stacks. The NESHAP for Coke Ovens: Pushing, Quenching, and Battery Stacks, 40 CFR 63 Subpart CCCCC, addresses pushing (including soaking), quenching and the battery stacks. The compliance procedures of these NESHAP provide a solid foundation for the required Periodic Monitoring for the coke oven batteries at the facility. For example, these compliance procedures require that the source conduct daily performance tests for certain subject operations. In addition, the procedures of the NESHAP are an essential component of certain work practice standards under the NESHAP. For example, the "emission standard" for leaks in collection mains, 40 CFR 63.308, is a daily inspection of the collecting mains for the presence of leaks by USEPA Method 303, with temporary repairs made as soon as possible and long-term repairs initiated and completed as expeditiously as possible. As a general matter, given the central nature of the applicable NESHAP for control of emissions from the coke oven batteries and the rigorousness of the compliance procedures in these NESHAP, it is appropriate to generally rely on those compliance procedures. However, as certain standards and limits set by applicable state rules and construction permits are not matched by NESHAP standards, the Periodic Monitoring for the coke oven batteries would supplement the compliance procedures in the NESHAP.

i. Coke oven battery charging and leaks

Federal Emission Standards (40 CFR 63 Subpart L)

Charging and Leaks (40 CFR 63.304(b)(2)(iv)/Condition 7.2.3-1(b), 40 CFR 63.304(b)(3)(ii)/ Condition 7.2.3-2(c), 40 CFR 63.304(b)(2)(ii)/Condition 7.2.3-3(c), 40 CFR 63.304(b)(2)(iii)/ Condition 7.2.3-4(c), 40 CFR 63.307 /Condition 7.2.3-8(a) and /40 CFR 63.308/Condition 7.2.8-1(b)) - This NESHAP sets standards for emissions from charging of coke ovens and from leaking doors, lids, offtakes and collecting mains on coke ovens. The duration of visible emissions from charging and the percentage of leaking components are limited, on a 30-day rolling logarithmic average and 30-day arithmetic rolling average, respectively. Daily performance tests must be conducted to collect the data to confirm compliance with these limits, and calculate 30-day rolling averages for comparison to the relevant limits. Collection mains must be inspected on a daily basis

and any leaks promptly repaired. Given the nature of these standards, the compliance procedures in the NESHAP, as they address frequency and nature of measurements to determine compliance with these standards, are appropriately considered part of the standards and should be considered to be sufficient as Periodic Monitoring. In this regard, 40 CFR 63.309 (f) specifically provides that compliance with 40 CFR 63 Subpart L shall not be determined more frequently than the schedule for performance tests specified in 40 CFR 63.309. In addition, 40 CFR 63 306 requires the source to develop and implement a work practice plan for control practices for prevention of leaking components. Implementation of the relevant corrective actions pursuant to the plan is required if two independent exceedances of the standard for a particular category of emission point occur in a six-month period (40 CFR 63.306(c)). This requirement further reinforces the adequacy of the compliance procedures of this NESHAP as being sufficient to address these NESHAP standards.

Lowest Achievable Emission Rate (LAER) Limits for Battery B

Charging (Condition 7.2.3-1(c)) – The applicable LAER limit for charging, which limits the duration of five consecutive charges to 55 seconds (average 11 seconds per charge) is superficially similar to the relevant NESHAP standard, 40 CFR 63.304(b)(2)(iv), which limits the duration of visible emissions from charging to no more than 12 seconds per charge. However, as the NESHAP limit would apply on a 30-day average, this LAER limit, which applies to any five consecutive charges, may in practice be more stringent than the NESHAP standard. Accordingly, observation practices and collection of data to address this state standard would be required in conjunction with the daily performance tests or observations required to be conducted by the NESHAP. Because these observations would be conducted on a daily basis, they should be sufficient to identify deterioration of the control practices for charging and enable corrective actions to be taken for control practices before violations would occur. As such, these daily observation would be sufficient for the Periodic Monitoring for this limit.[*1]

Limits for Leaks (Conditions 7.2.3-2(b), 7.2.3-3(b) and 7.2.3-4(b)) - The applicable LAER limits for the percentages of doors, lids and offtakes that are leaking, which were established in the late seventies, are numerically less stringent than the applicable NESHAP standards, 40 CFR 63.304(b)(3)(ii), (b)(2)(ii) and (b)(2)(ii)(2)(iv), respectively. In particular, the LAER limits the percentage of leaks to no more than 5, 1 and 4 percent compared to 3.3, 0.4 and 2.5 percent, respectively. However, given the 30-day averaging period associated with these NESHAP standards, the NESHAP standards are not necessarily more stringent in all cases. Accordingly, Periodic Monitoring would be required for these state standards in a manner similar to the Monitoring for the LAER limit for charging, as discussed above.

State Emission Standards (Coke Oven Battery A)*

* The following state standards are in the same terms as the LAER limits that apply to Battery B

[*1] In the event that a required daily observations does identify a violation of this limit (or other required daily observation identifies a violation of a limit or standard), the Permittee may of course conduct additional observations on that day to provide further information on its compliance status. Those observations might indicate that the initial observation may have been an aberration or that the corrective actions that were implemented have eliminated the violation. Those observations could also confirm that a violation is present and that further corrective actions are needed to restore compliance. If the source elects to conduct such "supplemental" observations on a particular day, the records for those supplemental observations would also be required records for purposes of Periodic Monitoring.

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and numerically less stringent, i.e., higher. Accordingly, these standards are only of practical concern for Battery A, which is not subject to and constrained by LAER limits

Standard for Charging (35 IAC 212.443(b)(1)(A)) /Condition 7.2.3-1(a) – The applicable state standard for charging limits the duration of visible emissions from five consecutive charges to 125 seconds. This standard appears substantially less stringent than the applicable NESHAP standard, 40 CFR 63.304(b)(2)(iv), which limits the duration of visible emissions from charging to no more than 12 seconds per charge (equivalent to at most 60 seconds for five consecutive charges). However, since the NESHAP standard applies on a 30-day average and this state standard would apply to any five consecutive charges, it could occasionally be more stringent than the NESHAP limit. Accordingly, daily observations would be required for Battery A to address this state standard, in a manner similar to the daily observations required for Battery B. These daily observation would also be sufficient as the Periodic Monitoring for this standard

Standards for Leaks (35 IAC 212.443(d)/Conditions 7.2.3-2(a), 35 IAC 212.443 (e)/Condition 7.2.3-3(a) and 35 IAC 212.443 (f)/Condition 7.2.3-4(a))) – The applicable state standards for the percentages of doors, lids and offtakes that are leaking are also numerically less stringent than the applicable NESHAP standards, 40 CFR 63.304(b)(3)(i), (b)(2)(ii) and (b)(2)(iii)(2)(iv), respectively. In particular, the state standards limit the percentage of leaks to no more than 10, 5 and 10 percent compared to 3.3, 0.4 and 2.5 percent, respectively. However, given the averaging periods associated with the NESHAP standards, the NESHAP standards are not necessarily more stringent in all cases. Accordingly, Periodic Monitoring would be required for these standards in a manner similar to the Monitoring for the LAER limits for charging, as discussed above.

2. Coke oven battery pushing

Federal Emission Standards

40 CFR 63 Subpart CCCCC for Control Devices for Pushing (40 CFR 63.7290(a)(4)/ Condition 7.2.3-5(c)) – This NESHAP limits the "stack emissions" from pushing to 0.04 lb PM per ton of coke pushed. For the mobile scrubbers at this facility, which are "pushing control devices" pursuant to this NESHAP, the NESHAP requires continuous operational monitoring (40 CFR 63.7291). The NESHAP also requires establishes work practices to assure that these scrubbers are properly maintained and operated. Finally, the NESHAP requires testing for PM emissions each of the scrubber cars for pushing to be conducted every 30 months. As identical limits apply to these control devices under state rules and the compliance procedures of the NESHAP appropriately address the day-to-day operation of the scrubbers, the Illinois EPA will consider whether additional Periodic Monitoring is needed in the revised permit to supplement NESHAP compliance procedures relative to the LAER limit and applicable state emission standard.

Other limits for control equipment (LAER Limits for Battery B and State Emission Standards)

PM limit for control equipment (Condition 7.2.3-5(d)(i) and 35 IAC 212.443(c)(2))/Condition 7.2.3-5(b)(i)) – These limits for stack emissions from pushing, 0.04 lb PM per ton of coke pushed, are identical to the applicable NESHAP standard, 40 CFR 63.7290(a)(4). Accordingly, the compliance procedures of the NESHAP should also serve as Periodic Monitoring to address these

limits. In particular, the NESHAP requires the operational monitoring that is appropriate for scrubbers, and is supported by work practices to facilitate proper operation and maintenance of a scrubber.[62] However, the measured PM emissions during recent testing of one of the mobile scrubber cars used for pushing was in excess of 0.04 lb/ton.[63, 64] Because of this violation, additional emission testing would be required for purposes of the scrubbers unless NESHAP testing demonstrates a distinct compliance margin, at least 10 percent. If this compliance margin is not shown, further emission testing could be required at the "mid-point" between NESHAP testing, 12 to 18 months after such testing. This timing would provide for such testing after a period of "wear and tear" on the scrubber. If the source conducts an emission test prior to the mid-point of NESHAP emissions testing, that test would have to show at least a 25 percent compliance margin to be excused from mid-point testing. This greater compliance margin would address the longer time for deterioration in the condition of the scrubber until the next NESHAP test would otherwise be performed. This approach to the emission testing required as Periodic Monitoring for pushing is sufficient as it provides for such testing on a regular basis related to the compliance margin shown by the NESHAP testing.

Opacity standard for control equipment (Condition 7.2.3-5(d)(ii) and 35 IAC 212.443(c)(2)(B)/ Condition 7.2.3-5(b)(ii)) – This standard for captured emissions from pushing, 20 percent opacity, is not accompanied by a parallel NESHAP standard. However, the NESHAP limit for PM emissions and its work practice requirements for scrubbers control systems, along with the associated compliance procedures of the NESHAP, which include operational monitoring, would generally be sufficient to assure routine compliance with this state standard and serve as Periodic Monitoring. To directly verify compliance with this standard, opacity observations would be required on a monthly basis.

Opacity standards for uncaptured emissions (35 IAC 212.443(c)(1)(A) /Condition 7.2.3-5(a)) – This standard for uncaptured emissions from pushing, 20 percent for four consecutive pushes, is not accompanied by a parallel NESHAP standard.[65] However, the NESHAP, 40 CFR 63.7291, establishes work practice requirements for pushing, which also act to provide consistent operation of the pushing control system. Accordingly, the relevant compliance procedures of the NESHAP generally serve to address this state standard and serve as Periodic Monitoring as they require daily observations of opacity. As related to the state standard, the revised permit would require these observations be accompanied by observations and collection of data as needed to determine compliance with this state standard. Because these observations would be conducted on a daily basis, they should be sufficient to identify deterioration of the control practices for charging and enable corrective actions to be taken for control practices before violations would occur. As such,

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[62] Opacity monitoring is not practical for these scrubbers because of the interference of water droplets in the exhaust with accurate measurement of opacity. These water droplets would potentially interfere with continuous PM monitoring, if it were feasible for a mobile control systems like these scrubber cars. (In addition to process of pushing coke from the ovens, the scrubber car controls the "hot car," loaded with hot coke as it is moved to a quench station, travelling along in tandem with the hot car.)

[63] The source took corrective actions and subsequent emission testing showed compliance.

[64] The source has suggested that one factor that may have contributing to the violations may been the period of about a year when the facility was idled due to the poor economy.

[65] The NESHAP addresses uncaptured emissions from pushing, requiring daily observations of opacity (40 CFR 63.7291/ Condition 7.2.8(c)). However, "excess opacity" triggers a requirement to initiate corrective action for the pushing control system. The excess opacity itself would not be a violation of any standard.

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these daily observation would be sufficient for the Periodic Monitoring for this standard.

Permit Limits

Limits on PM emissions (Condition 7.2.6(b)) - As is generally the approach for permit limits on the amount of emissions from emission units, the Periodic Monitoring for these permit limits for PM emissions from the mobile scrubber cars would build on the Monitoring related to other applicable requirements for this system. To specifically address the permit limits, relevant records would be required for the throughput of this system, the emission factors used by the Permittee to calculate emissions from the system, and actual emissions for comparison to applicable limits. This is sufficient Periodic Monitoring for compliance with these permit limits, particularly as emissions of the scrubbers are subject to NESHAP standards and associated NESHAP compliance procedures.

3 Coke Oven Batteries – Quenching

Federal Emission Standards (40 CFR 63 Subpart CCCCC)

Quenching (40 CFR 63.7295/Condition 7.2.3-6(a)) – The NESHAP limits the total dissolved content (TDS) of quench water to 1,100 milligrams per liter. The compliance procedures of the NESHAP (40 CFR 63.7333(f)) specify that samples of quench water shall be collected and analyzed on at least a weekly basis to determine compliance with this standard. Given the nature of quench water, which is obtained from a standard supply and managed in a consistent manner, this minimum frequency of sampling is sufficient to address this standard.

Design Requirement for Quench Towers (Condition 40 CFR 63.7295(b)/Condition7.2.3-6(a)(ii)) – This NESHAP standard sets requirements for the condition and operation of the quench towers (not including emergency quench stations). For example, baffles covering at least 95 percent of the cross-sectional area of the tower are required. Baffles must be washed on a daily basis. As these standards address design and operating requirements for quench towers, the associated recordkeeping is sufficient to address these requirements and serve as Periodic Monitoring.

State Emission Standards

Operational Requirement for Quench Water (35 IAC 212.443(h)(2)/Condition 7.2.3-6(c)) – This state standard limits the TDS content of quench water used in quench towers to 1,200 milligrams per liter, weekly average. Since this state standard is less stringent than the NESHAP standard, both in terms of the numerical limit, the form of the limit, and the averaging time or compliance period, the frequency of sampling specified by state rules is sufficient.[66]

Design Requirement for Quench Towers (35 IAC 212.443(h)(1)/Condition 7.2.3-6(b)) – This state equipment standard for the design of the quench tower, i.e., baffles covering at least 95 percent of the cross-sectional area of the tower, is identical to a design requirement of the NESHAP, 40 CFR

[66] For purposes of 35 IAC 212.443(h)(2), the revised CAAPP permit would include procedures delineating how quench water should be sampled and analyzed for a quench station or quench tower that operates for less than five days in a week. (See Condition 7.2.12(e).)

63.7295(b). Accordingly, the relevant compliance procedures of the NESHAP will directly serve to address this state standard and serve as Periodic Monitoring.

Permit Limits

Limits on the usage of the conventional quench station (Condition 7.2.6(d)) – These limits restrict the operation of the conventional quench station after the new low-emission quench tower begins operation so that coke is preferentially quenched on this new tower. As these limits address usage of the conventional quench station, the associated recordkeeping is sufficient to address these limits and serve as Periodic Monitoring.

4. Battery Stacks or Coke Oven Battery Combustion Stacks

Federal Emission Standards (40 CFR 63 Subpart CCCCC)

Opacity (40 CFR 63.7296(a)(4)/Condition 7.2.3-7(b)) – This NESHAP limits opacity from each battery stack to 15 percent, daily average. The NESHAP requires continuous opacity monitoring be conducted to address this standard. (This monitoring is necessary as a practical matter as the NESHAP standard is set in terms of average daily opacity.) As this monitoring would directly address the applicable standard, it clearly constitutes sufficient Periodic Monitoring.

State Emission Standards

Opacity Standard for Combustion Stacks (35 IAC 212.443(g)/Condition 7.2.3-7(a)(i)) - The applicable state standard for opacity, 30 percent, is not accompanied by a parallel NESHAP standard. However, the NESHAP, standard requires continuous opacity monitoring. This opacity monitoring system will collect opacity data on a 6-minute average. As this monitoring would directly address the applicable standard, it clearly constitutes sufficient Periodic Monitoring.

PM Standard for Combustion Stacks (35 IAC 212.443(g)/Condition 7.2.3-7(a)(i)) - The applicable state standard for PM emissions, 0.05 gr/dscf, is not accompanied by a parallel NESHAP standard. However, as the NESHAP requires opacity monitoring, opacity data would be collected on a short-term basis (6-minute averages and hourly-averages) that would also address this standard for PM emissions. The revised permit would include provisions for periodic testing of emissions to directly address this limit. Since such testing was last conducted a number of years ago,[67] initial

[67] In the most recent emission testing for the Battery B Underfire Stack in October 2000, the results of which are provided below, measured PM emissions were less than half the applicable standard, for a compliance margin of over 50 percent:

PM Emissions			Non-Sulfate PM Emissions		
Tested Rates		Allowable Rates	Tested Rates		Allowable Rates
gr/scf	lb/hr	lb/hr*	gr/scf	lb/hr	lb/hr*
0.0466	23.53	25.3	0.0122	6.27	15.4

* Calculated from the tested PM emission rate, in lb/hr, by applying the ratio of the allowable PM emissions, 0.05 gr/scf and 0.03 gr/scf, respectively, and the tested emission rate, in gr/scf.

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testing under the CAAPP permit would be required in 24-months. Thereafter, the frequency of emission testing would rest on the compliance margin shown in the previous tests. If there is not an ample compliance margin, emission testing would be required to be repeated in 30 months, i.e., the frequency of the NESHAP, 40 CFR 63 Subpart FFFFF, for units of "high interest." If there is an ample compliance margin, emission testing would be required to be repeated in 60 months, the frequency of 40 CFR 63 Subpart FFFFF, for units of "less interest." This approach to the emission testing required as Periodic Monitoring is sufficient as it provides for such testing on a regular basis related to the compliance margin shown by the prior test.

Permit Limits and Requirements

Limit on non-sulfate PM emissions for Battery B (Condition 7.2.3-7(c)) - Construction Permit 82060043 limits non-sulfate PM emissions of Battery B to 0.03 gr/scf. Periodic Monitoring for this limit is generally provided by the Periodic Monitoring for the state PM standard. To specifically address this limit, emission testing would have to include measurements for both PM emissions and non-sulfate PM emissions.

Limits on emissions from supplemental use of natural gas (Condition 7.2.6(c)) - The Periodic Monitoring for these permit limits for emissions associated with combustion of natural gas to heat the coke oven batteries would rely on standard USEPA emission factors for combustion of natural gas, as published by USEPA in its Compilation of Air Pollutant Emission Factors, AP-42. To specifically address the permit limits, relevant records would be required for the use of natural gas and actual emissions for comparison to applicable limits (See Condition 7.2.9(j)(ii)). This is sufficient Periodic Monitoring for compliance with these permit limits, particularly as they involve emissions from combustion of natural gas.[68]

5. Coke Oven Battery Bypass & Bleeder Stacks and Emergency Flares

Federal Emission Standards

Requirements of 40 CFR 63 Subpart L for Bypass & Bleeder Stacks and Emergency Flares (40 CFR 63.307/ Condition 7.2.3-8) - This NESHAP standard sets requirements for the operation of these aspects of the coke oven batteries. For example, coke oven emissions may not be directly vented from the battery but must be flared if they are not sent to a coke byproducts plant. These flares must be operated to comply with the general requirements of the NESHAP for flares used to comply with the NESHAP. As this standard sets operational requirements for the coke oven batteries, the recordkeeping provisions of the NESHAP are sufficient to serve as Periodic Monitoring for these operational requirements. For example, the NESHAP provides that observations for visible emissions shall be conducted if flare operates for more than 5 minutes (cumulative) during any 2 hour period, observations for visible emissions shall be conducted (40 CFR 63.309(h)(1)/Condition 7.2.8-5).[69]

[68] Compliance with these limits also cannot be verified directly. When natural gas is used, it is only as a supplement to the COG fired to heat the coke ovens. The natural gas only makes up only a portion of the fuel.

[69] It would be inappropriate for the permit to mandate that these emergency flares be operated, when not otherwise needed in response to an emergency, for the specific purpose of conducting observations for visible emissions. Such observations would also not be representative as they would not address actual operation of the flares as would occur during emergencies, which are not planned events.

C.3 **Coke By-Product Recovery Plant (Section 7.3 of the revised permit)**

a. Periodic Monitoring Requirements

The Periodic Monitoring for the coke by-product recovery plant would include the following:

✓ Operational Monitoring
- Continuous monitoring system for H_2S content in COG
- Continuous monitoring of the thermal oxidizer combustion chamber temperature

✓ Leak Detection and Repair
- Instrumental measurement of non-detectable emissions in accordance with 40 CFR Part 61 Subpart L conducted on an annual basis
- Semi-annual inspections and monitoring of the connections and seals on a control system

✓ Inspections
- Semi-annual inspections of control systems in accordance with 40 CFR 61 Subpart L
- Annual maintenance inspections of the control systems in accordance with 40 CFR 61 Subpart L
- For the COG flare, verification of the certain conditions once per shift
- For the COG flare, semi-annual inspections of the flare ignition system and follow-up inspections for maintenance activities

✓ Emission Testing
- For the oxidizer on the COG desulfurization unit, testing of SO_2 and PM_{10} emissions in the year prior to expiration of the CAAPP permit

✓ Observations for Visible Emissions
- For the COG flare, observations for visible emissions on an annual basis

✓ Recordkeeping
- Records of COG flare inspections and opacity observations
- Records of the maintenance and operation of the COG desulfurization unit
- Records of COG production
- Records of the amounts of by-products being produced

✓ Reporting
- Standard Reports (Deviations Reports, Monitoring Reports and Annual Reports)
- Semi-annual reports in accordance with 40 CFR 61 Subpart L
- Semi-annual reports in accordance with 40 CFR 61 Subpart V
- Reports on changes in the quantity of total annual benzene waste being generated in accordance with 40 CFR 61 Subpart FF

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6. Justification for Periodic Monitoring for Coke By-Product Recovery Plant

1. Coke By-Product Recovery Plant

To provide Periodic Monitoring for the coke byproduct plant, the permit would impose various requirements on the source to verify proper operation of the systems that control emissions or gaseous losses from the various process vessels, tanks and other components that make up this plant. However, as this plant is designed and equipped to operate as a closed continuous chemical process plant, the coke by-product recovery plant is different from most other emission units at the facility. Unlike other emission units at the facility for which emissions are an inherent aspect of operation and stacks are presents to discharge exhaust gases to the atmosphere, the coke by-product recovery plant is designed to operate as a closed system, without direct emissions to the atmosphere from the plant.

For the coke by-product recovery plant, the applicable rules that are relevant are the NESHAP standards that addresses losses directly to the atmosphere. Emissions or losses from process equipments are addressed by the National Emission Standards for Benzene Emissions from Coke By-Product Recovery Plants, 40 CFR 61 Subpart L. Losses from leaking piping, ductwork, valves and other components at the plant are addressed by the National Emission Standards for Equipment Leaks (Fugitive Emissions), 40 CFR 61 Subpart V. To minimize losses or emissions from coke by-product recovery plant, given the potential threat they may pose to public health, these NESHAP standards require coke byproduct recovery plants to operate as closed systems without direct release of emissions to the atmosphere. With consistent operation and maintenance of equipment and control systems, the plant should readily comply with this requirement.

Federal Emission Standards

National Emission Standards for Benzene Emissions from Coke By-Product Recovery Plants (40 CFR 61 Subpart L/Condition 7.3.3(b)) – This NESHAP addresses process vessels, tanks and other operations at coke by-product recovery plants with requirements to prevent direct emissions from these units to the atmosphere. This is commonly achieved with gas blanketing systems that accommodate increases in the amount of material held in vessels and tanks without displacement of vapor laden air to the atmosphere. Inspections and monitoring with portable instruments must be conducted on a semi-annual basis to confirm compliance with these requirements. Instrumental monitoring must also follow work on a control system that entails opening a cover or hatch on the system followed by repressurization of the system. The issue that is posed relative to Periodic Monitoring is whether semi-annual instrumental monitoring to identify leaks under the NESHAP is sufficient or more frequent inspections to identify leaks should be required. While it would seem that more frequent inspections would be better, this is not necessarily the case. For example, carefully conducted inspections every six months may actually be better at identifying leaks than hurried inspections every month.[70] As applied to identification of leaking components at the coke byproduct recovery plant at this facility, in the absence of convincing evidence to the contrary, it is appropriate to proceed based on care in or quality of inspections being more important than the

[70] One factor that USEPA has identified as important to accurately identifying leaks is the time that is available for the technician to monitor each component. With more time, the probe can be kept in better contact with the points or area of potential leaks and that area may be more carefully traversed during the monitoring of components.

quantity of inspections. In addition, there are more effective ways of increasing the effectiveness of a leak monitoring program than by increasing the frequency of inspections, such as simply lowering the concentration of organic material that defines a leaking component.[71] These other enhancements to the leak monitoring program may also be more cost-effective than increasing the frequency of inspection. However, such changes would be beyond the scope of Periodic Monitoring, as they would involve actual changes to the substantive requirements of 40 CFR 61 Subpart L.

National Emission Standards for Equipment Leaks (Fugitive Emissions) (40 CFR 61 Subpart V/ Condition 7.3.3(c)) - This NESHAP addresses valves, pumps, sampling connection, ductwork, flanges and other similar components that are also present at coke by-product recovery plants to address and prevent direct emissions to the atmosphere from leaks by these components. Monitoring with portable instruments must be conducted on a semi-annual basis to identify any leaks with action then taken to repair the component and eliminate the leak. The circumstance surrounding Periodic Monitoring for this standard are identical to those for 40 CFR Subpart L. That is, the information that would be needed to set a schedule for monitoring to identify leaking components that is more frequent than the schedule under the NESHAP is not available. Other changes to the LDAR program , which are outside the scope of Periodic Monitoring, may be more effective in enhancing the performance of the LDAR program.

National Emission Standard for Benzene Waste Operations (40 CFR 61 Subpart FF/Condition 7.3.3(d)) - Coke by-product recovery plants are also potentially of concern due to emissions from benzene contained in their wastewater, as addressed by 40 CFR 61 Subpart FF. The source has tested the wastes at this facility and determined that the total annual benzene (TAB) quantity in the facility's wastes is less than 1 Megagram (Mg) (1.1 tons). Accordingly, the source is not subject to any emission control requirements for benzene pursuant to the NESHAP for Benzene Waste Operations, 40 CFR 61 Subpart FF. The control requirements of this NESHAP would only apply if the facility's TAB increased to 10 Mg (11 tons) or more. For a source whose annual TAB is less than 1 Mg, the NESHAP requires recordkeeping related to its TAB determination and to identify any process change at the facility that could increase the source's TAB to 1 Mg or more. The occurrence of such a change at the facility would require a report to the Illinois EPA and a new determination of the facility's TAB, addressing the changes that have occurred. If the new determination shows that the facility's TAB is 1 Mg or more, determinations of the facility's TAB must then routinely be conducted on an annual basis or in the event of process changes at the facility that could increase its TAB to 10 Mg or more. The relevant compliance procedures in this NESHAP appropriately address the circumstances of this facility and need not be supplemented with additional requirements as part of Periodic Monitoring.

2. Coke Oven Gas Flare

[71] There are several dimensions to leak detection and repair programs, including the frequency of inspections, the definition for a leak, and the care with which the specified monitoring method, USEPA Method 21, is followed. When USEPA pursues "enhanced LDAR" programs in resolution of enforcement actions, the focus is on aspects of the LDAR program other than frequency of inspection. For example, for sources that are subject to the NSPS definition of a leak, 10,000 ppm, the lower NESHAP definition of a leak will be required, 500 ppm. Initial attempts at repairs may be required at levels below those are defined as a leak, e.g. 350 ppm. Periodic internal or third party audits may be required.

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State Emission Standards

Opacity standard (35 IAC 212.123(a)) – This state standard limits the opacity of emissions from the COG flare to 30 percent. Periodic Monitoring is not needed to address this requirement as the CAAPP permit would prohibit visible emission from the COG flare. (See Condition 7.3.6(d).) The CAAPP permit would also establish work practices for COG flare to assure proper operation of the flare, including inspections of the each shift to confirm proper operation and annual maintenance and repair inspections. (See Condition 7.3.9(e).) Lastly, the CAAPP permit require that the source conduct observations for visible emissions of the flare on at least an annual basis (See Condition 7.3.8(c).) These requirements will serve to assure that the opacity from the flare will not exceed 30 percent, especially as visible emissions from the flare are prohibited.

SO_2 standard (35 IAC 214.301) – Periodic Monitoring is not needed for this state standard, which limits the concentration of SO_2 in the exhaust from the COG flare to no more than 2000 ppm. This standard allows SO_2 emissions from combustion of COG that are much greater than the potential SO_2 emissions. In particular, after accounting for the increase in exhaust flow from combustion air when COG is combusted, this standard would limit the sulfur content of COG to 10,000 ppm.[72] However, the sulfur content of COG is limited to about 5000 ppmv (see Condition 7.3.7(d)(i).). This difference between the SO_2 emissions allowed by 35 IAC 214.301 and potential emission is not unusual as 35 IAC 214.301 is a generic standard was not developed to specifically address SO_2 emissions of combustion of COG.

3. Coke Oven Gas Desulfurization System

Permit Limits (Construction 06070022)

Permit limits for PM_{10} and SO_2 emissions (Condition 7.3.7(e)(i)) – The construction permit for the COG Desulfurization System sets limits for PM_{10} and SO_2 emissions from the thermal oxidizer that combusts tail gas from the Claus Sulfur Recovery Unit that is part of this new system. As is generally the approach for permit limits for the amount of emissions from an emission unit, the Periodic Monitoring for these permit limits for the COG Desulfurization System would build on the Monitoring related to other applicable requirements related to COG, which entail monitoring for the sulfur content of COG and monitoring for the amount of COG that is processed by the COG Desulfurization System.[73] The initial emission testing for the thermal oxidizer, as required by the construction permit, was conducted in December 2010, and confirms compliance with these permit limits.[74] The permit would also explicitly provide for testing for emissions of PM_{10} and/or SO_2 to

[72] As combustion one scf of COG would produce about five scf of exhaust , the concentration of SO_2 in the exhaust of the flare would be one fifth the concentration of sulfur in the unburned COG. This is because the a molecule of H_2S contains only a single sulfur atom, so that combustion of a molecule of H_2S produces a single molecule of SO_2.

[73] Operational monitoring for proper operation of the thermal oxidizer is also provided as monitoring is required for temperature in the chamber of the oxidizer.

[74] During the initial testing of thermal oxidizer on December 17, 2010, the measured emission rates were as follows:

Measured Emission Rates of the Thermal Oxidizer (pounds/hour)			
PM_{10} (filterable and condensable)		SO_2	
Measured	Allowed*	Measured	Allowed*
4.93	5.6	35.7	97.3

* Based on limits in Construction Permit 06070022.

be conducted for the thermal oxidizer upon request by the Illinois EPA. Such testing would also trigger a requirement to reevaluate the adequacy of the emission factors used for the oxidizer. To specifically address the permit limits, relevant records would be required for the COG throughput of the COG Desulfurization System, the emission factors used by the Permittee to calculate emissions from the thermal oxidizer, and actual emissions for comparison to applicable limits. Records would also be required for maximum and typical hourly emission rates, with supporting documentation. This is sufficient Periodic Monitoring for these permit limits for the COG Desulfurization System. The system uses chemical process that is well-established to remove the hydrogen sulfide from the COG that it processes.

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C.4 Iron Production (Blast Furnaces) (Section 7.4 of the revised permit)

a Periodic Monitoring Requirements

The Periodic Monitoring for the blast furnaces would include the following:

- ✓ Opacity Observations
  - For the casthouse, observations on a weekly or daily basis for fugitive emissions
  - For BFG flares, annual observations for visible emissions
- Operational Monitoring
- ✓ Emission Testing
  - For baghouses, testing of emissions at least once every 5 years
  - Concurrent opacity observations
- ✓ Inspections
  - Detailed inspections of flares every 18 months
- ✓ Records of :
  - Emissions of PM/PM_{10}, SO_2, NO_x
  - Maintenance records
- ✓ Reporting Requirements :
  - ✓ Standard Reports (Deviations Reports, Monitoring Reports and Annual Reports)
  - Quarterly reports.

b. Justification for Periodic Monitoring for Iron Production (Blast Furnaces)

As necessary to provide Periodic Monitoring, the requirements imposed by the permit would go beyond and supplement the compliance procedures established by applicable rules. In this regard, however, the NESHAP standards that apply to the blast furnaces, 40 CFR 63, Subparts FFFFF, establish rigorous compliance procedures for the casthouse at the facility. Periodic Monitoring requirements would have to be established for the other operations involved in iron production.

1. Casting (Blast Furnace Casthouse)

NESHAP standards for integrated iron and steel manufacturing (40 CFR 63 Subpart FFFFF)

PM standard for control devices (Condition 7.4.3(e)(i)/40 CFR 63.7790(a) and Item 7 of Table 7) – Periodic Monitoring for this NESHAP standard, which limits PM emissions of the control devices for the blast furnace casthouse to 0.01 gr/scf, is fully addressed by the accompanying compliance procedures in this NESHAP. These procedures require operational monitoring for these control devices. For this facility, as blast furnaces emissions are controlled by baghouses, bag leak detection systems are required on both the cast house baghouse and iron spout baghouse. These systems will provide continuous information for proper functioning of these baghouses and

identify any upsets to enable corrective action to immediately be initiated.[75, 76] The compliance procedures of this NESHAP also require various work practices to support reliable operation of these baghouses, including preparation and implementation of a formal operation and maintenance plan for the control system, including these baghouses. Certain minimum requirements for this plan are specified in this NESHAP. Lastly, this NESHAP requires periodic PM emission testing at least once during the term of each Title V permit (i.e., at least once every five years).[77] The compliance procedures of this NESHAP amply serve as Periodic Monitoring for this standard to assure that controlled PM emissions of the casthouse do not exceed 0.01 gr/scf. Baghouses are generally reliable control devices when used for PM emissions from blast furnaces. The most recent emission testing for the casthouse in September 2009 confirms that these baghouses comply with this NESHAP standard with an ample of margin of compliance.[78]

Opacity standard for "secondary" or uncaptured emissions (Condition 7.4.3(e)(ii)/40 CFR 63.7790(a) and Item 7 of Table 7) - Periodic Monitoring for this NESHAP standard, which limits the opacity of uncaptured emissions from the casthouse to 20 percent, is provided by the

[75] For baghouses, bag leak detection systems are considered a more effective means than opacity monitors for verifying proper operation and identifying possible problems. This is because they better respond to the low levels of dust normally present in the exhaust of a baghouse.

[76] As applied to these baghouses, emission testing should be expected to only serve to generally confirm the ability of the baghouse to comply with applicable standards, as well as document actual levels of emissions. Emission testing is not needed because of possible upsets or interruptions in the operation of the bag leak detection systems, as these would be directly corrected by the applicable monitoring procedures. Accordingly, more frequent emission testing is not needed for the baghouses and it is sufficient for emission testing to routinely occur once per permit term.

The frequency of testing of baghouses was specifically addressed by USEPA during the public comment period for this NESHAP, where a commenter objected to "the change of requiring performance tests every 2.5 years to every 5 years for baghouses. The reasoning that bag leak detection systems are in place is not adequate justification because they may not be working properly." *See* 71 FR 39579, 39582 (July 13, 2006). USEPA responded: "A performance test provides a "snap shot" of performance, usually as the average of three 1-hour runs. However, we require continuous monitoring of the control device, and in this case, bag leak detectors provide assurance of proper operation on a continuous basis. Section 63.7831(f) of the rule provides detailed requirements for the proper installation, operation, and maintenance of bag leak detectors. Moreover, the monitoring requirements in § 63.7830(b)(4) discussed earlier include inspections and other monitoring in addition to the bag leak detection system. The combination of bag leak detectors and the extensive inspection and monitoring requirements for baghouses provide more assurance of proper operation than would more frequent snapshot performance tests. Consequently, we concluded that performance testing more frequently than once per permit term for these baghouses was not necessary. This testing frequency is consistent with many existing operating permits."

[77] The NESHAP also required initial testing following the effectiveness of the NESHAP. That testing served to verify that existing operations and control systems that were subject to the NESHAP were capable of complying with applicable standards. The initial testing also served to establish the operating limits for the operational parameters of the capture system and control devices for a casthouse that will be monitored on an ongoing basis.

[78] In the most recent emission testing for the casthouse, in September 2009, the results of which are provided below, measured PM emissions were less than half the applicable standard, for a compliance margin of over 60 percent.

Tested Emission Data for the Casthouse

Baghouse	Observed Opacity (%)	Tested Emission Rates gr/scf	lb/hr	lb/ton	Allowable Rate* lb/hr
Casthouse	1.67	0.003	3.29	0.012**	34.1
Iron Spout	1.74	0.0038	2.50	0.0065	9.8
Total	-	-	9.83	0.019	50.9

* Calculated from the tested PM emission rate, in lb/hr, by applying the ratio of the allowable PM emissions, 0.010 gr/scf, and the tested emission rate, in gr/scf.

** Calculated from production data reported for testing of the iron spout baghouse.

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accompanying compliance procedures in the NESHAP. These procedures require operational monitoring for the capture system on the casthouse, which is the system of hooding, ductwork, dampers and fans, that enables compliance with this opacity standard.[79] This monitoring will verify that the capture system is operated properly on an ongoing basis. For this purpose, the NESHAP effectively defines proper operation as operation in a manner that is consistent with its operation during emissions testing in which compliance with both NESHAP standards for the casthouse was demonstrated, i.e., no more than 20 percent opacity for uncaptured emissions and no more than 0.01 gr/scf for captured and controlled emissions. The operational monitoring for the various components of the capture system will provide continuous information for proper functioning of this system as necessary to prevent the opacity of uncaptured emission from exceeding 20 percent. The operational monitoring will also identify any upsets of the capture system to enable corrective action to immediately be initiated. The compliance procedures of the NESHAP also require various work practices to support reliable operation of the capture system, including preparation and implementation of a formal operation and maintenance plan for the system. Certain minimum requirements for this plan are specified in this NESHAP. Finally, as already explained, this NESHAP requires periodic emission testing for the casthouse at least every five years, with observations for the opacity of uncaptured emissions conducted concurrently with testing of PM emissions. The compliance procedures of this NESHAP are sufficient to serve as Periodic Monitoring for this standard and assure that the opacity of the uncaptured emissions from the casthouse does not exceed 20 percent. The capture system for the casthouse is generally a reliable system, as it is made up of mechanical components that are not exposed to severe temperature and operating conditions. The greatest opacity observed from the casthouse is often less than 10 percent, confirming that the capture system for the casthouse has an ample of margin of compliance.

Operating limits for capture systems ((Condition 7.4.3(f)/40 CFR 63.7790(b)(1)) - As already discussed, this NESHAP requires the capture system for the casthouse be operated with relevant operating parameters at or above the lowest values or settings established for such parameters during performance testing. These values or settings then become applicable requirements for which Periodic Monitoring is necessary to assure compliance. That Monitoring is provided by the operational monitoring required in the compliance procedures of the NESHAP. Since operational limits for capture systems are a key part of the USEPA's regulatory approach to uncaptured emissions under this NESHAP, the provisions in this NEHAP for the accompanying operational monitoring reflect a fully developed approach to such monitoring by USEPA, building on its decades of experience with operational monitoring systems. For example, the NESHAP requires that these operational monitoring systems be operated in accordance with site-specific monitoring plans that include performance evaluations (40 CFR 63.8731(d)). The NESHAP also establishes requires that all data from such systems be appropriately collected except as precluded by interruptions in the operation of the system that are necessary for the proper operation, maintenance and repair of the systems or other sudden, infrequent not reasonable preventable

[79] The capture system for the casthouse enables compliance with this opacity standard for uncaptured emissions as it functions to collect the PM emissions released in the casthouse during tapping and direct emissions to the baghouses for the casthouse to be controlled. The effectiveness of the capture system determines the split between emissions released during tapping that are captured, i.e., directed to the baghouses to be controlled, and are uncaptured, i.e., go directly to the atmosphere, bypassing the baghouses. To comply with a 20 percent opacity standard for uncaptured emissions, this system must be designed, operated and maintained to collect enough PM emissions so that the opacity of the remaining uncaptured emissions from casting does not exceed 20 percent.

failure of the monitoring system to provide valid data (40 CFR 63.7832).

State Emission Standards

PM standard for emissions from control equipment (35 IAC 212.445(b)(1)/Condition 7.4.3(b)((ii)(A)) - This state standard, which limits PM emissions from the control equipment on the casthouse to 0.010 gr/scf, is identical to the applicable NESHAP standard pursuant to 40 CFR 63.7790(a).5Accordingly, the Periodic Monitoring for the NESHAP standard for control devices, as discussed above, also serves and is sufficient as the Monitoring for this state standard.

Opacity standard for control equipment (35 IAC 212.445(b)(2)/Condition 7.4.3(b)((ii)(B)) - This state standard, which limits the opacity of the casthouse and iron spout baghouses to no more that 10 percent, is not accompanied by a parallel NESHAP standard in 40 CFR 63 Subpart FFFFF. This standard is also not accompanied by any compliance procedures under state rule. Any Periodic Monitoring for this emission standard must be developed in the CAAPP permit for the facility. The technical issue is whether the bag leak detection systems required on these baghouses should be considered sufficient to indirectly assure compliance with this standard. While this is likely the case, the revised CAAPP permit would require quarterly observations of opacity for these baghouses to assure that their opacity does not exceed 10 percent. These observations would directly assure compliance with this standard. This requirement would also be reasonable as the source must have certified opacity observers available to conduct regular opacity observations for uncaptured emissions from the casthouse, as discussed below.

Opacity standard for uncaptured emissions (35 IAC 212.445(a)/Condition 7.4.3(b)(i)) - This state standard, which limits the opacity of the uncaptured emissions from the casthouse to 20 percent, is identical to the applicable NESHAP standard pursuant to 40 CFR 63.7790(a). Accordingly, the Monitoring for the parallel NESHAP standard, as already discussed, also serves as Monitoring for this state standard. However, the technical issue is posed whether further Periodic Monitoring should be required to directly address this standard. The operational monitoring required by the NESHAP only indirectly addresses the opacity of uncaptured emissions from the casthouse. It is appropriate to proceed cautiously at this time given the circumstances of this facility, i.e., its location in Granite City where exceedances of the $PM_{2.5}$ NAAQS are monitored. In addition, 35 IAC 212.445(a) is a standard that was originally adopted to support attainment of the PM_{10} NAAQS in Illinois. Accordingly the revised CAAPP permit would continue to require regular opacity observations for the casthouse for uncaptured emissions. For this purpose, opacity observations would continue to be required on either a weekly basis or for at least five days out of seven operating days.[80] The timing of observations would be related to the level of opacity observed during the prior observations and the presence of a compliance margin.[81] This approach

[80] The "five day out of seven day" schedule would accommodate the practical challenges of scheduling opacity observations for the casthouse and the occurrence of weather conditions that prevent performance of scheduled opacity observations. For example, if opacity observations are required to be conducted on this schedule and the source arranges to conduct observations on a daily basis, the source would still be able to conduct all required observations if unexpected events arise that interfere with a planned observation on a day or two in a week.

[81] Weekly observations would be required if the prior observations show a significant margin of compliance, i.e., opacity is less than 18 percent. "Daily" observations would be required if the prior observation does not indicate a significant margin of compliance, i.e., opacity is 18 percent or more. Daily observations would continue to be required until five consecutive daily observations all indicate a significant margin of

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to the timing of opacity observations is appropriate as a violation of 35 IAC 212.445(a) would be expected to result from gradual deterioration of the capture system or and pollution prevention measures for the cast house. Weekly opacity observations will enable the source to make timely repairs or take other appropriate actions in response to elevated levels of opacity before actual opacity would ever exceed 20 percent. Daily opacity observations would only be expected to become necessary if the source fails to act to take timely actions to maintain a margin of compliance with 35 IAC 212.445(a).[82]

SO_2 standard (35 IAC 214.301/Condition 7.4.3(c)) - Periodic Monitoring is not needed for this state standard, which limits the concentration of SO_2 in the exhaust from the casthouse to no more than 2000 ppm. This standard allows SO_2 emissions from the casthouse that are far greater than its potential emissions. For example, based on the emission testing for the casthouse in September 2009, 35 IAC 214.301 would allow SO_2 emissions of over 6000 pounds per hour from the casthouse.[83] Based on the established SO_2 emission factor for the casthouse, 0.2 pounds per ton of iron, the maximum SO_2 emission of the casthouse should not exceed 100 pounds per hour.[84] This difference between the SO_2 emissions allowed by 35 IAC 214.301 and potential emission is not unusual as this emission standard was not developed to specifically address SO_2 emissions of blast furnaces. Rather 35 IAC 214.301 is one of several state standards for different pollutants that are commonly referred to as "generic" or "catch-all" standards

Permit Limits

Limits on production and pellet usage (Condition 7.4.6(a)) – The Periodic Monitoring for these annual limits would be provided by requiring relevant records be kept (Condition 7.4.9(h)). This is sufficient as the limits apply on an annual basis and address data that is fundamental for operation of the blast furnaces by the source.

Limits for emissions of PM/PM_{10} and lead from baghouses (captured emissions) (Condition 7.4.6(b) and (f)) – The emissions of PM/PM_{10} of the baghouses are addressed through the provisions of the NESHAP that apply to the baghouses, as already discussed. In actual practice, the applicable NESHAP standard for PM emissions from these baghouses is more stringent than these permit limits, as shown by the emission testing conducted for these baghouses. This testing shows a much larger margin of compliance for the permit limits for PM emissions than for the applicable NESHAP standards.[85] The NESHAP also establishes rigorous compliance procedures

compliance, with the greatest opacity that is observed all less than 18 percent.

[82] This approach is different from the approach in the current CAAPP permit, which did not consider the presence of a margin of compliance. Rather "daily" observations are currently only required if the greatest opacity observed during a weekly observation are at or above the applicable standard of 20 percent.

[83] The SO_2 emissions allowed by 35 IAC 214.301 are readily calculated from the exhaust flow rate of a unit. For the casthouse, the exhaust flow rate of the two baghouses during the September 2009 testing was about 20,000,000 acf/hr. (20,000,000 acf/hr ÷ 385 scf/lb-mole x 2000 ppm/1,000,000 ppm x 64 lb/lb-mole SO_2 = 6860 lbs/hr)

[84] Based on a maximum production rate of 500 tons of iron from the blast furnaces and an emission factor of 0.2 pounds per ton, the calculated SO_2 emissions of the casthouse would be at most 100 pounds per hour. (500 tons/hr x 0.2 lbs/ton = 100 lbs/hr)

[85] A comparison of compliance margins from the most recent emission testing for the casthouse baghouses in September 2009 follows.

for PM emissions, including requirements for continuous operational monitoring for proper operation of these baghouses with bag leak detection systems and requirements for periodic emission testing. As lead is a component of the PM emissions, these provisions of the NESHAP also address emissions of lead. To specifically address emissions of lead, the revised permit would require measurements for lead emissions when NESHAP testing is conducted for PM. Then, as is generally the approach for permit limits on the amount of emissions from an emission unit, the Periodic Monitoring for these permit limits for the casthouse would build on the Monitoring related to other applicable requirements for the casthouse. To specifically address the permit limits, relevant records would be required for iron throughput, the emission factors used by the Permittee to calculate captured emissions from the casthouse, and actual emissions for comparison to applicable limits. This is sufficient Periodic Monitoring for these permit limits, particularly as PM emissions of the casthouse must be well controlled with a capture system and baghouses that are subject to appropriate Periodic Monitoring to assure that this equipment is properly operated.

SO_2, NO_x and VOM limits for baghouses (captured emissions) (Condition 7.4.6(b) and (f)) – Unlike PM emissions from the casthouse, emissions of these pollutants are not subject to "other applicable requirements" or, in the case of SO_2, to requirements that act in practice to constrain emissions. The emissions of these pollutants from the casthouse are not controlled, either by add-on control equipment or specific control practices.[86, 87] These permit limits reflect the projected emissions of SO_2, NO_x and VOM from the casthouse as provided in an application for a construction permit submitted over a decade ago. Accordingly, it is appropriate that on a routine basis compliance with these limits be directly determined using emission factors, subject to the proviso that the adequacy of such factors be verified by periodic testing. For this purpose, testing would be required in conjunction with the emission testing routinely required for the casthouse by the NESHAP. This testing must be performed every five years, which is a reasonable frequency given the nature of the permit limits that are being addressed. In other words, as is generally the approach for permit limits on the amount of emissions from emission units, the Periodic Monitoring for these permit limits for the casthouse would build on the Periodic Monitoring related to other applicable requirements for the casthouse. To specifically address the permit limits, relevant records would be required for the amount of iron produced by the blast furnaces, the emission factors for SO_2, NO_x and VOM used by the Permittee to calculate captured emissions from the casthouse, and actual emissions for comparison to applicable limits. This is sufficient Periodic Monitoring for compliance with these permit limits given the nature of these limits

Evaluation of Tested Emission Data for the Casthouse Baghouses						
	Evaluation of NESHAP Rates			Evaluation of Permit Limits*		
Baghouse	Measured (gr/scf)	Allowed (gr/scf)	Margin	Measured (lb/ton)	Allowed (lb/ton)	Margin
Casthouse	0.003	0.010	70 %	0.012**	0.073	83%
Iron Spout	0.0038	0.010	62 %	0.0065	0.02548	75%

[86] Baghouses function to control particulate emissions and do not remove gaseous pollutants, such as NO_x or VOM, from an exhaust stream. While control systems for SO_2 may involve a baghouse, the actual control of SO_2 is made possible by a separate system to inject sorbent material into the flue gas, to react with the SO_2. A key factor in the effectiveness of such systems is the concentration of SO_2 in the flue gas. The addition of such a system to an existing baghouse also has operational consequences for the baghouse as it increases the dust loading of the baghouse.

[87] Unlike PM emissions from the casthouse, for which there are control equipment and control practices, there are also not specific measures or work practices that have been identified at this time that could be used to minimize or moderate emissions of these pollutants from the casthouse

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Limits for uncaptured emissions of PM/PM_{10} and lead (Condition 7.4.6(b) and (f)) - The uncaptured emissions of PM/PM_{10} and lead from the casthouse are addressed through the provisions of the NESHAP that apply to the capture system for the casthouse. However, unlike the captured emissions, the uncaptured emissions of the casthouse are not amenable to direct measurement of emissions.[89] In this regard, the NESHAP addresses the performance of the capture system with a standard for opacity and with work practices. These requirements of the NESHAP are accompanied by rigorous compliance procedures, including requirements for continuous operational monitoring of the operation of the capture system. As lead is a component of the PM emissions, these provisions of the NESHAP also address emissions of lead. To specifically address emissions of lead, as already discussed, the revised permit would require measurements for lead emissions when NESHAP testing is conducted for PM. While such testing would measure captured PM/PM_{10} and lead emission of the casthouse, rather than uncaptured emissions, such testing would constitute testing of the casthouse. As such, it would trigger the requirement for the source to reevaluate the emission factors used to calculate emissions from the casthouse, both captured and uncaptured. However, unlike captured emissions, which would be measured directly, the determinations for uncaptured emissions would be derived from the measurements of captured emissions using appropriate values for the efficiency of the capture system and the performance of the control system.[90] Then, as is generally the approach for permit limits on the amount of emissions from emission units, the Periodic Monitoring for these permit limits for the casthouse would build on the Monitoring related to other applicable requirements for the casthouse. To specifically address the permit limits for PM/PM_{10} and lead, relevant records would be required for iron throughput, the emission factors used by the Permittee to calculate uncaptured emissions from the casthouse, and actual emissions for comparison to applicable limits. This is sufficient Periodic Monitoring for these permit limits, particularly as PM emissions of the casthouse must be well controlled with a capture system that is subject to appropriate Periodic Monitoring to assure that this equipment is properly operated.

SO_2, NO_x and VOM limits for uncaptured emissions) (Condition 7.4.6(b) and (f)) - Unlike uncaptured PM emissions from the casthouse, uncaptured emissions of these pollutants are not subject to "other applicable requirements" or, in the case of SO_2, to requirements that act in practice to constrain emissions from the casthouse. The uncaptured emissions of these pollutants from the casthouse, like the captured emissions of these pollutants, are not minimized by specific control practices. Rather these permit limits reflect the projected emissions of these pollutants from the casthouse as provided in an application for a construction permit submitted over a decade ago. Accordingly, it is appropriate that on a routine basis compliance with these limits be directly determined using emission factors, subject to the proviso that the adequacy of such factors be verified by periodic testing. For this purpose, as already discussed, testing would be required in conjunction with the emission testing otherwise required for the casthouse by the NESHAP. This testing must be performed every five years, which is a reasonable frequency given the nature of the

[89] The inability to directly measure emissions is inherent with uncaptured emissions from the casthouse as such emissions are, by definition, uncaptured and do not reflect the pollutant content of process materials, so that emissions may be determined through material balance calculations.

