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Sent: Monday, March 2, 2020 9:39 AM
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Subject: FW: Construction Permit Revision Application for USS Granite City Works
Attachments: Final Application Document USS Granite City Works.pdf

Fyi. Because, I didn't see your name in this email.

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Subject: [External] Construction Permit Revision Application for USS Granite City Works

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

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

Regards

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**Application for Revisions to the Construction Permit /
Prevention of Significant Deterioration (PSD) Approval for
The 1996 Expansion of the Granite City Works
Permit Number 95010001**



Submitted to:

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APPENDICES

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Appendix E	Copies of EPA Determinations

1. Introduction

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

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

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

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

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

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

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

1.1 Facility Information

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

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

1.2 Application Organization

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

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

2. Overview of Requested Permit Revisions

2.1 Background on Construction Permit

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

- (a) The limits on total combined production of hot metal (*i.e.*, iron) from blast furnaces A and B increased to 9,849 net tons per day, averaged over any calendar month, and 3,165,000 net tons per calendar year. [Permit Conditions 2(a)-(b), 32(a)-(c), and 34(a).] Previously, under Construction Permit No. 95090167, hot metal production rate had been limited to 7,150 net tons per day, averaged over any calendar month, and 2,609,750 net tons per rolling 12-month period.
- (b) The limits on total combined production of liquid steel from the Basic Oxygen Process Furnaces (BOFs) increased to 11,000 net tons per day, averaged over any calendar month, and 3,580,000 net tons per calendar year. [Permit Conditions 6(a)-(b), 32(a)-(c), and 34(b).] Previously, under Construction Permit No. 95090167, liquid steel production rate had been limited to 8,250 net tons per day, averaged over any calendar month, and 3,011,250 net tons per rolling 12-month period.
- (c) The limits on combined use of blast furnace gas (BFG) at the boilers #1 through #12, blast furnace stoves, BFG flare #1, and ladle drying preheaters increased to 30,800 million cubic feet (MMcf) per calendar month and 185,030 MMcf per calendar year. [Permit Conditions 21(b) and 32(b)-(c).] The prescribed method of determining BFG usage is an assumed ratio of 0.05846 MMcf per ton of hot metal produced.² [Permit Condition 34(c).] Previously, under Construction Permit No. 95090167, BFG usage had been limited to 21,613 MMcf per calendar month and 129,681 MMcf per rolling 12-month period.
- (d) The limits on combined use of fuel oil at the boilers #1 through #12, blast furnace stoves, BFG flare #1, and ladle drying preheaters increased to 60,000 gallons per calendar month and 365,000 gallons per calendar year. [Permit Conditions 21(c) and 32(b)-(c).] Previously, under Construction Permit No. 95090167, fuel oil usage had been limited to 18,000 gallons per calendar month and 113,000 gallons per rolling 12-month period.³

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

² Using this prescribed ratio, these limits are redundant with the hot metal production limits as BFG generation directly correlates with the hot metal production in the Blast Furnace and the BFG usage limits cannot be exceeded without first exceeding the hot metal production limits.

³ With this application, USS Granite City is proposing to eliminate the use of fuel oil in the project-affected burning units.

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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 SO₂ 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 SO₂ 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 SO₂ and Pb emission limits in the 1996 Construction Permit, so SO₂ 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.

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EPA to be necessary to prevent the 1996 Project from being a major modification.⁵ Because the requested revisions to the 1996 Construction Permit include increases in the NO_x and VOM emissions caps, as well as changes to certain other permit terms that could allow increases in PM and PM₁₀ emissions, the following “source obligation” provisions of the PSD and NNSR are pertinent to this permit application:

At such time that a particular source or modification becomes a major stationary source or major modification solely by virtue of a relaxation in, or expiration of, any enforceable limitation which was established after August 7, 1980, on the capacity of the source or modification otherwise to emit a pollutant, such as a restriction on hours of operation, then the requirements of this Part shall apply as though construction had not yet commenced on the source or modification. 35 IAC 203.210(b).

At such time that a particular source or modification becomes a major stationary source or major modification solely by virtue of a relaxation in any enforceable limitation which was established after August 7, 1980, on the capacity of the source or modification otherwise to emit a pollutant, such as a restriction on hours of operation, then the requirements or paragraphs (j) through (s) of this section shall apply to the source or modification as though construction had not yet commenced on the source or modification. 40 CFR § 52.21(r)(4).

In Sections 7-9 of this permit application and in Appendix B of this permit application, USS Granite City presents updated net emissions increase calculations for PM, PM₁₀, NO_x, and VOM. These updated calculations demonstrate that the changes to permit terms requested by USS Granite City will not trigger after-the-fact PSD or NNSR permitting for emissions of PM, PM₁₀, NO_x, or VOM under the “source obligation” provisions because the project is not a major modification for these pollutants.

2.2.4 Enforceability of PTE Restrictions

As noted above, USS Granite City is proposing to retain the monthly and annual limits on hot metal production rate and liquid steel production rate; all of the PM and PM₁₀ emissions caps; and certain NO_x and VOM emissions caps in the 1996 Construction Permit. As discussed in greater detail in Sections 8-9 of this permit application, USS Granite City also is proposing that the NO_x and VOM emissions caps for the BOF shop and certain other units in the 1996 Construction Permit as identified herein be revised and that the revised permit include appropriate monitoring, testing, and recordkeeping requirements. Collectively, under the following provisions in the pertinent definitions in the PSD and NNSR rules, these proposed limitations and permit terms will restrict the PTE of the affected emissions units:

Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its

⁵ USS Granite City does not agree with this interpretation. The definitions of “major modification” and related provisions in the PSD and NNSR rules in effect in 1996 were based on increases in actual emissions, except in the narrow circumstances where the emissions unit at issue had not begun normal operations at the time of the project. *See, e.g., 56 Fed. Reg. 27630* (June 14, 1991). Nonetheless, for purposes of this permit application, USS Granite City has demonstrated that the 1996 Project is not a major modification even under use of what U.S. EPA refers to as the “actual-to-potential” test.

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design only if the limitation or the effect it would have on emissions is federally enforceable. 35 IAC 203.128.

Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable. 40 CFR § 52.21(b)(4).⁶

Under the provisions above, what is required for restricting PTE is that the limits be enforceable as a practical matter.⁷ Practical enforceability is a matter of technical judgment of the permitting authority – Illinois EPA – but there is a substantial body of policy and precedent regarding preferred forms for emissions caps that are enforceable as a practical matter. These policies can be summarized as follows:

- If not used to restrict emissions over a period shorter than one year, emissions caps should be expressed in terms of tons per year on a 12-month rolling sum basis or on a more frequent basis.
- If the emissions cap will cover multiple activities or emissions units, the permit should require at least monthly emissions calculation and recordkeeping.
- The permit should prescribe methods of calculating actual emissions for each unit and each pollutant and should prescribe how monitoring and recordkeeping of relevant parameters will be used in those calculations.
- Where the permit prescribes an emission factor to be used in conjunction with operational data in demonstrating compliance, the permitting authority should describe the basis for its determination that the emission factor is representative.
- Where the permit requires development and use of a site-specific emission factor to be used in conjunction with operational data in demonstrating compliance, the permit should prescribe the method by which the emission factor will be developed, such as through performance testing with a specified frequency.

Two recent and significant examples of these policies are U.S. EPA's final agency actions in issuing the permits for construction of a drilling operation in the Beaufort Sea off the North Coast of Alaska in March 2012 and installation of new stationary reciprocating internal

⁶ Although the federal PSD regulation as codified at 40 CFR § 52.21(b)(4) continue to include the component term "federally enforceable," this criterion was vacated by the U.S. Court of Appeals for the D.C. Circuit in 1995. *Chemical Manufacturers Ass'n v. EPA*, 70 F.3d 637. Federal case law and U.S. EPA policy now suggest the provision should be interpreted to mean, "federally enforceable or legally and practicably enforceable by a state or local air pollution control agency." See, e.g., 67 *Fed. Reg.* 80186 at 80191; see, also, *U.S. v. Questar Gas Mgmt. Co.*, No. 2:08-CV-167 (D. Utah, May 11, 2011).

⁷ See, e.g., Administrative Order, *In the Matter of Orange Recycling and Ethanol Production Facility, Pencor-Masada Oxynol, LLC*, Petition No.: II-2000-07, C.T. Whitman, U.S. EPA Administrator, May 2, 2001, upholding use of annual emission caps with a rolling cumulative total methodology and rejecting petitioners' "concern that the permit appears to rely on after-the-fact monitoring, rather than engineering practices, test data, or vendor guarantees" to establish restrictions on PTE. U.S. EPA based its findings on the fact that "[i]f the source has no room to operate under the PTE limiting emissions cap, it must cease operation or face a violation" and that "all PTE limits rely on after the fact monitoring of some kind."

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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 SO₂ and greenhouse gases, with compliance determined on a 12-month rolling sum basis. The Arizona permit, issued by the Pima County Department of Environmental Quality pursuant to a delegation of authority from U.S. EPA, includes an annual NO_x emissions cap with compliance determined on a 12-month rolling sum basis. Copies of the Alaska and Arizona documents referred here are provided in Appendix E.

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

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

⁸ *In re: Shell Offshore, Inc., OCS Permit No. R10 OCS030000*, OCS Appeal Nos. 11-05, 11-06 & 11-07. Mar. 30, 2012. Docket available on the U.S. EPA internet web site at https://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/77355bee1a56a5aa8525711400542d23/f24b9734e6894b9385257958006dad34!OpenDocument (last accessed Aug. 28, 2019).

⁹ *In re: Tucson Electric Power, PSD Permit No. 1052*, PSD Appeal No. 18-02. Dec. 3, 2018. Docket available on the U.S. EPA internet web site at https://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/77355bee1a56a5aa8525711400542d23/64a784010e968b9b852583050073ebe5!OpenDocument (last accessed Aug. 28, 2019).

3. Changes to CO Emission Limitations

This section describes the proposed changes to the 1996 Construction Permit requested by USS Granite City pertaining to CO emissions rates for fuel burning emissions units. These requested changes are not based upon any post-1996 Project changes but are based on the updated information regarding CO emission factors for gaseous fuels. As outlined later in this section, adjustments to the CO emission rates are proposed. The proposed changes to the CO emissions factors and CO emission rates for gaseous fuels do not change the applicability of PSD review.

3.1 Process Background and Project

Blast furnace gas (BFG) is a byproduct of the blast furnace operation and is used as fuel in the process. The blast furnaces produce molten iron from iron ore pellets through a reduction reaction with metallurgical coke. In this reaction, carbon monoxide (CO) is formed along with other gases and rises to the top of the blast furnace. At the top of the blast furnace, the BFG that is generated in the furnace is collected and routed to a BFG pretreatment system. BFG has heating value (80-110 Btu/scf) and is preferentially used as fuel in the stoves to heat the cold blast air for the blast furnace. BFG is also used as a fuel in the boilers at the USS Granite City facility. Any excess BFG is combusted in a flare.

Each blast furnace has a set of three stoves that combust BFG and supply hot blast air to the blast furnace.

As explained earlier, BFG is also used as fuel in the boilers used to produce steam for use at the site, including steam to power the fans that supply blast air to the blast furnaces. Two of these boilers – Boiler 11 and Boiler 12 – were in existence at the time of the 1996 Project and are covered by the 1996 Construction Permit. Both boilers and stoves also use supplemental natural gas.

The 1996 Project involved increases in the production rate for the blast furnaces and corresponding increases in BFG generation and usage as outlined in subsection 2.1. The CO net emissions increase from the 1996 Project was significant and the project was subject to PSD review with respect to this pollutant. In the 1995 Application, on page 1-3, National Steel Corporation noted that the existing boilers were not undergoing any changes as part of the project. Therefore, pursuant to 40 CFR § 52.21(j)(3), these emissions units were not subject to BACT requirements. In terms of the fuel burning emissions units, the BACT-affected operations listed in the 1995 Application were the blast furnace stoves, the ladle drying preheaters, and the ancillary fuel burning units at the continuous casters. Of these emissions units, both the ladle drying preheaters and the ancillary units (tundish dryers and other heaters) at the continuous casters use only natural gas.

3.2 1996 Construction Permit Requirements

Table 4 of the 1996 Construction Permit contains the CO emission limitations for the fuel burning emissions units affected by the Project. Table 3-1 of this permit application presents information from Table 4 of the 1996 Construction Permit pertaining to the CO emissions limitations from ‘certain fuel burning emissions units,’ *i.e.*, Boiler 11, Boiler 12, Blast Furnace

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Flare 1, Blast Furnace Stoves, ladle drying preheaters, and continuous casters.^{10,11} A copy of the 1996 Construction Permit is provided in Appendix D of this permit application.

The 1996 Construction Permit also set CO emissions limitations for processes affected by the Project. No changes are being proposed to the CO emission limitations for the BOF electrostatic precipitator ("ESP") Stack in Table 2 of the 1996 Construction Permit.

Table 3-1. Table 4 of 1996 Construction Permit CO Limitations for Gaseous Fuels Burning

Fuel Used for Boilers, Stoves, Flare, Ladle Drying Preheaters, and Ancillary Fuel Burning Units at the Continuous Casters	Emission Factor (lb/MMcf)	Maximum Emissions (tons/year)
Natural Gas	40	22.90
Blast Furnace Gas	13.7	1,267.46

3.3 Updated CO Emission Factors for Gaseous Fuels

For natural gas combustion, the CO emission factor included in the 1996 Construction Permit was from Chapter 1.4 AP-42 as updated in August 1982. The U.S. EPA revised Chapter 1.4 of AP-42 in July 1998 and updated the CO emission factor for natural gas combustion to 84 lb per million cubic feet. For natural gas combustion in Boiler 11, Boiler 12, blast furnace stoves, ladle drying preheaters, and ancillary fuel burning units at the continuous casters, the updated CO emission factor has been used to calculate the CO emission rates in this permit application and in the requested proposed revisions to the permit.

As previously explained, BFG is combusted in the boilers and blast furnace stoves at the site (excess BFG is combusted in the flares). The CO emission factor for BFG burning in the 1996 Construction Permit was from the U.S. EPA's AIRS 1990 database (WebFIRE). However, based on recent performance tests for boilers burning BFG, engineering evaluations of BFG burning in blast furnace stoves, and updates to AP-42 Section 13.5, this factor is not representative. Updated CO emission factors for BFG burning in the blast furnace stoves, Boiler 11, Boiler 12, and Blast Furnace Flare 1 are being proposed for purposes of this revision to the CO emission rates. The proposed CO emission rates are as follows:

- Based on the information regarding CO emission rates from another blast furnace stove, and engineering evaluations of BFG burning in blast furnace stoves at USS Granite City,

¹⁰ The 1996 Construction Permit omits the ancillary fuel burning units at the continuous caster under Table 4. However, emissions from fuel combustion at these units are appropriately accounted for in the natural gas combustion rates.

¹¹ The 1996 Construction Permit also included limits for fuel oil combustion. However, as noted in footnote 3 of this permit application, USS Granite City has ceased fuel oil combustion in the affected units and is proposing to delete from the permit the provisions relating to fuel oil combustion.

the CO emission factor for burning of BFG in the blast furnace stoves is 322 pounds per million cubic feet.¹²

- Based on CO stack testing performed at Boiler 11 and Boiler 12, the emission factor for burning of blast furnace gas is 32 pounds per million cubic feet.¹³
- The CO emission factor for the Blast Furnace Flare 1 is calculated using CO concentration of 24 percent in BFG and a efficiency of 98 percent.^{14 15} This results in a CO emission factor of 350 pounds per million cubic feet.

Table 3-2 presents the updated maximum annual CO emissions from burning of fuel in the blast furnace stoves, Boiler 11, Boiler 12, Blast Furnace Flare 1, ladle drying preheaters, and ancillary fuel burning units at the continuous casters. Emissions calculations for CO are provided in Appendix B of this permit application.

Table 3-2. Proposed CO Limitations for Gaseous Fuels Burning

Fuel Used for Boilers, Stoves, Flare, Ladle Drying Preheaters, and the Ancillary Fuel Burning Units at the Continuous Casters	Maximum Emissions (tons/year)
Natural Gas	83
Blast Furnace Gas	19,260

3.4 CO PSD Review Requirements

As previously explained, the 1996 Project was subject to PSD review for CO because the CO net emissions increase was greater than the significant emission rate of 100 tons per year. Sections 4 through 6 of this permit application address the proposed changes to the CO emission factors for gaseous fuel burning under the PSD review requirements of 40 CFR §§ 52.21(j) through (o), to the extent applicable.

3.5 Requested Changes to Permit Terms Relating to CO Emissions for Certain Fuel Burning Emissions Units

As part of this application for revision to the 1996 Construction Permit, USS Granite City is proposing the following revisions to the emission limitations and other permit terms relating to CO emissions from the 1996 Construction Permit Condition.

¹² CO emission factor for AK Steel Dearborn / Severstal Dearborn Michigan permit for C Blast Furnace Stoves in the PTI 182-05C was specified as 328.9 lb/MMcf of BFG. See <https://www.deq.state.mi.us/aps/downloads/permits/finpticon/2005/182-05C.pdf> (accessed on January 29, 2020). In addition, USS Granite City evaluated CO emissions from the blast furnace stove stacks using non-reference method to compare against data from other furnaces. The Granite City Works blast furnace stoves stack configuration did not allow for application of a reference method for estimating CO emissions. Therefore, as part of an engineering evaluation, USS used a non-reference method to collect CO concentration in the stove stack exhaust.

¹³ Boiler 11 tests were conducted in July 2011. Boiler 12 tests were conducted in May 2011.

¹⁴ Data from the quarterly BFG component analyses for 2019 for USS Granite City shows CO concentration in BFG ranging from 20% to 22%.

¹⁵ U.S. EPA's *Compilation of Air Pollutant Emission Factors, AP-42, Volume 1: Stationary Point and Area Sources*, Section 13.5, April 2015 ("Properly operated flares achieve at least 98 percent destruction efficiency in the flare plume").

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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.

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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 SO₂ 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 SO₂ 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

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the proposed revisions to the permit limits, an updated CO BACT evaluation for these emission units, consistent with 40 CFR § 52.21(j)(3), is presented below.¹⁷

4.2.1 BACT General Approach

This section presents a proposed BACT analysis for the subject units for CO.

4.2.1.1 Best Available Control Technology Definition

The definition of BACT at 42 U.S.C. § 7479(3) is as follows:

The term "best available control technology" means an emission limitation based on the maximum degree of reduction of each pollutant subject to regulation under this chapter emitted from or which results from any major emitting facility, which the permitting authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such facility through application of production processes and available methods, systems, and techniques, including fuel cleaning, clean fuels, or treatment or innovative fuel combustion techniques for control of each such pollutant. In no event shall application of "best available control technology" result in emissions of any pollutants which will exceed the emissions allowed by any applicable standard established pursuant to section 7411 or 7412 of this title. Emissions from any source utilizing clean fuels, or any other means, to comply with this paragraph shall not be allowed to increase above levels that would have been required under this paragraph as it existed prior to November 15, 1990.

The regulatory definition of BACT at 40 CFR § 52.21(b)(12) is similar.

4.2.1.2 Methodology for the BACT Analysis

In a memorandum dated December 1, 1987, the U.S. EPA stated its preference for a "top-down" analysis.¹⁸ U.S. EPA outlined the BACT determination methodology following the top-down approach.¹⁹ Accordingly, the BACT analyses presented in this application utilize the top-down approach. Under the "top-down" approach, progressively less stringent control technologies are analyzed until a level of control considered BACT is determined, based on the most effective control option that is determined to result in acceptable environmental, energy, and economic impacts. More specifically, the top-down BACT analysis methodology consists of five steps as follows:

1. Identify all "available" control options that might be utilized to reduce emissions of the subject pollutant for the type of unit subject to BACT.

¹⁷ Even though Boilers 11 and 12 did not undergo 'any physical change or change in the method of operation' as part of the 1996 Project, this permit revision application conservatively assumes these emissions units are subject to BACT for CO as part of the proposed CO emissions limitations revisions.

¹⁸ Memorandum from J.C. Potter to the Regional Administrators; U.S. EPA, Office of Air and Radiation; Washington, D.C.; December 1, 1987.

¹⁹ See: 1990 New Source Review Workshop Manual, DRAFT, at page B.2. (Environmental Appeals Board in *Prairie State Generating Station*, PSD Appeal No. 05-05, August 24, 2006, in footnote 2, noted that "[t]he NSR Manual has been used as a guidance document in conjunction with new source review workshops and training, and as a guide for state and federal permitting officials with respect to PSD requirements and policy. Although it is not a binding Agency regulation, the NSR Manual has been looked to by this Board as a statement of the Agency's thinking on certain PSD issues.")

2. Eliminate those available options that are technically infeasible to apply to the specific unit under consideration.
3. Rank the remaining feasible control options by control effectiveness.
4. Evaluate economic, energy and/or environmental impacts of each control option as applied to the subject units, rejecting those options for which the adverse impacts are inappropriate.
5. Based on the most effective control option not rejected in Step 4, select an emission limit or work practice standard as BACT, reflecting the level of control continuously achievable with the selected control option.

4.2.1.3 Baseline Emission Rate

As used in the BACT analyses presented herein, the term “baseline emission rate” refers to the legal floor established in the definition of BACT, i.e., applicable standards under 40 CFR parts 60 and 61.

4.2.1.4 Available Control Options

In the first step of the BACT analysis, all potentially “available” control strategies are identified for further consideration. In the context of the first step of a top-down BACT analysis, U.S. EPA’s guidance describes “available” control strategies as:

Available control options are those air pollution control technologies or techniques with a practical potential for application to the emissions unit and the regulated pollutant under evaluation.²⁰

In the BACT analyses herein, the term “available” is used, consistent with the U.S. EPA guidance, to refer to any control strategy that is potentially applicable to the source type in question (i.e., a technology or control option that has a practical potential for application to the source category in general). These may include fuel cleaning or treatment, inherently lower polluting processes, and end of pipe control devices. All identified control strategies that are not inconsistent with the fundamental purpose and basic design of the proposed facility are listed in this step.

The second step of the BACT analysis addresses source-specific or unit-specific factors that would prevent an otherwise available technology from being applied in the particular case. The criteria for “technical feasibility” are separate and distinct from the criteria used to determine whether a control option is considered to be “available” for purposes of BACT.

4.2.1.5 BACT Technical Feasibility Criteria

In the second step of a top-down BACT analysis, potentially available control strategies are evaluated for technical feasibility. A technically feasible control strategy is one that has been demonstrated to function efficiently on an emissions unit that is identical or similar to the emissions unit under review.²¹ For the purposes of assessing technical feasibility of an add-on

²⁰ See: 1990 New Source Review Workshop Manual, DRAFT, at page B.5.

²¹ See, Prevention of Significant Deterioration Workshop Manual, EPA-450/2-80-081, October 1980, at pp. I-B-6 through I-B-7.

control technology, the determination of whether an emissions unit should be considered to be identical or similar is usually based on the physical and chemical characteristics of the gas stream to be controlled. An add-on control technology applicable to one emissions unit may not be technically feasible for application to an apparently similar unit depending on differences in physical and chemical gas stream characteristics, and rejection of a control option based on technical infeasibility for BACT purposes is appropriate if “it is uncertain the control device will work in the situation currently undergoing review.”²²

For control strategies that are not demonstrated, the analysis of technical feasibility is somewhat more involved. Two key concepts are important in determining whether an undemonstrated technology is feasible: “availability”²³ and “applicability.” A technology is considered “available” if it can be obtained by the applicant through commercial channels or is otherwise available within the common sense meaning of the term. An available technology is “applicable” if it can reasonably be installed and operated on the source type under consideration. A technology that is both available and applicable is technically feasible.

4.2.2 Purpose and Design of Subject Fuel Burning Emissions Units

The fundamental purpose of the subject fuel burning emissions units is to provide heat and steam needs for the plant operations preferentially using the by-product BFG fuel that is produced at the facility. These objectives are met by burning BFG in the blast furnace stoves and Boilers 11 and 12. Any excess by-product BFG unable to be used is flared through the No. 1 Flare. Natural gas is burned in blast furnace stoves and Boiler 11 and Boiler 12 as supplemental fuel and in the ladle drying preheaters and ancillary fuel burning units at the continuous casters. In accordance with U.S. EPA guidance, alternative raw materials, production processes, or products that would be inconsistent with these fundamental objectives would impermissibly redefine the source and are not a part of the BACT analyses presented herein.²⁴

4.2.3 CO BACT Analysis

This section presents the CO BACT analysis for the subject fuel burning emissions units. CO emissions from these units result primarily from incomplete combustion during the firing of BFG and natural gas. Therefore, the most direct approach for reducing these emissions is efficient combustion in the fuel burning emissions units, *i.e.*, appropriate combustion temperatures, adequate excess air, and good air/fuel mixing during combustion. Measures taken to reduce the formation of NO_x during combustion can increase CO emissions. In particular lowering combustion temperatures through staged combustion to reduce NO_x emissions can be counterproductive with regard to CO emissions.

4.2.3.1 CO BACT Baseline

There are no federal emissions standards applicable to CO emissions from the fuel burning emission units.

²² See, *PSD and Title V Permitting Guidance for Greenhouse Gases*, EPA-457/B-11-001, March 2011, at p. 34.

²³ In Step 2 of a top-down BACT analysis, the term “availability” has a different meaning than the term “available” in Step 1. Control strategies that are not “available” in Step 1 are not considered in Step 2.

²⁴ See: *1990 New Source Review Workshop Manual, DRAFT*, at page B.13.

4.2.3.2 Step 1– Identify Available CO Control Options

Based on a review of recent BACT determinations in U.S. EPA's RBLC database and other literature survey, the control options (individually and in certain combinations) that are being used to limit CO emissions from emissions units burning gaseous fuels include:

- CO Oxidation Catalysts;
- Thermal Incineration;
- Work Practice Standards, including fuel selection and good combustion practices.

CO oxidation catalysts have previously been applied to natural gas fired boilers located in CO and/or ozone nonattainment areas but are primarily used on large combustion turbines. The oxidation catalyst is typically a precious metal catalyst (e.g., platinum) that has been applied over a metal or ceramic substrate. The catalyst lowers the activation energy for the oxidation of CO so that it is oxidized at lower flue gas temperatures (range of 650 - 1,100 °F). The CO removal efficiency in natural gas-fired systems is typically greater than 90 percent.

Other technology used for the control of CO for other sources include thermal incineration. Incineration requires the exhaust gas containing CO to be heated up to a temperature sufficiently high enough (> 1300 °F) to thermally destroy CO. Typical methods used include regenerative thermal oxidizers, recuperative incinerators, and direct flame incinerators. These devices are typically employed to control sources with high levels of CO and VOM requiring less supplemental fuel for reheating the exhaust gas. Additionally, the exhaust gas CO concentrations from these devices would be similar to that expected from a gaseous fuel combustion device with good combustion design and operation.

Good combustion practices, as the name implies, are based upon maintaining good fuel/air mixing, a proper fuel/air ratio, and adequate time at an appropriate combustion temperature. These practices are part of the routine operation of the units, as maintaining good combustion practices is essential to the plant for efficient use of fuel.

4.2.3.3 Step 2– Eliminate Technically Infeasible CO Control Options

Technical feasibility of the CO emissions controls, identified in Step 1, for the subject gaseous fuel burning emissions units, is presented in this section.

Blast Furnace Stoves

Exhaust temperature for the blast furnace stoves is around 500 °F. In addition, there is significant variability, both in exhaust flow and temperature, due to cycling of the individual stoves when switching from blow to heat steps. Also, CO concentration in the stove exhaust is relatively low at less than 0.3%. As the lower explosive limit for CO is 12.5%, the exhaust from the blast furnace stoves will not have enough CO to combust in thermal incineration.²⁵ Exhaust temperature is also below the operating range for CO oxidation catalyst. Use of end-of-the-pipe control such as thermal incineration or CO oxidation catalyst at blast furnace stoves poses risks arising from operating conditions that have not been encountered for units where these operations are used. Such an application will result in potential backpressure on the stoves that

²⁵ See <https://www.indsci.com/training/general-gas-education/l-el-of-combustible-gas/> (last accessed January 3, 2020).

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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 SO₂ emissions. Presence of SO₂ in the flue gas would be accompanied by SO₂ to SO₃ conversion in the CO oxidation catalyst. The presence of SO₃, 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-Fluents, Landes-Fluents, Shaffton-Fluents. 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-Fluents-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-Fluents-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-Fluents-Urban land complex, 0 to 2 percent slopes, occasionally flooded	1,215.40	2.64%	6.7	20
Menfro silt loam	1,173.2	2.55%	6	16
Tice silty clay loam, 0 to 2 percent slopes, occasionally flooded	1,164.90	2.53%	6.8	19
Sylvan-Bold silt loams	1,108.3	2.41%	7.1	16
Fishpot-Urban land complex, 0 to 5 percent slopes, rarely flooded	944.1	2.05%	6.5	14.2
Dozaville silt loam, 0 to 2 percent slopes, occasionally flooded	930.6	2.02%	6.6	13.3
Other soil types	8,367.3	18.18%	5.6-8.0	5.8-31.6

The cation exchange capacity ("CEC") is the total amount of extractable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality or a pH of 7.0. Soils having a low CEC hold fewer cations and may require more frequent applications of fertilizer than soils having a high CEC. The ability to retain cations reduces the hazard of ground water pollution. The CEC of the types of soil in significant quantities in the study range from 8.0 to 31.0 milliequivalents per 100g soil.

The USDA considers a significant part of this land to be prime farmland. Additional land would be considered prime farmland if drained and/or protected from flooding. Further, the USDA soil survey rated all of the soil types listed in Table 6-1 as having somewhat or very limited use for recreational activities such as camping, paths and trails, picnic areas, and playgrounds. None of the total study area is identified as having unlimited recreational value.

6.1.2 Vegetation Survey

The natural vegetation located in these counties is primarily deciduous forest consisting of oaks, hickory, eastern white and red pine, ash, and cottonwood varieties.²⁷ According to a 2017 U.S. Department of Agriculture Forests of Illinois survey, approximately 21% of Madison County is forest land.²⁸

Information provided in the 2012 USDA Census reports for Illinois was used to identify commercial vegetation in the study area.²⁹ The major crops are presented in Table 6-2. As shown, approximately 60 percent of the land included in the study area is used for harvested crops. Of this total, 26 percent is used for corn for grain and 29 percent is used for soybeans. Other crops, each harvested from less than 3 percent of the harvested area include forage, wheat for grain, and vegetables. Specific locations for the farms for these harvested crops are not provided in the Census reports.

Table 6-2. Land Use for Commercially Significant Crops

Vegetation	Area (Acres)
Corn	121,675
Wheat	16,331
Forage	7,145
Soybeans	137,628
Vegetables	2,331
Total Cropland	285,110
Total Land Area of Study	474,240

6.2 Pollutant Impacts on Soils and Vegetation

As explained in Section 5 and Appendix C of this permit application, ambient CO impacts from the 1996 Project and the proposed revisions to the CO limitations are below the primary CO NAAQS. CO emissions, at ambient impact concentrations, are not known to cause any soils or vegetation impacts.³⁰ However, elevated CO may produce some impacts such as epinasty,

²⁷ Forest Inventory and Analysis. Design and Analysis Toolkit for Inventory and Monitoring web application, Version November 30, 2018 10.0 c9ded9d. St. Paul, MN: U.S. Department of Agriculture, Forest Service, Northern Research Station. Available only on internet: <https://www.fs.fed.us/emc/rig/DATIM/index.shtml> (last accessed February 26, 2020).

²⁸ Forests of Illinois 2017, <https://www.nrs.fs.fed.us/pubs/55799> (last accessed on February 26, 2020).

²⁹ 2017 Census of Agriculture, Illinois State and County Data, https://www.nass.usda.gov/Publications/AgCensus/2017/Online_Resources/County_Profiles/Illinois/cp17119.pdf (last accessed on February 26, 2020).

³⁰ Secondary NAAQS provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings [<https://www.epa.gov/criteria-air-pollutants/naaqs-table> (last accessed on November 27, 2019)]. The U.S. EPA revoked the secondary NAAQS for CO in 1985 noting that “[c]arbon monoxide is a normal constituent of the plant environment. Plants can both metabolize and produce CO. This may explain the fact that relatively high levels of CO are necessary before damage occurs to vegetation. The lowest level for which significant effects on vegetation have been reported is 100 ppm for 3 to 35 days. The effect observed in this study was an inhibition of nitrogen fixation in legumes. Since CO concentrations of this magnitude

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chlorosis, and abscission. However, plant injury occurs at concentration over 100 ppm which is well over the CO primary NAAQS.³¹ As noted in Section 5 and Appendix C, CO impacts from the facility are well below the CO primary NAAQS. Therefore, no adverse soil and vegetation impacts are expected from this permit revision request.

In addition, CO emissions do not contribute to formation of the particulate that causes visibility impairment.³² Finally, USS Granite City is an existing facility and the 1996 Project did not cause any quantifiable growth impacts due to additional industrial, commercial, or residential growth in the area.

are rarely if ever observed in the ambient air, it is very unlikely that any damage to vegetation will occur from CO air pollution. No other effects on welfare have been associated with CO exposures at or near ambient levels. Because no standards appear to be requisite to protect the public welfare from any known or anticipated adverse effects from ambient CO exposures, EPA is rescinding the existing secondary standards.” 50 Fed. Reg. 37484, September 13, 1985.

³¹ “The Effects of Air Pollutants on Vegetation and the Role of Vegetation in Reducing Atmospheric Pollution,” Iuliana Florentina Gheorghe and Barbu Ion, September 26, 2011, <https://www.intechopen.com/books/the-impact-of-air-pollution-on-health-economy-environment-and-agricultural-sources/the-effects-of-air-pollutants-on-vegetation-and-the-role-of-vegetation-in-reducing-atmospheric-pollu> (last accessed on February 26, 2020).

³² <https://www.epa.gov/visibility/basic-information-about-visibility> (last accessed on November 3, 2019).

7. Proposed Changes to Permit Terms for PM and PM10 Emissions Increases Analyses

This section describes the proposed changes to the 1996 Construction Permit requested by USS Granite City related to PM and PM10 emissions and provides a demonstration that, even with the requested revisions, the 1996 Project would still not be a major modification under the PSD program at 40 CFR § 52.21 with respect to emissions of PM and under the NNSR program at 35 IAC Part 203 with respect to emissions of PM10.³³ The net emissions increase calculations for PM and PM10 from the 1995 Application submitted by National Steel Corporation are reproduced in Appendix B of this permit application.

7.1 1996 Construction Permit Applicability and Requirements

Table 7-1 summarizes the provisions from the 1996 Construction Permit pertaining to PM and PM10 emissions limitations from the project-affected emissions units. A copy of the 1996 Construction Permit is provided in Appendix D of this application.

Table 7-1. Construction Permit Conditions Addressing PM and PM10

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

The annual PM and PM10 emissions caps listed in Table 5 of the 1996 Construction Permit are presented in Table 7-2 below. These annual PM and PM10 emissions caps cover all emissions units associated with the four main processes or activities at the USS Granite City facility (as listed in Table 7-1). Each emissions cap is calculated as the sum of the unit-specific emissions limitations in Tables 1 through 4 of the 1996 Construction Permit, plus the listed PTE estimates for certain roadways and material handling activities at the facility.

³³ At the time of 1996 Construction Permit, the Granite City area was designated as nonattainment for PM10 NAAQS.

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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 (IIS) 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 (<i>revised</i>)	AP-42 Table 1.4-2 (Based on updated AP-42 information)
Fuel Oil (<i>Shown for historical purposes. USS Granite City no longer plans to use fuel oil.</i>)	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.

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7.2.2.18 BOF Hopper Baghouse Emissions (No Change)

The pre-project actual emissions for the BOF Hopper baghouse stack were based on transfer point calculations using AP-42 Chapter 13.2.4 for aggregate handling. A control efficiency of 99.9% was applied for the baghouse used in this operation. No changes are necessary for this emission factor.

7.2.2.19 Flux Conv and Transfer Points Baghouse Emissions (No Change)

The pre-project actual emissions for the Flux Conv and Transfer Points baghouse stack were based on transfer point calculations using AP-42 Chapter 13.2.4 for aggregate handling. A control efficiency of 99.3% was applied for the baghouse used in this operation. No changes are necessary for this emission factor.

Table 7-5. Pre-project Actual Emissions and Summary of Proposed Changes to Pre-Project PM Emission Factors for Affected Emissions Units

Emission Point ^(a)	Emission Factors ^(b)		Units	Basis	Baseline Emissions (TPY)	
	Original	Corrected			Original	Corrected
A & B Blast Furnace Casthouse Fugitives	0.031	0.031	lb/ton of hot metal	No change	31.92	31.92
A & B Blast Furnace Charging	0.0024	0.0024	lb/ton of material	No change	3.36	3.36
A & B Blast Furnace Casthouse Baghouse	0.07026	0.07026	lb/ton of hot metal	No change	72.35	72.35
Blast Furnace Slag Pits	0.00417	0.00417	lb/ton of hot metal	No change	4.29	4.29
Iron Spout Baghouse	0.02548	0.02548	lb/ton of hot metal	No change	26.24	26.24
Blast Furnace Operations					138.17	138.17
BOF 2 Vessels	0.16	0.16	lb/ton of steel	No change	193.07	193.07
BOF Roof Monitor	0.428	0.428	lb/ton of steel	No change	516.72	516.72
Desulfurization Station [inside BOF shop] & Transfer Pit	0.03721	0.03721	lb/ton of hot metal	No change	38.32	38.32
Hot Metal Charging Ladle Slag Skimmer	0.00502	0.00502	lb/ton of hot metal	No change	5.17	5.17
BOF Shop Operations					753.28	753.28
Argon Stirring #1 & #2 Material Handling Tripper	0.00715	0.00715	lb/ton of steel	No change	8.63	8.63
Deslagging Station & Material HS	0.00355	0.00355	lb/ton of steel	No change	4.28	4.28
Caster Mold - Casters #1 & #2	0.006	0.006	lb/ton of steel	No change	7.24	7.24
Continuous Casters #1 & #2 - Spray Chamber	0.00852	0.00852	lb/ton of steel	No change	10.28	10.28
Slab Cutoff Casters #1 & #2	0.0071	0.0071	lb/ton of steel	No change	8.57	8.57
Slab Ripping Casters #1 & #2	0.00722	0.00722	lb/ton of steel	No change	8.71	8.71
Continuous Casting Operations					47.71	47.71
Combined BFG in stoves, B11 & B12, ladle drying preheaters, and BFG flares	2.90	2.90	lb/MMcf	No change	175.51	175.51
Combined NG in stoves, B11 & B12, ladle drying preheaters, and BFG flares	5.10	1.90	lb/MMcf	Note ^(c)	2.92	1.09
Combined FO in stoves, B11 & B12, ladle drying preheaters, and BFG flares	9.72	9.72	lb/Mgal	No change	0.08	0.08
Certain Fuel Burning Units					178.51	176.68
Iron Pellet Screen ^(a)	0.00279	0.00375	lb/ton of material	Note ^(d)	3.91	5.26
BOF Hopper Baghouse ^(a)	0.00032	0.00032	lb/ton of steel	No change	0.39	0.39
Flux Conv. & Transfer Points Bin Floor - BOF ^(a)	0.0016	0.0016	lb/ton of steel	No change	1.93	1.93
Material Handling Operations at BF and BOF					6.23	7.57
Total					1,123.90	1,123.42

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

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

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

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

Table 7-6. Pre-project Actual Emissions and Summary of Proposed Changes to Pre-Project PM10 Emission Factors for Affected Emissions Units

Emission Point ^(a)	Emission Factors ^(b)		Units	Basis	Baseline Emissions (TPY)	
	Original	Corrected			Original	Corrected
A & B Blast Furnace Casthouse Fugitives	0.0155	0.0153	lb/ton of hot metal	Correction to calculation	15.96	15.76
A & B Blast Furnace Charging	0.0024	0.0012	lb/ton of material	Note ^(c)	3.36	1.68
A & B Blast Furnace Casthouse Baghouse	0.07026	0.07026	lb/ton of hot metal	No change	72.35	72.35
Blast Furnace Slag Pits	0.00417	0.00417	lb/ton of hot metal	No change	4.29	4.29
Iron Spout Baghouse	0.02548	0.02548	lb/ton of hot metal	No change	26.24	26.24
Blast Furnace Operations					122.21	120.32
BOF 2 Vessels	0.16	0.16	lb/ton of steel	No change	193.07	193.07
BOF Roof Monitor	0.287	0.287	lb/ton of steel	No change	346.20	346.20
Desulfurization Station [inside BOF shop] & Transfer Pit	0.03721	0.03721	lb/ton of hot metal	No change	38.32	38.32
Hot Metal Charging Ladle Slag Skimmer	0.00502	0.00502	lb/ton of hot metal	No change	5.17	5.17
BOF Shop Operations					582.76	582.76
Argon Stirring #1 & #2 Material Handling Tripper	0.00715	0.00715	lb/ton of steel	No change	8.63	8.63
Deslagging Station & Material HS	0.00355	0.00355	lb/ton of steel	No change	4.28	4.28
Caster Mold - Casters #1 & #2	0.006	0.006	lb/ton of steel	No change	7.24	7.24
Continuous Casters #1 & #2 - Spray Chamber	0.00852	0.00852	lb/ton of steel	No change	10.28	10.28
Slab Cutoff Casters #1 & #2	0.0071	0.0071	lb/ton of steel	No change	8.57	8.57
Slab Ripping Casters #1 & #2	0.00722	0.00722	lb/ton of steel	No change	8.71	8.71
Continuous Casting Operations					47.71	47.71
Combined BFG in stoves, B11 & B12, ladle drying preheaters, and BFG flares	2.90	2.90	lb/MMcf	No change	175.51	175.51
Combined NG in stoves, B11 & B12, ladle drying preheaters, and BFG flares	5.10	1.90	lb/MMcf	Note ^(d)	2.92	1.09
Combined FO in stoves, B11 & B12, ladle drying preheaters, and BFG flares	9.72	9.72	lb/Mgal	No change	0.08	0.08
Certain Fuel Burning Units					178.51	176.68
Iron Pellet Screen ^(a)	0.00279	0.00131	lb/ton of material	Note ^(e)	3.91	1.83
BOF Hopper Baghouse ^(a)	0.00032	0.00032	lb/ton of steel	No change	0.39	0.39
Flux Conv. & Transfer Points Bin Floor - BOF ^(a)	0.0016	0.0016	lb/ton of steel	No change	1.93	1.93
Material Handling Operations at BF and BOF					6.23	4.15
Total					937.42	931.62

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

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

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

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

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

7.3 Post-Project PM and PM10 Emissions Caps

As noted in Sections 2.2.2 through 2.2.4 herein, and as discussed further below, for each pollutant, the project emissions increase and/or net emissions increase from the 1996 Project was calculated using the difference between the pre-project actual emissions (August 1992 to July 1994, 24-month period) and the post-project emissions cap for each major operational group of affected emissions units. The post-project emissions caps and emissions increases from the 1996 Project, respectively, were listed in Tables 5 and 6 of the 1996 Construction Permit.

This Section 7.3 presents a discussion of the post-project PM and PM10 emissions caps and a summary of the updated emissions increase calculations for the 1996 Project, reflecting the proposed changes to the emissions caps. Section 7.4 of this permit application presents a summary of the updated net emissions increase calculations and Section 7.5 of this permit application presents the permit terms proposed by USS Granite City for purposes of ensuring the emissions caps are enforceable as a practical matter.

The proposed emissions caps for the project-affected emissions units were developed by USS Granite City using the operating rates shown in Table 7-7. Other than the natural gas usage, which is proposed to increase, and the oil usage, which is proposed to be deleted entirely, these rates are unchanged from the operating rates in the 1996 Construction Permit. USS Granite City shut down Coke Oven Batteries A and B in 2015. The shutdown of the Coke Plant eliminated coke oven gas as process fuel at the plant for use in various fuel burning units. This requires use of additional natural gas for the project affected fuel burning units at the site. The natural gas usage increase is also being addressed in this permit revision application.

Table 7-7. Projected Post-Project Operating Rates for PM and PM10

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

A comparison of the PM and PM10 emissions caps from Table 5 of the 1996 Construction Permit and the proposed revisions to these emissions caps is provided in Table 7-8. USS Granite City is proposing only non-material changes to these emissions caps as part of this permit application. (The changes are primarily attributable to the redistribution of the emission caps, including establishment of a separate emissions cap for certain material handling operations, in the facility's CAAPP permit issued by Illinois EPA.) Detailed emissions calculations are provided in Appendix B.

The proposed revisions to the post-project PM and PM10 emissions caps reflect three categories of changes: corrections of certain emission factors used to calculate both pre-project and post-

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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
<i>Contemporaneous Emissions Increases</i>	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
<i>Contemporaneous Emissions Decreases</i>			
Ingot Teeming Shutdown	Apr-1991	-22.4	-22.4
Bloomer 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.

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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.

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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.

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- (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.*

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As the PM and PM10 emission limitations are to be incorporated in Condition 22 itself, USS Granite City also proposes the deletion of the PM and PM10 emission limitations in Table 4 of the 1996 Construction Permit as they would be redundant.

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

USS Granite City proposes the following requirements for demonstrating compliance with the emissions limitations under Condition 22.e of the revised version of the 1996 Construction Permit.

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

For Fuel Burning Emissions Units PM/PM10 (tons/month)	=	PM/PM10 (lb/MMcf) × Fuel Usage (MMcf/month) ÷ 2000 (lb/ton)
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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 NO₂ 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 NO_x 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	NO _x 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 (<i>Shown for historical purposes. USS Granite City no longer plans to use fuel oil.</i>)	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 NO_x 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 NO_x 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 NO_x 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, NO_x 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
<i>Blast Furnace Operations</i>					<i>15.57</i>	<i>4.57</i>
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
<i>BOF Shop Operations</i>					<i>46.94</i>	<i>181.33</i>
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
<i>Continuous Casting Operations</i>					<i>60.34</i>	<i>0.00</i>
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 (<i>shown here for historical purposes</i>)	9.72	9.72	lb/Mgal	No change	0.44	0.44
<i>Certain Fuel Burning Units</i>					<i>495.17</i>	<i>495.17</i>
<i>Total</i>					<i>618.01</i>	<i>681.07</i>

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

8.3 Post-Project NO_x Emissions Caps

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

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

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

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

A comparison of the NO_x emissions caps from Table 5 of the 1996 Construction Permit and the proposed revisions to these emissions caps is provided in Table 8-7. Detailed emissions calculations are provided in Appendix B. The proposed revisions to the post-project NO_x 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 NO_x 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 NO _x 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 NO_x 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 NO_x 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
<i>Contemporaneous Emissions Increases</i>	Date	
Installation of #8 Galvanizing Line	Mar-1996	n/a
<i>Contemporaneous Emissions Decreases</i>		
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.

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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)
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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.

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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 (<i>revised</i>)	Updated based on the CoGen Boiler Permit No. 06070023
Natural Gas	5.5 lb/MMcf (<i>revised</i>)	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 &

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

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

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

9.3 Post-Project VOM Emissions caps

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

The post-project emissions caps for the project affected emissions units were developed by USS Granite City using the operating rates parameters shown in Table 9-6. Other than the natural gas usage, which is proposed to increase, and the oil usage, which is proposed to be deleted entirely, these rates are unchanged from the operating rates in the 1996 Construction Permit. As previously noted in Section 7.3, due to 2015 shutdown of the Coke Plant this application addresses increase in natural gas usage for the fuel burning units affected by the project.

Table 9-6. Projected Post-Project Operating Rates for VOM

Parameters	Units	Post Project Rates
Blast Furnace Production	Net tons of hot metal/year	3,165,000
BOF Shop	Molten steel tons/year	3,580,000
Combined BFG Combustion	MMcf/year	183,030
Combined NG Combustion	MMcf/year	1,980
Combined Oil Combustion	n/a	0

A comparison of the VOM emissions caps from Table 5 of the 1996 Construction Permit and the proposed revisions to these emissions caps is provided in Table 9-7. Detailed emissions calculations are provided in Appendix B. The proposed revisions to the post-project VOM emissions caps reflect changes to some of the emission factors presented in Table 9-5 and changes in post-project operating rates as shown in Table 9-6.

Table 9-7. VOM Emissions Caps

	VOM Emission Caps (TPY) from Table 5 of 1996 Construction Permit	Proposed Revised VOM Emissions Caps (TPY)
Blast Furnace Operations	157	24.8
BOF Shop	12	44.1
Certain Fuel Burning Units	2	27.7
Total	171	96.7

The updated project emissions increase analysis for VOM reflecting proposed revisions to the emissions increase calculations in Table of the 1996 Construction Permit, is provided in Table 9-8. This table incorporates the effects of the corrected pre-project emission factors as shown in Table 9-5 and the requested updates to the emission limitations as shown in Table 9-7.

Table 9-8. Revised VOM Project Emissions Increase Analyses

	VOM Pre-Project Emissions (TPY)	VOM Revised Emission Limitations (TPY)	VOM Change (TPY)
Blast Furnace Operations	16.2	24.8	8.7
BOF Shop	24.3	44.1	19.8
Certain Fuel Burning Units	17.7	27.7	10.0
Total			38.5

In this case, the project emissions increase for VOM remains below the applicable significant emission rate. Therefore, the 1996 Project remains a non-major modification under NNSR.

9.4 Changes to Net Emissions Increase Calculation for VOM

Even though not required, as part of the VOM applicability evaluation, in conjunction with the requested revisions to the 1996 Construction Permit, USS Granite City is also updating the analysis for net increases in emissions of VOM for the 1996 Project. Table 9-9 shows the updated net emissions increases calculations for VOM based on the updated project emissions increase calculations shown in Table 9-8. This table includes a correction to the contemporaneous period for VOM emissions from the project as established using the definition in 35 IAC 203.208.⁴² The start of the contemporaneous period was January 4, 1990, five years prior to the date of submittal of a timely and complete application on January 3, 1995. The end of the contemporaneous period was January 25, 1996, the date on which the emissions increase from the project occurred. The original analysis considered the #8 Galvanizing Line to be contemporaneous. However, the startup of the #8 Galvanizing Line occurred after the end of the contemporaneous period and this project was not contemporaneous for the 1996 Project.

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

		VOM
Start of Contemporaneous Period		Jan 1990
End of Contemporaneous Period		Jan 1996
Project Emissions Increases		38.5
Significant Emission Rates		40
Whether Significant?		No
<i>Contemporaneous Emissions Increases</i>	Date	
Installation of #8 Galvanizing Line	Mar-1996	n/a
<i>Contemporaneous Emissions Decreases</i>		
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.

USS Granite City Works

Permit Revision

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:

USS Granite City Works

Permit Revision

- (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, NO_x, SO₂, 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 NO_x, 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 SO₂ 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, NO_x, and VOM.

For CO, the 1996 Project was subject to the PSD requirements. Therefore, the proposed changes to the emissions limitations for CO have been evaluated per the PSD requirements. Sections 4, 5 and 6 herein address the PSD review requirements for CO.

10.1.2 New Source Performance Standards (NSPS, 40 CFR Part 60)

The federal NSPS regulations are codified at 40 CFR Part 60. NSPS apply to new or modified “affected facilities” as defined in specific subparts of 40 CFR Part 60. Illinois has been delegated the authority to administer the federal NSPS. The proposed changes do not trigger applicability of NSPS requirements for the units affected under the 1996 Project or the requested revisions under this application.

10.1.3 National Emission Standards for Hazardous Air Pollutants (NESHAP, 40 CFR Parts 61 and 63)

The federal NESHAP regulations are codified at 40 CFR Part 61 and 40 CFR Part 63 (NESHAP for source categories also known as MACT standards). Illinois has been delegated authority to administer the federal NESHAP program.

The Part 61 NESHAPs apply to certain pollutants and/or area source types. None of the Part 61 NESHAPs are applicable to the units affected under the 1996 Project or the requested revisions under this application.

The Part 63 NESHAPs apply to existing, new, or reconstructed affected sources at major sources of HAP emissions in accordance with applicability criteria specified in individual subparts. The following NESHAPs apply to the units affected under the 1996 Project.

- I. Boilers 11 and 12 are parts of an existing affected source subject to 40 CFR Part 63 Subpart DDDDD.
- II. Each of the blast furnaces and the BOF shop operations is an existing affected source subject to 40 CFR Part 63 Subpart FFFFF.

There will be no changes to the applicability of the Part 63 NESHAPs for the affected sources under the 1996 Project or the requested revisions under this application.

10.2 Illinois Air Quality Regulations

USS Granite City performed a review of 35 IAC Subtitle B regulations to determine the applicability of specific standards to the proposed revisions to the 1996 Construction Permit. A summary of this review and associated regulatory applicability conclusions are documented below. Only those rules deemed potentially relevant to the proposed revisions request are addressed.

10.2.1 35 IAC Part 201.142 Construction Permit Required

The proposed revisions to the 1996 Construction Permit involve changes to an existing construction permit for the modifications of existing emissions sources. Therefore, a revised permit in accordance with 35 IAC 201.142 is required. This permit application, including the permit application forms contained in Appendix A, is intended to fulfill the requirements of 35 IAC 201.142.

10.2.2 35 IAC 201.207 CAAPP Permits

The Clean Air Act Permit Program (CAAPP) requirements are contained in Section 39.5 of the Illinois Environmental Protection Act. USS Granite City facility is a major source subject to CAAPP requirements. As noted in section 1, this application package addresses the 'integrated processing' procedures for the proposed revisions to the 1996 Construction Permit for incorporation in the CAAPP permit via an administrative amendment.

10.2.3 Other State Regulations

There will be no change to the applicability of the limitations and requirements of other emissions standards under the Illinois Administrative Code that have already been addressed in the CAAPP permit for the USS Granite City facility.

Appendix A – Application Forms



Illinois Environmental Protection Agency

Bureau of Air • 1021 North Grand Avenue East • P.O. Box 19506 • Springfield • Illinois • 62794-9506

FEE DETERMINATION FOR CONSTRUCTION PERMIT APPLICATION

FOR AGENCY USE ONLY

ID Number: _____ Permit #: _____
☐ Complete ☐ Incomplete Date Complete: _____
 Check Number: _____ Account Name: _____

This form is to be used to supply fee information that must accompany all construction permit applications. This application must include payment in full to be deemed complete. Make check or money order payable to the Illinois Environmental Protection Agency, Division of Air Pollution Control - Permit Section at the above address. Do NOT send cash. Refer to instructions (197-INST) for assistance.

Source Information

1. Source Name: United States Steel Corporation - Granite City Works
 2. Project Name: 1996 Construction Permit Revision 3. Source ID #: (if applicable) 1191813AAI
 4. Contact Name: Krista Armentrout 5. Contact Phone #: (618) 451-3013

Fee Determination

6. The boxes below are automatically calculated.

Section 1 Subtotal \$0.00 + Section 2, 3 or 4 Subtotal \$23,000.00 = \$23,000.00
 Grand Total

Section 1: Status of Source/Purpose of Submittal

7. Your application will fall under only one of the following five categories described below. Check the box that applies. Proceed to applicable sections. For purposes of this form:

- **Major Source** is a source that is required to obtain a CAAPP permit.
- **Synthetic Minor Source** is a source that has taken limits on potential to emit in a permit to avoid CAAPP permit requirements (e.g., FESOP).
- **Non-Major Source** is a source that is not a major or synthetic minor source.

- ☒ Existing source without status change or with status change from synthetic minor to major source or vice versa. Proceed to Section 2.
- ☐ Existing non-major source that will become synthetic minor to major source. Proceed to Section 4.
- ☐ New major or synthetic minor source. Proceed to Section 4. \$0.00
- ☐ New non-major source. Proceed to Section 3. Section 1 Subtotal
- ☐ 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.

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

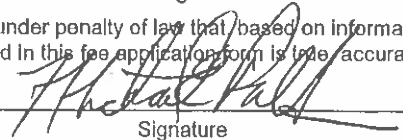
Application contains modified emission units only	14. For the first modified emission unit, enter \$2,000.	14. \$2,000.00
	15. Number of additional modified emission units = 25 x \$1,000.	15. \$25,000.00
	16. Line 14 plus line 15, or \$5,000, whichever is less.	16. \$5,000.00
Application contains new 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 page 1		28. \$23,000.00

Section 5: Certification

NOTE: Applications without a signed certification will be deemed incomplete.

29. I certify under penalty of law that based on information and belief formed after reasonable inquiry, the information contained in this fee application form is true, accurate and complete.

by:


Signature

Michael Patton

Typed or Printed Name of Signatory

General Manager - Granite City Works

Title of Signatory

2/25/2020

Date

Illinois Environmental Protection Agency
Division Of Air Pollution Control -- Permit Section
P.O. Box 19506
Springfield, Illinois 62794-9506

Construction Permit Application for a Proposed Project at a CAAPP Source	For Illinois EPA use only
	ID No.:
	Appl. No.:
	Date Rec'd:
	Chk No./Amt:

This form is to be used to supply general information to obtain a construction permit for a proposed project involving a Clean Air Act Permit Program (CAAPP) source, including construction of a new CAAPP source. Detailed information about the project must also be included in a construction permit application, as addressed in the "General Instructions For Permit Applications," Form APC-201.

Proposed Project
1. Working Name of Proposed Project: 1996 Construction Permit Revision
2. Is the project occurring at a source that already has a permit from the Bureau of Air (BOA)? ☐ No ☒ Yes If Yes, provide BOA ID Number: <u>119813AAI</u>
3. Does this application request a revision to an existing construction permit issued by the BOA? ☐ No ☒ Yes If Yes, provide Permit Number: <u>95010001</u>
4. Brief Description of Proposed Project: This application proposes revisions to certain emission limits and other requirements in the 1996 Construction Permit for the U.S. Steel Granite City facility.

Source Information
1. Source name:* United States Steel Corporation - Granite City Works
2. Source street address:* 1951 State Street
3. City: Granite City 4. County: Madison 5. Zip code:* 62040
ONLY COMPLETE THE FOLLOWING FOR A SOURCE WITHOUT AN ID NUMBER
6. Is the source located within city limits? ☐ Yes ☐ No If no, provide Township Name:
7. Description of source and product(s) produced:
8. Primary Classification Code of source: SIC: _____ or NAICS: _____
9. Latitude (DD:MM:SS.SSSS):
10. Longitude (DD:MM:SS.SSSS):

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

Identification of Permit Applicant	
1. Who is the applicant? ☒ Owner ☐ Operator	2. All correspondence to: (check one) ☒ Source ☐ Owner ☐ Operator
3. Applicant's FEIN: 25-1897152	4. Attention name and/or title for written correspondence: Krista Armentrout - Environmental Manager

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

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

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

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

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

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

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

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

Signature Block

Authorized Signature:

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

BY:

AUTHORIZED

SIGNATURE

General Manager - Granite City Works

TITLE OF SIGNATORY

Michael Patton

TYPED OR PRINTED NAME OF SIGNATORY

02

25

2020

DATE

Appendix B – Emissions Calculations

Updated Emissions Calculations for the 1996 Construction Permit Revision Application

USS Granite City
Revised PM Actual

Point	Emission Point	Past Throughput	Units	Pollutant	Original Emission Factor	Updated Emission Factor	Units	Basis	Original Baseline Emissions (TPY)	Revised Baseline Emissions (TPY)
0005 & 0010	A & B Blast Furnace Casthouse Fugitives	2,059,557	tons of hot metal/year	PM	0.031	0.031	lb/ton of hot metal	No change	31.92	31.92
0006 & 0011	A & B Blast Furnace Charging	2,803,241	material/year	PM	0.0024	0.0024	lb/ton of material	No change	3.36	3.36
0007 & 0012	A & B Blast Furnace Casthouse Baghouse	2,059,557	tons of hot metal/year	PM	0.07026	0.07026	lb/ton of hot metal	No change	72.35	72.35
113	Blast Furnace Slag Pits	2,059,557	tons of hot metal/year	PM	0.00417	0.00417	lb/ton of hot metal	No change	4.29	4.29
	Iron Spout Baghouse	2,059,557	tons of hot metal/year	PM	0.02548	0.02548	lb/ton of hot metal	No change	26.24	26.24
	Blast Furnace Operations			PM					138.17	138.17
0033	BOF 2 Vessels	2,413,406	tons of molten steel/year	PM	0.16	0.16	lb/ton of steel	No change	193.07	193.07
0034	BOF Roof Monitor	2,413,406	tons of molten steel/year	PM	0.428	0.428	lb/ton of steel	No change	516.72	516.72
	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
0107 & 0035	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
0040	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
	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
0071 & 0119	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
0072 & 0118	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
73	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
			tons of charge					85% control to crushed stone		
9003	Iron Pellet Screen	2,803,241	material/year	PM	0.00279	0.00375	lb/ton of material	screen EF in AP-42 Table 11.19.2-2	3.91	5.26
	BOF Hopper Baghouse	2,413,406	tons of molten steel/year	PM	0.00032	0.00032	lb/ton of steel	No change	0.39	0.39
0037	Flux Conv. & Transfer Points Bin Floor - BOF	2,413,406	tons of molten steel/year	PM	0.0016	0.0016	lb/ton of steel	No change	1.93	1.93
	Material Handling Operations at BF and BOF			PM					6.23	7.57
	Total PM								1,123.90	1,123.42

USS Granite City
Revised PM Analysis

Point	Emission Point	Past Throughput	Future Throughput	Units	Pollutant	Updated Emission Factor	Future Emission Factor	Units	Basis	Baseline Emissions (TPY)	Future Emissions (TPY)	Emissions Increase (TPY)	Emissions Change (TPY)
0005 & 0010	A & B Blast Furnace Casthouse Fugitives	2,059,557	3,165,000	tons of hot metal/year	PM	0.031	0.031	lb/ton of hot metal	No change	31.92	49.06	57.77	
0006 & 0011	A & B Blast Furnace Charging	2,803,241	4,308,581	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	
									No change (as in original application post-project EF lower than pre-project EF)				
0034	BOF Roof Monitor	2,413,406	3,580,000	tons of molten steel/year	PM	0.428	0.099	lb/ton of steel		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	material/year	PM	0.00375	0.00375	lb/ton of material	USS representation of 85% control to crushed stone EF	5.26	8.08	2.82	
	BOF Hopper Baghouse	2,413,406	3,580,000	tons of molten steel/year	PM	0.00032	0.00032	lb/ton of steel	No change	0.39	0.57	0.19	
0037	Flux Conv. & Transfer Points Bin Floor - BOF	2,413,406	3,580,000	tons of molten steel/year	PM	0.0016	0.0016	lb/ton of steel	No change	1.93	2.86	0.93	
	Material Handling Operations at BF and BOF				PM					7.57	11.52		3.94
					Total PM						1,072.88	219.79	-50.53

USS Granite City
Revised PM10 Actual

Point	Emission Point	Past Throughput	Units	Pollutant	Original Emission Factor	Updated Emission Factor	Units	Basis	Original Baseline Emissions (TPY)	Revised Baseline Emissions (TPY)
0005 & 0010	A & B Blast Furnace Casthouse Fugitives	2,059,557	tons of hot metal/year tons of charge	PM10	0.0155	0.0153	lb/ton of hot metal	Correction to calculation minor change Applied AP-42 Ch 13.2.4 ratio of 48% for PM10 vs PM	15.96	15.76
0006 & 0011	A & B Blast Furnace Charging	2,803,241	material/year	PM10	0.0024	0.0012	lb/ton of material		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
	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
0107 & 0035	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
			tons of charge					85% control to crushed stone screen		
9003	Iron Pellet Screen	2,803,241	material/year	PM10	0.00279	0.00131	lb/ton of material	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 USS representation includes basis for EF	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		1.68	2.59		
0007 & 0012	A & B Blast Furnace Casthouse Baghouse	2,059,557	3,165,000	tons of hot metal/year	PM10	0.07026	0.07026	lb/ton of hot metal	No change	72.35	111.19		
113	Blast Furnace Slag Pits	2,059,557	3,165,000	tons of hot metal/year	PM10	0.00417	0.00417	lb/ton of hot metal	No change	4.29	6.60		2.30
	Iron Spout Baghouse	2,059,557	3,165,000	tons of hot metal/year	PM10	0.02548	0.02548	lb/ton of hot metal	No change	26.24	40.32		14.08
	Blast Furnace Operations				PM10					120.32	184.90		64.58
0033	BOF 2 Vessels	2,413,406	3,580,000	tons of molten steel/year	PM10	0.16	0.16	lb/ton of steel	Using 60 lb/hour for PTE	193.07	262.80	0.00	
0034	BOF Roof Monitor	2,413,406	3,580,000	tons of molten steel/year	PM10	0.287	0.066	lb/ton of steel	No change	346.20	118.40		
0107 & 0035	Desulfurization Station [inside BOF shop] & Transfer Pit	2,059,557	3,165,000	tons of hot metal/year	PM10	0.03721	0.03721	lb/ton of hot metal	No change	38.32	58.88	20.57	
0040	Hot Metal Charging Ladle Slag Skimmer	2,059,557	3,165,000	tons of hot metal/year	PM10	0.00502	0.00502	lb/ton of hot metal	No change	5.17	7.94	2.77	
	BOF Shop				PM10					582.76	448.03		-134.74
0103, 0104 & 0121	Argon Stirring #1 & #2 Material Handling Tripper	2,413,406	3,580,000	tons of molten steel/year	PM10	0.00715	0.00715	lb/ton of steel	No change	8.63	12.80	4.17	
0105 & 0106	Deslagging Station & Material HS	2,413,406	3,580,000	tons of molten steel/year	PM10	0.00355	0.00355	lb/ton of steel	No change	4.28	6.35	2.07	
0070 & 0120	Caster Mold - Casters #1 & #2	2,413,406	3,580,000	tons of molten steel/year	PM10	0.006	0.006	lb/ton of steel	No change	7.24	10.74	3.50	
0071 & 0119	Continuous Casters #1 & #2 - Spray Chamber	2,413,406	3,580,000	tons of molten steel/year	PM10	0.00852	0.00852	lb/ton of steel	No change	10.28	15.25	4.97	
0072 & 0118	Slab Cutoff Casters #1 & #2	2,413,406	3,580,000	tons of molten steel/year	PM10	0.0071	0.0071	lb/ton of steel	No change	8.57	12.71	4.14	
73	Slab Ripping Casters #1 & #2	2,413,406	3,580,000	tons of molten steel/year	PM10	0.00722	0.00722	lb/ton of steel	No change	8.71	12.92	4.21	
	Continuous Casting Operations				PM10					47.71	70.78		23.06
	Combined BFG in stoves, B11 & B12, ladle preheaters, and BFG flares	121,039	185,030	MMcf	PM10	2.90	2.90	lb/MMcf	No change	175.51	268.30	92.79	
	Combined NG in stoves, B11 & B12, ladle preheaters, and BFG flares	1,145	1,980	MMcf	PM10	1.9	1.9	lb/MMcf	AP-42 Revised Filt. PM Factor	1.09	1.88	0.79	
	Combined FO in stoves, B11 & B12, ladle preheaters, and BFG flares	16	365	Mgal	PM10	9.72	9.72	lb/Mgal	No change	0.08	1.77	1.70	
	Certain Fuel Burning Emissions Units				PM10					176.68	271.95		95.28
9003	Iron Pellet Screen	2,803,241	4,308,581	tons of charge material/year	PM10	0.001305	0.00131	lb/ton of material	USS representation of 85% control to crushed stone EF	1.83	2.81	0.98	
	BOF Hopper Baghouse	2,413,406	3,580,000	tons of molten steel/year	PM10	0.00032	0.00032	lb/ton of steel	No change	0.39	0.57	0.19	
0037	Flux Conv. & Transfer Points Bin Floor - BOF	2,413,406	3,580,000	tons of molten steel/year	PM10	0.0016	0.0016	lb/ton of steel	No change	1.93	2.86	0.93	
	Material Handling Operations at BF and BOF				PM10					4.15	6.25		2.10
					Total PM10						981.91	208.37	50.29

**USS Granite City
Net Emissions Increases**

	Emissions (tons/year)	
	PM	PM10
Project Emissions Increases	220.6	209.1
Significant Emission Rates	25	15
Whether Significant?	Yes	Yes

Project Emissions Changes	-50.5	50.3
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<i>Contemporaneous Emissions Increases</i>	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

<i>Contemporaneous Emissions Decreases</i>		
Ingot Teeming Shutdown	Apr-1991	-22.4 -22.4
Bloomng 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 NO _x 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				Average of 4/2012, 7/2012, 11/2014 test results	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	All NO _x formed is from natural gas usage; emissions are accounted for separately.	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		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 BM1	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
									Average of 4/2012, 7/2012, 11/2014 test results used for baseline; 11/2014 test result used for projection				
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		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 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	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.)	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			41.00	41.00	
	Combined FO in stoves, B11 & B12, ladle preheaters, and BFG flares	16	365	Mgal	NO _x	55.00	55.00	lb/Mgal	No change	0.44	10.04	9.60	
	Certain Fuel Burning Emissions Units				NO _x					495.17	632.54		137.37
					Total NO _x					681	944	385.96	262.80

USS Granite City
Net Emissions Increases

		NOx	
Project Emissions Increases		386.0	
Significant Emission Rates		40	
Whether Significant?		Yes	
Project Emissions Changes		262.8	
<i>Contemporaneous Emissions Increases</i>	Date		
Installation of #8 Galvanizing Line	Mar-1996	Not contemporaneous	
<i>Contemporaneous Emissions Decreases</i>			
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	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	VOM control and 5% fugitive	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
								Average of 4/2012, 7/2012, 11/2014 test results used for baseline;		
0033	BOF 2 Vessels	2,413,406	tons of molten steel/year	VOM	0.0060	0.0186	lb/ton of steel		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	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	VOM control and 5% fugitive	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
									Average of 4/2012, 7/2012, 11/2014 test results used for baseline; 11/2014 test result used for projection				
0033	BDF 2 Vessels	2,413,406	3,580,000	tons of molten steel/year	VOM	0.0186	0.0230	lb/ton of steel		22.40	41.17	18.77	
0107 & 0035	Desulfurization Station [inside BDF 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	
	BDF 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 above	Included	
	B12		820	MMcf	VOM		5.5	lb/MMcf	1998 update to AP-42 Section 1.4		2.26 above	Included	
	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
					VOM					58.2	96.7	38.50	38.50

**USS Granite City
Net Emissions Increases**

		Emissions (tons/year)
		VOM
Project Emissions Increases		38.5
Significant Emission Rates		40
Whether Significant?		No
Project Emissions Changes		38.5
<i>Contemporaneous Emissions Increases</i>	Date	
Remove Blast Furnace Slag Spout Hood	Jan-1990	
#2 Caster Production	Dec-1990	
Installation of #8 Galvanizing Line	Mar-1996	Not contemporaneous
<i>Contemporaneous Emissions Decreases</i>		
Bloomington Mill Shutdown	Apr-1991	-0.9
NESHAP Controls Coke By-product	Jul-1991	-31.6
Batch Annealing Shutdown	Dec-1991	-0.3
Road and Material Handling Fugitive Dust Controls	Nov-1991	
Project Net Emissions Increases		38.50
Whether Significant?		No
Date of complete permit application under Rule 203	1/3/1995	
Date Project implemented/operation started	1/25/1996	Same as permit issuance date as permit was for operational changes by revising production limits.
Contemporaneous Period	1/4/1990	to 1/25/1996

Emissions Calculations Included in the 1995 Construction Permit Application

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

Projected Emissions Based On: Blast Furnace @ 8,571 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	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	7,108	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
												(11.51)
Contemporaneous Changes												
Net Change												5,673.29

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

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

9849 NTPD/MTA
 11,000 NTPD/MTA

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	381	MMcf	7.22	Included in line 16	-	-	-
6	0044	01	Boiler #11 - BFG	13.7	lb/MMcf	5,323	MMcf	36.48	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	5.68	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	18	Mgal	inc. above	365	Mgal	0.91	-
TOTALS:								11,703.94			17,388.74	5,684.80

Contemporaneous Changes
 Net Change

(11.51) (118.11)
 5,674.62
 5,673.29

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

Projected Emissions Based On: Blast Furnace @ 2,771 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	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
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
15	0005 & 0010	01	"A" & "B" Blast Furnace - Uncaptured Roof Emiss.	0.00072	lb/ton proc.	2,059,557	tons proc.	0.74	3,165,000	tons proc.	1.14	-
16	0070 & 00120	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
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	+168.54
20			Fuel Oil	55	lb/Mgal	16	Mgal	inc. above	365	Mgal	10.04	+ 9.59
TOTALS:								618.01			856.76	238.75
Contemporaneous Changes												(200.54)
Net Change												38.21



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	0.0388	lb/ton prod.	2,413,406	tons prod.	48.94	3,580,000	ton prod.	89.63	-
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 - Cesthouse	0.01440	lb/ton prod.	2,059,557	tons prod.	14.83	3,165,000	tons proc.	22.79	-
15	0005 & 0010	01	"A" & "B" Blast Furnace - Unceptured Roof Emiss.	0.00072	lb/ton prod.	2,059,557	tons proc.	0.74	3,165,000	tons proc.	1.14	-
16	0070 & 0120	01	Caster Mold - Casters #1 & #2	0.05	lb/ton prod.	2,413,406	tons prod.	60.34	3,580,000	ton prod.	89.50	-
17	0071 & 0119	01	Continuous Casters #1 & #2 - NG	306	lb/MMcf	57	MMcf	8.72	Included in Line 18	-	-	-
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
 Net Change

(260.54) (268.14)
 (38.21) -30.61

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

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	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 18	-	-	-	-
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	23.83	Included in line 19	-	-	-	-
10	0048	91	Boiler #12 - NG	0.6	lb/MMcf	218	MMcf	0.07	Included in line 18	-	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	141.3	lb/Mgal	1.00	Mgal	0.07	Included in line 20	-	-	-	-
12	0038	01	BOF Preheaters/Dryers - NG	0.6	lb/MMcf	283	MMcf	0.08	Included in line 18	-	-	-	-
13	0007 & 0012	01	"A & B" Blast Furnace - Casthouse	0.2006	lb/ton proc.	2,059,557	tons proc.	206.57	3,165,000	tons proc.	422.00	215.43	Est. Annual Max
14	0005 & 0010	01	"A & B" Blast Furnace - Uncap. roof	0.0104	lb/ton proc.	2,059,557	tons proc.	10.71	3,165,000	tons proc.	21.94	11.23	Est. Annual Max
15	---	--	Iron Spout Baghouse	0.0073	lb/ton proc.	2,059,557	tons proc.	7.52	3,165,000	tons proc.	13.89	6.37	Est. Annual Max
16	113	1	Blast Furnace Slag Pits	0.0100	lb/ton	2,059,557	tons proc.	10.30	3,165,000	tons proc.	15.83	5.53	
17	0071 & 0119	01	Continuous Casters #1 & #2 - NG	0.6	lb/MMcf	57	MMcf	0.02	Included in line 18	-	-	-	-
18			Natural Gas	0.6	lb/MMcf	1,145	MMcf	-	1,145	MMcf	0.34	0.00	
19			Blast Furnace Gas	6.65	lb/MMcf	121,039	MMcf	-	185,030	MMcf	615.22	212.77	
20			Fuel Oil	141.3	lb/Mgal	16	Mgal	-	365	Mgal	25.79	24.66	
TOTALS:								639.03			1,115.01	475.98	
												(0.13)	
Contemporaneous Changes												475.85	
<i>Net Change</i>													

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 (Birs 1-10) - BFG	6.65	lb/MMcf	37,501	MMcf	124.69	Included in line 19	-	-	-	-
5	0041	91	Boiler House 1 (Birs 1-10) - NG	0.6	lb/MMcf	361	MMcf	0.11	Included in line 18	-	-	-	-
6	0044	01	Boiler #11 - BFG	6.65	lb/MMcf	5,323	MMcf	17.70	Included in line 19	-	-	-	-
7	0044	91	Boiler #11 - NG	0.6	lb/MMcf	226	MMcf	0.07	Included in line 18	-	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	141.3	lb/Mgal	15.00	Mgal	1.06	Included in line 20	-	-	-	-
9	0048	01	Boiler #12 - BFG	6.65	lb/MMcf	7,106	MMcf	23.63	Included in line 19	-	-	-	-
10	0048	91	Boiler #12 - NG	0.6	lb/MMcf	218	MMcf	0.07	Included in line 18	-	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	141.3	lb/Mgal	1.00	Mgal	0.07	Included in line 20	-	-	-	-
12	0038	01	BOF Preheaters/Dryers - NG	0.6	lb/MMcf	283	MMcf	0.08	Included in line 18	-	-	-	-
13	0007 & 0012	01	"A & B" Blast Furnace - Casthouse	0.2006	lb/ton proc.	2,059,557	tons proc.	206.57	3,165,000	tons proc.	422.00	215.43	Est. Annual Max
14	0005 & 0010	01	"A & B" Blast Furnace - Uncap. roof	0.0104	lb/ton proc.	2,059,557	tons proc.	10.71	3,165,000	tons proc.	21.94	11.23	Est. Annual Max
15	---	-	Iron Spout Baghouse	0.0073	lb/ton proc.	2,059,557	tons proc.	7.52	3,165,000	tons proc.	13.89	6.37	Est. Annual Max
16	113	1	Blast Furnace Slag Pits	0.0100	lb/ton	2,059,557	tons proc.	10.30	3,165,000	tons proc.	15.83	5.53	
17	0071 & 0119	01	Continuous Casters #1 & #2 - NG	0.6	lb/MMcf	57	MMcf	0.02	Included in line 18	-	-	-	
18			Natural Gas	0.6	lb/MMcf	1,145	MMcf	-	1,145	MMcf	0.34	0.00	
19			Blast Furnace Gas	6.65	lb/MMcf	121,039	MMcf	-	185,030	MMcf	615.22	212.77	
20			Fuel Oil	141.3	lb/Mgal	16	Mgal	-	365	Mgal	25.79	24.66	
TOTALS:								639.03			1,115.01	475.98	

Contemporaneous Changes
Net Change

(0.13) (0.18)
475.85 475.80

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

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

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED 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



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 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.	348.20	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 Chgng Ladle Slag Skimmer	0.0050	lb/ton proc.	2,059,557	tons proc.	5.17	3,165,000	tons proc.	-	-	7.94	2.77

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

Projected Emissions Based On: Blast Furnace @ 2,711 NTPD
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:								937.42					989.04	51.62

Contemporaneous Changes
Net Change

(37.31)
14.37

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

Projected Actual Emissions = Projected Throughput * Emission Factor / 2000
except -

BOF Vessels Projected Actual Emissions = 60 lb/hr * 8760 hrs

BOF Roof Monitor Projected Actual Emissions = Projected Emission Factor * Projected Throughput



TABLE 3-4
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 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 pellete 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
Not Change

3,716 737.541
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

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

Projected Emissions Based On: Blast Furnace @ 1.71NTPD
BOF @ 9,808 NTPD

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED EMISSION FACTOR	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
3	0008	01	Blast Furnace Gas Flare - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
6	0044	01	Boiler #11 - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
7	0044	91	Boiler #11 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
8	0044	92	Boiler #11 - Fuel Oil	9.72	lb/Mgal	Included in line 40	Mgal	-	Included in line 40	-			-	-
9	0048	01	Boiler #12 - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
10	0048	91	Boiler #12 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
11	0048	92	Boiler #12 - Fuel Oil	9.72	lb/Mgal	Included in line 48	Mgal	-	Included in line 48	-			-	-
12	0033	01	BOF 2 Vessels	0.16	lb/ton proc.	2,413,406	tons proc.	193.07	8,760	hours	60	lbs/hr	262.80	69.73
13	0038	01	BOF Preheaters/Dryers - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
14	0005 & 0010	01	"A" & "B" Blast Furnace - Uncap. Fugitives	0.031	lb/ton proc.	2,059,557	tons proc.	31.92	3,165,000	tons proc.			49.06	17.13
15	0006 & 0011	01	"A" & "B" Blast Furnace - Charging	0.0024	lb/ton pellets charged	2,803,241	tons proc.	3.36	4,308,581	tons proc.			5.17	1.81
16	0007 & 0012	01	"A" & "B" Blast Furnace - Baghouse Stack	0.0703	lb/ton proc.	2,059,557	tons proc.	72.35	3,165,000	tons proc.			111.19	38.83
17	0034	01	BOF Roof Monitor	0.428	lb/ton proc.	2,413,406	tons proc.	516.72	3,580,000	tons proc.	0.0987		176.71	(340.01)
18	0037	01	Flux Conv. & Xfer Pts., Bin Floor - BOF	0.0016	lb/ton proc.	2,413,406	tons proc.	1.93	3,580,000	tons proc.			2.86	0.93
19	0040	01	Hot Metal Chging Ladle Slag Skimmer	0.0050	lb/ton proc.	2,059,557	tons proc.	5.17	3,165,000	tons proc.			7.94	2.77

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

Projected Emissions Based On: Blast Furnace @ 0.271NTPD
BOF @ 9,808 NTPD

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED EMISSION FACTOR	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
20	0070 & 0120	01	Caster Mold - Casters #1 & #2	0.006	lb/ton prod.	2,413,406	tons prod.	7.24	3,580,000	ton prod.			10.74	3.50
21	0071 & 0119	01	Cont. Casters #1 & #2 - Spray Chamber	0.00852	lb/ton proc.	2,413,406	tons prod.	10.28	3,580,000	ton prod.			15.25	4.97
22	0071 & 0119	01	Continuous Casters #1 & #2 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
23	0072 & 0118	01	Slab Cutoff - Casters #1 & #2	0.0071	lb/ton proc.	2,413,406	tons prod.	8.57	3,580,000	ton prod.			12.71	4.14
	73	1	Slab Ripping - Casters #1 & #2	0.00722	lb/ton proc.	2,413,406	tons prod.	8.71	3,580,000	ton prod.			12.92	4.21
25	0103, 0104 & 0121	01	Argon Stirring #1 & #2, Material Handling Tripper	0.00715	lb/ton proc.	2,413,406	tons prod.	8.63	3,580,000	ton prod.			12.80	4.17
26	0105 & 0106	01	Deslagging Station & Material HS	0.00355	lb/ton proc.	2,413,406	tons prod.	4.28	3,580,000	ton prod.			6.35	2.07
27			BOF Hopper Baghouse	0.00032	lb/ton proc.	2,413,406	tons proc.	0.39	3,580,000	tons proc.			0.57	0.18
28	0107 & 0035	01	Desulf. Station (inside BOF shop) & Xfer Pit	0.03721	lb/ton proc.	2,059,557	tons prod.	38.32	3,165,000	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			288.29	92.79
38			Fuel Oil	9.72	lb/Mgal	16	Mgal	0.08	365	Mgal			1.77	1.70
TOTALS:								1,123.90					1,071.89	(52.01)
Contemporaneous Changes														(37.16)
Net Change														(89.17)

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

Projected Actual Emissions = Projected Throughput * Emission Factor / 2000

except -

BOF Vessels Projected Actual Emissions = 60 lb/hr * 8760 hrs

BOF Roof Monitor Projected Actual Emissions = Projected Emission Factor * Projected Throughput

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

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

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED EMISSION FACTOR	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
3	0008	01	Blast Furnace Gas Flare - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
6	0044	01	Boiler #11 - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
7	0044	91	Boiler #11 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
8	0044	92	Boiler #11 - Fuel Oil	9.72	lb/Mgal	Included in line 40	Mgal	-	Included in line 40	-			-	-
9	0048	01	Boiler #12 - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
10	0048	91	Boiler #12 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
11	0048	92	Boiler #12 - Fuel Oil	9.72	lb/Mgal	Included in line 48	Mgal	-	Included in line 48	-			-	-
12	0033	01	BOF 2 Vessels	0.16	lb/ton proc.	2,413,406	tons proc.	193.07	8,760	hours	60	lbs/hr	262.80	69.73
13	0038	01	BOF Preheaters/Dryers - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
14	0005 & 0010	01	"A" & "B" Blast Furnace -- Uncomb. Fugitives	0.0155	lb/ton proc.	2,059,557	tons proc.	15.96	3,165,000	tons proc.			24.53	8.57
15	0008 & 0011	01	"A" & "B" Blast Furnace - Charging	0.0024	lb/ton pellet charged	2,803,241	tons proc.	3.36	4,306,581	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 Chgling Ladle Slag Skimmer	0.0050	lb/ton proc.	2,059,557	tons proc.	5.17	3,165,000	tons proc.			7.94	2.77

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

Projected Emissions Based On: Blast Furnace @ 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 Pile	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 pallets 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
Net Change

(37.16) (57.39)
(97.74) (57.27)

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

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

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

Projected Emissions Based On: Blast Furnace @ 8.71 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	228	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	0.06	-
TOTALS:								111.80			171.08	59.28
Contemporaneous Changes												(31.23)
Net Change												28.05

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

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

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	0.0	lb/MMcf	22,774	MMcf	0.00	included in line 18	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	0.0	lb/MMcf	22,203	MMcf	0.00	included in line 18	-	-	-
3	0008	01	Blast Furnace Gas Flare - BFG	0.0	lb/MMcf	26,132	MMcf	0.00	included in line 18	-	-	-
4	0041	01	Boiler House 1 (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	228	MMcf	0.16	included in line 17	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	0.28	lb/Mgal	15.00	Mgal	0.00	included in line 19	-	-	-
9	0048	01	Boiler #12 - BFG	0.0	lb/MMcf	7,106	MMcf	0.00	included in line 18	-	-	-
10	0048	91	Boiler #12 - NG	1.4	lb/MMcf	218	MMcf	0.15	included in line 17	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	0.28	lb/Mgal	1.00	Mgal	0.00	included in line 19	-	-	-
12	0033	01	BOF Preheaters/Dryers - NG	2.8	lb/MMcf	283	MMcf	0.40	included in line 17	-	-	-
13	0007 & 0012	01	"A & B" Blast Furnace - Casthouse	0.0946	lb/ton proc.	2,059,557	tons proc.	97.40	3,165,000	tons proc.	149.68	-
14	0005 & 0010	01	"A & B" Blast Furnace - Uncap. roof	0.0047	lb/ton proc.	2,059,557	tons proc.	4.83	3,165,000	tons proc.	7.42	-
15	0033	01	2 BOF Vessels	0.0060	lb/ton proc.	2,413,406	tons proc.	7.24	3,580,000	tons proc.	10.74	-
16	0035	01	Transfer Pits	0.0010	lb/ton proc.	2,059,557	tons proc.	1.03	3,165,000	tons proc.	1.58	-
17	0071 & 0119	01	Continuous Casters #1 & #2 - NG	2.8	lb/MMcf	57	MMcf	0.08	included in line 17	-	-	-
18			Natural Gas	2.8	lb/MMcf	-	MMcf	-	1,145	MMcf	1.60	-
19			Blast Furnace Gas	0.0	lb/MMcf	-	MMcf	-	185,030	MMcf	0.00	-
20			Fuel Oil	0.28	lb/Mgal	-	Mgal	-	365	lb/Mgal	0.05	-
TOTALS:								111.80			171.08	59.28

Contemporaneous Changes
Net Change

(31.23)(31.70)
28.05 27.98

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

Handwritten:
Quantity sub 140/hr
Subst. AT x 5 + 2 =
Based on T₂ of 4200
0.0224 lb/hr

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.	0.00144086	-
9	0033	01	BOF 2 Vessels Stack	0.19337500	lb/hr	0.19337500	8760	hours	0.8470	1.483	tons prod.	1.25807505	0.4825 lb/hr
10	0034	01	BOF Roof Monitor	0.01290000	lb/hr	0.01290000	8760	hours	0.0565	1.483	tons prod.	0.08379247	-
11	0035	01	Hot Metal Reladling - Xfer Pit	0.00002320	lb/hr	0.00002320	8760	hours	0.0001	1.483	tons prod.	0.00015070	-
12	0037	01	Flux Conv. & Xfer Pts., Bin Floor - BOF	0.00000082	lb/hr	0.00000082	8760	hours	0.0000	1.483	tons prod.	0.00000405	-
13	0040	01	Hot Metal Chging Ladle Sleg Skimmer	0.00002250	lb/hr	0.00002250	8760	hours	0.0001	1.483	tons prod.	0.00014616	-
14	0103	01	Argon Stirring #1 & #2	0.00020200	lb/hr	0.00020200	8760	hours	0.0009	1.483	tons prod.	0.00131210	-
15	0105	01	Deslagging Station	0.00240000	lb/hr	0.00240000	8760	hours	0.0105	1.483	tons prod.	0.01558930	-
16	0107	01	Desulf. Station (inside BOF shop)	0.01330000	lb/hr	0.01330000	8760	hours	0.0583	1.483	tons prod.	0.08639068	-
17	0120	01	Caster Mold - Casters	0.00113000	lb/hr	0.00113000	8760	hours	0.0049	1.483	tons prod.	0.00733996	-
18			Boilers -Waste Oil	0.33600000	lb/Mgals		-	-	-	365	Mgals	0.06132000	-
TOTAL						0.26			0.988			1.527	0.539
Contemporaneous Changes													0.000
Net Change													0.539

Appendix C – Air Quality Modeling Report

APPENDIX C

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



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

**Prepared by:
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304A West Millbrook Road
Raleigh, North Carolina 27609**

February 2020



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1.0 INTRODUCTION

This document presents the results of the air quality dispersion modeling analysis conducted for the United States Steel Corporation, Granite City Works ("US Steel") iron and steel making facility in Granite City, Illinois. The analysis has been conducted by RTP Environmental Associates, Inc. ("RTP Environmental") on behalf of US Steel.

The analysis evaluated the emissions of the criteria pollutant carbon monoxide ("CO") as regulated under the applicable provisions of the Prevention of Significant Deterioration ("PSD") regulations of 40 CFR § 52.21, incorporated by reference in the federally approved Illinois State Implementation Plan at 40 CFR § 52.738(b).¹ The criteria pollutant analysis was conducted to ensure that the proposed revisions to the CO emission limitations in the Prevention of Significant Deterioration ("PSD") and Construction Permit (Permit Number 95010001) ("1996 Construction Permit") do not cause or contribute to violation of a National Ambient Air Quality Standard (NAAQS).

As required by 40 CFR § 52.21(l), the analysis conforms with the modeling procedures outlined in the Guideline on Air Quality Models¹ 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 Guidance², 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.

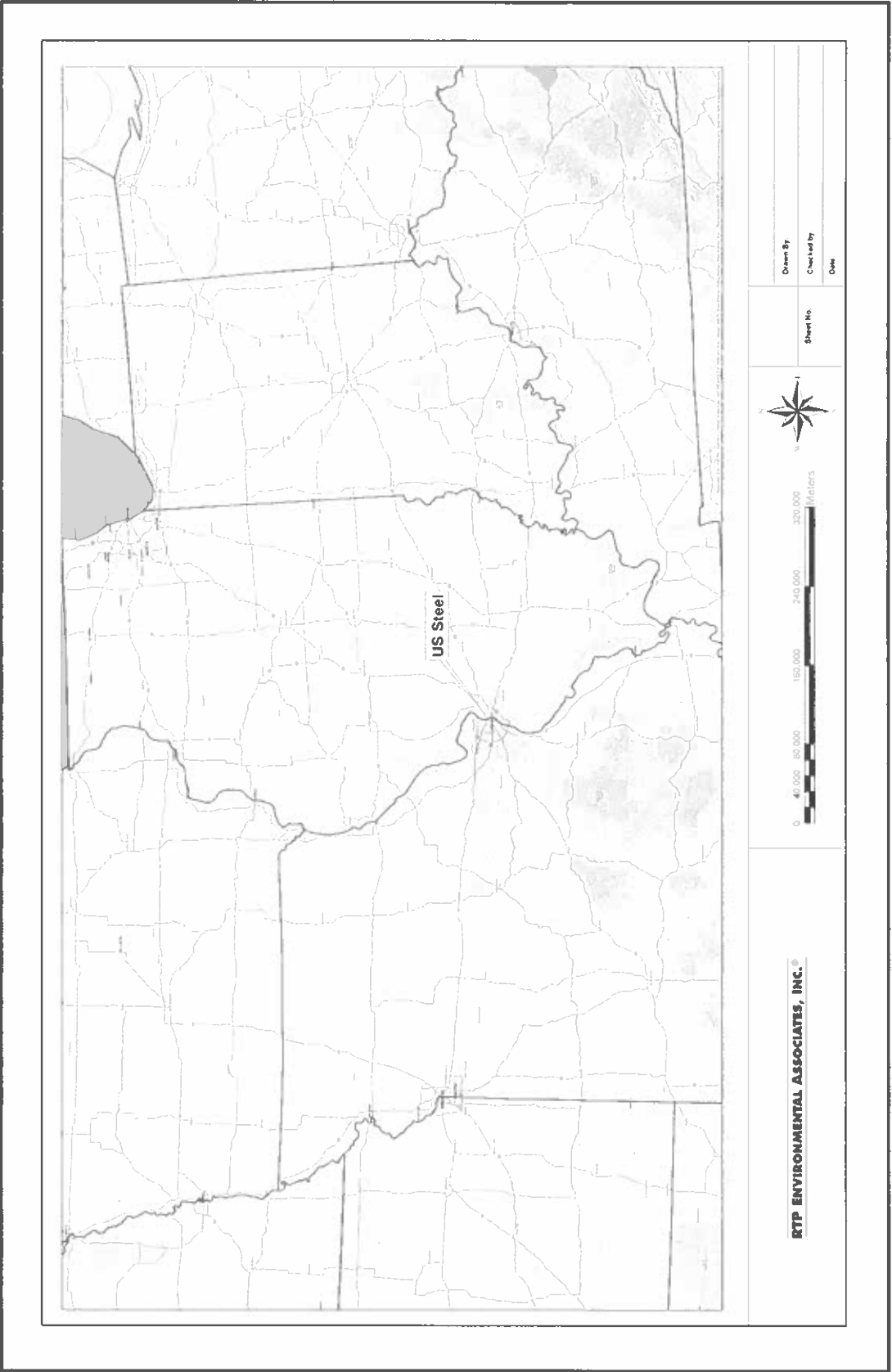


Figure 1. General Location of the US Steel Granite City Works



3-3



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 Manual³. 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 calories per second:



$$H_{\text{equivalent}} = H_{\text{actual}} + 4.56 \times 10^{-3} \times Q^{0.478}$$

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:

$$d_{\text{equivalent}} = 9.88 \times 10^{-4} \times (Q \times 0.45)^{0.5}$$

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 in excess of 65m. Procedures used are in accordance with those described in the USEPA Guidelines for Determination of Good Engineering Practice Stack Height (Technical Support Document for the Stack Height Regulations-Revised)⁴. GEP formula stack height, as defined in 40 CFR 51, is expressed as $GEP = H_b + 1.5L$, where H_b is the building height and L is the lesser of the building height or maximum projected width. Building/structure locations were determined from a facility plot plan. The structure locations and heights were obtained from the IEPA and were input to the USEPA's Building Profile Input Program (BPIP-PRIME) computer program to calculate the direction-specific building dimensions needed for AERMOD. The structures included in the GEP analysis are shown as the green blocks in Figure 3. All stacks and structures that are located near a stack were included in the BPIP runs.



Figure 3. Structures Included in the US Steel GEP Analysis



4.4 Monitored Background Data

Ambient, background pollutant concentrations are needed to establish a representative background concentration to complete the NAAQS portion of the *Source Impact Analysis* of 40 CFR § 52.21(k). The background concentrations are added to the modeled concentrations to assess NAAQS compliance. Ambient pollutant concentrations are also needed to fulfill the *Air Quality Analysis* requirement of 40 CFR § 52.21(m), as discussed in Section 5.0 herein.

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 Guidelines⁶, other USEPA interpretive guidance, and USEPA administrative decisions clarify that representative, existing air quality monitoring data may be used to fulfill the PSD pre-construction monitoring requirements and establish background concentrations needed for assessing NAAQS compliance, in lieu of monitoring data. USEPA's Monitoring Guidelines suggest specific criteria to determine representativeness of off-site data: *quality of the data, currentness of the data, and monitor location*.

There are many existing ambient CO monitors within 100 miles in the facility (Figure 4). Existing monitoring data have been evaluated in relation to the criteria provided in USEPA's Ambient Monitoring Guidelines as being representative of the US Steel site.

We have used the most recent available, quality assured data (2016-2018) from the AQS monitor in East St. Louis, IL (AQS Site # 17-163-0010). This monitor best represents background concentrations near the facility as it is the closest monitor with

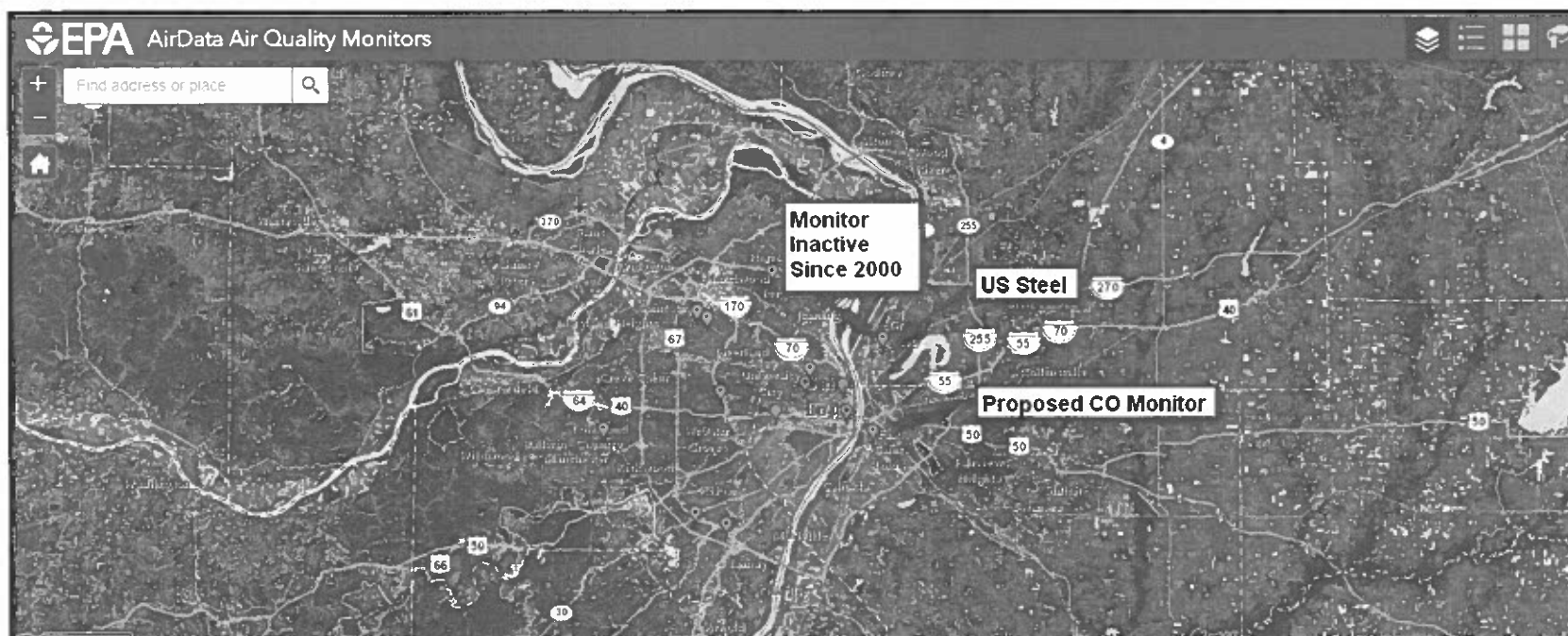


Figure 4. Ambient Air Quality Monitors in the Vicinity of the US Steel Facility



current CO data and is in the vicinity of the site and therefore representative of conditions as the site. The background data are presented in Table 1.

Table 1. Proposed Background Concentrations 2016-2018

Pollutant	Averaging Time	Design Value (ppb)[$\mu\text{g}/\text{m}^3$]	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 Guidelines⁷ as being representative of the site.

Monitor Location

Of the monitors available, the East St. Louis monitor represents background concentrations as it is the closest monitor with data for the pollutants of concern that is not also significantly influenced by the localized source impacts.

Data Quality

The monitor data were collected and quality assured by the IEPA.

Currentness of Data

The data were collected during 2016-2018, which represents the most recent quality assured data available for use in assessing compliance.

4.5 Receptor Data

Modeled receptors were placed in all areas considered as "ambient air" pursuant to 40 CFR 50.1(e). Ambient air is defined as that portion of the atmosphere, external to buildings, to which the general public has access. Approximately 14,100 receptors were used in the AERMOD significant impacts analysis. The receptor grid consisted of three cartesian grids and receptors located at 50m intervals along the facility fence line. The first cartesian grid extended to approximately 3.0km from the facility in all directions. Receptors in this region were spaced at 100m intervals. The second grid



extended to 7.5km. Receptor spacing in this region were 250m. A third grid extended to 15km with a spacing of 500m. The receptor grid was designed such that maximum facility impacts fall within the 100m spacing of receptors. The receptor grid spacing is presented in Table 2.

Table 2. Proposed Receptor Grid Spacing

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

The US Steel facility is located in southern Illinois. Terrain within 10km of the site is generally flat. Receptor elevations and hill height scale factors were calculated with AERMAP (18081). The elevation data were obtained from the USGS one arc second National Elevation Data (NED) obtained from the USGS. Locations were based upon a NAD83, UTM Zone 15 projection. The near-field receptor grid is presented in Figure 5.

4.6 Meteorological Data

The 2014-2018, 5-year sequential hourly surface meteorological data from the National Weather Service (NWS) at St. Louis Lambert Field (WBAN No. 13994) and upper air data from the NWS station in Lincoln, IL (WBAN No. 04833) were used in the analysis. These data were processed into a "model-ready" format using the latest version of AERMET (version 19191).

The AERMET meteorological processor requires estimates of the following surface characteristics: surface roughness length, albedo, and Bowen ratio. The surface roughness length is related to the height of obstacles to the wind flow. It is the height above the surface where the average wind speed is zero. The smoother the surface, the lower the roughness length. The surface roughness length influences the surface shear stress and is an important factor in calculating mechanical turbulence and stability. The albedo is the fraction of the total incident solar radiation reflected by the surface back to space without absorption.

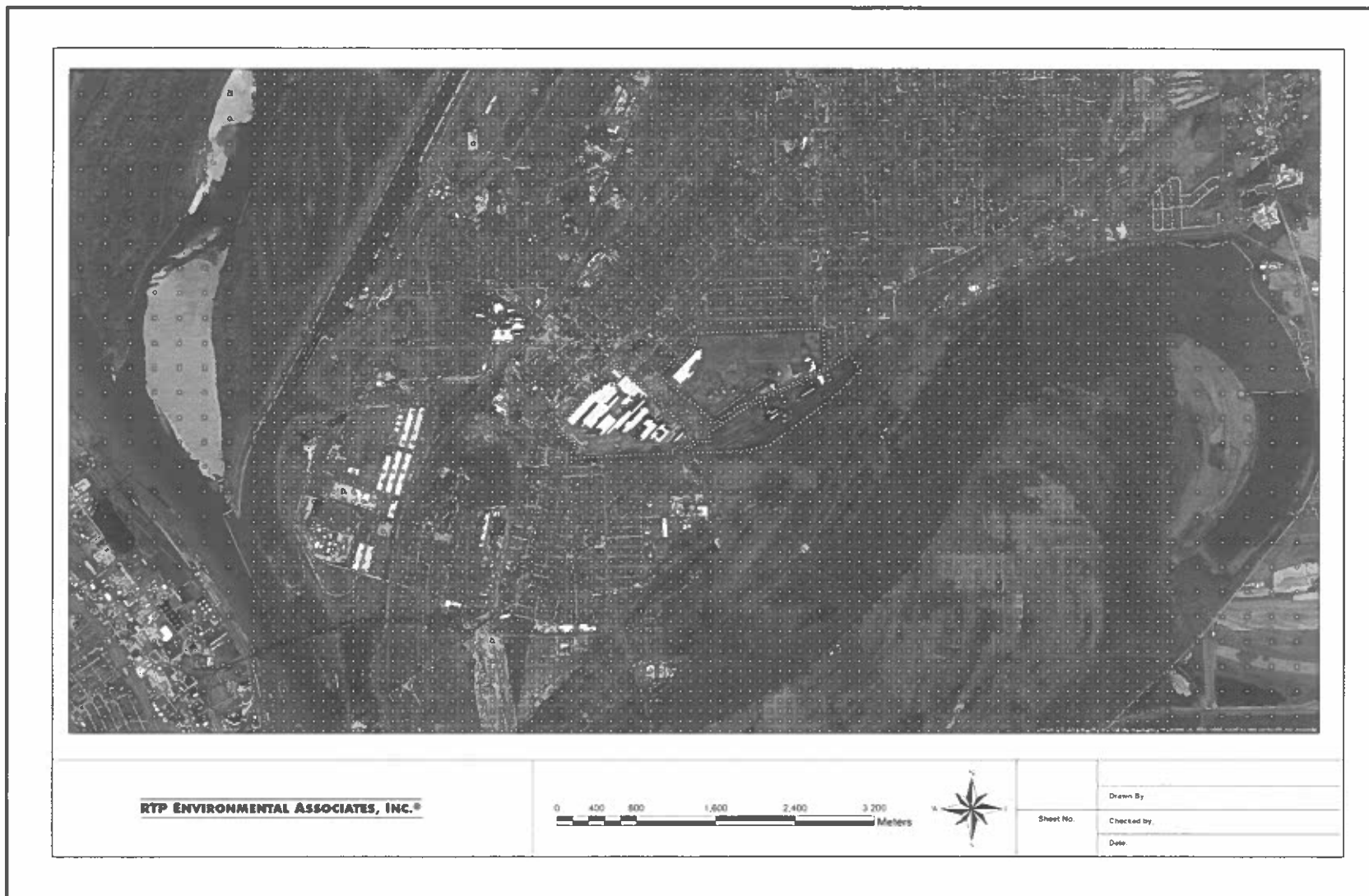


Figure 5. US Steel Facility Near-field Receptor Grid



The Bowen ratio is an indicator of surface moisture and is the ratio of the sensible heat flux to the latent heat flux. The albedo and Bowen ratio are used for determining the planetary boundary layer parameters for convective conditions due to the surface sensible heat flux. Estimates of the surface characteristics were made by the IEPA using USEPA's AERSURFACE program (Version 13016) and provided to RTP Environmental. A 1km search radius was employed at the location of the meteorological tower. Twelve sectors of 30 degrees each and seasonal resolution were used in the AERSURFACE analysis. RTP employed the "ADJ_U*" option to allow for adjustments to the friction velocity under low wind speeds was employed.

The use of NWS meteorological data for dispersion modeling can often lead to a high incidence of calms and variable wind conditions if the data are collected by Automated Surface Observing Stations (ASOS), as are in use at most NWS stations since the mid-1990's. A calm wind is defined as a wind speed less than 3 knots and is assigned a value of 0 knots. In addition, variable wind observations may include wind speeds up to 6 knots, but the wind direction is reported as missing, if the wind direction varies more than 60 degrees during the 2-minute averaging period for the observation. The AERMOD model currently cannot simulate dispersion under calm or missing wind conditions. To reduce the number of calms and missing winds in the surface data, archived 1-minute winds for the ASOS stations were used to calculate hourly average wind speed and directions, which were used to supplement the standard archive of hourly observed winds processed in AERMET. The USEPA AERMINUTE program (Version 15272) was used for these calculations. A wind rose of the 5-year meteorological dataset is provided in Figure 6.

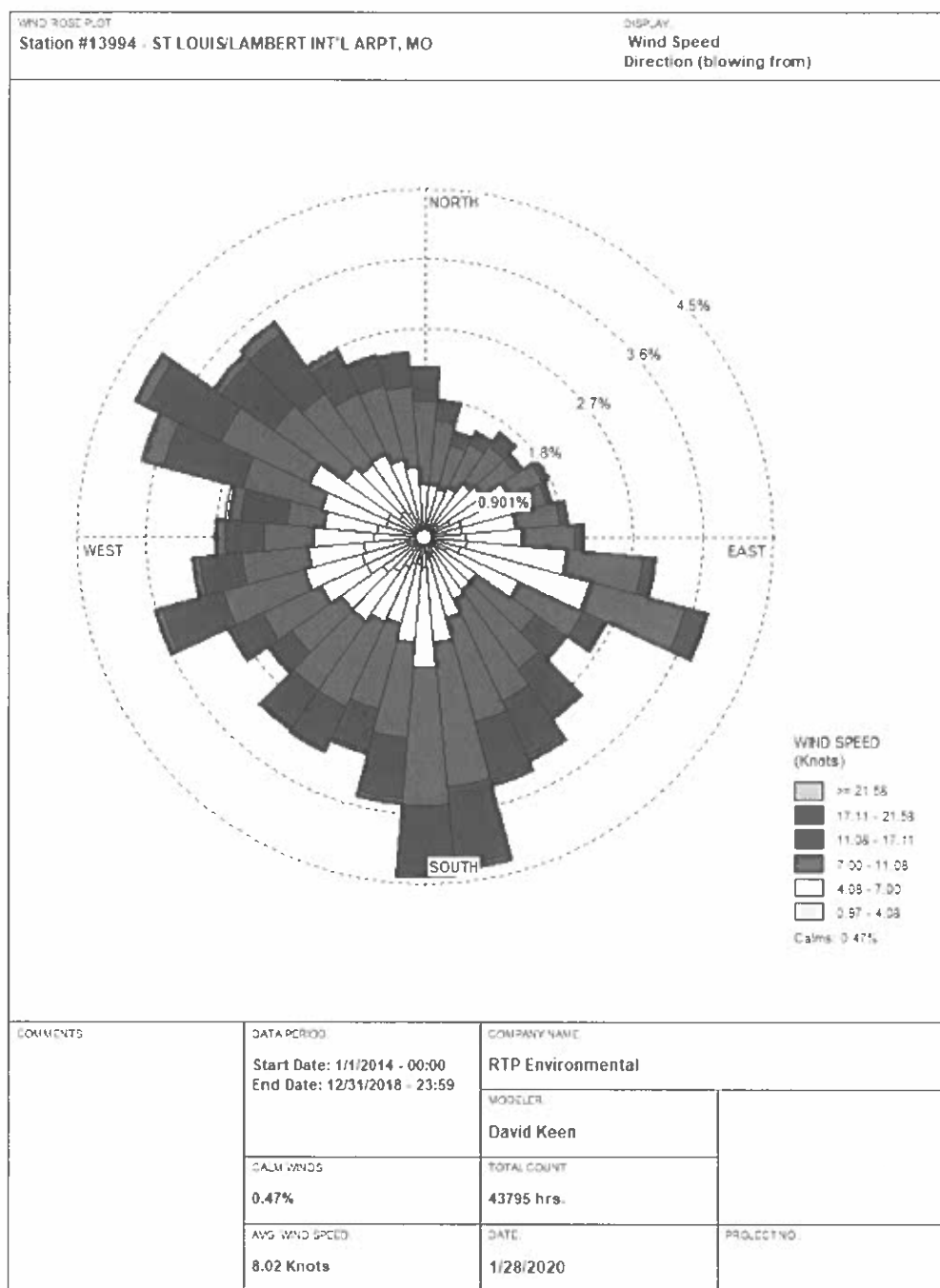


Figure 6. Lambert Field Windrose 2014-2018.



5.0 MODELING METHODOLOGY

5.1 Pollutants Subject to Review

USS Steel is proposing changes to the CO emission limitations in the 1996 Construction Permit that were established per the PSD requirements. Therefore, as requested by Illinois EPA, dispersion modeling of CO emissions have been evaluated and compared to the NAAQS.

5.2 Significant Impact Analysis

The air quality analysis was conducted in two phases: an initial or significant impact analysis, and a refined phase NAAQS analysis. In the significant impact analysis, the calculated maximum impacts due to the project were determined for CO.^b These impacts determined the net change in air quality resulting from the proposed revision to modification permitted under the 1996 Construction Permit. Five years of meteorological data were used in the significant impact analysis. Maximum modeled CO concentrations were compared to the significance levels. The PSD Class II Significant Impact Levels for CO are listed in Table 3.

Table 3. PSD Class II Significant Impact Levels

Pollutant	Averaging Time	PSD Class II Significant Impact Levels ($\mu\text{g}/\text{m}^3$)
CO	1-hour	2,000
	8-hour	500

^b For some of the affected emissions units, in place of project related emissions increases, we conservatively used the potential to emit of CO.



5.3 NAAQS Analysis

Following the determination of significant impacts, a refined air quality analysis to determine compliance with the CO NAAQS was conducted. In the NAAQS analysis, impacts from the US Steel facility were added to concentrations calculated from other nearby sources, plus a regional background concentration. The resultant total concentrations were compared to the NAAQS to assess compliance. The receptors modeled in the NAAQS analyses were limited to those showing a significant CO impact. Five years of meteorological data were again used in this analysis.

Nearby Source Inventory

Off-site sources were included in the NAAQS analysis. A 50km radius was used to define the screening area. A list of sources that are located within the screening area has been obtained from the IEPA as well as the Missouri Department of Natural Resources ("MDNR"). Section 8.3.3.b of Appendix W to 40 CFR Part 51 states that the number of nearby sources to be explicitly modeled is expected to be few, except in unusual situations. Appendix W further states that the sources to be included will usually be located within the first 10 to 20km from the source under consideration. In addition, it states that identification of nearby sources calls for the exercise of professional judgment by the appropriate reviewing authority. Further, USEPA's Guidance for PM2.5 Permit Modeling reiterates the Appendix W emphasis on a 10km screening radius for determining which nearby sources to include in the cumulative modeling analysis.

We conservatively included all sources provided by the IEPA and MDNR that are located within 50km of the US Steel facility. Total facility, potential emissions (i.e., all sources at a facility) were used in the NAAQS evaluation.

NAAQS Compliance Assessment



Ambient background concentrations (as discussed in more detail in Section 4.4) were then added to assess NAAQS compliance. The modeled and monitored values shown in Table 4 were used for this assessment.

Table 4. Monitored and Modeled Values Used to Assess NAAQS Compliance

Pollutant	Averaging Time	Monitored Value	Modeled Value
CO	1-hour & 8-hour	Highest, second high over 3 years	Highest, second high over 5 years

The NAAQS are shown in Table 5.

Table 5. National Ambient Air Quality Standards

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



6.0 RESULTS

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

6.1 Significant Impact Analysis Results

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

6.2 NAAQS Analysis Results

Following the determination of significant impacts, an analysis was conducted to assess compliance with the CO NAAQS. Even though the project resulted in insignificant 1-hr CO impacts, the 1-hr average was included in the NAAQS assessment. All sources located within 50km of the US Steel facility were modeled in conjunction with the US Steel facility in assessing compliance. Background concentrations were added to the model results to assess compliance. Evaluation of compliance with the CO short term standards was based upon the maximum of the highest-second-highest values from the five-year meteorological dataset.

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



Table 6. Significant Impact Analysis Results

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



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

US Steel Granite City Volume Source Inputs

Source ID	Source Description	Easting (m)	Northing (m)	Base	Release Height (ft)	Sigma Y (ft)	Sigma Z (ft)	CO	CO
				Elevation (ft)				Potential Emissions (lb/hr)	Emissions Increase (lb/hr)
26070	Ladle Preheaters/Dryers (formerly BOF 4, NG & COG) - Roof Monitor	748457.20	4286596.40	413.88	169.0	21.6	78.6	1.373	1.373
26080	Ladle Preheaters/Dryers (formerly BOF 4, NG & COG) - Roof Monitor	748466.60	4286606.00	413.98	169.0	21.6	78.6	1.373	1.373
26090	Ladle Preheaters/Dryers (formerly BOF 4, NG & COG) - Roof Monitor	748475.40	4286616.10	413.88	169.0	21.6	78.6	1.373	1.373
26100	Ladle Preheaters / Dryers (formerly BOF 5, NG & COG) - Roof Monitor	748483.60	4286624.10	413.85	169.0	21.6	78.6	1.029	1.029
26110	Ladle Preheaters / Dryers (formerly BOF 5, NG & COG) - Roof Monitor	748495.20	4286635.90	414.01	169.0	21.6	78.6	1.029	0.000
26120	Ladle Preheaters / Dryers (formerly BOF 5, NG & COG) - Roof Monitor	748504.10	4286646.00	414.37	169.0	21.6	78.6	1.029	0.000
26130	Ladle Preheaters / Dryers (formerly BOF 5, NG & COG) - Roof Monitor	748513.90	4286656.70	414.63	169.0	21.6	78.6	1.029	0.000
26570	Galv Line 8	748368.26	4287046.91	420.41	101.7	12.3	48.5	0.254	0.000
26580	Galv Line 8	748374.01	4287041.49	420.11	101.7	12.3	48.5	0.254	0.000
26590	Galv Line 8	748379.56	4287036.28	419.82	101.7	12.3	48.5	0.254	0.000
26600	Galv Line 8	748420.52	4286997.79	419.55	38.0	15.1	38.0	0.254	0.000
26610	Galv Line 8	748428.00	4286990.81	419.95	38.0	15.1	38.0	0.254	0.000
26620	Galv Line 8	748436.60	4286982.91	419.85	38.0	15.1	38.0	0.254	0.000
26630	Galv Line 8	748444.54	4286975.49	419.62	38.0	15.1	38.0	0.254	0.000
26640	Galv Line 8	748451.78	4286968.87	418.50	38.0	15.1	38.0	0.254	0.000
26650	Galv Line 8	748324.79	4287118.60	421.65	38.0	15.6	17.7	0.254	0.000
26660	Galv Line 8	748331.95	4287112.00	421.52	38.0	15.6	17.7	0.254	0.000
26670	Galv Line 8	748340.34	4287104.30	421.39	38.0	15.6	17.7	0.254	0.000
26680	Galv Line 8	748347.69	4287097.51	421.29	38.0	15.6	17.7	0.254	0.000
26690	Galv Line 8	748354.48	4287091.31	421.16	38.0	15.6	17.7	0.254	0.000
26700	Galv Line 8	748362.29	4287084.18	420.87	38.0	15.6	17.7	0.254	0.000
26710	Galv Line 8	748370.46	4287076.71	420.51	38.0	15.6	17.7	0.254	0.000
26720	Galv Line 8	748378.04	4287069.70	420.14	38.0	15.6	17.7	0.254	0.000
26730	Galv Line 8	748385.51	4287062.91	419.52	38.0	15.6	17.7	0.254	0.000
0126A_1	Slag Pit Volume 1	749691.91	4286762.44	418.70	53.0	29.0	17.7	0.000	0.000
0126A_2	Slag Pit Volume 2	749708.01	4286772.50	421.33	53.0	29.0	17.7	0.000	0.000
0126A_3	Slag Pit Volume 3	749724.24	4286782.31	420.44	53.0	29.0	17.7	0.000	0.000
0126A_4	Slag Pit Volume 4	749740.84	4286791.62	419.00	53.0	29.0	17.7	0.000	0.000
0126A_5	Slag Pit Volume 5	749757.20	4286801.31	418.86	53.0	29.0	17.7	0.000	0.000

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

Source ID	Source Description	Easting (m)	Northing (m)	Base		Temp (F)	Exit Velocity (ft/sec)	Potential Emissions (lb/hr)		
				Elevation (ft)	Stack Height (ft)			CO	SOx	SO2 (1-hour)
								Diameter (ft)		
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
IL_132324	Precoat Metals - Afterburner A81 and A82	749469.00	4292538.00	424.97	34.0	1000.0	64.518	4.0	3.23E+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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
IL_132599	Airgas USA, LLC - Liquefied carbon dioxide plant	756314.00	4302509.00	435.93	30.0	70.1	79.573	0.2	4.10E-01	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
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
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
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
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
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
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
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
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
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
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
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
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

Off-Site Point Source Model Input (NA083, 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 - 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		Temp (F)	Exit Velocity (ft/sec)	Stack		Potential Emissions (lb/hr)		
				Elevation (ft)	Stack Height (ft)			Diameter (ft)		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+01	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 (S91 HP) Diesel generator	774612.00	4277280.00	434.42	13.0	500.1	86.592	0.7	3.37E+00	0.00E+00	0.00E+00	
IL_225844	City of O'Fallon - 900 kW (1 322 HP) Diesel generator	774612.00	4277280.00	434.42	17.0	500.1	86.592	0.7	7.55E+00	0.00E+00	0.00E+00	
IL_225960	Waterloo City Light Plant - Engine #4	748326.00	4246769.00	640.45	37.0	680.1	87.904	2.5	3.32E+01	0.00E+00	0.00E+00	
IL_226013	Milam Recycling and Disposal Facility - 325 HP Tub grinder	750550.00	4282537.00	594.06	7.0	627.0	74.030	0.3	2.20E+00	8.00E-01	8.00E-01	
IL_226014	Milam Recycling and Disposal Facility - Enclosed flare	750476.00	4282825.00	419.62	55.0	1400.1	0.656	12.0	2.40E+01	6.08E+00	6.08E+00	
IL_226015	Milam Recycling and Disposal Facility - 760 HP Tub grinder	750550.00	4282537.00	594.06	8.0	627.0	70.881	0.7	5.10E+00	1.90E+00	1.90E+00	
IL_226184	GBC Metals, LLC (d/b/a Olin Brass) - 1F Mix muller (MM-3) - Low profile turbine (LF-1) and Induction form s	750075.00	4306259.00	432.32	41.0	209.9	36.080	2.1	2.00E+00	0.00E+00	0.00E+00	
IL_226204	GBC Metals, LLC (d/b/a Olin Brass) - Strip anneal #4 (SA-4)	750150.00	4308388.00	431.10	90.0	350.0	41.426	1.6	9.33E+01	0.00E+00	0.00E+00	

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

Source ID	Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	Potential Emissions (lb/hr)		
									CO	SOx	SO2 (1-hour)
IL_226256	GBC Metals, LLC (d/b/a Olin Brass) - Strip Anneal #3 (SA-3)	750439.00	4308328.00	433.83	100.0	350.0	62.746	1.3	9.83E+01	0.00E+00	0.00E+00
IL_226257	GBC Metals, LLC (d/b/a Olin Brass) - #7 Strip Anneal (SA-7)	750222.00	4308335.00	433.20	89.0	850.0	38.671	1.5	1.18E+02	0.00E+00	0.00E+00
IL_226352	Olin Winchester, LLC - Hammermill 1 2 and 3 (HM-1 HM-2 and HM-3)	750495.00	4308287.00	434.42	21.0	160.1	19.647	1.8	8.03E+00	0.00E+00	0.00E+00
IL_226612	Solutia Inc. - Santoflex process: Thermal oxidizer 2770934	746325.00	4275822.00	405.12	112.0	865.0	16.794	12.6	1.50E+01	0.00E+00	0.00E+00
IL_226783	Schildknecht Funeral Home, Inc. - Crematory	769033.00	4275796.00	549.57	17.0	1241.0	13.612	1.7	1.20E+00	0.00E+00	0.00E+00
IL_227030	ConocoPhillips Co. - #4 Crude unit heater H-24 (STK9-5)	753051.00	4302413.00	428.81	179.9	550.0	26.207	8.5	2.27E+01	0.00E+00	0.00E+00
IL_227032	ConocoPhillips Co. - Hydrogen plant #1 flare (FLR12-2)	755194.00	4302793.00	443.67	130.0	1800.1	7.970	1.7	1.62E+01	0.00E+00	0.00E+00
IL_227034	ConocoPhillips Co. - Sulfur operation	754240.00	4303144.00	443.47	158.0	590.1	37.753	3.4	0.00E+00	3.00E+01	3.00E+01
IL_227035	ConocoPhillips Co. - Process heater HP-1 (STK12-6)	755194.00	4302793.00	443.67	127.0	360.1	27.093	7.5	6.97E+00	0.00E+00	0.00E+00
IL_227038	ConocoPhillips Co. - SZU Charge heater H-3	755219.00	4302667.00	442.29	150.0	567.1	25.518	5.0	5.75E+00	0.00E+00	0.00E+00
IL_227333	Waterloo City Light Plant - Engine SG5	750635.00	4249410.00	628.97	8.0	924.0	61.172	0.7	1.40E+00	0.00E+00	0.00E+00
IL_227400	Collinsville Wastewater Treatment Plant - Emergency diesel generator (2922 HP/2180 kW)	758289.00	4283982.00	419.36	36.0	692.0	67.371	2.0	1.72E+01	1.20E+00	0.00E+00
IL_227432	Total Metal Recycling, Inc. - Safety certification unit	748030.00	4289120.00	422.74	6.0	587.0	8.069	1.2	0.00E+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 35-0090	746478.00	4276293.00	407.28	45.0	1600.1	0.656	8.0	2.20E+00	0.00E+00	0.00E+00
IL_230350	Village of Freeburg - Engine #10	769352.00	4257578.00	509.42	28.0	929.9	87.674	1.5	1.28E+01	3.20E+00	3.20E+00
IL_230355	Asphalt Sales & Products Inc. - Truck loadout	757560.00	4299901.00	441.63	28.0	135.1	43.198	1.9	7.90E-01	0.00E+00	0.00E+00
IL_231259	Village of Freeburg - Engine #11	769352.00	4257578.00	509.42	28.0	929.9	87.674	1.5	1.28E+01	3.20E+00	3.20E+00
IL_231260	Village of Freeburg - Engine #12	769352.00	4257578.00	509.42	28.0	929.9	87.674	1.5	1.28E+01	3.20E+00	3.20E+00
IL_231291	Kurrus Funeral Home - 2 Crematories	759066.00	4271234.00	547.11	18.0	787.0	13.186	1.1	2.70E+00	0.00E+00	0.00E+00
IL_232739	ConocoPhillips Co. - Benzene extraction unit #3 (STK6-4)	754923.00	4302930.00	442.59	185.0	470.0	16.138	9.7	1.22E+01	0.00E+00	0.00E+00
IL_232785	Roxana Landfill, Inc. - Enclosed flare	759153.00	4301368.00	619.62	35.0	1600.1	20.008	12.0	2.31E+01	1.76E+00	1.76E+00
IL_233294	Gateway Terminals, LLC. - Marine vapor combustion unit (MVCU)	744607.00	4275093.00	422.70	74.0	514.0	25.158	3.3	1.69E+01	0.00E+00	0.00E+00
IL_233295	Gateway Terminals, LLC. - Truck/Rail vapor destruction unit (TRCU)	744607.00	4275093.00	422.70	74.0	514.0	25.158	3.3	8.39E+00	0.00E+00	0.00E+00
IL_235261	Gulfstream Aerospace Services Corp. - Make-up air unit 19-3	747629.00	4273560.00	410.10	42.0	577.0	29.356	2.5	1.63E+00	0.00E+00	0.00E+00
IL_235939	GBC Metals, LLC (d/b/a Olin Brass) - Strip anneal #5 (SA-5)	750151.00	4308373.00	430.91	90.0	450.1	54.087	1.4	1.07E+02	0.00E+00	0.00E+00
IL_235940	GBC Metals, LLC (d/b/a Olin Brass) - Strip anneal #6 (SA-6)	750207.00	4308390.00	431.82	110.0	580.0	62.779	1.3	1.07E+02	0.00E+00	0.00E+00
IL_236260	Bunge-SF Grain, LLC. - Grain Dryer	746158.00	4281045.00	417.55	96.0	105.0	87.904	8.2	5.06E+00	1.71E+01	1.71E+01
IL_236359	City of Belleville - 2 Emergency generators (1500 kW each)	763544.00	4265595.00	474.70	28.0	627.0	73.767	1.2	2.57E+01	1.84E+00	0.00E+00
IL_236927	Kraft Heinz Co. - Boiler C	748105.00	4289580.00	423.56	40.0	380.0	68.946	2.0	1.44E+00	0.00E+00	0.00E+00
IL_236928	Kraft Heinz Co. - Boiler D	748105.00	4289580.00	423.56	40.0	380.0	68.946	2.0	1.44E+00	0.00E+00	0.00E+00
IL_236929	Kraft Heinz Co. - Boiler E	748105.00	4289580.00	423.56	40.0	380.0	68.946	2.0	1.44E+00	0.00E+00	0.00E+00
IL_236930	National Maintenance and Repair - Cleaver Brooks boiler (Stack 2 of 2)	750920.00	4300904.00	402.46	34.0	450.1	23.321	2.0	1.90E+00	5.00E+00	5.00E+00
IL_237099	Union Electric Co. - Turbine CT02B	745573.00	4283613.00	419.69	30.0	850.0	18.860	11.4	7.74E+01	2.73E+01	2.73E+01
IL_237182	Highland Electric Light Plant - Engine IC-6	788126.93	4293320.17	534.65	28.0	612.1	84.854	2.0	1.32E+01	0.00E+00	0.00E+00
IL_237183	Highland Electric Light Plant - Engine IC-8	788126.93	4293320.17	534.65	57.0	734.1	61.762	11.4	2.57E+01	0.00E+00	0.00E+00
IL_237340	Charles E. Mahoney - Asphalt silo filling	749517.00	4309892.00	443.14	25.0	74.0	0.262	0.4	5.30E-01	0.00E+00	0.00E+00
IL_237341	Charles E. Mahoney - Truck loadout	749517.00	4309892.00	443.14	27.0	136.0	42.050	1.9	6.00E-01	0.00E+00	0.00E+00
IL_237362	Charles E. Mahoney - Asphalt heaters and boilers	749517.00	4309892.00	443.14	10.0	350.0	69.995	1.0	1.18E+00	2.80E+00	2.80E+00
IL_237659	Green Plains Madison, LLC - Boiler #1	745256.00	4285477.00	414.14	71.0	284.1	22.960	3.3	1.29E+00	5.00E-01	5.00E-01
IL_237660	Green Plains Madison, LLC - Fire Pump back-up Engine (460 HP)	745191.00	4285409.00	413.85	13.0	627.0	86.231	0.8	4.80E-01	9.40E-01	0.00E+00
IL_237661	Green Plains Madison, LLC - Electrical system backup Engine (1495 HP)	745144.00	4285537.00	415.88	28.0	627.0	73.767	1.2	3.54E+00	1.21E+01	0.00E+00
IL_237679	Green Plains Madison, LLC - Indirect dryer #1	745191.00	4285468.00	415.12	71.0	387.1	12.136	4.6	7.97E+00	4.10E-01	4.10E-01
IL_237866	Amsted Rail Co., Inc. - Curing oven	746913.00	4287625.00	419.23	39.0	258.0	27.978	1.9	2.52E-01	0.00E+00	0.00E+00
IL_237899	Center Ethanol Co. - Emergency generator	745888.00	4275662.00	412.66	28.0	627.0	73.767	1.2	3.30E+00	0.00E+00	0.00E+00
IL_237903	Center Ethanol Co. - Ethanol loadout Rack	745888.00	4275662.00	412.66	19.0	99.1	7.806	0.7	8.86E-01	0.00E+00	0.00E+00

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

Source ID	Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	Potential Emissions (lb/hr)		
									CO	SOx	SO2 (1-hour)
IL_238199	Solutia Inc. - An in-situ soil vapor extraction system	746325.00	4275822.00	405.12	15.0	70.1	73.406	0.2	4.00E-01	0.00E+00	0.00E+00
IL_238839	Waterloo City Light Plant - Turbine Generator (GT2)	748326.00	4246769.00	640.45	39.0	965.9	87.937	4.8	1.78E+01	0.00E+00	0.00E+00
IL_238942	ConocoPhillips Co. - Rental Boiler #3	754240.00	4303144.00	443.47	20.0	550.0	46.412	4.0	1.65E+00	0.00E+00	0.00E+00
IL_239395	Amsted Rail Co., Inc. - Sand dryer	746975.00	4287537.00	422.05	39.0	284.1	23.157	2.0	1.24E+00	0.00E+00	0.00E+00
IL_239396	Amsted Rail Co., Inc. - Thermal sand reclaimers	746975.00	4287537.00	422.05	39.0	284.1	23.157	2.0	3.70E-01	0.00E+00	0.00E+00
IL_239899	Shell Oil Products US - RTO	753758.00	4303650.00	442.59	19.0	200.0	33.948	2.5	0.00E+00	8.47E-01	8.47E-01
IL_240053	Westwood Lands, Inc. - Process heater DFH-1	748864.00	4285684.00	412.99	39.0	284.1	23.157	2.0	8.30E-01	0.00E+00	0.00E+00
IL_240359	Afton Chemical Corp. - Boiler 500-15-0210	746660.00	4276488.00	405.74	45.0	350.0	17.318	7.0	4.89E+00	0.00E+00	0.00E+00
IL_240360	Afton Chemical Corp. - Boiler 500-15-0310	746674.00	4276485.00	407.25	45.0	350.0	17.318	7.0	4.91E+00	0.00E+00	0.00E+00
IL_241300	ConocoPhillips Co. - VOC Flare (West - FLR4-1)	753428.00	4303073.00	428.81	30.0	1800.1	26.174	0.7	1.43E+00	0.00E+00	0.00E+00
IL_241301	ConocoPhillips Co. - VOC Flare (East - FLR4-2)	753441.00	4303073.00	428.77	30.0	1800.1	26.174	0.7	1.43E+00	0.00E+00	0.00E+00
IL_241302	ConocoPhillips Co. - Coker north flare (FLR1-3)	754947.00	4303684.00	444.23	139.0	911.0	26.535	5.4	0.00E+00	3.08E+01	3.08E+01
IL_241303	ConocoPhillips Co. - VF-5 Heater (H350H4 - STK1-1)	754937.00	4303459.00	444.98	150.0	650.0	26.765	12.0	0.00E+00	1.35E+01	1.35E+01
IL_241304	ConocoPhillips Co. - Coker north heater (H351H2 - STK1-2)	754953.00	4303305.00	444.85	150.0	500.1	22.304	10.0	0.00E+00	7.37E+00	7.37E+00
IL_241305	ConocoPhillips Co. - Coker north heater (H351H1 - STK1-3)	754986.00	4303306.00	444.82	150.0	500.1	22.304	10.0	0.00E+00	7.38E+00	7.38E+00
IL_241312	ConocoPhillips Co. - Heater HP-2 (STK7-1)	755263.00	4302920.00	443.86	118.0	400.0	45.002	10.8	0.00E+00	2.87E+01	2.87E+01
IL_241405	Procter & Gamble Distributing - Emergency diesel generator #1	756504.00	4295421.00	425.00	26.0	490.0	60.811	1.4	1.68E+01	0.00E+00	0.00E+00
IL_241449	Procter & Gamble Distributing - Emergency diesel generator #2	756494.00	4295735.00	424.74	26.0	490.0	60.811	1.4	1.68E+01	0.00E+00	0.00E+00
IL_242126	Center Point Terminals Co. - Tank Heater	746359.00	4289027.00	411.84	49.0	331.1	32.144	2.5	1.03E+00	0.00E+00	0.00E+00
IL_245579	Procter & Gamble Distributing - Emergency diesel generator #3	756198.00	4295409.00	424.97	26.0	490.0	60.811	1.4	1.68E+01	0.00E+00	0.00E+00
IL_245580	Procter & Gamble Distributing - Emergency diesel generator #4	756182.00	4295721.00	424.77	26.0	490.0	60.811	1.4	1.68E+01	0.00E+00	0.00E+00
IL_245839	Milam Recycling and Disposal Facility - Landfill gas conversion plant	750666.00	4282895.00	413.09	55.0	70.1	0.000	4.5	3.80E+00	9.00E-01	9.00E-01
IL_246759	Stookey Township WWTP - 2000 kW Emergency generator	756253.00	4269975.00	518.86	28.0	627.0	73.767	1.2	1.54E+01	0.00E+00	0.00E+00
IL_246761	Omega Partners Hartford, LLC - Truck Rail Marine racks loadout and VCU	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		Temp (F)	Exit Velocity (ft/sec)	Stack		Potential Emissions (lb/hr)		
				Elevation (ft)	Stack Height (ft)			Diameter (ft)		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	P&T Acquisition, LLC - ASR Dryer	748704.00	4280830.00	418.77	32.0	305.0	19.483	1.5		2.53E+00	0.00E+00	0.00E+00
IL_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	0.00E+00
SJEFF99	CARONDELET CORPORATION PEVELY	727491.85	4241725.78	485.56	2.5	170.0	46.499	2.0		5.60E-01	4.25E-02	4.25E-02
SJEFF100	CARONDELET CORPORATION PEVELY	727491.85	4241725.78	485.56	2.5	170.0	46.499	2.0		1.60E-01	1.14E-03	1.14E-03
SJEFF125	FRED WEBER, INC. ANTONIA	720102.79	4248877.71	670.57	20.0	250.0	49.249	5.0		5.88E-02	5.88E-02	
SJEFF128	ANIMAL CARE SERVICE INC FESTUS	724479.42	4236856.27	436.22	28.0	1413.0	18.734	2.0		2.33E-01	2.33E-01	

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

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

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

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

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

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

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

Source ID	Source Description	Easting (m)	Northing (m)	Base		Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	Potential Emissions (lb/hr)		
				Elevation (ft)						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	3.69E-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	6.69E-02
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	8.60E-05
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	2.85E-01
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	3.30E-05
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	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	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	1.59E-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	7.25E-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	9.51E+00
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	2.75E-01
SSTL214	THE HARPER COMPANY	731184.93	4292013.86	588.35	10.0	1100.0	23.333	0.5		2.75E-01	0.00E+00	2.38E-02
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	5.80E-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	1.67E+01
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	1.78E-02
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	2.53E+01
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	2.15E-02
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	1.75E+01
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	1.69E+00
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	9.51E-03
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	1.52E-02
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	1.81E-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	2.29E-03
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	0.00E+00
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	1.07E-03
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	9.22E-04
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	1.41E-03
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	1.41E-03
SCITY17	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	16.0	77.0	24.600	0.2		1.41E-03	1.41E-03	0.00E+00
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	5.72E-03
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	1.83E-02
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	6.44E-01
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	8.12E-03
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	1.73E-02
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	4.35E-02
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	1.98E-01
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	1.07E-01
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	1.09E-04
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	1.12E-02
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	1.98E-01
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	6.04E-02
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	6.04E-02
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	2.58E-01
SCITY48	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	111.0	300.0	72.900	4.0		2.58E-01	2.58E-01	2.42E-02
SCITY49	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	111.0	300.0	72.900	4.0		2.42E-02	2.42E-02	1.20E+00
SCITY50	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	111.0	300.0	72.900	4.0		1.20E+00	1.20E+00	1.51E-01
SCITY51	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	111.0	300.0	72.900	4.0		1.51E-01	1.51E-01	1.17E+00
SCITY52	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	115.0	280.0	41.099	5.0		1.17E+00	1.17E+00	6.91E-03
SCITY53	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	115.0	280.0	41.099	5.0		6.91E-03	6.91E-03	1.17E+00
SCITY54	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	115.0	280.0	41.099	5.0		1.17E+00	1.17E+00	7.87E-03
SCITY55	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	115.0	280.0	41.099	5.0		7.87E-03	7.87E-03	3.10E-02
SCITY56	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	30.0	975.0	237.684	0.8		3.10E-02	0.00E+00	2.59E+01
SCITY57	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	161.0	250.0	34.101	4.0		2.59E+01	2.59E+01	5.09E+00
SCITY58	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	161.0	250.0	34.101	4.0		5.09E+00	5.09E+00	3.48E-02
SCITY59	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	161.0	250.0	34.101	4.0		3.48E-02	3.48E-02	

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

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

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

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

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

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

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		

Off-Site Volume Source Inputs

Source ID	Source Description	Easting (m)	Northing (m)	Base					Potential Emissions (lb/hr)		
				Elevation (ft)	Release Height (ft)	Sigma Y (ft)	Sigma Z (ft)		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

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



ATTACHMENT B
MODEL SUMMARY OUTPUT

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

Model	File	Pollutant	Average	Group	Rank	Conc/Dep. East (Y)	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	748434.9	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

		Model		Total	
Pollutant	Average	Conc. (ug/m3)	Background Conc. (ug/m3)	Conc. (ug/m3)	% Standard
CO	1-HR	1087.0	NA	1087.0	54%
CO	8-HR	669.1	NA	669.1	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

		Model		Total	
Pollutant	Average	Conc. (ug/m3)	Background Conc. (ug/m3)	Conc. (ug/m3)	% Standard
CO	1-HR	3413.0	2286	5700.0	14%
CO	8-HR	1941.2	1349	3290.2	33%

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.