[90] When emissions testing is conducted for the casthouse, the determinations for uncaptured emissions of PM/PM_{10} and lead would be derived from the measurements of captured emissions, using appropriate engineering values for the efficiency of the capture system and the performance of the baghouses. For example, the requirements of the NESHAP for the capture systems on casthouses are commonly considered to provide a minimum of 95 percent capture of the emissions from tapping of blast furnaces.

permit limits that are being addressed. Such testing would trigger the requirement for the source to reevaluate the emission factors used to calculate emissions of SO_2, NO_x and VOM from the casthouse, both captured and uncaptured.[90] The determinations for uncaptured emissions would be derived from the measurements of captured emissions using appropriate values for the efficiency of the capture system. In other words, as is generally the approach for permit limits on the amount of emissions from an emission unit, the Periodic Monitoring for these permit limits for the casthouse would also build on the emission testing required as Monitoring for other applicable requirements for the casthouse.[91] To specifically address the permit limits, relevant records would be required for the amount of iron produced by the blast furnaces, the emission factors for SO_2, NO_x and VOM used by the Permittee to calculate captured emissions from the casthouse, and actual emissions for comparison to applicable limits. This is sufficient Periodic Monitoring for compliance with these permit limits given the pollutant emissions from the casthouse that are being addressed and the circumstances and nature of these limits.

Operational requirement for casting (Condition 7.4.6(j)) - This permit provision establishes an operational requirement for the casthouse for overlapping "tapping" of the furnaces, limiting the rate of casting from each furnace to 6 tons per minute. As these provisions establish requirements for a particular mode of operation of the furnace, they are appropriately addressed with recordkeeping. (See Condition 7.4.9(c)(ii)(B).)

2. Furnace Charging

State Emission Standards

Opacity standard (35 IAC 212.316(f)/Condition 7.4.3(g)) – Periodic Monitoring for this state standard, which limits the opacity from fugitive emissions to 20 percent, would be provided by requiring annual observation for visible emissions, followed by opacity observations if visible emissions are observed (Condition 7.4.8(n)(i)). This frequency of observations is appropriate as the presence of visible emissions or significant opacity from charging would be associated with leakage and deterioration of the bell systems. As this would interfere with operation of the furnaces, it should lead to repairs as part of the source's normal practices for inspection and repair of the blast furnaces.

SO_2 standard (35 IAC 214.301/Condition 7.4.3(e)) – This generic state standard, which limits SO_2 emissions from process emission units to 2000 ppm, cannot be applied as a practical matter. This is

[90] When testing is conducted for the casthouse, the determinations for uncaptured emissions of NOx, VOM and SO_2 would be derived from the measurements of captured emissions, using appropriate engineering values for the efficiency of the capture system on the casthouse. As emissions are not controlled, the derivation of uncaptured emissions would be simpler than that for PM/PM_{10} and lead, which are controlled. For example, as the NESHAP is commonly considered to provide at least 95 percent capture of tapping emissions at blast furnaces, uncaptured emissions of NOx, VOM and SO_2 from the casthouse would be one nineteenth of the captured emissions. (5 % ÷ (100 % − 5 %) = 1/19)

[91] In hindsight, it also appears that these separate limits for captured and uncaptured emissions of NOx, VOM and SO_2 may be overly complex, if not dictated by the air quality analysis that accompanied the construction permit application. Limits could have been set for the combination of captured and uncaptured emissions, accompanied by provisions requiring that compliance with such limits consider both captured and uncaptured emissions. Alternatively, limits could have been set for total emissions and uncaptured emissions, as it was considered necessary to separately limit uncaptured emissions due to consideration related to the air quality analysis.

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because the double bell systems for blast furnace charging do not have a stack. (Installation of stacks is not feasible given the location of these systems at the top of the furnaces and the configuration of these systems.) Accordingly, Periodic Monitoring is not relevant for this standard. Moreover, this standard does not pose compliance concerns for blast furnace charging as it involves solid materials, i.e., iron ore pellet, coke, limestone, and other flux materials, being charged to the furnaces and the bell systems function to maintain pressure in the blast furnaces as these materials are introduced into the furnaces.

Permit Limits (Construction Permit 95010001)

Limits on PM emissions (Condition 7.4.6(d)) - The Periodic Monitoring in the permit for the PM/PM_{10} emission limits for Blast Furnace Charging in Condition 7.4.6(d) would be sufficient. Emission testing is not feasible for this emission unit, which are the standard double bell systems on blast furnaces, which are located on the top of the furnace and serve to maintain pressure in the furnaces and minimize emissions from charging.[92] It is necessary to use a set emission factor for determining emissions from blast furnace charging. The set factor is the factor in the *AIRS Facility Subsystem Source Classification Codes And Emissions Factor Listing for Criteria Air Pollutants*, March 1990, EPA450/4-90-003. Using the standard approach for Monitoring for permit limits for the amount of emissions, the permit would require records for the operation of the blast furnace, i.e., the amount of pellets charged to the furnaces, as needed to calculate emissions, and records for calculated emissions, as needed for comparison to the applicable limits.

3. Slag Pits

State Emission Standards

Opacity standard (35 IAC 212.316(f)/Condition 7.4.3(g)) – Periodic Monitoring for this state standard, which limits opacity to 20 percent, would be provided by requiring monthly observation for visible emissions, followed by opacity observations if visible emissions are observed (Condition 7.4.8(m)(iii)). This frequency of observations is appropriate as the source must assure that operating personnel keep up the practices that minimize emission of particulate from the slag pits, which ensure compliance with this opacity standard.

SO_2 standard (35 IAC 214.301/Condition 7.4.3(c)) - This generic standard, which limits SO_2 emissions to 2000 ppm, cannot be implemented as a practical matter. This is because the slag pits do not have a stack. (Installation of stacks is not feasible given the area covered by the slag pits, the elevated temperature of the slag as it is deposited in the pit, and the need for ready access by personnel and heavy equipment to remove slag pits. Accordingly, conventional Periodic

[92] Because of the nature of certain emission units, which make emission testing for those units impractical or infeasible, emission units emission factors are an essential aspect of compliance determinations made for those units. The reliance on established emission factors to determine emissions from units in circumstances where it is not practical to conduct measurements for emissions has generally been accepted by USEPA. For example, see Order Responding to Petitioner's Request that the Administrator Object to Issuance of State Operating Permit, In the Matter of East Kentucky Power Cooperative, Inc, USEPA Dec 14, 2009 (East Kentucky Power Order, December 2009), in which USEPA did not reject the use of established emission factors for the purpose of calculating emissions from certain coal handling operations and determining compliance with an applicable state emission standard.

Monitoring is not relevant for this standard.[93]

Permit Limits (Construction Permit 95010001)

Limits on PM/PM_{10} and SO_2 emissions (Condition 7.4.6(e)) - The Periodic Monitoring in the permit for emission limits for the slag pit in Condition 7.4.6(e) would be sufficient. Emission testing is not feasible for the slag pit.[94] Using the standard approach for Monitoring for permit limits for the amount of emissions, the permit would require records for the operation of the slag pit, i.e., the amount of iron produced or slag handled, and the emission factors used by the Permittee to calculate emissions from the slag pit as needed to calculate emissions. Records would also be required for calculated emissions, as needed for comparison to the applicable limits.

4. Blast Furnace Stoves

State Emission Standards

PM standard (35 IAC 212.458(b)(7)/Condition 7.4.3(g)) - Periodic Monitoring must be established for this state standard, which limits PM_{10} emissions of the blast furnace stoves to 0.01 gr/scf or to "no visible emissions."[95] To address this standard, the revised permit would require the source to conduct regular observations for visible emissions from the stoves, to be followed by observations of opacity if visible emissions are observed. As only gaseous fuels are used in the stoves, it is sufficient that these observations be conducted on a semi-annual basis.[96] Regular testing for PM_{10} emissions is not warranted based upon the data that accompanied the most recent emission testing for use of BFG at the facility, the testing for Power Boiler #1. This testing confirms that the PM_{10} emissions from use of BFG are less than 0.01 gr/scf with an ample of margin of compliance.[97]

[93] The concentration of SO_2 emissions at the slag pits is indirectly addressed as OSHA has set a permissible exposure level for SO_2 at 5 ppm, 8-hour average, time weighted average.

[94] Because of the nature of certain emission units, which make emission testing for those units impractical or infeasible, emission units emission factors are an essential aspect of compliance determinations made for those units. The reliance on established emission factors to determine emissions from units in circumstances where it is not practical to conduct measurements for emissions has generally been accepted by USEPA. For example, see Order Responding to Petitioner's Request that the Administrator Object to Issuance of State Operating Permit, In the Matter of East Kentucky Power Cooperative, Inc, USEPA Dec 14, 2009 (East Kentucky Power Order, December 2009), in which USEPA did not reject the use of established emission factors for the purpose of calculating emissions from certain coal handling operations and determining compliance with an applicable state emission standard.

[95] Regulatory compliance procedures would only accompany 35 IAC 212.458(b) if particulate control equipment were used to comply with this standard.

[96] The revised CAAPP permit would also require sampling and analysis of the BFG used at the facility on a semi-annual basis, to be conducted at the coke byproduct recovery plant (See Section 7.4 of the permit). This would provide quantitative data for the composition of BFG that would be relevant to the particulate emissions of the blast furnace stoves and the boilers, which are the units at the facility that fire BFG.

[97] Like the blast furnace stoves, Power Boiler #1 is designed to fire primarily BGF, so that testing of this boiler provides data for the PM emission from use of BFG. In the initial emission testing for Power Boiler 1, in April 2010, the results of which are provided below, measured PM emissions were less than 0.01 gr/scf, with a compliance margin of over 80 percent. During this testing, measurements were also conducted on the particulate content of BFG, which show that the particulate content of BFG fuel prior to combustion is 0.00079 gr/scf, less than 10 percent of the PM_{10} emission standard that applies to the exhaust after BFG is combusted.

Measured PM Rates for Power Boiler #1		Allowable (per
lb/mmBtu	gr/scf	35 IAC 212.458(b)(7) in gr/scf)

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Nevertheless, the revised CAAPP permit would require the source to conduct testing for PM_{10} emissions upon request by the Illinois EPA, which would provide for emission testing to be conducted to address circumstances that were not contemplated.

Opacity standard (35 IAC 212.123(a)/Condition 7.4.3(d) – Periodic Monitoring for this standard, which limits the opacity of the stoves to 30 percent, would appropriately be provided by requiring semi-annual observations of visible emissions from each stove, followed by opacity observations if visible emissions are observed. As discussed, these stoves are appropriately addressed as fuel combustion emission units that fire gaseous fuels. Accordingly, semi-annual observations are sufficient to address this standard.

SO_2 standard (35 IAC 214.301/Condition 7.4.3(c)) - Periodic Monitoring is not needed for this state standard, which limits the concentration of SO_2 in the exhaust from the blast furnace stoves to no more than 2000 ppm. This standard allows SO_2 emissions from the stoves that are much greater than their potential emissions. In particular, disregarding the increase in exhaust flow from combustion air when BFG is combusted, this standard would limit the sulfur content of BFG to 2000 ppm.[98] However, based on recent testing, the sulfur content of BFG is less than 20 ppmv.[99] This difference between the SO_2 emissions allowed by 35 IAC 214.301 and potential emission is not unusual as 35 IAC 214.301 is a generic standard, which was not developed to specifically address SO_2 emissions of blast furnace stoves.

Permit Limits

PM content of BFG (Conditions 7.4.6(k)) - This permit provision limits the PM content of BFG fuel to 0.01 gr/scf. The testing of BFG fuel that accompanied emission testing of Power Boiler #1, as already discussed, showed compliance with this limit with a substantial margin of compliance. Accordingly, the permit would require biennial sampling and analysis of BFG to verify compliance with this limit. (See Section 7.10 of the permit, Condition 7.10.8(c)(ii).)

5 BFG Flares

State Emission Standards

Opacity standard (35 IAC 212.123(a)/Condition 7.4.3(d)) – Periodic Monitoring for this standard, which limits the opacity from the flares to 30 percent, would appropriately be provided by requiring annual observations for visible emissions from each flare (Condition 7.4.7(c)). These flares dispose of surplus BFG fuel, which can be readily flared without the presence of any visible emissions. Accordingly, annual observations are sufficient to address this standard.

SO_2 standard (35 IAC 214.301/Condition 7.4.3(c)) – Periodic Monitoring is not needed for this

0.0048	0.00184	0.01

[98] This is because a molecule of H_2S contains only a single sulfur atom, so that combustion of a molecule of H_2S produces a single molecule of SO_2.

[99] During testing of Power Boiler #1 in April 2010, the measured sulfur content of BFG fuel was 12.0 ppm, or 0.016 lb/mmBtu.

state standard, which limits the concentration of SO_2 in the exhaust from the BFG flares to no more than 2000 ppm. As discussed above for the blast furnace stoves, this standard allows SO_2 emissions from combustion of BFG that are much greater than the potential SO_2 emissions.

Permit Limits

Operational requirements (Conditions 7.4.5-4(c) and 7.4.5-4(d)(i)(A)) – These permit provisions address visible emissions of the BFG, limiting the occurrence of visible emissions to a total of no more than 5 minutes in any consecutive two period. This reflects a well-established requirement for particulate matter emissions from flares (e.g., refer to 40 CFR 60.18). Annual observations of visible emissions would be required to address this standard (Condition 7.4.7(d)). This is sufficient as this requirement can generally be readily met by properly operated flares burning BFG. This is because readily combusts in a flare without the presence of any visible emissions.[100] Since BFG does not have visual emission when combusted, the once per shift verification of the pilot flame, is the more important aspect of Monitoring. These inspections will verify that the flare is operating properly, which will ensure that there are no visible emissions from the flare. In addition, the source must test the flare annually for no visible emissions. This combination of requirements is sufficient periodic monitoring for the blast furnace gas flares.[101]

Operational requirements for BFG Flare #2 (Condition 7.4.5-4(d)(i)(B))) - This permit provision requires that BFG Flare # 2 be operated with a flame present at all times. This also reflects a well-established requirement for operation of flares (e.g., refer to 40 CFR 60.18). Continuous operational monitoring for the presence of a flame would be required (Condition 7.4.8(k)(ii)). [102]

Operational requirements for BFG Flare #2 (Condition 7.4.5-4(d) (ii) and (iii)) - These permit provisions establish additional operational requirements for BFG Flare #2 that would be addressed with recordkeeping. Any BFG that is flared must be processed by the pretreatment system prior to flaring. BFG and natural gas are the only fuels that may be used in this flare. As these provisions establish general requirements for the operation of this flare, they are appropriately addressed with recordkeeping. (See Condition 7.4.9(g).)

Note: Permit requirements that apply to the combination of BFG Flare #2 and Power Boiler #1 would be addressed in Section 7.10 of the revised permit, with the boiler.

[100] Blast furnace gas is primarily comprised of carbon monoxide and hydrogen. The flare functions as a safety device to ensure the blast furnace gas distribution system does not over pressurize, threatening the integrity of the system, with risk to personnel and equipment. Blast furnace gas readily burns in an appropriately sized flare without any visible emissions, provided that a pilot flame is present. Combustion does not need to be assisted with the introduction of steam or air at the flare burner. In this regard, flares for blast furnace gas are different from steam or air "assisted" flares that burn waste gases that may vary in their composition and contain more complex compounds.

[101] Continuous video monitoring systems would not be a useful monitoring technique for the blast furnace flares. Video monitoring is used at flares in certain refineries, where streams of waste gas are flared that may vary in their composition and heat content, as well as in the rate at which the waste gases are sent to the flare during an upset or malfunction incident. These flares have the potential for visible emissions, and steam or air assist may need to be adjusted during a flaring incident to maintain "smokeless operation." These circumstances are not present for the blast furnace gas flares at this source, which operate to handle a single stream of material that is generated at a steady rate and is readily combusted.

[102] Daily inspections of BFG Flare #1, which is not equipped with a continuous monitoring system for the presence of a flame, would also be required (See Condition 7.4.8(k)(i))

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4 Blast Furnace Gas (BFG) Flare #2

This flare, which was constructed at the same time as Power Boiler #1 is subject to 35 IAC 214.301, which limits its emissions of SO_2 to less than 2000 ppm. Emissions of the flare are also limited for NO_x, CO, VOM, PM/PM_{10} by permit limits for the combination of the Power Boiler and the flare. Recordkeeping for fuel usage for this boiler and flare is required to verify that the limit for usage is met, as well as verifying that applicable emission limits are met. The use of only natural gas and BFG for the boiler and flare, and the required recordkeeping of fuel usage is adequate to verify that the 2000 ppm limit for SO_2 emissions is not exceeded.

C.5 **Basic Oxygen Furnace (BOF) Shop (Section 7.5 of the revised permit)**

a. Periodic Monitoring Requirements

The Periodic Monitoring for the emission units in the BOF furnaces and other process operations in the BOF Shop would include:

- ✓ Opacity Monitoring
  - For the ESP on the BOF furnaces, continuous opacity monitoring system (COMS)

- ✓ Opacity Observations
- For the building housing the BOF, opacity observations conducted on at least 5 out of every 7 operating days
- For the ESP on the BOF, in the event of extended outage of the continuous opacity monitoring system, opacity observations conducted for at least one hour

- ✓ Operational Monitoring
  - Operation of a continuous parameter monitoring system
  - For Baghouse #2 and skimmer baghouse, operation of bag leak detection systems
  - Monitoring of pressure drop across each baghouse cell each day
  - Operational parameters for the capture system and ductwork for the BOF

- ✓ Inspections
  - Weekly inspections of the baghouses for dust removal from hoppers
  - Monthly inspections of the baghouses for bag tension
  - Monthly inspections of mechanical and electrical aspects of the ESP
  - Monthly inspections of the elements of the BOF capture system
  - Quarterly inspections to confirm the physical integrity of the baghouses and the absence of air leaks

- ✓ Emission Testing
  - For the ESP on the BOF furnaces, testing of PM emissions at least every 30 months
  - For the slag skimmer baghouse, testing of PM/PM_{10} emissions at least every 30 months
  - For BOF Shop operations with baghouses other than the slag skimmer, testing of PM/PM_{10} emissions at least every five years
  - Concurrent opacity observations during emission testing

- ✓ Recordkeeping
  - Operating time of ESP and performance parameters
  - Operating records for BOF and ESP with respect to fans
  - Records of maintenance activities
  - Records of production of molten steel

- ✓ Reporting Requirements
  - Standard Reports (Deviations Reports, Monitoring Reports and Annual Reports)
  - Semiannual compliance reports (Subpart FFFFF)

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* Monthly opacity exceedance report of the BOF ESP

b. Justification of Periodic Monitoring for the BOF Shop

As necessary to provide Periodic Monitoring, the requirements imposed by the permit would go beyond and supplement the compliance procedures established by applicable rules. In this regard, however, the NESHAP standards that apply to the BOF Shop, 40 CFR 63, Subpart FFFFF, establish rigorous compliance procedures for the capture systems and control devices that control particulate emission from the BOF Shop and ancillary operations. These procedures provide a solid foundation for the required Periodic Monitoring. They require that the source conduct continuous operational monitoring for the capture system for the BOF furnaces and continuous opacity monitoring for the electrostatic precipitator (ESP) that controls emissions of the furnaces. Operational monitoring is required for the baghouses that control emissions from the desulfurization processes. Monitoring of These procedures supplement compliance procedures established in Construction Permits for the BOF Shop, notably Construction Permit 9501000 for an increase in production at the facility. Given the rigor of the established compliance procedures, it is appropriate to generally rely on those compliance procedures for the emission units and emission streams that they address, with additional elements in the Periodic Monitoring as needed to address other units and emission streams.

1. Basic Oxygen Furnaces (BOF Furnaces)

Federal Emission Standards (NESHAP, 40 CFR 63 Subpart FFFFF)

PM standard for control devices (40 CFR 63.7790(a) /Condition 7.5.5(e)(i))– Periodic Monitoring for this NESHAP standard, which limits PM emissions of the control devices for the BOF furnaces to 0.02 gr/scf, is fully addressed by the accompanying compliance procedures in this NESHAP. These procedures require operational monitoring for these control devices. For this facility, as the BOF furnaces emissions are controlled by an ESP, continuous opacity monitoring is required. This monitoring will provide continuous information for proper functioning of the ESP and identify any upsets to enable corrective action to immediately be initiated. The compliance procedures of this NESHAP also require various work practices to support reliable operation of the ESP, including preparation and implementation of a formal operation and maintenance plan for the control system, including the ESP. Certain minimum requirements for this plan are specified in this NESHAP. Lastly, this NESHAP requires periodic PM emission testing at least twice during the term of each Title V permit (i.e., at least about every 30 months).[103] The compliance procedures of this NESHAP amply serve as Periodic Monitoring for this standard to assure that controlled PM emissions of the ESP do not exceed 0.02 gr/scf. If properly maintained and operated,[104] ESPs are

[103] The NESHAP also required initial testing following the effectiveness of the NESHAP. That testing served to verify that existing operations and control systems that were subject to the NESHAP were capable of complying with applicable standards. The initial testing also served to establish the operating limits for the operational parameters of the capture system and control devices for a casthouse that will be monitored on an ongoing basis.

[104] One important aspect of operation of an ESP is that the exhaust flow ducted into the ESP be within its design capacity and not excessive. Accordingly, the amount of exhaust ducted into an ESP to improve capture efficiency cannot be increased beyond the point at which the performance of the ESP is degraded significantly. This aspect of ESP operation is addressed by monitoring for flow rate, for which minimum levels of flow are required for proper capture of emissions and maximum levels of flow are relevant as they impact ESP performance.

reliable control devices when used for PM emissions from BOF furnaces. The most recent emission testing for the casthouse in September 2009 confirms that the ESP complies with this NESHAP standard with a large compliance margin.[105]

Opacity standard for control equipment (40 CFR 63.7790(b)(3)/ Condition 7.5.3(f)) – This opacity standard for the ESP, 10 percent opacity, hourly average, would be addressed by the continuous opacity monitoring system on this ESP required by the NESHAP. This monitoring system would directly address this standard and no further Periodic Monitoring is needed.

Opacity standard for "secondary" or uncaptured emissions (40 CFR 63.7790(a)/ Condition 7.5.3(e)(v) - Periodic Monitoring for this NESHAP standard, which limits the opacity of uncaptured emissions from the BOF furnaces (and the BOF shop generally[106]) to 20 percent, 3-minute average. Periodic Monitoring for this NESHAP standard is provided by the accompanying compliance procedures in the NESHAP. These procedures require operational monitoring for the capture system on the BOF furnaces, which is the system of hooding, ductwork, dampers and fans, that enables compliance with this opacity standard.[107] This monitoring will verify that the capture system is operated properly on an ongoing basis. For this purpose, the NESHAP effectively defines proper operation as operation in a manner that is consistent with its operation during emissions testing in which compliance with both NESHAP standards for the BOF furnaces were demonstrated, i.e., no more than 20 percent opacity for uncaptured emissions and no more than 0.02 gr/scf for captured and controlled emissions. The operational monitoring for the various components of the capture system will provide continuous information for proper functioning of this system as necessary to prevent the opacity of uncaptured emission from exceeding 20 percent. The operational monitoring will also identify any upsets of the capture system to enable corrective action to immediately be initiated. The compliance procedures of the NESHAP also require various work practices to support reliable operation of the capture system, including preparation and implementation of a formal operation and maintenance plan for the system. Certain minimum requirements for this plan are specified in this NESHAP. Finally, as already explained, this NESHAP requires periodic emission testing for the ESP at least about every 30 months, with observations for the opacity of uncaptured emissions conducted concurrently with testing of PM

[105] In the most recent emission testing for the ESP, in October 2009, the results of which are provided below, measured PM emissions were less than one sixth of the applicable standard, for a compliance margin of over 80 percent.

Tested Emission Data for the BOF ESP			
Maximum Opacity at the Roof Monitor (%, 3-minute average)	Tested Emission Rates		
	gr/scf	lb/hr	lb/ton
3.6 ave (by run 6.2, 2.9 & 1.7)	0.0031	10.5	0.063*

* Calculated from a nominal production rate of 200 tons per hour.

[106] The BOF furnaces are the principal source of uncaptured emissions from the BOF shop. Any contribution to secondary emissions and opacity from other emission units in the BOF shop would be addressed with the monitoring conducted for uncaptured emissions of the BOF furnaces.

[107] The capture system for the BOF furnace enables compliance with this opacity standard for uncaptured emissions as it functions to collect the PM emissions released during the operation of the furnaces and directs these emissions to the ESP to be controlled. The effectiveness of the capture system determines the split between emissions released from the BOF furnaces that are captured, i.e., directed to the ESP to be controlled, and are uncaptured, i.e., go directly to the atmosphere, bypassing the baghouses. To comply with a 20 percent opacity standard for uncaptured emissions, this system must be designed, operated and maintained to collect enough PM emissions so that the opacity of the remaining uncaptured emissions from the BOF furnaces does not exceed 20 percent.

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emissions. The compliance procedures of this NESHAP should be sufficient to serve as Periodic Monitoring for this standard and assure that the opacity of the uncaptured emissions from the BOF does not exceed 20 percent.

State Emission Standards

PM limit for control device (35 IAC 212.458(b)(ii)/Condition 7.5.3(b)(ii) and 35 IAC 212.446(a)/Conditions 7.5.3(a)(i)) – 35 35 IAC 212.458(b)(ii) was specifically adopted to address PM emissions of the BOF furnaces at this facility. It limits the PM emissions of the BOF furnaces to 60 lbs/hr or 0.225 lbs/ton, whichever is more stringent. This standard is more stringent than 35 IAC 212.446(a), an older state rule, that refers back to the generic process weight rule, 35 IAC 212.321.[108] However, 35 IAC 212.458(b)(ii) is now also "outdated," as its requirements for the BOF furnaces are less stringent than the applicable NESHAP standard, 40 CFR 63.7790(a).[109] Accordingly, the Periodic Monitoring for the parallel NESHAP standard is sufficient to address these standards.

Opacity standard for uncaptured emissions (35 IAC 212.446(c)/Condition 7.4.3(a)(iii)) - This state standard for the opacity of the uncaptured emissions from the BOF shop, i.e., 20 percent, is identical to the applicable NESHAP standard pursuant to 40 CFR 63.7790(a) . Accordingly, the Monitoring for the parallel NESHAP standard, as already discussed, also serves as Monitoring for this state standard. However, the technical issue is posed whether further Periodic Monitoring should be required to directly address this standard. The operational monitoring required by the NESHAP only indirectly addresses the opacity of uncaptured emissions from the BOF. As discussed for the casthouse at the blast furnaces, it is appropriate to proceed cautiously at this time given the circumstances of this facility, i.e., its location in Granite City where exceedances of the $PM_{2.5}$ NAAQS are monitored.[110, 111 and 112] Accordingly the revised CAAPP permit would require

[108] At an emission rate of 0.225 pound PM per ton of steel from the BOF furnaces, production of 266.7 tons of steel per hour would be equivalent to emissions of 60 pounds per hour. Using a process weight rate of 266.7 tons per hour for the furnaces, disregarding oxygen and the other process materials involved in the operation of the BOF furnaces, 35 IAC 212.321 would allow PM emissions of 61.6 pounds per hour.

[109] Based on the recent emission testing for the BOF conducted in October 2009, the BOF furnaces would have been allowed by the NESHAP to emit 34.1 pounds of PM per hour. This is equivalent to an emission rate of 0.136 pounds of PM per ton of steel based on a nominal production rate of 250 tons of steel per hour.

[110] While ambient monitoring conducted by the Illinois EPA now shows that air quality in the area complies with the NAAQS for $PM_{2.5}$, the area has not yet been redesignated to attainment. In addition, USEPA is currently engaged in rulemaking that would set a more stringent NAAQS for $PM_{2.5}$.

[111] In the past, the source has also been subject to violation notices and enforcement actions for the BOF furnaces related to compliance of with 35 IAC 212.446(c). Deterioration of capture hooding and ductwork given the operating conditions to which they are subjected, together with the inability to perform maintenance and repair while the BOF furnaces are operational, potentially contributed to the alleged violations.

[112] The BOF furnaces are also subject to a voluntary Memorandum of Understanding negotiated between the source and the Illinois EPA. The Agreement sets out a schedule for various enhancements that the source would make to its practices for control of emissions of the BOF shop and for the capture system and control equipment for BOF. A key enhancement would be improved control of emissions from tapping the BOF furnaces, with construction of additional hooding served by a new baghouse. The Agreement would also require the baghouses controlling ancillary operations at the BOF shop to comply with a more stringent limit, 0.005 gr/scf, which more closely approaches actual emission rates of these baghouse. The actions under this Agreement are still ongoing and are not scheduled to be completed until March 31, 2013. This Agreement, which derives from the Illinois EPA's general administrative authority of the Act, also is not yet memorialized in a federally enforceable permit.

regular opacity observations for the BOF for uncaptured emissions, pending upgrades to the control equipment for the BOF that are planned to address emissions from tapping of the furnaces. For this purpose, opacity observations would be required for at least five days out of seven operating days.[113, 114] After the planned upgrade for control system for the BOF is completed, which will increase the compliance margin, opacity observations would be required on a weekly or "daily" schedule. The scheduling of observations would be related to the level of opacity observed during the prior observations and the extent of the compliance margin.[115] This approach to the timing of opacity observations is appropriate after upgrade to the control system as a violation of 35 IAC 212.446(c) would be expected to result from gradual deterioration of the capture system for the BOF. Weekly opacity observations would enable the source to make timely repairs or take other appropriate actions in response to elevated levels of opacity before actual opacity would ever exceed 20 percent. Daily opacity observations would only be expected to become necessary if the source fails to act to take timely actions to maintain a margin of compliance with 35 IAC 212.446(c).

Limit for SO_2 (35 IAC 214.301/Condition 7.5.3(g)) – This standard, which generally limits the emissions of SO_2 from process emission units to no more than 2000 ppm, would allow more SO_2 emissions from the units in the BOF shop than their potential emissions.[116] This is readily explained as desulfurization agents must be added to the iron to removed dissolved sulfur from the iron in the Hot Metal Desulfurization Process. In this process, these agents chemically reactive and bind with the sulfur transferring the sulfur into the slag. Accordingly, Periodic Monitoring is not needed to address this generic state standard.

Permit Limits

Limit on production (Condition 7.5.6(a)) – The Periodic Monitoring for this annual limit would be provided by requiring relevant records be kept (Condition 7.5.10(b)(v)). This is sufficient as the limit applies on a monthly basis and addresses data that is fundamental for operation of the BOF furnaces by the source.

Limits for emissions of PM/PM_{10} and other pollutants from the ESP (captured emissions) (Condition 7.5.6(c)) – The emissions of PM/PM_{10} of the ESP are addressed through the provisions of the NESHAP that apply to the ESP, as already discussed. The NESHAP also establishes rigorous compliance procedures for PM emissions, including requirements for continuous opacity

[113] The "five day out of seven day" schedule would accommodate the practical challenges of scheduling opacity observations for the BOF and the occurrence of weather conditions that prevent performance of scheduled opacity observations. For example, if opacity observations are required to be conducted on this schedule and the source arranges to conduct observations on a daily basis, the source would still be able to conduct all required observations if unexpected events arise that interfere with a planned observation on a day or two in a week.

[114] This schedule for opacity observations for uncaptured emissions in the building housing the BOF furnaces is also required under the Agreement.

[115] Weekly observations would be required if the prior observations show a significant margin of compliance, i.e., opacity is less than 18 percent. "Daily" observations would be required if the prior observation does not indicate a significant margin of compliance, i.e., opacity is 18 percent or more. Daily observations would continue to be required until five consecutive daily observations all indicate a significant margin of compliance, with the greatest opacity that is observed all less than 18 percent.

[116] For example, based on emission testing conducted in October 2009, 35 IAC 214.301 would allow SO2 emissions of over 7,000 pounds per hour, from the BOF furnace.

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monitoring for proper operation of the ESP, work practice requirements and requirements for periodic emission testing every 30 months. As lead is a component of the PM emissions, these provisions of the NESHAP also address emissions of lead. To specifically address emissions of lead, the revised permit would require measurements for lead emissions when NESHAP testing is conducted for PM. The revised permit would also require testing for emissions of other pollutants to accompany every other NESHAP test. To specifically address the permit limits, relevant records would be required for steel throughput, the emission factors used by the Permittee to calculate captured emissions from the ESP, and actual emissions for comparison to applicable limits. This is sufficient Periodic Monitoring for these permit limits, particularly as PM emissions of the ESP must be well controlled with an ESP that is subject to appropriate Periodic Monitoring to assure that this equipment is properly operated.

Limits for uncaptured emissions of PM/PM_{10} and lead from the BOF shop (Condition 7.5.6(d)) - The uncaptured emissions of PM/PM_{10} and lead from the BOF shop are addressed through the provisions of the NESHAP that apply to the capture system for the BOF furnaces. However, unlike the captured emissions, the uncaptured emissions of the BOF furnaces are not amenable to direct measurement of emissions.[115] In this regard, the NESHAP addresses the performance of the capture system with a standard for opacity and with work practices. These requirements of the NESHAP are accompanied by rigorous compliance procedures, including requirements for continuous operational monitoring of the operation of the capture system. As lead is a component of the PM emissions, these provisions of the NESHAP also address emissions of lead. To specifically address emissions of lead, as already discussed, the revised permit would require measurements for lead emissions when NESHAP testing is conducted for PM. While such testing would measure captured PM/PM_{10} and lead emission of the casthouse, rather than uncaptured emissions, such testing would serve as testing of uncaptured emissions. As such, it would trigger the requirement for the source to reevaluate the emission factors used to calculate emissions from the BOF furnaces, both captured and uncaptured. However, unlike captured emissions, which would be measured directly, the determinations for uncaptured emissions would be derived from the measurements of captured emissions using appropriate values for the efficiency of the capure system and the performance of the ESP.[116] To specifically address the permit limits for PM/PM_{10} and lead, relevant records would be required for steel throughput, the emission factors used by the Permittee to calculate uncaptured emissions from the BOF shop and actual emissions for comparison to applicable limits. This is sufficient Periodic Monitoring for these permit limits, particularly as PM emissions of the BOF furnaces must be well controlled with a capture system that is subject to appropriate Periodic Monitoring to assure that this equipment is properly operated.

Limit on overall annual emissions of the BOF shop (Condition 7.5.6(b)) – Periodic Monitoring for

[115] The inability to directly measure emissions is inherent with uncaptured emissions from the roof monitor on the BOF shop as such emissions are, by definition, uncaptured and do not reflect the pollutant content of process materials, so that emissions may be determined through material balance calculations.

[116] When emissions testing is conducted for the BOF furnaces, the determinations for uncaptured emissions of PM/PM_{10} and lead would be derived from the measurements of captured emissions, using appropriate engineering values for the efficiency of the capture system and the performance of the ESP. For example, the requirements of the NESHAP for the capture systems on BOF furnaces are commonly considered to provide a minimum of 95 percent capture of the emissions from the furnaces.

this limits would be provided by requiring records for the summation of emissions from the various emission units and emission streams in the BOF shop.

2. Ancillary Operations

Federal Emission Standards

PM limit for control devices or captured emissions (Condition 7.5.3(c)(i) and (ii)/40 CFR 63.7790(a)) – This standard, which limits PM emissions to 0.01 gr/scf, is readily met by the baghouses installed on these operations.[117] [118] The NESHAP also requires operational monitoring with bag leak detection systems for the baghouses for the slag skimmer for hot metal desulfurization and ladle metallurgy. For the baghouse for reladling/desulfurization for hot metal, which is an existing positive pressure baghouse, operational monitoring is required for pressure drop across each cell of the baghouse.[121] The NESHAP also mandates work practices for these baghouses, including regular inspections of the various component and systems of the baghouses. Finally, the NESHAP requires that emission testing be repeated at renewal of the CAAPP permit, i.e., about every 5 years. These provisions are sufficient as Periodic Monitoring because the baghouse can comply with the applicable standard with a substantial compliance margin when properly maintained. The required operational monitoring would identify any lapses in maintenance practices by the source or other failure or upset in the operation of the baghouses.

State Emission Standards

PM standard for emissions from control equipment (35 IAC 212.448(b)(7)/Condition 7.5.3(b)(ii)) – This state standard, which limits PM emissions from the control equipment on ancillary operations to 0.010 gr/scf is identical to the applicable NESHAP standard pursuant to 40 CFR 63.7790(a). Accordingly, the Periodic Monitoring for the NESHAP standard for control devices, as discussed above, also serves and is sufficient as the Monitoring for this state standard.

Permit Limits

Limits for emissions of PM/PM_{10} and other pollutants (captured emissions) (Condition 7.5.6(e), (f) and (i)) – The emissions of PM/PM_{10} of these ancillary operations are addressed through the

[117] For example, compared to the standard of 0.01 gr/scf, the measured PM emissions of the "Soda Ash Baghouse" for Reladling and Desulfurization during recent testing in October 2009 was 0.004 gr/scf. The measured PM emissions of "Baghouse 2" for the ladle metallurgy operations during testing in October 2009 was 0.0009 gr/scf.

[118] In the most recent emission testing for the BOF slag skimmer baghouse, in September and October 2009, the results of which are provided below, measured PM emissions were less than half the applicable standard, for a compliance margin of over 60 percent:

Tested Emission Rates			Allowable Rate*
gr/scf	lb/hr	lb/ton	lb/hr
0.003	0.67	0.0027**	6.7

* Calculated from the tested PM emission rate, in lb/hr, by applying the ratio of the allowable PM emissions, 0.010 gr/scf, and the tested emission rate, in gr/scf.

** Calculated from a nominal production rate of 250 tons per hour.

[121] Positive pressure baghouses normally exhaust through openings that are not equipped with stacks. As a result, they are not readily amenable to use of bag leak detection systems or performance of opacity monitoring.

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provisions of the NESHAP that apply to these units, as already discussed. The NESHAP also establishes rigorous compliance procedures for PM emissions, including requirements for continuous operational monitoring for proper operation of these baghouses, work practices requirements, and requirements for periodic emission testing. As lead is a component of the PM emissions, these provisions of the NESHAP also address emissions of lead. To specifically address emissions of lead, the revised permit would require measurements for lead emissions when NESHAP testing is conducted for PM. Then, as is generally the approach for permit limits on the amount of emissions from an emission unit, the Periodic Monitoring for these permit limits for the ancillary operations in the shop would build on the Monitoring related to other applicable requirements for these units. To specifically address the permit limits, relevant records would be required for steel throughput, the emission factors used by the Permittee to calculate emissions from these units, and actual emissions for comparison to applicable limits. This is sufficient Periodic Monitoring for these permit limits, particularly as PM emissions of these units must be well controlled with baghouses that are subject to appropriate Periodic Monitoring to assure that this equipment is properly operated.

3. Ladle Drying/Preheating

While these operations in the BOF shop are considered "process emission units" by rule, they are appropriately approached as if they were fuel combustion emission units. This is because the emissions of the units are determined by the quality of the byproduct fuels that are burned. Accordingly, compliance with the applicable state standards is indirectly addressed as Periodic Monitoring is established for other emission units firing these byproduct fuels, including the BOF stoves, slab reheat, furnaces and boilers (Sections 7.4, 7.7 and 7.10 of this permit, respectively).

C.6 Continuous Casting (Section 7.6 of the revised permit)

a. Periodic Monitoring Requirements

The Periodic Monitoring for Continuous Casting would include the following:

- ✓ Opacity Observations
  - For each spray chamber stack, observations of for visible emissions on a weekly basis
- ✓ Inspections
  - Monthly inspections of mechanical shrouds
- ✓ Recordkeeping
  - Amount of steel cast
  - Inspection and maintenance records
  -
- ✓ Reporting
  - Standard Reports (Deviations Reports, Monitoring Reports and Annual Reports)

b. Justification of Periodic Monitoring for Continuous Casting

Emissions from the various operations in the continuous casting process, including the molds, spray chambers, and slab cut-off and ripping, are minimized by the nature of this process and by mechanical shrouds, as specifically addressed by 35 IAC 212.450.

1. Continuous casters and spray chambers

State Emission Standards and Control Requirements

Opacity (35 IAC 212.458(b)(8)/Condition 7.6.3(b)(ii)) – This state standard, which addresses the actual continuous casters themselves rather than the associated cutting and ripping of the steel strand from the caster into slabs, limits opacity to 5 percent. Periodic Monitoring for this standard would be provided by requiring monthly observation for the presence of visible emission, with follow-up observations for opacity if visible emissions are observed. Semi-annual observations for opacity would also specifically be required to confirm compliance with this standard, given the low value at which the standard is set. These observations would be sufficient to address continuous castings given the nature of continuous casting, in which emissions are minimized by features that are integral to the casting process.

Use of mechanical shrouds (35 IAC 212.450/Condition 7.6.5) – Weekly inspections of the mechanical shrouds would be required to verify their integrity. These shrouds are an integral feature of the casting process for worker comfort and safety. Formal weekly observations would identify deterioration in the condition of the shrouds and enable appropriate repairs to be made.

PM Emission Standard (35 IAC 212.458(b)(7) and (c)/Condition 7.8.3(b)) – Periodic Monitoring for this state standard, which limits PM_{10} emissions to 0.01 gr/scf if visible emissions are present, is generally provided by the requirements for regular observations for visible emissions and

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opacity from the casters. To specifically provide Periodic Monitoring for this standard, the permit would require the source to conduct opacity observations within five days of a written request from the Illinois EPA. The permit would also explicitly provide for testing for PM emissions to be conducted upon request by the Illinois EPA. These requirements would serve to address any unforeseen future circumstances for a continuous caster for which additional opacity observations or testing for PM emissions would be appropriate. This is sufficient Periodic Monitoring for this standard given the nature of the continuous casting process.

Opacity (35 IAC 212.316(f)/Condition 7.6.3(c) - This state standard addresses the emissions from cutting and ripping of the steel strands from the casters to form steel slabs. It limits the opacity of the emissions from these operations, which are considered fugitive particulate matter under state rules, to 20 percent. Periodic Monitoring for this standard would also be provided by the required monthly observation of caster operations for the presence of visible emission, with follow-up observations for opacity if visible emissions are observed. Semi-annual observations for opacity would also specifically be required to confirm compliance with this standard. These observations would be sufficient to address the cutting operations that are part of the continuous casting process given their nature. In particular, emissions from cutting the strand are minimized as cutting is performed by automated equipment while the strand is still hot.

Permit Limits

Limits for emissions of PM/PM_{10} (captured emissions) (Condition 7.4.6(a)* and (c)) –As is generally the approach for permit limits for the amount of emissions from an emission unit, the Periodic Monitoring for these permit limits for PM/PM_{10} emissions of these operations at the continuous casters, which are captured and exhausted through stacks, would build on the Monitoring related to other applicable requirements for the operations. If testing for PM emissions of either subject operations is conducted, the Permittee would have to reevaluate the adequacy of the emission factor that it is using for these operations. Testing specifically for the purpose of verifying emission factors is not warranted given the small amounts of emissions. In particular, each continuous caster is projected to have annual emissions of less than 10 tons from the spray chambers. To specifically address the permit limits, relevant records would be required for the steel throughput of the casters, the emission factors used by the Permittee to calculate emissions from casthouse, and actual emissions for comparison to applicable limits. This is sufficient Periodic Monitoring for these permit limits, given the nature of continuous casting.

* Condition 7.6.6(a) addresses emissions from Baghouse #1, which controls both a material handling operation and slag skimming at the continuous casters, which is a process operation.

Limits for uncaptured PM/PM_{10} emissions* (Condition 7.6.6(b), (d) and (e)) - As is generally the approach for permit limits for the amount of emissions from an emission unit, the Periodic Monitoring for these permit limits for various operations on the continuous casters would build on the Monitoring related to other applicable requirements for the casters, which requirements serve to assure proper operation as related to generation of PM emissions. As these operations do not have stacks, this Monitoring would not include testing for PM/PM_{10} emissions upon request. To specifically address the permit limits for PM/PM_{10}, relevant records would be required for steel throughput, the emission factors used by the Permittee to calculate emissions from these operations

at the casters, and actual emissions for comparison to applicable limits. This is sufficient Periodic Monitoring for these permit limits, as minimization of PM emissions is generally integral to continuous casting and appropriate Periodic Monitoring is required to confirm that the casters are properly operated to minimize PM emissions.

NO_x limits for uncaptured emissions (Condition 7.6.6(b)) - Condition 7.6.6(b) also addresses emissions of NO_x from the caster molds on the continuous casters. Unlike PM emissions from the caster molds, NO_x emissions are not subject to "other applicable requirements." The uncaptured NO_x emissions of NO_x from the caster molds are not minimized by specific control practices. Rather the permit limits for NO_x emissions reflect the projected emissions of NO_x from the caster molds as provided in an application for a construction permit submitted over a decade ago. Accordingly, it is both appropriate and necessary for compliance with these limits to be directly determined using emission factors. To specifically address these permit limits, relevant records would be required for the amount of steel that is cast, the NO_x emission factor used by the Permittee to calculate emissions from the caster molds, and actual emissions for comparison to applicable limits. This is sufficient Periodic Monitoring for compliance with these permit limits given the automated nature of continuous casting and absence of specific practices for control of NO_x emissions.

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C.7 **Reheat Furnaces (Section 7.7 of the revised permit)**

a. Periodic Monitoring Requirements

The Periodic Monitoring for the reheat furnaces includes the following:

- ✓ Opacity Observations
  - Opacity observations for each furnace on a semi-annual basis
- ✓ Operational Monitoring
  - For coke oven gas (COG), monitoring of H_2S content, conducted at the desulfurization unit
- ✓ Inspections
  - Inspections of low-NO_x burners on an annual basis
- ✓ Recordkeeping
  - Records for PM/PM_{10}, SO_2, and NO_x emissions
- ✓ Reporting
  - Standard Reports (Deviations Reports, Monitoring Reports and Annual Reports)

b. Justification for Periodic Monitoring on Reheat Furnaces

1. Reheat Furnaces

The Periodic Monitoring for these reheat furnace is appropriately approached as if these furnaces were fuel combustion units fired with gaseous fuel. These furnaces do not emit "process-related" emissions of particulate like the blast furnaces and furnaces in the BOF shop, which handle molten metal. The function of the reheat furnaces is to heat steel slabs to prepare them for hot rolling. The slabs are heated to temperatures at which they can be readily worked in the rolling mill but below the temperature at which the slabs would start to melt since melting of the slabs would interfere with hot rolling. The emissions of particulate from the reheat furnaces are "combustion related" from the fuel fired in the furnaces, with emissions of particulate minimized as the furnaces are fired with gaseous fuels. In this regard, these furnaces also do not have add-on control equipment for NO_x, instead being equipped with low- NO_x burners on certain zones in the furnace for control of emissions, as more commonly used on boilers and process heaters. As such, notwithstanding their regulatory status under Illinois regulations as "process emission units," the Periodic Monitoring for these furnaces is appropriately approached as if they were gas-fired fuel combustion units.

State standards

PM_{10} standard (35 IAC 212.458(b)(10)/Condition 7.7.3(b)) - Periodic Monitoring must be established for this state standard, which limits PM_{10} emissions of the reheat furnaces to 0.09 lb/mmBtu of heat input or to "no visible emissions."[122] To address this standard, the revised permit

[122] Regulatory compliance procedures would only accompany 35 IAC 212.458(b) if particulate control equipment were used to comply with this standard.

would require the source to conduct regular observations for visible emissions from the reheat furnaces, to be followed by observations of opacity if visible emissions are observed. As only gaseous fuels are used in the reheat furnaces, it is sufficient that these observations be conducted on a semi-annual basis.[123] Regular testing for PM_{10} emissions is not warranted based upon the most recent emission testing for the reheat furnaces, the testing for Reheat Furnace 4, which confirms that the PM_{10} emissions are less than 0.09 lb/mmBtu/0.01 gr/scf with an ample of margin of compliance.[124] Nevertheless, the revised CAAPP permit would require the source to conduct testing for PM_{10} emissions upon request by the Illinois EPA, which would provide for emission testing to be conducted to address circumstances that were not contemplated.

PM_{10} standard (35 IAC 212.458(b)(7)/Condition 7.7.3(g)) - Periodic Monitoring must be established for this state standard, which limits PM_{10} emissions of the blast furnace stoves to 0.01 gr/scf or to "no visible emissions."[125] To address this standard, as with 35 IAC 212.458, as discussed above, the revised permit would require the source to conduct semi-annual observations for visible emissions from the furnaces, to be followed by observations of opacity if visible emissions are observed. The revised CAAPP permit would also require sampling and analysis of the undesulfurized and desulfurized COG used at the facility on an annual basis, to be conducted at the coke byproduct recovery plant (See Section 7.3 of the permit). Regular testing of the reheat furnaces for PM_{10} emissions is not warranted based upon the most recent emission testing for the reheat furnaces, the testing for Reheat Furnace 4. This testing also confirmed that its PM_{10} emissions are less than 0.01 gr/scf with a compliance margin of over 35 percent. However, as discussed, the revised CAAPP permit would require the source to conduct testing of the reheat furnaces for PM_{10} emissions upon request by the Illinois EPA, which would provide for such testing to be conducted to address circumstances that were not contemplated.

PM standard (35 IAC 212.321/Condition 7.7.3(e) and 35 IAC 212.322/Condition 7.7.3(d)) - These standards, which limit the PM emissions of the reheat furnaces relative to their process weight rate, allow greater emissions than allowed by 35 IAC 212.458(b)(10). For example, for Reheat Furnace

[123] The revised CAAPP permit would also require sampling and analysis of the COG used at the facility on an annual basis, to be conducted at the coke byproduct recovery plant (See Section 7.3 of the permit). This would provide quantitative data for the computation of COG that would be relevant to the non-sulfate particulate emissions of the reheat furnaces and other emission units that use COG.

[124] In the most recent emission testing for Reheat Furnace 4, in August 2010, the results of which are provided below, measured PM emissions were less a fraction of the applicable standards, for a compliance margin of over 90 percent.

PM Emission Data							
Measured PM Rates				Allowable PM Rates (lb/hr)		Calculated PM Rates	
						lb/mmBtu[d]	
lb/mmBtu[a]	lb/ton steel[b]	gr/scf[c]	lb/hr	212.321[e]	212.458(b)(10)[f]	COG	COG adjusted
0.0056	0.0174	0.0058	2.76	37.9	259	0.0284	0.026

a Calculated from the average heat input rate, 322.7 mmBtu/hour, reported for the period of emission testing.
b Calculated from the average process rate, 158.6 tons/hour, reported for the period of emission testing.
c Calculated from the tested PM emission rate, in lb/mmBtu, by applying the ratio of the allowable PM emissions, 0.09 lb/mmBtu, and the tested emission rate, in lb/mmBtu/scf.
d Calculated from the average heat input from COG reported for the period of testing, i.e., 96.9 mmBtu/hr. The adjusted factor calculates a PM emission rate for COG from the measured emission rate based on a PM emission rate of 0.0095 lb/mmBtu from firing natural gas, i.e., half the standard USEPA emission factor, 0.0019 lb/mmBtu.

[125] Regulatory compliance procedures would only accompany 35 IAC 212.458(b) if particulate control equipment were used to comply with this standard.

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4 when operated at capacity. 35 IAC 212.458(b)(10) would limit PM/PM_{10} emissions to 44.6 pounds per hour, whereas 35 IAC 212.321 would allow PM emissions of 47.0 pounds per hour.[126] This difference would be greater when this furnace operates below its capacity due to the non-linear relationship between the allowed emission rate and the process weight rate in 35 IAC 212.321 and 212.322.[127] The difference would also be greater for Reheat Furnaces 1, 2 and 3, which are subject to 35 IAC 212.322 since they are existing emission units for purposes of 35 IAC Part 212.[128] Because 35 IAC 212.458(b)(10) is a more stringent standard for PM emissions from the reheat furnaces than 35 IAC 212.321 or 212.322, Periodic Monitoring is not needed to address these generic state standards that also apply to the reheat furnaces.

Opacity standard (35 IAC 212.123(a)/Condition 7.7.3(f)) - Periodic Monitoring for this standard, which limits the opacity of the reheat furnaces to 30 percent, would appropriately be provided by requiring semi-annual observations of visible emissions from each furnace, followed by opacity observations if visible emissions are observed. As discussed, these furnaces are appropriately addressed as fuel combustion emission units that fire gaseous fuels. Accordingly, semi-annual observations are sufficient to address this standard.