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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:

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- 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 downcomer 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.

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- 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.

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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 ft³ 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;

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- 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;

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- 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;

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- 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

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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 mmft³ BFG generated per net ton of hot metal produced.
- d. Natural gas usage shall be determined by metered volumes.
- e. Fuel oil usage shall be determined by tank height differentials.

RECORD KEEPING

- 35. The Permittee shall keep records of the following items and such other items which may be appropriate to allow the Agency to review compliance:
 - 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 ft³ 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

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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 (mmft³) per ton of hot metal produced shall be determined. The Agency may waive this requirement for testing providing the Permittee submit a sufficient explanation of how BFG generation is determined with justification that such determination is appropriate for purposes of compliance determinations with this permit.
- b. These tests shall be performed by an approved independent testing service during conditions which are representative of maximum emissions and at the maximum production rates allowed, or as close

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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 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

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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

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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:
- Iron and steel production (tons/month and tons/yr, each);
 - Natural gas and BFG usage (mmft3/month and mmft3/yr, each);
 - 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:
- 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;
 - 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

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not significant under 35 Ill. Adm. Code Part 203 or 40 CFR 52.21 - Prevention of Significant Deterioration.

- iii. The increase in emissions of PM and PM-10 are being accompanied by contemporaneous emission decreases provided by additional road dust control and BOF capture and control such that the net emissions change is not significant under 35 Ill. Adm. Code Part 203 or 40 CFR 52.21 - Prevention of Significant Deterioration.

Also, the Permittee has agreed to provide further additional dust control consisting of the sweeping of Granite City public streets and housekeeping measures in the area below and surrounding the BOF ESP. Attachment C is a listing of the emission reductions provided by these control measures.

- b. The increases in emissions of SO₂ and CO are significant under 40 CFR 52.21 - Prevention of Significant Deterioration (PSD). Accordingly, the project is considered a major modification and must comply with the requirements of PSD. These requirements include a demonstration of best available control requirements for affected SO₂ and CO emission units, an analysis of air quality impacts, an analysis of the impacts of the project on visibility, vegetation's and soils, and the application and proposed permit must undergo a public participation. The Agency has determined that these additional requirements have been met.
- c. The changes in emissions pertinent to this project are summarized as follows:

Units = tons/year

- Emission increases which could occur from the project:

<u>PM-10</u>	<u>PM</u>	<u>NO_x</u>	<u>SO₂</u>	<u>CO</u>	<u>VOM</u>	<u>Lead</u>
51.6	- 52.0	238.8	476.0	5,685	59.3	0.54

- Creditable contemporaneous actual emission decreases:

<u>PM-10</u>	<u>PM</u>	<u>NO_x</u>	<u>SO₂</u>	<u>CO</u>	<u>VOM</u>	<u>Lead</u>
58.0	58.0	226.5	0.38	23.31	32.8	0.0

- Other contemporaneous emission increases:

<u>PM-10</u>	<u>PM</u>	<u>NO_x</u>	<u>SO₂</u>	<u>CO</u>	<u>VOM</u>	<u>Lead</u>
20.7	20.3	26.0	0.25	11.8	1.6	0.0

- Net emission changes:

<u>PM-10</u>	<u>PM</u>	<u>NO_x</u>	<u>SO₂</u>	<u>CO</u>	<u>VOM</u>	<u>Lead</u>
+14.3	-89.2	+38.3	+475.9	+5,673	+28.1	+0.54

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• Significant Levels:

<u>PM-10</u>	<u>PM</u>	<u>NO_x</u>	<u>SO₂</u>	<u>CO</u>	<u>VOM</u>	<u>Lead</u>
15	25	40	40	100	40	0.6

Explanatory Note:

PM = particulate matter = particulate;
 PM-10 = particulate matter less than or equal to 10 micrometers
 in size;
 SO₂ = sulfur dioxide;
 NO_x = nitrogen oxides;
 VOM = volatile organic material;
 CO = carbon monoxide;
 mm = million;
 gr/dscf = grains per dry standard cubic foot;
 acfm = actual cubic feet per minute;
 mmcf = million cubic feet;
 Mgal = thousands of gallons.

If you have any questions on this permit, please call Jim Ross at
 217/782-2113.

Donald E. Sutton, P.E.
 Manager, Permit Section
 Division of Air Pollution Control

DES:JRR:jar

cc: IEPA, FOS Region 3

COPY
 Original Signed by
 Donald E. Sutton, P.E.

Permit Application #95010001

TABLE 1

BLAST FURNACE OPERATIONS

Maximum Hot Metal Production = 3,165,000 net tons per year

1. Casthouse Baghouse (furnace tapping)- captured emissions ducted to baghouse, uncaptured emissions emitted through roof, other openings, etc.

<u>Pollutant</u>	<u>Emission Factor (Lbs/Ton)</u>	<u>Maximum Emissions (Tons/Yr)</u>
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

<u>Pollutant</u>	<u>Emission Factor (Lbs/Ton)</u>	<u>Maximum Emissions (Tons/Yr)</u>
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

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

4. Slag Pits

<u>Pollutant</u>	<u>Emission Factor (Lbs/Ton)</u>	<u>Maximum Emissions (Tons/Yr)</u>
PM	0.00417	6.60
PM-10	0.00417	6.60
SO ₂	0.0100	15.83

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TABLE 1 (cont.)

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

<u>Pollutant</u>	<u>Emission Factor (Lbs/Ton)</u>	<u>Maximum Emissions (Tons/Yr)</u>
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

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

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TABLE 2

BOF SHOP

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

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

<u>Pollutant</u>	<u>Emission Factor (Lbs/Ton)</u>	<u>Maximum Emissions (Tons/Yr)</u>
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

<u>Pollutant</u>	<u>Emission Factor (Lbs/Ton)</u>	<u>Maximum Emissions (Tons/Yr)</u>
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

<u>Pollutant</u>	<u>Emission Factor (Lbs/Ton)</u>	<u>Maximum Emissions (Tons/Yr)</u>
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

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

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TABLE 2 (cont.)

5. Flux conveyor & transfer pits, bin floor

<u>Pollutant</u>	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

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

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TABLE 3

CONTINUOUS CASTING OPERATIONS

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

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

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

2. Deslagging Station and Material HS.

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

3. Caster Molds - Casting

<u>Pollutant</u>	<u>Emission Factor (Lbs/Ton)</u>	<u>Maximum Emissions (Tons/Yr)</u>
PM	0.006	10.74
PM-10	0.006	10.74
NO _x	0.050	89.50

4. Casters Spray Chambers

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

5. Slab Cut-off

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

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TABLE 3 (cont.)

6. Slab Ripping

<u>Pollutant</u>	<u>Emission Factor (Lbs/Ton)</u>	<u>Maximum Emissions (Tons/Yr)</u>
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

<u>Pollutant</u>	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

<u>Pollutant</u>	Emission Factor (Lbs/mmcf)	Maximum Emissions (Tons/Yr)
PM	2.9	268.29
PM-10	2.9	268.29
SO ₂	6.65	615.22
NO _x	5.28	488.48
CO	13.7	1,267.46

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TABLE 4 (cont.)

3. Fuel Oil

<u>Pollutant</u>	<u>Emission Factor (Lbs/Mgal)</u>	<u>Maximum Emissions (Tons/Yr)</u>
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

	<u>PM</u>	<u>PM-10</u>	<u>SO₂</u>	<u>NO_x</u>	<u>VOM</u>	<u>CO</u>	<u>Lead</u>
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	--	--	--	--	--
	<u>PM</u>	<u>PM-10</u>	<u>SO₂</u>	<u>NO_x</u>	<u>VOM</u>	<u>CO</u>	<u>Lead</u>
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:

<u>PM-10</u>	<u>PM</u>	<u>NO_x</u>	<u>SO₂</u>	<u>CO</u>	<u>VOM</u>	<u>Lead</u>
51.6	-52.0	238.8	476.0	5,685	59.3	0.54

- Creditable contemporaneous actual emission decreases:

<u>PM-10</u>	<u>PM</u>	<u>NO_x</u>	<u>SO₂</u>	<u>CO</u>	<u>VOM</u>	<u>Lead</u>
58.0	58.0	226.5	0.38	23.31	32.8	0.0

- Other contemporaneous emission increases:

<u>PM-10</u>	<u>PM</u>	<u>NO_x</u>	<u>SO₂</u>	<u>CO</u>	<u>VOM</u>	<u>Lead</u>
20.7	20.3	26.0	0.25	11.8	1.6	0.0

- Net emission changes:

<u>PM-10</u>	<u>PM</u>	<u>NO_x</u>	<u>SO₂</u>	<u>CO</u>	<u>VOM</u>	<u>Lead</u>
+14.3	-89.2	+38.3	+475.9	+5,673	+28.1	+0.54

- Significant Levels:

<u>PM-10</u>	<u>PM</u>	<u>NO_x</u>	<u>SO₂</u>	<u>CO</u>	<u>VOM</u>	<u>Lead</u>
15	25	40	40	100	40	0.6

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ATTACHMENT A

PROCEDURES TO ENSURE PROPER OPERATION
OF BOF ESP CONTROL SYSTEM

1. The emissions control operator shall:
 - a. Check on a regular basis and report to the emissions control foreman or melter:
 - i. Any ESP fields down;
 - ii. Any ESP fields in which the meter readings are showing no current or a fault;
 - b. Check on a regular basis that doors on all hopper screws are closed;
 - c. Inspect on a regular basis the fans and motors for unusual sounds and/or visual problems. Any abnormalities will be immediately reported to the melter or maintenance foreman for investigation.
2. The melter shall:
 - a. Check on a regular basis and report to the emissions control foreman or the area electrician any fields which the pulpit precipitator field short indicators shows as having a short and is able to reset;
 - b. Check on a regular basis and report to the emissions control foreman or the maintenance foreman any draft or fan problems;
 - c. Check the ESP stack opacity monitor on a regular basis and initiate the following in the event that the stack opacity level, as determined by the opacity monitor, exceeds 30% opacity on a six minute average:
 - i. Check the pulpit indicators for proper operation of the steam and spray water system. Report any problems to emission control foreman or maintenance foreman;
 - ii. Check the stack gas pulpit set point for proper setting;
 - iii. Call the emissions control operator who shall perform the following steps:
 - A. Check the AVC operation and power level. Report any problems to electrical maintenance foreman or area electrician;
 - B. Check to ensure that doors on all hopper screws are closed;
 - d. Check oxygen blow rates and adjust, if necessary;
 - e. Check hot metal chemistry;

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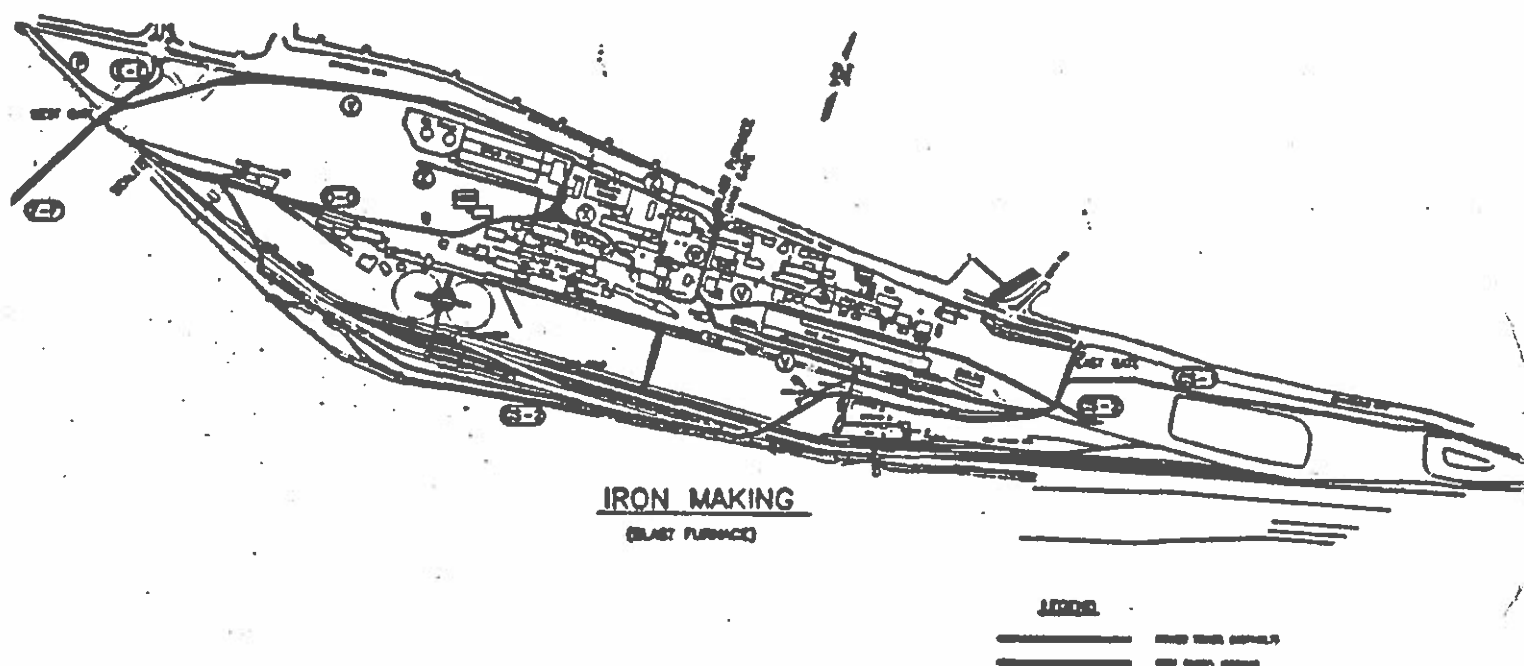
ATTACHMENT A (cont.)

- f. A log shall be maintained of the above checks and any actions taken as a result.
- 3. The emission control foreman shall:
 - a. Check on a regular basis the opacity monitor exceedances and trends. The control specialist shall be contacted to correct any problems;
 - b. Check on a regular basis the draft rate set points;
 - c. Check on a regular basis primary and secondary damper settings;
 - d. Check on a regular basis ESP operation, including the following:
 - i. Fields down;
 - ii. Fields indicating shorts and unable to reset;
 - iii. Hopper screw doors are closed;
 - e. Check on a regular basis blow rates;
 - f. Check on a regular basis spray water system operation;
 - g. Check on a regular basis steam injection rate;
 - h. Contact the area manager regarding electrical maintenance and to schedule the ESP repair work;
 - i. Contact the area manager for mechanical maintenance to schedule the isolation of the ESP channel by closing the inlet and outlet gates of that chamber and opening the top hatches for entry into the chamber;
 - j. Notify the emissions control operator and melter when isolation work begins;
 - k. A log shall be maintained of the above checks and any actions taken as a result.
- 4. The crane operator shall use the following procedures, as appropriate, to minimize emissions and maximize emissions capture by the hoods:
 - a. Use controlled pouring of the hot metal into the BOF vessel;
 - b. Use careful positioning of the hot metal ladle with respect to the hood face and furnace mouth;
 - c. Use the most beneficial furnace tilt angle;
 - d. These procedures shall be posted in the crane operator booth.

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ATTACHMENT B

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



GRANITE CITY STEEL GRANITE CITY, ILLINOIS		PROJECT NO. 0608109
Woodward-Clyde Consultants Engineering & Consulting Services to the Steel & Iron Industries		
DATE OF ISSUE 12/29/84 SCALE: 80' DRAWN BY: [signature]	Road Network Iron Making Area	SHEET NO. 3-3

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ATTACHMENT C

CONTEMPORANEOUS REDUCTIONS IN THE
EMISSIONS OF PM-10

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

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

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

JRR:jar

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 ("NO₂"), carbon monoxide ("CO"), sulfur dioxide ("SO₂"), 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 ORDER610

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 petitioned² the Environmental Appeals Board ("Board") to review an Outer Continental Shelf ("OCS") Permit to Construct and Title V Air Quality Operating Permit ("Permit") that U.S. Environmental Protection Agency ("EPA" or "Agency") Region 10 ("Region") had issued to Shell Offshore, Inc. ("Shell"). *See generally* OCS Permit to Construct and Title V Air Quality Operating Permit, Permit No. R10 OCS030000 (Oct. 21, 2011) (Administrative Record ("A.R.") J-2). The Region issued the Permit pursuant to Clean Air Act ("CAA" or "Act") section 328, 42 U.S.C. § 7627, and applicable regulations governing air emissions from OCS sources at 40 C.F.R. part 55, and pursuant to Title V of the CAA, 42 U.S.C. § 7661, and implementing regulations at 40 C.F.R. part 71, as well as applicable Alaska code and regulatory provisions.³ *See* Permit at 6 (citing all relevant provisions).

The Permit authorizes Shell to construct and operate the *Kulluk* drilling unit and associated air emission drilling units in certain lease blocks within the Beaufort Sea. *Id.* at 1. The Region and Shell each filed a response to the petitions. Thereafter, both REDOIL Petitioners and ICAS filed motions requesting leave to file reply briefs. These motions are currently pending before the Board and are addressed below in Part V. The Board did not hold oral argument in this case. For the reasons discussed below, the Board denies review of the Permit.

¹ REDOIL Petitioners include Resisting Environmental Destruction of Indigenous Lands ("REDOIL"), Alaska Wilderness League, Center for Biological Diversity, Natural Resources Defense Council, Northern Alaska Environmental Center, Oceana, Pacific Environment, Sierra Club, and The Wilderness Society.

² Mr. Lum's petition was designated as OCS Appeal No. 11-05, REDOIL Petitioners' petition was designated as OCS Appeal No. 11-06, and ICAS's petition was designated as OCS Appeal No. 11-07.

³ The Permit was issued under multiple CAA and Alaska air pollution provisions because it is a consolidation of three air permits. According to the Region, it consolidated "an OCS/Title V permit under 40 CFR Parts 55 and 71 for operations beyond 25 miles of Alaska's seaward boundary; an OCS/minor permit for air quality protection under 40 CFR Part 55 and 18 Alaska Administrative Code (AAC) 50.502 and for owner requested limitations under 40 CFR Part 55 and 18 AAC 50.508 for operations within 25 miles of Alaska's seaward boundary; and an OCS/Title V permit under 40 CFR Part 55 and 18 AAC 50.326 for operations within 25 miles of Alaska's seaward boundary." Response to Comments for OCS Permit to Construct and Title V Air Quality Operating Permit Conical Drilling Unit *Kulluk* at 1 (A.R. J-3).

II. ISSUES

The Board has determined that the three petitions filed in this case, collectively, present the following seven issues for review:

- A. Have Petitioners demonstrated that the Region clearly erred in establishing limitations to restrict the *Kulluk* drilling unit's potential to emit?
- B. Have REDOIL Petitioners demonstrated that the Region clearly erred in declining to require PSD increment consumption analyses for the *Kulluk's* proposed emissions as part of the Title V permitting process?
- C. Did REDOIL Petitioners raise below their contention that Shell's ambient air quality analysis was flawed in that it failed to conform to applicable Agency guidance?
- D. Have REDOIL Petitioners demonstrated that the Region clearly erred in its ambient air exemption determination?
- E. Have Petitioners demonstrated that the Region failed to satisfy its obligation to consider environmental justice under Executive Order 12898 and comply with applicable Board precedent?
- F. Has ICAS demonstrated that the Region clearly erred or abused its discretion in providing 46 days to comment on the draft permit and in denying ICAS's request for nonoverlapping comment periods?
- G. Has ICAS demonstrated that the Region clearly erred in its public hearing procedures or that any alleged procedural deficiencies otherwise warrant review?

III. STANDARD OF REVIEW

Under the part 124 procedural regulations, which apply to OCS permits,⁴ the Board will not ordinarily review a permit unless it is based on a clearly erroneous finding of fact or conclusion of law, or involves a matter of policy or exercise of discretion that warrants review. 40 C.F.R. § 124.19(a); Consolidated Per-

⁴ The OCS regulations direct the Agency to follow the applicable part 124 permit regulations in processing OCS permits, 40 C.F.R. § 55.6(a)(3). Accordingly, the part 124 permit appeal provision, 40 C.F.R. § 124.19, applies here. *See In re Shell Gulf of Mex., Inc.*, 15 E.A.D. 470, 476 (EAD 2012) [hereinafter *Shell Discoverer 2012*].

mit Regulations, 45 Fed. Reg. 33,290, 33,412 (May 19, 1980). The Board also applies this standard in reviewing Title V permits issued under part 71.⁵ See 40 C.F.R. § 71.11(l)(1); *In re Peabody W. Coal Co.*, 12 E.A.D. 22, 32-33 (EAB 2005). When analyzing permits, the Board is cognizant of the preamble to section 124.19, in which the Agency states that the Board's power of review "should be only sparingly exercised" and that "most permit conditions should be finally determined at the [permit issuer's] level." Consolidated Permit Regulations, 45 Fed. Reg. at 33,412; *accord In re Cardinal FG Co.*, 12 E.A.D. 153, 160 (EAB 2005); *see also Peabody*, 12 E.A.D. at 33 (applying these same principles in the context of a part 71 permit appeal).

The petitioner bears the burden of demonstrating that review is warranted. See 40 C.F.R. § 124.19; *id.* § 71.11(l)(1). To meet this burden, the petitioner must satisfy threshold pleading requirements including timeliness, standing, and issue preservation. See 40 C.F.R. § 124.19; *id.* § 71.11(l)(1); *In re Russell City Energy Ctr., LLC* ("Russell City I"), 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, AEWL, 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."³ *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-

³ 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 ("SO₂") 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 Eureka 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 sources¹⁰ and requires OCS sources to "attain and maintain Federal and State ambient air quality standards" and to comply with the PSD provisions contained in CAA Title I, part C. EPA promulgated the Outer Continental Shelf Air Regulations, 40 C.F.R. part 55, to implement CAA section 328 and established within part 55 "the air pollution control requirements for OCS sources and the procedures for implementation and enforcement of the requirements." 40 C.F.R. § 55.1.

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

¹⁰ Section 328 defines an OCS source as follows:

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

- (i) emits or has the potential to emit any air pollutant,
- (ii) is regulated or authorized under the Outer Continental Shelf Lands Act [43 U.S.C. § 1331 et seq.], and
- (iii) is located on the Outer Continental Shelf or in or on waters above the Outer Continental Shelf.

Such activities include, but are not limited to, platform and drill ship exploration, construction, development, production, processing, and transportation. For purposes of this subsection, emissions from any vessel servicing or associated with an OCS source, including emissions while at the OCS source or en route to or from the OCS source within 25 miles of the OCS source, shall be considered direct emissions from the OCS source.

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

a preconstruction permit from either EPA or an EPA-delegated agency if the OCS source is located within twenty-five miles of a state's seaward boundary and is subject to either federal or state requirements listed in 40 C.F.R. §§ 55.13 or 55.14."¹¹ *Shell 2007*, 13 E.A.D. at 365 (citing 40 C.F.R. §§ 55.6(b)(1), 55.11 and CAA § 328(a)(3), 42 U.S.C. § 7627(a)(3)). The Agency has retained the authority to implement and enforce section 328 in the OCS off the coast of Alaska as opposed to delegating that authority to the state. Accordingly, as mentioned above, Shell submitted its permit applications to the Region, and the procedural rules contained at 40 C.F.R. part 124 apply. 40 C.F.R. § 55.6(a)(3).

Because requirements for these OCS sources are based on onshore requirements, which may change, section 328(a)(1) and the corresponding regulations in part 55 require EPA to update the OCS requirements as necessary to maintain consistency with onshore requirements. See CAA § 328(a)(1), 42 U.S.C. § 7627(a)(1); 40 C.F.R. §§ 55.6(b)(2), 55.12; see also *Shell 2007*, 13 E.A.D. at 364 & n.6. In response to Shell's December 10, 2010, notice of intent submitted to the Agency pursuant to 40 C.F.R. § 55.4, the Agency first proposed in the Federal Register a consistency update on February 10, 2011, and later published the final consistency update on June 27, 2011, subsequent to a public notice and comment period. See Outer Continental Shelf Air Regulations Consistency Update for Alaska, 76 Fed. Reg. 37,274 (June 27, 2011) (codified at 40 C.F.R. § 55.14(e) & appx. A); Statement of Basis at 17. This most recent consistency update incorporated, except where specifically noted, Alaska Administrative Code title 18, articles 1 through 5 and article 9, into part 55. 76 Fed. Reg. at 37,279-80; Statement of Basis at 17. In particular, articles 3 and 5 establish the minor source and major source permitting requirements with which the *Kulluk* must comply. See *Shell 2007*, 13 E.A.D. at 364 & n.6.

In addition, because the permit authorizes the *Kulluk* to operate on a group of lease blocks located both within 25 miles and beyond 25 miles of the state's seaward boundary, the permit conditions that refer to lease blocks wholly or partially located beyond 25 miles of the seaward boundary are designated as "outer

¹¹ Section 55.13 states, among other things, that the PSD program applies to OCS sources located within 25 miles of a state's seaward boundary whenever the OCS source requires construction of a new major stationary source or a modification at an existing major source and the COA is classified under the PSD program as in attainment or unclassifiable. 40 C.F.R. § 55.13(d)(1) ("40 C.F.R. [§] 52.21 shall apply to OCS sources [l]ocated within 25 miles of a state's seaward boundary if the requirements of 40 C.F.R. [§] 52.21 are in effect in the COA."); see also *Shell 2007*, 13 E.A.D. at 364.

Section 55.14 incorporates by reference regulatory requirements that states which border the OCS in the Pacific, Atlantic, and Arctic Oceans and the Gulf of Mexico have promulgated to meet the national ambient air quality standards ("NAAQS"). 40 C.F.R. § 55.14(d); CAA § 328(a)(1), 42 U.S.C. § 7627(a)(1) (defining the geographic scope of EPA authority to regulate air pollution from OCS sources). These state regulations are known as state implementation plans ("SIPs") and are created pursuant to CAA § 110, 42 U.S.C. § 7410.

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 sources¹³ to limit their impact on ambient air quality by obtaining a PSD permit before construction begins. CAA §§ 160-169, 42 U.S.C. §§ 7470-7479; 40 C.F.R. § 52.21(a)(2).

A source's PTE relates to its inherent ability to emit air pollutants. *Shell 2007*, 13 E.A.D. at 365; *Peabody*, 12 E.A.D. at 30. Under the PSD program, a permitting authority must determine a source's PTE to identify which sources are "major sources" subject to regulation under the applicable PSD requirements, making PTE a technical determination that "is jurisdictional in nature." *Ala. Power Co. v. Costle*, 636 F.3d 323, 352 (D.C. Cir. 1979), *quoted in Peabody*, 12 E.A.D. at 30; *see also* CAA § 165(a), 42 U.S.C. § 7475(a) (requiring a PSD permit for any "major emitting facility"); *Shell Discoverer 2012*, 15 E.A.D. at 515 n.58. The regulations that implement the PSD program define PTE as:

¹² The NAAQS are maximum ambient air concentrations for specific pollutants that EPA has determined are necessary to protect public health and welfare. *See* CAA §§ 108(a)(1)(A), 109, 42 U.S.C. §§ 7408(a)(1)(A), 7409; 40 C.F.R. § 50.4-.12.

¹³ EPA regulations define a major stationary source as any of certain specifically listed stationary sources that emit or have a potential to emit 100 tons per year ("tpy") or more of any regulated NSR pollutant, *see* 40 C.F.R. § 52.21(b)(50), or any other stationary source that emits, or has the potential to emit, 250 tpy or more of a regulated NSR pollutant. 40 C.F.R. § 52.21(b)(1)(i)(a)-(b); *accord* CAA § 169(1), 42 U.S.C. § 7479(1) (defining a "major emitting facility" in the same way).

Alaska regulations, which incorporate large parts of the federal PSD regulations into title 18 of the Alaska Administrative Code, provide that a new PSD permit is required prior to actual construction of a new major stationary source. Alaska Admin. Code tit. 18, § 50.040 (adopting federal standards by reference); *id.* §§ 50.302(a)(1), 50.306. The Alaska regulations also define a major stationary source as any of certain specifically listed stationary sources that emit or have a potential to emit 100 tpy or more of any regulated NSR pollutant, or any other stationary source that emits, or has the potential to emit, 250 tpy or more of a regulated NSR pollutant. *Id.* § 50.990(52) (incorporating by reference definition of major stationary source from 40 C.F.R. § 51.166(b)(1)); *accord* Alaska Stat. § 46.14.990 (same).

[T]he maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable.

40 C.F.R. § 52.21(b)(4).¹⁴ In sum, PTE reflects a source's maximum emissions capacity considering the application of any emission control equipment, or other capacity-limiting restrictions, that effectively and enforceably limit emissions capacity. *Shell 2007*, 13 E.A.D. at 366; *Peabody*, 12 E.A.D. at 31 (citing Part 71 Rulemaking, 61 Fed.Reg. 34,202, 34,212 (July 1, 1996)).

Alaska regulations require that, under certain circumstances, a stationary source with a PTE of less than 250 tons per year ("tpy") obtain a minor source permit. Alaska Admin. Code tit. 18, § 50.502. Specifically in terms of the *Kulluk's* operations, Alaska regulations require a minor source permit prior to the construction of a new stationary source with the potential to emit more than 40 tpy of NO_x. *Id.* § 50.502(c)(1)(B). Thus, as the Board noted in *Shell 2007*, under the Alaska PSD program, a new stationary source that has a PTE between 40 and 250 tpy of NO_x must obtain a minor source permit before commencing construction, and a stationary source with a PTE greater than 250 tpy of NO_x must obtain a major source permit. 13 E.A.D. at 366.

A source that would otherwise exceed the applicable PSD major source threshold of 250 tpy of any regulated NSR pollutant may, as in this instance, seek to avoid regulation as a major source under the PSD program by requesting that the permitting authority impose enforceable permit restrictions on the source's PTE. *Shell 2007*, 13 E.A.D. at 366, *cited in* RTC at 20; *see also Peabody*, 12 E.A.D. at 26 & n.11, 31. A Title V permit may function as a vehicle for a permitting authority to establish enforceable permit limits that restrict the source's potential to emit air pollutants to a level below the PSD major source threshold, in this instance 250 tpy, allowing the source to qualify instead as a "synthetic minor" source.¹⁵ *Peabody*, 12 E.A.D. at 31 & n.21.

¹⁴ The OCS regulations define the term "potential emissions" almost identically to the PTE definition in part 52, with the exception of first sentence, which instead states that "[p]otential emissions means the maximum emissions of a pollutant from an OCS source." 40 C.F.R. § 55.2.

¹⁵ EPA guidance defines the term "synthetic minor" as "air pollution sources whose maximum capacity to emit air pollution under their physical and operational design is large enough to exceed the

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

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

12 E.A.D. at 32 (quoting Memorandum from John Seitz, Dir., Office of Air Quality Planning & Standards, U.S. EPA, to EPA Reg'l Air Div. Dir., *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, SO₂, and GHGs. Statement of Basis at 24-25 & tbl. 2-1.¹⁷ To avoid exceeding the PSD major

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major source threshold but [is] limited by an enforceable emissions restriction that prevents this physical potential from being realized." Memorandum from John Seitz, Dir., Office of Air Quality Planning & Standards, U.S. EPA, & Eric Schaeffer, Dir., Office of Regulatory Enforcement, U.S. EPA, *Potential to Emit Transition Policy for Part 71 Implementation in Indian Country* 2 n.2 (Mar. 7, 1999), quoted in *Shell Discoverer 2012*, 15 E.A.D. at 515-16 n.59, and *Peabody*, 12 E.A.D. at 31 n.21.

Alaska regulations refer to such a limitation as an owner requested limit ("ORL"), which can be used to "avoid one or more permit classifications * * * at a stationary source that will still be subject to at least one permit classification; a limitation approved under an ORL is an enforceable limitation for the purpose of determining * * * a stationary source's potential to emit." Alaska Admin. Code tit. 18, § 50.508(5).

¹⁶ The permit states that the *Kulluk* will be an OCS source at any time it is attached to the seabed at a drill site by at least one anchor. Permit at 8; Statement of Basis at 17, 19-20 (A.R. H-4)

¹⁷ The primary emission sources on the *Kulluk* and the Associated Fleet are internal combustion engines that consume diesel fuel. Statement of Basis at 9, 12-14. Incinerators, heaters, boilers, and seldom used sources on the *Kulluk* and the Associated Fleet also emit pollution but to a far lesser extent. *Id.*

source thresholds, Shell requested that the Region include in the permit practically enforceable restrictions that will reduce the *Kulluk's* PTE below PSD threshold levels for each of the four pollutants. See Letter from Susan Childs, Alaska Venture Support Integrator Manager, Shell Offshore Inc., to Doug Hardesty, EPA Region 10, attach. 2 (Apr. 29, 2011) (describing Shell's proposed restrictions and how they would affect emissions) (A.R. E-17). The final permit authorizing the *Kulluk* to operate within the Beaufort Sea contains source-wide emission limits, operational restrictions, and monitoring, recordkeeping and reporting requirements intended to ensure that the *Kulluk* can operate as a synthetic minor source. Permit Conditions D.1-D.4.

With this framework in mind, the Board now turns its attention to Petitioners' arguments presented in these appeals.

2. The Region Did Not Clearly Err in Establishing Source-Wide Emission Limits to Restrict PTE for NO_x and CO

The Permit restricts emissions from the *Kulluk* and the Associated Fleet to no more than 240 tpy of NO_x and no more than 200 tpy of CO.¹⁸ Permit Conditions D.4.1, D.4.2. For both pollutants, the PTE limits are determined on a rolling 365-day basis by calculating emissions for each day and adding the emissions calculated for the previous 364 days. *Id.* For both NO_x and CO, daily emissions from each emission unit or group of emission units "shall be determined by multiplying the appropriate emission factor (lb/unit) specified in Tables D.2.1 – D.2.2 (until a test-derived emission factor has been determined according to Permit Condition E.2) by the recorded daily operation rate (units/day) and dividing by 2000 lb/ton." *Id.* The Region further explained that "[c]ompliance with the emissions limits for NO_x and CO is determined by applying the relevant emission factor to the amount of fuel combusted by each emission unit (or hours of operation for incinerators)." RTC at 29. The Permit also includes conditions that require source-wide recordkeeping and monitoring to ensure that Shell complies with the source-wide limits. Permit at 56-61 (including operations and fuel monitoring in Permit Condition F.2 as well as selective catalytic reduction ("SCR") and oxida-

¹⁸ ICAS asserts that the Region should include a 5-10% buffer zone between the PSD threshold emissions level of 250 tpy and the *Kulluk's* restricted PTE, and that the NO_x emission limit of 240 tpy does not provide this. ICAS Petition at 15 (citing a comment letter from Region 9 to the Nevada Division of Environmental Protection in which Region 9 "encourage[d] a 5-10% buffer between the permitted emission limits and the federal threshold" for a permit that established a CO synthetic minor limit of 249 tpy). However, the 240 tpy emission limit for NO_x contained in the current Permit represents a 4% buffer between the synthetic minor limit and the PSD threshold emission level of 250 tpy, which is ten times larger than the 0.4% buffer between a 249 tpy emission limit and the PSD threshold of 250 tpy contained in the Nevada permit. The Board agrees with the Region that Congress established specific thresholds to determine when a source would be considered major for purposes of PSD review. See RTC at 30. The buffer that ICAS requests is neither a legal requirement nor an established Agency policy, and thus the Region appropriately declined ICAS's request.

tion catalyst ("OxyCat") control device monitoring in Permit Conditions F.3 – F.4).

REDOIL Petitioners and ICAS make several challenges to the Region's decision to restrict the *Kulluk's* PTE for NO_x and CO using source-wide emission limits. Both petitioners assert that the Region's decision to limit CO and NO_x emissions using source-wide limits in effect applies blanket emission limits, which Agency guidance expressly prohibits because they are practically unenforceable, and that the limited exception in the Agency guidance that allows for source-wide limits is inapplicable to the *Kulluk's* operations. REDOIL Petition at 10-11; ICAS Petition at 11. Both petitioners also object to the Region's use of generic emission factors¹⁹ to calculate source-wide emission limits. In particular, both petitioners assert that (1) the Region should have developed source-specific emission factors for all units of the OCS source; (2) the AP-42 emission factors applied to the emergency generator, the OSRVs, and heaters and boilers lead to inaccurate and underestimated emissions for those sources; and (3) the Region did not require Shell to conduct enough stack tests to accurately calculate source-specific emission factors. ICAS Petition at 15-20; REDOIL Petition at 11-14.

The Region responds that Agency guidance documents generally "illustrate that the Clean Air Act and the implementing regulations allow for a flexible, case-by-case evaluation of appropriate methods for ensuring practical enforceability of PTE limits." Region Response at 14-15 (quoting *In re Orange Recycling & Ethanol Prod. Facility*, Pet. No. II-2001-05, at 5 (Adm'r Apr. 8, 2002) (A.R. B-17)). Specifically, the Region asserts that source-wide emission limits for NO_x and CO are indeed practically enforceable and are most appropriate given the uncertainty of a number of factors that otherwise preclude the Region from establishing PTE restrictions based on operational limits. *Id.* at 18; RTC at 26-27, 29-30. In addition, the Region asserts that the emission factors used to calculate NO_x and CO emissions provide reliable emission calculations. Region Response at 19-23. In particular, the Region asserts that it made an appropriate technical determination to apply AP-42 emission factors or emission factors derived from *Discoverer*²⁰ data rather than source-specific emission factors for certain emission units. *Id.* The Region adds that the permit conditions that apply to source-specific

¹⁹ See *infra* Part VI.A.2.b.

²⁰ The Region issued Shell two OCS PSD permits to conduct exploratory drilling activities in the Chukchi and Beaufort Seas utilizing the drillship *Discoverer* that were twice appealed to the Board, first in 2010, and then again in 2011 subsequent to a Board remand of the permits to the Region. See *Shell Discoverer 2012*, 15 E.A.D. at 474-75 (describing history of *Discoverer* permit proceedings). In preparing the permit applications for the *Discoverer's* operations, Shell conducted source-specific emission tests for various emission units on the *Discoverer* and an associated fleet of support ships, including icebreakers, supply ships, and oil spill response vessels. See *id.*, 15 E.A.D. at 479-80 (describing associated fleet).

emission factors require source tests that are inadequate in frequency and unrepresentative of the variation in Shell's proposed operations to allow the Region to derive accurate emission factors. *Id.*

a. *Blanket Emission Limits and Practical Enforceability*

ICAS and REDOIL Petitioners correctly assert that the use of blanket emission limits alone, essentially statements that actual emissions of a pollutant will not exceed a particular quantity, is generally prohibited to restrict PTE because such limits are not enforceable as a practical matter. See *United States v. La.-Pac. Corp.*, 682 F. Supp. 1122, 1133 (D. Colo. 1987) ("[C]ompliance with blanket restrictions on actual emissions would be virtually impossible to verify or enforce."), quoted in REDOIL Petition at 11; see also Office of Air Quality Planning & Standards, U.S. EPA, *New Source Review Workshop Manual* at C.4 (draft Oct. 1990) [hereinafter *NSR Manual*] ("Blanket emissions limits alone (e.g., tons/[year], lb/[hour]) are virtually impossible to verify or enforce, and are therefore not enforceable as a practical matter."), quoted in ICAS Petition at 13; Memorandum from Terrell Hunt, Assoc. Enforcement Counsel, U.S. EPA, & John Seitz, Dir., Stationary Source Compliance Div., U.S. EPA, *Guidance on Limiting Potential to Emit in New Source Permitting* 7 (June 13, 1989) (A.R. B-4) [hereinafter *1989 Guidance on Limiting PTE*].²¹ However, the Petitioners' characterization of the source-wide emission limits for NO_x and CO contained in the Permit as blanket emission limits must fail. ICAS and REDOIL Petitioners do not acknowledge the Region's explanation in the Response to Comments for why it chose to apply source-wide emission limits in the Permit, nor do they establish that the Region's fundamentally technical determinations contravene Agency guidance.

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

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

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

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

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

²² The 1989 Guidance on Limiting PTE recommends that the time limit over which production or operational limits extend should be "as short term as possible" in order for such limitations to be enforceable as a practical matter, and generally not exceeding one month, but the Guidance also recognizes that in rare circumstances a limit spanning a longer time may be appropriate. *1989 Guidance on Limiting PTE* at 9. The Guidance specifies that a limit spanning a longer time is appropriate if it is rolling and that it should not exceed an annual limit rolled on a monthly basis. *Id.* The Guidance also notes that:

[P]ermits where longer rolling limits are used to restrict production should be issued only to sources with substantial and unpredictable annual variation in production[] * * * Rolling limits could be used as well for sources which shut down or curtail operation during part of a year on a regular seasonal cycle, but the permitting authority should first explore the possibility of imposing a month-by-month limit.

Id. at 9-10. In this instance, although the Guidance was written prior to Congress authorizing EPA to regulate air emissions from sources located on certain areas of the OCS, *see* Region Response at 17, including the Arctic, the circumstances the Guidance anticipates that would make a longer time limit appropriate apply in this instance to the *Kulluk* permit, where the operations are seasonal and thus variation in production would be substantial. *See 1989 Guidance on Limiting PTE* at 9-10.

²³ Although the Board agrees with Petitioners that the Region did not cite this decision until it submitted its response to the petitions for review, and thus accepts their reply briefs with respect to this point, *see supra* Part V, the Board nonetheless disagrees that this publicly available decision of the Administrator is inapposite to the current appeal. The *Pope & Talbot* decision underscores the Agency's ability to exercise its discretion and its technical expertise in order to craft practically enforceable synthetic minor limits.

compared to other stationary sources, the Permit's PTE limits are not practically enforceable. *See* Region Response at 17. Rather, Petitioners hew closely to the language in the 1989 Guidance on Limiting PTE prohibiting blanket emissions, asserting instead that because the Permit does not contain production or operational limits to restrict PTE, the NO_x and CO emission limits constitute blanket emission limits that contravene Agency guidance. ICAS Petition at 11-14; REDOIL Petition at 9-11. The 1989 Guidance on Limiting PTE sets forth the types of limitations that will restrict a source's PTE and states in relevant part:

To appropriately limit potential to emit * * * permits * * * must contain a production or operational limitation in addition to the emission limitation in cases where the emission limitation does not reflect the maximum emissions of the source operating at full design capacity without pollution control equipment. Restrictions on production or operation that will limit potential to emit include limitations on quantities of raw materials consumed, fuel combusted, hours of operation, or conditions which specify that the source must install and maintain controls that reduce emissions to a specified emission rate or to a specified efficiency level.

1989 Guidance on Limiting PTE at 5-6.²⁴ In addition, neither ICAS nor REDOIL Petitioners address the operational limits included in the Permit and discussed in

²⁴ The Guidance also acknowledges that the "particular circumstances of some individual sources make it difficult to state operating parameters for control equipment limits in a manner that is easily enforceable as a practical matter" and lists two exceptions. 1989 Guidance on Limiting PTE at 7. Although the Guidance preceded EPA's authority to regulate air emissions on parts of the OCS, *see* Region Response at 17, and thus could not have anticipated the circumstances of the permit at issue in these appeals, the Region nonetheless asserts that the circumstances surrounding the current permit are sufficiently analogous to the second exception for volatile organic compound ("VOC") surface coating operations, which contemplates no add-on controls but allows for the restriction of PTE by limiting the VOC contents and quantities of coatings used. *Id.* at 17-19 (referring to 1989 Guidance on Limiting PTE at 8).

The VOC exception focuses on circumstances where operating and production parameters could not be readily set due to the wide variety of coatings and products and due to the unpredictable nature of the operations. 1989 Guidance on Limiting PTE at 8. The Region asserted that the rationale informing the VOC surface coating operation exception is sufficiently similar to the present circumstances and analogized that an effective way to restrict NO_x and CO was through source-wide emissions limits supported by test-derived or specified emission factors, similar to the VOC content of coatings, continuous monitoring and recording of operational parameters, and tracking the quantity of VOC coating used. RTC at 30; Region Response at 18. REDOIL Petitioners and ICAS assert that the VOC exception should be construed quite narrowly and that the VOC surface coating operation exception within the 1989 Guidance on Limiting PTE could not apply to the *Kutluk* 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 factors²⁵ or emission factors derived from *Discoverer* source test data for a minority of units. RTC at 32-33; *see also* Region Response at 20-21. In support of its decision to utilize a mix of source-specific testing for emission factors in addition to using AP-42 and *Discoverer* test data emission factors, the Region stated that it “believes the permit strikes an appropriate balance between the need for accurate emission factors to reliably calculate emis-

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

In *Peabody*, the permittee was a large coal-processing plant built prior to the effective date of the PSD program that requested a PTE limit for particulate matter with a diameter of 10 microns or less (“PM₁₀”) in the permittee’s Title V permit so that the facility could remain a synthetic minor source for PM₁₀ 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 PM₁₀ 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 PM₁₀, 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 PM₁₀ 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).

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 Petitioners²⁷ 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 results²⁸ that ICAS alleges, the Region points to the technical litera-

²⁷ REDOIL Petitioners contend that the Region's recognition that Shell's approach involves "inherent uncertainty" regarding what equipment will be aboard the *Kulluk* and the Associated Fleet, which in turn requires "thorough source testing," coupled with the Region's refusal to require source testing for all equipment, is "internally inconsistent and thus arbitrary and unlawful." REDOIL Petition at 12. However, the Region responded that it used its technical expertise to determine that in this instance, a mix of both source-specific testing to derive emission factors, in addition to using AP-42 factors and emission factors derived from *Discoverer* test data where appropriate, was reasonable and not inconsistent. Region Response at 20-21. The Board agrees with the Region that the decision to use source-specific testing to derive emission factors, in conjunction with the emission factors developed from *Discoverer* data and from AP-42, is inherently technical. In order to effectively exercise its expertise, the Region should not, as REDOIL Petitioners suggest, be cabined by a rigid interpretation of how emission factors should be determined. REDOIL Petitioners have failed to meet the particularly high threshold for demonstrating that Board review of the Region's fundamentally technical decision is warranted. *Peabody*, 12 E.A.D. at 33-34.

²⁸ ICAS also asserts that stack tests are "conducted once a year for one or two years depending on the source," at three different loads, and even when the worst-case emissions are used, the stack tests fail to account for Shell's varying emissions. ICAS Petition at 16. The Region explained in re-

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ture Shell referenced in Shell's comments, which addresses "uncertainty in determining front-half PM [particulate matter] emission rates" and does not directly address procedures for deriving NO_x and CO emission factors. *Id.* at 22-23; *see also* Permit Conditions E.1.2, E.1.7, E.1.14 (requiring Shell to submit a testing plan and follow EPA-approved test methods, and establishing Region's authority to require additional stack tests if necessary). As the Region correctly points out, ICAS has not demonstrated that the worst-case stack test results, which embody the Region's fundamentally technical determinations, will be biased low and underreport emissions. Region Response at 22-23; *see, e.g., Teck Cominco*, 11 E.A.D. at 473 (discussing heavy burden assigned to petitioners seeking review of issues that are essentially technical in nature).

3. *ICAS Has Failed to Demonstrate That the Region Clearly Erred in Restricting the Kulluk and the Associated Fleet's Potential to Emit GHGs*

ICAS also challenges the Permit's GHG emission limit, which restricts Shell's annual GHG emissions to 80,000 tpy of carbon dioxide equivalent ("CO₂e").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, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride." 40 C.F.R. § 52.21(b)(49)(i). CO₂e 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 CO₂e. 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 CO₂e 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 CO₂e, *see* Statement of Basis at 24, the Permit restricts the potential to emit GHGs to 80,000 tpy of CO₂e 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 CO₂e, represent only 0.11% of the total GHG emissions allowed under the permit, 80,000 tpy of CO₂e. *Id.* The Region calculated an unrestricted PTE for methane emissions of 1,596 lbs/month.

³¹ The Permit imposes annual limits of 120 days of operation as an OCS source during a drilling season, which spans from July 1 through November 30, and 1,632 hours of total drilling activity in a drilling season, of which only 480 hours may be used to conduct mudline cellar drilling activity, which is expected to generate the most air pollution. *See* Permit Conditions D.3.1-D.3.5. The Permit also limits the total aggregate combustion of fuel over a 12-month rolling period, the type of fuel combusted, and the total aggregate daily waste-combusting capacity of incinerators. *See* Permit Conditions D.4.6-7, 9, *see also* RTC at 34-35. In addition, the Permit includes various monitoring and recordkeeping requirements to document when emissions should be counted toward emission limits, testing requirements for the derivation of source-specific emission factors, tracking and documentation requirements for the fuel and waste combusted, and maintenance requirements to ensure that emission units are properly operated and maintained. *See* Permit Conditions D.1-4, D.8, F.2.1-7; *see also* RTC at 36-37, 43.

³² The Region explained methane emissions from the DMS as follows:

When wells are drilled through porous, hydrocarbon[-]bearing rock, drilling fluids (mud) circulated through the drill bit can carry gaseous hydrocarbons from the well back to [the] Kulluk. These gases are typically released as fugitive emissions when the mud is processed for reuse on the Kulluk or stored and shipped away; however, some of the emissions pass through a vent.

Statement of Basis at 38.

the equivalent of 17 tons per month ("tpm") of CO₂e.³³ *Id.* The Permit accounts in Condition 4.4.2 for methane emissions encompassing the source's full unrestricted PTE of 17 tpm of CO₂e, 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 SO₂, ICAS contends that the Permit contains a blanket emission limit for GHGs that is practically unenforceable and further asserts that the requirement that GHG emissions only be calculated monthly to determine compliance with the established rolling 12-month limit is inadequate to verify compliance "in a given moment." ICAS Petition at 21-22 (citing *NSR Manual* at C.3, C.5, H.5); *see* Permit Conditions D.1.3-4. In addition, ICAS asserts that the Region clearly erred by accepting an owner-requested limit for methane attributable to mud off-gassing from the DMS that is not only unenforceable, but also less than the "maximum expected capacity" or "upper-bound projection" ConocoPhillips submitted in another Arctic OCS permit proceeding. *Id.* at 22-26.

Based on the foregoing information, ICAS's general assertion that the GHG emission limit is practically unenforceable must fail. The Region has demonstrated in both the Permit and the documentation in the record supporting the Permit that it crafted a synthetic minor limit that would not only prevent Shell from being subject to regulation under the PSD program for GHG emissions, but also

³³ In calculating the unrestricted PTE for DMS methane emissions, the Region included several conservative assumptions to ensure a wide margin of safety for total methane emissions over Shell's five-month period of operation. *See* RTC at 34; *Options for Limiting PTE* at 8 (noting that for sources with inherent physical limitations that restrict the potential emissions of an emissions unit, if such limitations can be documented and confirmed, the permitting authority may factor them into estimates of a stationary source's PTE). For example, the Region assumed that the total unrestricted PTE for DMS methane emissions for the entire five months of drilling operations would be emitted during each of the five months. RTC at 35.

In addition, despite much of the methane emissions being fugitive emissions that are not counted towards PSD applicability for exploratory drill rigs, *see* 40 C.F.R. § 52.21(b)(1)(iii), Shell agreed to consider all of the methane emissions from the DMS as point source emissions that would count towards Shell's potential to emit GHGs. *See* RTC at 35; *see also* Statement of Basis at 38-39. In its petition, ICAS disputes the Region's claim that counting such fugitive emissions towards PTE represents a conservative approach that lends a "measure of safety" and asserts that the part 71 regulations governing Title V permits require such fugitive emissions to be included. ICAS Petition at 24 (citing 40 C.F.R. § 71.3(d), which states that fugitive emissions from a part 71 source "shall be included in the permit application and the part 71 permit in the same manner as stack emissions"). However, as the Region correctly points out in its response, the definitions of major source in both 40 C.F.R. § 52.21(b)(1)(iii) and 40 C.F.R. § 71.2 make clear that fugitive emissions are not considered when determining whether a source is a major source. Region's Response at 26 n.21 (citing the Tailoring Rule and noting that it retained this approach of determining whether a source becomes subject to regulation for GHGs).

would be practically enforceable as a result of the numerous operational restrictions in combination with monitoring, recordkeeping, and reporting requirements contained in the Permit. While ICAS acknowledges the operational limits contained in the Permit, ICAS simultaneously disputes their efficacy without explaining why such operational limits will not have their intended effect of restricting Shell's potential to emit GHGs.³⁴ See ICAS Petition at 21-22. Without stating more than mere disagreement, ICAS cannot meet the especially high threshold of demonstrating that the Region's inherently technical decisions regarding the GHG emission limit warrant Board review. See, e.g., *NE Hub Partners*, 7 E.A.D. at 567; *Shell Discoverer 2012*, 15 E.A.D. at 501.

ICAS's more specific contention that the Region clearly erred by accepting an owner requested restriction for methane from mud off-gassing that is practically unenforceable is unavailing. See ICAS Petition at 22-26. ICAS raised this same argument in previous appeals of two OCS PSD permits the Region issued to Shell for operations in the Chukchi Sea of the Arctic OCS. See *Shell Discoverer 2012*, 15 E.A.D. at 514-19; see also *supra* note 20. In brief, the monthly calculation of methane to be released in mud off-gassing in both *Shell Discoverer 2012* and the current appeal are not only the same amount, 17 tpm, they also both reflect the unrestricted PTE for methane emissions from DMS operations. See RTC at 34-35; *Shell Discoverer 2012*, 15 E.A.D. at 517-18. The Board rejects ICAS's assertion in this instance, relying on the same reasons it gave in *Shell Discoverer 2012*:

[T]he Permit[] in this case do[es] not include owner requested limits on PTE for methane emissions. Rather,
* * * methane emissions were assumed to occur at the
source['s] full PTE for the five-month drilling season

³⁴ Similarly, ICAS's contention that the Region clearly erred by not requiring more frequent calculations of GHG emissions than the monthly calculations the Permit requires, see Conditions D.1.3-4, falls short. The Region explained that its decision to calculate emissions on a monthly basis stemmed from "good confidence in the overall [GHG emission] compliance technique and therefore 'yearly' emissions are required to be summed only monthly." Statement of Basis at 38. Although GHG emission calculations will be calculated once a month based on the Region's stated confidence in its compliance method, the data required to make such calculations is collected continuously through fuel usage monitoring. RTC at 43-44 ("Shell is generally required to continuously measure and record, on an hourly basis, the fuel consumed by each emission unit or group of emission units."); see also Region Response at 24 (citing *1989 Guidance on Limiting PTE* and noting that "in light of annual variations in operations and the fact that the source operates during only part of the year" the Region determined that a 12-month rolling limit for CO₂e 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 Dir., U.S. EPA, *Calculating Potential to Emit (PTE) and Other Guidance for Grain Handling Facilities* at 4-5 (Nov. 14, 1995) (A.R. B-10) [hereinafter *Grain Handling Guidance*]). ICAS's assertion is premised on ConocoPhillips' higher estimate of DMS methane emissions submitted to the Region in another permit proceeding concerning exploratory drilling in the Arctic OCS. ICAS Petition at 23-26. However, ICAS simply states that the discrepancy between Shell's and ConocoPhillips' calculations of DMS methane emissions means that the Region clearly erred in accepting Shell's methane calculations, but it does not acknowledge or evaluate the record information Shell submitted that explains in depth the causes for the divergent methane calculations.³⁶ Upon considering this

³⁵ This is the same unrestricted PTE for methane emissions as in the *Kulluk* permit (1596 lb / 2000 lb = 0.798 tons).

³⁶ In *Shell Discoverer 2012*, ICAS asserted that it was unable to evaluate the basis for Shell's estimates of DMS methane emissions that the Region had relied on to calculate PTE because Shell did not release its estimates until after the close of the comment period, 15 E.A.D. at 517 n.63. In that instance, the Board concluded that the Region was authorized to supplement the record with previously unavailable information confirming that Shell's estimate of methane PTE was a reasonable upper-bound estimation, and "[t]hus, ICAS had the opportunity to evaluate the basis for Shell's PTE estimates and the Region's assessment of those estimates in preparing its appeal to this Board." *Id.* (citing *In re Cape Wind Assoc., LLC*, 15 E.A.D. 327, 332-33, 335 (EAB 2011), and 40 C.F.R. §§ 124.17(a)-(b), 18(b)).

Continued

information, the Region exercised its technical expertise in concluding that Shell's estimates of methane emissions from the DMS were permissible, especially given the conservative assumptions the Region incorporated when calculating PTE. ICAS does not address either the record information that supports the Region's decision to accept Shell's methane estimate or the Region's stated rationale for concluding that methane monitoring is not required. *See* RTC at 35-36 (explaining that, based on the inherent limitations that exist and the relatively small contribution of the DMS to overall GHG emissions, the Region does not believe monitoring of DMS emissions or operations is necessary in addition to the monitoring already required in the permit). As this Board has often stated, a petitioner cannot demonstrate that review is warranted if the petitioner fails to substantively confront a permit issuer's response. *Peabody*, 12 E.A.D. at 33 (noting that to obtain review a petitioner must "explain why, in light of the permit issuer's rationale, the permit is clearly erroneous or otherwise deserving of review"); *see also In re BP Cherry Point*, 12 E.A.D. 209, 217 (EAB 2005). Moreover, as stated above, the Region's decision regarding the GHG emission limit is inherently technical in nature, and ICAS has fallen short of the particularly high threshold it must meet to demonstrate that review of the Region's technical determination is warranted. *See Peabody*, 12 E.A.D. at 33-34; *see also NE Hub*, 7 E.A.D. at 567-68.

4. *The Region Did Not Clearly Err in Restricting OCS Source's Potential to Emit SO₂*

The Permit restricts SO₂ emissions from the *Kulluk* and the Associated Fleet to no more than 10 tpy, well below the 250 tpy PSD threshold level. *See* Permit Condition D.4.3. Compliance with this limit is determined on a rolling 12-month basis and is achieved by requiring that Shell not combust any liquid fuel with sulfur content greater than 0.01 percent by weight in any emission unit on the *Kulluk* or the Associated Fleet and that all fuel purchased for use in emission units on the *Kulluk* and Associated Fleet have a maximum sulfur content of 0.0015 percent by weight. Permit Conditions D.4.5, D.4.9. Shell is required to keep diesel

(continued)

The material in question is not only in the record submitted with the *Discoverer* appeals, it also appears in the record for the instant appeal. *See* E-mail from Susan Childs, Shell, to Doug Hardesty, EPA Region 10 (Sept. 16, 2011 14:31 pm PDT) (A.R. CCC-438 in *Shell Discoverer 2012* and A.R. C-575 in the current appeal). Thus in the current appeal there is no question that the information from Shell clarifying and explaining its estimate of DMS methane emissions, including the highly conservative assumptions Shell included in its estimate, was at ICAS's disposal. In addition, Shell submitted further clarification of its DMS methane estimates as compared to ConocoPhillips' in order to "explain how different assumptions led to different results, and why Shell believes that ConocoPhillips' estimate is unrealistically high." E-mail from Susan Childs, Shell, to EPA Region 10 (Sept. 20, 2011 17:57 pm PDT) (A.R. C-577). ICAS's petition does not address either of these record submissions or the Region's reliance on this information to determine that the Region's calculation of methane emissions from the DMS represents "a reasonable upper-bound projection for Shell's operations [that] is not expected to be exceeded under any reasonably anticipated operating scenario." RTC at 35.

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 SO₂ emissions limits by including "purported 'operational limits'" that restrict fuel content and usage and concludes that compliance with the restricted PTE for SO₂ 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

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.

³⁹ Specifically, the guidelines for determining when minor source construction permits are shams state in relevant part:

1. Filing a PSD or nonattainment NSR permit application

If a major source or major modification permit application is filed simultaneously with or at the same time as the minor source construction permit, this is strong evidence of *an intent to circumvent the requirements of preconstruction review*.

* * *

4. Statement of authorized representatives of the source regarding plans for operation

Statements by representatives of the source to EPA or to state or local permitting agencies about the source's plans for operation can be *evidence to show intent to circumvent preconstruction review requirements*.

1989 Guidance on Limiting PTE at 14-15 (emphasis added).

B. REDOIL Petitioners Have Not Demonstrated That the Region Clearly Erred in Declining to Require PSD Increment Consumption Analyses for the Kulluk's Proposed Emissions as Part of the Title V Permitting Process

1. Section 504(e) of CAA Title V Imposes Permitting Requirements on "Temporary" Stationary Sources

The CAA's PSD program requires permit applicants to demonstrate compliance with ambient air quality "increments" (also called "PSD increments") for specific air pollutants. *See* CAA §§ 161, 163, 165(a)(3)(A), 42 U.S.C. §§ 7471, 7473, 7475(a)(3)(A); 40 C.F.R. § 52.21(c), (k). Such increments are maximum allowable increases in pollutant concentrations that may occur in particular areas.⁴⁰ They are designed to "prevent significant deterioration" of air quality in locations that already have relatively clean air by ensuring that contaminants contributed by proposed new sources, combined with levels of contamination already present in the ambient air as of a specific baseline date, fall within bounds established by the Agency. *See generally* *NSR Manual* ch. C.

As noted in Part VI.A.1.b above, Congress designed the PSD program to regulate "major" sources of air pollution, which have potential to emit certain specific pollutants in amounts exceeding major source threshold levels. "Minor" sources, which have projected emissions that fall below the PSD major source thresholds, generally are not regulated under the PSD program. The Board determined above that the *Kulluk* qualifies as a minor source for PSD purposes, and so it is not required to obtain a PSD permit. The *Kulluk* nonetheless is still subject to permitting under the CAA's Title V program. The question presented is whether section 504(e) of Title V imposes PSD increment requirements in this circumstance.

In section 504(e) of Title V Congress set out permitting requirements for "temporary" stationary sources of air pollution as follows:

The permitting authority may issue a single [Title V] permit authorizing emissions from similar operations at multiple temporary locations. No such permit shall be issued unless it includes conditions that will assure compliance with all the requirements of this chapter [i.e., the CAA] at

⁴⁰ To date, EPA has established PSD increments for four pollutants – SO₂, NO₂, PM₁₀, 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*,

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 commentators did on the draft permit, that the Region's interpretation of "applicable requirement" improperly reads the thirteenth requirement out of the regulations by subsuming it within the second requirement. REDOIL Petition at 33-34.

The Region explained in the Response to Comments why this was not so. *See* RTC at 107-08. The Region stated that "the intent of the Title V temporary source provisions is to relieve sources of the burden of applying for Title V permits for each new location, while at the same time[] assuring compliance with all requirements to which the source would be subject if it were a new [permanent] source at each such new location." *Id.* at 108. For a temporary source that is also a PSD major source, this would include ensuring that the NAAQS and increment standards are met at each future location – a requirement that, the Region pointed out, would exceed the requirements otherwise applicable to the source under the

⁴³ This state implementation plan regulation provides, in relevant part:

If the [s]tate or the Administrator determines that a[n implementation] plan is substantially inadequate to prevent significant deterioration or that an applicable increment is being violated, the plan shall be revised to correct the inadequacy or the violation.

40 C.F.R. § 51.166(a)(3). The regulations also provide, in the next subsection, that the state "shall review the adequacy of a[n implementation] plan on a periodic basis and within 60 days of such time as information becomes available that an applicable increment is being violated." *Id.* § 51.166(a)(4).

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 NO₂ NAAQS "in order to provide requisite protection of public health as appropriate under section 109 of the Clean Air Act." Primary NAAQS for NO₂, 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 NO₂

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 NO₂ 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 NO₂ concentrations anywhere in an area. *Id.* at 6493, 6502. EPA has issued guidance clarifying procedures for demonstrating compliance with the new 1-hour NO₂ 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 NO₂ 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 NO₂ National Ambient Air Quality Standard* (Mar. 1, 2011) ("Fox Memo") (A.R. BB-83).

REDOIL Petitioners assert that Shell's ambient air quality analysis was flawed.⁴⁸ In particular, REDOIL Petitioners state that in "identifying the Kulluk's

⁴⁶ The 98th percentile form corresponds approximately to the 7th or 8th highest daily maximum concentration in a year. 75 Fed. Reg. at 6492.

⁴⁷ According to the Page Memo, the guidance was issued in response to reports that sources were modeling potential violations of the 1-hour NO₂ 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 NO₂ National Ambient Quality Standard in Prevention of Significant Deterioration Permits, Including an Interim 1-hour NO₂ Significant Impact Level" and "Applicability of Appendix W Modeling Guidance for the 1-hour NO₂ 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 NO₂ 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.

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 NO₂ 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 NO₂ 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 Randolph, 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 Env’tl. Quality, at 2 (Sept. 11, 2007) (area exempt if certain conditions met) [hereinafter Helm Letter]. The parties agree that the Agency’s “long-standing interpretation” of this exemption is set forth in a letter signed by former EPA Administrator Douglas Costle, which states that “the exemption from ambi-

⁵⁰ For an area that is not considered within the definition of “ambient air,” Shell would not have to demonstrate compliance with the NAAQS. *See* CAA §§ 109(b), 160, 163, 42 U.S.C. §§ 7409(b), 7470, 7473 (NAAQS apply to areas meeting the definition of ambient air); 40 C.F.R. § 50.1(e) (definition of “ambient air”); *In re Hibbing Taconite Co.*, 2 E.A.D. 838, 848 & nn.23-24 (Adm’r 1989); RTC at 53.

⁵¹ REDOIL Petitioners additionally argue that, should the Region’s response contain a “natural physical feature” argument similar to an argument the Region raised in its response brief in *Shell Discoverer 2012*, the Board should consider such an argument a “post hoc rationalization” and should disallow it. REDOIL Petition at 19; *see also Shell Discoverer 2012*, 15 E.A.D. at 510 n.52 (discussing this issue). REDOIL Petitioners also reserve the right to request leave to file a reply brief addressing this issue. REDOIL Petition at 19. Unlike the situation in *Shell Discoverer 2012*, the Board does not find that the Region’s response brief contains an explanation that is clearly different than the rationale set forth in the Response to Comments. Moreover, REDOIL Petitioners do not raise this particular issue in their reply brief. Consequently, the Board does not consider REDOIL Petitioners’ “post hoc rationalization” argument further.

ent air is available only for the atmosphere over land owned or controlled by the source and to which the public access is precluded by a fence or other physical barriers." Costle Letter at 1; REDOIL Petition at 16 (quoting same letter); Region Response at 29-30 (referring to same letter); Shell Response at 26-27 & n.27 (same); *see also* RTC at 51 (same). The Costle Letter also indicates that, in determining whether the exemption applies, the Agency reviews "individual situations on a case-by-case basis." Costle Letter at 1; *see also* Approval and Promulgation of State Implementation Plans, 50 Fed. Reg. 7056, 7057 (Feb. 20, 1985) (noting that, in considering ambient air exemptions, "individual variations in the type of land and nature of the limitation on access necessitate a case-by-case evaluation of the facts, and application of the principles involved in this determination").

Here, in its permitting decisions, the Region determined that, as long as certain permit conditions were being met, it was appropriate to set the ambient air boundary at a 500 meter radius from the *Kulluk*, or, in other words, the 500 meter radius "safety zone" was exempt from the ambient air definition. RTC at 51-52; *see also* Statement of Basis at 40. The terms and conditions upon which the Region relied to exempt this area prohibit the operation of vessels and emissions units unless (1) the USCG establishes a safety zone within at least 500 meters from the center of the *Kulluk*, (2) members of the public are precluded from entering the safety zone, and (3) Shell develops and implements a "public access control program."⁵² Permit at 42-43. The Region determined that, as long as these safety zone and public access restriction permit conditions are complied with, ex-

⁵² The precise terms and conditions of the Permit are as follows:

The permit does not authorize operation unless:

5.1.1. The *Kulluk* is subject to a currently effective safety zone established by the [USCG] which encompasses an area within at least 500 meters from the hull of the *Kulluk* and which prohibits members of the public from entering this area except for attending vessels or vessels authorized by the USCG (such area shall be referred to as the "Safety Zone"); and

5.1.2. The permittee has developed in writing and is implementing a public access control program to:

5.1.2.1. Locate, identify, and intercept the general public by radio, physical contact, or other reasonable measures to inform the public that they are prohibited by Coast Guard regulations from entering the Safety Zone; and

5.1.2.2. Communicate to the North Slope communities on the Beaufort Sea on a periodic basis when exploration activities are expected to begin and end at a drill site, the location of the drill site, and any restrictions on activities in the vicinity of the *Kulluk's* exploration operations.

Permit at 42-43.

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empting the area within the safety zone from the ambient air definition would generally be consistent with previous Agency interpretations. RTC at 51-52. In so finding, the Region noted that “[g]iven that the permitted activities occur over open water in the Arctic, the[] criteria [for exemption included in the Costle Letter] must be adapted to some extent when applied to this environment.” *Id.* In specifically considering the applicability of the two exemption criteria, the Region stated:

Region 10 recognizes that Shell does not “own” the areas of the Beaufort Sea on which the Kulluk will be operating as might be the case for a stationary source on land. Shell has a lease authorizing the company to use these areas for the activities covered by the permits. A Coast Guard safety zone establishes legal authority for excluding the general public from the area inside the zone. EPA has previously recognized a safety zone established by the Coast Guard as evidence of sufficient ownership or control by a source over areas over water so as to qualify as a boundary for defining ambient air where that safety zone is monitored to pose a barrier to public access. Letter from Steven C. Riva, EPA Region 2, to Leon Sedefian, New York State Department of Conservation, re: Ambient Air for the Offshore LNG Broadwater Project, dated October 9, 2007 (Broadwater Letter).

To meet the second of the criteria applied by EPA and ensure the source actually takes steps to preclude public access, Shell proposed and Region 10 required as a condition of operation under the permits that Shell develop in writing and implement a public access control program to locate, identify, and intercept the general public by radio, physical contact, or other reasonable measures to inform the public that they are prohibited by Coast Guard regulations from entering the area within 500 meters of the hull of the Kulluk. Region 10 believes that, for the overwater locations in the arctic environment at issue in these permitting actions, such a program of monitoring and notification is sufficiently similar to a fence or physical barrier on land such that the area within the Coast Guard safety zone qualifies for exclusion from ambient air. *See* Broadwater Letter at 2.

RTC at 52.⁵³

Upon consideration of the administrative record and the parties' arguments, the Board concludes that Petitioners have not shown that the Region clearly erred in its decision to exempt the area within the USCG safety zone from the definition of "ambient air." The Region, in its Response to Comments, provided a reasonable interpretation of the ambient air regulation and the Agency's "longstanding interpretation" of that regulation as applied in the OCS context.⁵⁴ Furthermore, the Region's analysis was entirely consistent with a similar analysis undertaken by Region 2 in which that Region determined that it was appropriate for a permittee to use the USCG safety zone to define an ambient air boundary around a proposed offshore liquefied natural gas facility. *See* Broadwater Letter at 2. The Broadwater Letter, moreover, suggests that Region 2's analysis, as well as Region 10's, is not unique, stating that "[i]n previous permitting decisions involving * * * drilling operations, EPA Regional offices have used the USCG's safety zone as the boundary for defining ambient air." *Id.* at 2 (emphasis added). The letter explains that the Agency has found that "[t]he 'safety zone' approach represents a reasonable surrogate for a source's fence or physical barrier and thus could act as an ambient air boundary." *Id.*

Thus, while it is true, as Petitioners allege, that the Agency has generally required the source to own or control access over the area in question for that area to meet the first criterion, REDOIL Petition at 16-17, this requirement has been limited to sources located on land.⁵⁵ *See, e.g.,* Helm Letter at 1 (referring to possi-

⁵³ REDOIL Petitioners also seem to suggest that the Region's approach is flawed because it "is based upon an assumption that Shell will request, and the [USCG] will establish, a safety zone restricting the passage of other vessels." REDOIL Petition at 15 & n.45. This argument is unpersuasive because it fails to recognize that, as the permit conditions quoted in note 52 state, operation is prohibited unless these two conditions are met. *See* Permit at 42-43.

⁵⁴ As the Region rightly noted, *see* RTC at 51-52, the regulation and the Costle Letter, by their very terms, were clearly written with overland situations in mind. *See* 40 C.F.R. § 50.1(c) (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 NO₂ and ozone exposures on the Alaska Native population residing on the North Slope, and also asserts that the opportunities for public participation were inadequate. Mr. Lum challenges the lack of analysis regarding the impacts

⁵⁶ REDOIL Petitioners' arguments that the Region's determination fails to meet the second criteria because the safety zone "fails to effectuate a barrier that 'precludes' public access" are equally unpersuasive. REDOIL Petition at 17. REDOIL Petitioners focus on the fact that the USCG will limit access to the area based on safety concerns rather than for air quality considerations. *Id.* at 17-18. The important fact is that access within the zone will be strictly limited, not the reason behind it. Moreover, REDOIL Petitioners do not address the other condition of the permit that the Region relied upon for its ambient air boundary determination: the public access control program Shell is required to implement. The Board does not find clear error in the Region's conclusion that, based on the USCG limiting access to the safety zone and the permittee implementing a public access control program, the latter of which will include notification to the local residents of the location of the drilling and the fact that the public is restricted from the safety zone, the general public will be denied access to the area inside the safety zone.

⁵⁷ The Board came to the same conclusion in *Shell Discoverer 2012*. See 15 E.A.D. at 513-14. In that case, the Region had adopted and followed the same or a very similar interpretation as described in the text above. See *id.* 15 E.A.D. at 511-13. Nothing REDOIL Petitioners offer in the present case convinces the Board that anything in the prior analysis – and reiterated here – was in error.

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 population⁵⁸ may be disproportionately affected by a particular facility seeking a PSD permit. *In re EcoEléctrica, LP*, 7 E.A.D. 56, 69 n.17 (EAB 1997); *accord Shell 2010*, 15 E.A.D. at 148-49 & n.71 (citing PSD cases).

At the outset, the Board notes that both ICAS and Mr. Lum recently challenged the Region's environmental justice analysis in *Shell Discoverer 2012*. See 15 E.A.D. at 493-501. In addition, the environmental justice analysis the Region prepared in the current matter is reminiscent of the environmental justice analysis prepared for the *Discoverer* permits that were the subject of the Board's *Shell Discoverer 2012* decision. Moreover, while their petitions for review in *Shell Discoverer 2012* and the current appeal are not identical, both ICAS and Mr. Lum raise substantially similar arguments in their current appeals as they did in their appeals of the *Discoverer* permits.⁵⁹ Compare Lum Petition with Eskimo

⁵⁸ Under the Executive Order, the Alaska Native population residing on the North Slope qualifies as a minority population. See Statement of Basis at 55; ICAS Petition at 30.

⁵⁹ ICAS's remaining challenges to the amount and quality of public participation opportunities available pertaining to the environmental justice analysis appear to mirror its more general arguments
Continued

Whaler Petition for Review, *Shell Discoverer 2012* (Doc. No. 24), and ICAS Petition with ICAS and AEWG Petition for Review, *Shell Discoverer 2012* (Doc. No. 7).

1. Region's Environmental Justice Analysis

The Region included a fifteen-page environmental justice analysis in the administrative record to accompany the Permit and to allow for public comment on the analysis. Environmental Justice Analysis for Proposed OCS Permit No. R10 OCS030000 Kulluk Drilling Unit (undated) ("EJ Analysis") (A.R. F-1). The Region's analysis begins with a discussion of environmental justice in the permitting context and notes that "[t]he Title V operating permit program does not generally impose new substantive air quality control requirements."⁶⁰ EJ Analysis at 2. In addition, the analysis includes a discussion of how the national ambient air quality standards ("NAAQS") are crafted by integrating scientific information and evidence from rigorously reviewed studies, and a summary of the Board's case law stating that the Board views compliance with the NAAQS as "emblematic of achieving a level of public health protection that, based on the level of protection afforded by the NAAQS, demonstrates that minority or low-income populations will not experience disproportionately high and adverse human health or environmental effects due to exposure to relevant criteria pollutants." *Id.* (quoting *Shell 2010*, 15 E.A.D. at 156) (citations omitted); *see also* Statement of Basis at 54-55.

(continued)

regarding the public participation process. *See* ICAS Petition at 6-10, 38-39. Accordingly, the Board addresses ICAS's challenges to the adequacy of the public participation process, both generally and with respect to the environmental justice analysis, in Parts VI.F and VI.G below.

⁶⁰ The Region further explained that:

[T]he Title V operating permit program is generally a vehicle for ensuring that existing air quality control requirements are appropriately applied to facility emission units and that compliance with these requirements is assured. Accordingly, the primary means of addressing environmental justice issues in the Title V program is through increased public participation and review by permitting agencies, and conditions to assure compliance with applicable requirements. As discussed above, the Title V permit at issue in this case is unusual in that it requires the source, as a Title V temporary source, to meet the NAAQS and also establishes limits on the potential to emit. Region 10 has considered environmental justice concerns in this permitting action where possible in the context of assuring compliance with applicable requirements for the source, in particular assuring compliance with the NAAQS as a Title V temporary source and establishing PSD avoidance limits.

EJ Analysis at 2; *see also* Statement of Basis at 54.

The analysis goes on to catalogue the distances between Inupiat communities on the coast of the North Slope that are closest to Shell's lease blocks in the Beaufort Sea, and discusses the importance of subsistence foods obtained through hunting, fishing, and whaling to the Inupiat diet, and more generally the nexus between subsistence activities and Inupiat culture. EJ Analysis at 3, 5. The Region also included an illustration that juxtaposes the location of Shell's lease blocks, including proposed exploration sites, with onshore and offshore subsistence use areas for the northern Inupiat communities.⁶¹ *Id.* at 4; *see also* Statement of Basis at 56.

The Region then proceeded to analyze demographic, health-related, and air quality data.⁶² The demographic analysis indicates that 68% of residents living in the North Slope Borough classify themselves as Alaska Natives. EJ Analysis at 7. In addition, nearly half of North Slope residents speak a language other than English at home. *Id.* at 8. The analysis of health data revealed, among other things, that from 1990 to 2007 there has been a 158% rate of increase in the prevalence of diabetes for Alaska Natives residing on the Arctic Slope, whereas during the same time period there has been a 117% rate of increase in the prevalence in diabetes for Alaska Natives statewide.⁶³ *Id.* at 9. In addition, there is a higher incidence of outpatient visits for respiratory problems ranging from the common cold to pneumonia in the Arctic Slope than in the rest of Alaska. *Id.*

In the air impacts analysis, the Region first noted that the North Slope Borough is currently designated as attainment/unclassifiable for all of the NAAQS, meaning that the North Slope has sufficient data to determine that the area is meeting the NAAQS or that, due to no data or insufficient data, EPA cannot make a determination. *Id.* at 11 & n.15 (citing CAA § 107(d), 42 U.S.C. § 7407(d)). The

⁶¹ The analysis also includes, for some of the northern Inupiat communities, the distances residents have reported traveling offshore to hunt for traditional subsistence food sources. *See* EJ Analysis at 6 (noting that Nuiqsut residents have traveled up to 60 miles offshore to the north and as far east as Camden Bay to hunt for bowhead whale and that Kaktovik residents have traveled as far as 35 miles offshore to hunt for bowhead whale and walrus); Statement of Basis at 55; *see also* *Shell 2010*, 15 E.A.D. at 155 n.80 (noting that subsistence activities, which can take Inupiat residents living on the North Slope far from their local communities and closer to emissions sources, are a potential environmental justice consideration that may be unique to the OCS PSD permitting context); *Shell Discoverer 2012*, 15 E.A.D. at 496 n.32 (same).

⁶² The Region used demographic information gathered from the 2000 U.S. Census to compare the population of the North Slope Borough to the populations of both the State of Alaska and the entire United States, which served as reference populations for the demographic analysis. EJ Analysis at 6-8 & n.6. The North Slope Borough consists of the following eight incorporated villages: Point Hope, Point Lay, Wainwright, Atkasuk, Barrow, Nuiqsut, Kaktovik, and Anaktuvuk Pass. *See* Statement of Basis at 55.

⁶³ The Region utilized data from the Alaska Native Health Status Report 2009, which the Alaska Native Epidemiology Center and the Alaska Native Tribal Health Consortium had prepared to analyze health conditions in the North Slope Borough. *See* EJ Analysis at 8-10 & n.11.

Region then examined the total modeled concentrations of NO₂, particulate matter with a diameter of 10 micrometers or less ("PM₁₀"), particulate matter with a diameter of 2.5 micrometers or less ("PM_{2.5}"), SO₂, and CO,⁶⁴ including background concentrations and maximum concentrations from the *Kulluk* and the Associated Fleet.⁶⁵ *Id.* at 13-14 & tbl.6. The Region compared the total modeled concentrations for each of the three nearest communities while the source is in operation and found that the total maximum modeled concentrations demonstrate that the NAAQS will be attained at all locations beyond the 500-meter boundary, and that the modeled concentrations in the North Slope communities and in areas where the communities conduct subsistence activities will be below the relevant standard.⁶⁶ *Id.* at 14. Finally, the Region noted that a majority of the total impacts result from background concentrations. *Id.*

⁶⁴ The Board notes that the information included in table 5 of the air quality analysis includes modeled impacts in the nearest onshore communities from operation of the *Kulluk* alone, without impacts from the Associated Fleet or background concentrations. EJ Analysis at 12 & tbl.5. The Region explains that the maximum modeled concentrations in Nuiqsut, Deadhorse, and Kaktovik listed in table 5 are all below the significant impact levels ("SILs") established for each criteria pollutant. *Id.* at 12. In the PSD program, SILs function as threshold levels for ambient concentrations of a given pollutant: for a given pollutant and averaging period, any source that has a measured concentration that is below the SIL is considered too small to cause or contribute to a violation of the NAAQS. *Id.*

The Region made clear earlier in the environmental justice analysis that emissions from the Associated Fleet while operating within 25 miles of the *Kulluk*, together with emissions from the *Kulluk*, are considered in conducting an ambient air quality analysis to determine whether emissions from the project will cause or contribute to a violation of the NAAQS. *Id.* at 4. The Region's analysis repeatedly emphasized that compliance with the NAAQS is "emblematic of achieving a level of public health protection" that demonstrates that minority or low-income populations will not experience disproportionately high and adverse human health or environmental impacts due to exposure to relevant criteria pollutants. *Id.* at 4-5 (quoting *Shell 2010*, 15 E.A.D. at 156). While the inclusion of information on modeled impacts of emissions from the *Kulluk* alone on the nearest onshore communities is illustrative regarding the *Kulluk's* contribution to the overall emissions profile, it is the information that encompasses both background concentrations and emissions from the *Kulluk* and the Associated Fleet when it is within 25 miles of the *Kulluk* that establishes the Region has satisfied its obligation to comply with the Executive Order.

⁶⁵ Monitoring data from Prudhoe Bay, Deadhorse, and Endicott were used for background values. EJ Analysis at 13. The Region also noted that the modeled impacts are based on conservative assumptions, including that all four wells are drilled at the same location to account for overlapping plumes, even though the drilling of four wells at a fixed location and the overlap of plumes will not occur. *Id.*

⁶⁶ Specifically, the Region noted that in Kaktovik, located 8 miles from Shell's closest lease block in the Beaufort Sea, the total maximum modeled concentrations, assuming Shell's *Discoverer* is in operation and considering background concentrations, are measured at the following percentages of the NAAQS: 11% for the 1-hour NO₂ NAAQS; 20% for the 24-hour PM_{2.5} NAAQS; 35% for the 24-hour PM₁₀ 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 NO₂ NAAQS; 48% for the 24-hour PM_{2.5} NAAQS, 35% for the 24-hour PM₁₀ 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 NO₂ NAAQS Analysis

ICAS challenges the Region's consideration of 1-hour NO₂ NAAQS⁶⁷ 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 NO₂ 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 NO₂ emissions that remain unregulated by the Permit when assessing potentially adverse health impacts of NO₂ 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 NO₂ 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 NO₂ NAAQS reviews in its December 2010 remand order. See *Shell 2010*, 15 E.A.D. at 150 nn.73-74.

sis.⁶⁸ RTC at 114; Statement of Basis at 54; *see also* EJ Analysis at 2; Region Response at 36 n.34. The Region acknowledged that the Title V permit at issue in this case is unusual in that it requires a temporary Title V source to meet the NAAQS, and the permit also establishes limits on PTE. EJ Analysis at 2; Statement of Basis at 54; RTC at 114. However, the Title V permit does not regulate mobile source emissions.⁶⁹

⁶⁸ ICAS asserts that the Board should remand the *Kulluk* permit so that the Region can assess mobile source emissions included in Shell's emissions inventory submitted to BOEMRE as part of Shell's Exploration Plan, both because it "shows that the additional emissions estimates are not as hard to obtain as Region 10 implies," and because once the Region assesses the accuracy of the inventory it can "use the information to conduct an EJ analysis that accounts for all of Shell's emissions." ICAS Petition at 35 (emphasis in original).

Nowhere in its petition does ICAS acknowledge the Region's statement, in the Response to Comments, that "[t]he Exploration Plan * * * does not include estimates of air emissions from these other vessels during the time they are more than 25 miles from the Kulluk or before the Kulluk becomes an OCS source." RTC at 15. The Board has consistently stated that, in order to sustain its burden of demonstrating that review is warranted, the petitioner must address the permit issuer's responses to relevant comments made during the permit proceeding. *See, e.g., Peabody*, 12 E.A.D. at 33 ("[T]he petitioner may not simply reiterate comments made during the public comment period, but must substantively confront the permit issuer's subsequent explanations.").

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

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

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

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

Despite the fact that mobile source emissions are not regulated under the Title V permit, the Region did go beyond its required review to consider mobile source emissions with respect to environmental justice in the Response to Comments. See RTC at 114-15. The Region was unable to reach a determinative conclusion with respect to these emissions due to insufficient information.

ICAS's attempt to construe the Executive Order and Board precedent to *require* in this instance the analysis of emissions from mobile sources that the Region may not have accurate or sufficient data to complete in the context of a Title V permit is unpersuasive. Notably, the Board has held that it will decline to review a permit issuer's environmental justice analysis that cannot reach a determinative conclusion due to the insufficiency of available valid data. See RTC at 115; *Avenal*, 15 E.A.D. at 401-02 (stating that where a permit issuer conducts a substantive environmental justice analysis that endeavors to include and analyze data that is germane to the environmental justice issue raised during the comment period, and the permit issuer demonstrated it exercised its considered judgment when determining that it cannot reach a determinative conclusion due to the insufficiency of available data, the Board will decline to grant review of the environmental justice analysis). Moreover, "[t]he plain language of the Executive Order imparts considerable leeway to federal agencies in determining how to comply with the spirit and letter of the Executive Order," *Avenal*, 15 E.A.D. at 401. ICAS overreads *Avenal* when it suggests that *Avenal* compels the analysis of these mobile source emissions in the context of this permit. See ICAS Petition at 35 ("The Agency has considered mobile emissions previously in its EJ analyses and should be required to do so here." (citing *Avenal*, 15 E.A.D. at 399)).⁷⁰

ICAS's challenge also fails because ICAS never responded to the Region's stated rationale in the administrative record that Title V permits generally do not impose new substantive air quality control requirements. A petitioner cannot sim-

⁷⁰ ICAS includes a citation to *Avenal* for the proposition that "motor vehicle emissions are by far the greatest concern," in support of its contention that mobile source emissions should be included in the short-term NO₂ 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 NO₂ 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 NO₂ emissions locally, as compared to 61% of NO₂ 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 NO₂ is a precursor emission. *Id.* Finally, the Agency further explained that NO₂ 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 NO₂ impacts from mobile sources in *Avenal*, where NO₂ 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 NO₂ controls and their ability to function properly in cold weather, the use of generic NO_x/NO₂ ratios in lieu of actual source tests, the use of "diurnal pairing" of NO₂ 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

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 NO₂ 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 NO₂ NAAQS in the Federal Register on February 9, 2010, and the effective date of the new hourly NO₂ 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 NO₂ 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 NO₂ 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, BOEMRE⁷⁴ is responsible for implementing regulations that address oil spill and response capabilities.⁷⁵ The Board does not have jurisdiction to consider Shell’s oil spill and re-

⁷³ As noted above, see Part VI.A.1.a, the OCS air regulations require that OCS permit proceedings follow the procedures used to issue PSD permits contained in 40 C.F.R. part 124, 40 C.F.R. § 55.6(a)(3).

⁷⁴ As the Board has noted in previous *Shell* decisions, in May 2010 the Secretary of the Department of the Interior (“DOI”) signed a Secretarial Order reorganizing the former Minerals Management Service (“MMS”) into three independent entities to better carry out its three missions of: (1) improving the management, oversight, and accountability of activities on the OCS; (2) ensuring a fair return to the taxpayer from offshore royalty and revenue collection and disbursement activities; and (3) providing independent safety and environmental oversight and enforcement of offshore activities. *Shell 2012*, 15 E.A.D. at 492 n.29; see also *Shell 2010*, 15 E.A.D. at 112 n.7; U.S. DOI, Departmental Manual, pts. 118 & 119, ch. 1 (Sept. 30, 2011), available at http://elips.doi.gov/app_dm/dm.cfm (“Departmental Manual”) (establishing the creation, authorities, objectives, and reporting relationships for the Bureau of Ocean Energy Management (“BOEM”) and Bureau of Safety and Environmental Enforcement (“BSEE”)). BOEMRE assumed all of MMS’s responsibilities in the interim until the full implementation of the reorganization into the three separate entities was complete. *Shell 2012*, 15 E.A.D. at 492 n.29; see *Shell 2010*, 15 E.A.D. at 112 n.7. The transfer of the revenue collection function to the Office of Natural Resources Revenue was completed on October 1, 2010. See Secretary of the Interior, U.S. DOI, Order No. 3306, *Organizational Changes Under the Assistant Secretary – Policy, Management and Budget* (Sept. 20, 2010), available at http://elips.doi.gov/app_SO/so.cfm; Departmental Manual, pt. 112, ch. 34 (Apr. 15, 2011). One year later, on October 1, 2011, the reorganization was completed when BOEMRE was replaced by BOEM and BSEE. See Departmental Manual, pts. 118 & 119. For consistency the Board refers to BOEMRE because the Permit and the supporting documentation refer exclusively to BOEMRE.

⁷⁵ On August 4, 2011, BOEMRE (now BOEM, see note 74 above) conditionally approved Shell’s exploration plan for the Beaufort Sea. Letter from Jeff Walker, Regional Supervisor, Field Operations, Alaska OCS Region, BOEMRE, U.S. DOI, to Susan Childs, Shell Offshore, Inc. (Aug. 4, 2011).

Continued

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.

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2011) [hereinafter Beaufort EP Letter]. The approval of the Beaufort Sea exploration plan was conditioned, among other things, on Shell submitting to BOEMRE prior to the commencement of exploratory drilling operations documentation regarding the subsea well capping and containment system Shell has committed to have at its disposal. *Id.* at 3. Specifically, Shell must "submit documentation on the procedures for deployment, installation, and operation of the system under anticipated environmental conditions, including the potential presence of sea ice for approval by BOEMRE. Shell will also be required to conduct a field exercise to demonstrate Shell's ability to deploy the system." *Id.*

⁷⁶ As mentioned above, the Board remanded to the Region two OCS PSD permits in December 2010. See generally *Shell 2010*, 15 E.A.D. at 161-62. In the subsequent appeals of the permits issued upon completion of remand proceedings, the Board unequivocally stated that "in the current appeals, '[n]o new issues may be raised that could have been raised, but were not raised,' in the previous appeals." *Shell Discoverer 2012*, 15 E.A.D. at 477 (quoting *Shell 2010*, 15 E.A.D. at 162).

For all of the foregoing reasons, the Board declines to review the Region's compliance with the Executive Order and applicable Board precedent.

F. ICAS Has Failed to Demonstrate That the Region Clearly Erred or Abused Its Discretion in Providing 46 Days for Comment on the Draft Permit and in Denying ICAS's Request for Nonoverlapping Comment Periods

ICAS claims that the Region "committed clear legal error by failing to provide the public an adequate opportunity to comment on" the draft permit.⁷⁷ ICAS Petition at 6. More specifically, ICAS alleges that the Region failed to meet the parts 71 and 124 procedural requirements that require permit issuers to "allow at least 30 days for public comment" on draft permits. *Id.* at 7 (citing 40 C.F.R. §§ 71.11(d)(2)(i), 124.1) (emphasis added by Petitioners). Although ICAS acknowledges that the comment periods for the Permit ran from July 22, 2011, to September 6, 2011, an interval of 46 days, ICAS contends that, because the Region issued the draft *Kulluk* permit for comment at the same time it issued another draft minor source air permit for comment and in the middle of comment periods for two major source air permits for another Shell drillship,⁷⁸ in reality, ICAS only "had 16 days to comment on each of the[] permits," rather than the required minimum of 30. *Id.* at 7. This is because, according to ICAS, it "does not have the resources to comment on more than one air permit at a time." *Id.* ICAS further claims that "the short and overlapping comment periods * * * deprived [them] of a meaningful opportunity to comment on Shell's new air modeling results." *Id.* at 8.

In a related argument, ICAS asserts that the Region clearly erred in denying its request that the Region "hold nonoverlapping comment periods on the OCS permits and [] provide 45 days to comment on each permit." *Id.* at 8-9. ICAS claims that it met the regulatory standard for demonstrating the need for additional time to prepare comments. *Id.* (referring to the standard at 40 C.F.R. § 71.11(g)); see also *id.* attach. 8 (Letter from Harry Brower, Chairman, Alaska Eskimo Whaling Commission ("AEWC"), et al., to Doug Hardesty, Air Permits Project Manager, U.S. EPA Region 10 (June 15, 2011) (A.R. C-487)) (AEWC and ICAS request for nonoverlapping comment periods) [hereinafter ICAS Let-

⁷⁷ The Board also considers ICAS's claim under an abuse of discretion standard. See *infra* note 80.

⁷⁸ The Region had issued two draft permits for Shell's *Discoverer* drillship earlier in July of 2011. See *Shell Discoverer 2012*, 15 E.A.D. at 480. The comment period for those two permits ran from July 6 to August 5, 2011. *Id.*; ICAS Petition at 7. In addition, on the same date the Region had issued the *Kulluk* draft permit, it had also issued a draft permit for ConocoPhillips to operate a jackup drill rig in the Chukchi Sea. ICAS Petition at 7. The comment period for this permit originally ended at the same time as the *Kulluk* draft permit, but was later extended to September 21, 2011. ICAS Petition at 8-9; RTC at 7.

ter]; *id.* attach. 9 (Letter from Richard Albright, Director, Office of Air, Waste, & Toxics, U.S. EPA Region 10, to Harry Brower, AEWG Chairman, et al. (July 21, 2011) (A.R. C-532)) (EPA response).

The part 71 procedural regulation governing public notices and public comment periods specifically provides that “[p]ublic notice of the preparation of a draft permit * * * shall allow at least 30 days for public comment.” 40 C.F.R. § 71.11(d)(2)(i). The part 124 procedural regulations, which also apply to the Permit,⁷⁹ contain the same language. *See* 40 C.F.R. § 124.10(b). The Board has traditionally read these regulations to establish a minimum comment period length of 30 days, recognizing that the regulations clearly allow the permit issuer, in its discretion, to grant a longer comment period. *Shell Discoverer 2012*, 15 E.A.D. at 520-21 (discussing the applicable part 124 regulation); *see also In re Genesee Power Station*, 4 E.A.D. 832, 841 (EAB 1993) (noting that the part 124 regulation governing public comment periods “only require[s] them] to last 30 days”). In addition, as ICAS points out, part 71 contains a separate provision specifically authorizing a permit issuer to grant additional time. It states that “[a] comment period longer than 30 days may be necessary to give commenters a reasonable opportunity to comply with the requirements of this section. Additional time shall be granted to the extent that a commenter who requests additional time demonstrates the need for such time.”⁸⁰ 40 C.F.R. § 71.11(g)).

⁷⁹ As the Region explained, the Permit is subject to the procedural requirements of both part 55 (and consequently part 124) as well as part 71:

The portion of this permit that is a Part 71 permit (e.g., the portion of the permit that applies on the Outer OCS) is issued under 40 CFR Part 55 and 40 CFR Part 71 and subject to the procedural requirements of 40 CFR Part 71 as provided in 40 CFR § 71.4(d). The portion of this permit that is a COA Title V permit and a COA minor source permit (e.g., the portion of the permit that applies on the Inner OCS) is issued under 40 CFR Part 55 and, in the absence of other applicable procedures, subject to the permit issuance procedures for PSD permits under 40 CFR Part 124, Subpart A and C. *See* 40 CFR §§ 55.6(a) (3) and 124.1.

RTC at 6 n.3.

⁸⁰ Because the regulations authorize the permit issuer to grant a longer comment period upon an adequate showing of need, the Board also considers ICAS’s challenge under an abuse of discretion even though ICAS did not clearly present its challenge as such, alleging instead only “clear error.” *See Shell Discoverer 2012*, 15 E.A.D. at 521 (considering similar argument as raising an abuse of discretion claim); *In re Guam Waterworks Auth.*, 15 E.A.D. 437, 443 n.7 (EAB 2011) (explaining Board’s standard in reviewing claims involving a permit issuer’s exercise of discretion); *In re Desert Rock Energy Co.*, 14 E.A.D. 484, 530 (EAB 2009) (using an abuse of discretion standard where the permit issuer had “broad discretion” in making the challenged determination). The Board similarly reads ICAS’s challenge to the Region’s denial of nonoverlapping comment periods as raising an abuse of discretion claim.

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 overlap⁸³ – the provision does not prohibit, or even mention, overlapping comment periods.

⁸¹ As the Board discussed above in Part III, a petitioner must explain why the permit issuer's previous response to those objections is clearly erroneous or otherwise warrants review. "[A] petitioner's failure to address the permit issuer's response is fatal to its request for review." *In re In-deck-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 otherwise⁸⁴ and has therefore failed to show that the Region clearly erred or abused its discretion in either selecting a 46 day comment period or in denying ICAS's request for nonconcurrent comment periods. *See Shell Discoverer 2012*, 15 E.A.D. at 523 (denying review of a similar claim based on similar facts). Review of the Permit is therefore denied on this issue.

G. ICAS Has Failed to Demonstrate That the Region Clearly Erred in Its Public Hearing Procedures or That Any of the Alleged Procedural Deficiencies Otherwise Warrant Review

As noted above in Part V, the Region held two public hearings on the draft permit, one in Barrow, and a second in Anchorage. The Region also held an informational meeting prior to the Barrow public hearing. *See* Statement of Basis at 11 (scheduling informational hearing from 5:00-6:30 pm, public hearing from 7:00-9:00 pm); RTC at 6-7.

ICAS claims that the Region "committed clear legal error by failing to provide the public an adequate opportunity" to participate in the Barrow public hearing. ICAS Petition at 6; *see also id.* at 9-10. ICAS alleges three procedural problems with the Barrow hearing. *Id.* at 9-10. ICAS first claims that the Region continued with the hearing despite difficulties with the teleconference phone system that allegedly impaired the ability of the Region to hear all comments. *Id.* at 9. ICAS next alleges that, "for a significant portion of the hearing," the Region discussed a PowerPoint presentation that was not made available to the public attending the hearing. *Id.* at 9-10. Finally, ICAS contends that the Region failed to sufficiently inform those attending the public hearing that it had procured an

⁸⁴ The Board is unpersuaded by ICAS's argument that it had difficulty locating an expert to review the air modeling. *See* ICAS Petition at 8. As the Region indicated in its Response to Comments, RTC at 8, other commenters provided substantive, technical comments on the air modeling, which suggests that the comment period was sufficient to allow opportunity for meaningful comment. *See Fla. Power & Light Co. v. United States*, 846 F.2d 765, 772 (D.C. Cir. 1988) (upholding a short comment period as sufficient where the agency had received numerous comments, some lengthy, and the comments had had a "measurable impact" on the final rule); *Conference of State Bank Supervisors v. Office of Thrift Supervision*, 792 F. Supp. 837, 844 (D.D.C. 1992) (holding length of comment period not unreasonable especially in light of the comments that plaintiffs and other parties submitted). Furthermore, as the Region points out, it notified ICAS in May that the comment periods would begin in July. *See* Letter from Doug Hardesty, EPA, to North Slope Borough et al. (May 25, 2011) (A.R. HH-1). The Region also conducted three separate informational meetings in Barrow and Kaktovik, Alaska, more than a month prior to the start of the public comment period for the Permit "to inform the North Slope community of the draft permit and to describe opportunities for public participation." RTC at 6.

Inupiat interpreter for the hearing.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.* §§ 71.11(j)(1)(ii), 124.17(a)(1). Importantly, none of the aforementioned regulations refer to, or in any way mention, a requirement to provide an interpreter or a requirement to provide written materials at the hearing.

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

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

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

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

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

⁸⁶ As discussed above, the regulatory requirement is for a permit issuer to respond to significant comments. See 40 C.F.R. § 77.11(j)(1)(ii), 124.17(a)(1). Thus, had ICAS identified significant comments raised at the public hearing that the Region failed to address, ICAS’s arguments would have been more persuasive. See, e.g., *In re Rockgen Energy Ctr.*, 8 E.A.D. 536, 557 (EAB 1999) (remanding so that permit issuer could demonstrate it had given thoughtful and full consideration to public comments); *In re W. Suburban Recycling & Energy Ctr., L.P.*, 6 E.A.D. 692, 710-12 (EAB 1996) (remanding permit and requiring permit issuer to comply with procedures under part 124 including provision requiring a response to all significant comments received); see also *In re N. Mich. Univ.*, 14 E.A.D. 283, 317-18 (EAB 2009) (discussing part 124 requirement to adequately respond to comments).

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

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

issuer to provide copies of a presentation to the audience attending an informational meeting, failure to do so at the meeting – or at a subsequent public hearing – does not constitute clear error or otherwise warrant Board review.

ICAS's final contention – that the Region committed clear procedural error by not adequately informing the public that an interpreter was available at the public hearing – is also unconvincing. Importantly, as noted above, there is no regulatory requirement for an interpreter in either part 71 or part 124, nor is there a provision specifying the method a permit issuer should use to inform the public of the availability of an interpreter at the public hearing.⁸⁹ ICAS has not pointed to any other requirement, regulatory or otherwise, requiring an interpreter or prescribing the method for announcing one. Accordingly, while it may be preferable for the permit issuer to formally announce the availability of an interpreter at the beginning of the public hearing, and in both languages, failure to do so does not constitute clear error or otherwise warrant Board review.

In sum, ICAS has failed to demonstrate that the public hearing procedures utilized by the Region constituted clear error. ICAS has not shown that the Region violated any part 71 or 124 procedural regulation. Moreover, the alleged problems ICAS has identified do not, even if the Board were to find them to constitute a deficiency in some way, warrant Board review. Consequently, the Board denies review of the Permit on this ground.

VII. CONCLUSION AND ORDER

For the foregoing reasons, the Board concludes that none of the petitioners have demonstrated that review of Permit No. R10 OCS030000 is warranted on any of the grounds presented. The Board therefore denies review of the Permit.

So ordered.

⁸⁹ The parties seemingly dispute the method in which the Region notified the public of the availability of the interpreter. The Region stated in its Response to Comments that, "[p]rior to the Barrow public hearing, Region 10 contacted [ICAS] to arrange for an 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.

TUCSON ELECTRIC POWER

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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 Enforcement, U.S. EPA, to EPA Regional Air Division Directors, 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 Env'tl. Quality, *Prevention of Significant Deterioration Air Quality Permit, Permit No. 1052*, at 4 (Aug. 8, 2018) (Administrative Record ("A.R.") 23) ("Permit"). Tucson Electric plans to use these new Units to support increased use of wind and solar-generated electrical power sources. The new Units can compensate for the variability of wind and solar power sources by providing "[r]eliable, efficient, grid-balancing resources which can ramp up quickly and provide 100 percent of their [effective load carrying capability] during multiple peak periods of any length." Tucson Elec. Power, *Application for a Prevention of Significant Deterioration (PSD) Authorization and Significant Revision to Class I Air Quality Permit for Irvington Generating Station 2-2, 2-5* (July 2017) (A.R. 2) ("Permit Application").

The Irvington Generating Station is a major stationary source subject to the Clean Air Act's PSD program and is in an area designated by EPA as in attainment. Permit at 4. Because the proposed addition of ten new Units would significantly increase potential emissions of several regulated pollutants, this expansion of the facility qualifies as a major modification and triggers PSD requirements. *Id.* Accordingly, Tucson Electric applied to Pima County to amend its existing air quality permit (referred to as a Class I permit) and convert it to a combined PSD permit and Class I permit.³

The modified facility would have triggered PSD requirements for its NO_x emissions; however, Tucson Electric requested a limit on NO_x emissions – referred to by the parties as a NO_x emissions cap – for the new Units to keep their emissions below the PSD threshold.⁴ *See* Letter from Conrad Spencer, Tucson Elec. Power,

³ The Class I permit was required to allow construction and operation of the original facility under the Arizona Administrative Code, *see* Ariz. Admin. Code § R18-2-302, which implements Arizona's operating permits program, authorized by EPA under Title V of the Clean Air Act, 42 U.S.C. §§ 7661-7661f. *See* Clean Air Act Full Approval of the Arizona Operating Permits Program, 66 Fed. Reg. 63,175 (Dec. 5, 2001) (final rule fully approving Arizona's operating permits program).

⁴ In the Administrative Record, the limitation on NO_x emissions is described interchangeably as a "cap" and a "limit." *See, e.g.*, Permit at Part B § II.A.1. For clarity

to Rupesh Patel, Pima Cty. Dep't of Env'tl. Prot. (Feb. 23, 2018) (A.R. 13) (requesting NO_x emissions cap of 170 tons per year). Tucson Electric also identified in its permit application three other aspects of the modified facility that would curtail NO_x emissions from the new Units or the overall facility. First, each new Unit would be equipped with a selective catalytic reduction device that would substantially reduce NO_x emissions. *See* Permit Application at 2-6, 3-3. Second, the Units would be limited to five startups per day. *See id.* at 2-6. Third, two existing steam-generating units at the facility would be permanently shut down offsetting, in part, the increase in NO_x emissions from the addition of the ten new Units. *See id.* at 2-5, 4-9. In combination, these terms of operation would limit the net increase in NO_x emissions from the expansion of the Irvington facility to an amount that is below the "significant" level of 40 tons per year.⁵ Permit at 4.

We describe below: (i) the terms of the proposed combined PSD and Class I permit ("Proposed Permit") noticed for public comment with a focus on the compliance monitoring requirements pertaining to the NO_x emissions cap, *see* Part IV.B; and (ii) Sierra Club's comments on the Proposed Permit and Pima County's response to those comments, *see* Part IV.C.

B. The Proposed Permit's Requirements Concerning the NO_x Emissions Cap

In February 2018, Pima County issued the Proposed Permit for public comment. The Proposed Permit included the conditions necessary to restrict NO_x emissions below the level triggering PSD requirements – requiring use of selective catalytic reduction devices on each new Unit, limiting startups of the new Units to five per day, retiring two existing steam-generating units, and a 170 tons per year NO_x emissions cap – and imposed requirements to verify compliance with the NO_x

and consistency, the Board will use the term "cap" to refer to the limitation on NO_x emissions.

⁵ The to-be-eliminated steam units emit approximately 140 tons per year of NO_x. Thus, the replacement of these units with the ten new Units (limited to a combined total of 170 tons per year of NO_x) would result in a net legally-allowed increase of NO_x of approximately 30 tons per year. *See* Pima Cty. Dep't of Env'tl. 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 Env'tl. Quality, *Technical Support Document* attach. B at 2 tbl.B-2 (Aug. 2018) (A.R. 24).

emissions cap. Pima Cty. Dep't of Env'tl. 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 JJJ." 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 NO_x emissions; (ii) the catalyst in the devices must be cleaned and replaced according to the manufacturer’s recommendations; (iii) two key operating parameters of the devices – ammonia injection rate and temperature – must be monitored and recorded at least once every fifteen minutes; (iv) if ammonia injection to a device fails and cannot be restored in ten minutes, the Unit must be shut down; (v) records must be kept of any instance in which ammonia injection fails for more than two minutes; and (vi) the selective catalytic reduction devices must have a continuous NO_x process monitor (which measures NO_x concentration and adjusts ammonia injection levels to achieve desired NO_x reduction). Proposed Permit at Part B § II.A.1.c, II.B.3, II.C.4; *see* Hug Eng’g, *Operating Manual: Control Unit SNQ 1* (v03.00 Mar. 6, 2013) (A.R. 12).

C. Sierra Club's Comments on the Proposed Permit and Pima County's Response

Sierra Club submitted comments on the Proposed Permit arguing, among other things, that the NO_x emissions cap is not “practically enforceable,”⁶ and thus the cap cannot be considered a limitation on the facility’s potential to emit NO_x. Sierra Club, *Intent to Approve: Proposed Revision to the existing Air Quality Permit No. 1052 to Tucson Electric Power (TEP) Irvington/H. Wilson Sundt Generating Station (IGS)* 8-9 & attach. at 20 (Mar. 29, 2018) (A.R. 21.2) (“Sierra Club Comments”). Sierra Club contended that absent a practically enforceable limitation on the facility’s potential to emit NO_x, Pima County erred in concluding that PSD requirements are not applicable to NO_x emissions. In its comments and in an expert report attached to its comments, Sierra Club advanced three arguments as to why the NO_x emissions cap is not practically enforceable.

First, Sierra Club contended that the Proposed Permit’s compliance monitoring for NO_x was inadequate because it relied on stack tests that could be performed as infrequently as every two years. *Id.* at 2, 9. Sierra Club argued that “using stack tests once every two years to determine whether the [Units] are in compliance with the permit is woefully inadequate.” *Id.* The expert report attached to Sierra Club’s comments asserted that stack tests “may not be representative for emissions during routine operations” because stack tests do not provide data on whether pollution control devices at a facility are functioning at an effective level at times other than when the stack test is performed. *Id.* attach. at 21-22 & n.59 (citing to EPA comment letters on state permits that raise this concern as a reason to require additional compliance monitoring to supplement annual stack tests). The solution, according to the expert report, would be to require Continuous Emissions Monitors. *Id.* attach. at 23. The report argued that without Continuous Emissions Monitors, “community members will not be able to protect themselves against harmful emissions and local, state, and federal regulatory agencies cannot detect and cure violations of permit conditions.” *Id.*

Second, Sierra Club argued that the NO_x emissions cap is not practically enforceable because the Permit does not contain an “unambiguous methodology for calculating NO_x emissions from the emission [stack] test.” *Id.* attach. at 25; *see*

⁶ Sierra Club uses the term “practicably enforceable” as well as “practically enforceable” in its Petition. *See, e.g.*, Petition for Review of Prevention of Significant Deterioration Permit 1, 6 (Sept. 7, 2018) (“Pet.”). But as we see no difference between the two (and Sierra Club does not assert that there is), the Board will use the term “practically enforceable” for clarity and consistency.

also id. at 2, 9. Sierra Club requested that the Proposed Permit “be revised to include an equation that lays out the emission calculation in detail.” *Id.* attach. at 25.

Third, Sierra Club asserted that there was no record support for a manufacturer-supplied NO_x emission rate during startup, which was to be used to calculate emissions during startup operating periods. *Id.* at 2, 9 & attach. at 25. Although the Proposed Permit referred to the NO_x startup emission rate as “guaranteed,” Sierra Club noted that there was no manufacturer guarantee provided for a startup NO_x emission rate included in an attachment to the draft Technical Support Document. *Id.* attach. at 25.

In August 2018, Pima County issued the Permit and its response to the public comments (“Response to Comments”) received on the Proposed Permit, including its response to each of Sierra Club’s comments on whether the NO_x emissions cap is practically enforceable.

As to Sierra Club’s comment about the adequacy of stack tests for determining continuing compliance with the NO_x emissions cap, Pima County acknowledged that “EPA has indicated * * * that annual [stack] tests alone are insufficient to assure compliance with emission limits.” Pima Cty. Dep’t of Env’tl. 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

546-67 (EAB 2012), and *In re Pope & Talbot, Inc., Lumber Mill*, Pet. No. VIII-2006-04, 2007 EPA CAA Title V LEXIS 3, at *12-13 (Adm'r Mar. 22, 2007). *Tucson Electric Resp.* at 7. We reject this argument. The Board's two main decisions involving a similar issue, *Shell Offshore* and *Peabody*, 12 E.A.D. at 34-47, as well as the Administrator's decision in *Pope & Talbot*, turned on a fact-based analysis of the permit in question, the nature of the facility, and the claims of the petitioner. They do not stand for the proposition that any permit using emission factors and monitoring of control devices to verify compliance with an emissions cap can be summarily affirmed as sufficient to ensure the practical enforceability of that cap.

⁸ At times, several of *Sierra Club's* statements in its Petition and its comments appear to question the adequacy of the regulatorily-established requirements for conducting performance (stack) tests in subpart JJJJ, 40 C.F.R. § 60.4244, to determine the compliance of internal combustion engines with NO_x emission limitations. *See* Pet. at 11 (arguing that stack tests provide inadequate emissions compliance data due to the shortness of the tests and because they are conducted under ideal, prearranged conditions); *Sierra Club Comments attach.* at 21-22 & n.59 (same). To the extent *Sierra Club* intends this Petition to be a challenge to the requirements for tests in subpart JJJJ, 40 C.F.R. § 60.4244, that question is not properly before the Board because challenges to Clean Air Act regulations must be brought in the U.S. Court of Appeals, District of Columbia Circuit, within 60 days of promulgation. 42 U.S.C. § 7607(b). Moreover, the Board does not

emission factors based on those biennial stack tests to project monthly and yearly emissions – standing alone – would be sufficient to verify compliance with the NO_x emissions cap. What remains at issue, however, are Sierra Club’s challenges to: (i) Pima County’s reliance on two aspects of the Permit’s compliance monitoring requirements – monitoring of the selective catalytic reduction devices and the conservative methodology for calculating emission factors for non-startup operating periods – to ensure the NO_x emissions cap is practically enforceable; and (ii) the adequacy of Pima County’s response to Sierra Club’s comments on the practical enforceability of the NO_x emissions cap. We address these contentions in turn below.

A. Sierra Club’s Challenges to the Permit’s Compliance Monitoring Requirements

1. Sierra Club Fails to Show Clear Error in Pima County’s Reliance on Monitoring of the Selective Catalytic Reduction Devices to Ensure the NO_x Emissions Cap is Practically Enforceable

As discussed, the Permit’s compliance monitoring requirements have two main components in addition to stack tests. The first component involves calculating monthly and yearly NO_x emissions for each Unit during non-startup and startup operating periods. NO_x emissions for non-startup periods are based on NO_x emission factors derived from stack tests conducted every two years and for startup periods are based on manufacturer data. The second component is monitoring of the selective catalytic reduction devices.

In its Petition, Sierra Club contends that the monitoring requirements for the selective catalytic reduction devices do not cure the problem with the Permit’s reliance on stack tests and stack test-derived emission factors because the monitoring does not produce data to be “included in the formula to establish the NO_x emission factor.” Pet. at 12. To the extent Sierra Club is challenging Pima County’s conclusion that the monitoring requirements for the selective catalytic reduction devices are, in combination with the Permit’s other monitoring requirements, adequate to ensure the NO_x emissions cap is practically enforceable, this argument is raised for the first time in Sierra Club’s Petition. As a result, it has not been preserved for Board review. The regulations governing Board review of

review EPA regulations as part of permit appeals. *See In re FutureGen Indus. All., Inc.*, 16 E.A.D. 717, 724 (EAB 2015) (the Board “is not the appropriate forum” for raising dissatisfaction with an EPA regulation); *In re Tondu Energy Co.*, 9 E.A.D. 710, 715-16 (EAB 2001) (“As we have repeatedly stated, permit appeals are not appropriate fora for challenging Agency regulations.”).

permit appeals, require that the party seeking review establish “that each issue being raised in the petition was raised during the public comment period (including any public hearing),” or demonstrate that the issue was not “reasonably ascertainable” at that time. 40 C.F.R. § 124.13, 19(a)(4)(ii); *see, e.g., In re Seneca Res. Corp.*, 16 E.A.D. 411, 415 (EAD 2014). As the Board has previously explained, “[t]he effective, efficient and predictable administration of the permitting process demands that the permit issuer be given the opportunity to address potential problems with draft permits before they become final.” *In re Encogen Cogeneration Facility*, 8 E.A.D. 244, 250 (EAB 1999). This is a particularly important requirement as to technical issues such as the adequacy of the compliance monitoring requirements presented here because “the locus of responsibility for important technical decisionmaking rests primarily with the permitting authority, which has the relevant specialized expertise and experience.” *Peabody*, 12 E.A.D. at 33.

Although Sierra Club did challenge the practical enforceability of the NO_x emissions cap in its comments, Sierra Club did not include as part of that challenge any critique of the role that the monitoring requirements for the selective catalytic reduction devices play. In fact, Sierra Club’s comments never even mentioned the Permit’s monitoring requirements for the selective catalytic reduction devices.

The section in Sierra Club’s comments addressing practical enforceability of the NO_x emissions cap contains four paragraphs: (1) two paragraphs describing in general terms the legal requirement for practically enforceable emission limits; (2) one paragraph arguing that the Permit contained nothing more than a “[b]lanket” emission limitation, which was not practically enforceable; and (3) a final paragraph raising the frequency of stack tests and two other unrelated concerns with practical enforceability of the NO_x emissions cap. Sierra Club Comments at 8-9. The two other concerns were described in that final paragraph as follows:

[Sierra Club’s] expert comments detail at length the enforceability issues with the proposed permit. Specifically, using stack tests once every two years to determine whether the [Units] are in compliance with the permit is woefully inadequate. *The permit does not contain an unambiguous methodology for demonstrating compliance with the annual NO_x emission cap, and there is no support for the applicant’s “vendor-guaranteed” NO_x rate that is used to demonstrate compliance.*

Id. at 9 (emphasis added) (footnote omitted). While Sierra Club’s expert report, which was attached to its comments, expanded on the concerns raised with stack

tests, the methodology issue as to emission factors, and the manufacturer data on NO_x emissions during startup, that report did not raise concerns with or otherwise discuss the Permit's monitoring requirements for the selective catalytic reduction devices. *See Id.* attach. at 20-25.

Sierra Club cannot claim that Pima County did not provide notice of the role that monitoring of the selective catalytic reduction devices plays in verifying compliance with the NO_x emissions cap. On its face, the Proposed Permit expressly stated that its requirements for monitoring of selective catalytic reduction devices are an element bearing on verifying compliance with the NO_x emissions cap. Condition II.A.1.b of the Proposed Permit provided that “[c]ompliance with the NO_x emission limit shall be demonstrated by performance [i.e. stack] tests as detailed in Condition II.D, monitoring as detailed in Condition II.B, and recordkeeping as detailed in Conditions II.C.” Proposed Permit at Part B § II.A.1.b. And Conditions II.B and II.C on monitoring and recordkeeping, as well as Condition II.A addressing emission limitations, contain multiple requirements pertaining to monitoring of the selective catalytic reduction devices in addition to requirements as to stack tests and calculation of monthly and yearly emissions. *See id.* at Part B § II.A.1 (setting the 170 tons per year NO_x emission limit, requiring installation of selective catalytic reduction devices with continuous NO_x process monitors, and imposing operating requirements on such devices); *id.* at Part B § II.B (requiring monitoring of fuel consumption and startups of the new Units and monitoring of operating parameters – ammonia injection rate and temperature – for selective catalytic reduction devices); *id.* at Part B § II.C (requiring records be kept of the monitoring of fuel consumption, of startups of the engines, and of the operating parameters of the selective catalytic reduction devices; and specifying that monthly and yearly NO_x emissions must be calculated). Thus, the Permit's reliance on monitoring of the selective catalytic reduction devices as a key part of determining compliance with the NO_x emissions cap was reasonably ascertainable at the time of the comment period. Any challenge to the way in which the monitoring of the selective catalytic reduction devices functioned in verifying compliance with the NO_x emissions cap should have been presented to the permit issuer in the first instance.

In any event, even if Sierra Club's challenge to Pima County's reliance on the monitoring of the selective catalytic reduction devices to verify compliance with the NO_x emissions cap was preserved for Board review, Sierra Club's specific challenge (the monitoring results are not “included in the formula to establish the ‘NO_x emission factor’”) reflects a misunderstanding of how the Permit works. *See Pet.* at 12. In response to Sierra Club's general argument about the lack of practical enforceability of the NO_x emissions cap through reliance on biennial stack tests,

Pima County explained that it was not relying solely on stack tests to verify compliance. In addition to the required stack tests, Pima County pointed to the Permit's requirements to calculate monthly and yearly NO_x emissions and the monitoring of the selective catalytic reduction devices. RTC at 10-13. As to the latter, Pima County explained that monitoring of the selective catalytic reduction devices would assure that the devices were functioning properly "at all times." *Id.* at 10. Pima County's intent was not to obtain data from this monitoring to adjust the emission factors. Instead, the data are required to make sure the selective catalytic reduction devices are working properly at all times. Thus, Sierra Club's argument in its Petition is not responsive to the role of monitoring of the selective catalytic reduction devices as described by Pima County.

2. *Sierra Club Fails to Show Clear Error in Pima County's Determination that the Non-Startup Emission Factors Are Conservative*

In a footnote to its Petition, Sierra Club also takes issue with Pima County's assertion that the methodology for calculating emission factors for non-startup operating periods is conservative. Pet. at 16 n.37. Under Board case law, a determination such as this one by Pima County "requires the sort of quintessential technical expertise the permit issuer possesses." *In re Shell Offshore, Inc.*, 15 E.A.D. 536, 558 (EAB 2012) (upholding a permit issuer's choice of emission factors in a challenge to the practical enforceability of an emissions cap limiting a facility's potential to emit). Sierra Club has not met the "particularly heavy burden" it bears on this technical question. *See Peabody*, 12 E.A.D. at 41.

Sierra Club disputes that calculating non-startup emission factors from the highest emission rate produced during required stack tests will, as Pima County claims, result in an emission factor that "over-calculat[es]" NO_x emissions. Pet. at 16, n.37. Sierra Club maintains that there is no support in the record for this conclusion and no specific calculation of the quantitative extent of the over-calculation. We find no merit in Sierra Club's argument.⁹

⁹ Sierra Club's argument here also appears for the first time in its Petition. However, neither the Proposed Permit nor draft Technical Support Document explained that the conservative nature of the methodology for calculating non-startup emission factors was a consideration bearing on the practical enforceability of the NO_x emissions cap. That explanation appears for the first time in the Response to Comments, RTC at 13, and thus Sierra Club's challenge to that rationale may be raised on appeal. *See In re Pio Pico Energy Ctr.*, 16 E.A.D.56, 102 (EAB 2013) (allowing consideration of an issue not

First, although Pima County does state at one point that the Permit's methodology for calculating emission factors based on stack tests will overstate actual emissions, the record as a whole suggests that Pima County did not design the procedure for establishing emission factors to overstate emissions by a specific quantitative amount but rather to guard against understating emissions. For example, Pima County introduced its emission factor methodology by explaining that "certain elements [of the methodology] * * * will inherently produce a conservative calculation of emissions (i.e., a tendency to over-calculate, rather than under-calculate, engine NO_x emissions)." RTC at 13. Nor does the record show that Pima County relied upon a specific quantitative degree of over-calculation in the emission factors to justify the practical enforceability of the NO_x emissions cap.