SO_2 standard (35 IAC 214.301/Condition 7.7.3(e)) - This standard, which limits the concentration of SO_2 in the exhaust from the reheat furnaces to no more than 2000 ppm, allows SO_2 emissions that are much greater than the SO_2 emissions allowed by the applicable limits on the sulfur content of COG. In particular, Condition 7.3.7(d) limits the sulfur content of COG that has not undergone desulfurization to 500 grains of H_2S per 100 scf.[129] A comparison of the SO_2 emissions allowed by this limit and 35 IAC 214.301 can be made using data for exhaust flow rate and fuel usage collected for Reheat Furnace 4 during the emission testing in August 2010. Based on this data for the period of testing, 35 IAC 214.301would have allowed SO_2 emissions of over 1860 pounds per hour from Reheat Furnace 4.[130] The hourly SO_2 emission of this furnace would actually have been restricted to about 260 pounds by the limit on the sulfur content of COG without desulfurization.[131]

[126] The PM/PM_{10} emission allowed by 35 IAC 212.458(b)(10), i.e., 44.6 pounds per hour, may be directly calculated from the rated heat input of Reheat Furnace 4, i.e., 495 mmBtu/hr. (495 mmBtu/hr x 0.09 lb/mmBtu = 44.6 lb/hr)
The PM emission allowed by 35 IAC 212.321, i.e., 47.0 pounds per hour, may be calculated using the rated heat input of Reheat Furnace 4, and the maximum heat rate of the furnace, mmBtu per ton of steel processed. (495 mmBtu/hr x 0.09 lb/mmBtu = 44.6 lb/hr)

[127] 35 IAC 212.321 allows relatively more PM emissions from an emission unit at a lower process rate than at a higher rate. For example, when operating at half capacity, 35 IAC 212.458(b)(10) would limit hourly PM/PM_{10} emissions of Reheat Furnace 4 to 22.3 pounds whereas 35 IAC 212.321 would allow PM emissions of 32.4 pounds.

[128] 35 IAC 212.322, which applies to existing emission units, allows greater PM emissions from an existing emission unit than allowed by 35 IAC 212.321 for a new emission unit. For example, based on a process weight rate of 200 tons per hour, 35 IAC 212.322 would allow hourly PM emissions of 58.6 pounds from an existing emission unit, whereas 35 IAC 212.321 would limit emissions to 43.6 pounds.

[129] Based on a low value for the heat content of COG (500 Btu/scf), the limit for the sulfur content of undesulfurized COG (500 grains/100 scf, as H_2S) restricts SO_2 emissions from combustion of COG to about 2.7 pounds per million Btu. (500 gr/100 scf ÷ 7000 gr/lb ÷ 500 Btu/scf x 64 lb SO_2/34 lb H_2S = 2.69 lbs/mmBtu

[130] The SO_2 emissions allowed by 35 IAC 214.301 are readily calculated from the exhaust flow rate of a unit. For Reheat Furnace 4, the exhaust flow rate of the furnace during the August 2010 testing was about 5,600,000 scf/hr (5,600,000 scf/hr ÷ 385 scf/lb-mole x 2000 ppm/1,000,000 ppm x 64 lb/lb-mole SO_2 = 1860 lbs/hr)

[131] The SO_2 emissions allowed by the limit on the sulfur content of COG are readily calculated from the amount of fuel fired or heat input to this furnace. As already explained, the limit on the sulfur content of undesulfurized COG is equivalent to an SO_2 emissions limit of about 2.7 lbs/mmBtu. During the period of testing, the firing rates of the furnace were 96.9 and 322.7 mmBtu/hr, respectively, for COG only and the combination of COG and natural gas. This

If only undesulfurized COG had been fired in the furnace during this period, the hourly SO_2 emissions of the furnace would still have been restricted to only about 870 pounds. This difference between the SO_2 emissions allowed by 35 IAC 214.301 and other requirements is not unusual as 35 IAC 214.301 is one of Illinois' "catch-all" standards. Because other requirements are more stringent that 35 IAC 214.301, Periodic Monitoring is not needed to address this state standard.

Permit Limits

Limits on fuel usage (Condition 7.7.7(a) - Periodic Monitoring for these monthly and annual limits would be provided by recordkeeping for fuel usage. This is both appropriate and sufficient as reliable data for usage of different fuels is also important to the source. Instrumental monitoring is not necessary or appropriate because records can readily provide reliable data to verify compliance with these limits.

Limits on NO_x emission rates (Condition 7.7.7(c)) – Periodic Monitoring must be established for these permit limits, which address the NO_x emission rates of individual reheat furnaces in lbs/mmBtu. As these limits address emission units for which NO_x emissions are controlled by combustion practices, including low- NO_x burners, rather than add-on control equipment, it is appropriate that the CAAPP permit establish work practices to facilitate proper operation and maintenance of the burners in the reheat furnaces as related to their NO_x emissions.[132] As gas burners, including low- NO_x burners, are stable and reliable devices, it is sufficient that these inspections be performed on a semi-annual basis.[133] The Periodic Monitoring for the reheat furnaces would require that these inspections include measurements of the concentration of NO_x in the flue gases of the furnaces both before and after the inspection. The measurements for NO_x concentration before the inspections would provide analytical verification of the NO_x emission rates of the burners relative to the applicable limits.[134] To support this approach to Periodic Monitoring, the revised CAAPP permit would also require additional testing of the NO_x emissions for each reheat furnace to confirm that they comply with the NO_x limits and to establish the concentration of NO_x in the exhaust that accompanies compliance. While recent testing of the NO_x emissions of these Reheat Furnaces 1, 2 and 3 has shown compliance with the applicable limits

yields an hourly allowable SO_2 emission rate of 260 pounds for Reheat Furnace 4 during the period of testing. (96.9 mmBtu/hr x 2.7 lbs SO_2/mmBtu = 262 lbs/hr). Even if all fuel had been COG, the hourly allowable SO_2 emission rate would only have been about 870 pounds. (322.7 mmBtu/hr x 2.7 lbs SO_2/mmBtu = 871 lbs/hr). If desulfurized COG was fired during the period of testing, the allowable SO_2 emissions would likely have been a fraction of the emissions allowed for undesulfurized COG. For example, based on the monthly limit for desulfurized COG, 25 gr/100 scf, the actual hourly allowable SO_2 emissions would have been only 13 pounds.

[132] This work practice would also address Condition 7.7.6(a) of the permit, which requires the the low-NO_x burners installed on certain zones of the reheat furnaces be operated and maintained in good air pollution control practices.

[133] For example, in its NESHAP for boilers and process heaters, 40 CFR 63 Subpart DDDDD as signed by USEPA Administrator Lisa Jackson on February 21, 2011, combustion tune-ups to address CO emissions are required to be conducted on an annual basis for larger units firing natural gas and a biennial basis for smaller units.

[134] The revised CAAPP permit would also allow annual performance testing or continuous monitoring for NOx emissions to serve as an alternative to periodic measurements of NOx emissions in conjunction semi-annual inspections of the burners in the reheat furnaces. This would address the regulatory compliance procedures under 35 IAC Part 217, Subpart D, that would potentially apply to the reheat furnaces in the future if and when they become applicable. These compliance procedures, which are more rigorous than the procedures that would be required by the CAAPP permit, would also be appropriate at that time as the furnaces would also become subject to more stringent NO_x emission standards pursuant to 35 IAC Part 217 Subpart I.

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with a substantial margin of compliance,[135] this testing was conducted while they were only being fired with natural gas.[136] Further testing of furnaces while firing a maximum level of COG is also needed to identify the margin of compliance, hopefully, with the NO_x limits under the normal operating configuration of the furnaces, to determine whether testing for NO_x emissions should be repeated on a regular schedule. Accordingly, the revised CAAPP permit would also provide for the source to conduct further testing for NO_x emissions upon request by the Illinois EPA, which would accommodate regular testing for emissions of NO_x if needed because of the compliance margin shown during the additional testing for the normal operating configuration. This would also provide for further testing for emissions of NO_x to address circumstances that were not contemplated.

Limits on NO_x emissions (Condition 7.7.7(b)) – Periodic Monitoring must be established for these permit limits, which address the combined NO_x emissions of the furnaces on a monthly and annual basis. As these limits address monthly and annual emissions, like other permit limits for monthly and annual emissions of emission units, appropriate records would be required for the slab reheat furnaces. NO_x emission factors, operating data (i.e., fuel usage) and calculated NO_x emissions to serve as the Monitoring to address these limits.

[135] In the most recent emission testing for the Reheat Furnaces 1, 2 and 3, in January 2010, the results of which are provided below, measured NOx emissions when firing only natural gas are well within applicable limits, with a compliance margin of over 50 percent.

NOx Emission Data for Reheat Furnaces			
Furnace	Measured Rates		Allowable Rate
	lb/hr	lb/mmBtu	lb/mm Btu
1	10.8	0.044	0.150
2	15.6	0.063	0.150
3	16.8	0.068	0.264

[136] This emission testing was conducted during the recent period when the coke batteries were not operating, so that COG was not available to be fired in the reheat furnaces.

C.8 **Finishing Operations (Section 7.8 of the revised permit)**

a. Periodic Monitoring Requirements

The Periodic Monitoring for the Finishing Operations would include:

- ✓ Operational Monitoring
  - For the scrubbers for pickling, continuous monitoring of the makeup water flow rate
- ✓ Inspections and Evaluations
  - For HCl storage tanks, semi-annual inspections
  - For furnaces and process heaters, annual combustion evaluations
- ✓ Emissions Testing:
  - For pickling operations, testing of HCl emissions every two years
  - For galvanizing units, testing upon request
- ✓ Recordkeeping
  - Records related to the operation and emissions of Line #8
  - For the coating operations, VOM content and usage of organic coatings
- ✓ Reporting
  - Standard Reports (Deviations Reports, Monitoring Reports and Annual Reports)
  - Quarterly reports

b. Justification for Periodic Monitoring for Finishing Operations

The Finishing Operations include pickling, natural gas-fired furnaces and heaters used in the galvanizing process, and coating operations. Periodic Monitoring for these emission units would include emissions testing and combustion evaluations of the furnaces, and emission testing and continuous monitoring of scrubbers for the control of HCl emissions.

1. Justification for Periodic Monitoring for the Pickling Operation

Pickling prepares steel for finishing by cleaning with an acid solution. When hydrochloric acid is used for pickling, the process emits gaseous hydrogen chloride (HCl). These emissions are readily controlled by water scrubbing. The Periodic Monitoring for the pickling operation would focus upon proper operation of the scrubbers,[137] as addressed by continuous operational monitoring of the scrubber used for control of HCl emissions and periodic testing of the scrubbers.

Federal Emission Standards (NESHAP for Steel Pickling, 40 CFR Part 63 Subpart CCC

[137] Although the pickling operation has two scrubbers, only scrubber is operated at a time except for transitions between scrubbers. As a result, the operation of the pickling line is not interrupted by the need to take a scrubber out of service for maintenance. At any time, one scrubber is operational and the other is either out of service for maintenance or on reserve.

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HCl standard for pickling (40 CFR 63.1157(a)/Condition 7.8.5) – This NESHAP requires HCl emissions from pickling lines either to not exceed 18 ppmv or to be controlled by at least 97 percent. The compliance procedures of the NESHAP require appropriate continuous operational monitoring for scrubbers on pickling operations, with monitoring for makeup water flow rate and, if scrubbant is recirculated, recirculation rate, with recording of this data at least once per shift. The NESHAP also requires a source to initiate prescribed corrective actions if minimum flow rates established during emissions testing are not met. Periodic emission testing is also required, with the permitting authority able to approve a testing schedule with up to 30 months between tests.[138] For this purpose, based past testing of the scrubbers, which demonstrated compliance margins greater than 95 percent,[139] the Illinois EPA had previously approved testing every two years. The compliance procedures of the NESHAP for these units reasonably addresses the applicable NESHAP standard, with appropriate operational monitoring for the scrubbers that would ensure that corrective actions are taken in the event of an upset of the scrubber. Based on the testing conducted for the scrubbers on the pickling line, the Periodic Monitoring appropriately focuses on the operational monitoring for the scrubbers rather than on testing. Accordingly, the Illinois EPA will not alter the schedule on emission testing is required. However, the source would be required to record monitored operational data for the scrubbers at least twice per shift. This is reasonable as this data is must be measured and more frequent recording of data would improve the Monitoring for the scrubbers.

Operational requirements for hydrochloric acid storage tanks (40 CFR 63.1159(b)/Condition 7.8.6(a)) - Semiannual inspections of the HCl storage tanks associated with the pickling operation would be required to verify that the closed vent systems and enclosed loading and unloading line are present and operating properly. This Periodic Monitoring is sufficient as the NESHAP sets an equipment standard for these tanks that would only not be met due to an accident, which would be readily apparent, or gradual deterioration, which would be identifiable during a semi-annual inspection.

2. Justification for Periodic Monitoring for Galvanizing Lines

The Galvanizing Lines involve three categories of emission units, natural gas-fired fuel combustion units, process emission units without control equipment and new process emission units with control equipment, on new Galvanizing Line 8. As a general matter, none of these units have been identified as being of particular concern for emissions. Since the melting point of zinc is less than 1000 °F,[140] galvanizing is a comparatively low-temperature process. It is performed as a

[138] 40 CFR 63.1157 provides that "Performance tests shall be conducted either annually or according to an alternative schedule that is approved by the applicable permitting authority, but no less frequently than every 2 1/2 years or twice per title V permit term. If any performance test shows that the HCl emission limitation is being exceeded, then the owner or operator is in violation of the emission limit."

[139] The results of the most recent emission testing for the pickling scrubbers in July 2010 follows:

Test Results for the Scrubbers for Pickling				
Scrubber	Measured		Allowed	Compliance Margin
	lb/hr	ppmv	(ppmv)	(%)
South (No. 1)	0.022	0.20	18	98.9
North (No. 2)	0.058	0.52	18	97.1

[140] The melting point of zinc is approximately 790 °F. Its boiling point is about 1660 °F.

continuous process by passing heated strips of steel that have been processed on the pickling line through a bath of molten zinc, using rollers to submerge the strip in the bath.

State Emission Standards

PM Emission Standard (35 IAC 212.458(b)(7) and (c)/Condition 7.8.3(b)) – Given the nature of the galvanizing process, operational monitoring is not needed to verify compliance with this state standard, which limits PM_{10} emissions to 0.01 gr/scf if visible emissions are present. Periodic Monitoring for this standard is appropriately provided by requiring the source to conduct opacity observations upon written request from the Illinois EPA. The permit would also explicitly require the source to conduct testing for PM emissions upon request by the Illinois EPA. These requirements would serve to address any unforeseen future circumstances for the process units on the lines for which such observations or emission testing would be appropriate. This is sufficient Periodic Monitoring for this standard given the nature of the galvanizing process.

PM Emission Standards (35 IAC 212.322/Condition 7.8.3(c) and 35 IAC 212.321/Condition 7.8.3(d)) – As already discussed, these state "process weight rate" rules do not actually constrain the PM emissions of many process emission units as a practical matter. The emissions of the units on the galvanizing line are also not constrained by these rules. The smallest allowable emission rate for PM set by these rules for an emission unit or group of similar units ducted to a common control system is 0.55 pounds per hour.

Opacity Standard (35 IAC 212.123(a)/Condition 7.8.3(g)) – Given the nature of the galvanizing process, routine opacity observations are not needed to verify compliance with this generic state standard, which limits the opacity of emissions to 30 percent. Periodic Monitoring for this standard is appropriately provided by requiring the source to conduct opacity observations upon written request from the Illinois EPA. This would serve to address any future circumstances for the units for which such observations would be appropriate.

3. Galvanizing Line 8 (Construction Permit 95010005)

Limits on the design firing rates of units production (Conditions 7.8.7(a)(i), (ii) and (iii)) - Records of the design heat firing rates of units must be kept to address these design requirements for Line 8.

Limits on usage of fuel and production (Conditions 7.8.7(a)(iv) and (v)) - Records of the actual fuel usage and production must be kept to address these operational limits.

Limits on emissions of the furnace,* heaters and oven (Condition 7.8.7(b)) - The Periodic Monitoring for these permit limits for emissions from units in Line 8 that are associated with combustion of natural gas would rely on standard USEPA emission factors for combustion of natural gas, as published by USEPA in its Compilation of Air Pollutant Emission Factors, AP-42. To specifically address the permit limits, relevant records would be required for the use of natural gas and actual emissions for comparison to applicable limits. This is sufficient Periodic Monitoring for compliance with these permit limits, particularly as they involve emissions from combustion of natural gas.

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* Excluding emissions of NO_x.

Limits on NO_x emissions of the furnace on Line 8 (Condition 7.8.7(b)(i)(A)) - The Periodic Monitoring for the permit limits for NO_x emissions from the furnace on Line 8 would generally be consistent with the standard approach for Monitoring for permit limits for the amounts of emissions. That is, to specifically address the permit limits for annual emissions, relevant records would be required for throughput, the emission factors used by the source to calculate emissions from the unit, and actual emissions for comparison to applicable limits. Records would also be required for maximum and typical hourly emission rates, with supporting documentation. However, to support this approach for this furnace, Periodic Monitoring would also be required for the catalytic converter system, which is present on the furnace on the line and controls NO_x emissions. This Monitoring would verify proper operation of this system. The instrumentation installed on this system, for operational temperature and NO_x concentration in the exhaust, would become required Monitoring. Recordkeeping would also be required for the operation of the system, including detailed records for upsets. Recordkeeping would also be required for the inspection and maintenance of this system. Finally, the permit would also explicitly provide for testing for NO_x emissions to be conducted upon request by the Illinois EPA. This is sufficient Periodic Monitoring for these permit limits given the nature of the furnace and associated control system and the NO_x emission rate measured during the initial emission testing of this furnace,[141] which shows that the unit readily complies with these permit limits.

Limits on PM emissions of the melting kettle and cleaner section (Condition 7.8.7(b)(v) and (vi)) - The Periodic Monitoring for these permit limits for process emissions from units in Line 8 would generally be consistent with the standard approach for Monitoring for permit limits for the amounts of emissions. That is, to specifically address the permit limits, relevant records would be required for throughput, the emission factors used by the source to calculate captured emissions from the units, and actual emissions for comparison to applicable limits. However, to support this approach, operational monitoring would also be required for the scrubber, which is present on the cleaner section of the line to control any alkaline mist from this unit. This Monitoring would verify proper operation of the scrubber. The permit would also explicitly provide for testing for PM emissions to be conducted upon request by the Illinois EPA. This is sufficient Periodic Monitoring for these permit limits given the nature of the galvanizing process.

4. Justification for Periodic Monitoring for Coating Operations

State Emission Standards

Standard for VOM (35 IAC 219.204/Condition 7.8.3(e)) - The coating operations are subject to a state standard limiting the VOM content of the organic coatings that are used, 35 IAC 219.204. The coating operations apply protective oil coatings, which readily comply with this limit, to the

[141] The results of the initial testing of the furnace in August 1996 follows.

Test Results for Furnace on Galvanizing Line 8			
Measured		Allowed	Compliance Margin
ppmv	lb/hr	(lb/hr)	(%)
3.7	0.7	2.07	66

finished steel strip. The Periodic Monitoring would consist of recordkeeping for the VOM content of the coatings and the usage of coatings. When coating operations do not have add-on control equipment and coatings are not thinned with organic solvent at a facility before application, recordkeeping for the VOM content of coating materials is routinely relied upon to verify compliance with the applicable standard. This is because compliance with applicable standards may be ensured by only purchasing compliant materials.

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C.9 Wastewater Treatment Systems (Section 7.9 of the revised permit)

a. Periodic Monitoring Requirements for Wastewater Treatment Systems

The wastewater treatment systems are not currently subject to substantive requirements for control of emissions. They would potentially become subject to such requirements only if the applicability criteria of the Benzene Wastewater NESHAP, 40 CFR 61 Subpart FF, were met. The Periodic Monitoring for the wastewater treatment systems would include appropriate requirements in the revised CAAPP permit to address these applicability criteria.

The Periodic Monitoring for the wastewater treatment systems was not specifically addressed in the Order. However, in response to the Order, the applicable requirements in the current permit for the wastewater treatment systems were reviewed by the Illinois EPA as related to the sufficiency of Periodic Monitoring. Certain applicable requirements would be relocated in the revised permit to facilitate implementation of appropriate Monitoring. Additional Monitoring requirements would also be included in the revised permit to address relevant applicability criteria as necessary to assure compliance with the related substantive requirements. In particular, the various applicability criteria for the control requirements in the Benzene Wastewater NESHAP, 40 CFR 61 Subpart FF, are addressed in the conditions of the CAAPP permit for the coke by-product recovery plant, in Section 7.3 of the permit. This is appropriate as the coke by-product recovery plant would be the principal source of benzene wastewater at the facility. It is also likely that if the control requirements of this NESHAP were triggered, appropriate control measures would be directly implemented at the by-product recovery plant rather than downstream at the wastewater treatment systems. As such, applicable requirements related to applicability of this NESHAP are properly addressed in Section 7.3 of the CAAPP permit. They would not be duplicated in the provisions for the wastewater treatment systems in Section 7.9 of the revised CAAPP permit. This also avoids the need for any Periodic Monitoring in Section 7.9 of the revised permit related to the applicability of this NESHAP, as it would now be fully addressed in Section 7.3 of the revised permit.

C.10 Boilers and Associated Ancillary Emission Units (Section 7.10 of the revised permit)

a. Periodic Monitoring Requirements

The Periodic Monitoring for the boilers at the facility and the associated cooling tower would include the following:

- ✓ For all boilers, annual opacity observations
- ✓ For all boilers, annual combustion tune-ups, including measurements of CO emissions
- ✓ Emission testing
  - For Power Boiler #1, testing every five years
  - For Boilers #11 and #12, testing upon request
- ✓ For the cooling tower, sampling and analysis of the circulated water for its solids content
- ✓ Recordkeeping
  - Fuel usage for each boiler
  - Maintenance and repair logs
  - For Power Boiler #1, records related to emissions
- ✓ Reporting
  - Standard Reports (Deviations Reports, Monitoring Reports and Annual Reports)
  - Quarterly reports

b. Justification for Periodic Monitoring for the Boilers and Ancillary Operations

The boilers fire primarily BFG, supplemented with natural gas and COG (only Boilers #11 and #12). The Periodic Monitoring for the boilers is a combination of opacity observations, sampling and analysis of BFG, emissions testing, and appropriate recordkeeping. This Periodic Monitoring would be appropriate given the nature of these units and applicable substantive requirements. In particular, the boilers at the facility only fire gaseous fuels, i.e., blast furnace gas (BFG), coke oven gas (COG) and natural gas. Natural gas is a commercial fuel whose use readily complies with applicable emission standards. BFG and COG are by-product fuels resulting from coke production and operation of the blast furnaces at the facility. The raw gas is processed at the facility to remove entrained particulate prior to use as fuel and the facility is not set up to use "raw" COG or BFG as fuel in boilers or other emission units without it having undergone such processing. COG is processed at the coke by-product recovery plant where removal of entrained particulate is inherent in effective recovery of by-products from the raw gas. BFG is processed in equipment specifically designed to remove entrained particulate as is needed for effective and reliable operation of the blast furnace gas stoves. While COG is now normally processed in the COG Desulfurization System to remove sulfur, the emission standards and limits for Boilers #11 and #12, which fire COG, do not depend upon use of desulfurized COG. Accordingly, while operational monitoring is required for the sulfur content of COG, it has a secondary role in the Periodic Monitoring for the

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boilers.[142]

The revised CAAPP permit would not include Periodic Monitoring for Boilers 1 through 10. These boilers have now been permanently removed from service and would not be addressed by the revised permit. At the same time, the revised CAAPP permit must now address Periodic Monitoring for Power Boiler #1 and associated cooling tower, as mentioned above. This is because USEPA has directed that new emission units constructed at the facility must be included in the revised CAAPP permit (See Order, Section I). Similarly, the revised permit must address the relevant compliance procedures of the NESHAP, 40 CFR 63, Subpart DDDDD, as these new requirements must now also be part of the Periodic Monitoring for the boilers

i. All Boilers (Power Boiler #1 and Older Boilers #11 and #12)

Federal Emission Standards

Boiler NESHAP (40 CFR 63 Subpart DDDD/Condition 7.10.3(b)) – The revised permit would address applicable emission limits and control requirements from this NESHAP, which was adopted by USEPA on February 21, 2011. These boilers and the source would also be subject to the compliance procedures of this NESHAP that would be applicable based on the compliance strategy that is ultimately selected by the source to comply with this NESHAP. The relevant procedures of this NESHAP would appropriately serve as the Periodic Monitoring for the applicable requirements of this NESHAP. This is because the specific requirements of this NESHAP that would apply to these boilers will not be definitively established until after the compliance date of this NESHAP, which is several years in the future.[143]

[142] The continuous monitoring for the sulfur content of COG is important as the source has relied upon a reduction in the annual SO_2 emissions of the facility. The requirement is addressed in Condition 5.6.2(b) and other conditions in Section 5 of the permit.

[143] Based on the mix of gaseous fuels that is currently allowed to be fired in Power Boilers #1, this boiler would not be subject to the substantive requirements of 40 CFR 63 Subpart DDDDD. This is because it would qualify as a blast furnace gas fuel-fired boiler, as defined at 40 CFR 63.7575.

Based on the mix of gaseous fuels that is currently fired in Boilers #11 and #12, these boilers would be subject to the requirements of 40 CFR 63 Subpart DDDDD for units with a rated heat input capacity less than 250 mmBtu/hr firing "Gas 2" fuels, i.e., gaseous fuels other than natural gas, refinery fuel gas or other equivalent gaseous fuels. However, since these boilers are existing units for purposes of this NESHAP, these boilers and other subject emission units at this facility are subject to a future compliance date. The source has over three years to evaluate the emissions of Boilers #11 and #12 as compared to the applicable standards of this NESHAP and make any changes at these boilers or the facility that are needed to comply with this NESHAP. One approach to compliance for the source would be to shift use of COG from Boilers #11 and #12 to other units at the facility that are not subject to this NESHAP. This shift in the use of COG could be permanent or temporary, pending installation of additional systems to control emissions from Boilers #11 and #12. This could result in these boilers, at least temporarily, also being considered blast furnace gas fired boilers like Power Boiler #1, so as to not be subject to any emission standards pursuant to this NESHAP. Accordingly, when addressing this NESHAP, the revised CAAPP permit would accommodate possible changes in the mix of fuels fired in Boilers # 11 and #12, as would be an acceptable compliance strategy under this NESHAP. The source would have to notify the Illinois EPA of the compliance strategy it selects with its Notification of Compliance Status report, which 40 CFR 63.7545(e) does not require to be submitted until after the applicable compliance date. As the revised CAAPP permit would allow the source time to develop its compliance strategy for this NESHAP, it also means that the permit might accommodate changes to this NESHAP that might be made by USEPA before its compliance date. Such changes might occur because the USEPA also announced, as part of its adoption of this NESHAP, that it would be initiating a proceeding to formally reconsider the emission standards that were adopted.

State Emissions Standards

Opacity standards (35 IAC 212.122(a) /Condition 7.10.3(g) and 35 IAC 212.123(a)/Condition 7.10.3(h)) – These state standards limit the opacity of emissions from Power Boiler # 1 and Boilers #11 and #12, respectively, to 20 and 30 percent.[144] As with their PM emissions, the opacity of the emissions from the boilers is addressed as the boilers are fired on gaseous fuels so that their fuel does not contain ash, as present with solid fuel or heavy fuel oil. Monthly opacity observations would be required for the boilers to directly confirm compliance with the applicable opacity standards. Additional opacity observations must be conducted upon request by the Illinois EPA. These observations will also provide information about the normal opacity levels from the boilers, which will enable upsets in the operation of the boilers to be readily identified, with event-specific observations then conducted for opacity, as well implementation of corrective action for the upsets. The monthly and event-specific opacity observations will also serve to address compliance with the applicable PM standards.

CO standard (35 IAC 216.121/Condition 7.10.3(i)) – This state standard limits the CO emissions of boilers to 200 ppm. This standard was adopted in the early 1970s and was considered to be an emission rate that was achievable with the normal practices at that time for operation of boilers and other fuel combustion emission units. The standard did not contemplate that any additional "effort" would be required to comply with this standard. Accordingly, the permit would establish a formal work practice to address this standard, requiring annual combustion tune ups of the boilers, to maintain efficient combustion. (This is similar to the approach that USEPA has taken for natural gas fired boilers in its recent adoption of 40 CFR 63 Subpart DDDDD.) As part of these tune-ups, measurements of the CO in the exhaust of a boiler, both before and after the tune up would be required. In addition, as emission testing is conducted for a boiler to address emissions of other pollutants, measurements of CO may also be required. This is sufficient as Periodic Monitoring for this state standard as the standard should be readily achievable with the normal operational inherent in proper operation of an industrial boiler.

NO_x standards (35 IAC 217 Subparts D and E/Condition 7.10.14) - The revised permit would include applicable emission limits and control requirements from these new state rules, which were recently adopted to apply Reasonably Available Control Technology (RACT) for emissions of NO_x.[145] These boilers and the source would also be subject to the associated compliance

[144] Power Boiler #1 is the only unit at this facility is subject to 35 IAC 212.122(a,) as it is the only fuel combustion emission unit, as defined by at 35 IAC 211.3470, that is new as defined by 35 IAC 201.102, and has a rated heat input capacity of more than 250 mmBtu/hr). Under state regulation, all other emission units at the facility are subject to the "general" opacity standard of 35 IAC 212.123(a), 30 percent pursuant. For a number of units at this facility, more stringent standards apply either pursuant to federal rule, state rule or both.

[145] All three boilers will be subject to the requirements of 35 IAC 217 Subparts D and E as they are state rules, even though these rules are not yet part of Illinois' State Implementation Plan (SIP). (While these rules were submitted to USEPA as a proposed revision to Illinois' SIP, USEPA will not be acting on that submittal at this time.)

For Boilers #11 and #12, the requirements of these rules are also applicable to Boilers #11 and #12 as the source applied for and has been issued a construction permit to install flue gas recirculation systems on these boilers (Construction Permit 10050022). These flue gas recirculation systems would be installed on these on these boilers to reduce their NOx emissions to comply with the more stringent limits set by these new state rules. As these systems would be installed to facilitate compliance with these state rules, the requirement of these rules are addressed in the conditions of this construction permit.

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procedures of these rules that would be applicable based on the compliance strategy that is ultimately selected by the source to comply with these standards. The relevant procedures of these rules would appropriately serve as the Periodic Monitoring for the applicable requirements of these rules. This is because the specific requirements of these rules that will apply to these boilers will not be definitively established until the compliance date of these rules, which will be several years in the future.

2. Boilers #11 and #12

State Emission Standards

PM/PM_{10} standard (35 IAC 212.458(b)(9)/Condition 7.10.3(b)) – This standard, which limits the PM/PM_{10} emissions from burning of COG to no more than 0.075 lbs/mmBtu, was established at a level to accommodate the PM_{10} emissions from COG that has undergone processing in a coke by-product recovery plant. Accordingly, use of COG that has been processed through the by-products plant at this facility, accompanied by monthly and event specific opacity observations would also serve to address this standard. Sampling and analysis of COG for its PM content would also be required on a semi-annual basis, similar to the sampling and analysis required for BFG. Finally, testing of PM/PM_{10} emissions would also be required at least every five years to confirm that opacity can be used to address the applicable standard, as well as to document the PM/PM_{10}* emission rates from the boilers.

* As a general matter, 35 IAC 212.108(a) provides that emissions of PM_{10} shall be determined as filterable particulate only. For purposes of testing emissions, emissions of PM_{10} may be measured by an applicable USEPA test methods for measurement of PM_{10} emissions or by the applicable USEPA test method for measurement of PM emissions, provided all particulate measured by such method shall be considered to be PM_{10}.

SO_2 (35 IAC 214.421/Condition 7.10.3(e)) – This standard does not actually restrict the SO_2 emissions of Boilers #11 and #12.[146] This is because these boilers only burn gaseous fuels, i.e., natural gas and by-product gaseous fuels. Under this standard, the SO_2 emission rate, in lbs/mmBtu, used for calculating the hourly emission rate from firing of by-product gaseous fuels is the maximum historical emission rate of such fuels in the period from March 29, 1982 through March 28, 1983. Accordingly, Periodic Monitoring is not needed to accompany this standard.

3. Power Boiler #1

Federal Emission Standards

Exemption criteria of the NSPS for SO_2 (Condition 7.10.5(b)/40 CFR 60.42b(k)(2)) – Power Boiler #1 is not subject to the SO_2 standards of the NSPS, 40 CFR 60 Subpart Db, because of the sulfur content of the fuel fired in this boiler. In particular, the NSPS does not set standards for units that fire a mixture of gaseous or oil fuel with a potential SO_2 emissions rate that is no more than 0.32 lb/mmBtu (equivalent to a fuel sulfur of 0.16 lb/mmBtu. The potential SO_2 emissions of the fuel fired in this boiler are well below this rate. In particular, the sulfur content of BFG fired in

[146] This standard only applies to existing boilers at the facility and not to Power Boiler #1 because it is a new boiler

this boiler during emissions testing in April 2010, as reported by the source, was only 0.016 lb/mmBtu. Periodic Monitoring for this criterion would be provided by requiring sampling and analysis of BFG for its sulfur content on a quarterly basis (Condition 7.10.7-1(c)(i)). This frequency for sampling and analysis is sufficient as the pre-treatment of BFG does not include processing for removal of sulfur nor would such processing be expected to be effective given the low concentration of sulfur in the BFG.

Exemption criteria of the NSPS for NO_x (Condition 7.10.5(c)(iv)/40 CFR 60.42b(k)(2)) – Power Boiler #1 is not subject to the NO_x standards of the NSPS, 40 CFR 60 Subpart Db because its annual capacity factor for use of natural gas does not exceed 10 percent. Periodic Monitoring for this criteria would be provided for by recordkeeping for the natural gas usage of this boiler (Condition 7.10.9(a)(iii)).

Construction Permit Requirements (Permit 06070023)

Design Requirements (Conditions 7.10.6(a)(i) and (ii)) - These conditions set design requirements for the Power Boiler #1 for its total heat input capacity and its heat input capacity from natural gas. As design requirements are addressed, relevant records for the design of the boiler would be required to be kept (Condition 7.10.9(a)(i)).

Limits on Fuel Usage (Conditions 7.10.6(a)(iii)) - These condition sets limits on the annual fuel usage of Power Boiler #1. Periodic Monitoring would be provided by recordkeeping for fuel usage (Condition 7.10.9(a)(iii)).

Limit for PM Emission Rate (Condition 7.10.6(a)(iv) and (a)(v)(A) and (B)) – This condition limits PM emissions from Power Boiler #1 to 0.03 lb/mmBtu.* Use of gaseous fuels, accompanied by monthly and event specific opacity observations will also serve to address this limit. Testing of emissions of PM (and other pollutants) is also required at least every five years to confirm that opacity can be used to address this limit, as well as to document the PM emission rate from Power Boiler #1.[147]

* This limit applies to filterable emissions of particulate matter, as would be measured by USEPA Method 5

Limits on Emission of SO_2 (Condition 7.10.6(a)(v)(A) and (B)) - The Periodic Monitoring for the SO_2 content of BFG, in conjunction with the records that would be required for usage of fuel, will address these limits on the SO_2 emissions of Power Boiler #1. Records would also be required for monthly and annual SO_2 emissions to allow direct comparison to the applicable limit (Condition 7.10.9(a) (iv)(A)).

Limits on Emission of Pollutants Other than PM and SO_2 (Condition 7.10.6(a)(v)(A) and (B)) – As is generally the approach for permit limits for the amount of emissions from an emission unit, the Periodic Monitoring for these permit limits for this boiler would build on the Monitoring related to other applicable requirements for the boiler and its fuel supply, which requirements serve to assure

[147] In the initial emission testing for Power Boiler 1, in April 2010, the measured particulate emission rate was 0.0048 lb/mmBtu, with a compliance margin of over 80 percent

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proper operation as related to emissions. When testing for the boiler is conducted in the future, the Permittee would have to reevaluate the adequacy of the emission factors that it is using for this boiler. Testing specifically for the purpose of verifying emission factors is not warranted given the small amounts of emissions compared to applicable limits as indicated by the initial emissions testing conducted for this boiler.[148] Likewise, continuous emissions monitoring is not warranted as the initial testing shows that both NO_x and CO emissions are less than 10 percent of the applicable permit limits.[149] However, testing is otherwise required every five years to verify compliance with PM limits, as already discussed. Accordingly, testing for other pollutants would reasonably be conducted in conjunction with such testing. To specifically address the permit limits, relevant records would be required for fuel usage, the emission factors used by the Permittee to calculate captured emissions from the boiler, and actual emissions for comparison to applicable limits. This is sufficient Periodic Monitoring for these permit limits, given the fuels that it fires and the results of the initial emission testing of the boiler.

4. Power Boiler #1 and BFG Flare #2

Construction Permit Requirements (Permit 06070023)

Limits on Emission of SO_2 (Condition 7.10.6(a)(v)(C) and (D)) - The Periodic Monitoring for the SO_2 content of BFG, in conjunction with the records that would be required for usage of fuel by Power Boiler #1 and BFG Flare #2, will address these limits for combined SO_2 emissions of these units. Records would also be required for monthly and annual SO_2 emissions of these units to allow for direct comparison to the applicable SO_2 limits (Condition 7.10.9(a) (iv)(B)). Records would also be required for monthly and annual SO_2 emissions of these units to allow for direct comparison to the applicable SO_2 limit (Condition 7.10.9(a) (iv)(B)).

5. Cooling Tower

Federal Emission Standards and Requirements

Prohibition on use of chromium-based water treatment chemicals in the cooling tower (Condition 7.10.5(c)/40 CFR 63.402) - The NESHAP for Industrial Process Cooling Towers, 40 CFR 63 Subpart Q, prohibits use of chromium-based water treatment chemicals in the cooling tower.

[148] The results of the initial testing of the Power Boiler #1 in April 2010 follows:

Test Results for Power Boiler #1				
Pollutant	Measured		Allowed (lb/mmBtu)	Compliance Margin (%)
	lb/hr*	lb/mmBtu		
PM (filterable)	2.4	0.0048	0.03	84
PM (total)	7.25	0.0145	0.101	86
SO_2	41.5	0.083	0.20	58
NO_x	3.0	0.006	0.05	88
CO	<0.7	<0.0013	0.13	>99

* Calculated based on a nominal heat input of 500 mmBtu/hr.

[149] The construction permit for Power Boiler #1 provided that NO_x and CO continuous monitoring system(s) would be required on this boiler unless testing demonstrated that the boiler normally complies with the permit limits for NO_x and CO by a margin of at least 5 percent (Condition 3.1.8-8 of Construction Permit 06070023). The compliance margin shown during the initial emission testing clearly exceeds this criterion so that continuous monitoring for NO_x and CO is not required pursuant to this construction permit.

Periodic Monitoring for this requirement would be provided by appropriate recordkeeping. As use of chromium-based water treatment chemicals in cooling towers is now generally prohibited and their use at this tower would be an intentional action by the source, records should be more than sufficient to address this requirement. However, the permit would also require that, upon request by the Illinois EPA, the source would have to promptly sample and analyze the water circulating in the tower in accordance with the applicable procedures of 40 CFR 63.404(a) and (b) for the presence of hexavalent chromium.

Construction Permit Requirements (Permit 06070023)

Operating limit on the dissolved solids content of the water circulating in the cooling tower (Condition 7.10.6(b)(i)) - This limit, which applies on a monthly basis, was set at a level to accommodate the normal range of solids in the cooling water. The Periodic Monitoring for this limit would include monthly sampling and analysis of cooling water for its dissolved solids content (Condition 7.10.8-1(b)). This would be sufficient to address the substantive permit requirements that apply to this cooling tower given the nature of the limit and the simple and stable operation of non-contact cooling towers used in conjunction with boilers.

Limits for PM/PM_{10} emissions (Condition 7.10.9(b)(ii)) - The Periodic Monitoring for these limits would include recordkeeping for PM/PM_{10} emissions from the cooling tower, with supporting calculations and data. This data would be the results of required sampling of cooling water and operating records for the volume of water circulated in the cooling tower. This would be sufficient to address these limits for emissions of the cooling tower given the simple and stable operation of the cooling towers.

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C.11 Emergency Engine (Section 7.11 of the revised permit)

a Periodic Monitoring Requirements for the Emergency Engine

The Periodic Monitoring for the emergency engine would include the following:

- ✓ Opacity Observations
  - Annual opacity observations
  - Monthly opacity observations if the engine operates for 500 hours or more in a year
- ✓ Sulfur content of fuel
  - Data for sulfur content of fuel by sampling and analysis or by supplier certification
- ✓ Emission Testing
  - Emission testing upon request
  -
- ✓ Recordkeeping
  - Fuel consumption
  - Records related to emissions
- ✓ Reporting
  - Standard Reports (Deviations Reports, Monitoring Reports and Annual Reports)

b Justification for Periodic Monitoring for the Emergency Engine

The emergency engine is used to generate electricity during power outages. Emergency engines are stock pieces of equipment that are normally subject to routine inspection and maintenance as part of a source's normal operating practices, to ensure availability and proper functioning of an engine when needed for emergency purposes. This engine would fire commercial diesel fuel. The startup, operation and shutdown of this engine are automated, as is commonly the case for emergency engines. Finally, this engine is not equipped with add-on air pollution control equipment. Accordingly, the operation and emissions of the engine should be very consistent over time, such that emissions of PM, NO_x and CO of the engines are appropriately determined from engine-specific emission factors for the particular model of engine provided by the manufacturer.[156] The Periodic Monitoring for this engine would include sampling and analysis of fuel for its sulfur content if the sulfur content of the fuel is not certified by the supplier and annual opacity observations (Conditions 7.11.8(a) and (b), respectively). It would also include recordkeeping for relevant information (Condition 7.11.10). Provision is also included for testing for emissions of PM, CO and NO_x to be conducted upon request by the Illinois EPA (Condition 7.11.7).

The Monitoring requirements in the revised CAAPP permit would be more extensive than in the current permit. The enhancements respond to the Order, in which the USEPA directed the Illinois EPA to explain why the Monitoring for the engine was sufficient (Order, Section II, Item J). As a

[156] This is the approach generally taken by USEPA in its NSPS and NESHAP standards for engines, which rely on certification testing conducted for a model of engine by the manufacturer. Unit-specific emission testing of certified engines is only required upon specific request by the USEPA or a regulatory authority.

consequence of further consideration of Periodic Monitoring for the engine, the Illinois EPA concluded that enhancements to Monitoring requirements are appropriate. In particular, the revised CAAPP permit would require use of particular emission factors (i.e., manufacturer's emissions factors or data except as they are found to understate emissions) to determine PM, CO and NO_x emissions of the engines. Testing of PM, CO and NO_x emissions would be required upon request by the Illinois EPA rather than upon operation for more than 500 hours in a year, a trigger for testing that would likely never occur. These Monitoring requirements would be sufficient to address the various substantive limitations that apply to the engine.

1. State Emission Standards

PM (35 IAC 212.458(b)(7)/Condition 7.11.3(b)) - This "generic" standard for process emission units in certain areas limits PM emissions of this engine to 0.01 gr/scf. Because add-on control equipment is not present on the engine, this standard is not accompanied by regulatory compliance procedures and the CAAPP Permit must establish all Periodic Monitoring for this standard. Given the nature of stationary engines, and this engine and its general circumstance in particular, as discussed above, PM emissions in gr/scf are appropriately calculated from engine-specific PM emission rates and operating data for the particular model of engine provided by the manufacturer. With emissions determined from manufacturer's data, variation in operation and PM emissions of the engine should not be anticipated that would result in PM emissions greater than this standard. Accordingly, the Monitoring for this standard would require relevant recordkeeping for the manufacturers' data for PM emissions and exhaust flow rate of the engine and calculations for PM emissions of the engine in gr/scf for comparison to the standard. A provision requiring testing of PM emissions upon request would also be included to address the possibility of situations or circumstances in the future, which are not currently foreseen, that would indicate that the manufacturer's emission data for PM might understate actual emissions of the engine.

Opacity (35 IAC 212.123(a)/Condition 7.11.3(c)) - This "generic" standard limits the opacity of the exhaust of the engine to no more than 30 percent on a six-minute average, determined in accordance with 35 IAC 212.109 (i.e., USEPA Method 9).[157] Because this opacity standard is not accompanied by regulatory compliance procedures, the CAAPP Permit must establish all Periodic Monitoring for this standard. Given the nature of stationary engines and this engine and its general circumstance in particular, as discussed above, it is not expected that opacity of the exhaust from this engine, on a 6-minute average, consistent with Method 9, would ever exceed this standard. However, to confirm compliance with 35 IAC 212.123(a), the permit would require the source to conduct opacity observations for this engine on annual basis. This is a reasonable Monitoring requirement for this engine as the source must conduct frequent opacity observations for certain other emission units at this facility.

SO_2 (35 IAC 214.301and 214.304 & 214.122/Conditions 7.11.2(d)) – These "generic" standards

[157] The exception to 35 IAC 212.123(a) in 35 IAC 212.123(b) need not be addressed since it is not available as a practical matter. For the exception to be available to an emission unit, all other subject emission units at a facility that are within 1000 feet of the unit for which the exception is claimed must be compliance with 35 IAC 212.123(a). This effectively limits this exception to only one unit at this facility per hour. To avail itself of the exception for a particular emission unit in a particular hour, the source would have to demonstrate that the opacities of all other subject units at this facility are no more than 30 percent during such hour.

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limit the SO_2 emissions of the engine to no more than 2000 ppm and 0.3 lb/mmBtu, respectively. Because these standards are not accompanied by regulatory compliance procedures, the CAAPP Permit must establish all Periodic Monitoring for these standards. The SO_2 emissions of the engine are a direct product of the sulfur contained in the fuel fired in the engine. As the engine fires commercial fuel, the sulfur content of each delivery from a supplier of fuel for the engine should be consistent. Given the current federal regulations for sulfur content of commercial diesel fuel, as fired in the engine, it is not expected that the SO_2 emissions of the engine would ever exceed these standards. However, the permit would require Monitoring for the sulfur content of fuel to confirm that its sulfur content does not exceed the level needed for compliance. This Monitoring would involve either obtaining a certification for fuel sulfur content from each supplier of fuel for the engine or sampling and analysis of fuel for its sulfur content on an annual basis, to determine sulfur content in lbs/mmBtu, the terms needed for comparison with the limit in 35 IAC 214.122.[152] Appropriate records would also be required for manufacturer's data for the exhaust flow rate and fuel consumption of the engine and engineering calculations to identify the sulfur content in the fuel that must not be maintained so that the concentration of SO_2 in the exhaust from the engine does not exceed 2000 ppm. This further Monitoring would provide the necessary information needed to assure SO_2 emissions of the engine do not exceed 2000 ppm. These Monitoring requirements are also reasonable since the source has not proposed to restrict the fuel for the engine to ultra-low sulfur diesel, which restriction would otherwise serve to assure compliance with 35 IAC 214.122 and 214.301.

2 Requirements from the Construction Permit for the Engine (Permit 00060003)

Limit on annual hours of operation (Condition 7.11.5) - Record keeping would be required to for this limit, which limits the operation of the engine to 500 hours per year. Given that the engine is as an emergency engine and only operated as needed for this purpose, recordkeeping is sufficient to address this limit. Instrumental monitoring is not necessary or appropriate because records can readily provide reliable data to verify compliance with this annual limit.

Limits on emissions of PM, CO and NO_x (Condition 7.11.6) - The Periodic Monitoring for these limits must supplement requirements in the construction permit, which does not fully address or delineate how compliance with these limits is to be determined. Given the nature of this emergency engine, a stock piece of equipment that fires a commercial fuel and whose operation is automated, significant variation in emissions of PM, CO and NO_x should be expected. As such, it is particularly appropriate to use emission factors to determine compliance with permit limits for the engine for emissions of PM, CO and NO_x. Engine-specific emission factors or data for the particular model of engine provided by the manufacturer should be used for this purpose in the absence of information indicating that such factors would understate emissions. The emissions and operational data provided by engine manufacturers is generally considered reliable, as it reflects data for a particular model of engine, and is a representation of performance made between an equipment vendor and purchaser. The Monitoring for these limits would involve appropriate recordkeeping for the manufacturer's emission factors or rates for the engine. It would also involve relevant records for the actual operation of the engine, including fuel usage, operating hours and number of startups, as necessary to calculate emissions from the applicable emission factors and

[152] The SO_2 emissions in lbs/mmBtu from firing of fuel oil in the engine, based on the stoichiometry for complete combustion, would be twice the sulfur content of fuel in lbs/mmBtu

rates. Records would also be required for emissions of the engine as needed to compare to the applicable limits. In particular, records would be required for monthly and annual emissions of PM, CO, and NO_x for direct comparison to the annual limits on emissions of these pollutants.

Limits on emissions of SO_2 (Condition 7.11.6) - The Periodic Monitoring for these permit limits for SO_2 emissions must supplement requirements in the construction permit, which does not fully address or delineate how compliance with these limits is to be determined. While SO_2 emissions of the engine may be readily calculated from its fuel usage and the sulfur content of the fuel, the construction permit did not address the sulfur content of fuel used in the engine. The needed data for sulfur content of fuel would be provided by the Monitoring for sulfur content of fuel to address 35 IAC 214.301 and 214.122, as discussed above. Fuel usage by the engine, the other data needed to calculate SO_2 emissions from the engine, would be provided by the records for operating data required for the emission limits for PM, CO and NO_x, as also discussed above. Together these records would provide the needed data to calculate SO_2 emissions of the engine. Records would also be required for SO_2 emissions of the engine for comparison to the applicable limits, including records for monthly and annual emissions of SO_2.

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C.12 Gasoline Storage Tanks (Section 7.12 of the revised permit)

a. Periodic Monitoring Requirements

The Periodic Monitoring for the gasoline storage tanks would include the following:

- Operational Testing Requirements
  - Annual and post-repair testing on vapor collection systems
  - Relief valves if a vapor collection system is modified

- Inspection Requirements
  - Semi-annual inspection of tanks and dispensing operations
  - Annual inspection of the wastewater tank and dispensing operation

- Recordkeeping
  - Gasoline throughput
  - Maintenance records
  - Operating and maintenance procedures
  - Reid vapor pressure of gasoline during the regulatory control period
  - Supplier certifications for delivery vessels

- Reporting
  - Standard Reports (Deviations Reports, Monitoring Reports and Annual Reports)

b. Justification for Periodic Monitoring for the Gasoline Storage Operations

The gasoline storage operations at the facility are subject to requirements of state rules that act to reduce VOM emissions. The Periodic Monitoring for these storage tanks would include instrumentation and operational testing for the emissions control systems, periodic inspections, and appropriate recordkeeping. This Periodic Monitoring would be sufficient the applicable rules require use of standardized systems and equipment to minimize emissions. This equipment is reliable when properly operated and maintained. Illinois' requirements for use of leak-tight tank trucks for transport of gasoline apply throughout the Metro-East area. Illinois' standards for the vapor pressure of gasoline also apply to all gasoline distributed in the Metro-East area and are directly applicable to the companies that supply gasoline to sources, as well as to sources.

State Emission Standards And Requirements

Requirement for submerged loading (35 IAC 219.122(b)/Condition 7.12.3(b) and 35 IAC 219.583(a)(1)/Condition 7.12.3(c)(i)) - Annual inspections of all gasoline storage tanks would be required to verify submerged loading is present. Annual inspections would be sufficient to verify and document the presence of submerged loading. The absence of submerged loading would involve an intentional action by the source. Improper operation of submerged loading would be readily apparent as it would interfere with normal receipt of gasoline.

Requirements for vapor recovery systems (35 IAC 219.583(a)(2)/Condition 7.12.3(c)(ii) and (iii)) - Vapor collection systems must be used during filling of the large gasoline tanks and operated in accordance with 35 IAC 219.583(c) and (d)(4) (Conditions 7.12.5(a) and (b)). These systems

collect the organic vapors displaced during the filling of tanks and duct them back to the delivery vessel, to transport them back to the gasoline terminal where the vapors would recovered or controlled. Given the standardized nature of these systems and the simplicity and ease of their operation, the compliance procedures specified by the applicable rules are generally sufficient to serve as Periodic Monitoring for these systems. The rules require written maintenance procedures. Annual operational testing and post-repair operational testing of these systems is required, as well as operational testing of any system or the relief valves on any system that has been modified. The permit would supplement these requirements by also requiring semi-annual inspections of storage operations by the source as well as observation of tank filling operations by source personnel, as these activities might routinely be performed by the driver of the delivery vessels.