Second, the Permit's description of the methodology for establishing an emission factor for non-startup operating periods provides sufficient record support for Pima County's description of emission factors as conservative (i.e., likely to overstate emissions). The emission factor methodology requires Tucson Electric to identify the maximum NO_x emissions that will be emitted across the full range of load levels during non-startup operating periods. To do this, the Permit requires Tucson Electric to conduct each stack test across the full range of non-startup operating load levels. Permit at Part B § II.D.2.b. The methodology then requires that the emission factor be calculated using the maximum emission rate found in that test as the presumed emission rate whenever the engine is operating in non-startup conditions, irrespective of the load level at which it is operating. *Id.* at Part B § II.D.2.c. Given that the methodology requires that the highest measured emission rate from stack tests be used in the calculation of emission factors, it was reasonable for Pima County to conclude that this approach is a conservative one. Sierra Club's "bare assertion" to the contrary is not adequate to support the opposite conclusion. *See Shell Offshore*, 15 E.A.D. at 561 n.28 (the Board refuses to rely on a petitioner's "bare assertion" that stack tests supporting emission factors were too infrequent).¹⁰

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 Env'tl. 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*

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

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.

Pritchett, Jacob A.

From: Romaine, Chris
Sent: Wednesday, March 2, 2022 2:36 PM
To: 'apiscitelli@uss.com'
Subject: Phone call

I would like to have a brief phone call to follow up on our face-to-face meeting in February. . Given my work schedule, I will need to call you. What is your number.

Thanks

Chris Romaine
Air Permit Section
Illinois EPA

Pritchett, Jacob A.

From: Piscitelli, Alexis S <APiscitelli@uss.com>
Sent: Wednesday, March 2, 2022 2:50 PM
To: Romaine, Chris
Subject: RE: [External]-Phone call

219-888-5280

From: Romaine, Chris <Chris.Romaine@Illinois.gov>
Sent: Wednesday, March 2, 2022 2:36 PM
To: Piscitelli, Alexis S <APiscitelli@uss.com>
Subject: [External]-Phone call

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

I would like to have a brief phone call to follow up on our face-to-face meeting in February. . Given my work schedule, I will need to call you. What is your number.

Thanks

Chris Romaine
Air Permit Section
Illinois EPA

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Pritchett, Jacob A.

Subject: USS - Permitting Discussion
Location: IEPA - 4th Floor Conference Room

Start: Thu 3/3/2016 10:00 AM
End: Thu 3/3/2016 2:00 PM
Show Time As: Tentative

Recurrence: (none)

Meeting Status: Not yet responded

Organizer: Carter, Sally
Required Attendees: Romaine, Chris; Patel, Minesh; Katherine D. Hodge (khodge@hddattorneys.com); David W Hacker (DWHacker@uss.com)

Dave/Kathy,

Please forward to the necessary technical participants from USS. Thanks so much.

Happy Holidays to you both.
Sally

Patel, Minesh

From: DoNotReply.EJRequest@illinois.gov
Sent: Monday, March 9, 2020 3:21 PM
To: Patel, Minesh; Frost, Brad; Frost, Brad; Pressnall, Chris; Lenkart, Maggie; Herr, Alane; Patel, Minesh
Subject: Request for EJ Review for US Steel Granite City | 119813AAI | 95010001 | Air

A new request has been submitted to the EJ Outreach database.

Source Name: US Steel Granite City

Activity/Subactivity Type: Permit / Construction

Decision Due Date: 06/30/2020

Reviewer - When the permit is ready to be issued, [click this link](#) to view the request. When viewing the request, click the button labeled 'Ready for issuance' to mark the record for EJ Release.

**Illinois Environmental
Protection Agency**[Site Search](#)[Review Status](#)You are logged in as **ILLINOIS\Minesh.Patel**

Confirmation

Your request for EJ Review has been submitted.

Summary for EJ Review Request #3692

[PDF](#)

Site/Facility Information

Site Name: US Steel Granite City	Site ID: 170000125683
Bureau Site ID: 119813AAI	Bureau: AIR
Address: 1951 State Street	EJ Status: 3 - EJ Area, Both Minority & Low Income
City/State/Zip: Granite City, Illinois 62040	
Contact Name: Christopher Hardin	Contact Title:
Contact Address: 1951 State Street	
Contact City/State/Zip: Granite City, Illinois 62040	
Phone: (412) 433-5904	Email: cwhardin@uss.com

Application Information

Reference Number: 95010001

Activity Type: Permit

Activity Subtype: Construction

Application Scope/Description:

An application for revisions to a 1996 construction permit for a production increase. The requested revisions do not involve physical changes to equipment or operations or any changes to the production limits set by this construction permit. The primary changes being requested involve combining emission limits for individual emission units into overall limits for the annual emissions of various "areas" at the source, e.g., production of iron in the blast furnaces or the boilers and other combustion units. Other changes being requested include an increase in the limit for usage of natural gas because US Steel shutdown its coke ovens in 2015 and no longer burns coke oven gas.

Other Relevant Information:

This project was a major modification for emissions of carbon monoxide and sulfur dioxide under the Prevention of Significant Deterioration (PSD) rules. For other pollutants, this project was not major because the net increases in emissions were less than significant. This request for revisions to this construction permit involves provisions of this permit that led US Steel to appeal the Clean Air Act Permit Program (CAAPP) permit issued for the Granite City Works (Pollution Control Board Case No. 2010-023). US Steel appealed the CAAPP permit because of certain limits in this construction permit that were carried over into the CAAPP permit. Revisions are being requested to this construction permit to enable settlement of this appeal of the CAAPP permit.

Request Submitted: 3/9/2020

Submitted by: Minesh.Patel

Application Received: 3/27/2007

Decision Due: 6/30/2020

Reviewer Name: Minesh.Patel

Review Status: Review Pending

Review Status Notes:

EJ Review Request #3692**Site/Facility Information**

Site Name: US Steel Granite City

Site ID: 170000125683

Bureau Site ID: 119813AAI

Bureau: AIR

Address: 1951 State Street

EJ Status: 3 - EJ Area, Both Minority & Low Income

City/State/Zip: Granite City, Illinois 62040

Contact Name: Christopher Hardin

Contact Title:

Contact Address: 1951 State Street

Contact City/State/Zip: Granite City, Illinois 62040

Phone: (412) 433-5904

Email: cwhardin@uss.com

Application Information

Reference Number: 95010001

Activity Type: Permit

Activity Subtype: Construction

Application Scope/Description:

An application for revisions to a 1996 construction permit for a production increase. The requested revisions do not involve physical changes to equipment or operations or any changes to the production limits set by this construction permit. The primary changes being requested involve combining emission limits for individual emission units into overall limits for the annual emissions of various "areas" at the source, e.g., production of iron in the blast furnaces or the boilers and other combustion units. Other changes being requested include an increase in the limit for usage of natural gas because US Steel shutdown its coke ovens in 2015 and no longer burns coke oven gas.

Other Relevant Information:

This project was a major modification for emissions of carbon monoxide and sulfur dioxide under the Prevention of Significant Deterioration (PSD) rules. For other pollutants, this project was not major because the net increases in emissions were less than significant. This request for revisions to this construction permit involves provisions of this permit that led US Steel to appeal the Clean Air Act Permit Program (CAAPP) permit issued for the Granite City Works (Pollution Control Board Case No. 2010-023). US Steel appealed the CAAPP permit because of certain limits in this construction permit that were carried over into the CAAPP permit. Revisions are being requested to this construction permit to enable settlement of this appeal of the CAAPP permit.

Request Submitted: 3/9/2020

Submitted by: Minesh.Patel

Application Received: 3/27/2007

Decision Due: 6/30/2020

Reviewer Name: Minesh.Patel

Review Status: Review Pending

Review Status Notes:

Kras, Kim

Subject: USS
Location: 3 South

Start: Mon 3/9/2020 10:30 AM
End: Mon 3/9/2020 11:30 AM
Show Time As: Tentative

Recurrence: (none)

Meeting Status: Not yet responded

Organizer: Carter, Sally
Required Attendees: Chris Romaine; Minesh Patel
Optional Attendees: Kras, Kim

Kim,

Would you mind seeing if 3 South is available?

Thanks!!

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Pritchett, Jacob A.

Subject: USS
Location: 215 E Adams

Start: Wed 3/9/2022 8:30 AM
End: Wed 3/9/2022 5:00 PM
Show Time As: Tentative

Recurrence: (none)

Meeting Status: Not yet responded

Organizer: Carter, Sally
Required Attendees: Patel, Minesh; Romaine, Chris; LaDonna Driver

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Pritchett, Jacob A.

From: Romaine, Chris
Sent: Tuesday, March 10, 2015 10:04 AM
To: Carter, Sally
Subject: Accepted: USS

Pritchett, Jacob A.

Subject: USS
Location: 215 E Adams

Start: Thu 3/10/2022 8:30 AM
End: Thu 3/10/2022 5:00 PM
Show Time As: Tentative

Recurrence: (none)

Meeting Status: Not yet responded

Organizer: Carter, Sally
Required Attendees: Patel, Minesh; Romaine, Chris; LaDonna Driver

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Pritchett, Jacob A.

From: Romaine, Chris
Sent: Wednesday, March 16, 2022 7:57 PM
To: Carter, Sally
Subject: Accepted: USS

Kras, Kim

From: Carter, Sally
Sent: Monday, March 18, 2019 4:12 PM
To: Romaine, Chris; Patel, Minesh
Subject: FW: USS - PSD Discussion

From: Carter, Sally
Sent: Monday, March 18, 2019 4:11 PM
To: 'Katherine D. Hodge' <Katherine.Hodge@heplerbroom.com>
Subject: USS - PSD Discussion

Kathy,

Currently, the Illinois EPA is available the following dates and times to discuss the necessary content of any PSD application to resolve the CAAPP appeal currently pending before the Board:

April 1 – All Day
April 2 – AM only
April 4 – All Day
April 8, 9, 10 & 11 – All Day

I would appreciate knowing your client's availability prior to close of business on March 21 in order to avoid scheduling another meeting with a different party at your preferred date and time.

Thanks.
Sally

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Kras, Kim

From: Patel, Minesh
Sent: Monday, March 18, 2019 4:16 PM
To: Carter, Sally; Romaine, Chris
Subject: RE: USS - PSD Discussion

FYI, I am out for April 1 and 2.

From: Carter, Sally
Sent: Monday, March 18, 2019 4:12 PM
To: Romaine, Chris <Chris.Romaine@Illinois.gov>; Patel, Minesh <Minesh.Patel@Illinois.gov>
Subject: FW: USS - PSD Discussion

From: Carter, Sally
Sent: Monday, March 18, 2019 4:11 PM
To: 'Katherine D. Hodge' <Katherine.Hodge@heplerbroom.com>
Subject: USS - PSD Discussion

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Kras, Kim

From: Carter, Sally
Sent: Monday, March 18, 2019 4:17 PM
To: Patel, Minesh; Romaine, Chris
Subject: RE: USS - PSD Discussion

I almost guarantee that they wont pick the first available dates.

From: Patel, Minesh
Sent: Monday, March 18, 2019 4:16 PM
To: Carter, Sally <Sally.Carter@Illinois.gov>; Romaine, Chris <Chris.Romaine@Illinois.gov>
Subject: RE: USS - PSD Discussion

FYI, I am out for April 1 and 2.

From: Carter, Sally
Sent: Monday, March 18, 2019 4:12 PM
To: Romaine, Chris <Chris.Romaine@Illinois.gov>; Patel, Minesh <Minesh.Patel@Illinois.gov>
Subject: FW: USS - PSD Discussion

From: Carter, Sally
Sent: Monday, March 18, 2019 4:11 PM
To: 'Katherine D. Hodge' <Katherine.Hodge@heplerbroom.com>
Subject: USS - PSD Discussion

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including all attachments. Receipt by an unintended recipient does not waive attorney-client privilege, attorney work product privilege, or any other exemption from disclosure. R002451

Kras, Kim

From: Romaine, Chris
Sent: Monday, March 18, 2019 8:39 PM
To: Carter, Sally
Cc: Patel, Minesh
Subject: RE: USS - PSD Discussion

To accommodate Minesh, not April 1st or 2nd. Otherwise, your choice:

April 8, 9, 10 and 11 are all over three weeks out.

But April 4th is the day before the deadline for our next submittal for the PSD rulemaking.

Of course, April 1st and 2nd were already two weeks out.

From: Carter, Sally
Sent: Monday, March 18, 2019 4:17 PM
To: Patel, Minesh <Minesh.Patel@Illinois.gov>; Romaine, Chris <Chris.Romaine@Illinois.gov>
Subject: RE: USS - PSD Discussion

I almost guarantee that they wont pick the first available dates.

From: Patel, Minesh
Sent: Monday, March 18, 2019 4:16 PM
To: Carter, Sally <Sally.Carter@Illinois.gov>; Romaine, Chris <Chris.Romaine@Illinois.gov>
Subject: RE: USS - PSD Discussion

FYI, I am out for April 1 and 2.

From: Carter, Sally
Sent: Monday, March 18, 2019 4:12 PM
To: Romaine, Chris <Chris.Romaine@Illinois.gov>; Patel, Minesh <Minesh.Patel@Illinois.gov>
Subject: FW: USS - PSD Discussion

From: Carter, Sally
Sent: Monday, March 18, 2019 4:11 PM
To: 'Katherine D. Hodge' <Katherine.Hodge@heplerbroom.com>
Subject: USS - PSD Discussion

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R002453

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Thanks.
Sally

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Pritchett, Jacob A.

From: Romaine, Chris
Sent: Monday, March 18, 2019 8:57 PM
To: Carter, Sally
Subject: RE: USS - PSD Discussion

I bet you a plastic alligator that they will.

From: Carter, Sally
Sent: Monday, March 18, 2019 4:17 PM
To: Patel, Minesh <Minesh.Patel@Illinois.gov>; Romaine, Chris <Chris.Romaine@Illinois.gov>
Subject: RE: USS - PSD Discussion

I almost guarantee that they wont pick the first available dates.

From: Patel, Minesh
Sent: Monday, March 18, 2019 4:16 PM
To: Carter, Sally <Sally.Carter@Illinois.gov>; Romaine, Chris <Chris.Romaine@Illinois.gov>
Subject: RE: USS - PSD Discussion

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From: Carter, Sally
Sent: Monday, March 18, 2019 4:12 PM
To: Romaine, Chris <Chris.Romaine@Illinois.gov>; Patel, Minesh <Minesh.Patel@Illinois.gov>
Subject: FW: USS - PSD Discussion

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To: 'Katherine D. Hodge' <Katherine.Hodge@heplerbroom.com>
Subject: USS - PSD Discussion

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Pritchett, Jacob A.

From: Carter, Sally
Sent: Tuesday, March 19, 2019 9:40 AM
To: Romaine, Chris
Subject: RE: USS - PSD Discussion

Thank you for the commentary on the dates.

We are both out next week, there isn't a lot of choice.

I am hopeful that they won't pick April 1st or 2nd but, in the event, that they do, I would ask that you would entertain them. I do not want another excuse for delay. This would just be the initial overview conference call.

From: Romaine, Chris
Sent: Monday, March 18, 2019 8:39 PM
To: Carter, Sally <Sally.Carter@Illinois.gov>
Cc: Patel, Minesh <Minesh.Patel@Illinois.gov>
Subject: RE: USS - PSD Discussion

To accommodate Minesh, not April 1st or 2nd. Otherwise, your choice:

April 8, 9, 10 and 11 are all over three weeks out.

But April 4th is the day before the deadline for our next submittal for the PSD rulemaking.

Of course, April 1st and 2nd were already two weeks out.

From: Carter, Sally
Sent: Monday, March 18, 2019 4:17 PM
To: Patel, Minesh <Minesh.Patel@Illinois.gov>; Romaine, Chris <Chris.Romaine@Illinois.gov>
Subject: RE: USS - PSD Discussion

I almost guarantee that they won't pick the first available dates.

From: Patel, Minesh
Sent: Monday, March 18, 2019 4:16 PM
To: Carter, Sally <Sally.Carter@Illinois.gov>; Romaine, Chris <Chris.Romaine@Illinois.gov>
Subject: RE: USS - PSD Discussion

FYI, I am out for April 1 and 2.

From: Carter, Sally
Sent: Monday, March 18, 2019 4:12 PM
To: Romaine, Chris <Chris.Romaine@Illinois.gov>; Patel, Minesh <Minesh.Patel@Illinois.gov>
Subject: FW: USS - PSD Discussion

From: Carter, Sally
Sent: Monday, March 18, 2019 4:11 PM
To: 'Katherine D. Hodge' <Katherine.Hodge@heplerbroom.com>
Subject: USS - PSD Discussion

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Cass, Rylee

From: Katherine D. Hodge <Katherine.Hodge@heplerbroom.com>
Sent: Thursday, March 21, 2019 4:26 PM
To: Patel, Minesh
Subject: Automatic reply: [External] Telephone Conference - April 4, 2019 at 10:00 a.m. CST - Application to Revise 1996 PSD Permit

I will be out of the office until Thursday, March 28, 2019. I will be checking email daily, but will have limited access at times. If you need immediate assistance, please contact my legal assistant Katie Ginest (at katie.ginest@heplerbroom.com) or call 217-528-3674.

Thank you, Katherine Hodge

Cass, Rylee

From: Carter, Sally
Sent: Tuesday, March 24, 2015 5:39 PM
To: Patel, Minesh
Subject: Accepted: pre-submittal discussion

Pritchett, Jacob A.

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

Mr. Ogulei,

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

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

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

Regards

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



United States Steel Corporation
1350 Penn Avenue
Pittsburgh, PA 15222

VIA EMAIL

March 23, 2020

David Ogulei
Ogulei.david@epa.gov
Air Programs Branch (AR-18J)
U.S. Environmental Protection Agency Region 5
77 W. Jackson Blvd.
Chicago, IL 60604

**Subject: Endangered Species Act and National Historic Preservation Act
 Background Information for the Revision to the 1996 PSD Permit for Expansion Project
 at U.S. Steel Granite City Works**

Dear Mr. Ogulei:

U. S. Steel ("USS") owns and operates an integrated iron and steel manufacturing facility in Granite City, Illinois ("Granite City Works" or "GCW"). USS submitted a permit application to Illinois Environmental Protection Agency ("IEPA") requesting revisions of certain limitations and requirements for the blast furnaces and basic oxygen process furnace ("BOPF") shop at Granite City Works, which are contained in the Construction Permit 95010001 ("Revision of 1996 Construction Permit"). This request does not involve any physical changes for GCW. This letter provides details of anticipated air quality impacts from the proposed permit revision along with identification of potentially impacted threatened or endangered species based on land use/land cover in the immediate vicinity of GCW. This information is provided for your use in initiating consultation with the U. S. Fish and Wildlife Service regarding analyses that may be required under the Endangered Species Act (ESA) and consultations under National Historic Preservation Act (NHPA).

Background

USS operates two blast furnaces, a BOPF shop, and other associated equipment/operations at Granite City Works to produce steel products. USS applied for a revision to a prevention of significant deterioration (PSD) permit in order to revise some of the carbon monoxide (CO) emissions limits for the existing operations. The 1996 Construction Permit authorized expansion of the existing operations at GCW and established CO emission limitations for some of the fuel combustion operations as part of PSD review. The requested permit revisions involve changes to the emission factors for some of the fuels and update the annual CO emission limitations. This permit revision is subject to PSD for CO. As Illinois EPA implements a delegated PSD program, an interagency consultation between federal EPA and other federal agencies is required per 50 CFR Part 402 implementing the Endangered Species Act of 1973. In addition, if the permit change meets criteria for "undertaking" under 36 CFR § 800.16(y), a consultation under NHPA Section 106 may be required.

Site Description

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

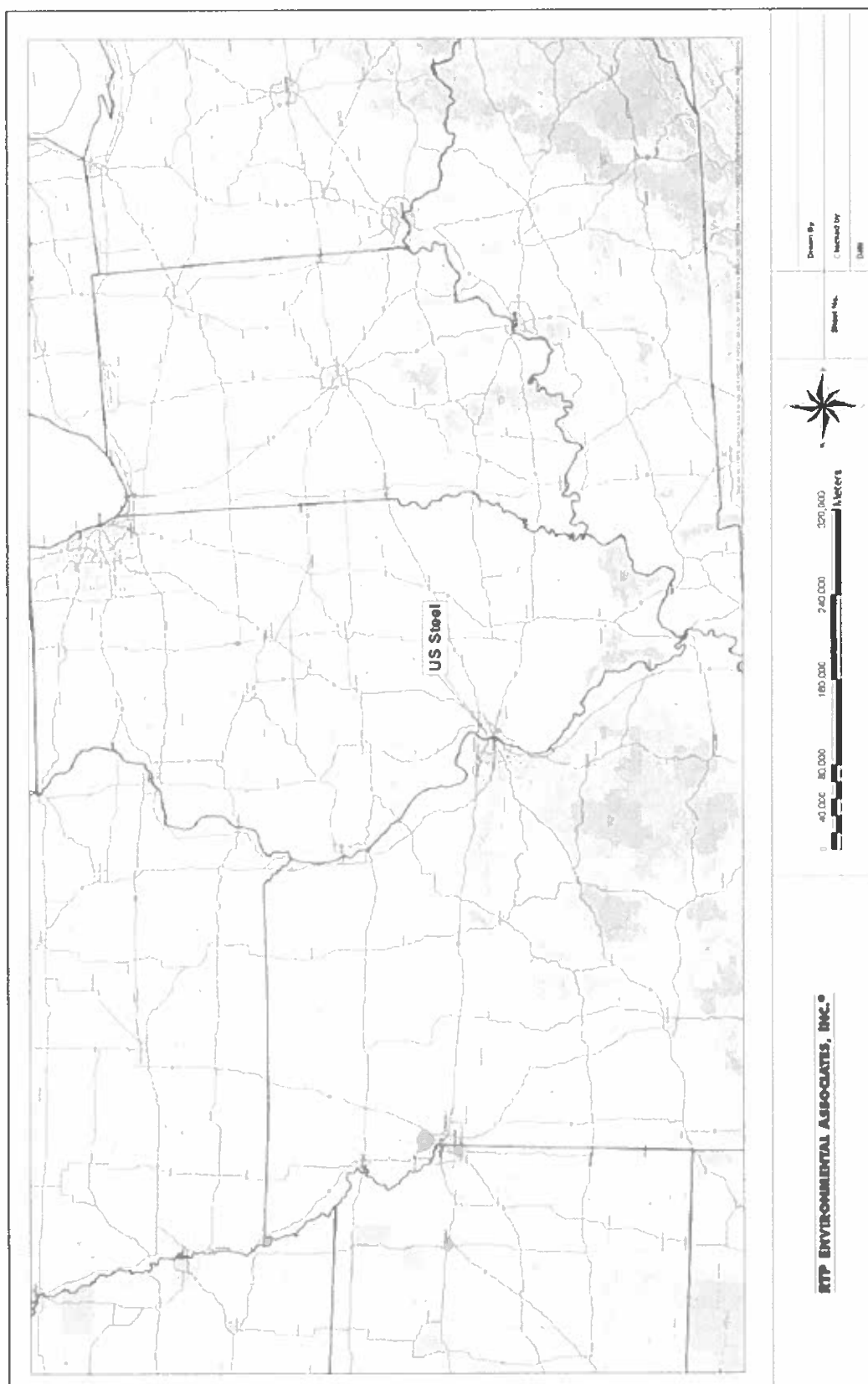


Figure 1. Regional Map

Air Pollutant Emissions

GCW is in an area designated as attainment for all criteria pollutants. The 1996 Construction Permit was a major modification for CO and SO₂ and was non-major modification for PM, PM₁₀, NO_x, and VOM. No changes are proposed to the SO₂ emissions under the Revision of 1996 Construction Permit. Net emissions increases for PM, PM₁₀, NO_x, and VOM remain below the significant rates under PSD after the requested changes to the 1996 Construction Permit. Therefore, only the CO emissions are subject to PSD review as part of the requested revisions to the 1996 Construction Permit.

Land Use / Land Cover

RTP Environmental Associates Inc. ("RTP") has reviewed the potential for impacts on certain endangered species in proximity to Granite City Works in conjunction with the emissions increases associated with the proposed revision. Based on a review of information from other PSD permitting actions in the State, the endangered species of interest that may be in the vicinity of GCW are the:

- Indiana bat;
- Prairie bush clover (PBC);
- Eastern prairie fringed orchid (EPFO);
- Sheepsnose mussel; and
- Spectaclecase mussel.

Based on RTP's review of the land use/land cover map for the area, it appears that the species potentially affected by the project are the Indiana bat, the sheepsnose mussel, and the spectaclecase mussel. The land use/land cover map is attached for your reference along with a listing of the land use types found in proximity of the plant. As this map shows, there are no suitable habitats for either the EPFO or the PBC in proximity to the facility. Due to the proximity of the Mississippi River and some forested land, it appears there may be some potential feeding areas for the Indiana Bat located near the plant. The Mississippi River may also provide habitat for the two species of mussels.

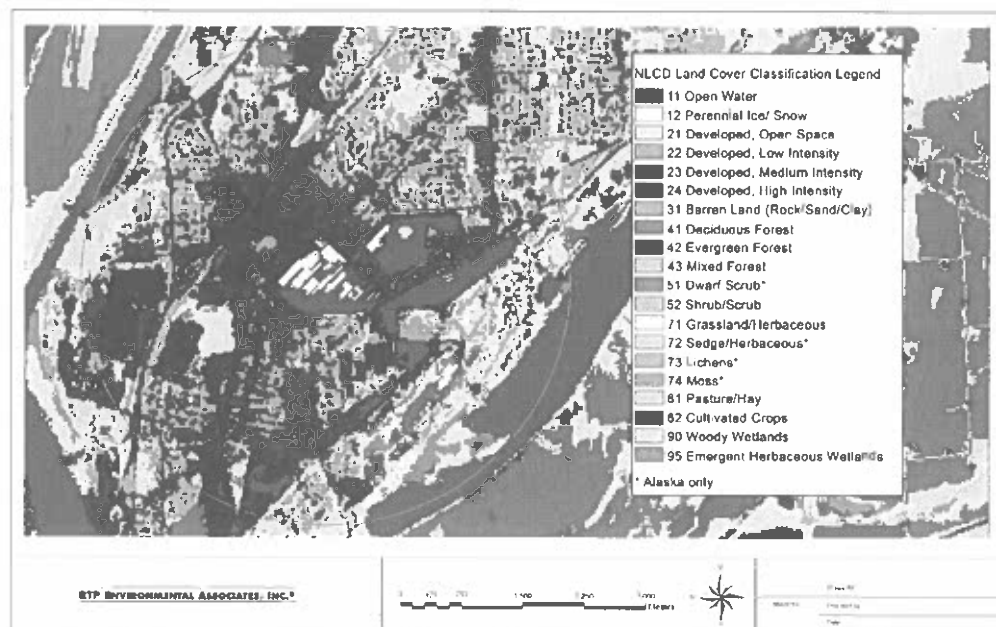


Figure 2. Land Use within Three Kilometer

USS would like to discuss the next level of analysis required under Endangered Species Act consultation process for the proposed change and what information is required for EPA to begin the consultation process. We would also like to discuss any additional consultations (e.g. NHPA etc.) that are required for a federal PSD permit issuance. If you have any questions on the information in this document or you need to reach us, please contact me at skmichalik@uss.com or (412) 433-7302 or Gary Saini at saini@rtpenv.com or (919) 845-1422 x 42.

Sincerely,
United States Steel Corporation

A handwritten signature in dark ink, appearing to read "Sarah Michalik". The signature is fluid and cursive, with the first name "Sarah" written in a larger, more prominent script than the last name "Michalik".

Sarah Michalik
Environmental Engineer

Pritchett, Jacob A.

From: Ogulei, David <Ogulei.David@epa.gov>
Sent: Wednesday, March 25, 2020 4:17 PM
To: Romaine, Chris; Patel, Minesh
Subject: [External] FW: USS Granite City Works PSD Permit ESA and NHPA Consultation

FYI

From: Ogulei, David
Sent: Tuesday, March 24, 2020 4:01 PM
To: Gurinder (Gary) Saini <saini@rtpenv.com>
Cc: Marcus, Danny <marcus.danny@epa.gov>; Lim, YeChan <lim.yechan@epa.gov>; Damico, Genevieve <damico.genevieve@epa.gov>
Subject: RE: USS Granite City Works PSD Permit ESA and NHPA Consultation

Gary,

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

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3. Map of facility in relation to historic properties;
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5. Identification of any interests by Tribal entities and/or local preservation societies, or other interested parties.

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

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

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Sent: Tuesday, March 24, 2020 10:28 AM
To: Gurinder (Gary) Saini <saini@rtpenv.com>
Cc: Marcus, Danny <marcus.danny@epa.gov>; Lim, YeChan <lim.yechan@epa.gov>; Rineheart, Rachel <Rineheart.Rachel@epa.gov>
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If you have any questions or need additional information, please do not hesitate to contact me or Sarah Michalik of U.S. Steel at (412) 433-7302 or skmichalik@uss.com.

Regards

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

Cass, Rylee

From: Patel, Minesh
Sent: Wednesday, March 25, 2020 4:21 PM
To: Ogulei, David
Cc: Romaine, Chris
Subject: RE: USS Granite City Works PSD Permit ESA and NHPA Consultation

Thanks.

From: Ogulei, David <Ogulei.David@epa.gov>
Sent: Wednesday, March 25, 2020 4:17 PM
To: Romaine, Chris <Chris.Romaine@Illinois.gov>; Patel, Minesh <Minesh.Patel@Illinois.gov>
Subject: [External] FW: USS Granite City Works PSD Permit ESA and NHPA Consultation

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 U.S. Environmental Protection Agency

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

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

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77 West Jackson Blvd. | Chicago, Illinois 60604
Phone: (312) 353-0987 | Ogulei.David@epa.gov

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To: Ogulei, David <Ogulei.David@epa.gov>
Cc: Colin Campbell <campbell@rtpenv.com>; Michalik, Sarah K <skmichalik@uss.com>; Christopher W Hardin - United States Steel Corporation (<CWHardin@uss.com> <CWHardin@uss.com>); Chris Romaine (<Chris.Romaine@Illinois.gov> <Chris.Romaine@Illinois.gov>); Patel, Minesh <Minesh.Patel@illinois.gov>
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Regards

Gurinder (Gary) Saini

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

Pritchett, Jacob A.

From: Romaine, Chris
Sent: Wednesday, March 25, 2020 4:29 PM
To: Carter, Sally
Subject: FW: USS Granite City Works PSD Permit ESA and NHPA Consultation

FYI

From: Ogulei, David <Ogulei.David@epa.gov>
Sent: Wednesday, March 25, 2020 4:17 PM
To: Romaine, Chris <Chris.Romaine@Illinois.gov>; Patel, Minesh <Minesh.Patel@Illinois.gov>
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Subject: RE: USS Granite City Works PSD Permit ESA and NHPA Consultation

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Subject: RE: USS Granite City Works PSD Permit ESA and NHPA Consultation

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

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Cc: Colin Campbell <campbell@rtpenv.com>; Michalik, Sarah K <skmichalik@uss.com>; Christopher W Hardin - United States Steel Corporation (CWHardin@uss.com) <CWHardin@uss.com>; Chris Romaine (<Chris.Romaine@Illinois.gov>) <Chris.Romaine@Illinois.gov>; Patel, Minesh <Minesh.Patel@illinois.gov>
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Regards

Gurinder (Gary) Saini
RTP Environmental Associates Inc.

304A West Millbrook Road
Raleigh, NC 27609
(919) 845-1422, 42
(919) 533-4558

Pritchett, Jacob A.

From: Romaine, Chris
Sent: Wednesday, March 30, 2022 12:26 PM
To: Carter, Sally
Subject: Accepted: Hold - USS?

Pritchett, Jacob A.

Subject: USS
Location: Hepler Broom

Start: Wed 4/6/2022 2:00 PM
End: Wed 4/6/2022 5:00 PM
Show Time As: Tentative

Recurrence: (none)

Meeting Status: Not yet responded

Organizer: Carter, Sally
Required Attendees: Patel, Minesh; Romaine, Chris

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Kras, Kim

From: Romaine, Chris
Sent: Monday, April 8, 2019 2:00 PM
To: Patel, Minesh
Subject: RE: US Steel

Thanks

From: Patel, Minesh
Sent: Monday, April 08, 2019 12:10 PM
To: Romaine, Chris <Chris.Romaine@Illinois.gov>
Cc: Carter, Sally <Sally.Carter@Illinois.gov>
Subject: US Steel

Chris, scanned copy of permit for BF's and BOFs Production Increase (92090104).

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Pritchett, Jacob A.

From: Romaine, Chris
Sent: Sunday, April 9, 2017 3:07 PM
To: Carter, Sally
Subject: Accepted: USS

Pritchett, Jacob A.

From: Romaine, Chris
Sent: Tuesday, April 12, 2022 11:49 AM
To: Carter, Sally
Subject: Accepted: USS

Cass, Rylee

From: Ogulei, David <Ogulei.David@epa.gov>
Sent: Monday, April 13, 2020 10:48 AM
To: Patel, Minesh; Romaine, Chris
Subject: [External] FW: USS Granite City Works PSD Permit ESA and NHPA Consultation
Attachments: State HPA Background Draft - final.pdf

FYI. We don't yet have a response to our March 24 email to USS.

From: Gurinder (Gary) Saini <saini@rtpenv.com>
Sent: Saturday, April 11, 2020 3:30 PM
To: Wallace, Carol <Carol.Wallace@Illinois.gov>
Cc: Christopher W Hardin - United States Steel Corporation (CWHardin@uss.com) <CWHardin@uss.com>; Michalik, Sarah K <skmichalik@uss.com>; Colin Campbell <campbell@rtpenv.com>; Ogulei, David <Ogulei.David@epa.gov>
Subject: RE: USS Granite City Works PSD Permit ESA and NHPA Consultation

Thanks for your reply. We are submitting the attached letter on behalf of U.S. Steel Corporation for their Granite City Illinois facility regarding historic preservation evaluation under the applicable provisions. Please let us know if you need anything else or have any questions.

Regards

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

From: Wallace, Carol <Carol.Wallace@Illinois.gov>
Sent: Wednesday, April 1, 2020 10:04
To: Gurinder (Gary) Saini <saini@rtpenv.com>
Subject: RE: USS Granite City Works PSD Permit ESA and NHPA Consultation

Hello Gary,

Thank you for reaching out. I have attached our submission requirements for review. For the time being, we are accepting email submissions. Please email your submission to me at carol.wallace@illinois.gov.

Thank you and stay well!

CJ Wallace
 Cultural Resources/State 707 & Federal 106 Review
Illinois State Historic Preservation Office
 1 Old State Capitol Plaza
 Springfield, Illinois 62701
 Phone: (217) 785-5027

From: Gurinder (Gary) Saini <saini@rtpenv.com>
Sent: Wednesday, April 1, 2020 8:49 AM

To: Wallace, Carol <Carol.Wallace@Illinois.gov>

Subject: [External] FW: USS Granite City Works PSD Permit ESA and NHPA Consultation

I got your contact information from Amy Hathaway. We are working with US EPA regarding a permit for a facility in Granite City area. As noted in the email below, US EPA is asking us to provide a list of historic and eligible historic properties in and around Granite City area. Is this something you can help us with.

Regards

GS

(919) 845-1422, 42

(919) 533-4558

From: Ogulei, David <Ogulei.David@epa.gov>

Sent: Tuesday, March 24, 2020 17:01

To: Gurinder (Gary) Saini <saini@rtpehv.com>

Cc: Marcus, Danny <marcus.danny@epa.gov>; Lim, YeChan <lim.yechan@epa.gov>; Damico, Genevieve <damico.genevieve@epa.gov>

Subject: RE: USS Granite City Works PSD Permit ESA and NHPA Consultation

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United States Steel Corporation
1350 Penn Avenue
Pittsburgh, PA 15222

VIA EMAIL

April 9, 2020

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

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

Dear Madam / Sir:

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

Background

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

20th and State Street
Granite City, IL 62040

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

Site Description

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

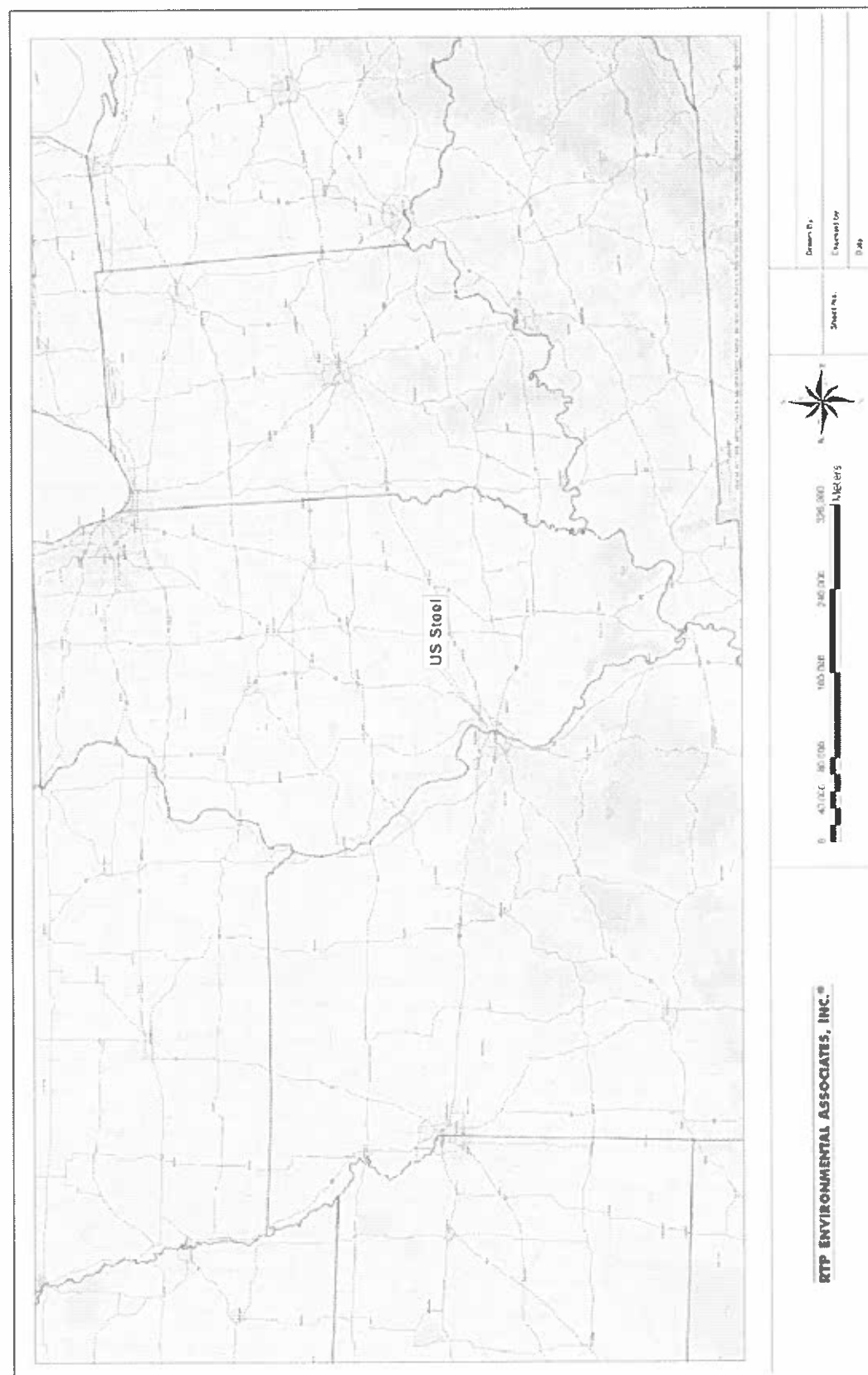


Figure 1. Regional Map

Structure Impacts

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

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

Sincerely,
United States Steel Corporation



Sarah Michalik
Environmental Engineer

Pritchett, Jacob A.

From: Romaine, Chris
Sent: Wednesday, April 15, 2015 10:28 AM
To: Carter, Sally
Subject: Accepted: USS

Pritchett, Jacob A.

From: Romaine, Chris
Sent: Wednesday, April 15, 2015 11:14 AM
To: Carter, Sally
Subject: Accepted: USS

Kras, Kim

From: Patel, Minesh
Sent: Tuesday, April 27, 2021 9:53 AM
To: Schnepp, Jason
Subject: Construction Permit Revision Application for USS Granite City Works
Attachments: Final Application Document USS Granite City Works.pdf

As requested.

**Application for Revisions to the Construction Permit /
Prevention of Significant Deterioration (PSD) Approval for
The 1996 Expansion of the Granite City Works
Permit Number 95010001**



Submitted to:

**Division of Air Pollution Control
Illinois Environmental Protection Agency
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794**

Prepared by:

**RTP Environmental Associates, Inc.
304-A West Millbrook Rd.
Raleigh, NC 27609**

Submitted by:

**U. S. Steel Corporation
Granite City Works
20th and State Streets
Granite City, Illinois 62040**

February 2020

USS Granite City Works

Permit Revision

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APPENDICES

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Appendix C	Air Quality Modeling Report
Appendix D	Copy of the 1996 Construction Permit
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1. Introduction

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

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

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

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

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

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

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

1.1 Facility Information

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

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

1.2 Application Organization

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

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

2. Overview of Requested Permit Revisions

2.1 Background on Construction Permit

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

- (a) The limits on total combined production of hot metal (*i.e.*, iron) from blast furnaces A and B increased to 9,849 net tons per day, averaged over any calendar month, and 3,165,000 net tons per calendar year. [Permit Conditions 2(a)-(b), 32(a)-(c), and 34(a).] Previously, under Construction Permit No. 95090167, hot metal production rate had been limited to 7,150 net tons per day, averaged over any calendar month, and 2,609,750 net tons per rolling 12-month period.
- (b) The limits on total combined production of liquid steel from the Basic Oxygen Process Furnaces (BOFs) increased to 11,000 net tons per day, averaged over any calendar month, and 3,580,000 net tons per calendar year. [Permit Conditions 6(a)-(b), 32(a)-(c), and 34(b).] Previously, under Construction Permit No. 95090167, liquid steel production rate had been limited to 8,250 net tons per day, averaged over any calendar month, and 3,011,250 net tons per rolling 12-month period.
- (c) The limits on combined use of blast furnace gas (BFG) at the boilers #1 through #12, blast furnace stoves, BFG flare #1, and ladle drying preheaters increased to 30,800 million cubic feet (MMcf) per calendar month and 185,030 MMcf per calendar year. [Permit Conditions 21(b) and 32(b)-(c).] The prescribed method of determining BFG usage is an assumed ratio of 0.05846 MMcf per ton of hot metal produced.² [Permit Condition 34(c).] Previously, under Construction Permit No. 95090167, BFG usage had been limited to 21,613 MMcf per calendar month and 129,681 MMcf per rolling 12-month period.
- (d) The limits on combined use of fuel oil at the boilers #1 through #12, blast furnace stoves, BFG flare #1, and ladle drying preheaters increased to 60,000 gallons per calendar month and 365,000 gallons per calendar year. [Permit Conditions 21(c) and 32(b)-(c).] Previously, under Construction Permit No. 95090167, fuel oil usage had been limited to 18,000 gallons per calendar month and 113,000 gallons per rolling 12-month period.³

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

² Using this prescribed ratio, these limits are redundant with the hot metal production limits as BFG generation directly correlates with the hot metal production in the Blast Furnace and the BFG usage limits cannot be exceeded without first exceeding the hot metal production limits.

³ With this application, USS Granite City is proposing to eliminate the use of fuel oil in the project-affected burning units.

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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 SO₂ 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 SO₂ 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 SO₂ and Pb emission limits in the 1996 Construction Permit, so SO₂ 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.

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EPA to be necessary to prevent the 1996 Project from being a major modification.⁵ Because the requested revisions to the 1996 Construction Permit include increases in the NO_x and VOM emissions caps, as well as changes to certain other permit terms that could allow increases in PM and PM₁₀ emissions, the following “source obligation” provisions of the PSD and NNSR are pertinent to this permit application:

At such time that a particular source or modification becomes a major stationary source or major modification solely by virtue of a relaxation in, or expiration of, any enforceable limitation which was established after August 7, 1980, on the capacity of the source or modification otherwise to emit a pollutant, such as a restriction on hours of operation, then the requirements of this Part shall apply as though construction had not yet commenced on the source or modification. 35 IAC 203.210(b).

At such time that a particular source or modification becomes a major stationary source or major modification solely by virtue of a relaxation in any enforceable limitation which was established after August 7, 1980, on the capacity of the source or modification otherwise to emit a pollutant, such as a restriction on hours of operation, then the requirements or paragraphs (j) through (s) of this section shall apply to the source or modification as though construction had not yet commenced on the source or modification. 40 CFR § 52.21(r)(4).

In Sections 7-9 of this permit application and in Appendix B of this permit application, USS Granite City presents updated net emissions increase calculations for PM, PM₁₀, NO_x, and VOM. These updated calculations demonstrate that the changes to permit terms requested by USS Granite City will not trigger after-the-fact PSD or NNSR permitting for emissions of PM, PM₁₀, NO_x, or VOM under the “source obligation” provisions because the project is not a major modification for these pollutants.

2.2.4 Enforceability of PTE Restrictions

As noted above, USS Granite City is proposing to retain the monthly and annual limits on hot metal production rate and liquid steel production rate; all of the PM and PM₁₀ emissions caps; and certain NO_x and VOM emissions caps in the 1996 Construction Permit. As discussed in greater detail in Sections 8-9 of this permit application, USS Granite City also is proposing that the NO_x and VOM emissions caps for the BOF shop and certain other units in the 1996 Construction Permit as identified herein be revised and that the revised permit include appropriate monitoring, testing, and recordkeeping requirements. Collectively, under the following provisions in the pertinent definitions in the PSD and NNSR rules, these proposed limitations and permit terms will restrict the PTE of the affected emissions units:

Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its

⁵ USS Granite City does not agree with this interpretation. The definitions of “major modification” and related provisions in the PSD and NNSR rules in effect in 1996 were based on increases in actual emissions, except in the narrow circumstances where the emissions unit at issue had not begun normal operations at the time of the project. *See, e.g., 56 Fed. Reg. 27630* (June 14, 1991). Nonetheless, for purposes of this permit application, USS Granite City has demonstrated that the 1996 Project is not a major modification even under use of what U.S. EPA refers to as the “actual-to-potential” test.

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design only if the limitation or the effect it would have on emissions is federally enforceable. 35 IAC 203.128.

Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable. 40 CFR § 52.21(b)(4).⁶

Under the provisions above, what is required for restricting PTE is that the limits be enforceable as a practical matter.⁷ Practical enforceability is a matter of technical judgment of the permitting authority – Illinois EPA – but there is a substantial body of policy and precedent regarding preferred forms for emissions caps that are enforceable as a practical matter. These policies can be summarized as follows:

- If not used to restrict emissions over a period shorter than one year, emissions caps should be expressed in terms of tons per year on a 12-month rolling sum basis or on a more frequent basis.
- If the emissions cap will cover multiple activities or emissions units, the permit should require at least monthly emissions calculation and recordkeeping.
- The permit should prescribe methods of calculating actual emissions for each unit and each pollutant and should prescribe how monitoring and recordkeeping of relevant parameters will be used in those calculations.
- Where the permit prescribes an emission factor to be used in conjunction with operational data in demonstrating compliance, the permitting authority should describe the basis for its determination that the emission factor is representative.
- Where the permit requires development and use of a site-specific emission factor to be used in conjunction with operational data in demonstrating compliance, the permit should prescribe the method by which the emission factor will be developed, such as through performance testing with a specified frequency.

Two recent and significant examples of these policies are U.S. EPA's final agency actions in issuing the permits for construction of a drilling operation in the Beaufort Sea off the North Coast of Alaska in March 2012 and installation of new stationary reciprocating internal

⁶ Although the federal PSD regulation as codified at 40 CFR § 52.21(b)(4) continue to include the component term "federally enforceable," this criterion was vacated by the U.S. Court of Appeals for the D.C. Circuit in 1995. *Chemical Manufacturers Ass'n v. EPA*, 70 F.3d 637. Federal case law and U.S. EPA policy now suggest the provision should be interpreted to mean, "federally enforceable or legally and practicably enforceable by a state or local air pollution control agency." See, e.g., 67 *Fed. Reg.* 80186 at 80191; see, also, *U.S. v. Questar Gas Mgmt. Co.*, No. 2:08-CV-167 (D. Utah, May 11, 2011).

⁷ See, e.g., Administrative Order, *In the Matter of Orange Recycling and Ethanol Production Facility, Pencor-Masada Oxydol, 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."

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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 SO₂ and greenhouse gases, with compliance determined on a 12-month rolling sum basis. The Arizona permit, issued by the Pima County Department of Environmental Quality pursuant to a delegation of authority from U.S. EPA, includes an annual NO_x emissions cap with compliance determined on a 12-month rolling sum basis. Copies of the Alaska and Arizona documents referred here are provided in Appendix E.

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

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

⁸ *In re: Shell Offshore, Inc., OCS Permit No. R10 OCS030000*, OCS Appeal Nos. 11-05, 11-06 & 11-07. Mar. 30, 2012. Docket available on the U.S. EPA internet web site at https://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/77355bee1a56a5aa8525711400542d23/f24b9734e6894b9385257958006dad34!OpenDocument (last accessed Aug. 28, 2019).

⁹ *In re: Tucson Electric Power, PSD Permit No. 1052*, PSD Appeal No. 18-02. Dec. 3, 2018. Docket available on the U.S. EPA internet web site at https://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/77355bee1a56a5aa8525711400542d23/64a784010e968b9b852583050073ebc5!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

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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.

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the CO emission factor for burning of BFG in the blast furnace stoves is 322 pounds per million cubic feet.¹²

- Based on CO stack testing performed at Boiler 11 and Boiler 12, the emission factor for burning of blast furnace gas is 32 pounds per million cubic feet.¹³
- The CO emission factor for the Blast Furnace Flare 1 is calculated using CO concentration of 24 percent in BFG and a efficiency of 98 percent.^{14 15} This results in a CO emission factor of 350 pounds per million cubic feet.

Table 3-2 presents the updated maximum annual CO emissions from burning of fuel in the blast furnace stoves, Boiler 11, Boiler 12, Blast Furnace Flare 1, ladle drying preheaters, and ancillary fuel burning units at the continuous casters. Emissions calculations for CO are provided in Appendix B of this permit application.

Table 3-2. Proposed CO Limitations for Gaseous Fuels Burning

Fuel Used for Boilers, Stoves, Flare, Ladle Drying Preheaters, and the Ancillary Fuel Burning Units at the Continuous Casters	Maximum Emissions (tons/year)
Natural Gas	83
Blast Furnace Gas	19,260

3.4 CO PSD Review Requirements

As previously explained, the 1996 Project was subject to PSD review for CO because the CO net emissions increase was greater than the significant emission rate of 100 tons per year. Sections 4 through 6 of this permit application address the proposed changes to the CO emission factors for gaseous fuel burning under the PSD review requirements of 40 CFR §§ 52.21(j) through (o), to the extent applicable.

3.5 Requested Changes to Permit Terms Relating to CO Emissions for Certain Fuel Burning Emissions Units

As part of this application for revision to the 1996 Construction Permit, USS Granite City is proposing the following revisions to the emission limitations and other permit terms relating to CO emissions from the 1996 Construction Permit Condition.

¹² CO emission factor for AK Steel Dearborn / Severstal Dearborn Michigan permit for C Blast Furnace Stoves in the PTI 182-05C was specified as 328.9 lb/MMcf of BFG. See <https://www.deq.state.mi.us/aps/downloads/permits/fmpticon/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").

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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)	=	$((\text{CO (lb/MMcf of BFG) from Stack test} \times \text{Blast Furnace Gas Use (MMcf/month)}) + (\text{CO (lb/MMcf of NG) from Stack test} \times \text{Natural Gas Use (MMcf/month)})) \div 2000 \text{ (lb/ton)}$
For Blast Furnace Stoves CO (tons/month)	=	$((\text{CO (lb/MMcf of BFG) emission factor} \times \text{Blast Furnace Gas Use (MMcf/month)}) + (\text{CO (lb/MMcf of NG) emission factor} \times \text{Natural Gas Use (MMcf/month)})) \div 2000 \text{ (lb/ton)}$
For Blast Furnace Flare 1 CO (tons/month)	=	$((\text{CO (lb/MMcf of BFG) emission factor} \times \text{Blast Furnace Gas Use (MMcf/month)}) + (\text{CO (lb/MMcf of NG) emission factor} \times \text{Natural Gas Use (MMcf/month)})) \div 2000 \text{ (lb/ton)}$
For ladle drying preheaters (tons/month)	=	$\text{CO (lb/MMcf of NG) emission factor} \times \text{Natural Gas Use (MMcf/month)} \div 2000 \text{ (lb/ton)}$
For ancillary fuel burning units at the continuous casters (tons/month)	=	$\text{CO (lb/MMcf of NG) emission factor} \times \text{Natural Gas Use (MMcf/month)} \div 2000 \text{ (lb/ton)}$

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.

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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.

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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 SO₂ 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 SO₂ 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

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the proposed revisions to the permit limits, an updated CO BACT evaluation for these emission units, consistent with 40 CFR § 52.21(j)(3), is presented below.¹⁷

4.2.1 BACT General Approach

This section presents a proposed BACT analysis for the subject units for CO.

4.2.1.1 Best Available Control Technology Definition

The definition of BACT at 42 U.S.C. § 7479(3) is as follows:

The term "best available control technology" means an emission limitation based on the maximum degree of reduction of each pollutant subject to regulation under this chapter emitted from or which results from any major emitting facility, which the permitting authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such facility through application of production processes and available methods, systems, and techniques, including fuel cleaning, clean fuels, or treatment or innovative fuel combustion techniques for control of each such pollutant. In no event shall application of "best available control technology" result in emissions of any pollutants which will exceed the emissions allowed by any applicable standard established pursuant to section 7411 or 7412 of this title. Emissions from any source utilizing clean fuels, or any other means, to comply with this paragraph shall not be allowed to increase above levels that would have been required under this paragraph as it existed prior to November 15, 1990.

The regulatory definition of BACT at 40 CFR § 52.21(b)(12) is similar.

4.2.1.2 Methodology for the BACT Analysis

In a memorandum dated December 1, 1987, the U.S. EPA stated its preference for a "top-down" analysis.¹⁸ U.S. EPA outlined the BACT determination methodology following the top-down approach.¹⁹ Accordingly, the BACT analyses presented in this application utilize the top-down approach. Under the "top-down" approach, progressively less stringent control technologies are analyzed until a level of control considered BACT is determined, based on the most effective control option that is determined to result in acceptable environmental, energy, and economic impacts. More specifically, the top-down BACT analysis methodology consists of five steps as follows:

1. Identify all "available" control options that might be utilized to reduce emissions of the subject pollutant for the type of unit subject to BACT.

¹⁷ Even though Boilers 11 and 12 did not undergo 'any physical change or change in the method of operation' as part of the 1996 Project, this permit revision application conservatively assumes these emissions units are subject to BACT for CO as part of the proposed CO emissions limitations revisions.

¹⁸ Memorandum from J.C. Potter to the Regional Administrators; U.S. EPA, Office of Air and Radiation; Washington, D.C.; December 1, 1987.

¹⁹ See: 1990 New Source Review Workshop Manual, DRAFT, at page B.2. (Environmental Appeals Board in *Prairie State Generating Station*, PSD Appeal No. 05-05, August 24, 2006, in footnote 2, noted that "[t]he NSR Manual has been used as a guidance document in conjunction with new source review workshops and training, and as a guide for state and federal permitting officials with respect to PSD requirements and policy. Although it is not a binding Agency regulation, the NSR Manual has been looked to by this Board as a statement of the Agency's thinking on certain PSD issues.")

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2. Eliminate those available options that are technically infeasible to apply to the specific unit under consideration.
3. Rank the remaining feasible control options by control effectiveness.
4. Evaluate economic, energy and/or environmental impacts of each control option as applied to the subject units, rejecting those options for which the adverse impacts are inappropriate.
5. Based on the most effective control option not rejected in Step 4, select an emission limit or work practice standard as BACT, reflecting the level of control continuously achievable with the selected control option.

4.2.1.3 Baseline Emission Rate

As used in the BACT analyses presented herein, the term “baseline emission rate” refers to the legal floor established in the definition of BACT, i.e., applicable standards under 40 CFR parts 60 and 61.

4.2.1.4 Available Control Options

In the first step of the BACT analysis, all potentially “available” control strategies are identified for further consideration. In the context of the first step of a top-down BACT analysis, U.S. EPA’s guidance describes “available” control strategies as:

Available control options are those air pollution control technologies or techniques with a practical potential for application to the emissions unit and the regulated pollutant under evaluation.²⁰

In the BACT analyses herein, the term “available” is used, consistent with the U.S. EPA guidance, to refer to any control strategy that is potentially applicable to the source type in question (i.e., a technology or control option that has a practical potential for application to the source category in general). These may include fuel cleaning or treatment, inherently lower polluting processes, and end of pipe control devices. All identified control strategies that are not inconsistent with the fundamental purpose and basic design of the proposed facility are listed in this step.

The second step of the BACT analysis addresses source-specific or unit-specific factors that would prevent an otherwise available technology from being applied in the particular case. The criteria for “technical feasibility” are separate and distinct from the criteria used to determine whether a control option is considered to be “available” for purposes of BACT.

4.2.1.5 BACT Technical Feasibility Criteria

In the second step of a top-down BACT analysis, potentially available control strategies are evaluated for technical feasibility. A technically feasible control strategy is one that has been demonstrated to function efficiently on an emissions unit that is identical or similar to the emissions unit under review.²¹ For the purposes of assessing technical feasibility of an add-on

²⁰ See: 1990 New Source Review Workshop Manual, DRAFT, at page B.5.

²¹ See, Prevention of Significant Deterioration Workshop Manual, EPA-450/2-80-081, October 1980, at pp. I-B-6 through I-B-7.

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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: “availability²³” 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 NO_x during combustion can increase CO emissions. In particular lowering combustion temperatures through staged combustion to reduce NO_x emissions can be counterproductive with regard to CO emissions.

4.2.3.1 CO BACT Baseline

There are no federal emissions standards applicable to CO emissions from the fuel burning emission units.

²² See, *PSD and Title V Permitting Guidance for Greenhouse Gases*, EPA-457/B-11-001, March 2011, at p. 34.

²³ In Step 2 of a top-down BACT analysis, the term “availability” has a different meaning than the term “available” in Step 1. Control strategies that are not “available” in Step 1 are not considered in Step 2.

²⁴ See: *1990 New Source Review Workshop Manual, DRAFT*, at page B.13.

4.2.3.2 Step 1– Identify Available CO Control Options

Based on a review of recent BACT determinations in U.S. EPA's RBLC database and other literature survey, the control options (individually and in certain combinations) that are being used to limit CO emissions from emissions units burning gaseous fuels include:

- CO Oxidation Catalysts;
- Thermal Incineration;
- Work Practice Standards, including fuel selection and good combustion practices.

CO oxidation catalysts have previously been applied to natural gas fired boilers located in CO and/or ozone nonattainment areas but are primarily used on large combustion turbines. The oxidation catalyst is typically a precious metal catalyst (e.g., platinum) that has been applied over a metal or ceramic substrate. The catalyst lowers the activation energy for the oxidation of CO so that it is oxidized at lower flue gas temperatures (range of 650 - 1,100 °F). The CO removal efficiency in natural gas-fired systems is typically greater than 90 percent.

Other technology used for the control of CO for other sources include thermal incineration. Incineration requires the exhaust gas containing CO to be heated up to a temperature sufficiently high enough (> 1300 °F) to thermally destroy CO. Typical methods used include regenerative thermal oxidizers, recuperative incinerators, and direct flame incinerators. These devices are typically employed to control sources with high levels of CO and VOM requiring less supplemental fuel for reheating the exhaust gas. Additionally, the exhaust gas CO concentrations from these devices would be similar to that expected from a gaseous fuel combustion device with good combustion design and operation.

Good combustion practices, as the name implies, are based upon maintaining good fuel/air mixing, a proper fuel/air ratio, and adequate time at an appropriate combustion temperature. These practices are part of the routine operation of the units, as maintaining good combustion practices is essential to the plant for efficient use of fuel.

4.2.3.3 Step 2– Eliminate Technically Infeasible CO Control Options

Technical feasibility of the CO emissions controls, identified in Step 1, for the subject gaseous fuel burning emissions units, is presented in this section.

Blast Furnace Stoves

Exhaust temperature for the blast furnace stoves is around 500 °F. In addition, there is significant variability, both in exhaust flow and temperature, due to cycling of the individual stoves when switching from blow to heat steps. Also, CO concentration in the stove exhaust is relatively low at less than 0.3%. As the lower explosive limit for CO is 12.5%, the exhaust from the blast furnace stoves will not have enough CO to combust in thermal incineration.²⁵ Exhaust temperature is also below the operating range for CO oxidation catalyst. Use of end-of-the-pipe control such as thermal incineration or CO oxidation catalyst at blast furnace stoves poses risks arising from operating conditions that have not been encountered for units where these operations are used. Such an application will result in potential backpressure on the stoves that

²⁵ See <https://www.indsci.com/training/general-gas-education/lel-of-combustible-gas/> (last accessed January 3, 2020).

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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 SO₂ emissions. Presence of SO₂ in the flue gas would be accompanied by SO₂ to SO₃ conversion in the CO oxidation catalyst. The presence of SO₃, 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.

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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-Fluents, Landes-Fluents, Shaffton-Fluents. 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.

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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-Fluents-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-Fluents-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-Fluents-Urban land complex, 0 to 2 percent slopes, occasionally flooded	1,215.40	2.64%	6.7	20
Menfro silt loam	1,173.2	2.55%	6	16
Tice silty clay loam, 0 to 2 percent slopes, occasionally flooded	1,164.90	2.53%	6.8	19
Sylvan-Bold silt loams	1,108.3	2.41%	7.1	16
Fishpot-Urban land complex, 0 to 5 percent slopes, rarely flooded	944.1	2.05%	6.5	14.2
Dozaville silt loam, 0 to 2 percent slopes, occasionally flooded	930.6	2.02%	6.6	13.3
Other soil types	8,367.3	18.18%	5.6-8.0	5.8-31.6

The cation exchange capacity ("CEC") is the total amount of extractable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality or a pH of 7.0. Soils having a low CEC hold fewer cations and may require more frequent applications of fertilizer than soils having a high CEC. The ability to retain cations reduces the hazard of ground water pollution. The CEC of the types of soil in significant quantities in the study range from 8.0 to 31.0 milliequivalents per 100g soil.

The USDA considers a significant part of this land to be prime farmland. Additional land would be considered prime farmland if drained and/or protected from flooding. Further, the USDA soil survey rated all of the soil types listed in Table 6-1 as having somewhat or very limited use for recreational activities such as camping, paths and trails, picnic areas, and playgrounds. None of the total study area is identified as having unlimited recreational value.

6.1.2 Vegetation Survey

The natural vegetation located in these counties is primarily deciduous forest consisting of oaks, hickory, eastern white and red pine, ash, and cottonwood varieties.²⁷ According to a 2017 U.S. Department of Agriculture Forests of Illinois survey, approximately 21% of Madison County is forest land.²⁸

Information provided in the 2012 USDA Census reports for Illinois was used to identify commercial vegetation in the study area.²⁹ The major crops are presented in Table 6-2. As shown, approximately 60 percent of the land included in the study area is used for harvested crops. Of this total, 26 percent is used for corn for grain and 29 percent is used for soybeans. Other crops, each harvested from less than 3 percent of the harvested area include forage, wheat for grain, and vegetables. Specific locations for the farms for these harvested crops are not provided in the Census reports.

Table 6-2. Land Use for Commercially Significant Crops

Vegetation	Area (Acres)
Corn	121,675
Wheat	16,331
Forage	7,145
Soybeans	137,628
Vegetables	2,331
Total Cropland	285,110
Total Land Area of Study	474,240

6.2 Pollutant Impacts on Soils and Vegetation

As explained in Section 5 and Appendix C of this permit application, ambient CO impacts from the 1996 Project and the proposed revisions to the CO limitations are below the primary CO NAAQS. CO emissions, at ambient impact concentrations, are not known to cause any soils or vegetation impacts.³⁰ However, elevated CO may produce some impacts such as epinasty,

²⁷ Forest Inventory and Analysis. Design and Analysis Toolkit for Inventory and Monitoring web application, Version November 30, 2018 10.0 c9ded9d. St. Paul, MN: U.S. Department of Agriculture, Forest Service, Northern Research Station. Available only on internet: <https://www.fs.fed.us/emc/rig/DATIM/index.shtml> (last accessed February 26, 2020).

²⁸ Forests of Illinois 2017, <https://www.nrs.fs.fed.us/pubs/55799> (last accessed on February 26, 2020).

²⁹ 2017 Census of Agriculture, Illinois State and County Data, https://www.nass.usda.gov/Publications/AgCensus/2017/Online_Resources/County_Profiles/Illinois/cp17119.pdf (last accessed on February 26, 2020).