Standard for the vapor pressure of gasoline (35 IAC 219.585(a)/Condition 7.12.3(d)) – Periodic Monitoring for this standard would be provided by appropriate recordkeeping. Recordkeeping is sufficient since this standard generally limits the vapor pressure of gasoline distributed throughout the Metro-East area during the regulatory control period, i.e., June 1 through September 15 of each year. The standard is applicable to individuals who sell or transport gasoline, in addition to sources, so compliance with this standard should be readily verifiable. Monitoring would be provided by requiring copies of invoices or other documentation for the Reid vapor pressure of the gasoline that is received be kept, accompanied by copies of certification for compliance from gasoline supplier(s).

Requirements for tank trucks delivering gasoline to the facility (35 IAC 219.584(a)/Condition 7.12.5(c)) - As stated above, semi-annual inspection of the storage tank operations must include observations of the filling of a tank. The permit also includes the provision that all gasoline delivery vessels be in compliance with all the requirements of Condition 7.12.5(c). These requirements include: delivery vessels being equipped with vapor tight vapor space fittings; vessels keeping all hatches closed unless a vapor recovery system is employed on them; vessels not exceeding a gauge pressure internally of more than 18 inches of water; and vessels being designed and maintained to be vapor tight during operations. Further, these delivery vessels must comply with all applicable requirements for refilling in accordance with 35 IAC 219.585(b), and display a sticker verifying that testing has been performed. The required semi-annual inspection/observation of tank filling would also verify that these applicable requirements are met.

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C.13 Fugitive Dust (Section 7.13 of the revised permit)

a. Justification for Periodic Monitoring for "Fugitive Dust"

Roadways, open areas, storage piles and other similar operations at the facility potentially emit "fugitive dust." These emissions are controlled by preventative measures to prevent generation of dust. Dust that would result from vehicle traffic on roadways at the facility is controlled by a road cleaning or sweeping program. The road cleaning program collects the dust or silt that is deposited on roadways to prevent it from being subject to attrition and being re-entrained into the atmosphere due to vehicle traffic. The source's road cleaning program extends to various public roadways serving the facility. This is because the source has relied upon emission decreases from cleaning of these roadways in permitting construction projects at or associated with the facility, e.g., Gateway Energy. Emissions of fugitive dust from storage piles at the facility are controlled by the quality and moisture content of materials as received and application of dust suppressants if needed to prevent emissions. These activities to control fugitive dust are subject to an Operating Program, in which the source sets forth the various measures it will use to control fugitive dust. Periodic Monitoring for these operations would include recordkeeping to verify that the source is implementing its Operating Program. It would also include periodic inspections to confirm implementation of control measures and observations for visible emissions and/or opacity from operations as they are subject to standards for the opacity of emissions.

1. State Emission Standards and Requirements

Fugitive dust control program (35 IAC 212.309(a)/Conditions 5.3.2 and 7.13.3(b)) – This standard requires that emissions of fugitive normal traffic pattern roads, storage piles and other "fugitive dust" emission units at the facility be controlled in accordance with a "Operating Program" prepared by the source that is designed to significantly reduce fugitive particulate matter emissions from the facility. Among other things, this Operating Program must identify the practices that the source is using to control emissions of fugitive dust from roadways, storage piles and other sources of fugitive dust at the facility. Pursuant to 35 IAC 212.310(e), the Program must include a detailed description of the "...management practices utilized to achieve compliance with this Subpart [35 IAC Part 212, Subpart K] including an engineering specification of particulate collection equipment, application systems for water, oil, chemicals and dust suppressants utilized and equivalent methods utilized." Pursuant to 35 IAC 212.316(g)(1) and (2), the source must keep records documenting implementation of its Operating Program. Pursuant to 35 IAC 212.316(g)(5), the source must report deviations from this Program on a quarterly basis. As detailed recordkeeping is required for implementation of the Program, as well as lapses in implementation, the Periodic Monitoring for this requirement is sufficient.

Limits for opacity (35 IAC 212.316(b)/ Condition 7.13.3(d)) – Compliance with these standards is generally addressed by the Operating Program, which addresses the implementation of control measures for the subject operations. The permit would also require the source to conduct periodic inspections, with formal observations for visible emissions and/or opacity for these operations. These inspections will provide further verification that these operations are being properly operated and associated control measures are being properly implemented. These inspections will also provide direct verification of compliance with applicable emission standards that are expressed in

terms of opacity, as well as verify that the provisions in the Operating Program ensure compliance with these standards. To address compliance with applicable opacity standards, these inspections would include formal observations for visible emissions conducted in accordance with Method 22, which would generally be required to be conducted on a quarterly basis. If visible emissions are observed from unit(s) and cannot be readily corrected, the source must conduct formal observations for opacity in accordance with Method 9 for those unit(s) to provide a direct verification of compliance with the applicable emission standards. Observations of opacity would be required on an annual basis. This combination of requirements is sufficient as Periodic Monitoring as the quarterly and annual requirements are accompanied by requirements under the Operating Program that apply on a day-by-day basis.

Work practice requirements for control of PM (35 IAC 212.304(a) and 212.305(a)/Conditions 7.13.3(c) and (d)) –These state rules require certain work practices for large storage piles, measured in terms of their potential emissions, and any associated mechanical systems for loading materials onto such materials. Both applicability of these requirements to the storage piles facility at the implementation of the required work practices would be addressed in the required Operating Program for fugitive dust. As such the Periodic Monitoring for the Operating Program would address these requirements.

2. Permit Limits

Control practices from Construction Permits (Conditions 7.13.5 (a) and (c)) – Two underlying Title I permits, Construction Permits 95010001 and 0607008, specify that particular control practices shall be implemented on particular segments of roadways at the facility and on particular segments of public roads serving the facility. These requirements are accompanied by recordkeeping requirements to confirm that the specified practices are implemented (Conditions 7.13.9(b)(i) and (f)(i), respectively). The control practices required by these programs are readily addressed by records, as the programs specify that particular control practices must be used on particular road segments at specified frequencies. For example, "all gate areas leading from the iron making area must be swept or flushed at least five times per week" and cleaning of subject segments of public roadways shall be using "vacuum cleaning equipment (such as Enviro Whirl)." Given the nature of these requirements, their implementation is readily verified by recordkeeping, so that the required recordkeeping provides sufficient Periodic Monitoring.

Limits of PM/PM_{10} emissions from roadways at the facility (Condition 7.13.6) - Construction Permits 95010001 also limits the annual PM/PM_{10} emissions from roadways at the facility. Recordkeeping for actual emissions is required to verify compliance with this limit (Condition 7.13(b)(ii)). As emissions for fugitive dust cannot be directly measured, the recordkeeping provision requires actual emissions to be determined using established emission factors and emission determination methodology developed by USEPA.[35] As emissions would be determined from the combination of information for the actual implementation of the road dust control program, as addressed above, and established USEPA methodology for calculation of emissions, it is implicit that Periodic Monitoring for this limit also be provided by recordkeeping.

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[35] Refer to Section 13.2, Introduction to Fugitive Dust Sources, in USEPA's *Compilation of Air Pollutant Emission Factors*, AP-42.

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Requirements for Emission Reductions from Road Cleaning Program (Condition 5.5) – Similarly Construction Permit 06070008 also requires that the control program that it requires provide an emission reduction of 236.03 tons per year. Recordkeeping for the reduction in actual emissions is required to verify compliance with this limit (Condition 7.13(f)(u). This recordkeeping provision requires the reduction in actual emissions to be determined using established emission factors and emission determination methodology developed by USEPA. As emissions would be determined from operating records and established USEPA methodology for calculation of emissions, it is also implicit that Periodic Monitoring for this limit also be provided by recordkeeping.

C.14 Plantwide Requirements from Existing Permits (Section 5.6 of the Revised Permit)

Permit for Production Increase (Construction Permit 95010001)

Construction Permit 95010001addressed an increase in production of the facility ("1995 production increase") that was a modification for purposes of NSR as it entailed changes in the method of operation that would potentially accompanied by increases in emissions of the facility. As this permit addressed an increase in the production of the facility, this permit set certain limits that apply to the overall operation of the facility and are appropriately included in Section 5 of the CAAPP permit. This includes operational limits on the overall production of iron and steel by the facility. It also includes limits on the usage of natural gas, BFG, and fuel oil by certain emission units at the facility and the emissions associated with use of these fuels.[154] It also includes limits on the emissions associated with use of fuels by these units. For the purpose of these emission limits, SO_2 emissions may be readily determined by the actual usage of fuels and their sulfur content. Emissions of other pollutants must be determined from operation, i.e., the usage of fuel, and appropriate emission factors for the various units that are addressed. Because of the different combustion characteristics of these units, the appropriateness of emission factors must be separately considered for each unit or group of similar units.

Production Limits (Condition 5.6.2(a)(i)) - Periodic Monitoring for these monthly and annual limits would be provided by recordkeeping for the iron and steel production by the facility. This is both appropriate and sufficient as reliable production data is also important to the source. Instrumental monitoring is not necessary or appropriate because records can readily provide reliable data to verify compliance with these limits.

Fuel usage limits (Condition 5.6.2(a)(ii)) - Periodic Monitoring for these monthly and annual limits would be provided by recordkeeping for fuel usage. This is both appropriate and sufficient as reliable data for usage of different fuels is also important to the source. Instrumental monitoring is not necessary or appropriate because records can readily provide reliable data to verify compliance with these limits.

Limits on emissions from combustion of individual fuels (Condition 5.6.2(a)(iii)(B)) - Periodic Monitoring for these limits, which address emissions from combustion of natural gas, BFG and fuel oil at the facility, would be provided by appropriate recordkeeping. For pollutants other than SO_2,[155] the revised permit would require appropriate records to support the emission factors for combustion of these fuels at different emission units at the facility, which will provide a solid basis to determine emissions. The Permittee must appropriately review and update these records, and the

[154] The 1995 production increase was accompanied by increases in the use of natural gas and BFG, and possibly use of oil by certain emission units at the facility. The increase in BFG usage was a direct consequence of increased iron production, with increased generation of BFG that would be used in the blast furnace stoves and the boilers or flared. The increase in natural gas was due to the additional steam needed to support increased iron and steel production, with additional usage of natural gas in boilers and in the ladle drying preheaters in the BOF shop. The increase in fuel oil accommodated the possibility of an increase in the incidental use of fuel oil at these emission units to support increased iron and steel production at the facility.

[155] For SO_2, rather than use emission factors, emissions from BFG and fuel oil would be calculated from actual data for the sulfur content of the fuel as determined from the required sampling and analysis of these fuels. For natural gas, USEPA's standard emission factor, 0.6 lbs per million scf, is appropriate to determine to SO_2 emissions.

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emission factors it uses to determine emissions, as necessary to ensure that the factors for different emission units do not understate their actual emissions.[156] Together with the required records for use of fuel, these emission factors will provide solid data as needed to determine annual emissions from combustion of fuels as needed for comparison with the applicable emission limits. Finally, the Permittee must also calculate the average annual emission factor for different fuels, for comparison with the factors in the permit, by dividing the total annual emissions from combustion of fuels in the subject units with the actual overall usage of each fuel.

Limits on combined annual emissions from fuel combustion (Condition 5.6.2(a)(iii)(A)) - Periodic Monitoring for these annual limits would be provided by recordkeeping for the combined emissions of the emissions from combustion of individual fuels, as discussed above.

Permit for Emission Reductions (Construction Permit 06070022) - This construction permit addressed certain changes at the facility that reduced its emissions and were relied upon for the issuance of the construction permits for the Cogeneration Boiler (Power Boiler I) and the Gateway Energy facility. These changes included installation of the COG Desulfurization System that began operation at the facility in 2010. This system has greatly reduced the emissions of SO_2 associated with combustion or use of COG at the facility as well as also reducing PM_{10} emissions.[157] A portion of these reductions was made enforceable, with limits set on future emissions of SO_2 and PM_{10} associated with use of COG at the facility. As these limits generally apply to the overall emissions of SO_2 and PM_{10} from use of COG at the facility, these limits would now be included in Section 5.6 of the revised CAAPP permit, which contains "Source-Wide Production and Emission Limitations." Other related limits from Permit 06070022 would be included in Section 7.3.7 of the revised CAAPP permit, as those limits apply or relate to the operation of the COG Desulfurization System itself. Both those operational limits and the emissions limits related to COG and the COG Desulfurization System were developed to accommodate maintenance and upsets of this system.[158] For this purpose, limits were set to address overall emissions and operation, including both periods when the system is operating and when it is not. Limits were also set to specifically address only those periods when the system is not operating, when the facility would be operating as it did before this system was installed.

Limits for SO_2 emissions (Condition 5.6.2(b)) - The revised CAAPP permit would include Periodic Monitoring to address these annual limits for SO_2 emissions. These requirements would include continuous operational monitoring for the flow rates of COG and the sulfur content of COG. Construction Permit 06070022 required monitoring for the flow rate and sulfur content of

[156] For example, the Permittee must review its established emission factors when emission testing is conducted for subject emission units and appropriately update the factors that it uses to calculate emissions if the testing shows a higher emission factor is appropriate.

[157] The COG Desulfurization System has acted to reduce both the filterable and condensable fraction of PM_{10} emissions, with an annual reduction of 31.74 tons of PM_{10} relied upon due to the installation of this system. Filterable particulate is reduced as the COG is further scrubbed with amine solution during the desulfurization process. Condensable particulate is reduced as the sulfur content of the COG is reduced.

[158] During periods of maintenance or upsets of the COG Desulfurization System, the facility would operate as it has historically operated, with COG only being processed by the coke byproduct recovery plant before being used as fuel. Accommodating outage of the Desulfurization System was necessary because it is not practical to interrupt the operation of the coke oven batteries and generation of coke oven gas during such periods and routine preventative maintenance and repair is essential for reliable and effective operation of the system and the coke oven batteries. Likewise, upsets of gas desulfurization systems must be anticipated and appropriately accommodated.

COG following processing by the COG Desulfurization System as reasonable to monitor the operation of this system. Another permit, FESOP 94120017, already required monitoring for the flow rate and sulfur content of COG from the Coke Byproduct Recovery Plant. Continuous monitoring is appropriate given the magnitude of SO_2 emissions associated with combustion of COG at the facility, the fact that the COG Desulfurization System functions as a control device for SO_2 emissions, and the magnitude of the reduction in SO_2 emissions that has been relied upon from the operation of the Desulfurization System. Monitoring for the actual sulfur content of COG as H_2S was required as the methodology for continuous monitoring of the H_2S content of fuel gases has been well developed with monitoring of fuel gas at petroleum refineries. This existing monitoring will provide a solid basis to calculate SO_2 emissions associated with combustion of COG. The revised CAAPP permit would require relevant records for monitored data and data for SO_2 emissions, prepared from the monitored data, for direct comparison to the applicable emission limits. The revised CAAPP permit would expand upon the records required by the construction permit to explicitly require recordkeeping for the underlying data needed to calculate SO_2 emissions from combustion of COG at the facility, as well as for records for the annual of emissions of SO_2.

Limits for PM_{10} emissions (Condition 5.6.2(b)) - The revised CAAPP permit would include Periodic Monitoring to address these annual limits for PM_{10} emissions. These requirements would include continuous operational monitoring for the flow rates of COG, as already discussed. Continuous monitoring for the PM_{10} content of COG is not feasible. Even if feasible, monitoring would not be appropriate as the COG Desulfurization System is not a control device for particulate. It would also not be reasonable, given the relatively small reduction in PM_{10} emissions that has been relied upon from the operation of the COG Desulfurization System. This existing monitoring, accompanied by appropriate records to support the PM_{10} emission factors associated with combustion of COG at the facility, will provide a solid basis to determine PM_{10} emissions associated with combustion of COG. The revised CAAPP permit would require relevant records for monitored flow rate data, records to support the PM_{10} emission factors used to calculate PM_{10} emissions, and data for PM_{10} emissions, prepared from the monitored data, for direct comparison to the applicable limits. The revised CAAPP permit would expand upon the records required by the construction permit to also require recordkeeping for the underlying data necessary to calculate PM_{10} emissions, as well as for records for annual of emissions of PM_{10}.

Permit for "SO_2 Emission Units" (Federally Enforceable State Operating Permit 94120017) - This Federally Enforceable State Operating Permit (FESOP) was issued in the mid-1990s as part of Illinois' plan for attainment of the historic National Ambient Air Quality Standards (NAAQS) for SO_2.[159] The FESOP sets limits for the SO_2 emissions of certain emission units at the facility to ensure that its emissions do not exceed levels that were determined to be necessary to protect ambient air quality relative to the historic SO_2 NAAQS.[160] These limits now apply to the two blast

[159] These SO_2 NAAQS include standards on a 3-hour average (0.5 ppm), 24-hour average (0.14 ppm) and annual average (0.03 ppm).

[160] The limits in the FESOP should be considered adequate for the purpose for which the FESOP it was issued. However, the USEPA recently adopted an SO_2 NAAQS that applies on a 1-hour average. The Illinois EPA has begun the process of evaluating whether current rules and requirements related to SO_2 emissions are adequate to assure compliance with this new NAAQS. Additional emission standards and requirements may eventually need to be established to ensure that Illinois' State Implementation is protective of the 1-hour NAAQS for SO_2. If this occurs, it is possible that these new requirements could make the requirements of the FESOP wholly obsolete.

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furnace stoves, the Casthouse Baghouse, the Iron Spout Baghouse, the ladle drying preheaters, Reheat Furnaces 1, 2 and 3 (the three existing slab reheat furnaces), Reheat Furnace 4 (the "new" slab reheat furnace), and Boilers 11 and 12.[16] The limits no longer extend to Boilers 1 through 10, as they were removed from service following the initial startup of the new Power Boiler 1.

Limits for SO_2 emissions (Condition 5.6.2(c)) - The revised CAAPP permit would include Periodic Monitoring to address the limits for SO_2 emissions set by the FESOP. These requirements would generally reflect provisions in this FESOP, including the detailed procedures in the FESOP for the determining compliance with the limits in the FESOP. This is appropriate as the procedures in the FESOP were specifically developed to address the SO_2 limits that were set for various groups of emission units, including the compliance time periods associated with those limits. Because the FESOP was issued in 1995, before the COG Desulfurization System was installed, the revised CAAPP permit now addresses the presence of this system. It would provide that as desulfurized COG is being combusted, data for the flow rate and sulfur content of desulfurized COG may now appropriately be used when determining compliance with the limits in the FESOP. When undesulfurized COG is being combusted, the flow rate and sulfur content of COG must be determined in accordance with the "original" procedures in the FESOP.

[16] The limits of the FESOP were also develop to account for or "build in" emission of SO_2 attributable to use of "low-sulfur" fuels, i.e., natural gas and BFG in the subject emission units. As such, the associated compliance procedures in the FESOP appropriately only address emissions of SO_2 from combustion of COG and oil in the subject units and not from combustion of natural gas and BFG

Attachment D: Illinois EPA's Planned Response to the USEPA's Order Granting Petition for Objection

In its "Order Granting in Part and Denying in Part Petition for Objection to Permit" ("Order"), issued January 31, 2011, USEPA addressed the various issues raised by the Petitioner. It granted the petition on some issues raised and denied the petition on others. The following is the Illinois EPA's response to the issues in the Petition that were granted by USEPA, explaining how they would be addressed in the revised CAAPP permit or in this associated Statement of Basis.

The Order states the Petitioner's claims in general:

> "Petitioner alleges that (1) the permit fails to include all applicable permits and permit requirements; (2) the permit fails to provide periodic monitoring sufficient to assure compliance; (3) the permit lacks compliance schedules to remedy all current violations; (4) the permit unlawfully exempts emissions during startup, shutdown, and malfunctions (SSM); (5) the permit fails to include compliance assurance monitoring (CAM) requirements; and (6) numerous permit provisions are not practically enforceable."

These allegations and the findings of USEPA in its Order are detailed below, along with the actions Illinois EPA would take in the planned issuance of a revised CAAPP permit.

D.1. Petitioner Alleges that the Permit Fails to Include All Applicable Permits and Permit Requirements (Section I of the Order)

The Petitioner alleged that the CAAPP permit issued to US Steel for its Granite City Works did not include all applicable requirements. The Petitioner specifically points to the emission reduction credits in construction permits for the coke plant and conveyance system projects that were under construction at the time the Petition was submitted.

USEPA found that Illinois EPA did not provide legal justification for its position that the CAAPP permit only needed to reflect current operations, and did not dispute that the PSD permits contained applicable requirements.

USEPA has directed Illinois EPA to include the requirements for the emission reduction credits in a revised CAAPP permit, as well as other requirements of the construction permits cited by the Petitioner.

In response to the Order, Illinois EPA has included in the planned revised CAAPP permit the requirements from all relevant construction permits. More specifically, not only did Illinois EPA include applicable requirements from the construction permits identified in the Petition, Illinois EPA also incorporated all construction permits issued as of the date of this Statement of Basis. In this regard, Illinois EPA has appropriately followed the guidance provided in Petition No. V-2009-01 (June 28, 2010) at 3-5 for Wisconsin Public Service JP Pulliam Power Plant. A discussion of Title I terms and conditions and a list of associated permits are provided in Section III of this Statement of Basis.

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D.2. Petitioner Alleges that the Permit Fails to Provide Periodic Monitoring Sufficient to Assure Compliance (Section II of the Order)

The Petitioner asserts that the CAAPP permit issued to US Steel contains numerous conditions that establish emission limits but lack Periodic Monitoring requirements sufficient to assure compliance with the limits. The Petitioner also asserts that the Project Summary contains conclusive statements about the monitoring requirements but no justifications for Illinois EPA's monitoring choices and that Illinois EPA must satisfy the monitoring requirements and provide a rationale for the monitoring as required by Part 70. Finally the Petitioner alleges that Illinois EPA failed to respond to its significant comments regarding the adequacy of Periodic Monitoring in the CAAPP permit issued to US Steel.

USEPA responded that under 40 CFR 70.6(a)(3)(i)(A) permitting authorities must ensure that monitoring requirements contained in applicable requirements are properly incorporated into a Title V permit. USEPA also responded that if an 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 CFR 70.6(a)(3)(i)(B). USEPA further responded that if there is Periodic Monitoring in the applicable requirement, but that monitoring is not sufficient to assure compliance with the permit terms and conditions, the permitting authority must supplement monitoring to assure such compliance.

In addition to these three findings above, USEPA goes on to state in the Order that the rationale for the monitoring requirements selected by a permitting authority must be clear and documented in the permit record. USEPA also confirms Illinois EPA's obligation to respond adequately to significant comments on a draft CAAPP permit.

USEPA's Order observes that there are approximately 50 instances in the CAAPP permit that the Petitioner claims that Illinois EPA failed to include sufficient monitoring to assure compliance or where Illinois EPA has failed to justify the required monitoring.

USEPA's Order, in the cases where the petition has been granted, directs Illinois EPA to ensure that it has: (1) satisfied the monitoring requirements of 40 CFR 70.6 (a)(3)(i)(A) and (B) and (c)(1); (2) provided a rationale for the monitoring requirements placed in the permit; and (3) responded to significant comments.

USEPA's Order goes on to detail, in Sections II(A) through (K) of the Order, the specific allegations of the Petitioner in regard to the various operations at the US Steel facility that the Petitioner alleges lack sufficient monitoring or justification in the permit.

In response to the USEPA's findings regarding the insufficient explanation of Periodic Monitoring requirements in the earlier Statement of Basis and Responsiveness Summary, a detailed explanation and justification has been prepared for the Periodic Monitoring that would be required by the revised CAAPP permit. This explanation is provided in Attachment C of this Statement of Basis. In this attachment, the Illinois EPA discusses at length its justification for the Periodic Monitoring that would be required with revised CAAPP permit that the Illinois EPA

plans to issue in response to the Order. The Illinois EPA has taken this action, which was highly resource intensive, in response to the Order, not only to be fully responsive to the Order, but also to better address the emissions of this facility given the magnitude and the nature of these emissions, the location of the facility[163]*, and the facility's compliance history.*

Illinois EPA has addressed the specific issues with respect to Periodic Monitoring in the Order where the Petition has been granted. The following generally discusses the manner in which these issues would be addressed with the issuance of a revised permit, as planned by the Illinois EPA. The specific location(s) in the revised permit that the Illinois EPA plans to issue or in this Statement of Basis where the issues have been addressed are also identified. In a number of instances, the revised CAAPP permit would enhance the Periodic Monitoring that would be required. For example, additional emissions testing would be required to verify emission factors that were determined to not have been adequately explained. In response to all allegations, the Illinois EPA has provided the detailed explanation of Periodic Monitoring requirements in Attachment C.

a. Section II(A) of the Order: Coal Handling Operations

The Petitioner alleges that the permit does not include Periodic Monitoring sufficient to assure compliance with the emission limit for PM_{10} in Condition 7.1.3(f) of the permit.

USEPA's Order states that Illinois EPA's response to the Petitioner's comment was silent on how Conditions 7.1.10(b) and (d) and 5.9.3(d) and the inspection requirements of Condition 7.1.8 are sufficient to assure compliance with the related emissions requirements.

In response to the Order, the revised permit would provide Periodic Monitoring that is sufficient to assure compliance with the terms and conditions of the permit. The revisions would include additional testing in Condition 7.1.7, additional inspection requirements in Condition 7.1.8 and additional control requirements and work practices in Condition 7.1.5(b). The Illinois EPA has also provided a detailed justification of the Periodic Monitoring requirements for coal handling operations in Section C.1 of Attachment C of this Statement of Basis.

b. Section II(B) of the Order: Coke Production

1. Coke Oven Charging Leaks from Doors, Leaks from Lids, and Leaks from Offtakes

The Petitioner alleges that the permit does not include Periodic Monitoring sufficient to assure compliance with visible emission (VE) limits found in Conditions 7.2.3 – 1(a) and (c), 7.2.3 – 2(a) and (b), and 7.2.3-4(a) and (b) of the permit.

The Petitioner further claims that Condition 7.2.14 provides monitoring methods but does not require the Permittee to monitor for compliance with the VE limits.

[163] The facility is located in an area of poor air quality, which is currently designated nonattainment for $PM_{2.5}$ and lead. The facility's emissions contribute to ozone air quality in the greater Metropolitan St. Louis Area, which is designated nonattainment for ozone. Lastly, under Illinois policy, the facility is located in a potential environmental justice area.

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USEPA found that Illinois EPA did not provide an analysis to demonstrate how the monitoring requirements in the permit are sufficient to assure compliance with the VE limits, or are sufficient to yield reliable data from the relevant time period that is representative of compliance with the permit. Further USEPA found that Illinois EPA's response to the Petitioner's comment simply recited the monitoring requirements and was silent on how the monitoring requirements of 40 CFR Part 63, Subpart L are related to the emission requirements in the permit.

In response to the Order, the revised permit would provide Periodic Monitoring that is sufficient to assure compliance with the terms and conditions of the permit. These revisions would include: additional testing in Conditions 7.2.7-1(b) and 7.2.7-3 and additional monitoring requirements in Condition 7.2.8-1. In particular, the permit would require daily observations for charging and leaks from various components of the coke oven batteries to address state standards that apply to individual sets of observations, rather than on a 30 day average of multiple observations. The Illinois EPA has also provided a more complete justification of the monitoring requirements for coke production at the source in Section C.2 of Attachment C of this Statement of Basis.

2. Combustion (Battery) Stack

The Petitioner alleges that the permit does not include Periodic Monitoring sufficient to assure compliance with the PM emission limits found in Condition 7.2.3 – 7(a)(i) and (c) of the permit.

USEPA found that Illinois EPA did not provide in its Responsive Summary an analysis to demonstrate how the monitoring requirements in Condition 7.2.7(d) of the permit are sufficient to assure compliance with the terms and conditions of the permit or are sufficient to yield reliable data from the relevant time period that is representative of compliance.

The Petitioner also asserted that CEMS should be the means of compliance with the Part 70 Periodic Monitoring requirements. USEPA denied the petition on this issue.

In response to the Order, the revised permit would to include additional testing for PM emissions of the combustion stack in Condition 7.2.7-3. The Illinois EPA has also provided a more complete justification of the monitoring requirements for the combustion stacks in Section C.2 of Attachment C of this Statement of Basis.

3. Bypass/Bleeder Stack Flare

The Petitioner alleges that the permit does not include Periodic Monitoring sufficient to assure compliance with the VE limit found in Condition 7.2.3 – 8(b) of the permit.

USEPA finds in its Order that Illinois EPA did not explain how the monitoring requirements in the permit are sufficient to assure compliance with the associated permit terms and conditions. Further, USEPA states that the fact that 40 CFR 63.309(h) does not specify a monitoring frequency does not end the analysis. USEPA also states that the permitting authority must determine whether monitoring included in a regulation is sufficient to assure compliance with the permit conditions, and if it is not sufficient the permitting authority must supplement the monitoring for those conditions.

In response to the Order, the Illinois EPA has also provided a more complete justification of the monitoring requirements for these flares in Section C.2 of Attachment C of this Statement of Basis. In particular, sufficient Periodic Monitoring for these emergency flares on the coke oven batteries is provided for by the NESHAP.

c. Section II(C) of the Order: Coke By-Products Recovery Plant

The Petitioner alleges the permit's annual opacity reading requirement for the coke by-product recovery plant flare is not frequent enough to assure compliance with the VE limit found in Condition 7.3.10(a)(i) of the permit, and further asserts that daily or more frequent monitoring would be reasonable to assure compliance with these limits . The Petitioner also claims that Illinois EPA's rationale for the monitoring associated this condition is unclear.

USEPA finds in its Order that, while Illinois EPA discussed why video monitoring of the flare is not appropriate, it did not provide an analysis to demonstrate how the annual opacity reading or the monthly ignition system inspections are sufficient to demonstrate compliance with the VE limit or are sufficient to yield reliable data from the relevant time period that is representative of compliance with the permit conditions.

The revised permit would include additional monitoring requirements in Condition 7.3.9(c),. The Illinois EPA has also a more complete justification of the monitoring requirements for the by-products recovery plant in Section C.3 of Attachment C of this Statement of Basis.

d. Section II(D) of the Order: Blast Furnace

1. Control Equipment

The Petitioner alleges that the permit does not include Periodic Monitoring sufficient to assure compliance with the PM emission limit found in Condition 7.4.3 – 1(a)(i)(A) of the permit, and asserts that a one-time performance test during the permit term does not constitute Periodic Monitoring. The Petitioner further asserts that Illinois EPA's rationale for the monitoring requirements associated with this condition is inadequate.

USEPA granted the Petition on this issue and finds that Illinois EPA's Responsiveness Summary did not provide an analysis to demonstrate how the aforementioned performance test is sufficient to assure compliance with the permit conditions, or is sufficient to yield reliable data from the relevant time period that is representative of compliance with the permit conditions.

In response to the Order, the revised permit would include additional monitoring requirements in Condition 7.4.8 and revised testing requirements in Condition 7.4.7 that are specific to this allegation. The Illinois EPA has also provided a detailed justification of the monitoring requirements for the blast furnace control equipment in Section C.4 of Attachment C of this Statement of Basis.

2. Opacity

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The Petitioner alleges that the weekly opacity readings required in the permit are not sufficient to assure compliance with opacity limit in Condition 7.4.3 - 1(d)(ii) of the permit. The Petitioner also states that Illinois EPA's response confuses matters as it refers to a once-a-permit-term monitoring based on a MACT standard, and suggests that daily or more frequent opacity monitoring including the use of video monitoring may be appropriate.

USEPA grants the petition on this issue in the Order and finds that Illinois EPA's Responsive Summary did not include an analysis to demonstrate how the monitoring requirements in the permit are sufficient to assure compliance with the permit conditions, or are sufficient to yield reliable data from the relevant time period that is representative of compliance with the permit conditions

In response to the Order, the revised permit would include additional monitoring requirements in Condition 7.4.8. The Illinois EPA has also provided a detailed justification of the monitoring requirements for the blast furnace operations in Section C.4 of Attachment C of this Statement of Basis.

3. Excess Gas Flare

The Petitioner alleges that the annual opacity observations and monthly inspections of the flare ignition system required in the permit are not sufficient to assure compliance with the VE limit in Condition 7.4.3 – 4(c) of the permit, which applies on a continuous basis. The Petitioner suggests that daily or more frequent opacity monitoring including the use of video monitoring may be appropriate

USEPA grants the petition on this issue in the Order and finds that Illinois EPA's Responsive Summary did not include an analysis to demonstrate how the monitoring requirements in the permit are sufficient to assure compliance with the permit conditions, or are sufficient to yield reliable data from the relevant time period that is representative of compliance with the permit conditions.

In response to the Order, the revised permit would include additional monitoring requirements specific to the flare in Condition 7.4.8(k). The Illinois EPA has also provided a detailed justification of the monitoring requirements for the blast furnace flare in Section C.4 of Attachment C of this Statement of Basis.

4. Production and Emission Limits

The Petitioner alleges that the permit does not include Periodic Monitoring sufficient to assure compliance with the emission limits in Conditions 7.4.6(b)-(g) for the blast furnaces and related operations. Additionally, the Petitioner alleges that compliance with these conditions is demonstrated through records and emission factors established in PSD permit 95010001, and that neither the CAAPP permit nor the PSD permit identifies the source of the emission factors. Further, the Petitioner asserts that the Project Summary and the Responsiveness Summary did not provide evidence that the emission factors are representative of emissions at the source.

The Petitioner asserts that Illinois EPA must provide additional information about the source of the data used to calculate the emission factors and must explain how the use of the emission factors is sufficient to assure compliance with the associated emission limits. The specific allegations regarding each emission limit are discussed in the following sections.

Casthouse Baghouse (Furnace Tapping) Captured Emissions

The Petitioner alleges that the permit record does not provide a clear rationale for the monitoring requirements for the PM_{10} emission limit found in Condition 7.4.6(b) of the permit as it relies on an emission factor from an unspecified source. The Petitioner further disagrees with Illinois EPA's explanation that, in addition to the use of emission factors, testing requirements based on NESHAP regulations will be used to assure compliance with the limit in Condition 7.4.6(b), stating the testing requirements are based on federal MACT regulations which do not apply to this condition The Petitioner also asserts that the Illinois EPA must provide additional information to justify this monitoring condition.

USEPA responds in its Order that Illinois EPA did not provide an analysis to demonstrate how the monitoring requirements in the CAAPP permit are sufficient to assure compliance with the limits or are sufficient to yield reliable data from the relevant time period that is representative of compliance with the permit in it Projects Summary or in its response to the Petitioners comments.

USEPA's Order also states that the permit action record does not specify the origin of the emission factors, and has failed to provide an explanation why use of the emission factors is adequate to assure compliance.

USEPA directs Illinois EPA to either justify in the record why these emission factors are representative of the source's operations, and provide sufficient evidence to demonstrate that the emissions will not vary by a degree that would cause an exceedance of the standards, or Illinois EPA must determine and adequately support another mechanism to assure compliance with the limits in the underlying construction permit.

Further USEPA suggests that if Illinois EPA can justify the use of the emission factors, it should require the source to confirm the appropriateness of the factors such as through the use of stack testing on a periodic basis.

The Petitioner further alleges that the permit record does not provide a clear rationale for the monitoring requirements for the SO_2 limit in Condition 7.4.6(b) as it also relies on an emission factor from an unspecified source.

USEPA concurs and directs the Illinois EPA to provide an explanation why use of the emission factors is adequate assure compliance.

The Petitioner further alleges that the permit record does not provide a clear rationale for the monitoring requirements for the NO_x limit in Condition 7.4.6(b) as it also relies on an emission factor from an unspecified source. The Petitioner also asserts that Illinois EPA has not provided

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further information on the initial testing data referenced in its Responsiveness Summary, and asserts that a margin of compliance is not a sufficient basis for determination that emissions will not change over the life of the permit. The petitioner also claims that Illinois EPA's rationale for the monitoring requirements is far to general.

USEPA agreed in its Order that the permit record does not specify the origin of the emission factors for NO_x emissions, and that it is not clear that the emission factors reflect emissions at the source. USEPA also finds that Illinois EPA has failed to provide an explanation why the use of emission factors is adequate to assure compliance.

The petitioner further alleges that the permit record does not provide a clear rationale for the monitoring requirements for the VOM emission limit in Condition 7.4.6(b) of the permit, as it also relies on an emission factor from an unspecified source.

USEPA also agreed in its Order that the permit record does not specify the origin of the emission factors for VOM emissions, and that it is not clear that the emission factors reflect emissions at the source. USEPA also finds that Illinois EPA has failed to provide an explanation why the use of emission factors is adequate to assure compliance.

In response to the Order, the revised permit would require additional emissions testing for the Casthouse Baghouse in Condition 7.4.7(c) and additional monitoring requirements in Conditions 7.4.8(b), (c), and (i). The Illinois EPA has also provided a detailed discussion of the monitoring for the Casthouse Baghouse in Section C.4 of Attachment C of this Statement of Basis. In particular, the revised permit would require that emission factors that are used to routinely determine emissions for comparison to permit limits be reevaluated when new data becomes available to assure that the factors that it uses are adequate, i.e., they do not understate emissions. For this purpose, measurements for emissions of additional pollutants would be required as part of the testing that is required to address applicable regulatory requirements.

Blast Furnace Uncaptured Fugitive Emissions

The Petitioner alleges that the permit record does not provide a clear rationale for the monitoring requirements for the SO_2 limit in Condition 7.4.6(c) of the permit, as it relies on an emission factor from an unspecified source, and asserts that Illinois EPA must provide additional information to justify this monitoring condition.

USEPA finds in its Order that Illinois EPA's response did not provide and an analysis to demonstrate how the opacity monitoring requirements in the CAAPP permit are sufficient to assure compliance with the permit condition, or are sufficient to yield reliable data from the relevant time period that is representative of compliance with the permit. USEPA further states that the Illinois EPA has failed to provide and explanation of the origin of the emission factors, or an explanation of why use of the emission factors is adequate to assure compliance.

The Petitioner also alleges that the permit record does not provide a clear rationale for the monitoring requirements for the NO_x emission limit in Condition 7.4.6(c) of the permit, as it relies on an emission factor from an unspecified source, and asserts that Illinois EPA must provide

additional information to justify this monitoring condition

USEPA finds in its Order that Illinois EPA's response did not provide and an analysis to demonstrate how the opacity monitoring requirements in the CAAPP permit are sufficient to assure compliance with the permit condition, or are sufficient to yield reliable data from the relevant time period that is representative of compliance with the permit. USEPA further states that the Illinois EPA has failed to provide and explanation of the origin of the emission factors, or an explanation of why use of the emission factors is adequate to assure compliance.

The Illinois EPA has addressed these issues by providing a detailed justification of the Periodic Monitoring requirements for these limits in Section C.4 of Attachment C of this Statement of Basis. In particular, the revised permit would require that emission factors that are used to routinely determine emissions for comparison to permit limits be reevaluated when new data becomes available to assure that the factors that it uses are adequate, i.e., they do not understate emissions. For this purpose, measurements for emissions of additional pollutants would be required as part of the testing that is required to address applicable regulatory requirements. These requirements also apply to uncaptured emissions, as emission rates for uncaptured emissions may be derived from testing for captured emissions.

Blast Furnace Charging Emissions

The Petitioner alleges that the permit record does not provide a clear rationale for the monitoring requirements for the PM_{10} emission limit in Condition 7.4.6(d) of the permit, as it relies on an emission factor from an unspecified source, and asserts that Illinois EPA must provide additional information to justify this monitoring condition.

USEPA finds in its Order that Illinois EPA's response did not provide and an analysis to demonstrate how the opacity monitoring requirements in the CAAPP permit are sufficient to assure compliance with the permit condition, or are sufficient to yield reliable data from the relevant time period that is representative of compliance with the permit. USEPA further states that the Illinois EPA has failed to provide and explanation of the origin of the emission factors, or an explanation of why use of the emission factors is adequate to assure compliance.

In response to the Order, Illinois EPA has provided a detailed discussion of the Periodic Monitoring required for blast furnace charging emissions in Section C.4 of Attachment C of this Statement of Basis.

Slag Pits Emissions

The Petitioner alleges that the permit record does not provide a clear rationale for the monitoring requirements for the PM_{10} emission limit in Condition 7.4.6(e) of the permit, as it relies on an emission factor from an unspecified source, and asserts that Illinois EPA must provide additional information to justify this monitoring condition.

USEPA finds in its Order that Illinois EPA's response did not provide and an analysis to demonstrate how the opacity monitoring requirements in the CAAPP permit are sufficient to assure

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compliance with the permit condition, or are sufficient to yield reliable data from the relevant time period that is representative of compliance with the permit. USEPA further states that the Illinois EPA has failed to provide and explanation of the origin of the emission factors, or an explanation of why use of the emission factors is adequate to assure compliance.

Illinois EPA has provided a more complete discussion of the required Periodic Monitoring in Section C.4 of Attachment C of this Statement of Basis.

The Petitioner also alleges that the permit record does not provide a clear rationale for the monitoring requirements for the SO_2 emission limit in Condition 7.4.6(e) of the permit, as it relies on an emission factor from an unspecified source, and asserts that Illinois EPA must provide additional information to justify this monitoring condition.

USEPA finds in its Order that Illinois EPA's response did not provide and an analysis to demonstrate how the opacity monitoring requirements in the CAAPP permit are sufficient to assure compliance with the permit condition, or are sufficient to yield reliable data from the relevant time period that is representative of compliance with the permit. USEPA further states that the Illinois EPA has failed to provide and explanation of the origin of the emission factors, or an explanation of why use of the emission factors is adequate to assure compliance.

Illinois EPA has addressed this issue by providing a more complete justification of the Periodic Monitoring requirements for these limits in Condition C.4 of Attachment C of this Statement of Basis.

Iron Spout Baghouse Captured Emissions

The Petitioner alleges that the permit record does not provide a clear rationale for the monitoring requirements for the PM_{10} emission limit in Condition 7.4.6(f) of the permit, as it relies on an emission factor from an unspecified source, and asserts that Illinois EPA must provide additional information to justify this monitoring condition.

The Petitioner further claims that Illinois EPA's Responsiveness Summary is confusing regarding the monitoring requirement because it suggests that testing requirements from federal NESHAP requirements will be used to assure compliance with the limit in 7.4.6(f), and asserts Illinois EPA must provide additional information to justify the condition.

USEPA finds in its Order that Illinois EPA's response did not provide and an analysis to demonstrate how the opacity monitoring requirements in the CAAPP permit are sufficient to assure compliance with the permit condition, or are sufficient to yield reliable data from the relevant time period that is representative of compliance with the permit. USEPA further states that the Illinois EPA has failed to provide and explanation of the origin of the emission factors, or an explanation of why use of the emission factors is adequate to assure compliance.

USEPA also finds in its Order that the permitting record does not specify the origin of the emission factors, and that it is not clear whether the emission factors are indicative of emissions at the source.

The Petitioner also alleges that the permit record does not provide a clear rationale for the monitoring requirements for the SO_2 emission limit in Condition 7.4.6(f) of the permit, as it relies on an emission factor from an unspecified source, and asserts that Illinois EPA must provide additional information to justify this monitoring condition.

USEPA finds in its Order that Illinois EPA's response did not provide and an analysis to demonstrate how the opacity monitoring requirements in the CAAPP permit are sufficient to assure compliance with the permit condition, or are sufficient to yield reliable data from the relevant time period that is representative of compliance with the permit. USEPA further states that the Illinois EPA has failed to provide and explanation of the origin of the emission factors, or an explanation of why use of the emission factors are adequate to assure compliance.

In response to the Order, the revised permit would require additional Periodic Monitoring requirements in Conditions 7.4.6(b), (c), and (f). The Illinois EPA has also a more complete discussion of the monitoring in Section C.4 of Attachment C of this Statement of Basis. In this regard, the Iron Spout Baghouse and Casthouse Baghouse must be considered together as they both control a portion of the emissions from the casthouse. As such, testing of these baghouses must be concurrently, both to address applicable regulatory requirements and to provide accurate date to reevaluate the emission rates for uncaptured emissions.

Iron Pellet Screen Emissions

The Petitioner alleges that the permit record does not provide a clear rationale for the monitoring requirements for the PM_{10} emission limit in Condition 7.4.6(g) of the permit, as it relies on an emission factor from an unspecified source, and asserts that Illinois EPA must provide additional information to justify this monitoring condition.

USEPA finds in its Order that Illinois EPA's response did not provide and an analysis to demonstrate how the opacity monitoring requirements in the CAAPP permit are sufficient to assure compliance with the permit condition, or are sufficient to yield reliable data from the relevant time period that is representative of compliance with the permit. USEPA further states that the Illinois EPA has failed to provide and explanation of the origin of the emission factors, or an explanation of why use of the emission factors is adequate to assure compliance.

The revised permit would include the iron pellet screen emissions in the Material Handling and Processing Operations in Condition 7.1 of the permit, making these emissions subject to the Monitoring requirements of that section, consistent with other material handling operations. The Illinois EPA has provided a detailed discussion of the Periodic Monitoring requirements in Section C.1 of Attachment C of this Statement of Basis.

e. Section II(E) of the Order: Basic Oxygen Furnaces (BOF)

1. Opacity

Petitioner alleges that the permit record does not provide a clear rationale for the frequency of the

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monitoring requirements for the opacity limit found in Condition 7.5.3 -1(c)(iv) of the permit. Petitioner also alleges that daily opacity observations are supported by USEPA's April 18,1997, Region 7 *Policy on Periodic Monitoring for Opacity* guidance document for Title V permits, suggests the permit be revised to require daily observations, and asserts that Illinois EPA must provide additional information to justify the monitoring frequency in the permit.

USEPA agrees in their Order that Illinois EPA's response did not provide an analysis to demonstrate how the frequency of the observations is sufficient to assure compliance with the permit conditions or is sufficient to yield reliable data from the relevant time period that is representative of compliance with the permit conditions.

However, USEPA states that the Region 7 document referenced does not contain any requirements, and that Illinois EPA does not have to use that guidance document, but does need to provide a better explanation of the bases and adequacy of its choice of monitoring.

The Petitioner also alleges that the permit lacks Periodic Monitoring requirements sufficient to assure compliance with the opacity limit in Condition 7.5.3 – 1(f) of the permit and asserts that the Illinois EPA must provide additional information to justify this monitoring requirement.

USEPA in its order found that Illinois EPA did not provide an analysis to demonstrate how the monitoring requirements are sufficient to demonstrate compliance with the VE limit or are sufficient to yield reliable data from the relevant time period that is representative of compliance with the permit conditions.

In response to the Order, the revised permit would require additional observations for opacity in Condition 7.5.7(c) and additional observation for opacity in Condition 7.5.8(d)(v). A detailed justification of the Periodic Monitoring requirements for operations at the BOF is provided in Section C.3 of Attachment C of this Statement of Basis. In particular, for "daily" opacity observations not to be required for the roof monitor on the BOF shop, the source must first install a baghouse to enhance control of the tapping emissions from the furnaces. It must then operate the capture and control system to provide a 10 percent compliance margin with the applicable opacity standard for the roof monitor. If this compliance margin is not present, it must resume "daily" observation, by conducting observations of the opacity of the emissions from the roof monitor on five out of every seven operating days.

2. Production and Emission Limits

The Petitioner alleges that the permit does not include Periodic Monitoring sufficient to assure compliance with the emission limits in Conditions 7.5.6(c)-(i) for the basic oxygen furnaces and related operations. Additionally, the Petitioner alleges that compliance with these conditions is demonstrated through records and emission factors established in PSD Permit 95010001, and that neither the CAAPP permit nor the PSD permit identifies the source of the emission factors. Further, the Petitioner asserts that the Project Summary and the Responsiveness Summary did not provide evidence that the emission factors are representative of emissions at the source.

The Petitioner asserts that Illinois EPA must provide additional information about the source of the

data used to calculate the emission factors and must explain how the use of the emission factors is sufficient to assure compliance with the associated emission limits. The specific allegations regarding each emission limit are discussed in the following sections.

In response to the Order, the revised permit would provide for verification and reevaluation of emission factors and require additional testing for the pollutants subject to limits in Conditions 7.5.6(c) and 7.5.7(b) to. The revised permit would also include additional monitoring requirements in Condition 7.5.8. The Illinois EPA has provided a detailed explanation and justification of the Periodic Monitoring requirements for operations at the BOF in Section C.3 of Attachment C of this Statement of Basis.

BOF Electrostatic Precipitator (ESP) Stack Emissions

The Petitioner alleges that the permit record does not provide a clear rationale for the monitoring requirements for the NO_x limit in Condition 7.5.6(c) of the permit, and alleges that Illinois EPA has failed to include information necessary to justify the use of the NO_x emission factor to assure compliance with the limit. The Petitioner asserts that Illinois EPA must provide additional information to justify these monitoring conditions.

USEPA finds in its Order that Illinois EPA has not made clear how the emission factors are indicative of the emissions at the source. USEPA also finds that Illinois EPA has failed to explain how the use of the emission factors in conjunction with the production records is adequate to assure compliance.

The Petitioner also alleges that the permit record does not provide a clear rationale for the monitoring requirements for the VOM limit in Condition 7.5.6(c) of the permit, and alleges that Illinois EPA has failed to include information necessary to justify the use of the VOM emission factor to assure compliance with the limit. The Petitioner asserts that Illinois EPA must provide additional information to justify these monitoring conditions.

USEPA finds in its Order that Illinois EPA has not made clear how the emission factors are indicative of the emissions at the source. USEPA also finds that Illinois EPA has failed to explain how the use of the emission factors in conjunction with the production records is adequate to assure compliance.

The Petitioner also alleges that the permit record does not provide a clear rationale for the monitoring requirements for the CO limit in Condition 7.5.6(c) of the permit, and alleges that Illinois EPA has failed to include information necessary to justify the use of the CO emission factor to assure compliance with the limit. The Petitioner asserts that Illinois EPA must provide additional information to justify these monitoring conditions.

USEPA finds in its Order that Illinois EPA has not made clear how the emission factors are indicative of the emissions at the source. USEPA also finds that Illinois EPA has failed to explain how the use of the emission factors in conjunction with the production records is adequate to assure compliance. Additionally, USEPA finds that while Illinois EPA states that there is a large margin for compliance, it failed to provide any information which addresses the variability in

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emissions.

The Petitioner also alleges that the permit record does not provide a clear rationale for the monitoring requirements for the lead limit in Condition 7.5.6(c) of the permit, and alleges that Illinois EPA has failed to include information necessary to justify the use of the lead emission factor to assure compliance with the limit. The Petitioner is also concerned that the lead emission limit is much higher than necessary given the emission factor cited by the permit. The Petitioner asserts that Illinois EPA must provide additional information to justify these monitoring conditions.

USEPA finds in its Order that Illinois EPA has not made clear how the emission factors are indicative of the emissions at the source. USEPA also finds that Illinois EPA has failed to explain how the use of the emission factors in conjunction with the production records is adequate to assure compliance. Additionally, USEPA finds that Illinois EPA has failed to provide an explanation of why use of the emission factors is adequate to assure compliance.

In response to the Order, the revised permit would include additional testing for the pollutants whose emissions are limited by Conditions 7.5.6(c) and 7.5.7(b) of the permit to verify emission factors. The revised permit would also require additional monitoring in Condition 7.5.8. The Illinois EPA has provided a more complete justification of the Periodic Monitoring requirements for operations at the BOF shop in Section C.5 of Attachment C of this Statement of Basis.

BOF Roof Monitor Emissions

The Petitioner alleges that the permit record does not provide a clear rationale for the monitoring requirements for the lead emission limit in Condition 7.5.6(d) of the permit, as it relies on an emission factor from an unspecified source, and asserts that Illinois EPA must provide additional information to justify this monitoring condition.

USEPA finds in its Order that Illinois EPA has not made clear how the emission factors are indicative of the emissions at the source, nor has it explained the origin of the emission factors. USEPA also finds that Illinois EPA has failed to explain how the use of the emission factors in conjunction with the production records is adequate to assure compliance. Additionally, USEPA finds that Illinois EPA has failed to provide an explanation of why use of the emission factors is adequate to assure compliance.

In response to the Order, the revised permit would include additional testing for emissions lead in Condition 7.5.7(c) to verify emission factors used by the Permittee. Illinois EPA has also provided and explanation in Section III and Section C.5 of Attachment C of this Statement of Basis for how emission factors used to determine compliance with Title I conditions are to be approached.

Desulfurization and Reladling (Hot Metal Transfer) Emissions

The Petitioner alleges that the permit record does not provide a clear rationale for the monitoring requirements for the VOM emission limit in Condition 7.5.6(e) of the permit, as it relies on an emission factor from an unspecified source, and asserts that Illinois EPA must provide additional

information to justify this monitoring condition. The Petitioner also alleges that Illinois EPA does not explain what "engineering estimates" were used to develop the emission limit and how those estimates are representative of emissions from these operations at the source.

USEPA finds in its Order that Illinois EPA has not made clear how the emission factors are indicative of the emissions at the source, nor has it explained the origin of the emission factors. USEPA also finds that Illinois EPA has failed to explain how the use of the emission factors in conjunction with the production records is adequate to assure compliance.

The Petitioner further alleges that the permit record does not provide a clear rationale for the monitoring requirements for the lead emission limit in Condition 7.5.6(e) of the permit, as it relies on an emission factor from an unspecified source, and asserts that Illinois EPA must provide additional information to justify this monitoring condition. The Petitioner also asserts that if Illinois EPA cannot provide sufficient justification for the monitoring requirements, the permit must be revised to include additional Periodic Monitoring, such as an annual stack test, to assure compliance with the lead limit.

USEPA finds in its Order that Illinois EPA has not made clear the origin of the emission factors or how the emission factors are indicative of the emissions at the source. USEPA also finds that Illinois EPA has failed to explain how the use of the emission factors is adequate to assure compliance. Additionally, USEPA finds that Illinois EPA must explain how the margin of compliance is adequate, and why variability in emissions will not result in an exceedance of the limits.

In response to the Order, the revised permit would include additional testing for emissions of lead and VOM from units subject to limits in Condition 7.5.7(c) of the permit to verify emission factors. The Illinois EPA has also provided additional analysis to explain and how the emission factors are used to assure compliance with the terms and conditions of the permit in Section III and Section C.5 of Attachment C of this Statement of Basis.

BOF Additive System Emissions

The Petitioner alleges that the permit record does not provide a clear rationale for the monitoring requirements for the PM_{10} emission limit in Condition 7.5.6(f) of the permit, stating that Illinois EPA has failed to include information necessary to justify the use of the emission factors to assure compliance with the limit, and asserts that Illinois EPA must provide additional information to justify this monitoring condition.

USEPA finds in its Order that Illinois EPA has not made clear how the emission factors are indicative of the emissions at the source, nor has it explained the origin of the emission factors. USEPA also finds that Illinois EPA has failed to explain how the use of the emission factors in conjunction with the production records is adequate to assure compliance.

The revised permit would include the BOF additive system in the Material Handling and Processing Operations in Section 7.1 of the permit, making this system subject to the Periodic Monitoring requirements of that section, consistent with other material handling operations. The

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Illinois EPA has provided a detailed discussion of the Periodic Monitoring requirements in Section C.1 of Attachment C of this Statement of Basis.

f. Section II(F) of the Order: Continuous Casting

1. Opacity

The Petitioner alleges that the permit record does not provide a clear rationale for the monitoring requirements for the opacity limit in Conditions 7.6.3 – 1(b)(ii) of the permit. The Petitioner asserts that Illinois EPA has not provided a rationale that this demonstrates that this monitoring is sufficient to yield reliable data from the relevant time period that are representative of compliance, and that the Illinois EPA must revise the permit to require at least daily opacity observations to assure compliance with the limit.

USEPA finds in its Order that Illinois EPA's response did not provide an analysis to demonstrate how the weekly (and potentially daily) observations are adequate to assure compliance with the limit or are sufficient to yield reliable data from the relevant time period that are representative of compliance with the permit.

In response to the Order, the revised permit would include additional Periodic Monitoring requirements in Condition 7.6.8(a)(ii). The Illinois EPA has provided a detailed justification of the monitoring requirements for continuous casting operations in Section C.6 of Attachment C of this Statement of Basis.

2. Production and Emission Limits

The Petitioner asserts that the permit does not include Periodic Monitoring sufficient to assure compliance with the PM_{10} and NO_x limits in Conditions 7.6.7(a) through (e) of the permit. Additionally, the Petitioner alleges that compliance with these conditions is demonstrated through records and emission factors established in PSD permit 95010001, and that neither the CAAPP permit nor the PSD permit identifies the source of the emission factors. Further, the Petitioner asserts that the Project Summary and the Responsiveness Summary did not provide evidence that the emission factors are representative of emissions at the source. The Petitioner concludes that Illinois EPA must provide additional information about the source of the data used to calculate the emission factors and must clearly explain how the use of emission factors is sufficient to assure compliance with the limits.

USEPA finds in its Order that Illinois EPA has not made clear how the emission factors are indicative of the emissions at the source, nor has it explained the origin of the emission factors. USEPA also finds that Illinois EPA has failed to explain how the use of the emission factors in conjunction with the production records is adequate to assure compliance.

In response to the Order, the revised permit would require additional Periodic Monitoring for opacity in Condition 7.6.8(a)(ii).. The Illinois EPA has also provided a detailed justification of the Periodic Monitoring requirements for PM_{10} and NO_x emissions from continuous casting operations in Section C.6 of Attachment 6 to this Statement of Basis.

g. Section II(G) of the Order: Hot Strip Mill

1. Slab Reheat Furnaces

The Petitioner alleges that the permit does not include Periodic Monitoring sufficient to assure compliance with the PM_{10} limit in Condition 7.7.3 – 1 of the permit. The petition asserts that the permit must require additional monitoring, such as a PM CEMS to assure compliance with the limit because the current requirement to test once in five years is not sufficient to assure compliance with a limit that the source must comply with continually.

USEPA finds in its Order that Illinois EPA did not provide an analysis to demonstrate how the testing frequency is adequate to assure compliance with the PM_{10} limit, or is sufficient to yield reliable data from the relevant time period that are representative of compliance with the permit However, USEPA also finds that the Petitioner has not identified an applicable requirement that compels the use of CEMS, nor has the Petitioner demonstrated that a CEMS is the only monitoring that can assure compliance. So, the USEPA has ordered the Illinois EPA to explain how the permit provides sufficient monitoring or to modify the permit to achieve this, but has denied the petition regarding the issue of CEMS.

In response to the Order, , the revised permit would include additional emissions testing in Conditions 7.7.8(a) and (b), and to additional monitoring requirements in Condition 7.7.9(a) and (b). The Illinois EPA has also provided in Section C.7 of Attachment C of this Statement of Basis a detailed explanation for why the Periodic Monitoring requirements for the reheat furnaces are sufficient to assure compliance with the PM_{10} limit for the furnaces. It should be noted that this limit is found in the revised permit in Condition 7.7.3(b).

As part of this further consideration of Periodic Monitoring for the reheat furnaces , the Illinois EPA has also determined that several Title I limitations for the reheat furnaces in the current permit should not be retained in the revised permit as those limitations are "obsolete," as explained in Section III of this Statement of Basis. Accordingly, the revised CAAPP permit does not need Periodic Monitoring for those limitations.

2. Production and Emission Limits

The Petitioner asserts that the permit does not include Periodic Monitoring sufficient to assure compliance with the PM_{10} limit in Condition 7.7.7(b) of the permit. The Petitioner asserts that the permit must contain an hourly fuel usage recordkeeping requirement to assure compliance with the maximum hourly heat input limit.

USEPA in its order finds that Illinois EPA did not provide an analysis to demonstrate how the new heat input limit is adequate to assure compliance with the PM_{10} limit, nor did it explain why the monthly fuel log is sufficient to assure compliance with the permit terms or yield reliable data from the relevant time period that are representative of compliance with the permit.

In response to the Order, the revised permit would include additional emissions testing in

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Conditions 7.7.8(a) and (b) and additional monitoring requirements in Conditions 7.7.9(a) and (b). The Illinois EPA has also provided, in Section C.7 of Attachment C of this Statement of Basis, an explanation for why the Periodic Monitoring requirements for the reheat furnaces along with monthly fuel logs are sufficient to assure compliance with the PM_{10} limit for the reheat furnaces.

h. Section II(H) of the Order: Finishing Operations

The Petitioner claims that the permit does not include Periodic Monitoring sufficient to assure compliance with the hydrochloride (HCl) limits in Condition 7.8.5(a) of the permit. The Petitioner states that it is unclear why the permit provides for an alternative testing schedule in Condition 7.8.5(a)(ii). The Petitioner asserts that, if the permitting authority approved an alternate testing schedule, the public would not know what testing frequency was required. The Petitioner further asserts that the permit must be revised to require HCl performance testing on at least an annual basis.

USEPA finds in its Order that Illinois EPA did not provide an analysis to demonstrate how the new time interval is adequate to assure compliance with the HCl limit, nor did it explain why the monitoring is sufficient to yield reliable data from the relevant time period that are representative of compliance with the permit.

A detailed justification for the Periodic Monitoring requirements for finishing operations is provided in Section C.8 of Attachment C of this Statement of Basis.

i. Section II(I) of the Order: Boilers

1. PM_{10} Emission Limit

The Petitioner claims that the permit does not include Periodic Monitoring sufficient to assure compliance with the PM_{10} limit in Condition 7.10.3(b)(ii) of the permit. The Petitioner asserts that a one-time test does not constitute Periodic Monitoring and is not sufficient to assure compliance. The Petitioner further argues that the permit must be revised to require additional Periodic Monitoring such as a PM CEMS.

USEPA found in its Order that Illinois EPA failed to provide any support for its conclusion that the applicable limit will not be exceeded because the boilers will burn only gaseous fuels. USEPA also states that it is unclear why Illinois EPA believes that 40 CFR 63.1162 is not applicable if boilers are limited to burning gaseous fuels.

However, USEPA also finds that the Petitioner has not demonstrated that a CEMS is the only monitoring method that can assure compliance. So, the USEPA has ordered the Illinois EPA to explain how the permit provides sufficient monitoring or to modify the permit to achieve this, but has denied the petition regarding the issue of CEMS.

In response to the Order, the revised permit would include additional emissions testing, monitoring requirements, and work practices for the boilers. In the case that these boilers are not subject to the additional requirements, Illinois EPA has provided a more complete explanation of the

Periodic Monitoring for PM_{10} for these boilers, and an analysis of how the monitoring requirements including fuel usage and fuel analysis assure compliance with the applicable conditions in the permit. These discussions are provided in Section C.10 of Attachment C of this Statement of Basis.

2. CO Emission Limit

The Petitioner claims that the permit does not include Periodic Monitoring sufficient to assure compliance with the PM_{10} limit in Condition 7.10.3(e) of the permit. The Petitioner also claims that Illinois EPA has not provided a clear rationale supporting the monitoring requirements associated with the limit.

USEPA, in its Order, references Illinois EPA's response referring to a permit that it has not issued yet, and notes that the terms in that permit are not yet effective. USEPA has thus ordered that Illinois EPA explain what monitoring is required by the CAAPP permit, and how the monitoring is sufficient to assure compliance with the permit condition or yields reliable data from the relevant time period that are representative of compliance with the permit.

In response to the Order, the revised permit would include additional emissions testing, monitoring requirements, and work practices for the boilers. The Illinois EPA has provided a detailed explanation of the Periodic Monitoring for CO for these boilers, and an analysis of how the Periodic Monitoring requirements assure compliance with the applicable conditions in the permit. These discussions are provided in Section C.10 of Attachment C of this Statement of Basis.

j. Section II(J) of the Order: Internal Combustion Engines

The Petitioner claims that the permit requires the source to demonstrate compliance with Condition 7.11.7(b) for PM, CO, NO_x, and SO_2 emission limits for the emergency generator through the use of emergency generator operation record and emission factors identified in the permit. The Petitioner alleges asserts that, while the permit indicates the emission factors were established in permit 000600003, the source of the emission factors was not identified. The Petitioner asserts Illinois EPA must provide additional information to justify the monitoring requirements.

USEPA finds in its Order that Illinois EPA failed to address the Petitioner's comments that the limits in permit 000600003, and that the emission factors were of an unknown origin. USEPA has ordered Illinois EPA to provide an adequate explanation of whether the monitoring in the permit, including the use of emission factors, is sufficient to assure compliance with the CO limit.

In response to the Order, the revised permit would include additional emissions testing requirements in Condition 7.11.7 to verify emission factors and additional recordkeeping requirements in Condition 7.11. 9. The Illinois EPA has also provided a detailed justification of the monitoring requirements in Section C.11 of Attachment C of this Statement of Basis.

It should be noted that the PM, CO, NO_x, and SO_2 limits referred to in the Order are now in Condition 7.11.6(a) of the revised permit.

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c. Section II(K) of the Order: Gasoline Storage and Dispensing

The Petitioner claims that the permit fails to include adequate Periodic Monitoring to assure compliance with the hourly discharge limit on organic material in Condition 7.12.3(b)(ii). The Petitioner further asserts that Illinois EPA has failed to adequately justify how the use of the TANKS program and monthly throughput information is sufficient to assure compliance with the hourly discharge limit. The Petitioner also asserts that monthly gasoline throughput records do not appear to constitute reliable data from the relevant time period that are representative of compliance with the permit, concludes that Illinois EPA must provide additional information to justify the monitoring requirements

USEPA finds in its Order that Illinois EPA failed to provide an analysis to demonstrate how the TANKS program and information on monthly gasoline throughput is adequate to assure compliance with the hourly discharge limit, or why these requirements yield reliable data from the relevant time period that are representative of compliance with the permit.

In response to the Order, the revised permit would include additional control requirements and work practices in Conditions 7.12.5(b)(v) and (c) to ensure adequate Periodic Monitoring for the Gasoline Storage and Dispensing operations. The Illinois EPA has provided an explanation of how the Periodic Monitoring requirements are sufficient to assure compliance with the terms and conditions of the permit in Section C.12 of Attachment C of this Statement of Basis,.

D.3. Petitioner Alleges that the Permit Lacks Compliance Schedules to Remedy All Current Violations (Section III of the Order)

The Petitioner raised two issues regarding compliance schedules. First, the Petitioner alleges that the permit forgoes a required enforceable compliance schedule in favor of an unacceptable "under review" compliance provision. Second, the Petitioner alleges that there are 21 additional instances of current noncompliance given by two notices of violations, one given in January 2009 and the other in March 2009.

USEPA denied the petition on the second issue regarding notices of violation.

In the first allegation, the Petitioner alleges that the permit and Responsiveness Summary show that US Steel had not submitted an approvable schedule at the time of permit issuance

USEPA's Order directed Illinois EPA to issue a permit that assures compliance with the December 18, 2007 consent order

In response to the Order, Illinois EPA, as explained in Section II of this document, has updated the compliance schedule for the BOF that appeared in the earlier CAAPP permit. As more fully explained in the Responsiveness Summary for the earlier permit, the schedule in the earlier CAAPP permit was a placeholder pending further developments in the enforcement action regarding the BOF. The updated schedule that would appear in the planned revised permit includes a compliance schedule with an enforceable sequence of actions with milestones leading to compliance. It should be noted, however, that there is now only one milestone remaining in the

schedule contained in the planned permit given the progress the source has made toward compliance. It should be further noted that given the schedule for achieving this milestone, the revised permit when issued may appropriately contain no schedule.

D.4 Petitioner Alleges that the Permit Unlawfully Exempts Emissions During Startup, Shutdown, and Malfunctions (SSM) (Section IV of the Order)

In Section IV.A. of the Order, USEPA refers to the Petitioner's allegations that numerous provisions in the permit unlawfully exempt the source from otherwise-applicable NESHAP standards during periods of SSM.

USEPA notes in the Order that Illinois EPA explained in its initial response to this issue that the mandate in this case had not yet been issued, and thus no changes would be made to the permit to address the issue. USEPA agrees in its Order and states that it was reasonable for Illinois EPA to forego action in response to comment, and denied the petition on this issue.

In Section IV.B. of the Order, USEPA refers to the Petitioner's claims that nine permit terms illegally allow for broad exemptions from permit requirements during periods of SSM, and that Illinois EPA's response to comments falls short of adequately explaining why these SSM exemptions are legally or factually justified pursuant to 40 CFR 70.7(a)(5).

USEPA granted the petition on the issue detailed in Section IV.B. directing the Illinois EPA to explain how it determined in advance that the Permittee had met the requirements of the Illinois SIP at 35 IAC 201.262, or otherwise make appropriate changes to the permit and explain how the permit ensures compliance with the requirement of the SIP.

USEPA further directs Illinois EPA to either explain in the Statement of Basis how it determined in advance that the Permittee had met the requirements of the SIP, or to specify in the permit that continued operation during malfunction or breakdown will be authorized on a case-by-case basis if the source meets the SIP requirement.

In response to the Order, Illinois EPA has provided in Section VI of this Statement of Basis an explanation of the Illinois SIP and how the permit ensures compliance with Illinois' SIP requirements. Most significantly, Illinois EPA has explained that the sole determinations that are made in advance are whether that the source requested permission to continue to operate during a malfunction or breakdown in its CAAPP application, and whether the CAAPP application satisfied the application content of the SIP and provided proof sufficient to enable Illinois EPA to afford the source a potential prima facie defense to an enforcement action. This explanation applies to each unit for which the Illinois EPA afforded an opportunity to make a prima facie defense.

D.5 Petitioner Alleges that the Permit Fails to Include Compliance Assurance Monitoring (CAM) Requirements (Section V of the Order)

Section V of the order discusses the Petitioner's claims that the requirement for compliance assurance monitoring (CAM) plans, pursuant to 40 CFR Part 64, apply to the source because US Steel filed an initial CAAPP application after April 20, 1998

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The USEPA responded in the Order that the Petitioner had not demonstrated that the source met any of the criteria that trigger applicability of CAM plans. The petition was denied on that issue.

D.6 Petitioner Alleges that Numerous Permit Provisions Are Not Practically Enforceable (Section VI of the Order)

a. Section VI(A) of the Order: The Permit Fails to Appropriately Incorporate Plans by Reference

In this Section of the Order, USEPA addressed the Petitioner's claims that the CAAPP permit does not sufficiently identify the plans or portions of plans that are incorporated by reference into the permit by reference.

USEPA responds in the Order that Illinois EPA's incorporations are ambiguous and leave room for interpretation and misunderstanding about what exactly is required of the source. USEPA recommends that Illinois EPA use methods of incorporation by reference that are consistent with *White Paper 2* and the *Tesoro Order* that are referenced in the order.

In response to the Order, Illinois EPA has made changes to the planned revised permit to make clear which plans would be incorporated by reference. A full discussion of the manner in which the five plans referenced in the Order would be incorporated can be found in Section VII of this Statement of Basis.

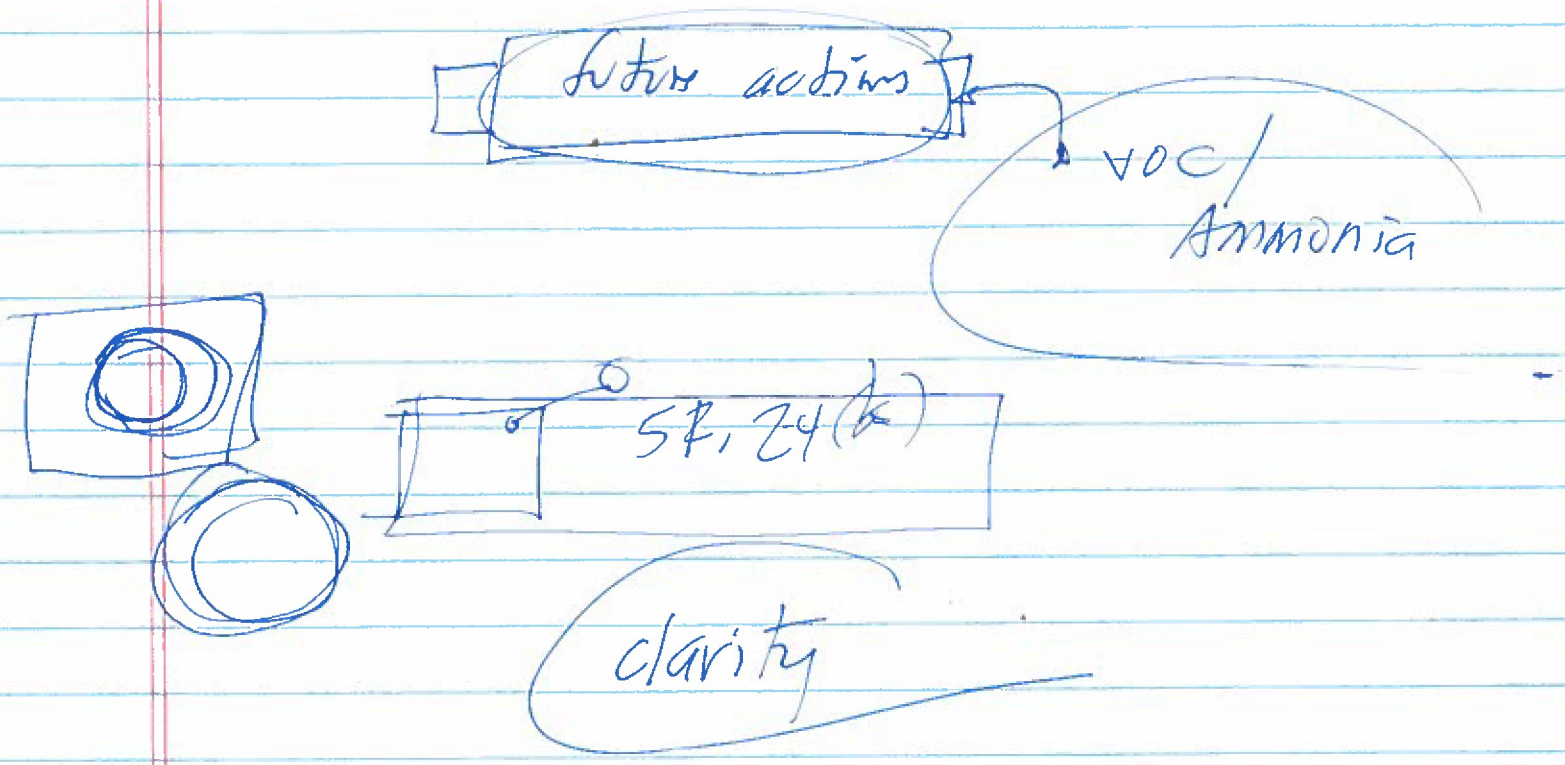
b. Section VI(B) of the Order: Vague Provisions in the Permit Are Not Practically Enforceable

In this Section of the Order, USEPA address the Petitioner's claims that permit conditions must contain sufficient detail to ensure that the source and the public clearly understand permit obligations and compliance evaluation procedures.

USEPA granted the petition on this issue, specifically in regard to Condition 7.7.5 of the permit, and has directed Illinois EPA to evaluate whether, and ensure that, any permit conditions regarding startup are practically enforceable.

In response to the Order, Illinois EPA has provided in Section VI of this Statement of Basis an explanation of the Illinois SIP and how the planned revised permit complies with Illinois' SIP. Most significantly, Illinois EPA has explained that neither the SIP nor the permit provide for automatic, advance SSM exemptions. The sole determinations that are made in advance are whether the source requested permission to continue to operate during a malfunction or breakdown in its CAAPP application, and whether the CAAPP application satisfied the application content of the SIP and provided proof sufficient to enable Illinois EPA to afford the source a potential prima facie defense to an enforcement action. Additionally, consistent with the USEPA's directive on start-ups, the critical elements of the start-up procedures are included in the planned revised permit. This approach applies to each unit for which Illinois EPA afforded an opportunity to make a prima facie defense.

R007131


future actions
VOC/
Ammonia
57, 24(b)
clarity

Lead - BOF) ESP
Roof Monitor
Desulfurization

Finally,
I
Apply As presented in ~~Appe~~
A T ~~At~~ Natural gas-fired lances can be used in certain circumstances to facilitate ~~the~~ operation of the

with the BOFs

Natural gas-fired lances are auxiliary - are can assist

Many can U

Facilitate

some compensating in part for the

HALF BI GAME N

p. 13 684

Intro to request

Pollutant - by - pollutant

Meeting

better performing baghouse (improv

- Margins for emission limits

cast house iron spout - MACT ≈ 0.03 lb ≈ 0.07

NO_x = 2012 results

baseline vs.

(TONS OF NO_x DEL

Back Calculation — lead missing → 1.48 scaler

ton/hr

Baghouse 1 hr

Second caster → 0.088 lb/ton

Magnesium lime

VOM margin small

.10 .01

NOx — secondary baghouse ???

Even Regim V

Compliance margin

Flint Hills

Title V

ULSD

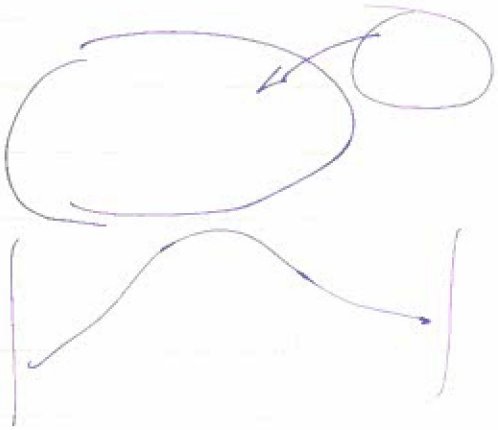
Pinal

Desert Basin

Maricopa

USEPA — public cannot see the permit

plenty of margin



SHUTDOWN OF COKE OVEN PROJECT

Evaluation of Emission Factor

VOM

highlight

0.033

3×10^6 x 0.033

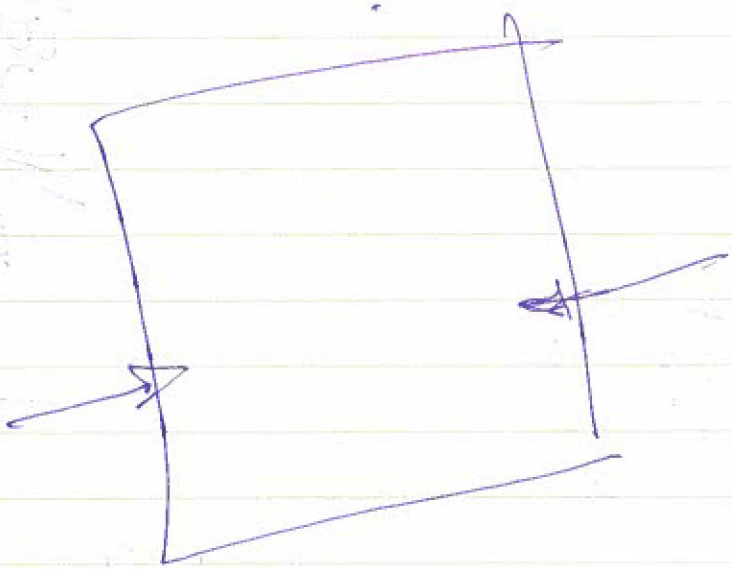
0.1×10^6

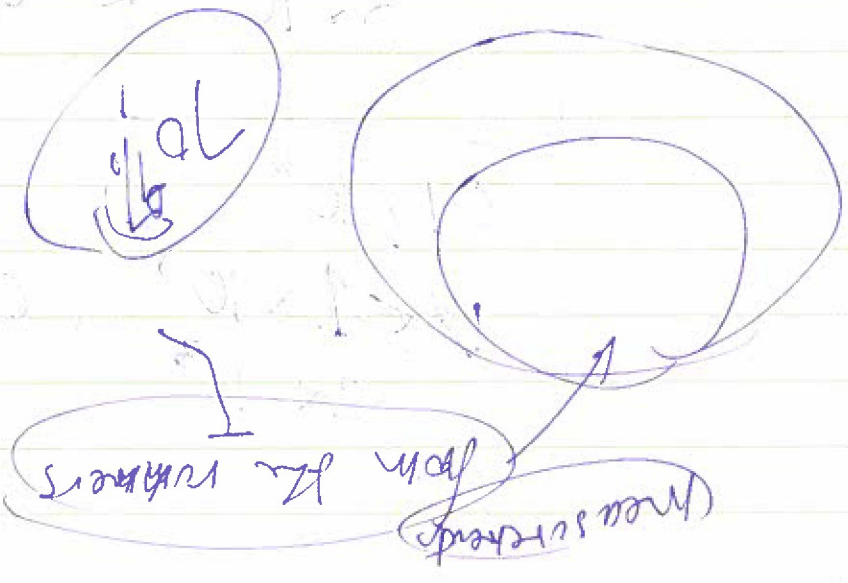
1×10^5

2×10^3

0.5×10^2

5×10^1





- Adding compliance procedures monitors:

- removal of emission factor limits
- BACT for stores - remove details

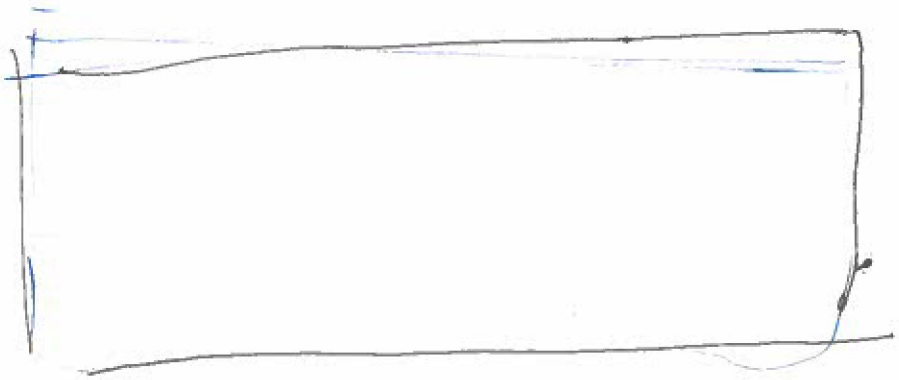
- Section 8 & 9
  NO_x VOM

- Lead

BACT

- Evaluation of Changes - COG

decreases for COG shut



disposition of CUG

No. 11 —

60% — No 12 — 750

Solve 1428

Ladle Product —

2178

0.58

1263

Reheats — in mm Btu — 42,025
194,903
72,817
58,981

2200
.95

x .55

mm Btu = 1000 million Btu

60% x 1/16

276
8
34

50 2178
x 2
4356
÷ .55

LS6
BFG vs NC

[heat input]

5% =

40 CFR 63.~~75~~75

gas volume

93	1030

9% of the heat input

90%

~~93~~
~~90%~~

93 × .9 1030 × 0.1
83.7 103.0

93 × .95 1030 × 0.05

501.5

heat input
88.35 50.15 – 95/5% volume

Δ gas > 5%
= 84

remainder = BFG
if less than
95% – assume

(84 322
× .05 × 0.95
4.2 296.24

for CO assume all CO from BFG if
% of BFG by volume
≥ 95%

- What basis is there for the casthouse to not be subject to BACT?
  (covered by 1995-1996 application)

- Permit for increased natural gas usage per the shutdown of the byproduct coke ovens?
  (nat. gas limits and road dust plan)

- What guidance is there for Integrated Processing to avoid CAM plans?

- Material handling — comprehensive

- Blast furnaces - slips, backdrafting & beaching
  (other than casthouse, charging & slag pits)

NESHAP - 0.01 gr/dscf

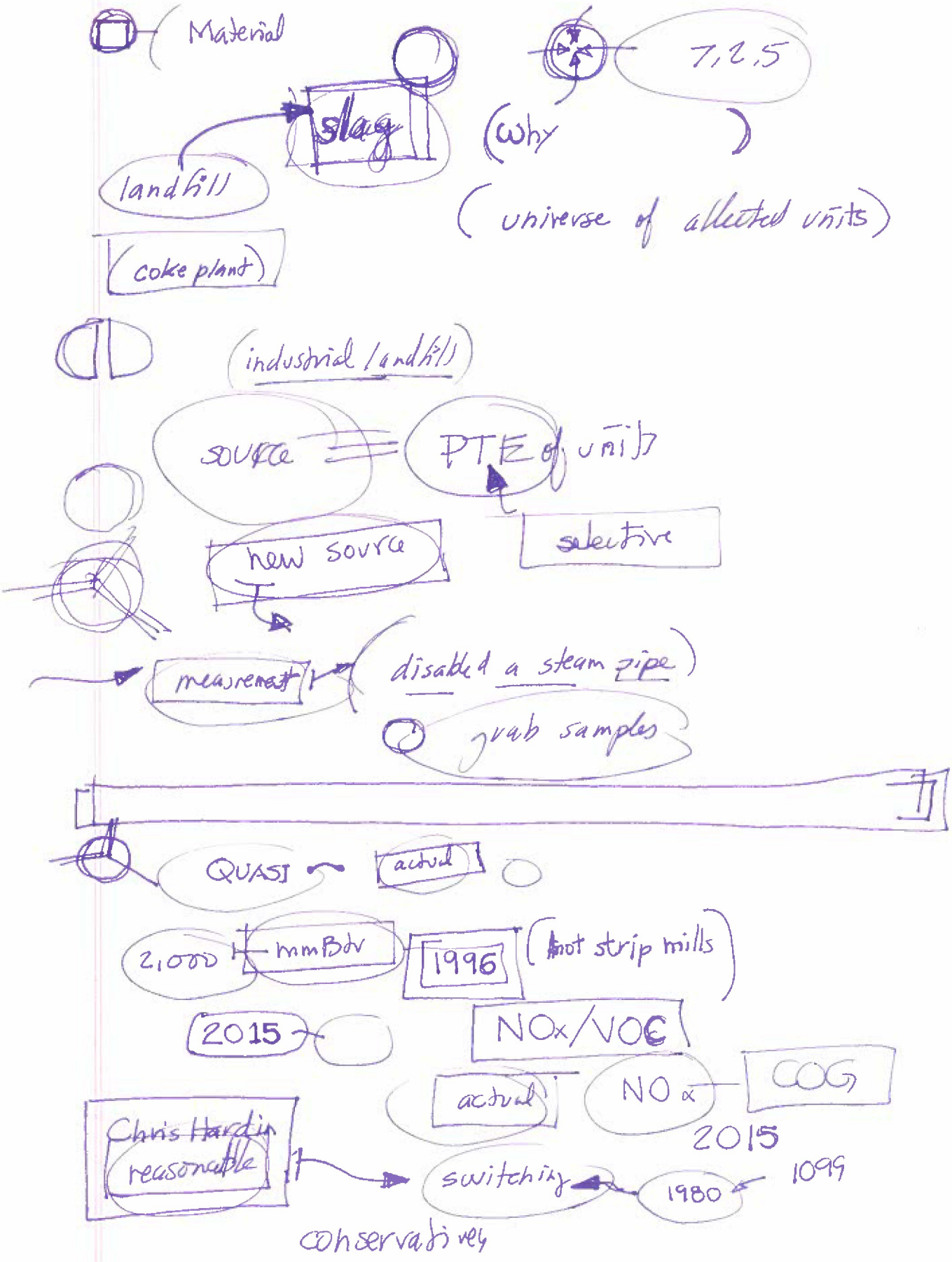
- Comprehensive procedures for NESHAP units - concurrent task
- Compliance procedures for non-NESHAP units

- Comprehensive action — clean up of the BOP baghouse
  - CAAPP perm.

- Precedent for aggregate emission based [illegible]

- Sharing

NESHAP


Material
slag
landfill
coke plant
7,2,5
(why
(universe of allocated units)
industrial landfill
source
PTE of units
new source
selective
measurement
disabled a steam pipe
grab samples
QUASI
actual
2,000
mmBtu
1996
hot strip mills
2015
NOx/VOC
actual
NOx
COG
2015
Chris Hardin
reasonable
switching
1980
1099
conservatively

6/26

- ~~Christa~~ / Chris
- La Donna
- Chris / Mimi
- Sally
- Colin
- Gary
- Dave Hacker

- secondary emissions
- SO_2 — completely out of Part 2
  - 457.8
  - GAQC practice
  - unit specific short-term limits for SO_2 and CO treat differently.

CO — specific work practice

emission reduction achievable

BACT

BACT can be a work practice

CO — limits

Casthouse BOF

controlled ✓

uncontrolled ~

stores

NSR Manual

is BACT in ton/year?

625 dows/year

location in permit for SO2 one pk

tons/yr ≠ BAC

HHS

US Steel

ask receipt

"check"

CARMEUSE

(Bermese)

NSPS

MSSCAM

§ 203.207(c)(6)

PSD

slag

(plans incorporated)

PSD

2017 ≡ [full report]

- Baghouse
- Cogen – rewriting the applicatn

not net new

Mike
Bruno
Mars

(Appeal the permit again)

integrated processing

[ ]

[ ]

smaller

Michael

AJ

Doug

R007147

A
MAR
QUIS
U

Julie

permits enforcement
≡ unpacking ≡
[permit]

MAR

RIM RUM
RAM SUM
SAM ARM
AIR
AIM
AIMS
AIRS
SIR

1996 ⟸ · multi-facility
· USEPA

abandoning blanket settlement

JM

— magistrate —

different dimension

MIR

SAMI
RUS
IRAQ
SIRAQ
MUIR

1993 factor

additional ESP

one-time test showed higher rates

— open hood — explosion risk for CO

(similar condition to 1993 year)

(NOx from baghouse)

→ enforcement ← (subtract out the data)

baghouse still in place

end game → sue

7/11 [6×6] = 36

1 6 | 6 1
2 5 | 5 2
6 3 4 | 4 3
5 6 | 6 5

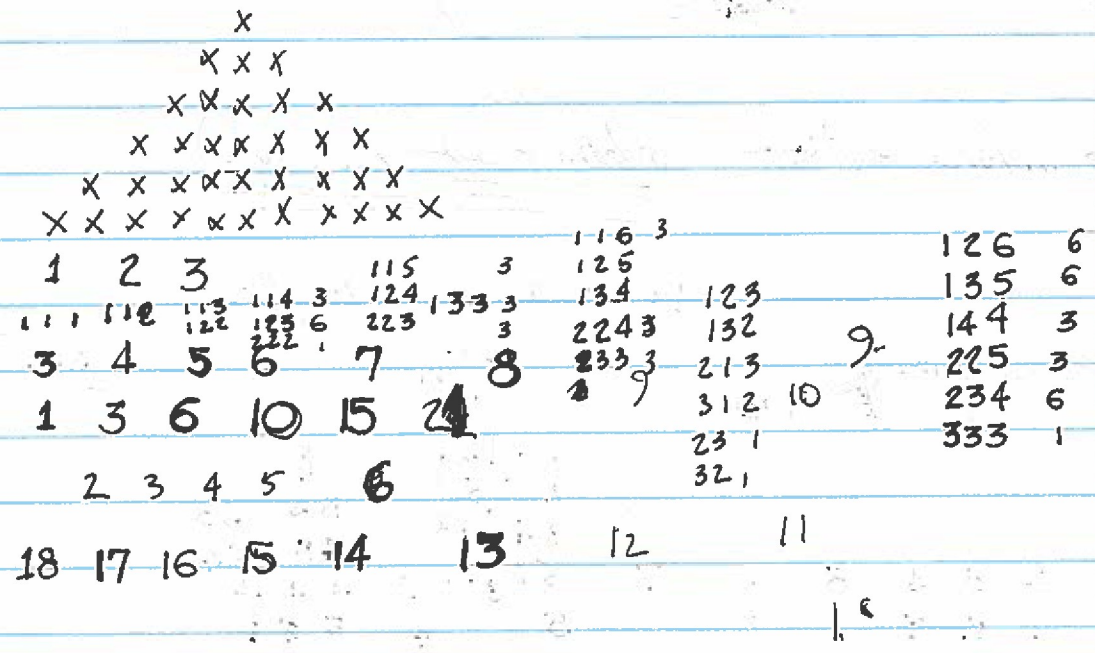
4
36 63
45 54

2 3 4 5 6 7 8 9 10 11 12
1 2 3 4 5 6 5 4 3 2 1

66 12
56] 11
65
55
64
46

x
x x x
x x x x x
x x x x x x x
x x x x x x x x x
x x x x x x x x x x x

1 2 3 115 3 116 3 126 6
111 112 113 114 3 124 133 3 125 135 6
122 123 6 223 3 134 123 144 3
222 1 2243 132 225 3
3 4 5 6 7 8 2333 3 213 9 234 6
1 3 6 10 15 21 9 312 10 333 1
231
321
2 3 4 5 6
18 17 16 15 14 13 12 11



Violation Notice A-2015-00076
United States Steel Corporation – Granite City Works, I.D. 119813AAI

ATTACHMENT A

Per available information:

1. Section 9.1(d)(2)(B) of the Act and condition 18 of Construction Permit/PSD Approval 95010001 ("PSD permit 95010001") : During emissions testing of the basic oxygen furnaces ("BOF") and associated electrostatic precipitators ("ESP"), performed on November 11 – 13, 2014, United States Steel Corporation – Granite City Works caused or allowed the emissions of nitrogen oxides ("NO_x") and volatile organic material ("VOM") to exceed the applicable emission limits, i.e., 0.0389 lbs/ton of liquid steel production and 0.006 lbs/ton of liquid steel production respectively. In addition, based on the result of this testing, for at least calendar year 2014, United States Steel Corporation – Granite City Works caused or allowed the emissions of NO_x and VOM from the ESP associated with the BOF to exceed the applicable emission limits, i.e., 69.63 tons/year and 10.74 tons/year, respectively.

2. Section 9.1(d)(2)(A) of the Act and condition 1 of Construction Permit 94090026: During emissions testing of the BOF and associated ESP, performed on November 11 – 13, 2014, testing indicated that United States Steel Corporation – Granite City Works caused or allowed increased emissions of NOx as compared to an August 1993 stack test of the BOF ESP exhaust stack. In so doing, United States Steel Corporation – Granite City Works violated Section 9.1(d)(2)(A). In particular, condition 1 of Construction Permit 94090026 provided that the addition of a fourth ESP was to provide additional control of particulate from BOF operations without any increase in emissions of other regulated air pollutants.

3. Sections 9(b)(2) and 39.5(6)(a) of the Act and condition 7.10.6(a)(iii)(a) of Clean Air Act Permit Program (CAAPP) permit 96030056 as revised by condition 3.1.6(a)(iii) of Construction permit 06070023: On June 30, 2015, United States Steel Corporation – Granite City Works exceeded the rolling 12-month natural gas limit of 410,000 mmBtu/year from the Cogeneration Boiler (#1 Power Boiler) and the Blast Furnace Gas Flare #2. The 12-month rolling total for June 2015 was 487,301 mmBtu/year.

RECOMMENDATIONS:

The Illinois EPA suggests that United States Steel Corporation – Granite City Works take the following actions to address the violations stated above:

1. Within 45 days of receipt of this Violation Notice, submit an application to revise its pending application to revise PSD permit 95010001.

State of Illinois
ENVIRONMENTAL PROTECTION AGENCY

Mary A. Gade, Director
217/782-2113

2200 Churchill Road, Springfield, IL 62794-9276

CONSTRUCTION PERMIT

RECEIVED
DEC - 5 1994
COLLINSVILLE REGION

PERMITTEE

Granite City Division of
National Steel Corporation
Attn: Fred Steinkuehler
20th & State Streets
Granite City, Illinois 62040

Application No.: 94090026
Applicant's Designation: BOF089458C
I.D. No.: 119813AAI
Date Received: September 7, 1994
Subject: Fourth Electrostatic Precipitator - BOF
Date Issued: December 1, 1994
Location: 20th & Omaha Street, Granite City

Permit is hereby granted to the above-designated Permittee to CONSTRUCT ~~emission source(s) and/or air pollution~~ control equipment consisting of a fourth electrostatic precipitator (ESP) to provide additional control for BOF operations as described in the above-referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s):

1. This permit is issued based upon the addition of a fourth ESP to provide additional control for BOF operations without any increase in the emissions of regulated air pollutants into the atmosphere.

2a. The Permittee shall keep operating records and a maintenance log for each BOF ESP which includes the following:

i. Operating time of the BOF;

ii. Operating time of the capture systems;

ii. Operating time of each ESP;

iv. All routine and nonroutine maintenance performed, including dates and duration of outages, inspection schedule, repair actions, and replacements.

b. These records shall be maintained at a readily accessible location at the site for a period of three years and shall be made available for inspection and copying by the agency during daily working and/or operating hours upon request.

always some flow going to baghouse
" " " " " " the ESP

– showed compliance –

– maximum

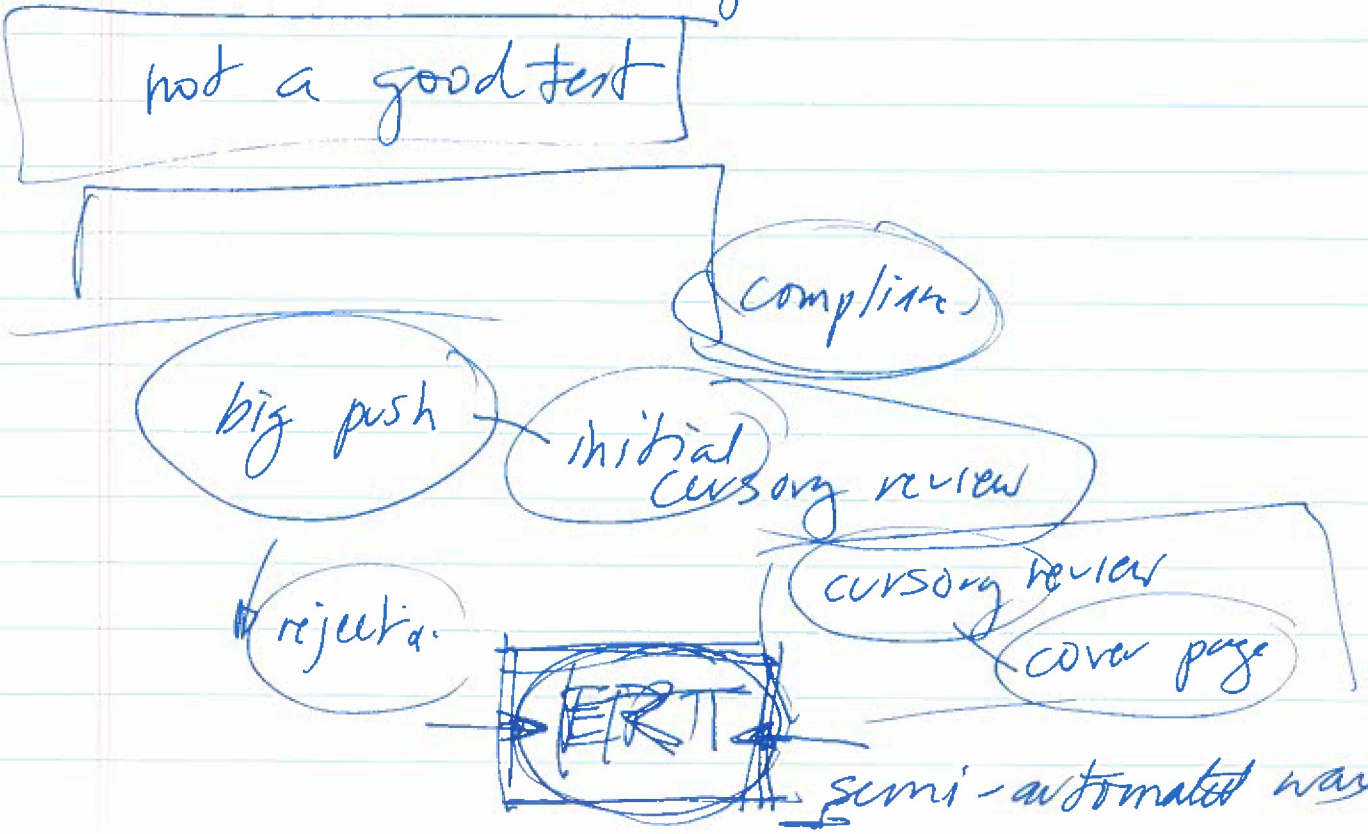
≡ flow data ≡ didn't measure ESP

≡ (didn't tested for the entire cycle)

(getting capture at all times)

← seeing a decr

not a good test



CONSTRUCTION PERMIT

CHANGE – shutdown coke plant
lose cokeoven gas
– more natural gas needed!

evaluation of changes in emission –

where does cokeoven gas go no
- reheat furnaces
- boiler 11 & 12
- blast furnace stoves

reliance on netting (contemporaneous decreases)

from main stacks at cokeoven batteries.

if needed - stage 2

- are units modified?

NA NSR

PM/PM_{10} ↓ VOM? NO_x??

SO_2 ↓ CO?

What is the baseline for the group of units w/ consideration of NO_x RACT

- worst case factor per pollutant -

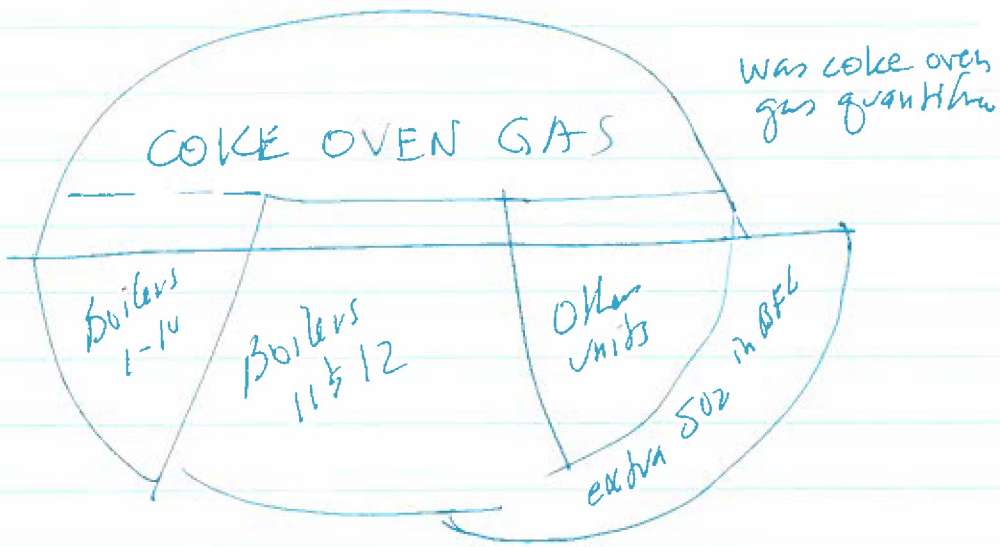
"TRIVIAL"

can emission limits in production increase be tolerated? w/o cokeoven gas?

procesheater = indirect

Production Increase Permit

Emission limits were highly inflated.



- production increase project
- cogen boiler
- NOx RACT
- coke plant shutdown

underestimate for process NOx++?
approach to coke oven gas
underestimate for BFG sulfur
COG desulfurization
shutdown boiler 1-10
reduction in NOx emission
complete elimination of COG, w/ S & P

NOx RACT

Boilers - combined lb/mmBtu
NG - 0.084 (NG > 0.08)
COG - 0.144
BFG - 0.0288

Reheat Furnaces
NG - 0.09
NG & COG - 0.142

March 2

NAP

DRAFT PERMIT

0.004/0.005

32

close w/ one furnace

SNCR — lack

2.6 lbs/ton

2.7%

airq

1364

101

2011 =

natural gas

coke oven gas — not burned

idling

2012/2013

idling

hypothetically

natural gas limit

no key emission factors

(c)(5)(A) & (B)

Do they constrained

(operating)

Would have to netting ...

1346

(Reheat furnace)

(two year netting)

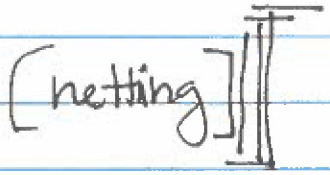
(2014)

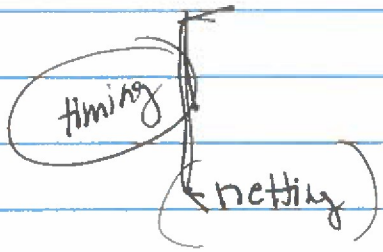
[calendar year] → 1346

↓ same time

A - 27

Ladle Preheaters = 5





225

think that we can

23

39.5

225

1346

15

1346 | 225

135

800

134

3

US Steel

(add) — an actual net reduction

(230 tons/year)

[ ]

[141 tons/year going forward
141.7 tons/year]

mmft³ - [ ]

2240 mmft³

2240 million ft³
2,240,000 mm Btu
x .1
224,000
112 tons

[2,240
1,346]
894
900 × 0.1
45 tons

900
x0,084
3600
7200
7560 0
37.8

4:00 central time

3:00 pm

Victoria

Chris

Brian K. 55 to 60 (March 2nd & March 6th)

(810,000 mm Btu/year

(data for another plant)

55,000

660,000





Brian

CAAPP permit
R007159
96 03 0056

5.6 Source-Wide Production and Emission Limitations

5.6.1 Emissions of Hazardous Air Pollutants

Source-wide emission limitations for HAPs as listed in Section 112(b) of the CAA are not set. This source is considered to be a major source of HAPs.