³⁰ Secondary NAAQS provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings [<https://www.epa.gov/criteria-air-pollutants/naaqs-table> (last accessed on November 27, 2019)]. The U.S. EPA revoked the secondary NAAQS for CO in 1985 noting that “[c]arbon monoxide is a normal constituent of the plant environment. Plants can both metabolize and produce CO. This may explain the fact that relatively high levels of CO are necessary before damage occurs to vegetation. The lowest level for which significant effects on vegetation have been reported is 100 ppm for 3 to 35 days. The effect observed in this study was an inhibition of nitrogen fixation in legumes. Since CO concentrations of this magnitude

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chlorosis, and abscission. However, plant injury occurs at concentration over 100 ppm which is well over the CO primary NAAQS.³¹ As noted in Section 5 and Appendix C, CO impacts from the facility are well below the CO primary NAAQS. Therefore, no adverse soil and vegetation impacts are expected from this permit revision request.

In addition, CO emissions do not contribute to formation of the particulate that causes visibility impairment.³² Finally, USS Granite City is an existing facility and the 1996 Project did not cause any quantifiable growth impacts due to additional industrial, commercial, or residential growth in the area.

are rarely if ever observed in the ambient air, it is very unlikely that any damage to vegetation will occur from CO air pollution. No other effects on welfare have been associated with CO exposures at or near ambient levels. Because no standards appear to be requisite to protect the public welfare from any known or anticipated adverse effects from ambient CO exposures, EPA is rescinding the existing secondary standards." 50 Fed. Reg. 37484, September 13, 1985.

³¹ "The Effects of Air Pollutants on Vegetation and the Role of Vegetation in Reducing Atmospheric Pollution," Iuliana Florentina Gheorghe and Barbu Ion, September 26, 2011, <https://www.intechopen.com/books/the-impact-of-air-pollution-on-health-economy-environment-and-agricultural-sources/the-effects-of-air-pollutants-on-vegetation-and-the-role-of-vegetation-in-reducing-atmospheric-pollu> (last accessed on February 26, 2020).

³² <https://www.epa.gov/visibility/basic-information-about-visibility> (last accessed on November 3, 2019).

7. Proposed Changes to Permit Terms for PM and PM10 Emissions Increases Analyses

This section describes the proposed changes to the 1996 Construction Permit requested by USS Granite City related to PM and PM10 emissions and provides a demonstration that, even with the requested revisions, the 1996 Project would still not be a major modification under the PSD program at 40 CFR § 52.21 with respect to emissions of PM and under the NNSR program at 35 IAC Part 203 with respect to emissions of PM10.³³ The net emissions increase calculations for PM and PM10 from the 1995 Application submitted by National Steel Corporation are reproduced in Appendix B of this permit application.

7.1 1996 Construction Permit Applicability and Requirements

Table 7-1 summarizes the provisions from the 1996 Construction Permit pertaining to PM and PM10 emissions limitations from the project-affected emissions units. A copy of the 1996 Construction Permit is provided in Appendix D of this application.

Table 7-1. Construction Permit Conditions Addressing PM and PM10

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

The annual PM and PM10 emissions caps listed in Table 5 of the 1996 Construction Permit are presented in Table 7-2 below. These annual PM and PM10 emissions caps cover all emissions units associated with the four main processes or activities at the USS Granite City facility (as listed in Table 7-1). Each emissions cap is calculated as the sum of the unit-specific emissions limitations in Tables 1 through 4 of the 1996 Construction Permit, plus the listed PTE estimates for certain roadways and material handling activities at the facility.

³³ At the time of 1996 Construction Permit, the Granite City area was designated as nonattainment for PM10 NAAQS.

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Table 7-2. PM and PM10 Emissions Information from Table 5 of 1996 Construction Permit

Processes and Activities	Emissions Caps (tons/year)	
	PM	PM10
Blast Furnace Operations	218	194
BOF Shop Operations	510	451
Continuous Casting Operations	71	71
Certain Fuel Combustion Units	273	273
Roadways	27	27
Material Handling	2	2
Total	1,101	1,018

The PM and PM10 emissions caps restricted the PTE of the project affected-emissions units. The project emissions increases for PM and PM10 were calculated by subtracting pre-project actual emissions (August 1992 to July 1994, 24-month period) from the PTE as restricted by the limitations in the 1996 Construction Permit. Table 6 of the 1996 Construction Permit summarized the net emissions increases from the project and summarized Illinois EPA's determination that the project was not a major modification with respect to PM or PM10 emissions. Because the net emissions increases for PM and PM10 were below the applicable significant emission rates, these pollutants were not subject to PSD or NNSR review.

7.2 Pre-Project Actual Emissions for 1996 Project

This section presents the pre-project actual emissions and proposed updates/revisions to some of the PM and PM10 emission factors. Corrections to the emissions factors are the result of updated information available regarding some of the operations affected by the project as discussed in Section 7.2.2 below.

7.2.1 Historical Throughput Rates

The PM and PM10 net emissions increase calculations presented in Table 6 of the 1996 Construction Permit were based on calculations provided by National Steel Corporation in Tables 3-4, 3-5, and 3-7 of the construction permit application. Those tables from the prior construction permit application are reproduced in Appendix B to this permit application.

The pre-project annual emissions were calculated using the same production and operating rates as the 1995 Application shown in Table 7-3.

Table 7-3. Pre-Project Production and Operating Rates for PM and PM10

Parameters	Units	1995 Application
Blast Furnace Production	Net tons of hot metal/year	2,059,557
Blast Furnace Charging	Charge Material tons/year	2,803,241
BOF Shop	Molten steel tons/year	2,413,406
Combined BFG Combustion	MMcf/year	121,039
Combined NG Combustion	MMcf/year	1,145

7.2.2 PM and PM10 Emission Factors Basis and Revisions

USS Granite City has reviewed the PM and PM10 emission factors used to calculate pre-project actual emissions from the project-affected emissions units based on stack testing and updated literature-based information. As a result of this review, emission factors for two operations were revised as described below. The updated pre-project actual emissions for PM and PM10 for the project are presented in Table 7-5 and Table 7-6 of this permit application, respectively; explanations are provided in the following paragraphs.

7.2.2.1 A&B Blast Furnace Charging Fugitive Emissions (PM10 Revised)

The Blast Furnace charging fugitive PM emissions were calculated using the emission factor of 0.0024 lb/ton from the U.S. EPA's AIRS 1990 database (WebFIRE). For PM10, the 1995 Application assumed PM10 was the same as PM. However, based on particle size distribution data in AP-42 Table 12.5-2, which indicates 51% of PM is PM10, the PM10 emission factor for this operation was revised. The updated PM10 emission factor is 0.0012 lb/ton.

7.2.2.2 A&B Blast Furnace Casthouse Stack (Baghouse) Emissions (No Change)

The pre-project actual emissions for the A and B Blast Furnaces Casthouse (baghouse) stack as presented by National Steel Corporation in the 1995 Application were calculated using the design outlet concentration of 0.010 grains per dry standard cubic foot in the baghouse exhaust gas and an exhaust gas flow factor of 49,000 dry standard cubic feet per ton of hot metal. PM10 was assumed to be same as PM. No changes are necessary for this emission factor.

7.2.2.3 A&B Blast Furnace Casthouse Roof Monitor Emissions (PM10 Revised)

The Blast Furnace Casthouse roof monitor actual emissions were calculated using the AP-42 Section 12.5 Table 12.5-1 PM emission factor of 0.6 lb per ton for the uncontrolled casthouse. A 95% capture efficiency, which has been recognized by U.S. EPA as representative for this source type,³⁴ was applied for the A&B Blast Furnace Casthouse capture systems. Based on the particle size distribution in AP-42 Table 12.5-2, 51% of PM was assumed to be PM10. The PM10 emission factor was revised to correct an arithmetic error in the 1995 Application. The new PM10 emission factor is 0.0153 lb/ton vs 0.0155 lb/ton in the 1995 Application.

7.2.2.4 A&B Blast Furnace Iron Spout Baghouse Emissions (No Change)

The pre-project actual emissions for the A and B Blast Furnaces Iron Spout baghouse stack as presented by National Steel Corporation in the 1995 Application were based on an emission factor of 0.02548 lb per ton of hot metal. All PM was assumed to be PM10. This emission factor appears to have been developed based on the results of stack testing conducted in 1992. No changes are necessary for this emission factor.

³⁴ See, for example, "Technology Review for the Integrated Iron and Steel NESHAP," memorandum from D.L. Jones, U.S. EPA, *et al.*, to the Integrated Iron and Steel (II&S) Residual Risk and Technology Review (RTR) Project File, May 1, 2019. Available in the electronic docket at www.regulations.gov/document?D=EPA-HQ-OAR-2002-0083-0964.

7.2.2.5 Blast Furnace Slag Pits Emissions (No Change)

The pre-project actual emissions for the A and B Blast Furnaces slag pits as presented by National Steel Corporation in the 1995 Application were calculated using an emission factor of 0.00417 lb per ton of hot metal. This emission factor is the sum of PM and PM10 emissions rate of 0.0026 lb per ton for slag quenching (derived from EPA assessment) for slag quenching and 0.00157 for slag transfers (using AP-42 Section 13.2.4 equation for aggregate handling). For purposes of emissions calculations, PM was assumed to be same as PM10. No changes are necessary for this emission factor.

7.2.2.6 BOF ESP Stack (BOF 2 Vessels) Emissions (No Change)

The pre-project actual emissions for the BOF ESP stack as presented by National Steel Corporation in the 1995 Application were calculated using data from the stack tests conducted during 1989 to 1993 timeframe on the BOF ESP exhaust. PM and PM10 was assumed to be identical for this operation. No changes are necessary for this emission factor.

7.2.2.7 BOF Roof Monitor Emissions (No Change)

The BOF roof monitor actual emissions were calculated using the information from AP-42 Chapter 12.5 and AIRS database. For pre-change actual PM and PM10 emissions, National Steel used 90% capture efficiency during the charging and tapping steps and 99% capture efficiency during the refining step for the BOF operations. A detailed description of the baseline roof monitor PM and PM10 emission factors is provided in Appendix C of the 1995 Application. For the BOF operations, per particle size distribution in AP-42 Table 12.5-2, 67% of PM is PM10. No changes are necessary for this emission factor.

7.2.2.8 Desulfurization Station & Transfer Pit Baghouse Stack Emissions (No Change)

The pre-project actual emissions for the Desulfurization Station and Transfer Pit Baghouse stack as presented by National Steel Corporation in the 1995 Application were calculated using an emission factor of 0.03721 lb per ton of hot metal. No new information is available that would require any revisions to this emission factor.

7.2.2.9 Hot Metal Charging and Ladle Skimming Stack Emissions (No Change)

The pre-project actual emissions for the Hot Metal Charging and Ladle Skimming Baghouse stack as presented by National Steel Corporation in the 1995 Application were calculated using an emission factor of 0.005 lb per ton of hot metal. No new information is available that would require any revisions to this emission factor.

7.2.2.10 Argon Stirring & Material Handling Tripper Baghouse Stack Emissions (No Change)

The pre-project actual emissions for the Argon Stirring and Material Handling Tripper Baghouse stack as presented by National Steel Corporation in the 1995 Application were calculated using an emission factor of 0.00417 lb per ton of steel. No new information is available that would require any revisions to this emission factor.

7.2.2.11 Deslagging Station & Material Handling Baghouse Stack Emissions (No Change)

The pre-project actual emissions for the Deslagging Station and Material Handling Tripper Baghouse stack as presented by National Steel Corporation in the 1995 Application were calculated using an emission factor of 0.00355 lb/ton of hot metal. No new information is available that would require any revisions to this emission factor.

7.2.2.12 Caster Mold Process Emissions (No Change)

The pre-project actual emissions for the Caster Mold as presented by National Steel Corporation in the 1995 Application were calculated using the emission factor from the Illinois EPA 1991 EIS PM/PM10 report. No changes are necessary for this emission factor.

7.2.2.13 Continuous Caster Spray Chamber Emissions (No Change)

The pre-project actual emissions for the Continuous Caster Spray Chamber as presented by National Steel Corporation in the 1995 Application were calculated using the emission factor from a stack test in the 1980s. PM and PM10 emissions are assumed to be identical. No changes are necessary for this emission factor.

7.2.2.14 Slab Cut Off Casters Emissions (No Change)

The pre-project actual emissions for the Slab Cut Off Casters as presented by National Steel Corporation in the 1995 Application were calculated using the emission factor from the Illinois EPA 1991 EIS PM/PM10 report. No changes are necessary for this emission factor.

7.2.2.15 Slab Ripping Casters Emissions (No Change)

The pre-project actual emissions for the Slab Ripping Casters as presented by National Steel Corporation in the 1995 Application were calculated using the emission factor from the Illinois EPA 1991 EIS PM/PM10 report. No changes are necessary for this emission factor.

7.2.2.16 Fuel Burning Emissions Units Emissions (Revised for NG)

The pre-project actual emission for various fuels used in certain fuel burning emissions units affected by the project were calculated using the emission factors presented in Table 7-4.

Table 7-4. PM and PM10 Emission Factors for Fuel Burning

Fuel	Emission Factor and Units	Basis
Blast Furnace Gas	2.9 lb/MMcf	AIRS 1990
Natural Gas	1.9 lb/MMcf (<i>revised</i>)	AP-42 Table 1.4-2 (Based on updated AP-42 information)
Fuel Oil (<i>Shown for historical purposes. USS Granite City no longer plans to use fuel oil.</i>)	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.

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7.2.2.18 BOF Hopper Baghouse Emissions (No Change)

The pre-project actual emissions for the BOF Hopper baghouse stack were based on transfer point calculations using AP-42 Chapter 13.2.4 for aggregate handling. A control efficiency of 99.9% was applied for the baghouse used in this operation. No changes are necessary for this emission factor.

7.2.2.19 Flux Conv and Transfer Points Baghouse Emissions (No Change)

The pre-project actual emissions for the Flux Conv and Transfer Points baghouse stack were based on transfer point calculations using AP-42 Chapter 13.2.4 for aggregate handling. A control efficiency of 99.3% was applied for the baghouse used in this operation. No changes are necessary for this emission factor.

Table 7-5. Pre-project Actual Emissions and Summary of Proposed Changes to Pre-Project PM Emission Factors for Affected Emissions Units

Emission Point ^(a)	Emission Factors ^(b)		Units	Basis	Baseline Emissions (TPY)	
	Original	Corrected			Original	Corrected
A & B Blast Furnace Casthouse Fugitives	0.031	0.031	lb/ton of hot metal	No change	31.92	31.92
A & B Blast Furnace Charging	0.0024	0.0024	lb/ton of material	No change	3.36	3.36
A & B Blast Furnace Casthouse Baghouse	0.07026	0.07026	lb/ton of hot metal	No change	72.35	72.35
Blast Furnace Slag Pits	0.00417	0.00417	lb/ton of hot metal	No change	4.29	4.29
Iron Spout Baghouse	0.02548	0.02548	lb/ton of hot metal	No change	26.24	26.24
Blast Furnace Operations					138.17	138.17
BOF 2 Vessels	0.16	0.16	lb/ton of steel	No change	193.07	193.07
BOF Roof Monitor	0.428	0.428	lb/ton of steel	No change	516.72	516.72
Desulfurization Station [inside BOF shop] & Transfer Pit	0.03721	0.03721	lb/ton of hot metal	No change	38.32	38.32
Hot Metal Charging Ladle Slag Skimmer	0.00502	0.00502	lb/ton of hot metal	No change	5.17	5.17
BOF Shop Operations					753.28	753.28
Argon Stirring #1 & #2 Material Handling Tripper	0.00715	0.00715	lb/ton of steel	No change	8.63	8.63
Deslagging Station & Material HS	0.00355	0.00355	lb/ton of steel	No change	4.28	4.28
Caster Mold - Casters #1 & #2	0.006	0.006	lb/ton of steel	No change	7.24	7.24
Continuous Casters #1 & #2 - Spray Chamber	0.00852	0.00852	lb/ton of steel	No change	10.28	10.28
Slab Cutoff Casters #1 & #2	0.0071	0.0071	lb/ton of steel	No change	8.57	8.57
Slab Ripping Casters #1 & #2	0.00722	0.00722	lb/ton of steel	No change	8.71	8.71
Continuous Casting Operations					47.71	47.71
Combined BFG in stoves, B11 & B12, ladle drying preheaters, and BFG flares	2.90	2.90	lb/MMcf	No change	175.51	175.51
Combined NG in stoves, B11 & B12, ladle drying preheaters, and BFG flares	5.10	1.90	lb/MMcf	Note ^(c)	2.92	1.09
Combined FO in stoves, B11 & B12, ladle drying preheaters, and BFG flares	9.72	9.72	lb/Mgal	No change	0.08	0.08
Certain Fuel Burning Units					178.51	176.68
Iron Pellet Screen ^(a)	0.00279	0.00375	lb/ton of material	Note ^(d)	3.91	5.26
BOF Hopper Baghouse ^(a)	0.00032	0.00032	lb/ton of steel	No change	0.39	0.39
Flux Conv. & Transfer Points Bin Floor - BOF ^(a)	0.0016	0.0016	lb/ton of steel	No change	1.93	1.93
Material Handling Operations at BF and BOF					6.23	7.57
Total					1,123.90	1,123.42

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

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

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

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

Table 7-6. Pre-project Actual Emissions and Summary of Proposed Changes to Pre-Project PM10 Emission Factors for Affected Emissions Units

Emission Point ^(a)	Emission Factors ^(b)		Units	Basis	Baseline Emissions (TPY)	
	Original	Corrected			Original	Corrected
A & B Blast Furnace Casthouse Fugitives	0.0155	0.0153	lb/ton of hot metal	Correction to calculation	15.96	15.76
A & B Blast Furnace Charging	0.0024	0.0012	lb/ton of material	Note ^(c)	3.36	1.68
A & B Blast Furnace Casthouse Baghouse	0.07026	0.07026	lb/ton of hot metal	No change	72.35	72.35
Blast Furnace Slag Pits	0.00417	0.00417	lb/ton of hot metal	No change	4.29	4.29
Iron Spout Baghouse	0.02548	0.02548	lb/ton of hot metal	No change	26.24	26.24
Blast Furnace Operations					122.21	120.32
BOF 2 Vessels	0.16	0.16	lb/ton of steel	No change	193.07	193.07
BOF Roof Monitor	0.287	0.287	lb/ton of steel	No change	346.20	346.20
Desulfurization Station [inside BOF shop] & Transfer Pit	0.03721	0.03721	lb/ton of hot metal	No change	38.32	38.32
Hot Metal Charging Ladle Slag Skimmer	0.00502	0.00502	lb/ton of hot metal	No change	5.17	5.17
BOF Shop Operations					582.76	582.76
Argon Stirring #1 & #2 Material Handling Tripper	0.00715	0.00715	lb/ton of steel	No change	8.63	8.63
Deslagging Station & Material H/S	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 ^(c)	3.91	1.83
BOF Hopper Baghouse ^(a)	0.00032	0.00032	lb/ton of steel	No change	0.39	0.39
Flux Conv. & Transfer Points Bin Floor - BOF ^(a)	0.0016	0.0016	lb/ton of steel	No change	1.93	1.93
Material Handling Operations at BF and BOF					6.23	4.15
Total					937.42	931.62

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

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

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

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

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

7.3 Post-Project PM and PM10 Emissions Caps

As noted in Sections 2.2.2 through 2.2.4 herein, and as discussed further below, for each pollutant, the project emissions increase and/or net emissions increase from the 1996 Project was calculated using the difference between the pre-project actual emissions (August 1992 to July 1994, 24-month period) and the post-project emissions cap for each major operational group of affected emissions units. The post-project emissions caps and emissions increases from the 1996 Project, respectively, were listed in Tables 5 and 6 of the 1996 Construction Permit.

This Section 7.3 presents a discussion of the post-project PM and PM10 emissions caps and a summary of the updated emissions increase calculations for the 1996 Project, reflecting the proposed changes to the emissions caps. Section 7.4 of this permit application presents a summary of the updated net emissions increase calculations and Section 7.5 of this permit application presents the permit terms proposed by USS Granite City for purposes of ensuring the emissions caps are enforceable as a practical matter.

The proposed emissions caps for the project-affected emissions units were developed by USS Granite City using the operating rates shown in Table 7-7. Other than the natural gas usage, which is proposed to increase, and the oil usage, which is proposed to be deleted entirely, these rates are unchanged from the operating rates in the 1996 Construction Permit. USS Granite City shut down Coke Oven Batteries A and B in 2015. The shutdown of the Coke Plant eliminated coke oven gas as process fuel at the plant for use in various fuel burning units. This requires use of additional natural gas for the project affected fuel burning units at the site. The natural gas usage increase is also being addressed in this permit revision application.

Table 7-7. Projected Post-Project Operating Rates for PM and PM10

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

A comparison of the PM and PM10 emissions caps from Table 5 of the 1996 Construction Permit and the proposed revisions to these emissions caps is provided in Table 7-8. USS Granite City is proposing only non-material changes to these emissions caps as part of this permit application. (The changes are primarily attributable to the redistribution of the emission caps, including establishment of a separate emissions cap for certain material handling operations, in the facility's CAAPP permit issued by Illinois EPA.) Detailed emissions calculations are provided in Appendix B.

The proposed revisions to the post-project PM and PM10 emissions caps reflect three categories of changes: corrections of certain emission factors used to calculate both pre-project and post-

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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.

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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
<i>Contemporaneous Emissions Increases</i>	<i>Date</i>		
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
<i>Contemporaneous Emissions Decreases</i>			
Ingot Teeming Shutdown	Apr-1991	-22.4	-22.4
Bloomer 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.

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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 FFFFFF 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.

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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.

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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.

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- (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.*

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As the PM and PM10 emission limitations are to be incorporated in Condition 22 itself, USS Granite City also proposes the deletion of the PM and PM10 emission limitations in Table 4 of the 1996 Construction Permit as they would be redundant.

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

USS Granite City proposes the following requirements for demonstrating compliance with the emissions limitations under Condition 22.e of the revised version of the 1996 Construction Permit.

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

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

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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 NO₂ 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 NO_x 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	NO _x 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 (<i>Shown for historical purposes. USS Granite City no longer plans to use fuel oil.</i>)	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 NO_x 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 NO_x 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 NO_x 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, NO_x 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
<i>Blast Furnace Operations</i>					<i>15.57</i>	<i>4.57</i>
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
<i>BOF Shop Operations</i>					<i>46.94</i>	<i>181.33</i>
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
<i>Continuous Casting Operations</i>					<i>60.34</i>	<i>0.00</i>
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 (<i>shown here for historical purposes</i>)	9.72	9.72	lb/Mgal	No change	0.44	0.44
<i>Certain Fuel Burning Units</i>					<i>495.17</i>	<i>495.17</i>
<i>Total</i>					<i>618.01</i>	<i>681.07</i>

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

8.3 Post-Project NO_x Emissions Caps

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

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

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

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

A comparison of the NO_x emissions caps from Table 5 of the 1996 Construction Permit and the proposed revisions to these emissions caps is provided in Table 8-7. Detailed emissions calculations are provided in Appendix B. The proposed revisions to the post-project NO_x 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 NO_x 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 NO _x 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 NO_x 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 NO_x 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
<i>Contemporaneous Emissions Increases</i>	Date	
Installation of #8 Galvanizing Line	Mar-1996	n/a
<i>Contemporaneous Emissions Decreases</i>		
Bloomington 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.

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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)
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For recordkeeping requirements, USS Granite City proposes the following:

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- (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.

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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 (<i>revised</i>)	Updated based on the CoGen Boiler Permit No. 06070023
Natural Gas	5.5 lb/MMcf (<i>revised</i>)	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 &

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

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

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

9.3 Post-Project VOM Emissions caps

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

The post-project emissions caps for the project affected emissions units were developed by USS Granite City using the operating rates parameters shown in Table 9-6. Other than the natural gas usage, which is proposed to increase, and the oil usage, which is proposed to be deleted entirely, these rates are unchanged from the operating rates in the 1996 Construction Permit. As previously noted in Section 7.3, due to 2015 shutdown of the Coke Plant this application addresses increase in natural gas usage for the fuel burning units affected by the project.

Table 9-6. Projected Post-Project Operating Rates for VOM

Parameters	Units	Post Project Rates
Blast Furnace Production	Net tons of hot metal/year	3,165,000
BOF Shop	Molten steel tons/year	3,580,000
Combined BFG Combustion	MMcf/year	183,030
Combined NG Combustion	MMcf/year	1,980
Combined Oil Combustion	n/a	0

A comparison of the VOM emissions caps from Table 5 of the 1996 Construction Permit and the proposed revisions to these emissions caps is provided in Table 9-7. Detailed emissions calculations are provided in Appendix B. The proposed revisions to the post-project VOM emissions caps reflect changes to some of the emission factors presented in Table 9-5 and changes in post-project operating rates as shown in Table 9-6.

Table 9-7. VOM Emissions Caps

	VOM Emission Caps (TPY) from Table 5 of 1996 Construction Permit	Proposed Revised VOM Emissions Caps (TPY)
Blast Furnace Operations	157	24.8
BOF Shop	12	44.1
Certain Fuel Burning Units	2	27.7
Total	171	96.7

The updated project emissions increase analysis for VOM reflecting proposed revisions to the emissions increase calculations in Table of the 1996 Construction Permit, is provided in Table 9-8. This table incorporates the effects of the corrected pre-project emission factors as shown in Table 9-5 and the requested updates to the emission limitations as shown in Table 9-7.

Table 9-8. Revised VOM Project Emissions Increase Analyses

	VOM Pre-Project Emissions (TPY)	VOM Revised Emission Limitations (TPY)	VOM Change (TPY)
Blast Furnace Operations	16.2	24.8	8.7
BOF Shop	24.3	44.1	19.8
Certain Fuel Burning Units	17.7	27.7	10.0
Total			38.5

In this case, the project emissions increase for VOM remains below the applicable significant emission rate. Therefore, the 1996 Project remains a non-major modification under NNSR.

9.4 Changes to Net Emissions Increase Calculation for VOM

Even though not required, as part of the VOM applicability evaluation, in conjunction with the requested revisions to the 1996 Construction Permit, USS Granite City is also updating the analysis for net increases in emissions of VOM for the 1996 Project. Table 9-9 shows the updated net emissions increases calculations for VOM based on the updated project emissions increase calculations shown in Table 9-8. This table includes a correction to the contemporaneous period for VOM emissions from the project as established using the definition in 35 IAC 203.208.⁴² The start of the contemporaneous period was January 4, 1990, five years prior to the date of submittal of a timely and complete application on January 3, 1995. The end of the contemporaneous period was January 25, 1996, the date on which the emissions increase from the project occurred. The original analysis considered the #8 Galvanizing Line to be contemporaneous. However, the startup of the #8 Galvanizing Line occurred after the end of the contemporaneous period and this project was not contemporaneous for the 1996 Project.

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

		VOM
Start of Contemporaneous Period		Jan 1990
End of Contemporaneous Period		Jan 1996
Project Emissions Increases		38.5
Significant Emission Rates		40
Whether Significant?		No
<i>Contemporaneous Emissions Increases</i>	Date	
Installation of #8 Galvanizing Line	Mar-1996	n/a
<i>Contemporaneous Emissions Decreases</i>		
Bloomington 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.

USS Granite City Works

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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.

USS Granite City Works

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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:

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- (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, NO_x, SO₂, 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 NO_x, 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 SO₂ 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.

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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, NO_x, 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.

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10.2.1 35 IAC Part 201.142 Construction Permit Required

The proposed revisions to the 1996 Construction Permit involve changes to an existing construction permit for the modifications of existing emissions sources. Therefore, a revised permit in accordance with 35 IAC 201.142 is required. This permit application, including the permit application forms contained in Appendix A, is intended to fulfill the requirements of 35 IAC 201.142.

10.2.2 35 IAC 201.207 CAAPP Permits

The Clean Air Act Permit Program (CAAPP) requirements are contained in Section 39.5 of the Illinois Environmental Protection Act. USS Granite City facility is a major source subject to CAAPP requirements. As noted in section 1, this application package addresses the 'integrated processing' procedures for the proposed revisions to the 1996 Construction Permit for incorporation in the CAAPP permit via an administrative amendment.

10.2.3 Other State Regulations

There will be no change to the applicability of the limitations and requirements of other emissions standards under the Illinois Administrative Code that have already been addressed in the CAAPP permit for the USS Granite City facility.

Appendix A – Application Forms



Illinois Environmental Protection Agency

Bureau of Air • 1021 North Grand Avenue East • P.O. Box 19506 • Springfield • Illinois • 62794-9506

FEE DETERMINATION FOR CONSTRUCTION PERMIT APPLICATION

FOR AGENCY USE ONLY

ID Number: _____ Permit #: _____
☐ Complete ☐ Incomplete Date Complete: _____
 Check Number: _____ Account Name: _____

This form is to be used to supply fee information that must accompany all construction permit applications. This application must include payment in full to be deemed complete. Make check or money order payable to the Illinois Environmental Protection Agency, Division of Air Pollution Control - Permit Section at the above address. Do NOT send cash. Refer to instructions (197-INST) for assistance.

Source Information

1. Source Name: United States Steel Corporation - Granite City Works
 2. Project Name: 1996 Construction Permit Revision 3. Source ID #: (if applicable) 1191813AAI
 4. Contact Name: Krista Armentrout 5. Contact Phone #: (618) 451-3013

Fee Determination

6. The boxes below are automatically calculated.

Section 1 Subtotal \$0.00 + Section 2, 3 or 4 Subtotal \$23,000.00 = \$23,000.00
 Grand Total

Section 1: Status of Source/Purpose of Submittal

7. Your application will fall under only one of the following five categories described below. Check the box that applies.

Proceed to applicable sections. For purposes of this form:

- **Major Source** is a source that is required to obtain a CAAPP permit.
- **Synthetic Minor Source** is a source that has taken limits on potential to emit in a permit to avoid CAAPP permit requirements (e.g., FESOP).
- **Non-Major Source** is a source that is not a major or synthetic minor source.

- ☒ Existing source without status change or with status change from synthetic minor to major source or vice versa. Proceed to Section 2.
- ☐ Existing non-major source that will become synthetic minor to major source. Proceed to Section 4.
- ☐ New major or synthetic minor source. Proceed to Section 4. \$0.00
- ☐ New non-major source. Proceed to Section 3. Section 1 Subtotal
- ☐ 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.

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. <u>\$2,000.00</u>
	15. Number of additional modified emission units = <u>25</u> x \$1,000.	15. <u>\$25,000.00</u>
	16. Line 14 plus line 15, or \$5,000, whichever is less.	16. <u>\$5,000.00</u>
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. <u>\$0.00</u>
	19. Line 17 plus line 18, or \$10,000, whichever is less.	19. <u>\$0.00</u>
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 = <u>4</u> x \$3,000.	20. <u>\$12,000.00</u>
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. <u>\$6,000.00</u>
	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. <u>\$0.00</u>
	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 page 1		28. <u>\$23,000.00</u>

Section 5: Certification

NOTE: Applications without a signed certification will be deemed incomplete.

29. I certify under penalty of law that, based on information and belief formed after reasonable inquiry, the information contained in this fee application form is true, accurate and complete.

by: _____

Signature

Michael Patton

Typed or Printed Name of Signatory

General Manager - Granite City Works

Title of Signatory

2/25/2020

Date

Illinois Environmental Protection Agency
Division Of Air Pollution Control -- Permit Section
P.O. Box 19506
Springfield, Illinois 62794-9506

Construction Permit Application for a Proposed Project at a CAAPP Source	For Illinois EPA use only
	ID No.:
	Appl. No.:
	Date Rec'd:
	Chk No./Amt:

This form is to be used to supply general information to obtain a construction permit for a proposed project involving a Clean Air Act Permit Program (CAAPP) source, including construction of a new CAAPP source. Detailed information about the project must also be included in a construction permit application, as addressed in the "General Instructions For Permit Applications," Form APC-201.

Proposed Project
1. Working Name of Proposed Project: 1996 Construction Permit Revision
2. Is the project occurring at a source that already has a permit from the Bureau of Air (BOA)? ☐ No ☒ Yes If Yes, provide BOA ID Number: <u>119813AA1</u>
3. Does this application request a revision to an existing construction permit issued by the BOA? ☐ No ☒ Yes If Yes, provide Permit Number: <u>95010001</u>
4. Brief Description of Proposed Project: This application proposes revisions to certain emission limits and other requirements in the 1996 Construction Permit for the U.S. Steel Granite City facility.

Source Information		
1. Source name:* United States Steel Corporation - Granite City Works		
2. Source street address:* 1951 State Street		
3. City: Granite City	4. County: Madison	5. Zip code:* 62040
ONLY COMPLETE THE FOLLOWING FOR A SOURCE WITHOUT AN ID NUMBER		
6. Is the source located within city limits? ☐ Yes ☐ No If no, provide Township Name:		
7. Description of source and product(s) produced:	8. Primary Classification Code of source: SIC: _____ or NAICS: _____	
9. Latitude (DD:MM:SS.SSSS):	10. Longitude (DD:MM:SS.SSSS):	

* Is information different than previous information? ☐ Yes ☐ No

If yes, then complete Form CAAPP 273 to apply for an Administrative Change to the CAAPP Permit for the source.

Identification of Permit Applicant			
1. Who is the applicant? ☒ Owner ☐ Operator		2. All correspondence to: (check one) ☒ Source ☐ Owner ☐ Operator	
3. Applicant's FEIN: 25-1897152	4. Attention name and/or title for written correspondence: Krista Armentrout - Environmental Manager		

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

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

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

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

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

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

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

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

Signature Block		
Authorized Signature:		
I certify under penalty of law that, based on information and belief formed after reasonable inquiry, the statements and information contained in this application are true, accurate and complete and that I am a responsible official for the source, as defined by Section 39.5(1) of the Environmental Protection Act.		
BY:		General Manager - Granite City Works
AUTHORIZED	SIGNATURE	TITLE OF SIGNATORY
Michael Patton		02 25 2020
TYPED OR PRINTED NAME OF SIGNATORY		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	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
	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
0107 & 0035	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
0040	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
	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
0071 & 0119	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
0072 & 0118	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
73	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
			tons of charge					85% control to crushed stone		
9003	Iron Pellet Screen	2,803,241	material/year	PM	0.00279	0.00375	lb/ton of material	screen EF in AP-42 Table 11.19.2-2	3.91	5.26
	BOF Hopper Baghouse	2,413,406	tons of molten steel/year	PM	0.00032	0.00032	lb/ton of steel	No change	0.39	0.39
0037	Flux Conv. & Transfer Points Bin Floor - BOF	2,413,406	tons of molten steel/year	PM	0.0016	0.0016	lb/ton of steel	No change	1.93	1.93
	Material Handling Operations at BF and BOF			PM					6.23	7.57
	Total PM								1,123.90	1,123.42

USS Granite City
Revised PM Analysis

Point	Emission Point	Past Throughput	Future Throughput	Units	Pollutant	Updated Emission Factor	Future Emission Factor	Units	Basis	Baseline Emissions (TPY)	Future Emissions (TPY)	Emissions Increase (TPY)	Emissions Change (TPY)
0005 & 0010	A & B Blast Furnace Casthouse Fugitives	2,059,557	3,165,000	tons of hot metal/year	PM	0.031	0.031	lb/ton of hot metal	No change	31.92	49.06	57.77	
0006 & 0011	A & B Blast Furnace Charging	2,803,241	4,308,581	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	
									No change (as in original application post-project EF lower than pre-project EF)				
0034	BOF Roof Monitor	2,413,406	3,580,000	tons of molten steel/year	PM	0.428	0.099	lb/ton of steel		516.72	176.67		
	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	
0107 & 0035	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									753.28	506.30		-246.98
0103, 0104 & 0121	Argon Stirling #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									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
				tons of charge					USS representation of 85% control to crushed stone EF				
9003	Iron Pellet Screen	2,803,241	4,308,581	material/year	PM	0.00375	0.00375	lb/ton of material		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	-853.09

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	change	15.96	15.76
0006 & 0011	A & B Blast Furnace Charging	2,803,241	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
	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
0107 & 0035	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
0040	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 Filtr. 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
			tons of charge					85% control to crushed stone screen		
9003	Iron Pellet Screen	2,803,241	material/year	PM10	0.00279	0.00131	lb/ton of material	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 USS representation includes basis for EF	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		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	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	
0103, 0104 & 0121	BOF Shop				PM10					582.76	448.03		-134.74
	Argon Stirring #1 & #2 Material Handling												
0105 & 0106	Trapper	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	
0070 & 0120	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	
	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	
0037	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	
	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

<i>Contemporaneous Emissions Increases</i>	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

<i>Contemporaneous Emissions Decreases</i>			
Ingot Teeming Shutdown	Apr-1991	-22.4	-22.4
Bloomng 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 NO _x 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
								All NO _x formed is from natural gas usage; emissions are accounted for separately.		
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		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				Average of 4/2012, 7/2012, 11/2014 test results used for baseline; 11/2014 test result used for projection	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		181.33	304.30	122.97	
	BOF Shop				NO _x				All NO _x formed is from natural gas usage; emissions are accounted for separately.	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		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 B1	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	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.)	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			41.00	41.00	
	Combined FO in stoves, B11 & B12, ladle preheaters, and BFG flares	16	365	Mgal	NO _x	55.00	55.00	lb/Mgal	No change	0.44	10.04	9.60	
	Certain Fuel Burning Emissions Units				NO _x					495.17	632.54		137.37
					Total NO _x					681	944	385.96	262.80

**USS Granite City
Net Emissions Increases**

		NOx	
Project Emissions Increases		386.0	
Significant Emission Rates		40	
Whether Significant?		Yes	
Project Emissions Changes		262.8	
<i>Contemporaneous Emissions Increases</i>	Date		
Installation of #8 Galvanizing Line	Mar-1996	Not contemporaneous	
<i>Contemporaneous Emissions Decreases</i>			
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	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	VOM control and 5% fugitive	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				Average of 4/2012, 7/2012, 11/2014 test results used for baseline;	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		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				Average of 4/2012, 7/2012, 11/2014 test results used for baseline; 11/2014 test result used for projection	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		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					58.2	96.7	38.50	38.50
					VOM								

**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
<i>Contemporaneous Emissions Increases</i>	Date	
Remove Blast Furnace Slag Spout Hood	Jan-1990	
#2 Caster Production	Dec-1990	
Installation of #8 Galvanizing Line	Mar-1996	Not contemporaneous
<i>Contemporaneous Emissions Decreases</i>		
Bloomington Mill Shutdown	Apr-1991	-0.9
NESHAP Controls Coke By-product	Jul-1991	-31.6
Batch Annealing Shutdown	Dec-1991	-0.3
Road and Material Handling Fugitive Dust Controls	Nov-1991	
Project Net Emissions Increases		38.50
Whether Significant?		No
Date of complete permit application under Rule 203	1/3/1995	
Date Project implemented/operation started	1/25/1996	Same as permit issuance date as permit was for operational changes by revising production limits.
Contemporaneous Period	1/4/1990	to 1/25/1996

Emissions Calculations Included in the 1995 Construction Permit Application

Projected Emissions Based On: Blast Furnace @ 8,771 NTPD
BOF @ 9,808 NTPD

GC-CO-21.XLS

R002583

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 N180/mth
 11,000 N180/mth

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	13.7	lb/MMcf	22,774	MMcf	156.00	included in line 17	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	13.7	lb/MMcf	22,203	MMcf	152.09	included in line 17	-	-	-
3	0008	01	Blast Furnace Gas Flare - BFG	13.7	lb/MMcf	26,132	MMcf	179.00	included in line 17	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	13.7	lb/MMcf	37,501	MMcf	256.88	included in line 17	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	40	lb/MMcf	361	MMcf	7.22	included in line 16	-	-	-
6	0044	01	Boiler #11 - BFG	13.7	lb/MMcf	5,323	MMcf	36.46	included in line 17	-	-	-
7	0044	91	Boiler #11 - NG	40	lb/MMcf	226	MMcf	4.52	included in line 16	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	5.0	lb/Mgal	15.00	Mgal	0.04	included in line 18	-	-	-
9	0048	01	Boiler #12 - BFG	13.7	lb/MMcf	7,106	MMcf	48.68	included in line 17	-	-	-
10	0048	91	Boiler #12 - NG	40	lb/MMcf	218	MMcf	4.36	included in line 16	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	5.0	lb/Mgal	1.00	Mgal	0.00	included in line 18	-	-	-
12	0033	01	BOF 2 Vessels	8.993	lb/ton proc.	2,413,406	ton proc.	10,851.88	3,580,000	ton proc.	16,097.47	5,245.59
13	0038	01	BOF Preheaters/Dryers - NG	40	lb/MMcf	283	MMcf	5.66	included in line 16	-	-	-
14	0071 & 0119	01	Continuous Casters #1 & #2 - NG	40	lb/MMcf	57	MMcf	1.14	included in line 16	-	-	-
15			Natural Gas	40	lb/MMcf	1,145	MMcf	inc. above	1,145	MMcf	22.90	-
16			Blast Furnace Gas	13.7	lb/MMcf	121,039	MMcf	inc. above	185,030	MMcf	1,267.46	-
17			Fuel Oil	5.0	lb/Mgal	16	Mgal	inc. above	365	Mgal	0.91	-
TOTALS:								11,703.94			17,388.74	5,684.80

Contemporaneous Changes
 Net Change

(11.51) (178.11)
 5,674.62
 5,673.29

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

Projected Emissions Based On: Blast Furnace @ 2,571 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	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 (Birs 1-10) - BFG	5.28	lb/MMcf	37,501	MMcf	99.00	Included in Line 20	-	-	-
5	0041	91	Boiler House 1 (Birs 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	14.06	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	7,108	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 -
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 -
15	0005 & 0010	01	"A" & "B" Blast Furnace - Uncaptured Roof Emiss.	0.00072	lb/ton proc.	2,059,557	tons proc.	0.74	3,165,000	tons proc.	1.14	-
16	0070 & 0120	01	Caster Mold - Casters #1 & #2	0.05	lb/ton prod.	2,413,406	tons prod.	60.34	3,580,000	ton prod.	89.50	X -
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	+ 168.94
20			Fuel Oil	55	lb/Mgal	16	Mgal	inc. above	365	Mgal	10.04	+ 9.59
TOTALS:								618.01			856.76	238.75
Concomitant Changes												(200.54)
Net Change												38.21

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	7,108	MMcf	18.78	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.	48.94	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 - Caesthouse	0.01440	lb/ton proc.	2,059,557	tons proc.	14.83	3,165,000	tons proc.	22.79	-
15	0005 & 0010	01	"A" & "B" Blast Furnace - Uncaptured Roof Emiss.	0.00072	lb/ton proc.	2,059,557	tons proc.	0.74	3,165,000	tons proc.	1.14	-
16	0070 & 0120	01	Caster Mold - Casters #1 & #2	0.05	lb/ton prod.	2,413,406	tons prod.	60.34	3,580,000	ton prod.	89.50	-
17	0071 & 0119	01	Continuous Casters #1 & #2 - NG	306	lb/MMcf	57	MMcf	8.72	Included in Line 19	-	-	-
18			Natural Gas	306	lb/MMcf	1,145	MMcf	inc. above	1,145	MMcf	175.19	-
19			Blast Furnace Gas	5.28	lb/MMcf	121,039	MMcf	inc. above	185,030	MMcf	488.48	-
20			Fuel Oil	55	lb/Mgal	16	Mgal	inc. above	365	Mgal	10.04	-
TOTALS:								618.01			856.76	238.75

Contemporaneous Changes
Not Change

(260.54)(208.14)
(38.21) -30.61

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

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

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy	COMMENTS
1	0004	01	"A" Blast Furnace Stoves - BFG	6.65	lb/MMcf	22,774	MMcf	75.72	Included in line 19	-	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	6.65	lb/MMcf	22,203	MMcf	73.82	Included in line 19	-	-	-	-
3	0008	01	Blast Furnace Gas Flare - BFG	6.65	lb/MMcf	26,132	MMcf	86.89	Included in line 19	-	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	6.65	lb/MMcf	37,501	MMcf	124.69	Included in line 19	-	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	0.6	lb/MMcf	361	MMcf	0.11	Included in line 18	-	-	-	-
6	0044	01	Boiler #11 - BFG	6.65	lb/MMcf	5,323	MMcf	17.70	Included in line 19	-	-	-	-
7	0044	91	Boiler #11 - NG	0.6	lb/MMcf	226	MMcf	0.07	Included in line 18	-	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	141.3	lb/Mgal	15.00	Mgal	1.06	Included in line 20	-	-	-	-
9	0048	01	Boiler #12 - BFG	6.65	lb/MMcf	7,106	MMcf	23.63	Included in line 19	-	-	-	-
10	0048	91	Boiler #12 - NG	0.6	lb/MMcf	218	MMcf	0.07	Included in line 18	-	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	141.3	lb/Mgal	1.00	Mgal	0.07	Included in line 20	-	-	-	-
12	0038	01	BOF Preheaters/Dryers - NG	0.6	lb/MMcf	283	MMcf	0.08	Included in line 18	-	-	-	-
13	0007 & 0012	01	"A & B" Blast Furnace - Casthouse	0.2006	lb/ton proc.	2,059,557	tons proc.	206.57	3,165,000	tons proc.	422.00	215.43	Est. Annual Max
14	0005 & 0010	01	"A & B" Blast Furnace - Uncap. roof	0.0104	lb/ton proc.	2,059,557	tons proc.	10.71	3,165,000	tons proc.	21.94	11.23	Est. Annual Max
15	—	—	Iron Spout Baghouse	0.0073	lb/ton proc.	2,059,557	tons proc.	7.52	3,165,000	tons proc.	13.89	6.37	Est. Annual Max
16	113	1	Blast Furnace Slag Pits	0.0100	lb/ton	2,059,557	tons proc.	10.30	3,165,000	tons proc.	15.83	5.53	
17	0071 & 0119	01	Continuous Casters #1 & #2 - NG	0.6	lb/MMcf	57	MMcf	0.02	Included in line 18	-	-	-	-
18			Natural Gas	0.6	lb/MMcf	1,145	MMcf	-	1,145	MMcf	0.34	0.00	
19			Blast Furnace Gas	6.65	lb/MMcf	121,039	MMcf	-	185,030	MMcf	615.22	212.77	
20			Fuel Oil	141.3	lb/Mgal	16	Mgal	-	385	Mgal	25.79	24.66	

TOTALS:

639.03

1,115.01

475.98

Contemporaneous Changes

(0.13)

Net Change

475.85



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

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

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy	COMMENTS
1	0004	01	"A" Blast Furnace Stoves - BFG	6.65	lb/MMcf	22,774	MMcf	75.72	Included in line 19	-	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	6.65	lb/MMcf	22,203	MMcf	73.82	Included in line 19	-	-	-	-
3	0008	01	Blast Furnace Gas Flare - BFG	6.65	lb/MMcf	26,132	MMcf	86.89	Included in line 19	-	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	6.65	lb/MMcf	37,501	MMcf	124.69	Included in line 19	-	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	0.6	lb/MMcf	381	MMcf	0.11	Included in line 18	-	-	-	-
6	0044	01	Boiler #11 - BFG	6.65	lb/MMcf	5,323	MMcf	17.70	Included in line 19	-	-	-	-
7	0044	91	Boiler #11 - NG	0.6	lb/MMcf	226	MMcf	0.07	Included in line 18	-	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	141.3	lb/Mgal	15.00	Mgal	1.06	Included in line 20	-	-	-	-
9	0048	01	Boiler #12 - BFG	6.65	lb/MMcf	7,106	MMcf	23.63	Included in line 19	-	-	-	-
10	0048	91	Boiler #12 - NG	0.6	lb/MMcf	218	MMcf	0.07	Included in line 18	-	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	141.3	lb/Mgal	1.00	Mgal	0.07	Included in line 20	-	-	-	-
12	0038	01	BOF Preheaters/Dryers - NG	0.6	lb/MMcf	283	MMcf	0.08	Included in line 18	-	-	-	-
13	0007 & 0012	01	"A & B" Blast Furnace - Casthouse	0.2006	lb/ton proc.	2,059,557	tons proc.	206.57	3,165,000	tons proc.	422.00	215.43	Est. Annual Max
14	0005 & 0010	01	"A & B" Blast Furnace - Uncap. roof	0.0104	lb/ton proc.	2,059,557	tons proc.	10.71	3,165,000	tons proc.	21.94	11.23	Est. Annual Max
15	---	--	Iron Spout Baghouse	0.0073	lb/ton proc.	2,059,557	tons proc.	7.52	3,165,000	tons proc.	13.89	6.37	Est. Annual Max
16	113	1	Blast Furnace Slag Pits	0.0100	lb/ton	2,059,557	tons proc.	10.30	3,165,000	tons proc.	15.83	5.53	
17	0071 & 0119	01	Continuous Casters #1 & #2 - NG	0.6	lb/MMcf	57	MMcf	0.02	Included in line 18	-	-	-	
18			Natural Gas	0.6	lb/MMcf	1,145	MMcf	-	1,145	MMcf	0.34	0.00	
19			Blast Furnace Gas	6.65	lb/MMcf	121,039	MMcf	-	185,030	MMcf	615.22	212.77	
20			Fuel Oil	141.3	lb/Mgal	16	Mgal	-	365	Mgal	25.79	24.66	
TOTALS:								639.03			1,115.01	475.98	

Contemporaneous Changes
 Net Change

(0.13) (0.48)
 775.85 475.80

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

Projected Emissions Based On: Blast Furnace @ 5,571 NTPD
BOF @ 9,808 NTPD

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED EMISSION FACTOR	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
3	0008	01	Blast Furnace Gas Flare - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
6	0044	01	Boiler #11 - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
7	0044	91	Boiler #11 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
8	0044	92	Boiler #11 - Fuel Oil	9.72	lb/Mgal	Included in line 40	Mgal	-	Included in line 40	-			-	-
9	0048	01	Boiler #12 - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
10	0048	91	Boiler #12 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
11	0048	92	Boiler #12 - Fuel Oil	9.72	lb/Mgal	Included in line 48	Mgal	-	Included in line 48	-			-	-
12	0033	01	BOF 2 Vessels	0.16	lb/ton proc.	2,413,406	tons proc.	193.07	8,760	hours	60	lbs/hr	262.80	69.73
13	0038	01	BOF Preheaters/Dryers - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
14	0005 & 0010	01	"A" & "B" Blast Furnace - Uncap. Fugitives	0.0155	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	0.0018	lb/ton proc.	2,413,406	tons proc.	1.93	3,580,000	tons proc.			2.86	0.93
19	0040	01	Hot Metal Chging Ladle Slag Skimmer	0.0050	lb/ton proc.	2,059,557	tons proc.	5.17	3,165,000	tons proc.			7.94	2.77



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 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 - Uncep. 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.	0.086144		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 Chgng Ladle Slag Skimmer	0.0050	lb/ton proc.	2,059,557	tons proc.	5.17	3,165,000	tons proc.			7.94	2.77

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

Projected Emissions Based On: Blast Furnace @ 3,711 NTPD
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:								937.42					989.04	51.62

Contemporaneous Changes
Net Change

(37.31)
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

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 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
Net Change

37.16 (37-54)
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

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

Projected Emissions Based On: Blast Furnace @ 71NTPD
BOF @ 9,808 NTPD

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED EMISSION FACTOR	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
3	0008	01	Blast Furnace Gas Flare - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	5.1	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
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 39	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	0005 & 0010	01	"A" & "B" Blast Furnace - Uncap. Fugitives	0.031	lb/ton proc.	2,059,557	tons proc.	31.92	3,165,000	tons proc.			49.06	17.13
15	0006 & 0011	01	"A" & "B" Blast Furnace - Charging	0.0024	lb/ton pellets charged	2,803,241	tons proc.	3.36	4,308,581	tons proc.			5.17	1.81
16	0007 & 0012	01	"A" & "B" Blast Furnace - Baghouse Stack	0.0703	lb/ton proc.	2,059,557	tons proc.	72.35	3,165,000	tons proc.			111.19	38.83
17	0034	01	BOF Roof Monitor	0.428	lb/ton proc.	2,413,406	tons proc.	516.72	3,580,000	tons proc.	0.0987		178.71	(340.01)
18	0037	01	Flux Conv. & Xfer Pte., Bin Floor - BOF	0.0016	lb/ton proc.	2,413,406	tons proc.	1.93	3,580,000	tons proc.			2.86	0.93
19	0040	01	Hot Metal Chging Ladle Slag Skimmer	0.0050	lb/ton proc.	2,059,557	tons proc.	5.17	3,165,000	tons proc.			7.94	2.77

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

Projected Emissions Based On: Blast Furnace @ 5,271 NTPD
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:								1,123.90					1,071.89	(52.01)
Contemporaneous Changes														(37.16)
Not 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

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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
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	0.03 0.0155	lb/ton proc.	2,059,557	tons proc.	15.98	3,165,000	tons proc.			24.53	8.57
15	0006 & 0007 & 0012	01	*A* & *B* Blast Furnace - Charging Stack	0.0024 0.0703	lb/ton pallets charged lb/ton proc.	2,803,241	tons proc.	3.36 72.35	4,308,581	tons proc.			5.17 111.19	1.81 38.83
16	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)
17	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
18	0040	01	Hot Metal Chgng Ladle Slag Skimmer	0.0050	lb/ton proc.	2,059,557	tons proc.	5.17	3,165,000	tons proc.			7.94	2.77



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

Projected Emissions Based On: Blast Furnace @ 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.	8.83	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	0.02648	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 Net Change														(32.16) (37.39) (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

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

Projected Emissions Based On: Blast Furnace @ 8,711 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 (Birs 1-10) - BFG	0.0	lb/MMcf	37,501	MMcf	0.00	included in line 18	-	-	-
5	0041	91	Boiler House 1 (Birs 1-10) - NG	2.8	lb/MMcf	361	MMcf	0.51	included in line 17	-	-	-
6	0044	01	Boiler #11 - BFG	0.0	lb/MMcf	5,323	MMcf	0.00	included in line 18	-	-	-
7	0044	91	Boiler #11 - NG	1.4	lb/MMcf	226	MMcf	0.16	included in line 17	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	0.28	lb/Mgal	15.00	Mgal	0.00	included in line 18	-	-	-
9	0048	01	Boiler #12 - BFG	0.0	lb/MMcf	7,106	MMcf	0.00	included in line 18	-	-	-
10	0048	91	Boiler #12 - NG	1.4	lb/MMcf	218	MMcf	0.15	included in line 17	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	0.28	lb/Mgal	1.00	Mgal	0.00	included in line 19	-	-	-
12	0033	01	BOF Preheaters/Dryers - NG	2.8	lb/MMcf	283	MMcf	0.40	included in line 17	-	-	-
13	0007 & 0012	01	"A & B" Blast Furnace - Casthouse	0.0946	lb/ton proc.	2,059,557	tons proc.	97.40	3,165,000	tons proc.	149.68	-
14	0005 & 0010	01	"A & B" Blast Furnace - Uncap. roof	0.0047	lb/ton proc.	2,059,557	tons proc.	4.83	3,165,000	tons proc.	7.42	-
15	0033	01	2 BOF Vessels	0.0060	lb/ton proc.	2,413,406	tons proc.	7.24	3,580,000	tons proc.	10.74	-
16	0035	01	Transfer Pits	0.0010	lb/ton proc.	2,059,557	tons proc.	1.03	3,165,000	tons proc.	1.58	-
17	0071 & 0119	01	Continuous Casters #1 & #2 - NG	2.8	lb/MMcf	57	MMcf	0.08	included in line 17	-	-	-
18			Natural Gas	2.8	lb/MMcf	-	MMcf	-	1,145	MMcf	1.60	-
19			Blast Furnace Gas	0.0	lb/MMcf	-	MMcf	-	185,030	MMcf	0.00	-
20			Fuel Oil	0.28	lb/Mgal	-	Mgal	-	365	lb/Mgal	0.05	-
TOTALS:								111.80			171.08	59.28
Contemporaneous Changes												(31.23)
Net Change												28.05

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

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

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	0.0	lb/MMcf	22,774	MMcf	0.00	included in line 18	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	0.0	lb/MMcf	22,203	MMcf	0.00	included in line 18	-	-	-
3	0008	01	Blast Furnace Gas Flare - BFG	0.0	lb/MMcf	26,132	MMcf	0.00	included in line 18	-	-	-
4	0041	01	Boiler House 1 (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 - Cesthouse	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	0.0080	lb/ton proc.	2,413,406	tons proc.	7.24	3,580,000	tons proc.	10.74	-
16	0035	01	Transfer Pits	0.0010	lb/ton proc.	2,059,557	tons proc.	1.03	3,165,000	tons proc.	1.58	-
17	0071 & 0119	01	Continuous Casters #1 & #2 - NG	2.8	lb/MMcf	57	MMcf	0.08	included in line 17	-	-	-
18			Natural Gas	2.8	lb/MMcf	-	MMcf	-	1,145	MMcf	1.60	-
19			Blast Furnace Gas	0.0	lb/MMcf	-	MMcf	-	185,030	MMcf	0.00	-
20			Fuel Oil	0.28	lb/Mgal	-	Mgal	-	365	lb/Mgal	0.05	-
TOTALS:								111.80			171.08	59.28

Contemporaneous Changes
Net Change

(31.23)/(31.70)
28.05 27.58

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

*Defect /
Solid / hr x 12/11
8 x 2 =
Based on Total of 4500
0.224 lb/hr*

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	0.00065000	lb/hr	0.00065000	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	0.0018	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.	0.00144086	-
9	0033	01	BOF 2 Vessels Stack	0.19337500	lb/hr	0.19337500	8760	hours	0.8470	1.483	tons prod.	1.25607505	0.2855 lb/hr
10	0034	01	BOF Roof Monitor	0.01290000	lb/hr	0.01290000	8760	hours	0.0586	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.	0.00014616	-
14	0103	01	Argon Stirring #1 & #2	0.00020200	lb/hr	0.00020200	8760	hours	0.0009	1.483	tons prod.	0.00131210	-
15	0105	01	Deslagging Station	0.00240000	lb/hr	0.00240000	8760	hours	0.0105	1.483	tons prod.	0.01558930	-
16	0107	01	Desulf. Station (inside BOF shop)	0.01330000	lb/hr	0.01330000	8760	hours	0.0583	1.483	tons prod.	0.08639068	-
17	0120	01	Caster Mold - Casters	0.00113000	lb/hr	0.00113000	8760	hours	0.0049	1.483	tons prod.	0.00733996	-
18			Boilers - Waste Oil	0.33600000	lb/Mgals		-	-	-	365	Mgals	0.06132000	-
TOTAL						0.26			0.988			1.527	0.639
Contemporaneous Changes													0.000
Net Change													0.639

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 Models¹ 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 Guidance², the modeling protocol submitted to the IEPA on February 3, 2020, and associated USEPA modeling policy and guidance.

¹ All citations to the PSD regulations herein are to the currently applicable provisions of 40 CFR § 52.21. The analysis also is designed to satisfy the parallel requirements of the currently pending Illinois PSD rule, 35 Ill. Adm. Code Part 204.



2.0 PROJECT DESCRIPTION

The 1996 Construction Permit authorized National Steel to increase iron and steel production limitations for the blast furnaces and basic oxygen furnace ("BOF") shop at the existing integrated iron and steel manufacturing facility in Granite City, in Madison County, Illinois. US Steel purchased the assets of National Steel in 2003, including Granite City Works. US Steel is proposing revisions to the 1996 Construction Permit that involve increases in the CO emission limitations that were established per the PSD requirements. Therefore, the proposed increases in the CO rates were evaluated for PSD requirements including compliance with the NAAQS for CO. No physical changes are proposed in conjunction with the requested revisions to the 1996 Construction Permit.



3.0 FACILITY AND SITE DESCRIPTION

The US Steel Granite City Works produces high-quality hot-rolled, cold-rolled and coated sheet steel products to customers in the construction, container, piping and tubing, service center, and automotive industries. Granite City Works has an annual raw steelmaking capability of 3.58 million net tons.

The facility occupies approximately 400 acres and is located approximately 12 miles east of Lambert, St. Louis International Airport. The approximate Universal Transverse Mercator (UTM) coordinates of the facility are 749,000m East and 4,287,000m North (NAD83, Zone 15). Figure 1 shows the general location of the facility. Figure 2 shows the specific facility location on a 7.5-minute U.S. Geological Survey (USGS) topographic map.

The US Steel facility is classified under the regulations governing PSD and Title V as a major source. The area of Madison County where US Steel facility is located is classified as attainment or unclassifiable for all regulated pollutants except ozone. St. Louis is classified as marginal nonattainment for the 2015 8-hour ozone standard.

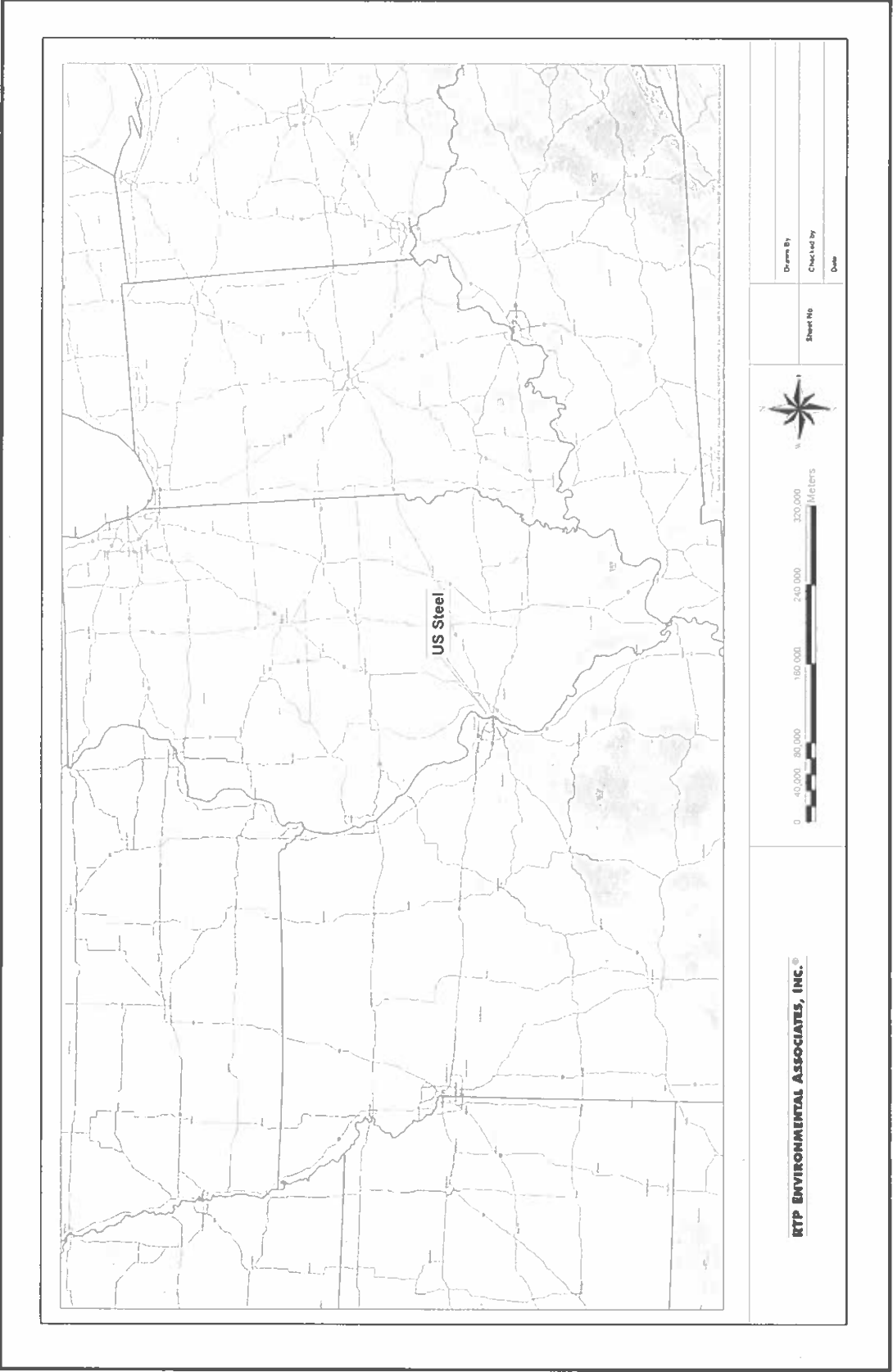


Figure 1. General Location of the US Steel Granite City Works

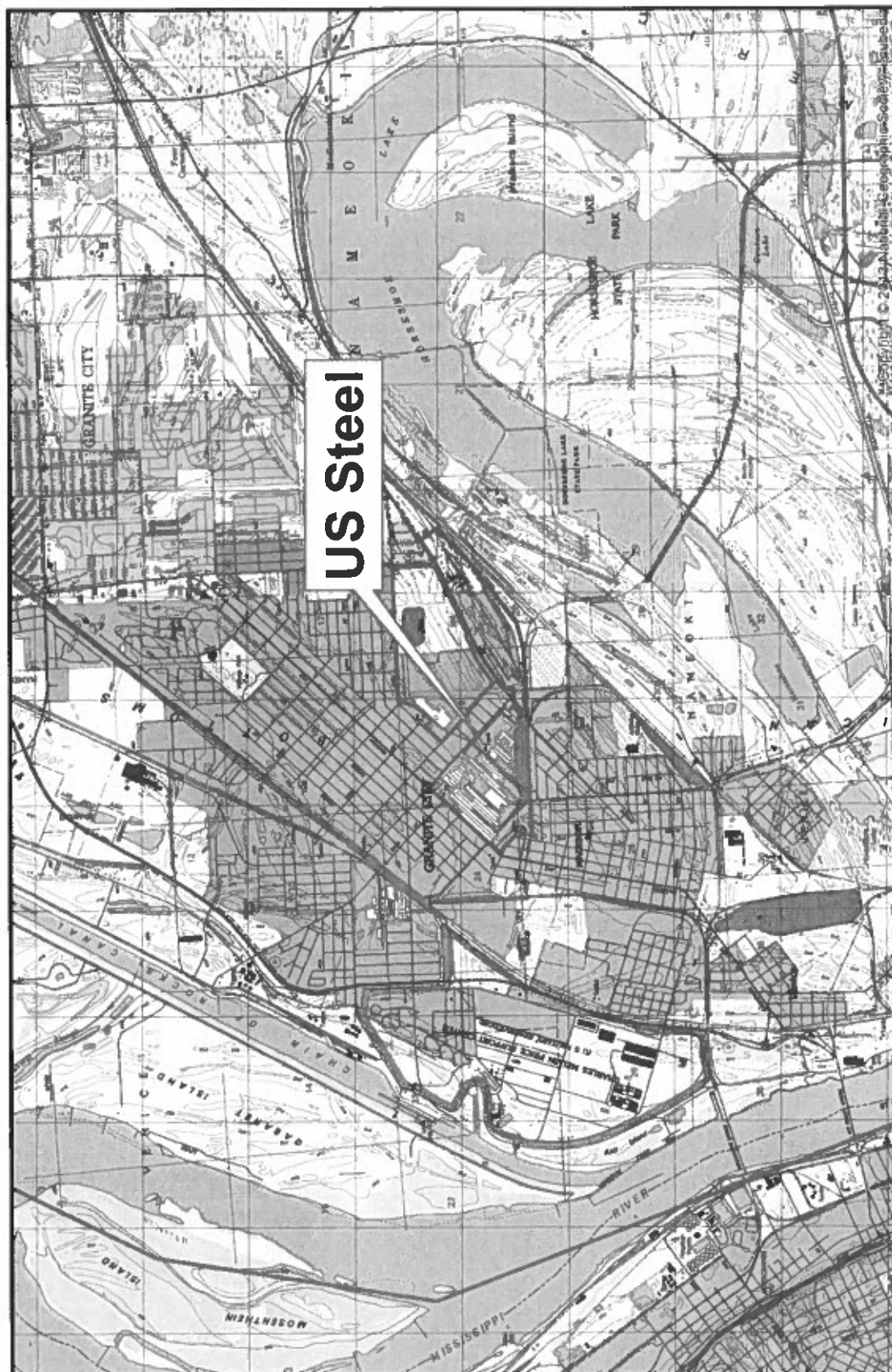


Figure 2. Specific Location of US Steel Granite City Works



4.0 MODEL SELECTION AND MODEL INPUT

4.1 Model Selection

The latest version of the AMS/EPA Regulatory Model (AERMOD, Version 19191) was used to conduct the dispersion modeling analysis. AERMOD is a Gaussian plume dispersion model that is based on planetary boundary layer principals for characterizing atmospheric stability. The model evaluates the non-Gaussian vertical behavior of plumes during convective conditions with the probability density function and the superposition of several Gaussian plumes. AERMOD is a modeling system with three components: AERMAP is the terrain preprocessor program, AERMET is the meteorological data preprocessor and AERMOD includes the dispersion modeling algorithms.

AERMOD is the required default model for calculating ambient concentrations near the US Steel facility based on the model's ability to incorporate multiple sources and source types. The model can also account for convective updrafts and downdrafts and meteorological data throughout the plume depth. The model also provides parameters required for use with up to date planetary boundary layer parameterization. The model also has the ability to incorporate building wake effects and to calculate concentrations within the cavity recirculation zone. All model options were selected as recommended in the USEPA Guideline on Air Quality Models.

Oris Solution's BEEST Graphical User Interface ("GUI") was used to run AERMOD. The GUI uses an altered version of the AERMOD code to allow for flexibility in the file naming convention. The dispersion algorithms of AERMOD are not altered. Therefore, a model equivalency evaluation pursuant to Section 3.2 of 40 CFR 51, Appendix W was not warranted.

4.2 Model Control Options and Land Use

AERMOD was run in the regulatory default mode for all pollutants with the default rural dispersion coefficients. These coefficients were used by the Illinois Environmental



Protection Agency ("IEPA") in its evaluation of the facility as part of the 1-hr sulfur dioxide ("SO₂") Data Requirements Rule ("DRR").

4.3 Source Data

The modeling input data and modeled CO emission rates can be found in Appendix A of this report.

Source Characterization

The majority of modeled source input parameters were obtained from the IEPA's model conducted for the Data Requirements Rule ("DRR").

Point Sources

Most emission sources at the site vent to stacks with a well defined opening. These sources were modeled as point sources in AERMOD. Several other types of sources such as fugitive emissions also required evaluation.

Fugitive Emissions

Fugitive emissions are those that are not emitted from a well defined opening. These sources were modeled as volume sources. The initial dispersion coefficients (sigma y and sigma z) were provided by the IEPA and were calculated based upon the dimensions of the area of release and the equations contained in Table 3-1 of the AERMOD User's Guide.

Flares

The facility uses blast furnace gas flares to combust excess process gas. Emissions that occur only during periods of malfunction are not required to be modeled per 40 CFR Part 51 Appendix W. Non-malfunction emissions were modeled using the procedures outlined in the AERSCREEN Manual³. 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 calories per second:



$$H_{\text{equivalent}} = H_{\text{actual}} + 4.56 \times 10^{-3} \times Q^{0.478}$$

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:

$$d_{\text{equivalent}} = 9.88 \times 10^{-4} \times (Q \times 0.45)^{0.5}$$

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 in excess of 65m. Procedures used are in accordance with those described in the USEPA Guidelines for Determination of Good Engineering Practice Stack Height (Technical Support Document for the Stack Height Regulations-Revised)⁴. GEP formula stack height, as defined in 40 CFR 51, is expressed as $GEP = H_b + 1.5L$, where H_b is the building height and L is the lesser of the building height or maximum projected width. Building/structure locations were determined from a facility plot plan. The structure locations and heights were obtained from the IEPA and were input to the USEPA's Building Profile Input Program (BPIP-PRIME) computer program to calculate the direction-specific building dimensions needed for AERMOD. The structures included in the GEP analysis are shown as the green blocks in Figure 3. All stacks and structures that are located near a stack were included in the BPIP runs.

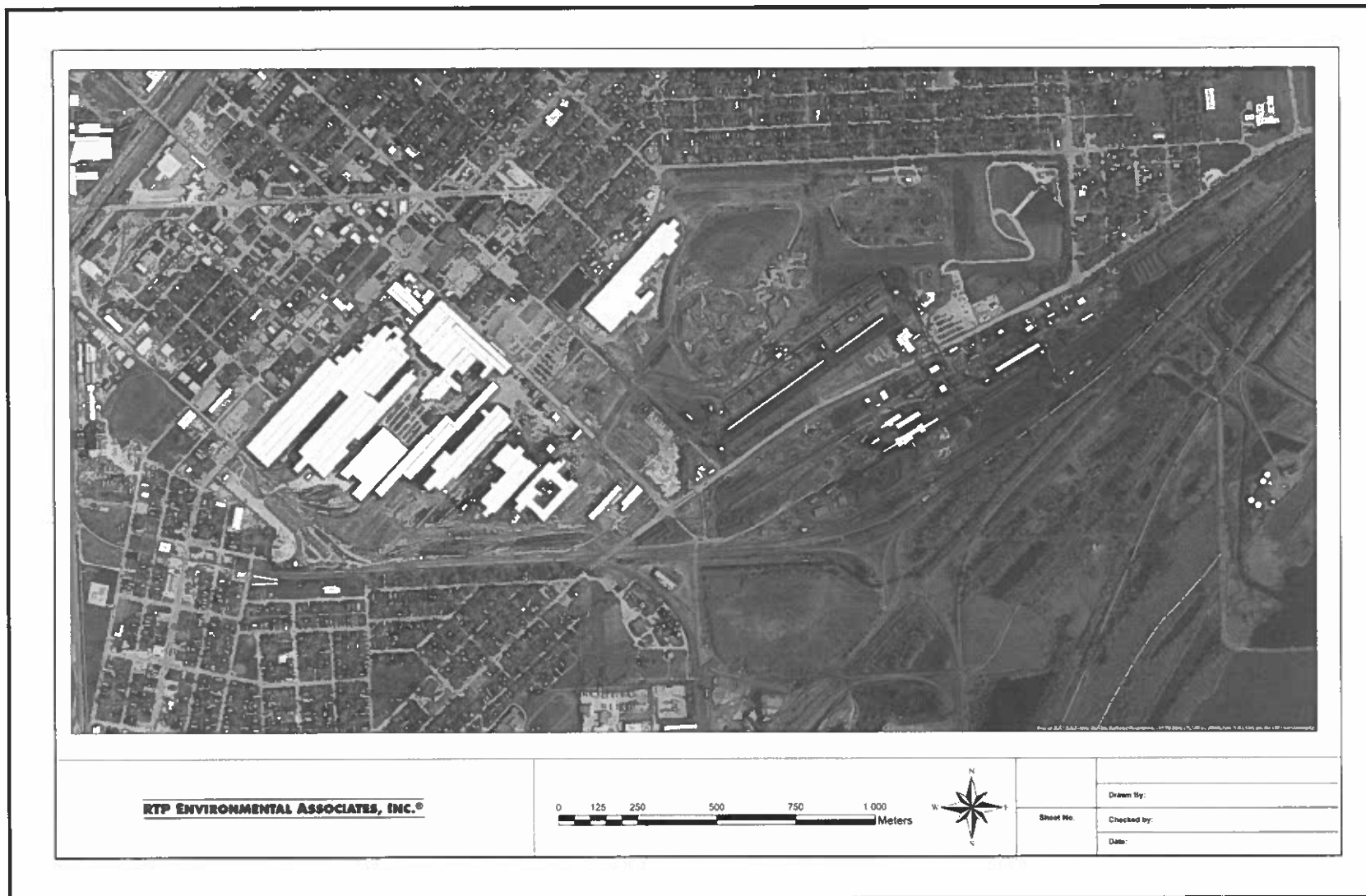


Figure 3. Structures Included in the US Steel GEP Analysis



4.4 Monitored Background Data

Ambient, background pollutant concentrations are needed to establish a representative background concentration to complete the NAAQS portion of the *Source Impact Analysis* of 40 CFR § 52.21(k). The background concentrations are added to the modeled concentrations to assess NAAQS compliance. Ambient pollutant concentrations are also needed to fulfill the *Air Quality Analysis* requirement of 40 CFR § 52.21(m), as discussed in Section 5.0 herein.

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 Guidelines⁶, other USEPA interpretive guidance, and USEPA administrative decisions clarify that representative, existing air quality monitoring data may be used to fulfill the PSD pre-construction monitoring requirements and establish background concentrations needed for assessing NAAQS compliance, in lieu of monitoring data. USEPA's Monitoring Guidelines suggest specific criteria to determine representativeness of off-site data: *quality of the data, currentness of the data, and monitor location*.

There are many existing ambient CO monitors within 100 miles in the facility (Figure 4). Existing monitoring data have been evaluated in relation to the criteria provided in USEPA's Ambient Monitoring Guidelines as being representative of the US Steel site.

We have used the most recent available, quality assured data (2016-2018) from the AQS monitor in East St. Louis, IL (AQS Site # 17-163-0010). This monitor best represents background concentrations near the facility as it is the closest monitor with

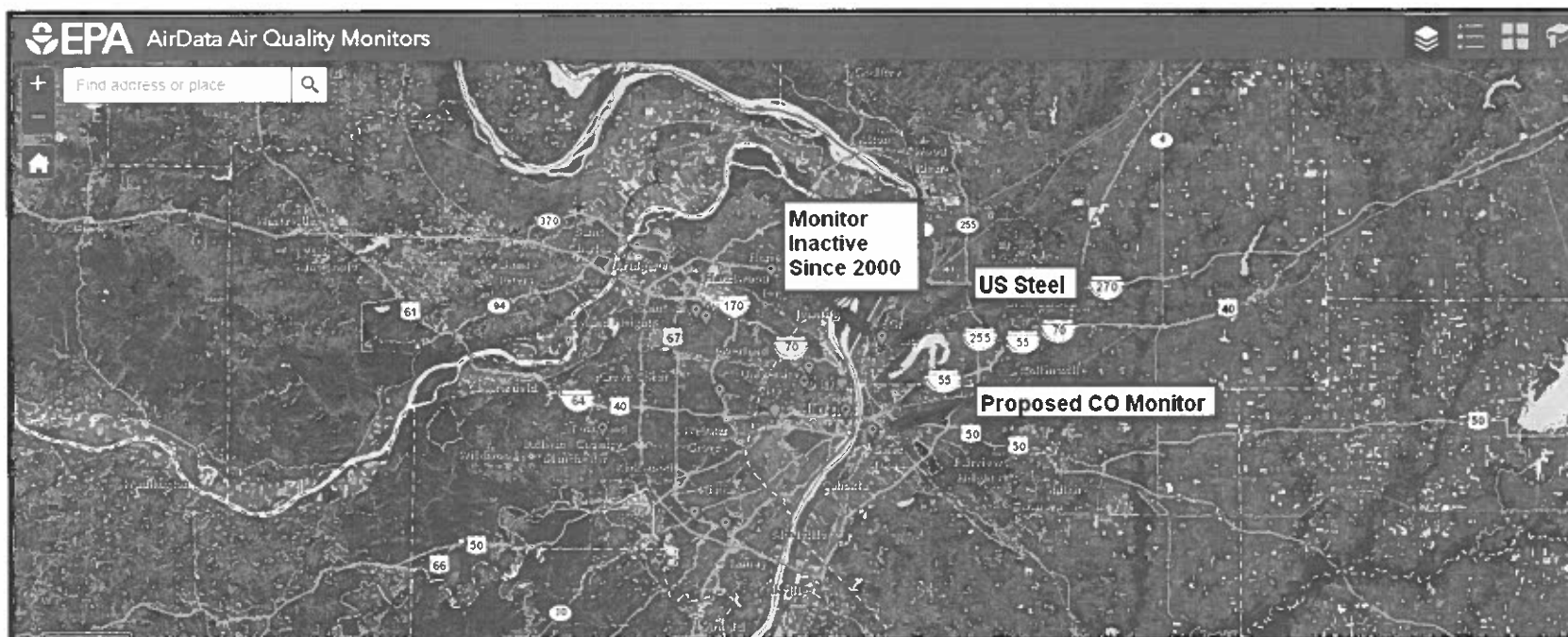


Figure 4. Ambient Air Quality Monitors in the Vicinity of the US Steel Facility



current CO data and is in the vicinity of the site and therefore representative of conditions as the site. The background data are presented in Table 1.

Table 1. Proposed Background Concentrations 2016-2018

Pollutant	Averaging Time	Design Value (ppb)[$\mu\text{g}/\text{m}^3$]	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 Guidelines⁷ as being representative of the site.

Monitor Location

Of the monitors available, the East St. Louis monitor represents background concentrations as it is the closest monitor with data for the pollutants of concern that is not also significantly influenced by the localized source impacts.

Data Quality

The monitor data were collected and quality assured by the IEPA.

Currentness of Data

The data were collected during 2016-2018, which represents the most recent quality assured data available for use in assessing compliance.

4.5 Receptor Data

Modeled receptors were placed in all areas considered as "ambient air" pursuant to 40 CFR 50.1(e). Ambient air is defined as that portion of the atmosphere, external to buildings, to which the general public has access. Approximately 14,100 receptors were used in the AERMOD significant impacts analysis. The receptor grid consisted of three cartesian grids and receptors located at 50m intervals along the facility fence line. The first cartesian grid extended to approximately 3.0km from the facility in all directions. Receptors in this region were spaced at 100m intervals. The second grid



extended to 7.5km. Receptor spacing in this region were 250m. A third grid extended to 15km with a spacing of 500m. The receptor grid was designed such that maximum facility impacts fall within the 100m spacing of receptors. The receptor grid spacing is presented in Table 2.

Table 2. Proposed Receptor Grid Spacing

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

The US Steel facility is located in southern Illinois. Terrain within 10km of the site is generally flat. Receptor elevations and hill height scale factors were calculated with AERMAP (18081). The elevation data were obtained from the USGS one arc second National Elevation Data (NED) obtained from the USGS. Locations were based upon a NAD83, UTM Zone 15 projection. The near-field receptor grid is presented in Figure 5.

4.6 Meteorological Data

The 2014-2018, 5-year sequential hourly surface meteorological data from the National Weather Service (NWS) at St. Louis Lambert Field (WBAN No. 13994) and upper air data from the NWS station in Lincoln, IL (WBAN No. 04833) were used in the analysis. These data were processed into a "model-ready" format using the latest version of AERMET (version 19191).

The AERMET meteorological processor requires estimates of the following surface characteristics: surface roughness length, albedo, and Bowen ratio. The surface roughness length is related to the height of obstacles to the wind flow. It is the height above the surface where the average wind speed is zero. The smoother the surface, the lower the roughness length. The surface roughness length influences the surface shear stress and is an important factor in calculating mechanical turbulence and stability. The albedo is the fraction of the total incident solar radiation reflected by the surface back to space without absorption.

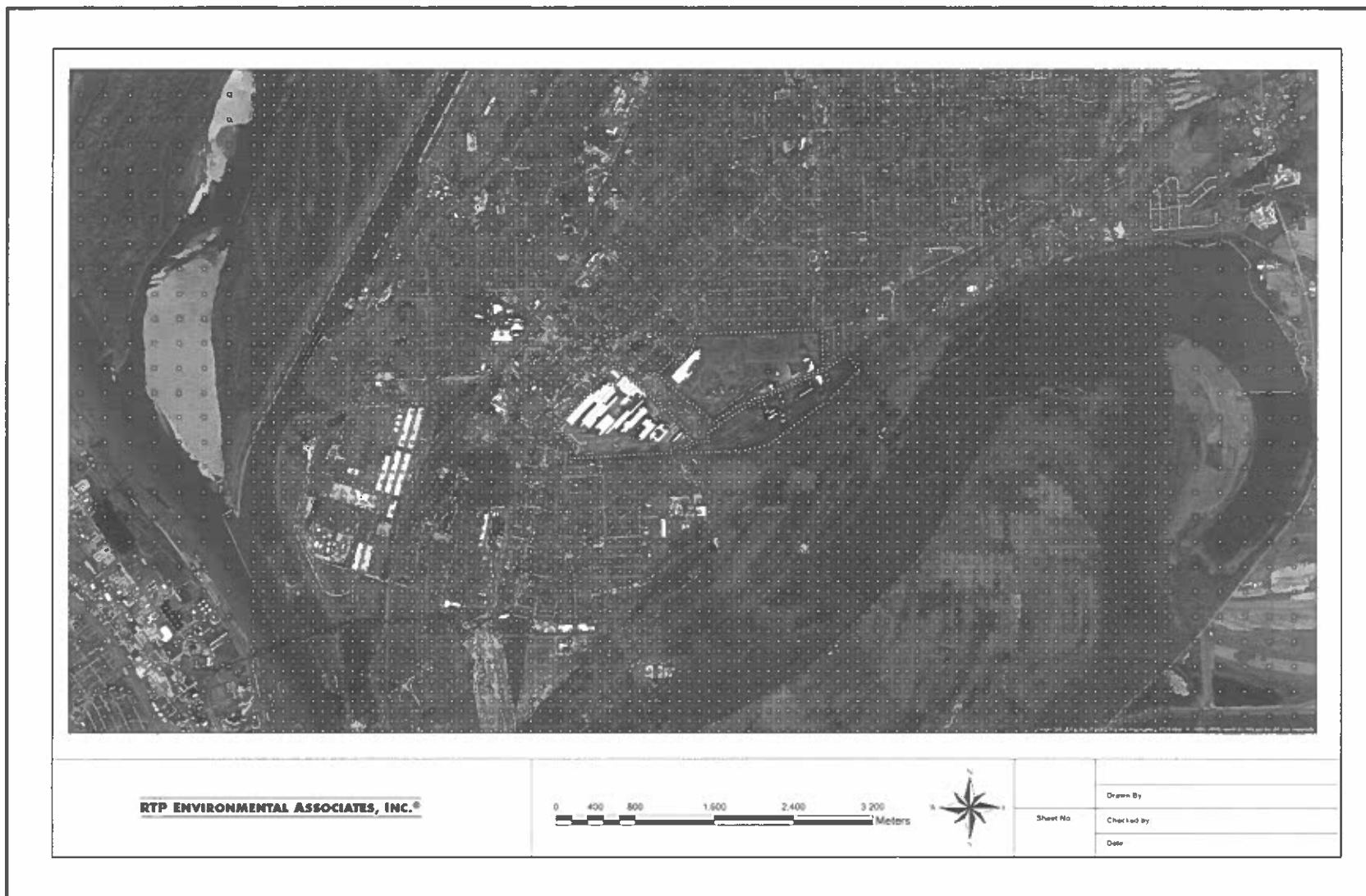


Figure 5. US Steel Facility Near-field Receptor Grid



The Bowen ratio is an indicator of surface moisture and is the ratio of the sensible heat flux to the latent heat flux. The albedo and Bowen ratio are used for determining the planetary boundary layer parameters for convective conditions due to the surface sensible heat flux. Estimates of the surface characteristics were made by the IEPA using USEPA's AERSURFACE program (Version 13016) and provided to RTP Environmental. A 1km search radius was employed at the location of the meteorological tower. Twelve sectors of 30 degrees each and seasonal resolution were used in the AERSURFACE analysis. RTP employed the "ADJ_U*" option to allow for adjustments to the friction velocity under low wind speeds was employed.

The use of NWS meteorological data for dispersion modeling can often lead to a high incidence of calms and variable wind conditions if the data are collected by Automated Surface Observing Stations (ASOS), as are in use at most NWS stations since the mid-1990's. A calm wind is defined as a wind speed less than 3 knots and is assigned a value of 0 knots. In addition, variable wind observations may include wind speeds up to 6 knots, but the wind direction is reported as missing, if the wind direction varies more than 60 degrees during the 2-minute averaging period for the observation. The AERMOD model currently cannot simulate dispersion under calm or missing wind conditions. To reduce the number of calms and missing winds in the surface data, archived 1-minute winds for the ASOS stations were used to calculate hourly average wind speed and directions, which were used to supplement the standard archive of hourly observed winds processed in AERMET. The USEPA AERMINUTE program (Version 15272) was used for these calculations. A wind rose of the 5-year meteorological dataset is provided in Figure 6.

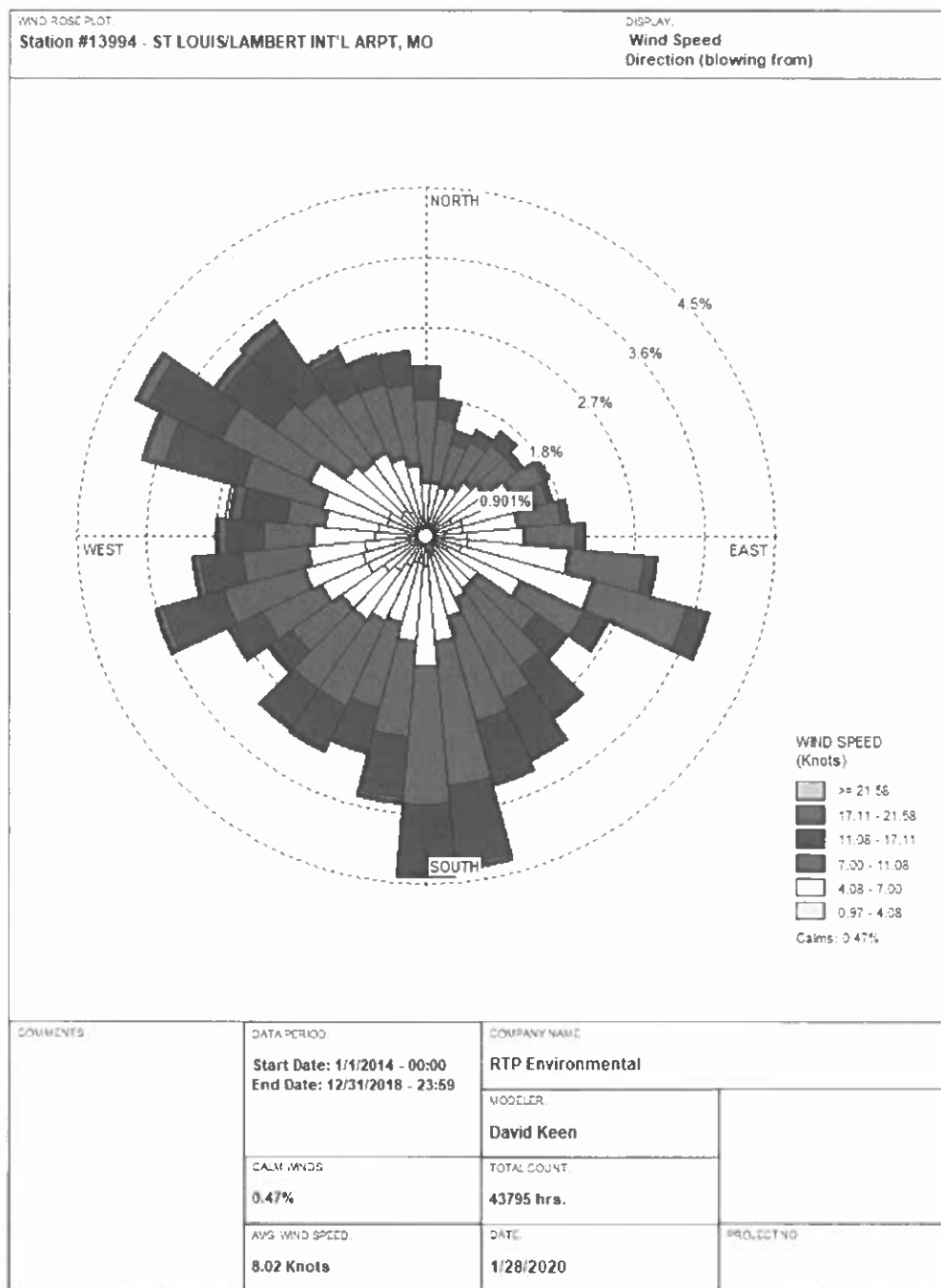


Figure 6. Lambert Field Windrose 2014-2018.



5.0 MODELING METHODOLOGY

5.1 Pollutants Subject to Review

USS Steel is proposing changes to the CO emission limitations in the 1996 Construction Permit that were established per the PSD requirements. Therefore, as requested by Illinois EPA, dispersion modeling of CO emissions have been evaluated and compared to the NAAQS.

5.2 Significant Impact Analysis

The air quality analysis was conducted in two phases: an initial or significant impact analysis, and a refined phase NAAQS analysis. In the significant impact analysis, the calculated maximum impacts due to the project were determined for CO.^b These impacts determined the net change in air quality resulting from the proposed revision to modification permitted under the 1996 Construction Permit. Five years of meteorological data were used in the significant impact analysis. Maximum modeled CO concentrations were compared to the significance levels. The PSD Class II Significant Impact Levels for CO are listed in Table 3.

Table 3. PSD Class II Significant Impact Levels

Pollutant	Averaging Time	PSD Class II Significant Impact Levels ($\mu\text{g}/\text{m}^3$)
CO	1-hour	2,000
	8-hour	500

^b For some of the affected emissions units, in place of project related emissions increases, we conservatively used the potential to emit of CO.



5.3 NAAQS Analysis

Following the determination of significant impacts, a refined air quality analysis to determine compliance with the CO NAAQS was conducted. In the NAAQS analysis, impacts from the US Steel facility were added to concentrations calculated from other nearby sources, plus a regional background concentration. The resultant total concentrations were compared to the NAAQS to assess compliance. The receptors modeled in the NAAQS analyses were limited to those showing a significant CO impact. Five years of meteorological data were again used in this analysis.

Nearby Source Inventory

Off-site sources were included in the NAAQS analysis. A 50km radius was used to define the screening area. A list of sources that are located within the screening area has been obtained from the IEPA as well as the Missouri Department of Natural Resources ("MDNR"). Section 8.3.3.b of Appendix W to 40 CFR Part 51 states that the number of nearby sources to be explicitly modeled is expected to be few, except in unusual situations. Appendix W further states that the sources to be included will usually be located within the first 10 to 20km from the source under consideration. In addition, it states that identification of nearby sources calls for the exercise of professional judgment by the appropriate reviewing authority. Further, USEPA's Guidance for PM2.5 Permit Modeling reiterates the Appendix W emphasis on a 10km screening radius for determining which nearby sources to include in the cumulative modeling analysis.

We conservatively included all sources provided by the IEPA and MDNR that are located within 50km of the US Steel facility. Total facility, potential emissions (i.e., all sources at a facility) were used in the NAAQS evaluation.

NAAQS Compliance Assessment



Ambient background concentrations (as discussed in more detail in Section 4.4) were then added to assess NAAQS compliance. The modeled and monitored values shown in Table 4 were used for this assessment.

Table 4. Monitored and Modeled Values Used to Assess NAAQS Compliance

Pollutant	Averaging Time	Monitored Value	Modeled Value
CO	1-hour & 8-hour	Highest, second high over 3 years	Highest, second high over 5 years

The NAAQS are shown in Table 5.

Table 5. National Ambient Air Quality Standards

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



6.0 RESULTS

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

6.1 Significant Impact Analysis Results

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

6.2 NAAQS Analysis Results

Following the determination of significant impacts, an analysis was conducted to assess compliance with the CO NAAQS. Even though the project resulted in insignificant 1-hr CO impacts, the 1-hr average was included in the NAAQS assessment. All sources located within 50km of the US Steel facility were modeled in conjunction with the US Steel facility in assessing compliance. Background concentrations were added to the model results to assess compliance. Evaluation of compliance with the CO short term standards was based upon the maximum of the highest-second-highest values from the five-year meteorological dataset.

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



Table 6. Significant Impact Analysis Results

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



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

US Steel Granite City Volume Source Inputs

Source ID	Source Description	Easting (m)	Northing (m)	Base		Release Height (ft)	Sigma Y (ft)	Sigma Z (ft)	CO	CO
				Elevation (ft)					Potential Emissions (lb/hr)	Emissions Increase (lb/hr)
26070	Ladle Preheaters/Dryers (formerly BOF 4, NG & COG) - Roof Monitor	748457.20	4286596.40	413.88		169.0	21.6	78.6	1.373	1.373
26080	Ladle Preheaters/Dryers (formerly BOF 4, NG & COG) - Roof Monitor	748466.60	4286606.00	413.98		169.0	21.6	78.6	1.373	1.373
26090	Ladle Preheaters/Dryers (formerly BOF 4, NG & COG) - Roof Monitor	748475.40	4286616.10	413.88		169.0	21.6	78.6	1.373	1.373
26100	Ladle Preheaters / Dryers (formerly BOF 5, NG & COG) - Roof Monitor	748483.60	4286624.10	413.85		169.0	21.6	78.6	1.029	1.029
26110	Ladle Preheaters / Dryers (formerly BOF 5, NG & COG) - Roof Monitor	748495.20	4286635.90	414.01		169.0	21.6	78.6	1.029	0.000
26120	Ladle Preheaters / Dryers (formerly BOF 5, NG & COG) - Roof Monitor	748504.10	4286646.00	414.37		169.0	21.6	78.6	1.029	0.000
26130	Ladle Preheaters / Dryers (formerly BOF 5, NG & COG) - Roof Monitor	748513.90	4286656.70	414.63		169.0	21.6	78.6	1.029	0.000
26570	Galv Line 8	748368.26	4287046.91	420.41		101.7	12.3	48.5	0.254	0.000
26580	Galv Line 8	748374.01	4287041.49	420.11		101.7	12.3	48.5	0.254	0.000
26590	Galv Line 8	748379.56	4287036.28	419.82		101.7	12.3	48.5	0.254	0.000
26600	Galv Line 8	748420.52	4286997.79	419.55		38.0	15.1	38.0	0.254	0.000
26610	Galv Line 8	748428.00	4286990.81	419.95		38.0	15.1	38.0	0.254	0.000
26620	Galv Line 8	748436.60	4286982.91	419.85		38.0	15.1	38.0	0.254	0.000
26630	Galv Line 8	748444.54	4286975.49	419.62		38.0	15.1	38.0	0.254	0.000
26640	Galv Line 8	748451.78	4286968.87	418.50		38.0	15.1	38.0	0.254	0.000
26650	Galv Line 8	748324.79	4287118.60	421.65		38.0	15.6	17.7	0.254	0.000
26660	Galv Line 8	748331.95	4287112.00	421.52		38.0	15.6	17.7	0.254	0.000
26670	Galv Line 8	748340.34	4287104.30	421.39		38.0	15.6	17.7	0.254	0.000
26680	Galv Line 8	748347.69	4287097.51	421.29		38.0	15.6	17.7	0.254	0.000
26690	Galv Line 8	748354.48	4287091.31	421.16		38.0	15.6	17.7	0.254	0.000
26700	Galv Line 8	748362.29	4287084.18	420.87		38.0	15.6	17.7	0.254	0.000
26710	Galv Line 8	748370.46	4287076.71	420.51		38.0	15.6	17.7	0.254	0.000
26720	Galv Line 8	748378.04	4287069.70	420.14		38.0	15.6	17.7	0.254	0.000
26730	Galv Line 8	748385.51	4287062.91	419.52		38.0	15.6	17.7	0.254	0.000
0126A_1	Slag Pit Volume 1	749691.91	4286762.44	418.70		53.0	29.0	17.7	0.000	0.000
0126A_2	Slag Pit Volume 2	749708.01	4286772.50	421.33		53.0	29.0	17.7	0.000	0.000
0126A_3	Slag Pit Volume 3	749724.24	4286782.31	420.44		53.0	29.0	17.7	0.000	0.000
0126A_4	Slag Pit Volume 4	749740.84	4286791.62	419.00		53.0	29.0	17.7	0.000	0.000
0126A_5	Slag Pit Volume 5	749757.20	4286801.31	418.86		53.0	29.0	17.7	0.000	0.000

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

Source ID	Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	Potential Emissions (lb/hr)		
									CO	SOx	SO2 (1-hour)
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 rehear 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+01	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 - Liquefied carbon dioxide plant	756314.00	4302509.00	435.93	30.0	70.1	79.573	0.2	4.10E+01	0.00E+00	0.00E+00
IL_132701	Kinder Morgan Liquids Terminals, LLC - New Truck loading rack	752998.00	4303578.00	435.63	20.0	70.1	0.262	2.2	4.87E+00	0.00E+00	0.00E+00
IL_132739	National Maintenance and Repair - Cleaver Brooks boiler (Stack 1 of 2)	750915.00	4300904.00	402.46	34.0	450.1	23.321	2.0	1.90E+00	5.00E+00	5.00E+00
IL_132777	Elias Kallal & Schaaf Funeral Home & Crematory - Crematorium	742098.00	4312210.00	627.20	30.0	1400.1	18.368	1.7	3.00E+00	0.00E+00	0.00E+00
IL_132781	Christ Bros Products, LLC - Baghouse	754160.00	4283243.00	419.46	32.0	240.0	83.706	3.9	5.56E+01	2.48E+01	2.48E+01
IL_132928	Enable Mississippi River Transmission, LLC - Engine SN-02	782556.00	4285336.00	492.29	30.0	1000.0	9.414	2.6	1.36E+01	0.00E+00	0.00E+00
IL_133625	Waterloo City Light Plant - Engine #1	748326.00	4246769.00	640.45	29.0	749.9	13.579	2.3	4.00E+01	1.35E+00	1.35E+00
IL_133627	Waterloo City Light Plant - Engine #9	748326.00	4246769.00	640.45	17.0	936.1	84.854	1.0	1.50E+01	3.60E+00	3.60E+00
IL_133628	Waterloo City Light Plant - Engine #10	748326.00	4246769.00	640.45	17.0	936.1	84.854	1.0	1.50E+01	3.60E+00	3.60E+00
IL_135983	Lakeview Memorial Gardens - Crematory	762896.00	4273894.00	579.89	16.0	895.0	26.666	2.6	8.40E+00	0.00E+00	0.00E+00
IL_136012	Breckenridge of IL - Natural gas combustion	756461.00	4277782.00	423.82	38.0	341.0	25.781	2.7	3.94E+00	0.00E+00	0.00E+00
IL_136014	Touchette Regional Hospital - 2 Boilers	751890.00	4273014.00	415.94	39.0	800.0	6.560	3.7	2.26E+00	0.00E+00	0.00E+00
IL_136018	Upchurch Ready Mix Concrete Company - Boiler	749859.00	4276616.00	418.44	30.0	376.1	29.684	3.7	0.00E+00	3.00E+01	3.00E+01
IL_136098	Safety Kleen Systems, Inc. - Pipe still (heat exchanger)	749786.00	4276425.00	420.28	15.0	170.0	0.295	1.0	0.00E+00	1.38E+00	1.38E+00

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

Source ID	Source Description	Easting (m)	Northing (m)	Base		Temp (F)	Exit Velocity (ft/sec)	Stack		Potential Emissions (lb/hr)		
				Elevation (ft)	Stack Height (ft)			Diameter (ft)		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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	0.00E+00
IL_147846	Mayco Mfg, LLC - Mixed metals A-11 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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	0.00E+00
IL_166479	Union Electric Co. - Turbine CTO2A	745573.00	4283620.00	420.60	30.0	850.0	18.860	11.4	7.73E+01	2.73E+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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	Bellefonte 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 miller (MM-3) Low profile turbine (LF-1) and Induction form s	750075.00	4306259.00	432.32	41.0	209.9	36.080	2.1	2.00E+00	0.00E+00	0.00E+00
IL_226204	GBC Metals, LLC (d/b/a Olin Brass) - Strip anneal #4 (SA-4)	750150.00	4308388.00	431.10	90.0	350.0	41.426	1.6	9.33E+01	0.00E+00	0.00E+00

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

Source ID	Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	Potential Emissions (lb/hr)		
									CO	SOx	SO2 (1-hour)
IL_226256	GBC Metals, LLC (d/b/a Olin Brass) - Strip Anneal #3 (SA-3)	750439.00	4308328.00	433.83	100.0	350.0	62.746	1.3	9.83E+01	0.00E+00	0.00E+00
IL_226257	GBC Metals, LLC (d/b/a Olin Brass) - #7 Strip Anneal (SA-7)	750222.00	4308335.00	433.20	89.0	850.0	38.671	1.5	1.18E+02	0.00E+00	0.00E+00
IL_226352	Olin Winchester, LLC - Hammermill 1 2 and 3 (HM-1 HM-2 and HM-3)	750495.00	4308287.00	434.42	21.0	160.1	19.647	1.8	8.03E+00	0.00E+00	0.00E+00
IL_226612	Solutia Inc - Santoflex process: Thermal oxidizer 2770934	746325.00	4275822.00	405.12	112.0	865.0	16.794	12.6	1.50E+01	0.00E+00	0.00E+00
IL_226783	Schildknecht Funeral Home, Inc. - Crematory	769033.00	4275796.00	549.57	17.0	1241.0	13.612	1.7	1.20E+00	0.00E+00	0.00E+00
IL_227030	ConocoPhillips Co. - #4 Crude unit heater H-24 (STK9-5)	753051.00	4302413.00	428.81	179.9	550.0	26.207	8.5	2.27E+01	0.00E+00	0.00E+00
IL_227032	ConocoPhillips Co. - Hydrogen plant #1 flare (FLR12-2)	755194.00	4302793.00	443.67	130.0	1800.1	7.970	1.7	1.62E+01	0.00E+00	0.00E+00
IL_227034	ConocoPhillips Co. - Sulfur operation	754240.00	4303144.00	443.47	158.0	590.1	37.753	3.4	0.00E+00	3.00E+01	3.00E+01
IL_227035	ConocoPhillips Co. - Process heater HP-1 (STK12-6)	755194.00	4302793.00	443.67	127.0	360.1	27.093	7.5	6.97E+00	0.00E+00	0.00E+00
IL_227038	ConocoPhillips Co. - SZU Charge heater H-3	755219.00	4302667.00	442.29	150.0	567.1	25.518	5.0	5.75E+00	0.00E+00	0.00E+00
IL_227333	Waterloo City Light Plant - Engine SG5	750635.00	4249410.00	628.97	8.0	924.0	61.172	0.7	1.40E+00	0.00E+00	0.00E+00
IL_227400	Collinsville Wastewater Treatment Plant - Emergency diesel generator (2922 HP/2180 kW)	758289.00	4283982.00	419.36	36.0	692.0	67.371	2.0	1.72E+01	1.20E+00	0.00E+00
IL_227432	Total Metal Recycling, Inc. - Safety certification unit	748030.00	4289120.00	422.74	6.0	587.0	8.069	1.2	1.00E+01	0.00E+00	0.00E+00
IL_227590	Illinois Electric Works - 3 Burn off ovens	747872.00	4288124.00	423.20	46.0	250.1	41.230	2.4	1.17E+00	6.90E-02	6.90E-02
IL_227679	Union Electric Co. - Diesel generator	745516.00	4283326.00	430.38	26.0	490.0	60.811	1.4	1.30E+00	1.60E-01	1.60E-01
IL_228119	St. Clair Crematory - Human crematory	773291.00	4275644.00	507.28	17.0	1241.0	13.612	1.7	1.20E+00	0.00E+00	0.00E+00
IL_228260	Center Ethanol Co. - West boiler	745888.00	4275662.00	412.66	75.0	428.1	43.460	3.0	3.23E+00	0.00E+00	0.00E+00
IL_228262	Center Ethanol Co. - East boiler	745888.00	4275662.00	412.66	75.0	428.1	45.428	3.0	3.23E+00	0.00E+00	0.00E+00
IL_228263	Center Ethanol Co. - RTO	745888.00	4275662.00	412.66	50.0	310.0	70.684	5.5	6.85E+00	0.00E+00	0.00E+00
IL_228294	ConocoPhillips Co. - Distilling west refinery flare (FLR10-1)	753647.00	4302546.00	430.31	197.0	1800.1	6.626	3.0	2.51E+01	0.00E+00	0.00E+00
IL_228295	ConocoPhillips Co. - SZU Regenerator vent	755209.00	4302720.00	442.32	44.0	135.1	32.341	2.0	1.78E+00	2.35E+00	2.35E+00
IL_229921	Christ Bros Products, LLC - 8 Heaters and boilers	754160.00	4283243.00	419.46	37.0	400.0	20.664	1.8	1.18E+00	2.80E+00	2.80E+00
IL_229922	Christ Bros Products, LLC - Silo filling	754160.00	4283243.00	419.46	25.0	74.0	0.262	0.4	5.10E-01	0.00E+00	0.00E+00
IL_229923	Christ Bros Products, LLC - Truck loading	754160.00	4283243.00	419.46	29.0	135.1	48.052	2.0	5.80E-01	0.00E+00	0.00E+00
IL_230300	Afton Chemical Corp. - Flare 36-0090	746478.00	4276293.00	407.28	45.0	1600.1	0.656	8.0	2.20E+00	0.00E+00	0.00E+00
IL_230350	Village of Freeburg - Engine #10	769352.00	4257578.00	509.42	28.0	929.9	87.674	1.5	1.28E+01	3.20E+00	3.20E+00
IL_230355	Asphalt Sales & Products Inc. - Truck loadout	757560.00	4299901.00	441.63	28.0	135.1	43.198	1.9	7.90E-01	0.00E+00	0.00E+00
IL_231259	Village of Freeburg - Engine #11	769352.00	4257578.00	509.42	28.0	929.9	87.674	1.5	1.28E+01	3.20E+00	3.20E+00
IL_231260	Village of Freeburg - Engine #12	769352.00	4257578.00	509.42	28.0	929.9	87.674	1.5	1.28E+01	3.20E+00	3.20E+00
IL_231291	Kurrus Funeral Home - 2 Crematories	759066.00	4271234.00	547.11	18.0	787.0	13.186	1.1	2.70E+00	0.00E+00	0.00E+00
IL_232739	ConocoPhillips Co. - Benzene extraction unit #3 (STK6-4)	754923.00	4302930.00	442.59	185.0	470.0	16.138	9.7	1.22E+01	0.00E+00	0.00E+00
IL_232785	Roxana Landfill, Inc. - Enclosed flare	759153.00	4301368.00	619.62	35.0	1600.1	20.008	12.0	2.31E+01	1.76E+00	1.76E+00
IL_233294	Gateway Terminals, LLC. - Marine vapor combustion unit (MVCU)	744607.00	4275093.00	422.70	74.0	514.0	25.158	3.3	1.69E+01	0.00E+00	0.00E+00
IL_233295	Gateway Terminals, LLC. - Truck/Rail vapor destruction unit (TRCU)	744607.00	4275093.00	422.70	74.0	514.0	25.158	3.3	8.39E+00	0.00E+00	0.00E+00
IL_235261	Gulfstream Aerospace Services Corp. - Make-up air unit 19-3	747629.00	4273560.00	410.10	42.0	577.0	29.356	2.5	1.63E+00	0.00E+00	0.00E+00
IL_235939	GBC Metals, LLC (d/b/a Olin Brass) - Strip anneal #5 (SA-5)	750151.00	4308373.00	430.91	90.0	450.1	54.087	1.4	1.07E+02	0.00E+00	0.00E+00
IL_235940	GBC Metals, LLC (d/b/a Olin Brass) - Strip anneal #6 (SA-6)	750207.00	4308390.00	431.82	110.0	580.0	62.779	1.3	1.07E+02	0.00E+00	0.00E+00
IL_236260	Bunge-SF Grain, LLC. - Grain Dryer	746158.00	4281045.00	417.55	96.0	105.0	87.904	8.2	5.06E+00	1.71E+01	1.71E+01
IL_236359	City of Belleville - 2 Emergency generators (1500 kW each)	763544.00	4265595.00	474.70	28.0	627.0	73.767	1.2	2.57E+01	1.84E+00	0.00E+00
IL_236927	Kraft Heinz Co. - Boiler C	748105.00	4289580.00	423.56	40.0	380.0	68.946	2.0	1.44E+00	0.00E+00	0.00E+00
IL_236928	Kraft Heinz Co. - Boiler D	748105.00	4289580.00	423.56	40.0	380.0	68.946	2.0	1.44E+00	0.00E+00	0.00E+00
IL_236929	Kraft Heinz Co. - Boiler E	748105.00	4289580.00	423.56	40.0	380.0	68.946	2.0	1.44E+00	0.00E+00	0.00E+00
IL_236930	National Maintenance and Repair - Cleaver Brooks boiler (Stack 2 of 2)	750920.00	4300904.00	402.46	34.0	450.1	23.321	2.0	1.90E+00	5.00E+00	5.00E+00
IL_237099	Union Electric Co. - Turbine CT02B	745573.00	4283613.00	419.69	30.0	850.0	18.860	11.4	7.74E+01	2.73E+01	2.73E+01
IL_237182	Highland Electric Light Plant - Engine IC-6	788126.93	4293320.17	534.65	28.0	612.1	84.854	2.0	1.32E+01	0.00E+00	0.00E+00
IL_237183	Highland Electric Light Plant - Engine IC-8	788126.93	4293320.17	534.65	57.0	734.1	61.762	11.4	2.57E+01	0.00E+00	0.00E+00
IL_237340	Charles E. Mahoney - Asphalt silo filling	749517.00	4309892.00	443.14	25.0	74.0	0.262	0.4	5.30E-01	0.00E+00	0.00E+00
IL_237341	Charles E. Mahoney - Truck loadout	749517.00	4309892.00	443.14	27.0	136.0	42.050	1.9	6.00E-01	0.00E+00	0.00E+00
IL_237362	Charles E. Mahoney - Asphalt heaters and boilers	749517.00	4309892.00	443.14	10.0	350.0	69.995	1.0	1.18E+00	2.80E+00	2.80E+00
IL_237659	Green Plains Madison, LLC - Boiler #1	745256.00	4285477.00	414.14	71.0	284.1	22.960	3.3	1.29E+00	5.00E-01	5.00E-01
IL_237660	Green Plains Madison, LLC - Fire Pump back-up Engine (460 HP)	745191.00	4285409.00	413.85	13.0	627.0	86.231	0.8	4.80E-01	9.40E-01	0.00E+00
IL_237661	Green Plains Madison, LLC - Electrical system backup Engine (1495 HP)	745144.00	4285537.00	415.88	28.0	627.0	73.767	1.2	3.54E+00	1.21E+01	0.00E+00
IL_237679	Green Plains Madison, LLC - Indirect dryer #1	745191.00	4285468.00	415.12	71.0	387.1	12.136	4.6	7.97E+00	4.10E-01	4.10E-01
IL_237866	Amsted Rail Co., Inc. - Curing oven	746913.00	4287625.00	419.23	39.0	258.0	27.978	1.9	2.52E-01	0.00E+00	0.00E+00
IL_237899	Center Ethanol Co. - Emergency generator	745888.00	4275662.00	412.66	28.0	627.0	73.767	1.2	3.30E+00	0.00E+00	0.00E+00
IL_237903	Center Ethanol Co. - Ethanol loadout Rack	745888.00	4275662.00	412.66	19.0	99.1	7.806	0.7	8.86E-01	0.00E+00	0.00E+00

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

Source ID	Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	Potential Emissions (lb/hr)		
									CO	SOx	SO2 (1-hour)
IL_238199	Solutia Inc. - An in-situ soil vapor extraction system	746325.00	4275822.00	405.12	15.0	70.1	73.406	0.2	4.00E+01	0.00E+00	0.00E+00
IL_238839	Waterloo City Light Plant - Turbine Generator (GT2)	748326.00	4246769.00	640.45	39.0	965.9	87.937	4.8	1.78E+01	0.00E+00	0.00E+00
IL_238942	ConocoPhillips Co. - Rental Boiler #3	754240.00	4303144.00	443.47	20.0	550.0	46.412	4.0	1.65E+00	0.00E+00	0.00E+00
IL_239395	Amsted Rail Co., Inc. - Sand dryer	746975.00	4287537.00	422.05	39.0	284.1	23.157	2.0	1.24E+00	0.00E+00	0.00E+00
IL_239396	Amsted Rail Co., Inc. - Thermal sand reclaimers	746975.00	4287537.00	422.05	39.0	284.1	23.157	2.0	3.70E+01	0.00E+00	0.00E+00
IL_239899	Shell Oil Products US - RTO	753758.00	4303650.00	442.59	19.0	200.0	33.948	2.5	0.00E+00	8.47E-01	8.47E-01
IL_240053	Westwood Lands, Inc. - Process heater DFH-1	748864.00	4285684.00	412.99	39.0	284.1	23.157	2.0	8.30E-01	0.00E+00	0.00E+00
IL_240359	Afton Chemical Corp. - Boiler 500-15-0210	746660.00	4276488.00	405.74	45.0	350.0	17.318	7.0	4.89E+00	0.00E+00	0.00E+00
IL_240360	Afton Chemical Corp. - Boiler 500-15-0310	746674.00	4276485.00	407.25	45.0	350.0	17.318	7.0	4.91E+00	0.00E+00	0.00E+00
IL_241300	ConocoPhillips Co. - VOC Flare (West - FLR4-1)	753428.00	4303073.00	428.81	30.0	1800.1	26.174	0.7	1.43E+00	0.00E+00	0.00E+00
IL_241301	ConocoPhillips Co. - VOC Flare (East - FLR4-2)	753441.00	4303073.00	428.77	30.0	1800.1	26.174	0.7	1.43E+00	0.00E+00	0.00E+00
IL_241302	ConocoPhillips Co. - Coker north flare (FLR1-3)	754947.00	4303684.00	444.23	139.0	911.0	26.535	5.4	0.00E+00	3.08E+01	3.08E+01
IL_241303	ConocoPhillips Co. - VF-5 Heater (H350H4 - STK1-1)	754937.00	4303459.00	444.98	150.0	650.0	26.765	12.0	0.00E+00	1.35E+01	1.35E+01
IL_241304	ConocoPhillips Co. - Coker north heater (H351H2 - STK1-2)	754953.00	4303305.00	444.85	150.0	500.1	22.304	10.0	0.00E+00	7.37E+00	7.37E+00
IL_241305	ConocoPhillips Co. - Coker north heater (H351H1 - STK1-3)	754986.00	4303306.00	444.82	150.0	500.1	22.304	10.0	0.00E+00	7.38E+00	7.38E+00
IL_241312	ConocoPhillips Co. - Heater HP-2 (STK7-1)	755263.00	4302920.00	443.86	118.0	400.0	45.002	10.8	0.00E+00	2.87E+01	2.87E+01
IL_241405	Procter & Gamble Distributing - Emergency diesel generator #1	756504.00	4295421.00	425.00	26.0	490.0	60.811	1.4	1.68E+01	0.00E+00	0.00E+00
IL_241449	Procter & Gamble Distributing - Emergency diesel generator #2	756494.00	4295735.00	424.74	26.0	490.0	60.811	1.4	1.68E+01	0.00E+00	0.00E+00
IL_242126	Center Point Terminals Co. - Tank Heater	746359.00	4289027.00	411.84	49.0	331.1	32.144	2.5	1.03E+00	0.00E+00	0.00E+00
IL_245579	Procter & Gamble Distributing - Emergency diesel generator #3	756198.00	4295409.00	424.97	26.0	490.0	60.811	1.4	1.68E+01	0.00E+00	0.00E+00
IL_245580	Procter & Gamble Distributing - Emergency diesel generator #4	756182.00	4295721.00	424.77	26.0	490.0	60.811	1.4	1.68E+01	0.00E+00	0.00E+00
IL_245839	Milam Recycling and Disposal Facility - Landfill gas conversion plant	750666.00	4282895.00	413.09	55.0	70.1	0.000	4.5	3.80E+00	9.00E-01	9.00E-01
IL_246759	Stookey Township WWTP - 2000 kW Emergency generator	756253.00	4269975.00	518.86	28.0	627.0	73.767	1.2	1.54E+01	0.00E+00	0.00E+00
IL_246761	Omega Partners Hartford, LLC - Truck Rail Marine racks loadout and VCU's	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	2.33E-01

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

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

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

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

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

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

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

Source ID	Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	Potential Emissions (lb/hr)		
									CO	SOx	SO2 (1-hour)
SSTL166	MISSOURI AMERICAN WATER-CENTRAL PLANT CHESTERFIELD	715427.34	4284896.78	451.44	10.0	871.0	24.016	0.8		2.38E-01	2.38E-01
SSTL169	SPIRE MISSOURI, EAST INC.	736637.09	4302290.45	525.66	20.0	0.0	0.000	0.5	1.79E-01	1.28E-03	1.28E-03
SSTL170	SPIRE MISSOURI, EAST INC.	736637.09	4302290.45	525.66	25.0	-459.7	0.003	0.8	2.33E+01	3.69E-03	3.69E-03
SSTL171	SPIRE MISSOURI, EAST INC.	736637.09	4302290.45	525.66	18.0	-459.7	0.003	4.0	1.61E+00	6.69E-02	6.69E-02
SSTL172	SPIRE MISSOURI, EAST INC.	736637.09	4302290.45	525.66	15.0	-459.7	0.003	2.0	1.20E-02	8.60E-05	8.60E-05
SSTL173	SPIRE MISSOURI, EAST INC.	736637.09	4302290.45	525.66	16.0	-459.7	0.003	0.5	9.34E-01	2.85E-01	2.85E-01
SSTL174	SPIRE MISSOURI, EAST INC.	736637.09	4302290.45	525.66	20.0	0.0	0.000	0.5	4.62E-03	3.30E-05	3.30E-05
SSTL175	SPIRE MISSOURI, EAST INC.	736637.09	4302290.45	525.66	20.0	0.0	0.000	0.5	4.62E-03	3.30E-05	3.30E-05
SSTL196	FRED WEBER, INC. FT. BELLE	739499.97	4302900.13	443.27	7.7	25.0	11.788	0.9	3.02E+00	1.28E-01	1.28E-01
SSTL199	A.G. RECYCLING	734844.18	4284158.21	525.43	10.0	1100.0	23.333	0.5		1.59E-01	1.59E-01
SSTL200	A.G. RECYCLING	734844.18	4284158.21	525.43	10.0	1100.0	23.333	0.5		7.25E-01	7.25E-01
SSTL209	MISSOURI-AMERICAN WATER CO FLORISSANT	728394.88	4300010.04	461.78	15.0	896.0	0.000	14.0	9.51E+00	9.51E+00	
SSTL214	THE HARPER COMPANY	731184.93	4292013.86	588.35	10.0	1100.0	23.333	0.5		2.75E-01	0.00E+00
SCITY1	ANHEUSER-BUSCH INC ST. LOUIS	743002.81	4275906.67	469.19	225.0	330.0	21.217	10.0		2.38E-02	2.38E-02
SCITY2	ANHEUSER-BUSCH INC ST. LOUIS	743002.81	4275906.67	469.19	100.0	350.0	47.149	3.0		5.80E-02	5.80E-02
SCITY3	ANHEUSER-BUSCH INC ST. LOUIS	743002.81	4275906.67	469.19	225.0	350.0	18.468	10.0		1.67E+01	1.67E+01
SCITY4	ANHEUSER-BUSCH INC ST. LOUIS	743002.81	4275906.67	469.19	225.0	350.0	18.468	10.0		1.78E-02	1.78E-02
SCITY5	ANHEUSER-BUSCH INC ST. LOUIS	743002.81	4275906.67	469.19	225.0	350.0	18.468	10.0		2.53E+01	2.53E+01
SCITY6	ANHEUSER-BUSCH INC ST. LOUIS	743002.81	4275906.67	469.19	225.0	350.0	18.468	10.0		2.15E-02	2.15E-02
SCITY7	ANHEUSER-BUSCH INC ST. LOUIS	743002.81	4275906.67	469.19	135.0	950.0	19.367	1.5		1.75E+01	1.75E+01
SCITY8	ANHEUSER-BUSCH INC ST. LOUIS	743002.81	4275906.67	469.19	20.0	50.0	70.000	1.0		1.69E+00	1.69E+00
SCITY9	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	70.0	200.0	0.003	5.5	1.33E+00	9.51E-03	9.51E-03
SCITY10	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	70.0	200.0	0.003	5.5	2.13E+00	1.52E-02	1.52E-02
SCITY11	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	100.0	145.0	62.500	4.5	2.53E+00	1.81E-02	1.81E-02
SCITY12	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	100.0	145.0	62.500	4.5	3.20E-01	2.29E-03	2.29E-03
SCITY13	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	12.0	200.0	0.335	1.0	3.77E+00	1.15E+00	0.00E+00
SCITY14	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	45.0	150.0	50.400	2.0	3.55E-02	1.07E-03	1.07E-03
SCITY15	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	45.0	150.0	50.400	2.0	3.07E-02	9.22E-04	9.22E-04
SCITY16	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	45.0	150.0	69.751	1.7	3.07E-02	9.22E-04	9.22E-04
SCITY17	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	16.0	77.0	24.600	0.2		1.41E-03	1.41E-03
SCITY18	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	3.0	800.0	0.335	0.5	1.63E-01	4.88E-02	0.00E+00
SCITY22	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	20.0	0.0	0.000	0.5	5.72E-03	1.72E-04	1.72E-04
SCITY23	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	10.0	1100.0	23.333	0.5	6.00E-02	1.83E-02	0.00E+00
SCITY24	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	10.0	785.0	42.283	0.3	2.11E+00	6.44E-01	0.00E+00
SCITY25	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	10.0	785.0	42.283	0.3	8.12E-03	4.79E-03	0.00E+00
SCITY26	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	10.0	1100.0	23.333	0.5	1.73E-02	5.29E-03	0.00E+00
SCITY27	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	42.0	77.0	3.734	0.2	4.35E-02	1.33E-02	0.00E+00
SCITY28	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	20.0	200.0	0.335	1.0	1.98E-01	6.04E-02	0.00E+00
SCITY29	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	8.0	800.0	0.335	0.5	1.07E-01	3.27E-02	0.00E+00
SCITY30	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	8.0	800.0	0.335	0.5	1.09E-04	3.32E-05	0.00E+00
SCITY31	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	22.0	212.0	1.296	1.0	5.28E-01	1.61E-01	0.00E+00
SCITY32	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	90.0	77.0	33.215	2.2	1.09E-04	3.32E-05	0.00E+00
SCITY33	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	10.0	1100.0	23.333	0.5	3.65E-02	1.12E-02	0.00E+00
SCITY34	MALLINCKRODT N SECOND	744362.95	4283022.76	417.81	8.0	800.0	0.335	0.5	1.98E-01	6.04E-02	0.00E+00
SCITY48	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	111.0	300.0	72.900	4.0		2.58E-01	2.58E-01
SCITY49	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	111.0	300.0	72.900	4.0		2.42E-02	2.42E-02
SCITY50	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	111.0	300.0	72.900	4.0		1.20E+00	1.20E+00
SCITY51	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	111.0	300.0	72.900	4.0		1.51E-01	1.51E-01
SCITY52	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	115.0	280.0	41.099	5.0		1.17E+00	1.17E+00
SCITY53	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	115.0	280.0	41.099	5.0		6.91E-03	6.91E-03
SCITY54	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	115.0	280.0	41.099	5.0		1.17E+00	1.17E+00
SCITY55	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	115.0	280.0	41.099	5.0		7.87E-03	7.87E-03
SCITY56	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	30.0	975.0	237.684	0.8		3.10E-02	0.00E+00
SCITY57	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	161.0	250.0	34.101	4.0		2.59E+01	2.59E+01
SCITY58	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	161.0	250.0	34.101	4.0		5.09E+00	5.09E+00
SCITY59	ASHLEY ENERGY LLC	745321.30	4280225.01	423.00	161.0	250.0	34.101	4.0		3.48E-02	3.48E-02

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

Source ID	Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	Potential Emissions (lb/hr)		
									CO	SOx	SO2 (1-hour)
SCITY60	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	225.0	280.0	35.784	7.3	3.97E-01	3.97E-01	3.97E-01
SCITY61	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	225.0	280.0	35.784	7.3	3.97E-01	5.32E-02	5.32E-02
SCITY62	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	225.0	280.0	35.784	7.3	3.00E+00	4.43E+00	4.43E+00
SCITY63	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	225.0	280.0	35.784	7.3	3.30E+00	2.36E-02	2.36E-02
SCITY64	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	225.0	280.0	35.784	7.3	3.00E+00	4.43E+00	4.43E+00
SCITY65	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	225.0	280.0	35.784	7.3	3.20E+00	2.29E-02	2.29E-02
SCITY66	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	20.0	0.0	0.000	0.5	4.42E+01	1.33E+00	1.33E+00
SCITY67	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	69.0	318.0	63.035	3.0	4.19E+00	4.64E+00	4.64E+00
SCITY68	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	69.0	318.0	63.035	3.0	6.11E-01	5.15E-03	5.15E-03
SCITY69	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	225.0	280.0	35.784	7.3	3.04E+00	4.48E+00	4.48E+00
SCITY70	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	225.0	280.0	35.784	7.3	1.14E+00	8.17E-03	8.17E-03
SCITY71	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	10.0	1100.0	23.333	0.5	2.98E-03	4.70E-07	0.00E+00
SCITY72	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	10.0	1100.0	23.333	0.5	7.05E+00	2.15E+00	0.00E+00
SCITY83	VETERANS ADMIN MEDICAL CENTER JOHN COCHRAN DIV	741047.52	4280704.99	545.64	50.0	430.0	35.000	2.0	1.14E-04	1.14E-04	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	0.00E+00

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

Source ID	Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	Potential Emissions (lb/hr)		
									CO	SOx	SO2 (1-hour)
SCITY160	ST. ALEXIUS HOSPITAL JEFFERSON CAMPUS	741441.37	4274961.73	544.65	12.6	200.0	205.400	0.5		7.80E-01	0.00E+00
SCITY162	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	210.0	260.0	17.733	2.8	2.69E+00	1.16E-01	1.16E-01
SCITY163	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	210.0	260.0	17.733	2.8	6.20E+00	4.43E-02	4.43E-02
SCITY164	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	4.20E+00	9.30E-03	0.00E+00
SCITY165	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	4.18E+00	9.20E-03	0.00E+00
SCITY166	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	3.77E+00	8.30E-03	0.00E+00
SCITY167	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	4.12E+00	9.10E-03	0.00E+00
SCITY168	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	4.01E+00	1.23E+00	0.00E+00
SCITY169	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	8.15E+00	1.80E-02	0.00E+00
SCITY170	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	4.90E+00	1.08E-02	0.00E+00
SCITY171	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	8.52E+00	1.88E-02	0.00E+00
SCITY172	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	184.2	400.0	1.949	5.5	4.71E+00	2.04E-01	2.04E-01
SCITY173	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	184.2	400.0	1.949	5.5	1.09E+01	7.76E-02	7.76E-02
SCITY174	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	184.2	400.0	1.949	5.5	2.50E+00	1.08E-01	1.08E-01
SCITY175	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	184.2	400.0	1.949	5.5	6.01E+00	4.29E-02	4.29E-02
SCITY176	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	6.24E+00	1.38E-02	0.00E+00
SCITY177	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	5.17E+00	1.14E-02	0.00E+00
SCITY178	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	9.14E+00	2.02E-02	0.00E+00
SCITY179	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	2.31E+00	9.84E-01	0.00E+00
SCITY180	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	3.98E+00	8.40E-03	0.00E+00
SCITY181	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	2.29E-01	3.53E-03	3.53E-03
SCITY183	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	2.29E-01	2.41E-03	2.41E-03
SCITY185	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	8.24E-02	5.89E-04	5.89E-04
SCITY187	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	2.36E-01	1.69E-03	1.69E-03
SCITY189	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	1.37E+00	4.86E-01	0.00E+00
SCITY190	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	247.0	190.0	20.417	1.2	5.35E-02	2.31E-03	2.31E-03
SCITY191	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	247.0	190.0	20.417	1.2	5.00E-01	3.57E-03	3.57E-03
SCITY192	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	3.69E+01	6.78E-02	0.00E+00
SCITY193	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	8.48E+00	1.56E-02	0.00E+00
SCITY194	BARNES JEWISH HOSPITAL	738059.57	4279829.93	507.94	10.0	1100.0	23.333	0.5	2.09E+01	4.41E-02	0.00E+00
SCITY227	INDUSTRIAL CONTAINER SERVICES - MO, LLC MANCHESTER	737686.12	4278652.89	459.06	20.0	250.0	18.068	1.0		2.54E-03	2.54E-03
SCITY228	INDUSTRIAL CONTAINER SERVICES - MO, LLC MANCHESTER	737686.12	4278652.89	459.06	20.0	150.0	22.218	1.0		1.20E+00	1.20E+00
SCITY229	INDUSTRIAL CONTAINER SERVICES - MO, LLC MANCHESTER	737686.12	4278652.89	459.06	25.0	0.0	0.000	1.0		2.19E-04	2.19E-04
SCITY242	PQ CORPORATION -THE	739053.43	4285317.19	495.80	60.0	250.0	71.667	1.7		2.39E-03	2.39E-03
SCITY243	PQ CORPORATION -THE	739053.43	4285317.19	495.80	60.0	400.0	19.833	1.5		4.37E-03	4.37E-03
SCITY244	PQ CORPORATION -THE	739053.43	4285317.19	495.80	20.0	0.0	0.000	0.5		1.37E-04	1.37E-04
SCITY245	PQ CORPORATION -THE	739053.43	4285317.19	495.80	55.0	750.0	11.168	4.2		8.16E-03	8.16E-03
SCITY246	PQ CORPORATION -THE	739053.43	4285317.19	495.80	43.0	500.0	7.467	2.5		7.33E-05	7.33E-05
SCITY247	PQ CORPORATION -THE	739053.43	4285317.19	495.80	20.0	0.0	0.000	0.5		3.46E-04	3.46E-04
SCITY248	PQ CORPORATION -THE	739053.43	4285317.19	495.80	36.0	375.0	1.716	2.0		2.48E-03	2.48E-03
SCITY266	HUMANE SOCIETY OF MISSOURI ST. LOUIS - MACKLIND AVE	737162.32	4278817.40	474.08	24.0	1139.0	15.515	1.7		1.10E-02	1.10E-02
SCITY267	HUMANE SOCIETY OF MISSOURI ST. LOUIS - MACKLIND AVE	737162.32	4278817.40	474.08	28.0	1800.0	15.584	2.0		6.76E-01	6.76E-01
SCITY275	ALSCO, INC ST. LOUIS	743334.17	4275818.28	427.92	10.0	1100.0	29.333	0.5		2.33E+01	2.33E+01
SCITY276	ALSCO, INC ST. LOUIS	743334.17	4275818.28	427.92	10.0	1100.0	29.333	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	1.33E-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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	9.53E-03