5.6.2 Other Source-Wide Production and Emission Limitations from existing permits:

a. Provisions from Construction Permit #95010001

i. Total production of iron and steel by U.S. Steel/Granite City plant shall not exceed the following limits. Compliance with these annual production limits shall be determined on a month by month basis by showing that the actual production of iron and steel from the plant did not exceed the scheduled rate of production for a month given in the most recent production schedule provided to the Illinois EPA Compliance Section and Collinsville Regional Office as provided below [71]:

Product	Net tons/yr
Iron	3,166,000
Steel	3,560,000

A. If no production schedule is submitted to the Illinois EPA by the Permittee for a particular year, the scheduled monthly production of iron and steel shall be set at one twelfth of the annual production limits in Condition 5.6.2(a)(i) above.

B. 1. The Permittee may submit a schedule for iron and steel production for each month of the calendar year. Such schedule shall provide the scheduled monthly iron and steel production for each month and the total of such scheduled production shall not exceed the annual production limits in Condition 5.6.2(a)(i) above. This schedule shall be submitted each year no later than December 15th of the preceding year.

2. During the course of the year, the Permittee may submit a revised production schedule which accounts for actual production levels which were below that scheduled for the previous months, provided that in no case shall the scheduled production for prior months i-

such a revised schedule be lowered to less than actual production levels or raised. Such revised schedule shall be submitted no later than 15 days after the first day of the month for which scheduled production has been raised. Such schedule shall be accompanied by data on actual production in preceding months.

ii. Total fuel usage for blast furnaces stoves (A and B), boilers 11 and 12, ladle drying preheaters and blast furnace gas flare #1 and shall not exceed the following limits. Compliance with the monthly limits shall be determined by direct comparison of monthly data to the applicable limit. Compliance with the annual limits shall be determined based on a calendar year. [T1]:

A. Natural Gas usage:

225 million ft^3 per month and 1,346 million ft^3 per year;

B. Blast Furnace Gas (BFG) usage:

30,800 million ft^3 per month and 185,030 million ft^3 per year; and

C. Fuel Oil usage:

60,000 gallons per month and 365,000 gallons per year.

iii. A. Annual emissions from the fuel combustion units identified in Condition 5.6.2(a)(ii) above shall not exceed the following limits in tons/year:

PM/PM_{10}	SO_2*	NO_x	VOM	CO	Lead
274	641	706	2	1,295	0.06

* These limits have been addressed by an enforcement action, with a compliance schedule established for compliance with these limits. (See Condition 7.4.13)

B. Annual emissions from each individual fuel used in the fuel combustion units identified in Condition 5.6.2(a)(ii) above shall not exceed the following limits:

1. <u>Natural Gas</u>

Emission Factor Maximum *

Pollutant	(Lbs/mmcf)	(Tons/Yr)
PM	5.1	3.43
PM_{10}	5.1	3.43
SO_2	0.6	0.40
NO_x	306.0	205.94
VOM	2.8	1.88
CO	40.0	26.92

2. BFG

Pollutant	Emission Factor (lbs/mmcf)	Maximum Emissions (Tons/Yr)
PM	2.90	268.29
PM_{10}	2.90	268.29
SO_2	6.65*	615.22*
NO_x	5.28	488.48
CO	13.70	1,267.46

* These limits have been addressed by an enforcement action, with a compliance schedule established for compliance with these factors and limits. (See Condition 7.4.13)

3. Fuel Oil

Pollutant	Emission Factor (Lbs/Mgal)	Maximum Emissions (Tons/Yr)
PM	9.72	1.77
PM_{10}	9.75	1.77
SO_2	141.30	25.79
NO_x	55.00	10.04
VOM	0.28	0.05
CO	5.00	0.91
Lead	0.336	0.06 (Waste Oil)

C. Compliance with the annual limits in Condition 5.6.2(a)(iii) shall be determined based on a calendar year.

Sally

U.S. Steel / Illinois EPA
April 5, 2019

- David H.
- Kathy
- LaDonna
- Chris Hardin
- Sarah
- Alexander
- Joe Hannig
- Christa

- Colin
- Gary Saad

Tony Gray

Coke Plant March 2018

$1,346 \times 10^6$ scf

525 mm Bt/hour

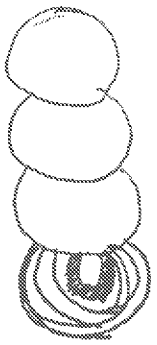
525×10^6 Btu

525×10^3 scf

× 8000

4200×10^6 scf

cogen ± 50 %



(input files for modelling)

drop in background

NOx & VOM

(Targetted Regents)

1996

bits &

→ quite a few interpretation

1989

Flexible Permit Rule

1996 PSD Revia

- 8-hour ozone NAAQS

Table 1
Table 2

[delay for SO2]

changing bands

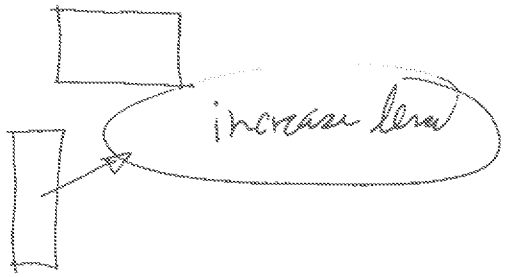
Data Requirements Rule

updated modeling for SO2
[DRR - 90%]

Throughput
Option 1

slag pile

(any shuffling of numbers - reshuffle the bands)



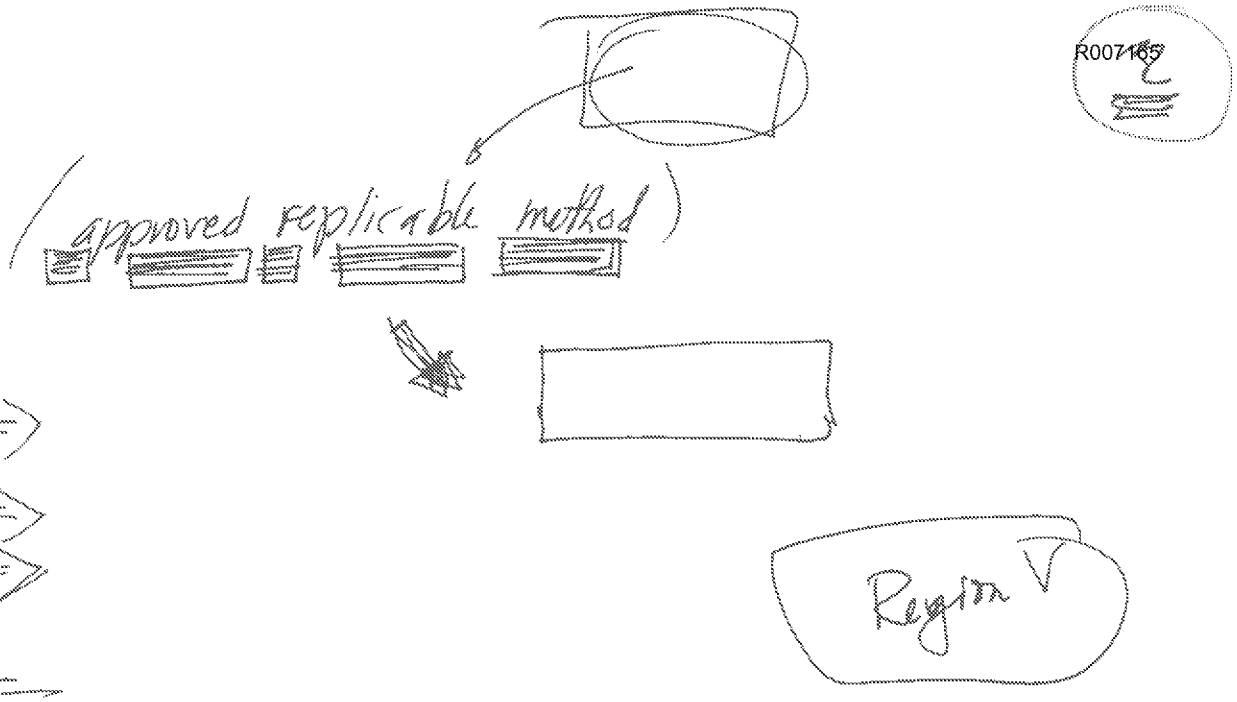
preferred app

→ (clean up SO_2 tons/year)
↑ w/ shutdown of coke plant

→ (confronting 1-hour SO_2 standard

2012

→ have



1/2/3

IEPA – US Steel
January 24, 2017

Guy
Dave
Kathy
Chris

Mid-February --- Hot strip mill ...
– while other mills being ~~operating~~ upgraded –
- Gary
- Great Lakes
- Mon Valley

all have blast furnaces

Have a co-gen application undergoing final revs

Steam Rigs – only comments on Great Lakes, Consent Decree entered – early/mid February.

SO2 emissions from coke oven gas & fuel oil -...
CAAPP 5.12(d)

5.10.3 →

FESOP
CAAPP

ponder this

Annual Emissi
Prospective Report ~~for~~ Each Year
Q1, Q2, Q3, Q4

Third Quarter

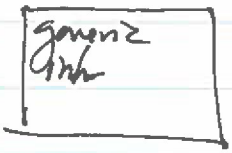
Previous quarter

Quarterly Report - on

In quarterly reports - state that fuel oil was not burned.

substantive summary applicable for each quarter unless use of fuel oil resumed.

no formation provided in report submitted [date] is applicable



U.S. Steel - Illinois EPA

May 4, 2017

Kathy
David
Joe Hanning
(Bryan)
Chris
Elena Lance

Hot strip mill 2/14/17 / Gary
Great Lake
Irvin
covering for maintenance outing

found additional stack tub.

normal process variability

Hot metal charging
ladge slag
[illegible]

3,580,000

2.2
× 4.38
22
876
876
9,636

0.01 gr/scf

lb/ton

lb/hour

0.01

- 6.4

Annual

10 lb/hour

short-term limit

lb/hour 8,760

5,000

potential

GUY

prospectively

after the-fact

January 1

calendar yr.

- ADM
- US Steel
- Pownal

R007170

U.S. Steel - IEPD

12-14-15

U.S. Steel

12-22-15 target date for blast furnace
1/15/16 - strip mill
1/22/16 - cold mill / pickling
2/1/16 - galvanizing

A
B
C

cogen → still
suncoke → Gary (early to mid-January)
WWTP & landfill → still operate

baghouse

overlap
deadline for testing

- some secondary emission
- some primary emission

219,000 MW/yr

→ (Acid Rain)

(D_B) → D_a

use - 10 MW at Granite City Works

(219,000 MW-hr)

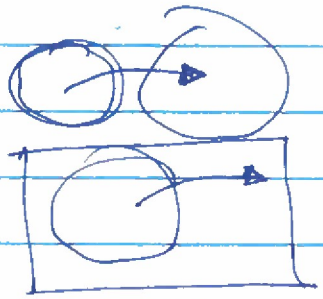
R007171 1

APCA

U. S. Steel - IEPA
2-24-20

· Christen
· David Hz
· Chris H
· Alexis

· Colin C.
· Gary S



[1165] scf
1996

NOx | CO

remove

Sally
Chris
Minesh

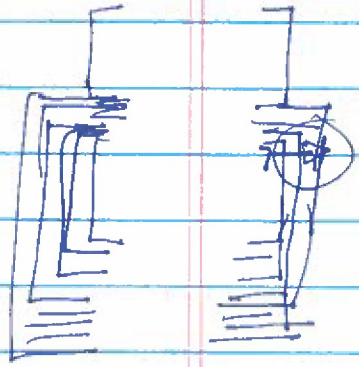
1500

Boilers →
NOx → FGR



results

modification



(r)(4)

small natural gas usage

coke oven plant
has shrunk
10

replacement by Gateway

production increase

public

Romaine, Chris

From: Carter, Sally
Sent: Monday, February 24, 2020 9:25 AM
To: Romaine, Chris
Subject: Be prepared to discuss yellow below this afternoon
Attachments: U.S. Steel Study Area_SO2 DRR_2013-2015_FINAL.PIP; U.S. Steel Study Area_SO2 DRR_2013-2015_FINAL.SO; U.S. Steel Study Area_SO2 DRR_2013-2015_FINAL.SUM; U.S. Steel Study Area_SO2 DRR_2013-2015_FINAL_3yrs_SO2.DTA

Importance: High

From: Sprague, Jeff <Jeff.Sprague@Illinois.gov>
Sent: Monday, February 3, 2020 4:26 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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US Steel - Illinois EPA
February 5, 2016

Dave
Chris
Terri
Jose

footprint

...clear on the intent...

2/4 scope of permit applicat. - current situation of the plant
2/11
2/18 move ahead w/ permitting w/ qualified consultant.
2/25
3/4
3/11
3/18
3/26
4/2

R007176

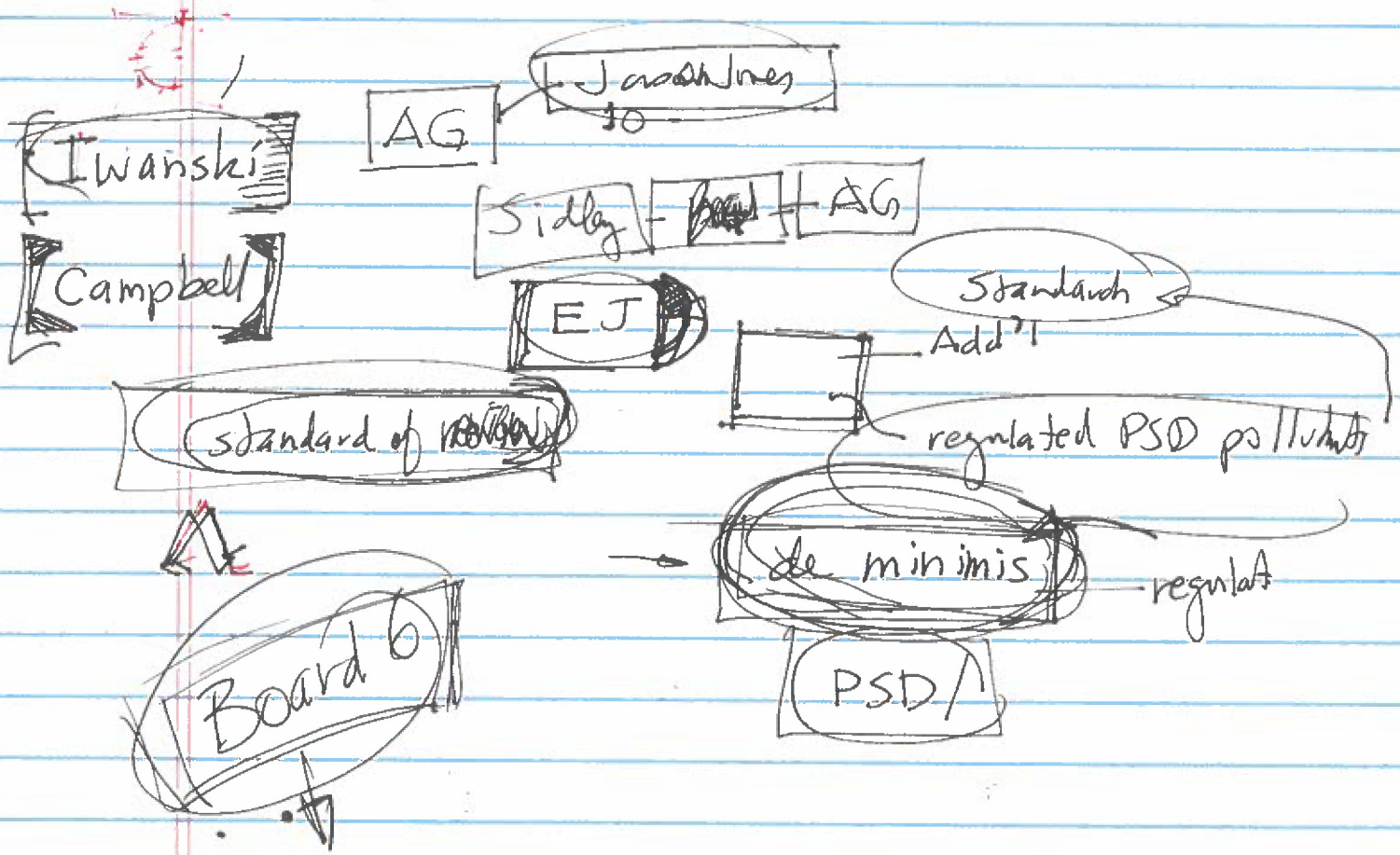
U. S. Steel

1. NOx & VOM – BOF
short-term & annual

2. 9.1(e)(i) Jeff / Kevin M.
1994 increasing NOx w/ the EIP
did we know about it?
39.5 #

3. COGEN limit for natural gas usage

Not National Steel



1/5/16 Letter

$3.58 \times 10^6 \times 1.0 = 3.58 \times 10^6 \text{ lbs} = 1.79 \times 10^3 \text{ tons}$

$3.58 \times 10^6 \times 0.36 = 1.30 \times 10^6 \text{ lbs} = 6.5 \times 10^2 \text{ tons}$

7.0×10^1 tons.

off by a factor of 10 to 25 x

Illinois EPA / USEPA
February 5, 2015

Boiler MACT
Boiler NSPS
(are requirements of both rules possible)

CEMS — tune up
Combustion

predict scenarios

Operational Scenario 1st

NOx emissions monitoring

CEMS
unintentionally

maintain the flexibility

semi-annual

doing it

we should do it ↔ safety hazards
→ execution of testing

stack

annual sampling for sulfur content
no PM samp

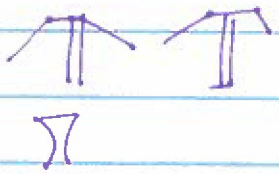
Illinois E P A
1021 North Grand Avenue, East
Springfield, IL

Meeting Sign-in

Meeting Date 2-5-19 Meeting Name

Participant Name	Representing	Telephone/FAX Number
Joe Hanning	U.S. Steel	(219)888-4500
Terry Tecklenburg	U.S. Steel	618-451-3391
Chris Hardin	U.S. Steel	412 433 5904
Dave Hacker	US Steel	412 433 2919
Kathy Hodge		
James Morgan	IEPA	217 524-1376
Jan Kepper-Baumon	IEPA / Compliance	217-524-0308
Amanda Kimmel	IEPA - DLC	217-785-0124
Minesh Patel	IEPA - Permits	217-785-5152
Christopher Romaine	IEPA - Air Permits	217-785-1882
Sally Carter	IEPA - DLC	217-782-5581
Kevin Mattison	Phone	
Andy Jankowski	Phone	

Timing



3-1 (a)(ii)(A)

→ new date

please notes

US Steel

Production Increase Permit

- continue to perpetrate bad data
- increase capture of emissions. // don't buy it

- take revision to the permit more seriously
  - deadlines
  - (deadlines W&S w/o modeling.)

[control devices]

federal consent decree dragging on ...
- PSD permit still in effect

cogen
- potentially subject to x, y & z
- for purpose of supply
- 219 Subpart M

how do allowances work in

baghouse permit
cleanup of capture.

Sterling Steel

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-3397
BRUCE RAUNER, GOVERNOR LISA BONNETT, DIRECTOR

MEMORANDUM

DATE: January 7, 2016

TO: Jeff Benbenek, DLC, Permits and David Bloomberg

FROM: Linda Wong, Compliance Unit

RE: Proposed Compliance Commitment Agreement from
United States Steel
Violation Notice A-2015-00076
I.D. 119813AAI

COMMENTS DUE TO Compliance Unit BY January 12, 2016

Please find attached a proposed Compliance Commitment Agreement (CCA) received from the facility in response to the above-referenced Violation Notice dated October 7, 2015.

Please provide your recommendations on whether we should send a proposed CCA or reject the proposed terms and send a Notice of Non-Issuance of a CCA.

NOTE: In your response to the Compliance Unit analyst, please indicate the following:

- **If your recommendation is to send a proposed CCA, include whether you believe the company's proposed terms are acceptable and if you have any suggested conditions for the proposed CCA.**

- **If your recommendation is to send a Notice of Non-Issuance of a CCA, include a recommendation for the next action (e.g., NITPL/refer, drop, track, etc.). This information will be discussed at the next CDG meeting.**

Once a decision is reached on the response, the Compliance Unit will either send a proposed CCA or Notice of Non-Issuance of a CCA.

United States Steel Corporation
Law Department
600 Grant Street
Pittsburgh, PA 15219-2800
Tel. 412.433.2919
Fax 412.433.2964
E-mail dwhacker@uss.com

David W. Hacker
Counsel-Environmental

VIA EMAIL

January 5, 2016

Chris Pressnall, Esq.
Division of Legal Counsel
Illinois Environmental Protection Agency
1021 North Grand Avenue East
Springfield, IL 62794-9276

RECEIVED
STATE OF ILLINOIS
JAN 05 2016
DIVISION OF LEGAL COUNSEL
BUREAU OF AIR

Dear Mr. Pressnall,

Re: **United States Steel Corporation Granite City Works**
Violation Notice A-2015-00076
Source I. D. No. 119813AAI
21-Day Follow-Up Response Pursuant to
IEPA and U. S. Steel Meeting on December 15, 2015

On or about October 14, 2015, United States Steel Corporation Granite City Works (U. S. Steel) received the above-referenced Violation Notice (VN). By responding to this VN, U. S. Steel is not waiving any objections or defenses. U. S. Steel provided a written response to the VN on November 24, 2015, in which U. S. Steel requested a meeting to discuss the VN allegations, including the Basic Oxygen Furnace Shop ("BOP") emission factors and limits for nitrogen oxides (NOx) and volatile organic matter (VOM); and the natural gas usage limitation for Power Boiler No. 1. The Section 31 meeting was held on December 15, 2015 in Springfield. We appreciate the time that the Illinois EPA ("IEPA" or "Agency") spent to discuss the allegations; but we have concerns over many of the statements made and questionable technical theories raised by the Agency during the meeting.

As we previously communicated and discussed during the meeting, U. S. Steel and the Agency have been working collaboratively to resolve the issues alleged in the VN. The VN and recommendations therein are inconsistent with the work that U. S. Steel and the Agency have been engaged. We are disappointed that the Agency would raise its newest allegations regarding a project that National Steel completed over 20 years ago, for which U. S. Steel has no liability, as explained infra, especially after we have been working with the Agency on a resolution for quite some time prior to issuance of the VN.

While we intend to continue to work with the Agency to resolve the issues in a manner consistent with our on-going mutual effort, we respectfully disagree with many of the allegations and recommendations raised by the Agency for a host of technical and procedural bases.

The Factors and Limits in Permit No. 95010001 Are and Have Been Incorrect

At the onset, we would like to point out the inappropriateness of relying on any *single* stack test to derive emission factors and limits. The inappropriateness is especially compounded in the immediate circumstance as the 1993 stack test data only included a few runs exhibiting great variation. The emission factors and limits were based upon *averages* of just a selection of limited highly variable data. The 1993 stack test consisted of six runs – with three runs with a fan flow set point of 650,000 CFM; and three runs with a fan flow set point of 680,000 CFM. However, oddly, the emission factor appears to be based only upon the three runs at 650,000 CFM. The average of the runs at 650,000 CFM revealed 9.133 lbs of NOX per cycle. The individual values were 10.2 lbs of NOx per cycle; 8.4 of NOx per cycle; and 8.8 of NOx per cycle. Thus, the Agency used the 9.133 lbs/cycle to extrapolate an emission factor of 0.0389 lb/ton. This value and methodology did not account for the 10.2 lbs of NOx per cycle; nor did it account for the NOx values when the air flow was set at 680,000 CFM. This is particularly troubling when the permit also requires a *minimum* set point of 650,000 CFM during refining.

switched responsibility

The approach becomes even more confounded when reviewing the data generated at 680,000 CFM, which, for some reason, was apparently not included in deriving the emission factor or limits in the permit. The values generated at the higher air flow revealed 4.6, 10.3, and 17.5 pounds of NOx per cycle. Thus, from the start of the review of the data at the higher flows, there are two more data points that would be outside of the inappropriately extrapolated emission factor. It is also interesting to note the variation of NOx and carbon monoxide in this data set. As we understand, the Agency has theorized that the NOx would be higher and CO would be lower during higher flows. While we understand the general concept of combustion, there are several other intervening factors that must be considered as the 1993 stack test does not support this theory for the BOF. As seen in the 1993 stack test, the run with the lowest (by far) NOx is the run at the high flow rate; but the CO is not particularly different as the Agency would surmise. Thus, the variability in the 1993 data makes its use as the only source to derive a limit inappropriate. Furthermore, the 1993 stack test data do not support a correlation of high air flow/high NOx/low CO. There are too many unknown factors in the process to make the allegation that any increase in NOx alleged to have occurred post-1993 was based upon an increase in air flow.

While U. S. Steel recognizes that U. S. EPA has used stack tests to develop emission limits (e.g., setting MACT floors), it does so only after a review of a large set of data and accounting for variation within acceptable data. In such instances, EPA typically determines limits by calculating an upper predictive limit (UPL) and setting permit or regulatory limits based upon this UPL (e.g., 95% UPL). The rationale employed in the permitting action in question is inconsistent with this approach. U. S. Steel questions the appropriateness of the methodology employed to derive limits in Permit No. 95010001 as the stack test data available at the time of permit issuance included data that would suggest possible noncompliance as some of the individual runs produce data indicating higher NOx than the limit and factors used in the permit. U. S. Steel has great concerns on the Agency's arbitrary use of limited stack testing data and establishing factors and limits without appropriate consideration for the source's variability in operations and emissions.

10.2	4.6
8.4	10.3
8.8	17.5
ave. 9.133	32.4

ave 10.8 → 9.966

U. S. Steel recognizes the difficulty associated with developing emission limits for units with limited data. However, we strongly believe that the method employed in the permit is incorrect. We believe that even if it were appropriate to rely on 1993 stack test results to determine emission factors and limits, the factors and limits provided in Permit No. 95010001 inappropriately excluded various test runs and data. We also believe it is inappropriate to pursue enforcement against U. S. Steel in this instance; as the permit factors and limits are incorrect – and have been incorrect since the permit was issued; we were not involved with the stack test or permit action; we have no liability associated with National Steel's actions, as explained infra; and we have been working collaboratively with the Agency in correcting the permit.

The Use of AP-42 Emission Factors to Develop Source-Specific Emission Limits is Inappropriate

While AP-42 emission factors may be appropriate to *estimate* emissions from sources, AP-42 emission factors should not be used to establish limits from a specific source. The introduction to AP-42 clearly explains the inappropriateness of such an action. As noted in Introduction to AP-42, an emission factor "is a ***representative value that attempts to*** relate the quantity of a pollutant released to the atmosphere with an activity associated with the release of that pollutant. ...***In most cases, these factors are simply averages of all available data of acceptable quality, and are generally assumed to be representative of long-term averages for all facilities in the source category (i. e., a population average).*** Usually, data are insufficient to indicate the influence of various process parameters such as temperature and reactant concentrations." The introduction of AP-42 goes on to state, "[e]mission factors may be appropriate to use in a number of situations such as making source-specific emission ***estimates*** for areawide inventories. These inventories have many purposes including ambient dispersion modeling and analysis, control strategy development, and in screening sources for compliance investigations. Emission factor use may also be appropriate in ***some*** permitting applications, such as ***in applicability determinations and in establishing operating permit fees.***" However, AP-42 further adds that, ***[u]se of these 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.***" As noted in AP-42, emissions differ from source to source, and while the factors represent a reasonable average of such sources, the variability between specific sources can be great. The introduction to AP-42 concludes that, "some emission factors are derived from tests that may vary by an order of magnitude or more. ***Even when the major process variables are accounted for, the emission factors developed may be the result of averaging source tests that differ by factors of five or more.***"

Furthermore, U. S. EPA recognizes that sources can use AP-42 emission factors in the permit application to provide the permitting authority with an estimate of emissions in the application when it is meaningful with regards to an existing applicable requirement. U. S. EPA notes that, "[t]his guidance makes clear that the part 70 rules duh

do not impose unreasonable permit application preparation burdens. In particular, it accomplishes application streamlining by enabling and encouraging the use of:

- Tons per year (tpy) estimates for emissions units and pollutant combinations subject to applicable requirements, and only where meaningful to do so (e.g., not for section 112(r)-only pollutants); such estimates can be based on generally-available information rather than new studies or testing. . .
- In any case, while sources can use AP-42 emission factors in its permit application to estimate emissions when appropriate, such use of AP-42 emission factors in the application process is not intended to be used as the basis to establish permit limits.

Because AP-42 was used to derive the VOM emission limit, it was inappropriately determined and needs to be corrected. This is further supported by the fact that the AP-42 emission factor has changed in recent years – and such changes do not correlate with the BOP. duh

Issuance of the Violation Notice is Untimely

With regards to items 1 and 2, that Section 31(a)(1) of the Illinois Environmental Protection Act provides that:

> Within 180 days after becoming aware of an alleged violation . . . the Agency shall issue . . . upon the person complained against a written notice informing that person that the Agency has evidence of the alleged violation. (Emphasis added.)

Since Illinois EPA received the November 2014 test reports well beyond 180-days prior to issuance of the VN, the Agency has missed its 180-day deadline. Furthermore, the information in the November 2014 test report is consistent with the most recent prior test report (and provides no new information) to which the Agency responded with a VN and the parties have been working together to resolve. The recommendations provided in the most recent VN are inconsistent with the Agency's prior recommendations and resolution to which the parties have been working. U. S. Steel, in good faith, has relied on the Agency's prior statements and is troubled by the new assertions. ??

U. S. Steel is not a Successor of National Steel and is not Liable for National Steel's Actions

Even if there were a reasonable basis to assert that the fourth ESP that National Steel Corporation installed in June 1995 was the proximate cause for any alleged increase in nitrogen oxides, which there is not, U. S. Steel cannot accept any liability for such actions by National Steel Corporation. U. S. Steel acquired certain portions of Granite City Works from the bankrupt estate of National Steel Corporation ("National") on May 20, 2003. By the terms of the Bankruptcy Order (Case Nos. 02-08697 through 02-8738), U. S. Steel is not a successor of National; and any and all liabilities, including those pertaining to the actions of National at Granite City Works prior to May 20, 2003,

including "all liabilities or obligations arising under any Environmental Law" (e.g., permitting associated with the installation of a fourth ESP in 1995), have been discharged by the United States Bankruptcy Court for the Northern District of Illinois, Eastern District. ??

Allegations of Violation of Permit No. 94090026 are Unsupported

With regards to the allegations asserting violations of Condition 1 of Construction Permit 94090026, U. S. Steel questions the basis of the assertion. The Agency has provided no information to support the assertion that even if there were an increase in NOx and VOM, that such an increase is attributable to the addition of the fourth ESP in 1995. Furthermore, as you are aware, U. S. Steel did not apply for the permit and cannot verify the accuracy of the information in the application. In fact, U. S. Steel does not have a copy of the application that is over 20-years old. In any case, if this is the Agency's position, it should have raised this issue in 1994 prior to issuance of the permit. The most recent allegation raised by the Agency is used to try to explain what it believes to be a change in the method of operation. However, it only asserted this theory based upon limited stack test data. As we understand it, the Agency alleges that the addition of the fourth ESP resulted in a modification of the BOF. However, based upon our understanding of the theory presented at the meeting, this information regarding the alleged change would have been known (allegations regarding air flow and combustion; and the relationship between NOx and CO) by the Agency in 1994 at the time of the issuance of the permit. In addition, while an ESP was added, the Agency has not provided us with any information that the project resulted in an increase in air flow (or a resulting increase in emissions.) It appears that the Agency is now just bootstrapping the 1993 stack test to support a new assertion.

increase in air flow or same air flow with increase in residence time and efficiency

U. S. Steel Cannot Prudently Rely on the 1993 Stack Test Data

While we are not necessarily asserting that the 1993 stack tests are invalid, U. S. Steel cannot verify to the accuracy of the 1993 stack tests. We did not perform them and were not present when they were performed. We do not have access to the requisite QA/QC information to validate the results. Therefore, we cannot be expected to rely on such data in determining any appropriate course of action. In addition, U. S. Steel notes that the duration of the tests is significantly longer in the recent tests when compared to the 1993 test. The recent testing times are well over two hours, with sample run duration (collection) times being 120-minutes; whereas the 1993 stack test durations are generally only 40-50 minutes. While we recognize that the stack testing companies attempt to extrapolate data to determine emission rates (e.g., in terms of pounds per ton of steel), this introduces additional variability among the test reports and results.

The NOx and VOM Emission Factors and Limits Have Been Stayed by the Illinois Pollution Control Board

U. S. Steel has been *operating* under the authority of the Clean Air Act Permit Program (CAAPP) Permit No. 96030056, last revised March 4, 2013. The NOx and

VOM factors and limits alleged to have been exceeded are incorporated into the operating permit currently in effect (namely CAPP Permit No. 96030056.) *See,* Board Order, *United States Steel Corporation v. Illinois Environmental Protection Agency*, PCB 13-53, Ill.Pol.Control.Bd.,May 2, 2013. In addition, the same limits have been stayed in an Integrated Construction/CAAAP Permit action, in which modifications to the BOP secondary emissions controls were permitted. *See,* Board Order, *United States Steel Corporation v. Illinois Environmental Protection Agency*, PCB 13-62, Ill.Pol.Control.Bd., June 6, 2013. U. S. Steel has not been *operating* pursuant to any alleged authority granted to it by Construction Permit No. 95010001. Over the years since Construction Permit No. 95010001 was originally issued in 1996, the Agency issued separate *operating* permits identified as No. 95010001. The permits were generally issued for five years. However, once the CAAPP Permit Application was deemed complete, U. S. Steel no longer had to apply for *operating* permit renewals. As provided by Section 39.5(4)(b) of the Illinois Environmental Protection Act, the underlying operating permits remained in effect until a CAAPP Permit was issued and in effect. While a CAAPP Permit was issued in 2009, it was stayed in its entirety. A CAAPP Permit was issued and in effect in May 2011.

U. S. Steel questions the Agency's allegations regarding the effectiveness of the reference limits in light of the above-referenced stays regarding the same limits; and the fact that U. S. Steel is *not operating* pursuant to Permit No. 95010001, but is operating under the authority of CAAPP Permit No. 96030056. The Agency's assertions relate to a *construction activity* – the addition of a fourth ESP – that was completed by another party over twenty years ago for which U. S. Steel assumes no liability. As a practical matter, enforcing on a permit action from decades ago when a stay is currently in effect for the same conditions from a more recent and relevant action - and for which the parties have been working collaboratively – suggests that the regulated community may not be able to rely on Agency statements and actions. The position also brings into question the purpose of Board-issued stays for CAAPP Permits and its effect on judicial economy.

U. S. Steel has Improved the Ductwork and Related Capture Efficiency of the BOP Operation

During the meeting, the Agency stated that U. S. Steel has improved the ductwork and capture efficiency of emissions generated from the steel making operations. U. S. Steel agrees with the Agency's observation and statement. However, such improved capture and maintenance of the ductwork should not be held against U. S. Steel. What was once fugitive emissions (including, and in particular, NOx and VOM) is now captured in the ESP system and exhausted through the stack, as the ESP does not control NOx and VOM so these pollutants, some of which may have historically been fugitive, would now pass through the ESP. This is not an increase in NOx or VOM. This is simply improved capture.

Available USEPA NOx Data from BOFs Supports a Finding that the NOx and VOM Factors and Limits were Inappropriate

As previously discussed, the annual limits and emission factors assume pass-through of NO_x and VOM from the BOP through the ESP, as the ESP does not control

these pollutants and no such controls are or were required or anticipated by the permit. The BOF and associated ESP emission factors and annual emission limits for NO_x and VOM are based on a *single historic* stack test dating from 1993. They were initially integrated into the source's operating permits from the permit action which resulted in issuance of permit number 95010001 ("PSD") permit. U. S. Steel reasonably relied on existing information from the prior owner and was not required to test for these pollutants until the source's CAAPP permit became effective on May 2, 2011. The CAAPP permit added additional testing requirements including testing procedures for NO_x and VOM. Pursuant to these requirements, U. S. Steel performed the aforementioned stack testing for these and other pollutants, and discovered that the historical emission factors and annual emission limits for the BOF and associated ESP were not correct.

U. S. Steel understands that the combustion of the waste gas at BOFs may result in the generation of NOx. However, as the available data suggests, the process emissions of NOx and VOM is highly variable; and the emissions are apparently impacted by more than air flow and temperature. As U. S. EPA explains in, "*Alternative Control Techniques Document – NOx Emissions from Iron and Steel Mills*, U. S. EPA, Office of Air and Radiation, Office of Air Quality Planning and Standards", EPA-453/R-94-065, September 1994, data indicate that, "[a] potential for NOx generation does exist during the combustion of waste gases. Nitrogen oxides production from this process [basic oxygen process of steelmaking] has been estimated to range from 30 to 80 ppm or 180 to 500 ng NOx/kg (**0.36 to 1 lb NOx/ton of steel produced**.") In the document, U. S. EPA concludes that, "[t]here is no information available to indicate that existing BOF's have any kind of NOx emission controls or that any control techniques are suitable." The document represents U. S. EPA's technology review of NOx emissions from BOFs and available control options during the time period that Construction Permits 95010001and 94090026 were issued. Thus, while we respectfully disagree with the Illinois EPA's new position regarding NOx emissions from the BOF, even if the position had merit, NOx controls would not have been an appropriate requirement. Furthermore, a review of currently available data from U. S. EPA's Technology Transfer Network Clean Air Technology Center - RACT/BACT/LAER Clearinghouse, indicates that NOx controls (such as SCR's as mentioned by Illinois EPA) have not been installed or shown to be an appropriate technology at BOPs.

good summary of lack of control technology

U. S. Steel Continues to Work with Illinois EPA to Address Needed Permit Revisions Associated with the Cogeneration Power Boiler.

As to allegations regarding Power Boiler #1, U. S. Steel notes that we have been engaged with Illinois EPA on resolving the issue. In light of the economic downturn and the change in operations, including the current idling of the Granite City Works, blast furnace gas is not available as a fuel for the Cogeneration Boiler as anticipated during the permit application and issuance process. The impact of foreign steel flooding the global market and current downturn in the domestic steel industry were unforeseeable. We appreciate the Agency's attention to this matter, and we will continue to work with Illinois EPA to reach a sensible resolution.

We respectfully disagree with many of the assertions raised by the Agency in the VN and Section 31 meeting. As always, we will work with the Agency on reasonable resolutions that are well grounded and appropriate. For this reason, we look forward to

resolving the issues identified in the VN consistent with the approach the parties have been working prior to issuance of Violation Notice A-2015-00076.

We appreciate the Agency's carefully consideration of this response. Should you have any questions, please contact me.

Regards,

David W. Hacker

cc: Linda Wong – Illinois EPA, Springfield (via email)
Jeff Benbenek – Illinois EPA, Collinsville (via email)
R. Veitch - USS - (via email)
T. Woodwell - USS (via email)
D. Smiga, Esq. - USS (via email)
B. Kresak - USS (via email)
S. Wolf - USS (via email)
C. Hardin - USS (via email)
V. Morton - USS (via email)

- lacks factual rebuttal
- rebuttal on legal administrative grounds
- supports erroneous nature of factors used in the production increase point.

Mark

US Steel

power plant fee

importing hot rolled coils

- March 13th
  - 5 turn/shift pickle
  - 10 turn cold mill
  - 20 turns triple G

→ Inv. exemption of CEMS must

testing at reasonable loads - 0.04 & 0.05 lb/mmBtu

→ performance test must since linked to monitoring plan.

97.404(b)

- annual basis -

< 219,000

25 MW ≅ 250 mmBtu/

219,000
8,760

Sun 475,000

77
10

67

qualified facility

FERC
probably still qualifies.

not modified

↓ reduced usage of fuel ???

749.1(a)2.

DDDDD

UUUUU

hot

DDDDD

525
0.06
13.50
×4.4

525
0.06
31.50
×4.4
↓
132 t/yr
×0.2
26.4 t/yr

203.207(c)(5)(b)

→ no furnaces
→ one furnace
→ two furnaces

2020

significant

preserving capability

→ have NOx CEMs

flexin

PSD Expansion Project

Units that cannot be tested
constrained by idling

- paper review -

opacity

(some form of AP-42 factor)

CAAPP overlap

slag pits

why wasn't it tested

1/27/15 - one furnace

piecemeal correctional ← more than once

3,580,000
.00032
7160000
10740000
114,560,000

3,580,000
.00032
3580
.32

7.5.6 (d)

- NOx
- VOM

baghouse permit

EJ

→ color battery shutdown

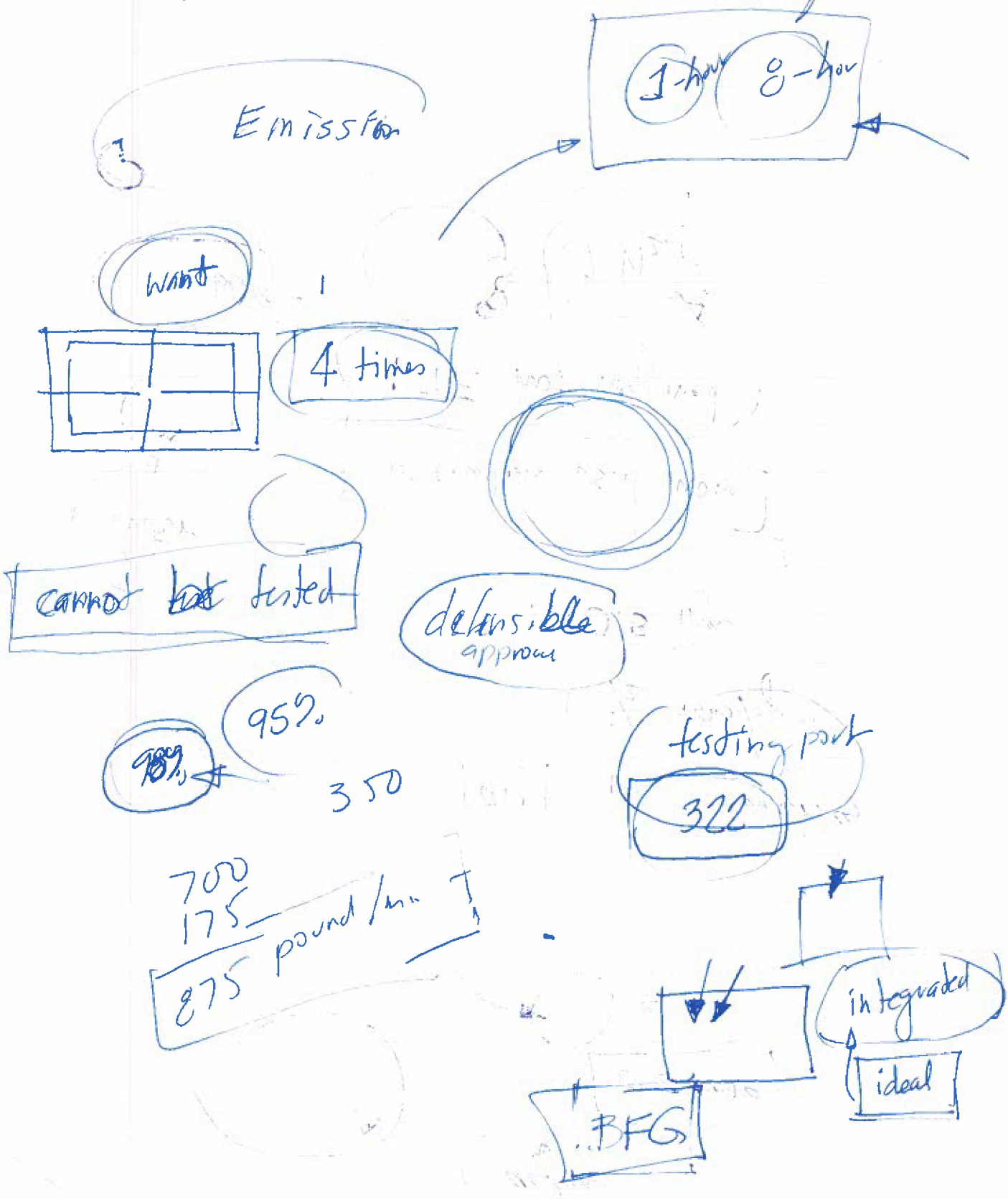
EPA/600/A-03/[illegible]

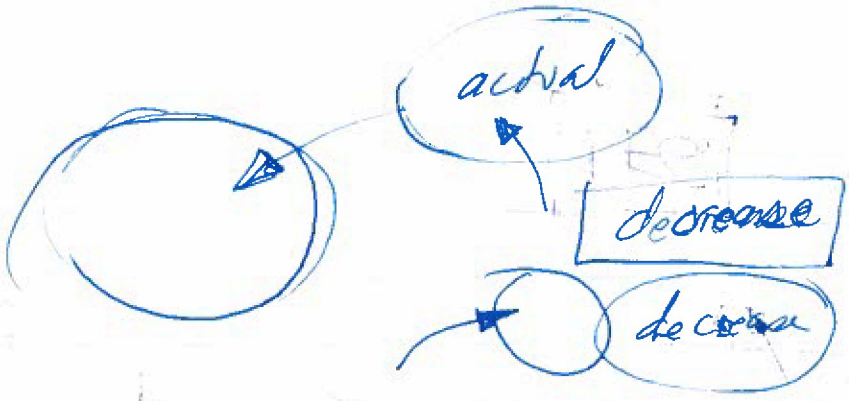
exclusion of outliers

Receipt of Limestone: Is limestone received by barge or by truck.

Average Load = 830

No revision to BACT related requirements



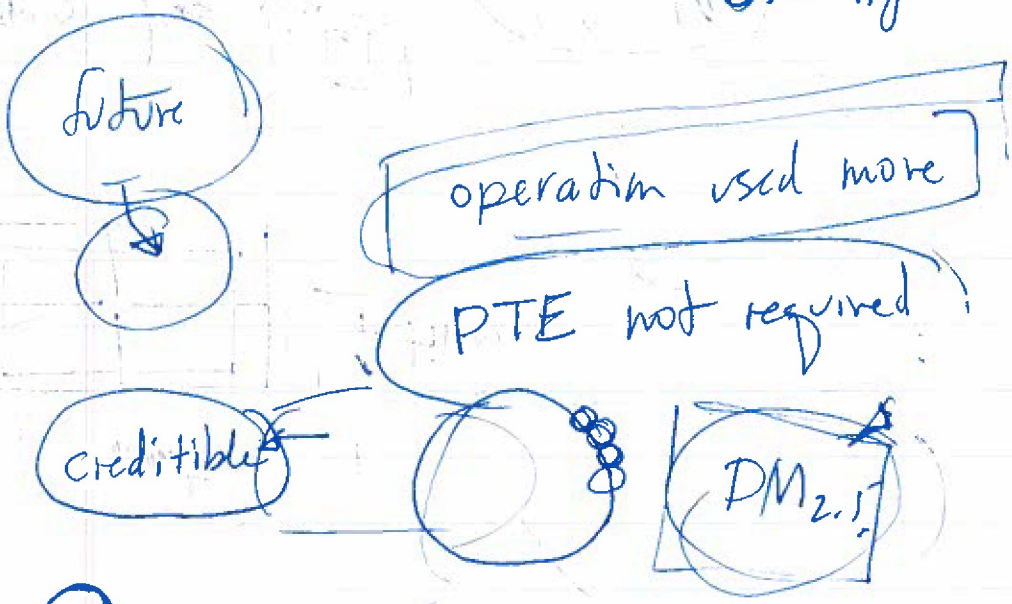


coke

1991 work practices

1/2 tons/year

0,5 t/yr



R007197

In Process

construction vs. CAAPP

source

PSD applicability

is a major source subject to CAAPP permit

source-wide emission

Mill

Limits — Practical Enforceability

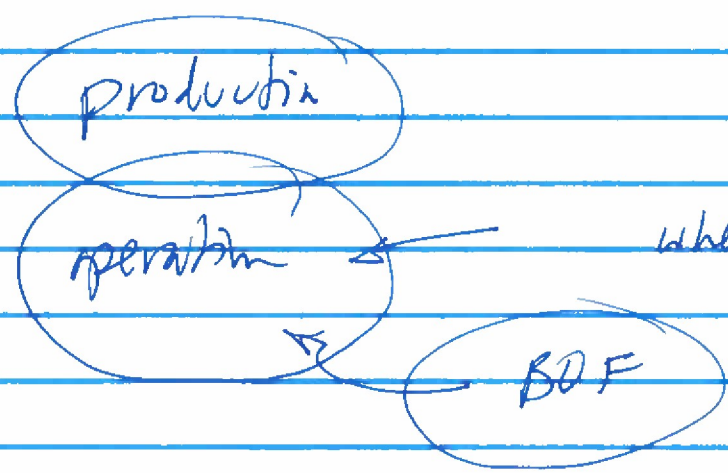
Applicability of NSR

CO-PSD

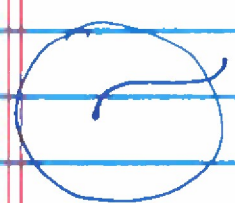
SO_2-PSD

Limited future production of iron and steel to the levels ~~addressed~~ for which ~~future emissions~~ used by National Steel in the application

various limits to ~~hold Natin~~ ~~make~~ to hold National city representations ~~by National City's ap~~ in the construction permit application, making those representations enforceable



where permit relied on effective control of emission of the BOFs with the existing ~~ESP~~ electrostatic control syst



emi limits were not set for individual for set individual unit and the limits addressed these units as a group. However, ~~limits~~ separate limits for the emission of each fuel that could be burned other than coke oven gas

While the ~~after the~~ Illinois EPA given of the determined that BACT would not ~~will~~ set provided, the permit rule does not identify specific emission limits or practices that were determined to constitute BACT

ACTIONS

- Construction Permi
- MOU
- BOF Baghouse
- Cogen Boiler ← (Implementation)

CAAPP Renewal Applicat

Admin. Am
Consent r

SOL

stock piling iron ore

Consent decree

Definitions 40 CFR 63.7852

Basic Oxygen Furnace Shop
Ladle Metallurgy
Slagmming Station

US Steel – Pretreatment
BOFs
Ladle metallurgy – LM Furnace (heat)
Argon stirring
common cutting

applic

One or two deslagging stations after the BOFs
CAAPP Renewal Applicat
• Flow Diagram – One after the BOFs
Current CAAPP permit ~~Narrative~~ – Another after argon stirring and ladle metallurgy
ie easter bulla

• Destagging stations meet def of ~~slag~~ locations shimmstn
" " meet def of ladle metallurgy
" " are in the BOF shop!
63.7782

312/353-0987

3/9/10

22-28-7

two weeks

Further complication – ~~desta~~ a synthetic slag station ipreceples the LM Furnace. At this station, a mix of minerals can be applied to the surface

What happens to the synthetic slag??
deslagging?
left in ladle poured out ....

common baghouse – material handling for LMD
– destagging station
– synthetic slag stat

2.10.4

specifying how the factors will be developed

(exceptions) - non-issue

[(support) - (proscriptive)
too much to be determined]

document after the

(emission testing)

[Testing

(hot metal transfer)

~~(as delivered to the BOFs)~~

(Dred

lighter dust

common circumstance

procedural

skip pit

Subjects

- Construction Permit
- MACT
- BOF
- Georgia Boiler

Administration Amendment

Consent Decree

CAAPP Renewal Appl.

USEPA

PSum

Stronger

prescribed by the factor in P

SO2

Salt

adequately

this

out of the

R

emission factor

SNAP-SHOT

develop an emi

Wang

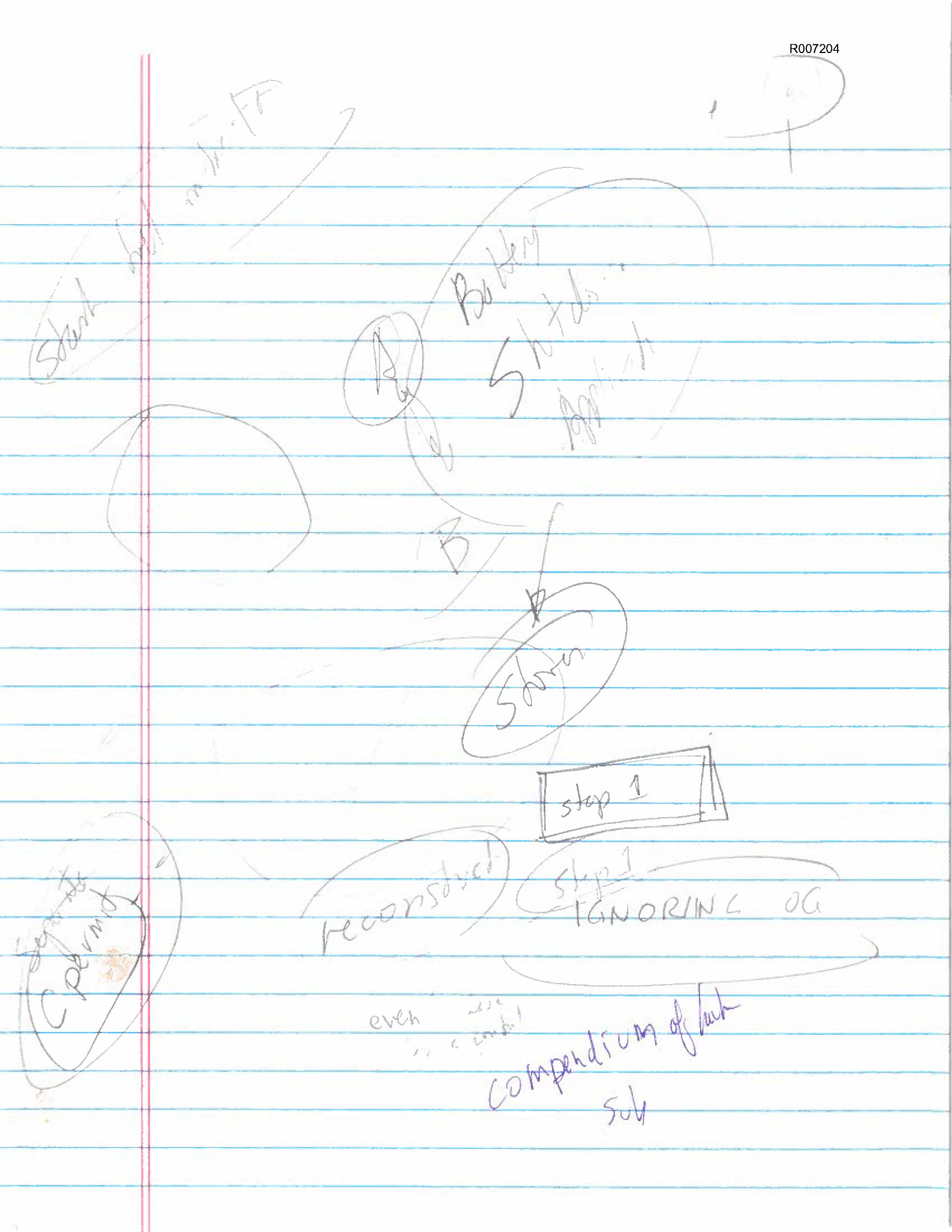
Louisiana

frequency

BACT

CAM

R007204



ERIC - 217/414-2206

US Steel - have not reached out

- Sally

- they

fuel use at CC

pilsen

H. Bell

Table

Compliance procedures

Good Air Pollution

NESHAP - PM

Blast Furnaces

Charging

Pits

Stoves

Flare

records

BOF Shop

Casting

2 sections

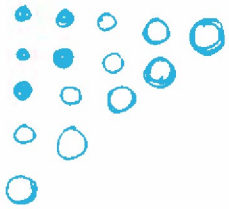
Was COG used in ladles

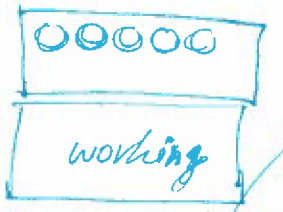
tundish fels

list of current factors

sorting out [illegible]

R007206





CO — boiler

CO — flare

BDC then

How did US$ accomplish production in

CO

CO

baghouses - constant emission rate

roof monitors

capture for uncontrolled epoll

roof motor

(capture for PM / PM10, air test results reflect capture & control)

testing of NOx & CO for boilers & stoves ~~units~~ that burn a blend of ~~mix~~ of fuels

combination of BFG and NG

two fuels are combusted separately or as a mixture. Does mixture be

description of burner system

description of

RIGOR

frequency of testing

averaging for baseline

- conservation for actual
- alternative emission rates for deviations (similar to tracking

operating level — batch

general overview

general plant

generic verbiage in CAAPP permit

fixed

bak

surrogate tra

Standalone Emission factors to show emitting units without stacks ~~is~~ sin

e.g. - blast furnace charging or slag pits

Is generic factor appropriate for US steel?

periodic review of data ala CAAPP permit..

Agency is now committed in public statements — [limits not factors]

burden shown

how does Offshore Power deal with set factors

treatment as factors contrary to Off-Shore power

annual caps based on emission factor

numerical value easier

"what best number now"

live with it

A A, ↑
A A, ↓

not set
best date at time

upset I go

test verify rate

test set rate

RICOR

Sulfur content of BFG
" = variable.

ignore incidental uncomfortable

standalone

component of emissions

- Material Handling
- BACT for Stores
- Natural Gas

continuous carting -20% opacity

current CAAPP lack requirements for Per Mon for Kanter NC.

Condition 7.6.E (only addresses mechanical shovels & stacks)

For continuous carting

Semi

[illegible]



- calender to rolling 12-month
- PM-10 / PM_{10} only filterable
- approach to emission factor -



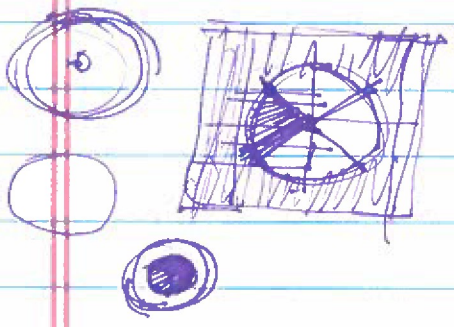
1. ↑
2. 1 — unit specific

- consistent with CAAPP for
- how to start

R007210

[CPV] (circuit breakers)

39.5



[owner/operator]

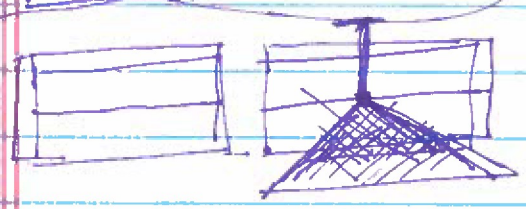
P.J.

CEJA

Prairie

electric boiler

2 | 9



Elwood — tweaking

BPAmoco

derived

factors
tests

06078023

subject to NESHAP
procedures

testing? — per CAAPP
pollutants?

Timing
pacnote
USEPA 1
Public
USEPA 2

errors — NOx VOM) BOF
CO) Stoves

concept

CO Casthouse

96 — 25 years old

Revisit BACT

unlike process units
problematic

fuel combustion
boiler

stoves — use of more ng

beyond scope of request

principle facts

shutdown of 225
100 boilers capacity

FGR

CO

NOx
VOM
PM
SO_2

Start → PSD
→ CO

BACT
AQIA
PSD

① Revision required
→ 1

Lead

CO process

R007212

limit on NG broken by Power Boiler

Age

over 20 years ula

can it be fixed or is it to late

subsequent precedent

principle = ...

more = better

problematic

contrary

inherently flawed

NSR

CO

INITIAL APPLICATION

problematic

Fuel Combustion

PRIMARY

ORE
COKE
SCRAP

Roads

cut

PM Gaseous

Heat / Steam

Raw Material

direct

direct heating of bricks

fuel combustion

support open

INTRO

support operation

allowable

meaningless

overlooking COG

...

loosing

combustion

underfire stack - no COG

not amenable to corrected

problematic

scrap metal

U.S. Steel
4/30/15
Bryan, Victoria
Chris, Minerh.

Cogen Boiler Permit

Qualitative vs. Quantitative limit

NSPS
↳ Fed. En. limit 9.8 % natural gas capacity

→ Capacity of Boiler $505 \times 8760 = .098$

* $\frac{505(.098)}{1020} =$ → Ng:- 425,000 SCF ng

(*) When Cogen < Ng for flare eq.n 6(8760) 52560 mmbtu
Ng for Boiler →

→ Designed cap. of Pilot burner mmbtu/

NESHAP blast furnace = 90% blast furnace gas
↳ CO & Tunning

US Steel
5/12/15

Kathy H.
Victoria
Bryan
Phone: Dave
Chris

Sally
Chris
Min.

Cogen

NSPS

NESHAP

Option 1 (Exempt
10% actual

~~Option 2 (Exempt NOx Standards~~ → only 5yr Tune ups
~~10% capacity~~

May 15th
June 15th

Flare Pilot
Blast furnace

VOM 0.92 Ton/yr

AP42
5.5

Show new calculation for VOM

Changes to Attachment for VOM

lb/ton vs. lb/hr
lb/hr based

Ton/yr
↳ ≈ lb/hr + 20% safety margin?

Would calculation include

Coke receiving. → No longer base truck ⇒ back to Rail.

740,000 Ton from Gateway
1.45 Ton → total

Cronus
Ng
370
12
740

AP42

R007215

1

U.S. Steel
4/14/15

Quarterly Meeting

* Expected Id. May 28th (165 Coke plant let go)

Update
- March 2nd Coke bat. shutdown
- Desulfurization project close to comple
- Recycle -
- By Product plant
  - 165 coke plant let go
  - May 28 would be idel → Blast furnace
  - Caster mod. current underway (only one caster running) (August completion expected)
  - May be chance to continue if steel market picks-up
    - Fairfield works
    - US steel Granitecity works
    - Minnesoty ore

BOP Furnace Baghouse
May 8th
Startup delays?
or testing within 180 days

Gateway → US Steel stockpilling coke but are in discussion with Gateway for future?
- Great lakes work (blast furnace on)
- Mont valley works blast fur-on
- Gary works (2 blast furnace on)

avoidance

PSD Permit

Caster
- Mold/spray chambers
- Cutoffs
- Slab Ripping
- Deslagging

Supported by Caster 2 emission factors

eg. 1991 EIS

- No established E. factor found
  - May want less significant figure? (0.00722, ...)
  - No other Drastic changes (basis not varified)

Why was cutoff and Deslagging factors combined in caster 1 permit

NOx emissions may be asked to be removed

NOx associated with preheaters?

R007216

2

US Steel
4/14/15
Quarterly Meeting

- Charging, when most VOM & NOx
Baghouse vs. ESP could effect VOM & NOx

Other Emissionfactors CO/AM Lead ?

April may June

- BOP/ESP Stack → Baghouse → new configuration may change

VOM/NOx Generally associated with ?

Hot metal
★ (Hot mill Desulf) →

~~Cogen~~ Boiler -

Coke Unloader/Screen

Barge → Trucks → Project more likely change from Rail to Barge?
↳ Road traffic → may not increase when compared to Rail b/c 18 ton coal converts to 12 Ton coke.

Gateway to Radial stuker

Nut coke
Breeze coke } new piles

Dock → Coal/coke ?

* Tempory Boiler exp. June

Coke Plant shutdown & Unloading coke screening project
↳ may be pushed out.

(*) Cogen Boiler would need to go. Temp. exp June

R007217

(3)

U.S. Steel
4/14/15

Temporary Permit for Cogeneration Boiler?

Next meeting May 12 ~~[illegible]~~ 10:00 AM

U.S. Steel
3/25/15
(412) 433-5000 5915 #

(*) Next 60 days may be idling?

timeline - This week — Natural gas usage

Fee forms
14000

Unloading (Rail Receiving of Coke)
4000
unloader

→ ~ PM 7 ton/yr Coke unloading
(2 baghouses)

- unloading into pit
- Conveyor system

Storage Pile (Stacker new or existing)

existing Point to

8000
→ Netting
- $PM_{2.5}$ — Boiler 11 & 12 big contributor
- CO_2e

Does not need to include

unclassifiable with new

2/3 Suncoke
1/3 Rail
} business good production high

For existing units if there are modifications Do have to inclued as emission unit for fee purposes

R007219

(1)

U.S. Steel
2/25/15

- Coke oven
  (Week of March 2nd)
  From April 20th
- Blast Furance (One Furance through July)
- #1 Caster shutdown
- Strip mill (½ Capacity?)
- Finishing (down until late march/early April)

Coke oven gas
Fire
V 625

~~Other Units~~

Before ?
Coke oven
80 lb/mmcf
AER (FIRE)
External Jan 1 2011
Low NOx

	NG EF	after
Stoves	280 lb/mmcf	AP-42 1.4
Boiler 11 & 12 (Low NOx burner?)	Originally Testing	Now NOx RACT limit
Hot Strip Mill	"	"
Ladle preheater (Natural gas only?)	100 lb/mmcf	100 lb/mmcf AP-42
BF Flare (~~Natur~~ No cokeoven)		

NO increase in ng

Reduction
~470 T/yr
?

- Coke ovens A/B Battery Underfire — E.F. 1.64 lb/ton
- AP 42 12.2 Table 12.29 — US Steel stanpipe test (1995) each battery
- Pushing/Soaking (AP42

2008
AP 12.2 Tab 12-2-16

R007220

U.S. Steel
2/25/15

- Reduction (cont.)

(Name of project? New C. permit) - Pushing/soaking

Other pollutants
- (show decreases) if any?

- Desulf. Plant.

New PM E.F.
Sear Roy Hundley

* Application for Cogen permit
2 - permits PN (Parallel)
(2 Project Summary
2 Public Notices)
(starting at same time).

Expedite Review
80 90 days
March 1st

Heat input of COG →

* (225 mmcF →
1346 " ")
may be exceeded by June/July

R007221

US Steel
2/19/15

Reheat
1 Bl. stove
gas F.
Lad. preheat

Current - Projected

Coke oven → Natural gas ⇒ would reduce NOx emissions by APP. 230 Ton/yr (Netting basis)

Actual?

Total NOx 141.7 Ton/yr (Stack data ..
does not need for permit to be changed ?

MMCF (natu
boiler, stove, lad. oven ... 225 mmcF/month
1346 " /yr.
Table V 5.6.2 or table V prod. permit → ~~2620~~ 2240 "/yr.

706

EF { NOx - 306 lb/mmCF
140 Boiler 11 & 12

NOx Ton/yr not increasing

NOx RACT Boiler — 0.084 } → ?
0.142 }

32 Ton/yr

PSD → could have accomodated ✓ ok
NANSR → No provision in permit that say unit could have accomodate

Not ok

Call 3:00 PM.

R007222

US Steel
2/17/15

Target shutdown wk of March 2, 2015

Coke oven gas to be supplemented with natural gas.

Bryan K
Victoria
Chris Harden
Stephanie

Chris R
Sally C
Minesh

NOx
Monthly / yearly
(production)

- Boiler 11 & 12
- Blast Furnaces

already shuting down some units but final by March 6, 2015

- Production ~~pe~~ increase permit
- Boiler 1-10 (shutdown)
- Shutdown of coke oven

New

Construction Permit (change of operation for affected units?)

★ More natural gas usage
(Baseline? for units with higher ng.?)

Primary ng to keep flar + second. Blast + ng to maintain heat value?

Convert NG ← COG (Coke oven gas)

NOx increase?

810 mm btu/yr ng ?

Stoves
65 mm but/month

Similar? plant

Blast Furnace + ng.

E.F. for NG:
B.F. stove
Boil 11 & 12
Flares
Ladel Dryim preheaters

Reheat furnace

Other units

not included in production increase permit

PSD/NANSR

Cleaner

Emission before - Emission after = net less than significant

(2)
R007223

US Steel

LE Quench Tower 2/17/15

Inform Kevin M. that QT has been shutdown and testing would no loger be ~~required~~ ~~testing~~ additional testing as opposed to the IEPA request.

(*) CALL Thursday ~~befor~~ 9AM

R007224

What unit has highest NOx rate?

US steel

203.207 (C)5 (A)~~(B)~~ & (B) 2/19/15

Capab

100 % natural gas → Hot strip mill

1346 mm ft³/yr → limit Not ~~for~~ includ Reheat furnace.

Can be excluded based on no limit limits

Netting

>27
5

2nd furnace expected to operate June/July

1 Furnace operation

Boilers Would not exceed 1346 | Boilers 11 & 12

Natural gas → increase on Five units

2010/2011 may be more representative

↳ Blast furnaces ~~RACT~~

Boiler → NOx RACT

225 mm ft³/yr Natural gas limit? would be OK

Wed. ~~9AM~~

930 - 12:30

1/14/15
U.S. Steel
Quaterly call
with Environmental
Groups
Maxine & Ken
L M

Sally C.
Brad F.
Chris R.
Kevin M
Minesh

Status of Gateway Consent Decree.

① Emission Test (NOx & VOM) B of ESP & MACT
- Test result (other pollutants)?
  Emission of NOx & VOM not in compliance as was with other tests.
- E-mail (Chris Romaine) on test & concerns
  (*) but MACT test would have addressed those concerns?
  We (Agency) did not have enough info.
  Minute/minute ~~ad~~ data evaluated does not represent correct permitted rate (i.e, 3Hr, 10hr based on their analy).
  Annual Production vs Short term emission.

Will have conversation with U.S. Steel before end of next Quarter.

② Cannot get into detail on title V implication without Attorney Generals office.

- Caster Spray chambers test was conducted because title V permit (based on them) (i.e, 30 month commitment
  we are not sure if this means that U.S. steel would be ok with ~~api~~ taking off that issue in title V.

③ Test result (not aware of any other units that have been tested). Discussion of other tests (Pickling line test (July 2nd 2014?

(4) Status on Method 1 test location — non compliance issue.
Did not/would not be able to comply nor a temporary port can be installed to perform Method 1.

Rejection of test also requested test within 90 days for which US steel has ask for reconsideration. Agency has not accepted or rejected their consideration.

Method 5 ? No prescribed method for emission limits PM2.5 for wet stack/exhaust condition.

PM2.5? bigger issue is non compliance with Method 1.

★ 2007 test at cleriton? Method 201A talks about moisture...

(5) No response to Dec. 5 reconsideration request.

(6) Consent Decree → No Permit or otherwise document received by Agency?

(4) SSM documents?

Next call late April ?

R007227

(7) Steam Rings (malfunction)

US Steel (1)

1/7/15

(Bryan, Dave, Victoria, Stephan

(Chris, Sally Mineon)

The reason report not submitted was b/c the issue regarding retesting was outstanding.

1 – Low emission Quench Tower

2 – Process (Kevin Mattison request letter)

3 – Status (Testing) BOF

4 – Co-gen permit

5 – Revision PSD

6 * Terminate Expedited Permit Contract* Does not contain automatic termination clause, However it would be easy for US Steel to terminat without requesting refund of money.

Would submit report

(1) – Dec. 5th letter ~~[illegible]~~ request resending request for 2nd emission testing due to testing method

Condition 1.1.7(b) – Testing Method – 1 (location)

Condition 1.1.7(d) submittal of Report?

Alternate method (could be used if approved by IEPA or USEPA)

Q? – Did the test plan include alternate method?)

– Based on the fact that test plan was not approved nor disapproved test method?

–

Would submit revision soon

(*) – Need to get revised permit ~~wit~~ that would have updated language for [Method 1 PM PM_{10} $PM_{2.5}$, accomodation of test location]

May not require retesting ~~of~~ required by the permit.

(2) Additional information regarding EQC 4, Caster

(Would be sending in info soon)

Kevin Mattison letter?

VN May 23 2014

U.S. Steel (2)

(4) Cogen-permit (Public Notice) 1/7/15

- Furnace was out for 10 days so boiler had to operate or natural gas only.
(D Report)

* less than 10 percent — No limit (ng)

(5) Revision PSD permit (US Steel would prefer lb/hr vs. lb/ton limits)

caster chamber (PM) No NOx limit for mold

(*) New caster permit (*)

Title V — lb/hr vs. lb/ton

Test have been done?

Combined
Caster spray chambers
Casting mold

may be retested

- (*) Cutoff - Ripping - No practicable way of testing?
→ Not sure - Research? Evaluations? AP 42?

- De Slagging - Emissions? not sure
(Do not deslag for each heat) lb/ton may make more sense

- Blast Furnace (testing required in 2017 pursuant to title V)

- Cast house baghouse (would want lb/hr) Testing 2017

BF Slag Pit - Engineering Estimates
← Bin 4 (Tested 2013?)

Testing may be performed earlier to even out cost from year to year.

2015 - Testing? →
ESP 2014
CAP 73
H2S Analyser (annual)

Slag Skimmer
Soda Ash
Iron spout
cast house

Testing schedule:

2015 Testing

EQC-3 (April)

(2014) BOF ESP (done)

Cogen (April)

(x) Roads (Silt) (August)

2016

SO_2 Analyr

(2017)

Iron house baghouse March

cast " " Mar

Soda Ash (Aug.)

slag skimmer (Nov)

(2012) LMF 2 baghouse (Fume baghouse) May

Argon Ctr

U.S. Steel (3)

1/7/15

BOF NO control NO_x & VOM

Data includes →

Next meeting Week of April 6th?

R007230

1

11/19/14
U.S. Steel.
Meeting
Bryan K
Victoria M
Dave Hacker

- Hot Metal hole :- (Blast furnace hot metal
For emergency purposes
put hot metal
to Ladle in the hole)
When rail line is off line.

- Cogen - Low emission quench Tower
- VOM/NOx (PSD/Title V) - official respose to why Cant comply
- ~~official~~ - casting

Minor mod. only for Title V

* [Coke Project]
- Kevin Mattison had requested infor? Temporary fix
Cogen permit — Permanent fix — Firing error in original permit
11 Boiler → Temporary extension ~~for~~ due to extreme wether
* ~~both~~ Blast furnace down at same time ⇒ natural gas ↑
- Exceeded 12 month usage limit exceeded above limit for oct.
Similarly NOV & Dec limit would also exceed?
→ ~~Blast~~

Combined ~~also~~ with Suncock was down causing exceedance of limits for oct.

Need related to natural gas as oppose to demand

* Emissions Vs. natural gas usage
limitations were not necessary for (PSD MSSCAM)
" were NESHAP purposes only 10% capacity.

- (Temp. 3.1.6 - increase natural gas
- Perm. App. Dec. 15th

EJ Notice After fact ~~for~~ for purposes of emergency & compliance purposes.

(Amy Fank Kathy A.

After we issue permit we will proceed with internal EJ pro. to see if we need to do formal at that time Brad F. will contact US Steel to see if they want to contact Envir group.

R007231

2

LEQT Permit

Started April 2012

U.S. Steel
11/19/14
Meeting.

- Low Emission Quench Tower (LEQT)

Cond. 1.1.7(a)(i) PM/PM_{10}/$PM_{2.5}$ Testing (

↳ Maxene → interpret that as 3 tests

b(i) location of sample point (not possible based on K. Mattison)

Submitted? April 25, 2014

Submitted to comply with cond. However, for LEQT the final results were still not available so the information were not included as per permit reqs.

- 1.1.9(d) Report (two year)

↳ They have the numbers but results are not accepted.

- No change 1.1.9(d)

(*) Change b(i) because Method 1 can't be complied with.

(*) water moisture issue

* PN will have to check with Julie A.

application explaining how US Steel

* Hoped PM speciated method available but has not finalized or
  - PA facility also did not comply with Method 1 (according to Kevin M).
  - LEQT is similar design for purpose of lowering the PM emissions.

R007232

3

U.S. Steel
11/19/14

PSD Permit
email (June 20, 2014 Submittal)
(number disagreement? (April & June test
VOM 0.23 0.15
lb/ton of steel

NOx & VOC limit
were not BACT limit?

limit NOx 69.6 Ton/yr
vs
Test 823.49 To/yr.

E-mail responding to

Testing of Other Units

Emission Factor limits

Blast Furnace, Continuous casting.. PM for spray chambers

NOx emission Testing
VOM " "
Other "

Other test not needed because they have adequate record for test.

Other testing not

Cover letter indicating all emissions from Continuous Caster with copy of test result.

Test for Casthouse Fugitives
NOx, VOM
SO2,

Blast Furnace NESHAP Test 2017

R007233

4

U. S. Steel

11/19/14

~~New~~ Coke Project

New Two silos / bin vent filter — would add to lower emission

Coke

Control equipment

No increase in coke Production or Processing.

R007234

Quaterly Conf. Call

10/14/14
U.S. Steel
Conf. Call.

Disscussion between
* Wash. U. / Agency
- Committed to provide document on periodic basis without Formal FOIA request on US steel

Info. Since last FOIA.
- Communication to Kevin Mattson
- Permit extention to permit Section
- Compliance, FOS...?

- Ken Miller / Wash.
- Maxene
- Kevin Mattison
- Sally Carter
- Chris Romain EPA
- Brad Frost
- Minesh Patel

- No comments would be accepted
- NO negotiation
- NO discussion of Title V Appeal issues.

① Gate way — We would consider comment(s) (From Wash U and others) when and if PSD permit is revised to address USEPA's Consent Degree (When Finalized?) Case # ?

$PM_{2.5}$ limit to be set

Changes to permit : Focus - Bypass baghouse —
(NO $PM_{2.5}$ limits in permit)

limits on PM would also provide for limits for PM_{10} or $PM_{2.5}$

② Adequacy of PM & PM_{10} for Quench tower
Kevin → USEPA → At this time NO approved method for PM_{10} / $PM_{2.5}$ on wet saturated stack instead suggested Method 5
PM
→ traveled to US steel

No indication

Why not Higher stack - ① Safety Concern, ② did not comply with USEPA Method 1

Page 13 of 57 test report data?

The test location cannot meet Method 1
Even if the location is changed the cyclonic flow would not be met $.

why not install other location for testing? *

Condition. 1.1.9(d) & Title V Condition requirement to submit report within 60 days. (With test conducted in April → would imply report due by June

* Report submitted April 25 2014

(3) Stats of testing in regards to 1996 permit
↳ NO_x & VOM testing → IEPA is concerned about the data and will formarly send written response to USSteel, which can be made available to Wash. U.

(*) Caster house / pickling line stack test Report has recently been received?
June 5 & July 2nd. 2014

Next Meeting January 13th Tuesday 1:30PM ?

R007235

R007236

(1)

U.S. Steel
10/8/14
Internal meeting.

Julie A, Sally C, Chris. R, Brad F.
Kevin M, Jeff B, Minesh P.

Upcoming Quarterly Conference call

lower Emission limit does not reducing Emission

(1) Suncoke - $PM_{2.5}$ limit :- wants to establish $PM_{2.5}$ limit (No basis for lower limit) ← Gateway

(2) U.S. Steel - Quench tower (Method 1) → $PM_{2.5}$

We are not prepare to set lower limit? (When and if revised permit they can comment) (Public Notice)

Early 2015 New Basic Oxygen BOF Shop Proposal by April

(3) Title V Permit emission factors. Production Increase

CEM calibration not properly done. Not according Spec. 11 as required?

Does ABC knows about this

Do we send letter to notify Gateway of this

after last meeting.

(*) Removal of CEM → Not possible if they have not Completed three year trial as allowed by Construction Permit.

(#2) ABC's Conditions - they did not Specify PM emissions

- Construct/design to test, USEPA approved Method → No method for $PM_{2.5}$ PM_{10}
- (*) Method 1 cannot be done based on Agency Investigation by Kevin M. & Jeff B.

NESHAP does not require PM testing for Quench Tower. However the permit required testing to satisfy Gateway & ABC Side Agreement.

Penn. USS Facility also had similar issues.

R007237

(2)

10/8/14
USS

(#3) Status of Testing - 1996 PSD Permit.

- Testing ESP BOF
- NOx & VOM emis

Permit → 696 Ton/yr 10.7
New Proposed → 823 Ton/yr 36.7 Ton/yr

July meeting?

(*) VOM 0.005 ?
0.23 0.5 lb/Ton steel
Emission factor
Stack CEMS?

2012 ~~Test~~ Test VN

Need to ~~Res~~respond to the USS last correspondance. In Particular we need to send something to USS ~~f~~ for testing Concerns?

R007238

Missing data ?

1

VOM Data

2012 Test result

Emission Factors 0.0230

0.0153

Vs.

- 5day Emission data

0.00851

US Steel 7/15/14

NOx →

Previous test

Emission factor 0.13

0.15

Proposed 0.19

?

~~Production~~ Tons/yr V production rate 8.16 Ton/yr

~~#~~ ~ 40 hr ~~Eng~~ data

if its 5day

$5 \times 24 = 120$ Hrs ?

Ex.

10/21/2013 data

14:14 to 14:32 missing

14:50 to 15:06 missing

Primary

Remaining US Steel Appeal issues?

1. Emission factors

1996 permit

~20 units?

2.

- Missing data
- flow rate data not available

For NOx - ~~Not~~ Not Sure if 2 standard Diviation approach b/c stack testing data

- PPM

R007239

(2)

Kevin Mattison

- THC calibration gas propane/Nitrogen vs. Propane/~~[illegible]~~ Air
  - used
  - Should have used?

VOM → VOC

Smaller range instrument should used

- Range 0-100 PPM 0-25 cal. gas.
  majority 2 PPM is within ± accuracy of instrument.

- As carbon number
  2 PPM propane → 6 PPM carbon w
  Molech. wt 44 — 3 carbon — with molechar 12 wt.

CAAPP permit p164 allows Method 25A should be used for p.197/198 allows Method 18/25A THC → VOM explicit

May be including
25A → does not differntiate or exclude methane/ethane

18 → Strait / Methane/ethane } → Non methane value for VOM

Authority
201.282
25A
320
18

General
NSR should be based on 18 or 320 Explicit compound.

Question Title V

NOx units 4
VOM units 5

CO

R007240

U.S. Steel
6/12/15

Bryan K
Victoria M
~~Chris~~
Stephanie B

Chris R
Minesl.

VOM

40.00
37.61
2.39

5 Rounds Test Results
Highest + 20%
One digit ~~Roud~~ Rounding
N
Jan. 2010
Engineering test

2.39

VOM
0.016 ~~mm~~/m.
0.002
VS. 0.004
0.003

0.92
2.39
3.31

Pick 0.002
+ or 0.0016 x 2 = 0.0032 or 0.003 ?

all combustion
bolile BFG
0.0054
nat. gas pilot

0.002

blast Flare
0.002 BFG

Flare
10 mm Btu/hr natural gas

505 mm btu/hr
10 " " " 6 -
515 " " "

6 mm btu/hr

R007241

(1)

U.S. Steel
7/21/15
Quarterly Meeting.

Status

Sche. Aug. 15

(2nd) Blast Furnace late August
May not operate until October?

Project on Hold until further notice

Coke Unloading Project (Original not economically feasible)

(*) - may not get approval till September (construction early next year).

(Modified version

Existing equipment that transfer to battery would be used.

With One Furnace operating Project

* Silo Project (Application may be submitted after update to coke unloading Project)

* Gateway US steel in contact with Chris D. of Gateway.
- Wants to proceed with trucking out Coke from Gateway.
- may need some credit from coke batt. Shut down at US Steel
- Wants Permit by End of 3rd Quarter
- may have meeting with legal team of Gateway Lou.

* Cogen permit

NOx & VOM lb mm btu

Recordkeeping —

R007242

(2)

US Steel
7/21/15
Quaterly Meetin.

- Blast furnace/natural gas limit:

Verify
Typical :- Pilot 6.0
& Purgegas 4.0

Project Summary
~~8~~ week after finalizing Permit.

* PSD Permit SO_2 & CO
- PM slag
- 20% Safety factor for non-BACT

$\boxed{SO_2 \quad CO}$ Blast furnace, slag ... , Iron spout bagouse
BOF ...

→ Soda Ash / slag Skimmer baghouse - 20% + stack test?
↳ also from lb/ton ~~to~~ lb/hr ?
↳ Ton/yr ?

7.94 Ton/yr → 20%
~~8760 hr/yr~~
1.81 lb/hr

may be based on Iron throughput?

Permit limit 0.0050 Nov. (2012)

what was test result : Highest 1.35 lb/hr

1.81
1.35
0.46

~~1.81~~
~~20~~

1.35
20
270

1.35
0.27
1.62

lb/ton 0.0006 lb/ton

7.94
1.2
1588
794
9.528 T/yr

8760 hr/yr

lb/hr

*Certain ~~8~~ units test result averages are close to the limits in the permit.

R007243

1888-494-4032

5144671 01

8/27/15

(3)

U.S. Steel

7/21/15

Quarterly Meeting

BOP NOx - Annual limit were allocated in Title V.

? 41
1 .93
.98

* Coke Batteries Shutdown Application

Title V Pag. 25 5.6.2(a)iii (A) ← 5.6.2(a)(ii)

PM. ⇒

AP. 5.5 Permit 2.5

- CO emission factor changed and needs to be updated.

for PM - ?

For SO_2 - No Change 641 ton/yr

" NO_x - may also be subject to NOx RACT rules.

October 14 afternoon for next Quarterly ~~of~~ Meeting.

US Steel/Gateway
Conference Call
8/27/15

- Fugitive PM (Roadways sweeping) emissions.

Road 203 (Route) - 20th (Street)

1 paved
1 unpaved

[Surplus
Slag ~~St~~
Storage Area

21st Street minimum traffic

1 Roadways (US steels) (
Not mainting/sweeping violates offset requirements.
(236 offset tons by sweeping)

New Road on US Steel
Easement to Gateway

not addressed in fugitive plans for either facility.

Both US Steel & Gateway need to update the fugitive dust Plan(s) to address the new road. US Steel is also required to Submit Quaterly Report per Title V 7.13.10(a)(ii)

[Conference call ?) October 15th ?
Meeting

R007245

U.S. Steel
10/7/15

Bryan K.
Victoria M.
Mined Patel

60 day announced yesterday

(*)

Idling what? everything except Cogen.

~~Baghouse appealed~~

* Strike? Contract Ran out SEPT / extended contract. —

PN: Cogen boiler begin today

- Coke unloading :- Not anticipating Final decision anytime soon
(Hold for now)

- Shutdown battery application - may have draft addendum

- Silo project - No updates :

(*) - Performance test on baghouse
-?- (Fan never turned off)?
may want revise certain condition ?
~~[illegible]~~ Jeff B

Discuss at Oct. 21st Meeting

490.02
441.04
48.98

136.10
3.17
132.93

93.98
19.77
72.21
2.56
74.77

R007247

1

Truck/other traffic traffic from 20th ← 21 street

South east side traffic to Hospital?

Route 203 US Steel entrance → 20th to Hospital/Downtown

Sagement Nash to Rt 203

Central 20th

West 20th

10/21/15
US Steel/Gateway

Fugitive Emissions
- Benton Street Closed
= 21st street closed

21st → 2/3 closed continue sweep the open part

20th sweeped

Monroe to Park Avenue Ave 3000 veh/day

Table 2-1 Application Coke conveying Application

- Maintaining Off-set
- may need new traffic survey for 20th street to show the reduction?
- Silt measurement every three years now 20th street?
- Improvements on 20th street

Gateway — Have begin sweeping 5 Months ago

* Old Study on traffic pattern 1984

Provided by National Steel — May have been used to form basis for the application 1995

- Fugitive emission
- Quartely Meeting with U.S. Steel

US Steel
- Kathy H
- David H
- Victoria M
- Bryan K

Gateway
- Katti S
- Chris M

IEPA - Jeff. B.
- Sally C.
- Chris R
- Jason S.
- Minesh V.

R007248

(2)

10/21/15

✓ (*) Cogen Boiler: PN Ends NOV 7 2015 US Steel/Gateway

- Kathy A talked with US steel on other matters but did not have concerns on this projection

Coke battery - data submittal ~~Baghouse~~ may take additional time to address the comments.

PSD Permit
CAAPP Permit

- Coke Unloading - Not active at this point.

- Stutus - one Alternate blast Furnace operating since January
  Dec 6th may idle
  120,000 Ton need melts
  not official but More likely be idled by Feb.
  but no information on when restart or Idle? (3rd Quarter next year?)

- Possibility of coke need to be moved?

- Impacts on other facility
  - Tube City - May be down
  - Stein - down
  - Oil Tek - down

- Caster Modification Continues.

If not idle and only One Blast Furnace then Blast Furnace B would operate because its bigger.

- Baghouse :- Damper open ..... Need change in permit Not need to change?
  Concerned about other pollutant being diverted to baghouse/ESP and not accounted for properly? Cond. 3-1 (a)(ii)(A).

next test by February?

Enviros wanted to have baghouse be used for taping/charging but convinced it would create Fire Hazards.

R007249

3

10/21/15
US Steel/Gateway

- Having dumpers opened would lead to addition capture of emissions.

Damper open
test steel cycle
Damper closed

~~Steel Cycle~~ IF test according to condition
Arrengement of damper logic stays same lb/ton vs. grain loading

grain loading and lb/hr limits
test operating for that time

testing 30 minutes
1 Hour Clean

Cycle less than 1hr test for furnace actually operating not 1 hour that includes off time?

- May have to review test protocol to Final testing?

- PSD Permit :- Hot metal charging lb/ton → lb/hr limit
Ton/yr

US Steel wants to ~~change~~ offset

1995 PSD permit
1996
Jan 19
Jan 1995 → October 94

original application? → US Steel needs Dec. 1995 they have Oct 1995 Submittal.

Next meeting January?
- Discuss ?

11050006
?

US Steel
11/18/15
Bryan K
Victoria
Stephanie
Chris M
Chris R
Minesh

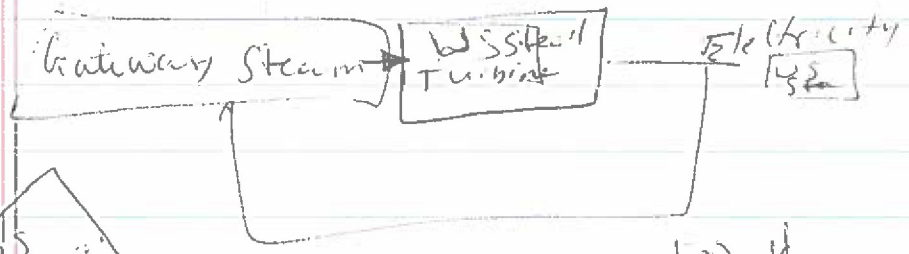
Once one furnace coming up on Jan.
and anticipates only one furnace
(Db) - would not be meeting 10% natural gas
- Would also be over ng permit limit

When CEM would be installed?
- Prepared

NSPS Db - natural gas / blast

60.13 b

Worst case



Within 60 days of maximum
or 180 days
Testing -

maintain that US Steel would not achieve maximum operating scenario and would fall under the drop dead 180 days time frame

~~Will~~ We will check legal and get back.

12/14/15
U.S. Steel

U.S. Steel	IEPA
Chris	Sally
Bryan	Chris
Kathy	Jeff.
David	Minesh
Victoria	Bob S.

- Plant Idling
  - Dec. 22nd unofficial down (Blastfurnace)
  - Jan 15 strip mill, Pickling op.
  - 22 Galvanizing
  - 27th Layoffs.

  Cogen Continue to operate
  - Suncokes production would be off loaded by Gary -- by truck, Rail...

Waste water Plant & Landfill

Baghouse Permit

*- Charging & tapping is vented to ESP. VS. Permit requires baghouse
- US steel thinks that they can do not have to revise permit but would work with IEPA.
(Some primary soucks are also vented

Constraction permit for Baghouse

- Findings 1a — Introduction...
- " 2
- " 3b (C?) — numbering

- number of Dampers at differen

Condition 1D *
1C ii

Emission testing 3-1 a ii A —
4(C) Monitoring & Inst. P
4 Recordkeep
5(a)
Reporting
6(C) — Subsequent test?

Stack up Aug.
Six months Feb 12, 13, 14

Testing → Baghouse operated all time.
↓ ?

- Testing language
↓
60 day within restart?
↓
Sent anticipated deviation

2009

72.6 Cogen

217 Combination of fuels

R007252

2

?

217.121

Other

212.122
216.121
Acid Rain
CASPR
Clean power plan

12/14/15
U.S. Steel

Cogen was to be tested in 2015
↳ may have to test with only one blast furnace

~~Comp~~ ~~to~~ inform Compliance unit that testing may be delayed...
and would ~~retest~~...

*Cogeneration Boiler Permit

219 — ~~wo~~ would not include suncoke
EPA Guidance?

Turbine → cannot operate only on suncoke steam?

(IF > over 219 – become EGU
IF < 219 – Not EGU?

– Db
– DDDDD

Db would go away
and
– Da would apply
also
– 5D would be applicable
also
– 217.344
See other

* More than 10% natural gas

~~Anticipating~~
~~Hotwaters~~

already over natural gas usage (439,725)
Will be over 10% in December.

Utility MACTS Not apply?
100% natural gas
May be ~~Db~~

Mid Gen
Gas

Is boiler no longer Cogeneration unit?
(Feed water pump, wastewater

	need	Suncoke supply
Normal	78 MW	55%

Certain units would require heat 10 MW

Applicability Determination

R007253

Permit Processing Priorities.?

(3)

12/14/15

(1F)

(2) Baghouse (with Public Notice)

(3) Baghouse (With out Public Notice)

(*) (1) Cogeneration Boiler

(2) (4) Battary Shutdown if

(3) Battary shut down

- PSD permit Discussions - Next meeting late February.

Internal Meeting

Baghouse permit

- Integrating Process → USEPA Review
  No public Notice

? Cogen - Subpart M ? * transion between
  Db → Da

1 R007254

US Steel
3/3/16

Dec. 22
Hot mill Shut Feb —
Cold Mill ~~mill~~ Pickling..

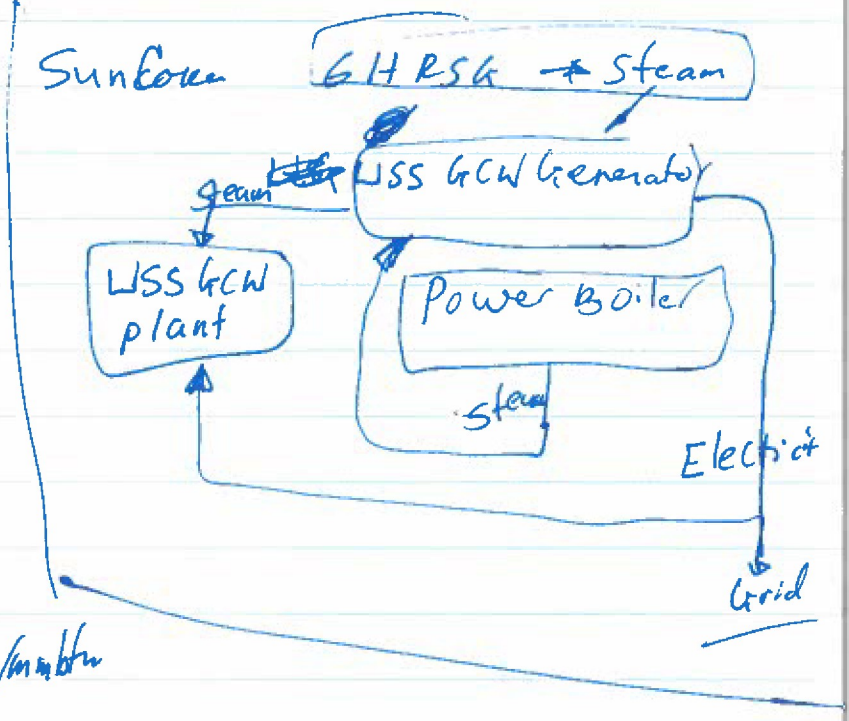
Sally C. Kathy H
Chris R Matt —
Bob S Bryan K
Minesh. Victoria M

— Only running Cogen Boiler at plant.
* Coke from sunCoke → Rail load out →
— Trial ← March 13 Running 5 Shift/wk. Gary Works using existing equipment.
Pickle Mill 10 " Cold mill
~~Morgan~~ 20 GGG (galvanizing)

bring in Hot coil from outside and process

May be more lay off coming (currently about 100?)
2016?

Cogen →



Part 217

Subpart D → 217.157(a)(1)
General
CEM requirement
↓
Revise cogen Permit
Cond. 3.1.8-1

Subpart M :- NOx emission 0.06 lb/mmbtu
| applicability is different
211.2425

R007255

3/3/16
US Steel

Subpart V applies 0.25 lb/mm

NSPS Db - not modification
- NO_x standard now applies
- CEM — would be installed

** Construction
Electric Utility Fee?
9.12 (b)(2)(B)(iii)
- comercial power generator

Non-applicable
Part 217 - Subpart C b/c subject to Subart M
also
Subpart E.

max 16 mW

Subpart 225 B - Coal fired only

exemption 40 CFR 97.404 (b)(2)(i) * CDE → state (CAIR) No longer implementing?

definitions → 97.902

Federal CSAPR $ 40 CFR 97 Subpart AAAAA B C D

annual basis
219,000 MWh → USS would be less than 219,000 MWh and would not be subject to the requirement.

Capacity of generator 77 MW — but would not be operating cogen at potential because is cogen would be at potential without plant at full capacity.

Abnormal (two furnace)
normal (two furnace)
one Furnace

any furnace

R007256

US Steel
3/3/16.

(*) IF Power boiler is operating at full capacity it would be greater than 219,000 MWh.

---

40 CFR 63 Subpart UUUUU (still working)
- applys to oil & Coal fired EGU

USS would meet

40 CFR 63 DDDDD would depend on applicability of 5 U's

not applicable → 112g, 40 CFR 60 subpart D, Da

Acid Rain would not apply (still working)

June 18, 2014

40 CFR 60 TTTT - boiler not modified after

63.749(1)(a)
natral gas Fired EGU

Cogen Permit Revision
PSD → would be ok — Actual → Projected
NANSR 203.207 (c) 5(b) (6)? use of alt. → would need to see the numbers
Would not trigger significant levels.

Natural gas → not 505 mmbtu/hr x 8760 b/c 219,000 MWh

When operation resumes it would be one Furnace

→ ? Alternate Mode(s) Permit ?
(new Permit)

Expecting :- 2-3 Weeks.

Jan 1995 Jim

4

R007257

3/3/16

US Steel

PSD Permit

With Current Facility situation.

- Bin Floor baghouse (has been tested 2013)
  7.1.6b (iii) → Compliance?

-

Not able to Test

Uncaptured emission from blast furnace

7.5.6d
BOF Roof monitor

7.4.6(d)

1995 JRR

Charging, refining, tapping, hood capture efficie.

AP 42 → values used at source.

→ Other values at buildin ~~outlet~~ monitor..

Roof monitor

Blast furnace fugitive

BOF baghouse

amount of emission collected by baghouse would help aid determine roof monitor.

*Slag pits → AP 42 - storage pile information

Not able to test

- Iron pellates screen (*)
- BOF furnace fugitives
- " charging (*)
- " Slag Pit (*)
- BOP shop (total emission)
- " " roof monitor
- Slab Kipping
- Slab cutoff.

8

may have more info for next meeting.

*Approch to Board would be to:

as to why its not tested

- why - because baghouse ~~did not~~ just started operation, One blast furnace

and existing config. did not make sense to test

R007258

5

3/3/16

U.S. Steel

Baghouse Permit

NESHAP language clarification?

(*) During Charging & Tapping the emissions would be controlled. However, when ~~Controlling~~ ___ the residual emissions ~~from~~ in the piping ~~are~~ controlled ___

- Coke Battery Shutdown ?
- Unloading ?

Next meeting June?

U.S. Steel

#1 Baghouse permit application 6/30/16 (1)

- Minor changes
- Also need to include redline version of permit with recommended changes.

#2 Cogen permit application.

- Netting tables need to be in order from overall project description to support info.
- Needed discussion of Demand growth exclusion (excludable emissions)
- Explanation of emission factors used to derived at actual emission data. →
- Explanation ~~on~~ for emission factor for Projected emissions.
- Needed explanation on why NG and BFG would have same emission factor
- Separately list Actual / projected emissions for boiler / flare each using NG and BFG based on actual usage for actual and Proposal usage data for projected.

- Cover letter need to address

(2)

US. Steel

6/30/16

the alternate mode(s) of operation as discussed in previous meeting.

- need to point out that the existing mode of operation would be required for future operation of boiler.
- Rule applicability
  - NO_x CEM not addressed (?)
  - clarity i.e., if underlying rule is not changing, ~~don't~~ simply to say remains same.
  -

R007261

1

$PM_{2.5}$ — Unclassifiable for current / Non attainment for past

Discussion on Cogen Permit

U.S. Steel
7/7/16

Kathy H
David H
Victoria M
Bryan K

Sally C.
Chris R
Bob S
Justin C
Minesh V

- NSR address
  Boiler Permit
  baseline -

$PM_{2.5}$ Why increase? Not more cleaner than BFG?

Netting SO_2 / $PM_{2.5}$ → Not netting SO_2 anymore
No more includes HAP & GHG.

(*)(*) Base line emissions
EF (Construction permit) vs. Actual emissions
↓
Not good for PSD or NSR
↓
[Testing Ng 1.5 of normal]
not representative of operating scenario.

(*) Need more justification ←

- Could have accomodated
  - B

NOx precurser for $PM_{2.5}$

- Baseline timeline NSR → Need justification for not using more recent two years of data. (ie, plant not operating

Need to change the

- Separation of boiler and Flare for actual emission

- Cover letter

- Regulatory Requirement.

R007262

(2)

U.S. Steel
7/7/16

Emission factor for baseline Calculation

- Why test not representative for pollutant other than NOx.
- What factors used in Annual Emission Factors.
- extrapolate from emission test data based on amount of natural gas usage.

Baghouse Permit (Now has redline Permit)

Current status

- Operation for finishing (continues?)
- Suncoke material - (turbine)
- Co-gen running

Down Blast F. Slip Mills.

More likely
↳ down for rest of 2016

* Fugitive Dust Plan
Verbally approved.

PSD Permit Discussion

able to find ep from Fire database

(*) Blast Furnace charging - Emission factor PM/PM_{10} lb/ton Ton/yr
Would have no change.
ok with current limits.

R007263 (3)

Next Meeting items

TODO:- Slag Pits
- BOF Shop Room Monitor
- Blast Furnace - Uncap. Fugitive (Possibly?)

U.S. Steel
7/7/16

(2) Iron Pallet screening.

based AP-42 there was 0.00279 lb/ton (EO)
Equation Moisture level
PM 0.00368 lb/ton.

PM_{10} → less because multiplier is different
0.00279 → 0.00174

(3) Slag Pits :- Still Reviewing available data and
& Continue to search for data.
2009-2010 water spraying system was modified to address Violation

Next Meeting — Week of October 17th ?

R007264

10/25/16

U.S. Steel

Quaberly Meeting

- Baghouse Permit
  - integrated Process
  - * may need to include a note to say that Construction Permit would not change the title V permit provisions.

- Dave H. (US)
- Kathy H (US)
- Victoria M (US)
- Guy Lawrance (US)
- Sally C. (IEPA)
- Chris R (IEPA)
- Minesh P. (IEPA)

Bryan K. moved replaced by Guy Lawrance

(*) Operating: cold mills (outage maintain...?)
- Pickle line
- Coating line (galv)
- Co generation
- Water treatment
- landfill

Coil from outside being Processed at the facility

* Iron/Steel making not operating.
  - 2-3 months once decision to restart

Co-gen Permitting -

(*) Will be submitting an application to have capability to use natural gas on continuous basis.

(Not new. protect)

(2)

R007265

Still Working

10/25/16

- Steam Ring Consent Decree

U.S. Steel

- PSD Permit

usually SO2 lb/Ton slag

as oppose to lb/ton iron production

- Slag pits PM/PM10/SO2 ← No change would needed.
- BOF shop
- BOF roof monitors

Efactor and emission limit are lower when compared

~~No change~~

BAT - Gary/AEP 2013

?Title I - Nucore

Arcelorm.

PSD

- AK Steel 2014 Detroit MI.

Will continue to look into initial research indicates 15.83 T/y may need to increase to 80-100 T/yr?

.578 lb/slag Arcellor

.11 lb/Ton slag Nucor

BOF Shop

Testing numbers indicates higher

NOx - 70 Ton/yr

VOM - 12 Ton/yr

Two tests indicates higher number.

Would increase because more capture

Slag Pits

158

158

316

158

2 | 3165

2

11

Blast Furnace Operations emissions

Casthouse 422 T/yr

Uncapture 21.94 maybe

slag pits 15.83 ✓

based on the EF and production limit should be?

316 Ton/y?

BOF ROOF Monitor (Still Continue Research)

* Does not have more data but AP42 Emission factors are higher than the permit limit?

limit may be based on 99.9% Control

Blast Furnace Fugitives

BOF ESP

Emission testing analysis

Combining the emission (3)

R007266

10/25/16
U.S. Steel

Next Meeting:
- Jan 30/31 Or Feb 1/2

R007267

1

1/24/17

U.S. Steel

- Victoria & Bryan now working for Nucore. SC & Ohio

UPDATES

Hot strip mills - Mid February re startup.
Gary (Ind), Great lakes (Det), Mont Valley (Pitt)
(Production from ↑ All three mills getting updated

Kathy, Dave, Guy, Chris — USS

Hot strip mills at three other plants as well as integrated mills are operating

- All other units that were operated continues.

Sally, Chris, Minesh — IEPA

- Cogen application: close to be submitted?
NO-NOx increase however VOM may increase little

- Steam Ring (Consent Decree) Permit
Consent Decree may be entered by Mid Feb.
only 2 coments to Great Lakes facility.

???

Old
- FESOP condition carried into Title V in regards to Reporting (5.12(d)) requirement on quaterly basis for SO2 emissions from fuel oil usage & coke oven gas
Since No Fuel is being burned?
Can they ????

(Not burned Fuel oil for 7 or 8 years and Coke oven gas very uncertain.

P. 36 5.10.3 p. 42 & 5.12(d)

Since the conditions is in both FESOP & CAAPP there may be ?? (internal discussion?)

R007268 (2)

1/24/17
U.S. Steel.

PSD Permit issues that are currently being worked at:

data submitted June 2014 ↓ email from Chris R. Jan. 5, 2015

Condition 7.— slag pits SO_2 more research.
7.5.6(b) & (c) BOF fugitives / ESP Oct. 2013 Nov. 2014 } testing ind. exceeding limits.

7.5.6 (g) BOF Roof monitor emissions high

Slab ripping & — Victoria was looking into

Blast Furnace fugitives not yet discussed?

Overview for all issues of Appeal

7.1 Deslagging? BOF additives (testing) system
7.— Flux conveyor (Aug. 2013)
7.1.6b(b) Iron platlet screen PM/PM_{10} — AP42 PM↑ PM_{10}↓ (Vy no change)
Cast house Baghouse (was to ~~may~~ be tested 2017?)
Blast Furnace ?
" Charging ok with #s
Slag pits (see above)
— Iron spout baghouse (was to be tested 2017?)
— Basic oxygen processes
— BOF ROOM monitor (see above)
— Hot metal desulferization / transfer (Discussion 2015) unresolved
(*) Hot metal charging & — (2012 Stack test) July 2015 (2006 2010 2012) tests —.
— Argon sterine station LMF . . . (Nothing becu - 2017 test)
Caster Mold / Spray / deslagging . . .
NO NOx

1/24/17
U.S. Steel.

- significant digit?

Next meeting → Apil/May

- Slag pits (SO_2)
- BOF emissions (analys data)
- BOF Roof Monitor
- Blast furnace fugitive

provide updated #'s for 7.6. (d&f)

Reporting Report (Quarterly)

Provide detail ~~Final~~ Last report, and also indicate that future reports would also follow same unless resumes operation

For future reports the facility generally indicates no change in the operation of fuel oil usage.

* SO_2 Modeling
1HR SO_2
slag pits?
4 SO2 units increase
Very close to 1HR SO_2
Unclasifiable –

Blast furnace

What data was used for U.S. Steel?

2/1/17

Aplication for Cogen Boiler — U.S. Steel

Kathay H
Sally C
Chris e
Mineh P

- ~~Other~~ Applicability of NSPS TTTT & UUUUU
  Will need to be revisited.

- Natural gas limit removed? ✓
  With explanation in project summary
  for difference in emission factors
  Would be OK with NOX CEM (actual emissions.)

R007271

Steam Rings 10080021 → email copy to

①

5/4/17
U.S. Steel

Quaterly Meeting

Kathy H.
David H.
Joe Hanning (Acting Bryan)
Elana Lance (Victoria)
Chris Hardin
Guy Lawrance

Sally C.
Chris R
Minesh P.

Update/PSD/Cogen/Consent Decree

* Majority Plan remaines idle
- Hot mill running since Feb 14 and is expected to operate at least till end of year.
- Gary works business ↑
- No plans as of now on restarting ~~Spitt~~ complex

PSD Permit

- Iron Pallet screening (Testing shows compliance)
- Slag Skimmer (~~Proposed~~ permit 0.005 ~~[illegible]~~ 2.18 lb/hr)

** short term should equate to Ton/yr limits
↳ US steel needs more flexibility for short term limit but not take additional limits?

* PSD issues from US steel perspective needs to be revisited before moving forward.

Proposal to revise
Iron & Steel MACT 0.01 gr/scf

Continuous Paramonitoring devices

Soda Ash baghouse	(0.01)
Slag Skimmer	"
Casthouse Baghouse	"
Iron Spout B "	"
ESP stack	(0.02)
Baghouse 1 Slag	
Argonne	LMS Bag #2

Consent Decree Steam Ring Projects

↓

Application to clarify permit: 10080021 to steam Rings may operate all times,

R007272

(2)

5/4/17
U.S. Steel.

Operating Scenario

1. Calendar year (NESHAP)
2. (NSPS)
3. State NOx

US Steel

11/1/17

- Hot Strip mills are operating and Continue to operate. ~ ½ capacity?
- Finishing (all Pickleline, LLLL, cold Mills)
- Cogen Boiler operating
- May need to restart blast furnace in future if & when other plant blast furnaces may go idle?
- Consent Decree requirements are met by Hot Strip mill Const. Appl. / Issued

- Joe Hennin
- Chris
- Elena
- Kathy
- Dave

- Sally
- Chris
- Minesh

(*) PSD Permit Updates

Most PM limits (annual) are ok.

Short term limits with practical enforceability

- blast furnace, steel shop
- Short term limits based on USEPA

(?) ↳ Emission factors based on stack test and would continue to be updated every time stack tested to show compliance with Ton/yr based on lb/day emissions (Rolling 12 months)

Casthouse baghouse 0.0703 lb/ton (Permit limit)

? lb/ton limit replaced by ?

Progress on PSD Permit ?

- Draft Co-gen permit

Guidance Title V appeal
Piedmont Green power
Dec. 13 2016
Orange Recycling 2002

US Steel
4/4/18

- Dave Hacker
- Joe Hannein
- Chris Harden
- Alaina Lantz

Sally Carter
Chris R.
Minesh Patel

- Cogen Permit
- Internal Review

Transition detected on regulation and

~~R~~ Resumption of facility & timing of Cogen Boiler permit.

Our preference would be

Start up only one blast furnace
Earliest Late May

No Firm date Set yet

Other single sources (Colocated Source)
- Oil sav. Tech

prior to Start up would need documentation that addresses restart ~~per~~ USEPA Guidance. Reactivation Policy.

Next Week 12th ~~or 13th~~
2:00PM ~~Central~~

4/11/18

Review notification for restarting?

WS Steel
6/20/18
Internal Meeting

- yasmin K
- Linda W
- Ron R
- Sally C
- Kevin M
- Andy J
- Chris R *
- Minesh P

PM Test

Contacted Andy J

- Testing per title V & Testing per Construction Permit
- Submittal/Project report/evaluation

Not sure if Chris has seen this list

** - US Steel has submitted a schedule of emission testing and wanted to know if this is OK with Agency. Not sure if

Based on the schedule of testing:
- Boiler 11 Not tested yet/may need to reschedule
- Cogen Tested last week
- Pickling line scrubber Kevin has informed USSteel not ok with Sub. Protocol because method/detail on max of Parameter not discussed as to why it would be max.

WS Steel pers:
- Terry Tecklenburg
- Joseph
- Guy L

- July 11 & 12 Test protocol not yet submitted

Title V March 4, 2014

Yas will discuss with Julie for possible letter to be sent to US Steel with their sch. tests with more specifically discussing requirement of Protocol submittal - Also to include test that ~~via~~ need to be performed that are not on list.

PSD = Annual

Actual rate not increasing?

US Steel
8/20/18
Conf. call

Granite City

Coke to Blast Furnace
- ~~Rail~~ Conveyor system/screener

Rail car

New system
- eliminate several drop points
- old
- avoid coke degradation
- Redundancy previously

- ~~Tom~~ Josh.
- Dave H
- Chris H
- Brett T
- Kuy L
- Joe H
- Sally
- Jason
- Anwar
- Minesh.

Existing Coke Battery area also have conveyor & screener But have more drop points to deal with

all Coke is Suncoke and some coke picks at plant.

Screen Coke

Idle Dates Dec 2015 ?

Blast Furnace A Dec 22 2015

B Early 2015 (~~March~~ June 19th 2015 ?)

March 2015 Coke Battery

Restart

Blast Furn. B Began Operations in June 2018

" " A October 15th 2018 is anticipated date for restart

Concerns → Necessary to restart Blast Furnace
→ Emission Factor?

Tuesday 3:30

AP42 1978 Control eff. 70-90%

* Rock crushing — for enclosure efficiency
* Not using rock crushing emission factor?

HOW New system would affect existing units?

R007277

U.S. Steel (Meeting)
8/28/1

Kathy H.	Sally C.
Joe H	Chris
David H	Anwar
Chris H.	Minesh
Josh	

- Granite city

Restart - Rehire NH 400-100

3 New Environmental Staff

Plants operating

Oct. 1st 2nd Blast furnace

Screen coke

Production capacity not increasing

238 Nonroutine physical change

Fewer drop points

Existing screening operation
↳ 8-10 Employee not want to restart.

Screen coke operation
- Larger pieces to Blast Furnace
- smaller pieces to Bealman for screening
  - ↳ Further screening - smaller material to off site (Fine)
    - ↳ Medium size (nut coke) material may be sent to U.S. Steel.

Skip cars Bottleneck

Storage capacity? Stockhouse Coke Bin

* New screening operation is not necessary for restarting 2nd Blast Furnace?

Stockhouse Coke Bins are used for storage excess coke prior to use in furnaces. supplies coke to both Furances and would have excess capacity if only one furnace operating.

Gateway Permit 740,000 Ton

12/3/18

See also questions provided for notes.

~~Meeting~~
Conf. Call with

US Steel

Some limits (in terms of emission factors) that were part of PSD permit ~~that US steel~~ were not appealed by US steel rather ~~during CAAPP review~~ only certain Emission factor limits of PSD permit.

Attorney General office
Rebecca Burlingham
Molly

IEPA
Sally Carter
Chris
Minesh

TWO Catagories: - stacks & Fugitives

may be determined from stack test or CEM

stack test may not be easy to perform (may use engineering estimates to determine emissions)

Reason for appeal as BOF (ton/yr) ~~emiss~~ emission were higher and may have exceeded the PSD threshold.

R007279

US Steel - Enforcement
2/5/19

Phone	
Kathy H	David H
	Chris H
	Joe H.
	Terry T.
Kevin M	JIM M.
Andy J.	Yas K.
	Amanda K
	Chris R
	Sally C.
	Minesh P.

(1) NOx/VOM PSD Permit

Meeting in regards to NITPLA le

- 2003 National steel → US Steel

1993 stack test reliance

~2012 aware of discrepancy

- upgraded BOF

★ PSD application → Ultimate Permit

Feb. 11th, 2019
Expect Consulting from either
RTP | Trinity
Collin | John Ivanski

★ NOx & VOM are part of change including other emission factor (Appealed permits) can be taken care at the same time.

★ IEPA anticipate Consent order ~~with~~ addressing timing to get permits moving.

(2) Cogen Boiler

Additional issue permit pending for cogen boiler
Additional Comments on draft permit

Refer to AG office for formal Consent Decree for timing issues and Penalties.

Flexibility for schedule to allow addition PSD/modeling issues required

★ Application should be submitted as the ~~new~~ Operation of the plant as it is now being operated.

2017 or (★) new Consent order

U.S Steel – Permitting

Operate the CEMS 2/5/19

Boiler MACT Tune-ups

- Flexibility to allow Cogen boiler to operate as it is applicable all times.

- sampling → stack test (US steel would propose language).

~~Cogen~~ Blast gas < Cogen
Boiler 11
Boiler 12

5.

Grab sample for SO2 Annual ?
PM ?

* Reporting 3.1.10 (a) (ii)
Quarterly – Semiannual to match CAAPP required

Emission 3-1 a ii A

PN: 11050006 Emission Reduction Project first within a year of startup — Give exact date.

This permit is not pending

R007281

Pre Meeting
4/4/19

→ 8hr ozone

$PM_{2.5}$ redesignate?

SO_2 & CO - PSD | NOx & PM - netted

Potential to changing baseline

Modeling? 1HR - SO_2

Coke Plant shutdown
March 2015

R007282

1

US Steel
4/4/19

Production Increase Permit

* Anticipation that All 2013 CAAPP Permit appeal issues ~~fit~~ by revised Permit

legal counsel: Kathy H, Ladona

* 2007 application pending

Coke plant shutdown, March 2015

Chris
Joe Hannig
Sarah (Headquarters)
Christa (Manager of Environ W)
Alex
Dave (Air)

US Steel

Inform from Backy Burlington

Sept

(*) Potential issues

- SO_2 (2007 Permit appl.) needs to dealt with
  Blast Fu. SO_2 were higher
- Coke oven shut down reduction SO_2
- Tweaking PSD Permit (1HR SO_2 Standards)
  - Slag pits may be causing issues as oppose to Stack Emissions

RTP: Collin, Gary

IEPA: Sally, Chris, Minesh

Modeling 2013-2015

Input files for modeling ?

* Background number may have ~~be~~ draped (years)

(*) (1) Reopening of entire analysis?
Targated reopening

(2) NOx & VOM emission BOF
1996 non attainment for ozone

NOx
Some decrease from coke plant
VOM much smaller?

(3) PM emissions good ESP/Baghouse has potential ~~to~~
PM_{10} attainment

(4) Other Bits & Pieces (*) lb/hr limit, longer ave., grouping to provide variability, significant figures
Minimal/negligible,

PTE
last 5 years developments?
1989 ~~—~~
Will provide ample supporting ~~the~~ information

May or may not be issues as US steel may be known short term limits

2010 Mike strategy flexible permit ...

Indiana & Michigan

R007283

1

7/23/19

US Steel

- Ladonna, Collin, Gary
  D C S
- Joe, Chris, David
  H H H
- Sally Chris Minesh
  C R P

95

SO_2 CO PSD

PM NO_x Netting

Title V conditions reorganized

Cap 7.1.6 – Material Handling operations → Move with PSD permit

Few SO_2 & CO terms changed

Other pollutant

Restructuring Non-minor P

NO_x & other pollutants continue to not subject to PSD

- Emission caps for related units ie. Unit A
- Not proposing to get rid of product limit
- However compliance would not be determined from it.

Unit B

Some A+B

3.165 mm/on/y

3.58 "

Emission factors are acceptable provided permit prescr

- EAB TEP sundt & Shell Kullen (NO_x netting)
- EPA decisions Pencor-Masada, Piedmont Green Power, Popex + Abot
- EPA issued permits Stimson Lumber (R10), Newtown transfer and Van hook (Both R8)

Uncontrolled emission – AP-42 then use control efficiency of most recent test. Monitoring for control.

451 T/yr PM_{10} monthly & rolling 12 month sum calc

for ESP & Four Baghouses (Bop, slag, ...)

Periodic Testing/monitoring as MACT FFFF

units

(2) Transfer Bag

R007284

2

7/2 3/19

Clean
↓
Test Boiler
gas cleaning is
not controlled
it is a process

Non testable - product of Monthly Steel x EF.
- Roof Monitor - (0.013 lb/ton) EF = $PM_{2.5}$ SIP
See Permit 11050006 - Capture system monitoring

Projected Actual $PM_{2.5}$ = 102 Ton/yr
vs. Permitted 451.5 ton/yr.

Hower EF. may not be verifiable?

Pending 2008

SO_2 & CO Emissions are they BACT
NO BACT Relaxation
(based on two stack test)
Blast furnace gas analysis
Const Decree Dec. 2007
→ Not anticipating the requested increase to 16 lb/mmcf
May request 6.65 lbs/mmcf

SO_2
6.65 lbs/mmcf
vs.
16 lbs/mmcf
(2008 revision request)

Test 2019 Cogen Boiler
0.0024 lb/mmBtu

CO emissions would need to be increased
13.7 lbs/mmscf + all emissions were based on AP-42 factors
vs.
data from

Boiler 11	3.5 & 3.9 lbs/mmBtu @ 350 lbs/mmscf ↳ Factor 25% high
Stove	now new data for stove
Flare	29.6
Boiler	1 lb/mmbtu = 95 lb/mmcf → Factor v 7% high

VOM Blast furnace gas

$PM_{2.5}$
2011
↓
condensable have to consider

Would new CO modeling be required? Air quality may need to be consulted

7/23/19
U.S. Steel

Change for title V?

7.4.6(g) < does not address

Iron pallet screen was addressed in 7.16 but the emissions total should include as it was part of PSD Permit.

		Test
Cast house baghouse	0.07	0.02

Baghouses are generally compling with higher safety Mus...

? Monitoring

Projected 33 tons vs. Permitted

Total NG, Fuel oil, Blast Furnace gas Usage

Change rating

Contemporaneous increase may not include Slag spout hood & #8 galvanizing line

Note: does not include in netting vs Removal

NOx

	NOx RACT
Permitted NOx EF 300 lbs/mm scf	0.08 lb/mmBtu
	0.02 lb/mm Btu

NOx emissions may need reshuffle between units

Baseline changes

1999 initial relaxation of NG limit occurs

VOM BOF 2 vessel baseline & potential may change

★★★ Would not rely on Shutdown of Coke Plant

Next meeting 6 weeks for now?

U.S. Steel

10/21/19

Discussion on the draft language for Proposed Changes for NOx and VOM emissions for the Permit revisions for Construction Permit 95010001, including emission factors and possible Changes to Conditions 5, 18, 20, 22 and associated Tables of the Construction Permit 95010001

LaDona
Collin
Dave H
Joe
Sara M
Chris
Gary
Sally
Chris
Minesh

CO
BACT

US Steel
11/19/19
Ladona [redacted]
Chris [redacted]
Jenny
Joe H
Sarah
Gary/Collin
Dave H.

CO emissions for stoves not enough data for emissions

Blast Furnace stoves (testing)
Flare — ~~13.7~~ lb/mmscf
→ only one Port

80 Btu/scf

Sally
Chris
Minesh

IF you cant meet BACT limit
Ogden MO — case

Before

CO emissions (lb/mmcf)	
ng	BFG
40	13.7
Ton/yr	
22.9	1267.46

After

lb/mmcf	
ng	BFG
-	-
Ton/yr	
86	28860.00

US Steel
12/18/19

Ladona
Dave
Sarah
Joe
Chris
Jenny ?
Granite City.
⋮
Sally
Chris
Minesh

- ESA } No previous consultation were done
  Fed. Reach out to Rachel Rhinker
  State
  NHPA
  ↳ Contact David O. USEPA.
  ⇓ USEPA ?

- Application Forms
  197, 199 → No other forms

- Enhanced (Integrated) Processing
  ↳ No Forms ?

- No changes to pb emissions would be suggested.

- SO_2 modeling - continues to be worked
  (more detail review of application in January)

- $5000.00
  $6000.00
  $9000.00
  Netting
  PM } one or two pollutant(s)
  PM_{10}

930-5.00
Jan 22nd

R007289

1

1/22/20

USSteel

Jenny
Alex
Christa
Plant Via Phone

Collin C
Joe H
Dave H
Sarah M
Ladona D
Chris
Gary S

(*) Increase in ng usage?
PN: 98110038

- Jeff Sprang may join — USS is Not sure of SO_2 yet.

- CO modeling would be done
Protocal for CO modeling may be needed / check with Jeff S.

- 1996 Permit
SO_2 615.22 Ton/yr EF 6.65
enforceable

* Not synthetic minor/PTE Limit
- BACT Analysis - Good Proof
- modeling

* USS Would prefer not limit or 12 month rolling

Sally
Chris
Minesh

→ USS is considering SO_2 emissions for 1996 Permit may not need to be changed ⇒ No change to PSD or modeling would be required. To this extend would prefer the limits as in 1996 permit or title I limits.

- BFG and NG limits are changed in terms of heating requirements vs. Fuel usage limit
- VOM would continue to be netted even though not signif.

R007290

(2)

1/22/20

Cogen Permit

U. S. Steel

Next Conf Call
Feb. 24th
1:00 PM

Need to discuss.

Permits

→ 95 01 0001 Production Increase

⊕ 10 08 0015 MOU Implementation

⊕ 15 03 0001 Coke Battery Shutdown
(increase Natural gas usage).

⊕ 15 03 0047 Coke Unloading & Screening

R007292

7

2/24/20

Production Increase Permit

- SO_2 Changes / Additional Impact — Ladona
- Coke oven Bat. shutdown — David
- Coke handling — Chris
- MOU
- Timing — Crystal

Collin

Relaxation? — Gary

lb/mmbtu → Annual limit

Sally

SO_2 ⇒ From PSD Permit to title V permit language. — Chris, Minish

Other major improvements

① Addition control at BOF

② Coke oven plant shutdown Replacement

③ Secondary pushouse?

(1)

Coke oven Battery shutdown may be withdrawn once the revise production permit application is submitted. As a consequence of issued permit → Will also negate the requirement to obtain this permit.

* Remove natural gas limits ⇒ Annual limits

NOx emissions for boilers are sig. less because of FGR

→ Since the construction permit - Coke oven batteries plant have shutdown.

R007293

USSteel

* MOU Permit application 2/24/2020

October 6 2011

* Coke unloading / handling.
  USS will look into it.

* Cogen Boiler Permit.

Addition Impacts - CO soil vegetal.

Timing - Application ~~Submittal by~~ Next Monday - March 2, 20

✓ EJ

Stat ESA

✓ modeling to Jeff 5/9

WSEPA

US Steel

Draft Permit comments. 4/20/21

90th Day 4/25/2021

May be Waiver

- How would process weight rate rule be complied with. 212-321

- Comment has ~~requested~~ requested to take out lb/ton emission factors.

Krista A.
Chris H.
Alex

Jason
Anwar
Minesh

4/27/21

Draft permit comment.

(1)

R007296

USS Permits 5/13/21

- Material handling Table 5 of the original Permit 20 Ton/yr but no other requirements in the Permits (Reduction of 17 tons/yr). — Chris, Sally, Minesh

- SCOPE
  - increase use of NG due to shutting of coke ovens
  - BOF ~~shutter~~ shop
  - Cogen boiler replacing Boilers 1-10
  - NESHAP

Revised application does not address the these other projects.

- Starting point - 95010001
  2012 (11050006 BOF Baghouse) update?
  There is no 95 Permit active
  CAAPP permit is revised
  ↳ CAAPP permit has also been reshuffled
  LMF/Argon stations no longer part
  Buble for material handling ~~of~~ to stirring station

- PSD Pollutants:
  CO - addressed as BACT, needs numerical BACT limits for individual units

(annual limits vs. short term limits) Supporting information is for PSD avoidance permits not PSD permits

(2)

USS Permits

5/13/21 R007297

Support information for one PSD permit does not include the pollutant that was not subject to PSD. Short term limits may also be needed to protect NAAQS for CO.

Modeling not clear as malfuction emission modeled properly for flare/furnaces

- No changes to SO_2 emissions, which also includes short term limits.

Proposed

(*) Increase in NG usage - is not supportive unclear/inconsistent.

Tapings as addressed by USEPA (AP42)

* Omissions is USS Revised accounting
  - BOF - PM from baghouse, NOx from baghouse
  - Blast furnace PM from slips, NOx beaching iron

* Emission factors for units that can be tested
  - Details eg. EF. for boilers 11&12 Separate NG & BFG
  - Gener risor (ALA) shell offshore, Tucson electric, orange/Masada

frequency of testing, handling of test results, definition of deviation that triggers uncontrolled factors.

R007298

USS Permits 5/13/21

* Emission factors for unit that cannot be tested, general rigor as uncaptured emissions are much greater than addressed in ~~the~~ Shell offshore

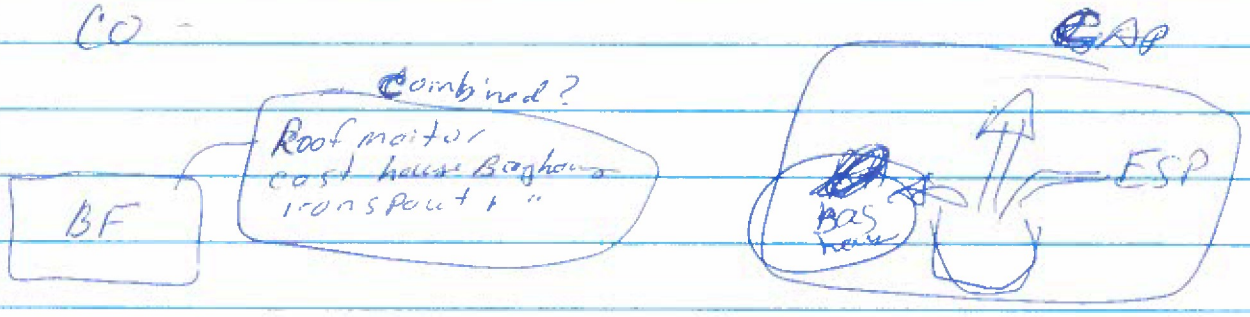
(*) Combinedly separate ~~[illegible]~~ into CAPS
- Units that can be tested, where is support to apply shell offshore ie., operational variability

- For units that cannot be tested, where is any support ~~[illegible]~~ for adding with ~~[illegible]~~ units that can be tested
- General principle - "CAPS" reduce stringency, as low emissions from one unit can balance out high emissions from another unit, ie., internal trading

USS Permits 5/13/21

Phone call with USS.

CO -



R007300

(1)

US Steel

5/27/21

10 topics to be discussed to make application More

TOPIC 1

- Baghouse Permit 1996 - NO baghouse

- Cogen Boiler also not part of Project. Blast furnace generated by plant Was used by Boiler 10

- 2008 - Application 95-0001 to increase SO_2 emission factor based on Consent Decree.

Ladona
Dave H.
[US Steel Gansom]
Collin
Gary
Sally
Chris
Minesh

- Pending application - Coke oven shutdown
  Coke ~~500~~ 900 Btu/CF vs. NG 1000 Btu/CF
  ↳ NOx emissions reduction

- USEPA Modified NESHAP — Address SSM
  However mercury emissions — Address in CAAPP

May have to Act now

MOU Permit — Deal Now and get it out now.

Construction Permit ~~H050006~~ for BOP furnace

R007301

(2)

US Steel
5/27/21

Topic 2

~~Corrected~~

Starting Point for revision of 95010001
Emission information is ok but
terms of Permit the 2012 version
vs. 1996 version of the Permit.

What CAAPP Permit is being revised.
looking at 2013 later admistrative amn. excep. Ef. that were appealed.

CP. 11050006 Permit revised some admi... Change.

Topic 3: Proposed Revision to CO Emissions.

Requesting to increase in PSD Pollutant would
Open the BACT analysis.

Flare Ef. 10% of boilers.
work practices / combustion practices
What are for Blast furnace gas

Topic 4 Increase NG usage.
Increase
1145 to 1980 mmcf/yr

Fuel Oil usage - Other unit did
not have capability of burning fuel oil

R007302

(3)

U.S. Steel

TOPIC 5 Possible Omission of Change in Emission. 5/27/21

Original Permit did not address NOx & ~~PM/PM10~~ for other units

- Blast furnace slip
- Beaching of Iron
- Other?

TOPIC 6 Documentation for proposed Emission factors.
Include stack test results . . .

TOPIC 7 Emission factors

TOPIC 9 Jan 15 1996 Table F1-F4
(Table 5) updated application

(1)

R007303

At: Hepler Broom office

7/21/21

US Steel

- MOU Permit

Streamline

Deal with emission limit & NESHAP

Enhanced procedures are

default within CAAPP/Construction

Permit Plan is to act on this

Permit prior to PSD Permit

FOIA EJ-PN - ?

Collin C

Chris H

Alexis

Christa A

Ladona

Gary

Dave Hacker] phone

Alex

- BOF baghouse Permit

* ESP and baghouse both

Controlling secondary

emissions (including charging/tapping)

Application?

Sally

Chris

Minesh

Original Permit - Integrated

- Part 1 Construction Permit

- Part 2 Provisions of CAAPP

was appealed

Permit was appealed - Except Emission limit

Emission Permit 1105XXXX

* Submit administrative amendment to include Part 2 of the Permit.

- List of major topics:

→ Topic 2 work from more recent Permit Version 2012

* Remove outdated Provision of Compliance Procedures

- Topic 0 - Skip

- Scope of Application

- Either include both Cogen boiler and Coke oven shutdown Permit and should not be part of rev.

but should not be part of this rev.

R007304

(2)

US Steel
7/21/21

original BFG
Coke oven gas
Stove - natural gas is used for stabalization
nat Gas
Primary BFG but
Sub change

- Topic 1C - Sulfur content of BFG / SO2

SO_2 6.65 lb/mmscf limit

Title V - Annual average
PSD Permit - ? condition 32a
~~6a?~~

- BACT - SO_2 ?

Emission Factor (4)

IF comments - For short term limit based on the modeling done later and have short term limit 16 lbs/mmscf

Responsiveness Summary 3/2013

- Shutdown of coke oven batt
  - Stoves, boilers, blast

- Application BACT CO

modeling - No issues even for co from flare up to 1100 lbs/

Flare - Work practice - Emission rate
because emissions are demonstrate

Co modeling
↳ Input file/Gateway emissions?

Efficiency - Not much data exist
~~95%~~ 96% ?

Blast

3

US Steel
7/21/21

- Stoves may be tested but not in compliance with USEPA Method 1.
  not measure exhaust flow
- Blast furnace Analysis → January 16, 2020

Specific work ~~procedures~~ Practices → NOx BACT
vs.
Generic ~~[illegible]~~
Good combustion Practices

Blast Furnace BACT

Maintanance practices (Temperature monitoring)/
Addition/Replacement Section for BACT determination
Would be needed

Topic 10 – Material Handling (Table 5)

For PM_{10} or PM
The PSD permits may have to include provisions to make emission reduction enforceable

Contengency plan
↳ Title V 5. d
7.13. p 302
212.310
Condition 31 PSD Permit
Subpart U of Part 212 requires to Prepare Contingency Plan but its enforceable upon Agency notifying ~~of the~~ based on NAAQS violations

R007306

(4)

Emission Units that may not be addressed by original permit.

US Steel
7/21/21

- Blast furnace / ~~[illegible]~~ Beeching → of zero
- ~~[illegible]~~ Blast furnace slip → more — However would act to offset or reduce the emissions because less emissions from blast furnace which are higher
- NOx emissions from tapping of furnace
  ↳ No Secondary tests are done for Steel plant (link for ICR would be sent)
- Slag, bag filling
-

Indiana Permit
4380
00316

1:00

Basic Oxygen Furnace

★ project BOF NOx using NOx CEM why was that data not used?

Emission factors for
Blast furnace / natura[illegible]

~~Maximum CO~~

Permit for Mat. hand

- Cast house bag ho[illegible] P[illegible] [illegible] based on design data - vs tr[illegible] dat?
  (0.01 gr/scfm) Potential
  001 gr/scfm) Actual
  ↓ Potential emission only?

Section 7.6 of application

- Emission testing - Capture efficiency → caster house
  ↳ BOF (tapping/charging)

Assumed factors ~~are~~ more of what general used by industry

- Emission CAP for different units
  - off-shore Shel - [illegible]
  - Tuscon - al[illegible] psi ?

also allowing the original numbering

Format
Add part 2, 3 that includes information that are added from original permit

R007307 (4)

9/14/21

U.S. Steel

Material handling / Roadways not addressed in title V

Cleveland-cliff permit :- ~~[illegible]~~ Annual emission limits

Conclusion 1996 - Poor handling material handling

Good / bad - Cleveland-Cliff

US Steel has not been keeping up with CAAPP permit upgrading to include new projects

Blast furnace gas sampling 7.10.8 - is also requires testing but not superseded and is continuing to be in violation

- Cleveland Cliff permit - 18 years old (2003)

USEPAs subsequent guidance - - - ?

- lot of emission units are subject to lb/hr pursuant to Indiana SIP.
- BACT (CO, SO2) for stoves CO - 30 day average Continuous monitoring (stove modified).
  390 lb/mmcf
- SO_2 emission 0.195 lb/mm daily average
- material handling?

Gas Cleaning system -

other issues may also get reviewed

Collin

No change to SO_2 BACT, Cleveland Cliff permit not being relied upon, rather be used for reference

CAAPP

- 2013 Coke oven batteries / in CAAPP permit violations — gone, Baghouse are operating
- Compliance certification out of date
- CAM plan not included for some units
- Forms — refers to CAAPP permit that may not be updated

EF → Blast furnace 57.23 lb/mm scf (2) 6.65 lb/mm scf 9501...

(2) R007308

9/14/21

Material Handling – Table 5 App. C

US Steel.

Table 6 – does not list material handling

revised calculation for PTE for material handling that would increase PM & PM10 emissions of the project but continue to be not significant.

Jan 1996 Application Appendix E.

– 22.4 – 3.38 – 0.18 – 32 = 58 ton/yr

Table F4 of the application.

(*) Fugitive operating plan – needs cleaned up

US Steel to show that

~~Storage~~ Storage piles are not subject to control requ

Wildlife

* South plant roads are not controlling based on the fugitive op. Plan.

95010001 – requirements for control road emissions vs. fugitive

May need revised permit.

Coke plant roads are no longer being used

R007309

(1)

10/28/21

Follow up to Sept. meeting.

U.S. Steel
- LaDena D.

* Material Handling CAAPP vs. Construction Permit

Future (Tons)		PM	PM_{10}
4,308581	Coke	5.54	2.62
170 084	Limestone	6.27	2.97
1,424,124	Pellets	5.54	0.15
		12.12	5.73

* Revised PM/PM_{10} emissions for Permit

PM_{10} 5.73 + 27.42 − 6.68 = −28.53 (PM −22.14)

Increase

Overall Change based on updated data: PM −98.67, PM_{10} 12.36

Appendix E-1 PM_{10} 41.68

PM 43.63 − 1.77 = 41.86 PM_{10}

41.67 − .63 = 41.04

Material going to blast furnace?

Not included: Coal crusher and other coal handling was not handled.

Other: Iron Pellet screen, trackhopper . . . .

(2) Two new Coke Screen: 1.56 PM, 0.53 PM_{10} } Part of 5.73 ?

Conveyors & Feed hoppers: 0.21 PM, 0.[illegible] PM_{10}

- Collin C.
- Gary
- Alexis
- Alex ESP
- Dave
- Chris
- Christa

Chris R
Sally C
Minesh

BOF Shop NOx Netting

1998 Permit modification may just be paper ~~work~~ violation of modification

R007310

(2)

10/28/21

W. Steel

1996 Permit netting analysis

2020

	Stack test Average (lb/ton)	Secondary baghouse lb/ton Highest
NOx	0.0075	0.0120
CO	0.0265	0.0844
VOM	0.0035	0.0057

→ Comparing

baseline prod. 2413406

Future Prod. 3580 000

Another correction

(*) NOV. 2014 Stack test had calculation error

NOx ave. decreased from 0.3230 lb/ton to 0.1438 lb/ton

Run 2 had calculation error.

32.61 52.33 30.19

725 Production

lb/ton 0.08 0.8255 lb/ton —

Future Cap BAFSheet 304.3 to 297.14 T/yr

Project net emission increase of 30.63 ton/yr

VOM & CO emission calc. would be updated

R007311

3

10/28/21

U.S. Steel

* CO Emission Evaluation

Stove stack does not have testing ports that meet Method 1

- Develop work practices for stove stacks.
  - Calibrating flue oxygen sensor ✓
  - inspecting/repairing burner ✗
  - Operation Dome temp. & and stack temp. to ensure good combustion efficien...

maybe ✗

These Instrumentation has been installed for process information

CAAPP appl.

Stove — CAAPP 240 vs. CAAPP 220 ✓

Preheater

two-CAAPP 391 - one for - One for Sect. 7.13

(*) Fee March 2020

Clean up of CAAPP prior to Renewal

- changes to cogen boiler (eg PM testing sampling)
- fugitive dust eg sweeping of coke
- Coke battery

* Cleveland cliff

Emission CAP ? * Policy/Guidance

1

R007312

11/23/22

U.S. Steel

Material Handling

- what about other materials?
  i.e., slag ~~7.2.25~~ condition

- Dust transfer

removal and slag processing

Slag processing plant on US-Steel

Some material return to BOF.

LaDonna D.
Krista
Alex
Chris Hardin
Dave Hacker
Gary
Colin C

(*) 1996 permit may have overlooked the outgoing materials.

- landfill, beaching of iron, other operations that are addressed in CAAPP permit.

Chris
Sally
~~[illegible]~~
Minesh

- CO emissions working on developing work practices section of application

- Coke oven Battery ~~[illegible]~~ cleanup in CAAPP permit fuel usage? Blast furnace/natural gas usage.
  Coke oven gas ~~[illegible]~~ offset natural gas usage.

switch in fuel

Coke Oven gas battery 2015 shutdown project and may need to have separate analysis for baseline actual vs. potential increase in natural gas usage.

General Motor letter from US EPA Region 5 guided that ~~[illegible]~~ for project involving lower emission factor when swithing fuel need not evaluate actual to potential emission of such project.

2

R007313

11/23/21

- Comparing blast furnace gas btu Vs. natural gas btu using equation — U.S. Steel

Coke oven gas shutdown Project if not increasing emissions

CAAPP Permit limits

Steel throughput

3.567 — 3.58 mm tons

87.

- look for ways to see if coke oven gas shutdown Project can be cleaned up with 96 Permitting

USEPA Guidance on integrated processing title V Permit.

- Blast furnace cast house. BACT SO_2 not changing

- Compliance procedures for blast furnace

Grouping limits

- monitoring Sulfur content flow weighted

R007314

(1)

US Steel

CAM for blast furnace 12/14/21

looking into

Including emission units slag handling unit

Still looking into.

- Continuous caster NO_x emissions:

natural gas usage may be metered somewhere else, however application does not indicate where?

How is fuel used for casting - Preheating tundish

- Preheating caster?

? Revise p 8-10 } Natural gas usage in the BOF

NO_x Emission factor for BOF?

NO_x Natural gas usage of lance usage in BOF

- Preheating scrap

Start with NO natural gas & usage limit because emissions are small and may at later time include limit on individual or group of units. However PM emission?

* More thinking is needed!

How to deal with limit

BF BOF material handling

Nested limits — limit cast house every thing Blast furnace cast house

BOF — BOF and everything else.

R007315

(2)

US Steel

Hybrid approach to limits 12/14/21

Cast house baghouse
- ~~Electric arc furnace baghouse~~

BOF shop
- BOF baghouse
- caster

Roof monitor

Slag skimming
- Before BOF desulfurization station
- deslagging station
- Before caster deslagging in continuous caster operation

(all subject to NESHAP rules)

two Aregon station.
LMF station

- Fugitive operating program Plans Basic oxygen

- Environmental Justice USEPA assess the impacts in the community

maybe?
Steel production limit is 87% of construction in the APP permit

(1)

US Steel
3/9/22
Draft Permit
Discussions

Based on Part 212 test method → PM_{10} - filterable
PM_{10} - Airquality

Introduction
Clarifying that its PSD Permit

Table of content

Findings for revised Permit
- CO BACT.

Part 1 - Original Construction Permit Provision that remains effect

Part 2A - Permit wide limits
1.4 - needs to be revisited

1.7 - Annual Operational Summary of Key requirements of the Permit

Gary
Collin
LaDonna
Chris
Dave
Krista
Alexis

Sally
Chris
Mineh

2B - Unit Specific Conditions
Updated to applicability
SO_2 & CO BACT limits. CO BACT may be updated to provide for Safety margin.
- CO emissions from runners (fugitive emissions) may need to be addressed in the modeling. facility has CO monitor for worker Safety issues. However CO fugitive emissions monitor is indicating the possibilities for CO emission.

R007317

(2)

3/9/23

- CO BACT for Units that were addressed in the Original Permit — US Steel.

Work Practices 2.1.2-2

SSM – Work practices – state rules (201.149) Authorization to operate during SSM?

(B) US Steel may send a letter that addresses that US Steel needs to update the title V application to address several issues in original renewable title V application that may be outdated. This letter may be submitted later in process of drafting of construction Permit. For example CAM plan for certain control equipment that are not part of current application. CAM Plan for Bag house may already in title V appl

This letter may also include that Appendix F of the 2013 application would also be updated

(*) SO2 7.4.5-4

Printers Not Change SO2 and keep all relevent requirements in part 1 and NOT in part 2.

Blast Furnace Flare 2

Title V Section 5 address annual limits.

Minimizing Beeching emissions by: Pour rate / prepare beds (make sure dry)

R007318

(3)

3/9/22
US Steel

Baghouse 1 of bag skimming would be ok to ~~may~~ be subject to ~~[illegible]~~ NESHAP, eventhough do not agree with ~~[illegible]~~ what may be the intent of rules ~~[illegible]~~

* Emission testing casting operation
  - One run for 1st test (2013) were 15 times the other runs
  - retest was done in 2014, ~~[illegible]~~ are the result used in the calculation

3/10/22
US Steel
Day 2

* Limits for production of Iron (P. 7)
  - total production of "hot metal" as delivered to BOF ~~[illegible]~~
  - 9849 ~~[illegible]~~ "net" tons/day → net = implied that hot metal as delivered to BOF which does not include slag material as ~~[illegible]~~ measured at different location.

Condition 26 P.13 → Roads B&C are part of South Plant

* Roadways at south plant, (South Plant has since been sold and the roadways associated with are no longer being maintained as required by the original permit. Note the orginal permit provided was based on the roads being controlled and if they are not than the emissions may be potentially considered being increased.).

R007319
4

3/10/22
US Steel.

Part 2.8 of the Draft

Question? - Does this Section need to be part of the draft Permit?

* Ladle Preheaters - No stack
* Tundish Preheaters - None at the Plant
  Tundishes are dried as oppose to preaheated in the maintanance activities.
* Cutting torches -
  More likely this ~~section~~ section is needed.

2.9 & 2.10 → Raw Material handling

Controlled by baghouse

not controlled by baghouse

Pit is underground ← truck - either straight or bottom hopper trucks - / train / Supersack } the aboveground two side ~~to~~ has wall.

Condition 2.10.7 a(ii)

NO information of stack House available in app. diagram and types of units, eg, conveyors, hoppers, tripper - - - -

- Skip car system:

Conveyance Permit (PSD Permit) offset provisions.

R007320

(5)

3/10/22

US Steel

Emission Factors

Testable

Nontestable

LISEPA E.F.

NO E.F.

EJ

Revised construction permits - MOU, BOF (baghouse).

Consef Decree (before public Notice of this Permit)

CAAPP renewable

~~BAA~~

Potential

~~Possible~~ Next Call April 12th 8:30 -

R007321

(1)

4/9/22

US Steel

Condition 2.1.5 (a)(iii)

capture 95%

94.83% capture

PM and PM-10 : 0.031 vs. 0.030

↳ Calculated based on 94.83 vs. 95% in the application calculation

(*) IF US Steel uses 0.030 lb/ton then justification would be required

- Combustion emissions

↳ are captured efficiency of 95.21%

Calculation

Casthouse baghouse vs. uncaptured

NO_x VOM emissions

SO_2 PM/ CO are specified for both baghouse

Iron spout baghouse

+ NO NO_x or VOM emissions

↳ the application did include the emissions. VOM was based on emission testing

* US Steel will look into a Calculation needs to be checked as using 95% captured does not account for add up to limit?

Page 9 of 11 of attachment for VOM analysis

VOM - 0.0129 lb/ton

0.00068 → calculated → 0.0129 / 95% × (5%)

Total 16.16 — as contained

5% uncaptured

Baseline emission calculus is not → 16 vs 13

casthouse baghouse

+ Updated calculation with 95% capture may need to be submitted.

Collin
LaDonna
Alex Espy
Alexis
Chris Hardin
Gary
Dave
Sally
Chris
Minesh

R007322

(2)

4/9/22

US. Steel

(P-5) SO_2 Not revised however. . . .

(P. 21) BACT for SO_2 → based on the combined emission rate for casthouse baghouse (~~0.0~~ 0.2006 lb/ton) and Iron spout baghouse (0.0073 lb/ton), based on original permitted emission :

SO_2 full impact analysis were performed

* Three Roads at South Plant - No further thougths or consideration at this time.

Project Summary - Intro - Background 1996, Baghouse MOU - US Steel Request request we agree.

Next Meeting May 24th 1:00 PM.

BACT Additional things Agency thinks needs done

1

R007323

6/28/22

US Steel

- Letter of Intent / Sun coke
  - No longer steel making (BOFs)
  - US Steel – Gilk – Galvanizing (Finishing facility) hot dip cleanning
  - Cogen Utility – Sun Coke
  - Pig Iron making – Sun Coke → Pig iron to US Steel facility in Arkansas

Alexis
~~Alex~~
Chris
Dave
LaDonna
Collin
~~Gary~~
Chris R
Sally
Minesh

Collin
New
Application ~~not~~ draft to US steel in about couple of week

Not PSD or NESHAP
uncaptured
(*) Secondary emission defination is needed in the draft permit (maybe note)

* SO_2 → stuff move to part 1 as suppose to part 2
  - 2.1.4-3 – proposing removal of SO_2
  - 2.1.6-1 – " " " SO_2 & CO as they are ~~not~~ not cap emissi
  - 2.2.3
  - 2.4.3 & 2.4.5 – CO/SO_2 needs to be remo.
  - 2.4.4
  - 2.4.8 (a)(c)
  - 2.4.8
  - 2.5.7 (g)

2.1.5(a) 45-78 ton/yr

why include CO

Chris
(*) Scarffing continuous
Do slabs from continuous casting goes through scarffing (maybe
(*) portable boilers? installed?

Sally
Historic preservation
SHPO

Next meeting Week of August 29th?

Chris
2.6.4 lb/hr for lead
* lb/hr emission rate for lead does not make sense does not relate to tonnage

* BOF Shop has another silo and baghouse (insignificant) in CAAPP application
  - Controlled stack test
  - uncontrolled vents into building
  - baghouse is not control equipment only 13 lb/yr sin

R007324

US Steel
9/7/22

Test Results available for

may only have two test VS 3 tests.

① Casthouse Baghouse

Emission testing

PM - MACT limit 0.01 gr/dscf ~ 0.03 lb/ton

EF - ~~Actual~~ Test result 0.18

Actual 0.0066 lb/ton 1/12/10

0.01376 lb/ton 3/15-19-2012

May be upgrade to baghouse 0.00156 "

1992 data base line 0.07 lb/ton

PM - 3 tests
NOx, VOM, SO2 - 2 tests
CO - 1 test

Baseline

0.0027	NOx	0.00269	lb/ton	3/15-19-12
		0.00269	"	10/30-31-18
0.014	VOM	0.0129	"	
		0.01483	"	"

CO, SO2 → Only one test results. (2012)
two test. (2012 & 2018)

② Iron cast Baghouse

③ BOF ESP. → Lead limit (two tests)
may be based
lb/hr / Ton/yr
lb/hr / 13000 hr/yr
was incorrect
May or may not want to update annual limit.

④ BOF Secondary Baghouse
PM, CO, NOx & VOM - only one test results

⑤ Baghouse #1
No test data

⑥ Baghouse #2
PM 2 tests

⑦ Desulf Bag

⑧ Slimmer Baghouse

⑨ Caster spray chambers - Two test - one noncompliant.

⑩ Trackhopper baghouse - No data

⑪ Bin Floor "

⑫ Boilers 11 & 12

R007325

Page 16? only 2.9

US Steel
9/7/22

Blast furnace
Iron Spout

CO emission testing
~~on test~~ results
included emission
that are based on
wrong throughput on one test for
each tests.

Generally Reduction based on new application to original application.

PM - Newbaghouse - New components general improvements to bag technology

NOx - Shutdown of 11 boilers, New NOx control?
Coke oven no loger operates (generally higher NOx)

VOM - Generally increases are proportional to ~~the~~ Production increase.

https://downloads.regulations.gov.
EPA-R05-OAR-2020-0393-0005/content.pdf

EPA-R05-OAR-2020-0393-0003/content.pdf

Limit permits 99 tonlyn

Region 5

Requires monthly calculations using AP42

Region 10 Empire Lumber (Idaho)
in July 2022 imposes 99 Vn Voc.

Flinthill Refinery Minnesota

Compliance Margin 5.8%

Region 8
www.regulations.gov/docket/EPA-R08-OAR-2021-0167

Region 9 Lockwood landfill (Nevada)

R007326

3

US steel
9/7/22

NOX.
Bash 956.3
pdte. 706
250.3

706
280
986
956
30

12/12/22

- underestimated (errors)
- Overlooked
- Changed factors

USEPA
David O.
FOR U.S Steel.

look at the increases back when project occured

Chris
Minash.

look at the Project at original Permitted production vs. Mitigate and establish lower limit if possible.

2/14/23

- Chris application review
  NOx - netting - not significant.
  → Change emission factor but not significant
  → but that was ~~based~~ more based on 2015 reduction due to shut down of coke oven

US Steel internal Meeting

Julie A
Sally C.
Jason
Chris
Minesh

- ~~If den would~~ if PSD ~~denied~~ Permit application is denied, would it require public notice
- Call Suncoke to see ~~if~~ timing of ~~[illegible]~~ for the application for Pig Iron project.

Called Katie Batten on ? Feb. 28, 2023
Based on conversation, the project at Sun coke (Gateway) is on hold but would let us know when the construction permit application is ready to be submitted. (Approximately 3-4 weeks atleast if not more).

left message on Feb-15th 2023
She called back on Feb-22, 2023

4/19/22

(4) 2008 VN blast F Gas value — US Steel

SO_2 — Internal Meeting

Chris Provided Key Aspect of the revisions and possible denied points

Julie A.
Sally C.
Chris R
Minesh P.

(1)

R007330

US Steel
6/1/23

Chris/Sally/Jason/Minesh

Ladona
Alexis
Chis Hard-
Dave Halter
Collin
Gary
Khristu
Alex

Notice for ~~Draft Denial~~ Draft Denial

19 Points in Draft Denial

- What triggers ⇒ revised Nox Analysis
Increases requested for units combined
With contemp. decreases are not consistent
with conteporaneous and credible.
(shut down out of contemp. period)

- Baseline for coke oven gas data
- Emission factors naturalgas continuous
- How future Nox emission calculation Casting line other than 706 Ton/yr.
- Basic oxygen furnaces uncaptured Nox co or VOM through roof monitor
Assumption is all Nox co & VOM
is captured as oppose to lead and PM
* Modeling addresses ~~[illegible]~~ ladle preheater emission
but not uncaptured emissions from BOF furnace

testing Baghouse 95% 5%
85 ESP
15 Baghouse

How should be Air quality analysis should be conducted
1995 vs. later US steel has taken this approach
but application does not explain
why such approach would be appropriate

Caster Mold/mag-line silo
Representative factor
Argonne stering stuction
ladle drying preheater
How CAAPP permit would be revised
Not applied revision to CAAPP permit for baghouse and previous 95 permits
Either this or other application does not address units being shut down

R007331

US Steel

6/1/23

US Steel may

- Coke oven gas BACT < CO change
  SO2 No change
- SO_2 2008 asking th — No change are now requested.

- Emission limit SO_2 CO lead inconsistent with

- Not been certified

Callin

Construction Permit / ~~PSD approval~~ CAAPP integration

Timing - Starting Draft Denial with Region 5 - this week

* Basden comments/questions

Public notice to follow soon after.

4/6/22

two separate limits

synthetic slag - Baghouse 2
(Fume baghouse

SO_2 = concentrate

creation

no significant impact

reduction can't reconstruct

0.03

Gateway don't want

Baghouse 1 - only material h

SO_2

Deslagging
~~Slag~~ skimming = uncontrolled

reduction

relaxation

BACT



Emission Factors

good as

20% ↑50%

Tuesday May 24th

FOIA

end of May 23rd

2 or 3 pm est