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

Source ID	Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Stack Height (ft)	Temp (F)	Exit Velocity (ft/sec)	Stack Diameter (ft)	Potential Emissions (lb/hr)		
									CO	SOx	SO2 (1-hour)
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
CIEFF34	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	36.6	77.0	20.600	1.8	2.68E-02		
CIEFF35	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	70.0	350.0	40.000	2.0	2.90E-01		
CIEFF36	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	70.0	850.0	41.667	2.5	2.07E-01		
CIEFF37	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	20.0	0.0	0.000	0.5	9.13E-03		
CIEFF43	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	56.0	370.0	33.333	2.5	1.01E-01		
CIEFF44	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	70.0	850.0	41.667	2.5	8.06E-01		
CIEFF45	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	70.0	850.0	112.999	2.5	9.97E-02		
CIEFF46	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70	70.0	850.0	20.600	2.5	2.58E-01		
CSTLC55	ST. LOUIS AIRPORT AUTHORITY LAMBERT INTERNATIONAL BLVD	728947.29	4291571.16	554.63	34.0	375.0	26.555	2.3	1.68E-02		
CSTLC56	ST. LOUIS AIRPORT AUTHORITY LAMBERT INTERNATIONAL BLVD	728947.29	4291571.16	554.63	34.0	375.0	26.555	2.3	1.27E+00		
CSTLC57	ST. LOUIS AIRPORT AUTHORITY LAMBERT INTERNATIONAL BLVD	728947.29	4291571.16	554.63	33.0	428.0	15.669	3.8	1.66E-02		
CSTLC58	ST. LOUIS AIRPORT AUTHORITY LAMBERT INTERNATIONAL BLVD	728947.29	4291571.16	554.63	33.0	428.0	15.669	3.8	3.85E-01		
CSTLC59	ST. LOUIS AIRPORT AUTHORITY LAMBERT INTERNATIONAL BLVD	728947.29	4291571.16	554.63	20.0	250.0	2.083	1.0	7.72E-02		
CSTLC60	ST. LOUIS AIRPORT AUTHORITY LAMBERT INTERNATIONAL BLVD	728947.29	4291571.16	554.63	5.5	1200.0	254.649	0.2	3.28E+00		
CSTLC61	ST. LOUIS AIRPORT AUTHORITY LAMBERT INTERNATIONAL BLVD	728947.29	4291571.16	554.63	5.5	1200.0	254.649	0.2	1.29E-01		
CSTLC62	ST. LOUIS AIRPORT AUTHORITY LAMBERT INTERNATIONAL BLVD	728947.29	4291571.16	554.63	5.5	1200.0	254.649	0.2	9.99E-05		
CSTLC63	ST. LOUIS AIRPORT AUTHORITY LAMBERT INTERNATIONAL BLVD	728947.29	4291571.16	554.63	19.0	425.0	7.047	1.7	6.01E-01		
CSTLC64	ST. LOUIS AIRPORT AUTHORITY LAMBERT INTERNATIONAL BLVD	728947.29	4291571.16	554.63	24.0	270.0	105.951	2.0	3.24E+00		
CSTLC152	SIMPSON CONSTRUCTION MATERIALS LLC VALLEY PARK	715996.20	4268469.87	430.05	43.0	-459.7	3.225	1.0	1.38E-01		
CSTLC155	FRED WEBER INC. - SOUTH ASPHALT BATCH SOUTH ASPHALT	732929.25	4259955.19	424.64	37.0	230.0	51.250	4.2	2.57E+01		
CSTLC156	FRED WEBER INC. - SOUTH ASPHALT BATCH SOUTH ASPHALT	732929.25	4259955.19	424.64	12.0	355.0	0.804	1.3	4.03E-01		
CSTLC157	FRED WEBER INC. - NORTH ASPHALT H and B	720614.10	4290798.15	468.70	31.0	230.0	80.499	4.2	3.93E+01		
CSTLC158	FRED WEBER INC. - NORTH ASPHALT H and B	720614.10	4290798.15	468.70	20.0	300.0	16.667	1.1	2.29E-01		
CSTLC207	MISSOURI-AMERICAN WATER CO FLORISSANT	728394.88	4300010.04	461.78	15.0	896.0	0.000	14.0	1.61E+02		
CCITY65	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	738259.22	4279906.98	511.94	100.0	350.0	29.984	1.3	3.08E-02		
CCITY203	INDUSTRIAL CONTAINER SERVICES - MO, LLC MANCHESTER	737686.12	4278652.89	459.06	20.0	250.0	18.068	1.0	3.56E-01		
CCITY204	INDUSTRIAL CONTAINER SERVICES - MO, LLC MANCHESTER	737686.12	4278652.89	459.06	20.0	150.0	22.218	1.0	1.68E+02		
CCITY344	GP RECYCLING, LLC	743830.86	4284034.28	422.18	20.0	0.0	0.000	0.5	1.72E-02		
CCITY368	GP RECYCLING, LLC	740384.08	4280241.69	507.64	10.0	1100.0	23.333	0.5	6.73E+00		
CCITY369	SAINT LOUIS UNIVERSITY FACILITIES SERVICES	740384.08	4280241.69	507.64	20.0	0.0	0.000	0.5	1.33E+00		
CCITY370	SAINT LOUIS UNIVERSITY FACILITIES SERVICES	740384.08	4280241.69	507.64	20.0	0.0	0.000	0.5	5.69E-02		

Off-Site Volume Source Inputs

Source ID	Source Description	Easting (m)	Northing (m)	Base Elevation (ft)	Release Height (ft)	Sigma Y (ft)	Sigma Z (ft)	Potential Emissions (lb/hr)		
								CO	SOx	SO2 {1- hour}
SJEFF64	MERCY HOSPITAL JEFFERSON	728195.03	4230846.83	425.75	16.4	3.8	15.3	1.28E-02	9.13E-05	9.13E-05
SJEFF84	ARDAGH GLASS INC. PEVELY	727306.83	4241579.49	466.57	8.2	2.3	7.6	2.29E-01	4.68E-03	4.68E-03
SJEFF85	ARDAGH GLASS INC. PEVELY	727306.83	4241579.49	466.57	8.2	2.3	7.6	2.29E-01	7.06E-03	7.06E-03
SJEFF87	ARDAGH GLASS INC. PEVELY	727306.83	4241579.49	466.57	16.4	3.8	15.3	2.29E-01	1.44E-03	1.44E-03
SJEFF88	ARDAGH GLASS INC. PEVELY	727306.83	4241579.49	466.57	8.2	2.3	7.6	2.29E-01	3.91E-03	3.91E-03
SJEFF89	ARDAGH GLASS INC. PEVELY	727306.83	4241579.49	466.57	8.2	2.3	7.6		1.47E-03	1.47E-03
SJEFF90	ARDAGH GLASS INC. PEVELY	727306.83	4241579.49	466.57	8.2	2.3	7.6		2.29E-01	2.29E-01
SJEFF91	ARDAGH GLASS INC. PEVELY	727306.83	4241579.49	466.57	8.2	2.3	7.6		6.88E-03	6.88E-03
SJEFF93	ARDAGH GLASS INC. PEVELY	727306.83	4241579.49	466.57	8.2	2.3	7.6		1.38E-03	1.38E-03
SJEFF101	CARONDELET CORPORATION PEVELY	727491.85	4241725.78	485.56	8.2	2.3	7.6	4.81E-01	2.40E-02	2.40E-02
SJEFF102	CARONDELET CORPORATION PEVELY	727491.85	4241725.78	485.56	8.2	2.3	7.6	6.41E-01	1.42E-02	1.42E-02
SJEFF103	CARONDELET CORPORATION PEVELY	727491.85	4241725.78	485.56	8.2	2.3	7.6	5.24E-01	6.09E-03	6.09E-03
SJEFF104	CARONDELET CORPORATION PEVELY	727491.85	4241725.78	485.56	8.2	2.3	7.6	1.51E-01	3.75E-03	3.75E-03
SJEFF105	CARONDELET CORPORATION PEVELY	727491.85	4241725.78	485.56	8.2	2.3	7.6		1.08E-03	1.08E-03
SJEFF106	CARONDELET CORPORATION PEVELY	727491.85	4241725.78	485.56	8.2	2.3	7.6		1.14E-03	1.14E-03
SJEFF107	AERO METAL FINISHING	718099.61	4263747.23	613.55	8.2	2.3	7.6		2.43E-01	2.43E-01
SJEFF126	FRED WEBER, INC. ANTONIA	720102.79	4248877.71	670.57	8.2	2.3	7.6		3.08E+00	3.08E+00
SSTCS6	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			Release Height (ft)	Sigma Y (ft)	Sigma Z (ft)	Potential Emissions (lb/hr)		
				Elevation (ft)						CO	SOx	SO2 (1-hour)
CJEFF41	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70			16.4	3.8	15.3	1.10E-03		
CJEFF42	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70			16.4	3.8	15.3	8.18E-04		
CJEFF47	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70			16.4	3.8	15.3	6.55E-02		
CJEFF48	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70			16.4	3.8	15.3	6.56E-06		
CJEFF49	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70			16.4	3.8	15.3	4.09E-04		
CJEFF50	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70			16.4	3.8	15.3	8.48E-04		
CJEFF51	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70			16.4	3.8	15.3	5.28E-02		
CJEFF52	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70			16.4	3.8	15.3	2.46E-03		
CJEFF53	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70			16.4	3.8	15.3	1.53E-01		
CJEFF54	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70			16.4	3.8	15.3	1.56E-02		
CJEFF55	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70			16.4	3.8	15.3	1.16E-01		
CJEFF56	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70			16.4	3.8	15.3	8.45E-03		
CJEFF57	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70			16.4	3.8	15.3	3.42E-01		
CJEFF58	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70			16.4	3.8	15.3	4.74E-03		
CJEFF59	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70			16.4	3.8	15.3	1.92E-01		
CJEFF60	METAL CONTAINER CORPORATION ARNOLD	730800.10	4257280.94	441.70			16.4	3.8	15.3	1.36E-02		
CSTLC92	THE BOEING COMPANY ST. LOUIS	728742.77	4293777.11	545.54			8.2	2.3	7.6	2.25E-01		
CSTLC151	SIMPSON CONSTRUCTION MATERIALS LLC VALLEY PARK	715996.20	4268469.87	430.05			13.5	1.4	0.7	1.58E-01		
CSTLC195	FRED WEBER, INC. FT. BELLE	739499.97	4302900.13	443.27			13.5	1.4	0.7	5.97E-01		
CCITY343	GP RECYCLING, LLC	743830.86	4284034.28	422.18			8.2	2.3	7.6	5.57E-02		



ATTACHMENT B
MODEL SUMMARY OUTPUT

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

Model	File	Pollutant	Average	Group	Rank	Conc/Dep	East (X)	North (Y)	Elev	Hill	Flag	Time	Met File	Sources	Groups	Receptors
AERMOD 19191	Granite City SIL_2015_CO.SUM	CO	1-HR	ALL	1ST	1086.962	748434.9	4287033	127.16	127.16		0 15081904	STL_LCN15	12	1	14098
AERMOD 19191	Granite City SIL_2016_CO.SUM	CO	1-HR	ALL	1ST	1007.586	748434.9	4287033	127.16	127.16		0 16071420	STL_LCN16	12	1	14098
AERMOD 19191	Granite City SIL_2017_CO.SUM	CO	1-HR	ALL	1ST	982.0781	748434.9	4287033	127.16	127.16		0 17051502	STL_LCN17	12	1	14098
AERMOD 19191	Granite City SIL_2014_CO.SUM	CO	1-HR	ALL	1ST	973.8513	748434.9	4287033	127.16	127.16		0 14061604	STL_LCN14	12	1	14098
AERMOD 19191	Granite City SIL_2018_CO.SUM	CO	1-HR	ALL	1ST	969.1688	748400	4287100	128.28	128.28		0 18050802	STL_LCN18	12	1	14098
AERMOD 19191	Granite City SIL_2018_CO.SUM	CO	8-HR	ALL	1ST	669.1028	748481.6	4286378	126.67	126.67		0 18111224	STL_LCN18	12	1	14098
AERMOD 19191	Granite City SIL_2016_CO.SUM	CO	8-HR	ALL	1ST	645.9929	748434.9	4287033	127.16	127.16		0 16110108	STL_LCN16	12	1	14098
AERMOD 19191	Granite City SIL_2014_CO.SUM	CO	8-HR	ALL	1ST	620.7987	748756.2	4286732	125.76	125.76		0 14112416	STL_LCN14	12	1	14098
AERMOD 19191	Granite City SIL_2017_CO.SUM	CO	8-HR	ALL	1ST	612.1259	748434.9	4287033	127.16	127.16		0 17112624	STL_LCN17	12	1	14098
AERMOD 19191	Granite City SIL_2015_CO.SUM	CO	8-HR	ALL	1ST	607.0288	748434.9	4287033	127.16	127.16		0 15020308	STL_LCN15	12	1	14098

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

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

1-29-20 US Steel CO NAAQS Analysis Results

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

1-29-20 US Steel CO NAAQS Analysis Results

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

Appendix D – Copy of 1996 Construction Permit



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

COLLINGSVILLE OFFICE

Application No.: 95010001I.D. No.: 119813AAIApplicant's Designation:Date Received: January 3, 1995Subject: Production IncreaseDate Issued: January 25, 1996Location: 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.

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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:

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- 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.

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- 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.

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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 ft³ 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;

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- 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;

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- 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;

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- 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

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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 mmft³ BFG generated per net ton of hot metal produced.
- d. Natural gas usage shall be determined by metered volumes.
- e. Fuel oil usage shall be determined by tank height differentials.

RECORD KEEPING

- 35. The Permittee shall keep records of the following items and such other items which may be appropriate to allow the Agency to review compliance:
 - 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 ft³ 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

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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 (mmft³) per ton of hot metal produced shall be determined. The Agency may waive this requirement for testing providing the Permittee submit a sufficient explanation of how BFG generation is determined with justification that such determination is appropriate for purposes of compliance determinations with this permit.
- b. These tests shall be performed by an approved independent testing service during conditions which are representative of maximum emissions and at the maximum production rates allowed, or as close

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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 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

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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

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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:
- Iron and steel production (tons/month and tons/yr, each);
 - Natural gas and BFG usage (mmft³/month and mmft³/yr, each);
 - 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:
- 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;
 - 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 SO₂ and CO are significant under 40 CFR 52.21 - Prevention of Significant Deterioration (PSD). Accordingly, the project is considered a major modification and must comply with the requirements of PSD. These requirements include a demonstration of best available control requirements for affected SO₂ and CO emission units, an analysis of air quality impacts, an analysis of the impacts of the project on visibility, vegetation's and soils, and the application and proposed permit must undergo a public participation. The Agency has determined that these additional requirements have been met.
- c. The changes in emissions pertinent to this project are summarized as follows:

Units = tons/year

- Emission increases which could occur from the project:

<u>PM-10</u>	<u>PM</u>	<u>NO_x</u>	<u>SO₂</u>	<u>CO</u>	<u>VOM</u>	<u>Lead</u>
51.6	- 52.0	238.8	476.0	5,685	59.3	0.54

- Creditable contemporaneous actual emission decreases:

<u>PM-10</u>	<u>PM</u>	<u>NO_x</u>	<u>SO₂</u>	<u>CO</u>	<u>VOM</u>	<u>Lead</u>
58.0	58.0	226.5	0.38	23.31	32.8	0.0

- Other contemporaneous emission increases:

<u>PM-10</u>	<u>PM</u>	<u>NO_x</u>	<u>SO₂</u>	<u>CO</u>	<u>VOM</u>	<u>Lead</u>
20.7	20.3	26.0	0.25	11.8	1.6	0.0

- Net emission changes:

<u>PM-10</u>	<u>PM</u>	<u>NO_x</u>	<u>SO₂</u>	<u>CO</u>	<u>VOM</u>	<u>Lead</u>
+14.3	-89.2	+38.3	+475.9	+5,673	+28.1	+0.54

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• Significant Levels:

<u>PM-10</u>	<u>PM</u>	<u>NO_x</u>	<u>SO₂</u>	<u>CO</u>	<u>VOM</u>	<u>Lead</u>
15	25	40	40	100	40	0.6

Explanatory Note:

PM = particulate matter = particulate;
 PM-10 = particulate matter less than or equal to 10 micrometers
 in size;
 SO₂ = sulfur dioxide;
 NO_x = nitrogen oxides;
 VOM = volatile organic material;
 CO = carbon monoxide;
 mm = million;
 gr/dscf = grains per dry standard cubic foot;
 acfm = actual cubic feet per minute;
 mmcf = million cubic feet;
 Mgal = thousands of gallons.

If you have any questions on this permit, please call Jim Ross at
 217/782-2113.

Donald E. Sutton, P.E.
 Manager, Permit Section
 Division of Air Pollution Control

DES:JRR:jar

cc: IEPA, FOS Region 3

COPY
 Original Signed by
 Donald E. Sutton, P.E.

Permit Application #95010001

TABLE 1

BLAST FURNACE OPERATIONS

Maximum Hot Metal Production = 3,165,000 net tons per year

1. Casthouse Baghouse (furnace tapping)- captured emissions ducted to baghouse, uncaptured emissions emitted through roof, other openings, etc.

<u>Pollutant</u>	<u>Emission Factor (Lbs/Ton)</u>	<u>Maximum Emissions (Tons/Yr)</u>
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

<u>Pollutant</u>	<u>Emission Factor (Lbs/Ton)</u>	<u>Maximum Emissions (Tons/Yr)</u>
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

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

4. Slag Pits

<u>Pollutant</u>	<u>Emission Factor (Lbs/Ton)</u>	<u>Maximum Emissions (Tons/Yr)</u>
PM	0.00417	6.60
PM-10	0.00417	6.60
SO ₂	0.0100	15.83

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TABLE 1 (cont.)

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

<u>Pollutant</u>	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

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

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TABLE 2

BOF SHOP

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

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

<u>Pollutant</u>	<u>Emission Factor (Lbs/Ton)</u>	<u>Maximum Emissions (Tons/Yr)</u>
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

<u>Pollutant</u>	<u>Emission Factor (Lbs/Ton)</u>	<u>Maximum Emissions (Tons/Yr)</u>
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

<u>Pollutant</u>	<u>Emission Factor (Lbs/Ton)</u>	<u>Maximum Emissions (Tons/Yr)</u>
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

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

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TABLE 2 (cont.)

5. Flux conveyor & transfer pits, bin floor

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

6. Hot metal charging ladle slag skimmer

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

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TABLE 3

CONTINUOUS CASTING OPERATIONS

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

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

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

2. Deslagging Station and Material HS.

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

3. Caster Molds - Casting

<u>Pollutant</u>	<u>Emission Factor (Lbs/Ton)</u>	<u>Maximum Emissions (Tons/Yr)</u>
PM	0.006	10.74
PM-10	0.006	10.74
NO _x	0.050	89.50

4. Casters Spray Chambers

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

5. Slab Cut-off

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

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TABLE 3 (cont.)

6. Slab Ripping

<u>Pollutant</u>	<u>Emission Factor (Lbs/Ton)</u>	<u>Maximum Emissions (Tons/Yr)</u>
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

<u>Pollutant</u>	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

<u>Pollutant</u>	Emission Factor (Lbs/mmcf)	Maximum Emissions (Tons/Yr)
PM	2.9	268.29
PM-10	2.9	268.29
SO ₂	6.65	615.22
NO _x	5.28	488.48
CO	13.7	1,267.46

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TABLE 4 (cont.)

3. Fuel Oil

<u>Pollutant</u>	<u>Emission Factor (Lbs/Mgal)</u>	<u>Maximum Emissions (Tons/Yr)</u>
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

	<u>PM</u>	<u>PM-10</u>	<u>SO₂</u>	<u>NO_x</u>	<u>VOM</u>	<u>CO</u>	<u>Lead</u>
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	--	--	--	--	--
	<u>PM</u>	<u>PM-10</u>	<u>SO₂</u>	<u>NO_x</u>	<u>VOM</u>	<u>CO</u>	<u>Lead</u>
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:

<u>PM-10</u>	<u>PM</u>	<u>NO_x</u>	<u>SO₂</u>	<u>CO</u>	<u>VOM</u>	<u>Lead</u>
51.6	-52.0	238.8	476.0	5,685	59.3	0.54

- Creditable contemporaneous actual emission decreases:

<u>PM-10</u>	<u>PM</u>	<u>NO_x</u>	<u>SO₂</u>	<u>CO</u>	<u>VOM</u>	<u>Lead</u>
58.0	58.0	226.5	0.38	23.31	32.8	0.0

- Other contemporaneous emission increases:

<u>PM-10</u>	<u>PM</u>	<u>NO_x</u>	<u>SO₂</u>	<u>CO</u>	<u>VOM</u>	<u>Lead</u>
20.7	20.3	26.0	0.25	11.8	1.6	0.0

- Net emission changes:

<u>PM-10</u>	<u>PM</u>	<u>NO_x</u>	<u>SO₂</u>	<u>CO</u>	<u>VOM</u>	<u>Lead</u>
+14.3	-89.2	+38.3	+475.9	+5,673	+28.1	+0.54

- Significant Levels:

<u>PM-10</u>	<u>PM</u>	<u>NO_x</u>	<u>SO₂</u>	<u>CO</u>	<u>VOM</u>	<u>Lead</u>
15	25	40	40	100	40	0.6

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ATTACHMENT A

PROCEDURES TO ENSURE PROPER OPERATION
OF BOF ESP CONTROL SYSTEM

1. The emissions control operator shall:
 - a. Check on a regular basis and report to the emissions control foreman or melter:
 - i. Any ESP fields down;
 - ii. Any ESP fields in which the meter readings are showing no current or a fault;
 - b. Check on a regular basis that doors on all hopper screws are closed;
 - c. Inspect on a regular basis the fans and motors for unusual sounds and/or visual problems. Any abnormalities will be immediately reported to the melter or maintenance foreman for investigation.
2. The melter shall:
 - a. Check on a regular basis and report to the emissions control foreman or the area electrician any fields which the pulpit precipitator field short indicators shows as having a short and is able to reset;
 - b. Check on a regular basis and report to the emissions control foreman or the maintenance foreman any draft or fan problems;
 - c. Check the ESP stack opacity monitor on a regular basis and initiate the following in the event that the stack opacity level, as determined by the opacity monitor, exceeds 30% opacity on a six minute average:
 - i. Check the pulpit indicators for proper operation of the steam and spray water system. Report any problems to emission control foreman or maintenance foreman;
 - ii. Check the stack gas pulpit set point for proper setting;
 - iii. Call the emissions control operator who shall perform the following steps:
 - A. Check the AVC operation and power level. Report any problems to electrical maintenance foreman or area electrician;
 - B. Check to ensure that doors on all hopper screws are closed;
 - d. Check oxygen blow rates and adjust, if necessary;
 - e. Check hot metal chemistry;

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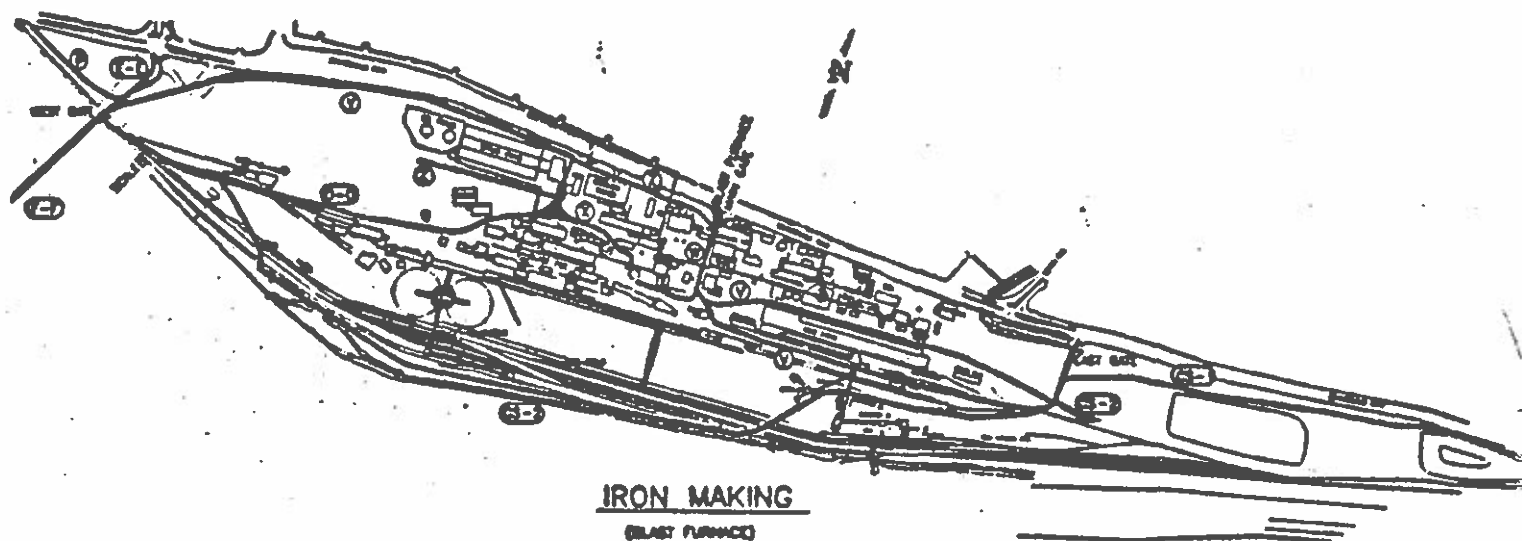
ATTACHMENT A (cont.)

- f. A log shall be maintained of the above checks and any actions taken as a result.
- 3. The emission control foreman shall:
 - a. Check on a regular basis the opacity monitor exceedances and trends. The control specialist shall be contacted to correct any problems;
 - b. Check on a regular basis the draft rate set points;
 - c. Check on a regular basis primary and secondary damper settings;
 - d. Check on a regular basis ESP operation, including the following:
 - i. Fields down;
 - ii. Fields indicating shorts and unable to reset;
 - iii. Hopper screw doors are closed;
 - e. Check on a regular basis blow rates;
 - f. Check on a regular basis spray water system operation;
 - g. Check on a regular basis steam injection rate;
 - h. Contact the area manager regarding electrical maintenance and to schedule the ESP repair work;
 - i. Contact the area manger for mechanical maintenance to schedule the isolation of the ESP channel by closing the inlet and outlet gates of that chamber and opening the top hatches for entry into the chamber;
 - j. Notify the emissions control operator and melter when isolation work begins;
 - k. A log shall be maintained of the above checks and any actions taken as a result.
- 4. The crane operator shall use the following procedures, as appropriate, to minimize emissions and maximize emissions capture by the hoods:
 - a. Use controlled pouring of the hot metal into the BOF vessel;
 - b. Use careful positioning of the hot metal ladle with respect to the hood face and furnace mouth;
 - c. Use the most beneficial furnace tilt angle;
 - d. These procedures shall be posted in the crane operator booth.

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ATTACHMENT B

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

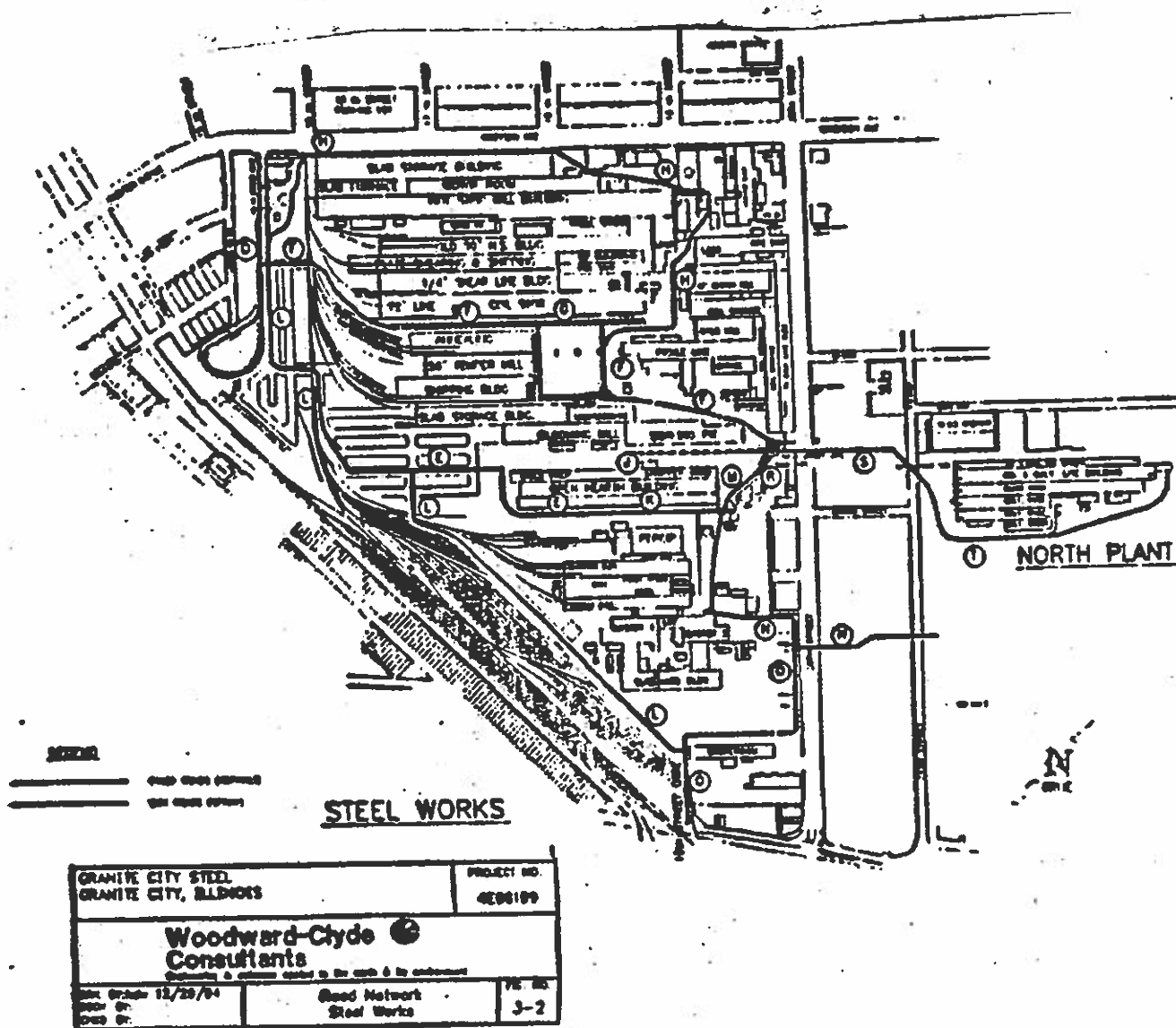


LEGEND

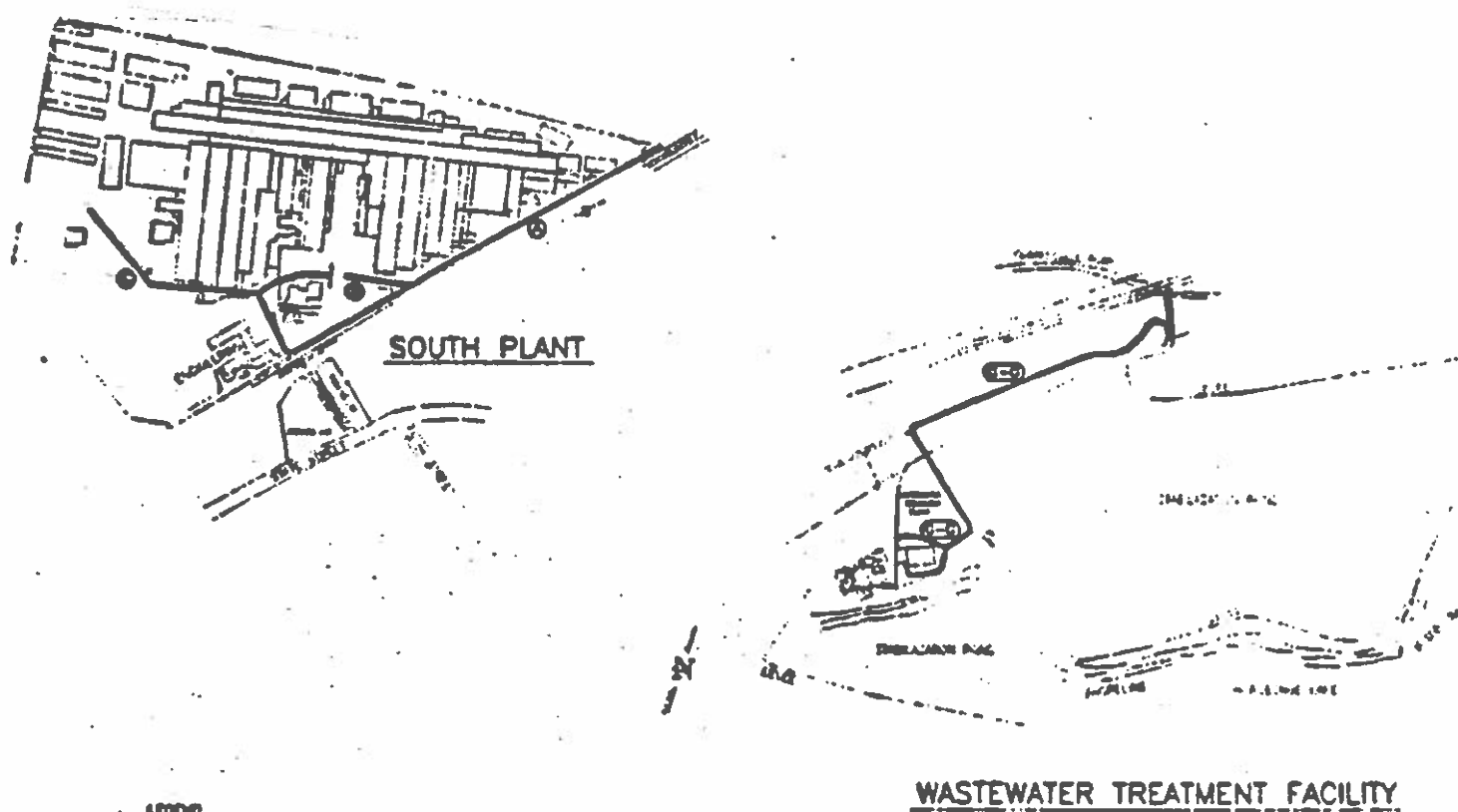
————— ROAD SEGMENT
————— ROAD SEGMENT

GRANITE CITY STEEL GRANITE CITY, ILLINOIS		PROJECT NO. 0095100
Woodward-Clyde Consultants Engineering & Planning Services to the Steel & Iron Industries		
DATE OF ISSUE 12/29/94 SCALE 50' DATE 01	Road Network Iron Making Area	PAGE NO. 3-3

Permit Application #95010001

ATTACHMENT B (cont.)

Permit Application #95010001

ATTACHMENT B (cont.)

GRANITE CITY STEEL GRANITE CITY, ILLINOIS		PROJECT NO. 4688109
Woodward-Clyde Consultants Engineering & construction services to the steel & its environment		
DATE: 12/29/04	ROAD NETWORK South Plant & WWTP	PG. NO. 3-4

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ATTACHMENT C

CONTEMPORANEOUS REDUCTIONS IN THE
EMISSIONS OF PM-10

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

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

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

JRR:jar

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 ("NO₂"), carbon monoxide ("CO"), sulfur dioxide ("SO₂"), 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 ORDER610

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 petitioned² the Environmental Appeals Board ("Board") to review an Outer Continental Shelf ("OCS") Permit to Construct and Title V Air Quality Operating Permit ("Permit") that U.S. Environmental Protection Agency ("EPA" or "Agency") Region 10 ("Region") had issued to Shell Offshore, Inc. ("Shell"). *See generally* OCS Permit to Construct and Title V Air Quality Operating Permit, Permit No. R10 OCS030000 (Oct. 21, 2011) (Administrative Record ("A.R.") J-2). The Region issued the Permit pursuant to Clean Air Act ("CAA" or "Act") section 328, 42 U.S.C. § 7627, and applicable regulations governing air emissions from OCS sources at 40 C.F.R. part 55, and pursuant to Title V of the CAA, 42 U.S.C. § 7661, and implementing regulations at 40 C.F.R. part 71, as well as applicable Alaska code and regulatory provisions.³ *See* Permit at 6 (citing all relevant provisions).

The Permit authorizes Shell to construct and operate the *Kulluk* drilling unit and associated air emission drilling units in certain lease blocks within the Beaufort Sea. *Id.* at 1. The Region and Shell each filed a response to the petitions. Thereafter, both REDOIL Petitioners and ICAS filed motions requesting leave to file reply briefs. These motions are currently pending before the Board and are addressed below in Part V. The Board did not hold oral argument in this case. For the reasons discussed below, the Board denies review of the Permit.

¹ REDOIL Petitioners include Resisting Environmental Destruction of Indigenous Lands ("REDOIL"), Alaska Wilderness League, Center for Biological Diversity, Natural Resources Defense Council, Northern Alaska Environmental Center, Oceana, Pacific Environment, Sierra Club, and The Wilderness Society.

² Mr. Lum's petition was designated as OCS Appeal No. 11-05, REDOIL Petitioners' petition was designated as OCS Appeal No. 11-06, and ICAS's petition was designated as OCS Appeal No. 11-07.

³ The Permit was issued under multiple CAA and Alaska air pollution provisions because it is a consolidation of three air permits. According to the Region, it consolidated "an OCS/Title V permit under 40 CFR Parts 55 and 71 for operations beyond 25 miles of Alaska's seaward boundary; an OCS/minor permit for air quality protection under 40 CFR Part 55 and 18 Alaska Administrative Code (AAC) 50.502 and for owner requested limitations under 40 CFR Part 55 and 18 AAC 50.508 for operations within 25 miles of Alaska's seaward boundary; and an OCS/Title V permit under 40 CFR Part 55 and 18 AAC 50.326 for operations within 25 miles of Alaska's seaward boundary." Response to Comments for OCS Permit to Construct and Title V Air Quality Operating Permit Conical Drilling Unit *Kulluk* at 1 (A.R. J-3).

II. ISSUES

The Board has determined that the three petitions filed in this case, collectively, present the following seven issues for review:

- A. Have Petitioners demonstrated that the Region clearly erred in establishing limitations to restrict the *Kulluk* drilling unit's potential to emit?
- B. Have REDOIL Petitioners demonstrated that the Region clearly erred in declining to require PSD increment consumption analyses for the *Kulluk's* proposed emissions as part of the Title V permitting process?
- C. Did REDOIL Petitioners raise below their contention that Shell's ambient air quality analysis was flawed in that it failed to conform to applicable Agency guidance?
- D. Have REDOIL Petitioners demonstrated that the Region clearly erred in its ambient air exemption determination?
- E. Have Petitioners demonstrated that the Region failed to satisfy its obligation to consider environmental justice under Executive Order 12898 and comply with applicable Board precedent?
- F. Has ICAS demonstrated that the Region clearly erred or abused its discretion in providing 46 days to comment on the draft permit and in denying ICAS's request for nonoverlapping comment periods?
- G. Has ICAS demonstrated that the Region clearly erred in its public hearing procedures or that any alleged procedural deficiencies otherwise warrant review?

III. STANDARD OF REVIEW

Under the part 124 procedural regulations, which apply to OCS permits,⁴ the Board will not ordinarily review a permit unless it is based on a clearly erroneous finding of fact or conclusion of law, or involves a matter of policy or exercise of discretion that warrants review. 40 C.F.R. § 124.19(a); Consolidated Per-

⁴ The OCS regulations direct the Agency to follow the applicable part 124 permit regulations in processing OCS permits. 40 C.F.R. § 55.6(a)(3). Accordingly, the part 124 permit appeal provision, 40 C.F.R. § 124.19, applies here. See *In re Shell Gulf of Mex., Inc.*, 15 E.A.D. 470, 476 (EAD 2012) [hereinafter *Shell Discoverer 2012*].

mit Regulations, 45 Fed. Reg. 33,290, 33,412 (May 19, 1980). The Board also applies this standard in reviewing Title V permits issued under part 71.⁵ See 40 C.F.R. § 71.11(l)(1); *In re Peabody W. Coal Co.*, 12 E.A.D. 22, 32-33 (EAB 2005). When analyzing permits, the Board is cognizant of the preamble to section 124.19, in which the Agency states that the Board's power of review "should be only sparingly exercised" and that "most permit conditions should be finally determined at the [permit issuer's] level." Consolidated Permit Regulations, 45 Fed. Reg. at 33,412; *accord In re Cardinal FG Co.*, 12 E.A.D. 153, 160 (EAB 2005); *see also Peabody*, 12 E.A.D. at 33 (applying these same principles in the context of a part 71 permit appeal).

The petitioner bears the burden of demonstrating that review is warranted. See 40 C.F.R. § 124.19; *id.* § 71.11(l)(1). To meet this burden, the petitioner must satisfy threshold pleading requirements including timeliness, standing, and issue preservation. See 40 C.F.R. § 124.19; *id.* § 71.11(l)(1); *In re Russell City Energy Ctr., LLC* ("Russell City II"), 15 E.A.D. 1, 10 (EAB 2010), *appeal docketed sub nom. Chabot-Las Positas Cmty. Coll. Dist. v. EPA*, No. 10-73870 (9th Cir. Dec. 20, 2010); *In re BP Cherry Point*, 12 E.A.D. 209, 216 (EAB 2005). For example, a petitioner seeking review must file an appeal of the permit decision within 30 days of service of the decision, and must have filed comments on the draft permit or participated in the public hearing. 40 C.F.R. § 124.19(a); *accord Russell City II*, 15 E.A.D. at 10. In addition, a petitioner must not only specify objections to the permit, but also explain why the permit issuer's previous response to those objections is clearly erroneous or otherwise warrants review. See 40 C.F.R. § 124.13 (requiring that all persons who believe a condition of a draft permit is inappropriate "must raise all reasonably ascertainable issues and submit all reasonably available arguments supporting their position by the close of the public comment period"); *id.* § 124.19(a) (stating that a petition for review to the Board "shall include * * * a demonstration that any issues being raised were raised during the public comment period"); *see also In re Avenal Power Ctr., LLC*, 15 E.A.D. 384, 387 (EAB 2011), *appeals docketed sub nom. Sierra Club v. EPA*, No. 11-73342 (9th Cir. Nov. 3, 2011), *El Pueblo Para el Aire y Agua Limpio v. EPA*, No. 11-73356 (9th Cir. Nov. 4, 2011); *BP Cherry Point*, 12 E.A.D. at 216-17. The petitioner's burden is particularly heavy in cases where a petitioner seeks review of an issue that is fundamentally technical or scientific in nature, as the Board will typically defer to a permit issuer's technical expertise and experience on such matters if the permit issuer adequately explains its rationale and supports its reasoning in the administrative record. *See, e.g., In re Dominion Energy Brayton Point, LLC*, 12 E.A.D. 490, 510 (EAB 2006); *Peabody*, 12 E.A.D. at 33-34; *In re NE Hub Partners, L.P.*, 7 E.A.D. 561, 567-68 (EAB

⁵ The part 71 regulatory language governing Title V permit appeals is nearly identical to the part 124 regulatory language governing review of other types of permits. Compare 40 C.F.R. § 71.11(l)(1) with 40 C.F.R. § 124.19; *see also Peabody*, 12 E.A.D. at 33 n.26.

1998), *review denied sub nom. Penn Fuel Gas, Inc. v. EPA*, 185 F.3d 862 (3rd Cir. 1999); *see also In re Ash Grove Cement Co.*, 7 E.A.D. 387, 404 (EAB 1997).

When evaluating a permit appeal, the Board examines the administrative record prepared in support of the permit to determine whether the permit issuer exercised his or her “considered judgment.” *Ash Grove Cement*, 7 E.A.D. at 417-18; *accord In re Cape Wind Assocs., LLC*, 15 E.A.D. 327, 330 (EAB 2011); *In re GSX Servs. of S.C., Inc.*, 4 E.A.D. 451, 454 (EAB 1992). The permit issuer must articulate with reasonable clarity the reasons supporting its conclusion and the significance of the crucial facts it relied upon when reaching its conclusion. *E.g.*, *In re Shell Offshore, Inc.* (“*Shell 2007*”), 13 E.A.D. 357, 386 (EAB 2007) (citing *In re Carolina Light & Power Co.*, 1 E.A.D. 448, 451 (Act’g Adm’r 1978)); *Ash Grove Cement*, 7 E.A.D. at 417 (same). As a whole, the record must demonstrate that the permit issuer “duly considered the issues raised in the comments and [that] the approach ultimately adopted by the [permit issuer] is rational in light of all information in the record.” *In re Gov’t of D.C. Mun. Separate Storm Sewer Sys.*, 10 E.A.D. 323, 342 (EAB 2005); *accord In re City of Moscow*, 10 E.A.D. 135, 142 (EAB 2001); *NE Hub*, 7 E.A.D. at 568.

Finally, the Board endeavors to construe liberally objections raised by parties unrepresented by counsel (i.e., those proceeding pro se), so as to fairly identify the substance of the arguments being raised. *In re Sutter Power Plant*, 8 E.A.D. 680, 687 & n.9 (EAB 1999); *accord In re Shell Gulf of Mex., Inc.* (“*Shell Discoverer 2012*”), 15 E.A.D. 470, 478 (EAB 2012); *Russell City II*, 15 E.A.D. at 12. While the Board does not expect such petitions to contain sophisticated legal arguments or to utilize precise technical or legal terms, the Board nonetheless expects such petitions “to articulate some supportable reason or reasons as to why the permitting authority erred or why review is otherwise warranted.” *Sutter*, 8 E.A.D. at 687-88 (citing *In re Beckman Prod. Servs.*, 5 E.A.D. 10, 19 (EAB 1994)).

IV. SUMMARY OF DECISION

For all of the reasons stated below, the Board concludes that: (a) Petitioners failed to demonstrate that the Region clearly erred in establishing limits to restrict the *Kulluk’s* potential to emit; (b) REDOIL Petitioners failed to demonstrate that the Region clearly erred in declining to require PSD increment consumption analyses for the *Kulluk’s* proposed emissions as part of the Title V permitting process; (c) REDOIL Petitioners failed to raise below their contention that Shell’s ambient air quality analysis was flawed in that it failed to conform to applicable Agency guidance; (d) REDOIL Petitioners failed to demonstrate that the Region clearly erred in its ambient air exemption determination; (e) Petitioners have not demonstrated that the Region’s environmental justice analysis and related conclusions

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, AEWL, 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 ("SO₂") 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 sources¹⁰ and requires OCS sources to "attain and maintain Federal and State ambient air quality standards" and to comply with the PSD provisions contained in CAA Title I, part C. EPA promulgated the Outer Continental Shelf Air Regulations, 40 C.F.R. part 55, to implement CAA section 328 and established within part 55 "the air pollution control requirements for OCS sources and the procedures for implementation and enforcement of the requirements." 40 C.F.R. § 55.1.

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

¹⁰ Section 328 defines an OCS source as follows:

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

- (i) emits or has the potential to emit any air pollutant,
- (ii) is regulated or authorized under the Outer Continental Shelf Lands Act [43 U.S.C. § 1331 et seq.], and
- (iii) is located on the Outer Continental Shelf or in or on waters above the Outer Continental Shelf.

Such activities include, but are not limited to, platform and drill ship exploration, construction, development, production, processing, and transportation. For purposes of this subsection, emissions from any vessel servicing or associated with an OCS source, including emissions while at the OCS source or en route to or from the OCS source within 25 miles of the OCS source, shall be considered direct emissions from the OCS source.

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

a preconstruction permit from either EPA or an EPA-delegated agency if the OCS source is located within twenty-five miles of a state's seaward boundary and is subject to either federal or state requirements listed in 40 C.F.R. §§ 55.13 or 55.14."¹¹ *Shell 2007*, 13 E.A.D. at 365 (citing 40 C.F.R. §§ 55.6(b)(1), 55.11 and CAA § 328(a)(3), 42 U.S.C. § 7627(a)(3)). The Agency has retained the authority to implement and enforce section 328 in the OCS off the coast of Alaska as opposed to delegating that authority to the state. Accordingly, as mentioned above, Shell submitted its permit applications to the Region, and the procedural rules contained at 40 C.F.R. part 124 apply. 40 C.F.R. § 55.6(a)(3).

Because requirements for these OCS sources are based on onshore requirements, which may change, section 328(a)(1) and the corresponding regulations in part 55 require EPA to update the OCS requirements as necessary to maintain consistency with onshore requirements. See CAA § 328(a)(1), 42 U.S.C. § 7627(a)(1); 40 C.F.R. §§ 55.6(b)(2), 55.12; see also *Shell 2007*, 13 E.A.D. at 364 & n.6. In response to Shell's December 10, 2010, notice of intent submitted to the Agency pursuant to 40 C.F.R. § 55.4, the Agency first proposed in the Federal Register a consistency update on February 10, 2011, and later published the final consistency update on June 27, 2011, subsequent to a public notice and comment period. See Outer Continental Shelf Air Regulations Consistency Update for Alaska, 76 Fed. Reg. 37,274 (June 27, 2011) (codified at 40 C.F.R. § 55.14(e) & appx. A); Statement of Basis at 17. This most recent consistency update incorporated, except where specifically noted, Alaska Administrative Code title 18, articles 1 through 5 and article 9, into part 55. 76 Fed. Reg. at 37,279-80; Statement of Basis at 17. In particular, articles 3 and 5 establish the minor source and major source permitting requirements with which the *Kulluk* must comply. See *Shell 2007*, 13 E.A.D. at 364 & n.6.

In addition, because the permit authorizes the *Kulluk* to operate on a group of lease blocks located both within 25 miles and beyond 25 miles of the state's seaward boundary, the permit conditions that refer to lease blocks wholly or partially located beyond 25 miles of the seaward boundary are designated as "outer

¹¹ Section 55.13 states, among other things, that the PSD program applies to OCS sources located within 25 miles of a state's seaward boundary whenever the OCS source requires construction of a new major stationary source or a modification at an existing major source and the COA is classified under the PSD program as in attainment or unclassifiable. 40 C.F.R. § 55.13(d)(1) ("40 C.F.R. [§] 52.21 shall apply to OCS sources [l]ocated within 25 miles of a state's seaward boundary if the requirements of 40 C.F.R. [§] 52.21 are in effect in the COA."); see also *Shell 2007*, 13 E.A.D. at 364.

Section 55.14 incorporates by reference regulatory requirements that states which border the OCS in the Pacific, Atlantic, and Arctic Oceans and the Gulf of Mexico have promulgated to meet the national ambient air quality standards ("NAAQS"). 40 C.F.R. § 55.14(d); CAA § 328(a)(1), 42 U.S.C. § 7627(a)(1) (defining the geographic scope of EPA authority to regulate air pollution from OCS sources). These state regulations are known as state implementation plans ("SIPs") and are created pursuant to CAA § 110, 42 U.S.C. § 7410.

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 sources¹³ 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.2d 323, 352 (D.C. Cir. 1979), *quoted in Peabody*, 12 E.A.D. at 30; *see also* CAA § 165(a), 42 U.S.C. § 7475(a) (requiring a PSD permit for any "major emitting facility"); *Shell Discoverer 2012*, 15 E.A.D. at 515 n.58. The regulations that implement the PSD program define PTE as:

¹² The NAAQS are maximum ambient air concentrations for specific pollutants that EPA has determined are necessary to protect public health and welfare. *See* CAA §§ 108(a)(1)(A), 109, 42 U.S.C. §§ 7408(a)(1)(A), 7409; 40 C.F.R. § 50.4-12.

¹³ EPA regulations define a major stationary source as any of certain specifically listed stationary sources that emit or have a potential to emit 100 tons per year ("tpy") or more of any regulated NSR pollutant, *see* 40 C.F.R. § 52.21(b)(50), or any other stationary source that emits, or has the potential to emit, 250 tpy or more of a regulated NSR pollutant. 40 C.F.R. § 52.21(b)(1)(i)(a)-(b); *accord* CAA § 169(1), 42 U.S.C. § 7479(1) (defining a "major emitting facility" in the same way).

Alaska regulations, which incorporate large parts of the federal PSD regulations into title 18 of the Alaska Administrative Code, provide that a new PSD permit is required prior to actual construction of a new major stationary source. Alaska Admin. Code tit. 18, § 50.040 (adopting federal standards by reference); *id.* §§ 50.302(a)(1), 50.306. The Alaska regulations also define a major stationary source as any of certain specifically listed stationary sources that emit or have a potential to emit 100 tpy or more of any regulated NSR pollutant, or any other stationary source that emits, or has the potential to emit, 250 tpy or more of a regulated NSR pollutant. *Id.* § 50.990(52) (incorporating by reference definition of major stationary source from 40 C.F.R. § 51.166(b)(1)); *accord* Alaska Stat. § 46.14.990 (same).

[T]he maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable.

40 C.F.R. § 52.21(b)(4).¹⁴ In sum, PTE reflects a source's maximum emissions capacity considering the application of any emission control equipment, or other capacity-limiting restrictions, that effectively and enforceably limit emissions capacity. *Shell 2007*, 13 E.A.D. at 366; *Peabody*, 12 E.A.D. at 31 (citing Part 71 Rulemaking, 61 Fed.Reg. 34,202, 34,212 (July 1, 1996)).

Alaska regulations require that, under certain circumstances, a stationary source with a PTE of less than 250 tons per year ("tpy") obtain a minor source permit. Alaska Admin. Code tit. 18, § 50.502. Specifically in terms of the *Kulluk's* operations, Alaska regulations require a minor source permit prior to the construction of a new stationary source with the potential to emit more than 40 tpy of NO_x. *Id.* § 50.502(c)(1)(B). Thus, as the Board noted in *Shell 2007*, under the Alaska PSD program, a new stationary source that has a PTE between 40 and 250 tpy of NO_x must obtain a minor source permit before commencing construction, and a stationary source with a PTE greater than 250 tpy of NO_x must obtain a major source permit. 13 E.A.D. at 366.

A source that would otherwise exceed the applicable PSD major source threshold of 250 tpy of any regulated NSR pollutant may, as in this instance, seek to avoid regulation as a major source under the PSD program by requesting that the permitting authority impose enforceable permit restrictions on the source's PTE. *Shell 2007*, 13 E.A.D. at 366, *cited in* RTC at 20; *see also Peabody*, 12 E.A.D. at 26 & n.11, 31. A Title V permit may function as a vehicle for a permitting authority to establish enforceable permit limits that restrict the source's potential to emit air pollutants to a level below the PSD major source threshold, in this instance 250 tpy, allowing the source to qualify instead as a "synthetic minor" source.¹⁵ *Peabody*, 12 E.A.D. at 31 & n.21.

¹⁴ The OCS regulations define the term "potential emissions" almost identically to the PTE definition in part 52, with the exception of first sentence, which instead states that "[p]otential emissions means the maximum emissions of a pollutant from an OCS source," 40 C.F.R. § 55.2.

¹⁵ EPA guidance defines the term "synthetic minor" as "air pollution sources whose maximum capacity to emit air pollution under their physical and operational design is large enough to exceed the

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

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

12 E.A.D. at 32 (quoting Memorandum from John Seitz, Dir., Office of Air Quality Planning & Standards, U.S. EPA, to EPA Reg'l Air Div. Dir., *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, SO₂, and GHGs. Statement of Basis at 24-25 & tbl. 2-1.¹⁷ To avoid exceeding the PSD major

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major source threshold but [is] limited by an enforceable emissions restriction that prevents this physical potential from being realized." Memorandum from John Seitz, Dir., Office of Air Quality Planning & Standards, U.S. EPA, & Eric Schaeffer, Dir., Office of Regulatory Enforcement, U.S. EPA, *Potential to Emit Transition Policy for Part 71 Implementation in Indian Country 2* n.2 (Mar. 7, 1999), quoted in *Shell Discoverer 2012*, 15 E.A.D. at 515-16 n.59, and *Peabody*, 12 E.A.D. at 31 n.21.

Alaska regulations refer to such a limitation as an owner requested limit ("ORL"), which can be used to "avoid one or more permit classifications * * * at a stationary source that will still be subject to at least one permit classification; a limitation approved under an ORL is an enforceable limitation for the purpose of determining * * * a stationary source's potential to emit." Alaska Admin. Code tit. 18, § 50.508(5).

¹⁶ The permit states that the *Kulluk* will be an OCS source at any time it is attached to the seabed at a drill site by at least one anchor. Permit at 8; Statement of Basis at 17, 19-20 (A.R. H-4).

¹⁷ The primary emission sources on the *Kulluk* and the Associated Fleet are internal combustion engines that consume diesel fuel. Statement of Basis at 9, 12-14. Incinerators, heaters, boilers, and seldom used sources on the *Kulluk* and the Associated Fleet also emit pollution but to a far lesser extent. *Id.*

source thresholds, Shell requested that the Region include in the permit practically enforceable restrictions that will reduce the *Kulluk's* PTE below PSD threshold levels for each of the four pollutants. See Letter from Susan Childs, Alaska Venture Support Integrator Manager, Shell Offshore Inc., to Doug Hardesty, EPA Region 10, attach. 2 (Apr. 29, 2011) (describing Shell's proposed restrictions and how they would affect emissions) (A.R. E-17). The final permit authorizing the *Kulluk* to operate within the Beaufort Sea contains source-wide emission limits, operational restrictions, and monitoring, recordkeeping and reporting requirements intended to ensure that the *Kulluk* can operate as a synthetic minor source. Permit Conditions D.1-D.4.

With this framework in mind, the Board now turns its attention to Petitioners' arguments presented in these appeals.

2. *The Region Did Not Clearly Err in Establishing Source-Wide Emission Limits to Restrict PTE for NO_x and CO*

The Permit restricts emissions from the *Kulluk* and the Associated Fleet to no more than 240 tpy of NO_x and no more than 200 tpy of CO.¹⁸ Permit Conditions D.4.1, D.4.2. For both pollutants, the PTE limits are determined on a rolling 365-day basis by calculating emissions for each day and adding the emissions calculated for the previous 364 days. *Id.* For both NO_x and CO, daily emissions from each emission unit or group of emission units "shall be determined by multiplying the appropriate emission factor (lb/unit) specified in Tables D.2.1 – D.2.2 (until a test-derived emission factor has been determined according to Permit Condition E.2) by the recorded daily operation rate (units/day) and dividing by 2000 lb/ton." *Id.* The Region further explained that "[c]ompliance with the emissions limits for NO_x and CO is determined by applying the relevant emission factor to the amount of fuel combusted by each emission unit (or hours of operation for incinerators)." RTC at 29. The Permit also includes conditions that require source-wide recordkeeping and monitoring to ensure that Shell complies with the source-wide limits. Permit at 56-61 (including operations and fuel monitoring in Permit Condition F.2 as well as selective catalytic reduction ("SCR") and oxida-

¹⁸ ICAS asserts that the Region should include a 5-10% buffer zone between the PSD threshold emissions level of 250 tpy and the *Kulluk's* restricted PTE, and that the NO_x emission limit of 240 tpy does not provide this. ICAS Petition at 15 (citing a comment letter from Region 9 to the Nevada Division of Environmental Protection in which Region 9 "encourage[d] a 5-10% buffer between the permitted emission limits and the federal threshold" for a permit that established a CO synthetic minor limit of 249 tpy). However, the 240 tpy emission limit for NO_x contained in the current Permit represents a 4% buffer between the synthetic minor limit and the PSD threshold emission level of 250 tpy, which is ten times larger than the 0.4% buffer between a 249 tpy emission limit and the PSD threshold of 250 tpy contained in the Nevada permit. The Board agrees with the Region that Congress established specific thresholds to determine when a source would be considered major for purposes of PSD review. See RTC at 30. The buffer that ICAS requests is neither a legal requirement nor an established Agency policy, and thus the Region appropriately declined ICAS's request.

tion catalyst ("OxyCat") control device monitoring in Permit Conditions F.3 – F.4).

REDOIL Petitioners and ICAS make several challenges to the Region's decision to restrict the *Kulluk's* PTE for NO_x and CO using source-wide emission limits. Both petitioners assert that the Region's decision to limit CO and NO_x emissions using source-wide limits in effect applies blanket emission limits, which Agency guidance expressly prohibits because they are practically unenforceable, and that the limited exception in the Agency guidance that allows for source-wide limits is inapplicable to the *Kulluk's* operations. REDOIL Petition at 10-11; ICAS Petition at 11. Both petitioners also object to the Region's use of generic emission factors¹⁹ to calculate source-wide emission limits. In particular, both petitioners assert that (1) the Region should have developed source-specific emission factors for all units of the OCS source; (2) the AP-42 emission factors applied to the emergency generator, the OSRVs, and heaters and boilers lead to inaccurate and underestimated emissions for those sources; and (3) the Region did not require Shell to conduct enough stack tests to accurately calculate source-specific emission factors. ICAS Petition at 15-20; REDOIL Petition at 11-14.

The Region responds that Agency guidance documents generally "illustrate that the Clean Air Act and the implementing regulations allow for a flexible, case-by-case evaluation of appropriate methods for ensuring practical enforceability of PTE limits." Region Response at 14-15 (quoting *In re Orange Recycling & Ethanol Prod. Facility*, Pet. No. II-2001-05, at 5 (Adm'r Apr. 8, 2002) (A.R. B-17)). Specifically, the Region asserts that source-wide emission limits for NO_x and CO are indeed practically enforceable and are most appropriate given the uncertainty of a number of factors that otherwise preclude the Region from establishing PTE restrictions based on operational limits. *Id.* at 18; RTC at 26-27, 29-30. In addition, the Region asserts that the emission factors used to calculate NO_x and CO emissions provide reliable emission calculations. Region Response at 19-23. In particular, the Region asserts that it made an appropriate technical determination to apply AP-42 emission factors or emission factors derived from *Discoverer*²⁰ data rather than source-specific emission factors for certain emission units. *Id.* The Region adds that the permit conditions that apply to source-specific

¹⁹ See *infra* Part VI.A.2.b.

²⁰ The Region issued Shell two OCS PSD permits to conduct exploratory drilling activities in the Chukchi and Beaufort Seas utilizing the drillship *Discoverer* that were twice appealed to the Board, first in 2010, and then again in 2011 subsequent to a Board remand of the permits to the Region. See *Shell Discoverer 2012*, 15 E.A.D. at 474-75 (describing history of *Discoverer* permit proceedings). In preparing the permit applications for the *Discoverer's* operations, Shell conducted source-specific emission tests for various emission units on the *Discoverer* and an associated fleet of support ships, including icebreakers, supply ships, and oil spill response vessels. See *id.*, 15 E.A.D. at 479-80 (describing associated fleet).

emission factors require source tests that are inadequate in frequency and unrepresentative of the variation in Shell's proposed operations to allow the Region to derive accurate emission factors. *Id.*

a. *Blanket Emission Limits and Practical Enforceability*

ICAS and REDOIL Petitioners correctly assert that the use of blanket emission limits alone, essentially statements that actual emissions of a pollutant will not exceed a particular quantity, is generally prohibited to restrict PTE because such limits are not enforceable as a practical matter. See *United States v. La.-Pac. Corp.*, 682 F. Supp. 1122, 1133 (D. Colo. 1987) ("[C]ompliance with blanket restrictions on actual emissions would be virtually impossible to verify or enforce."), quoted in REDOIL Petition at 11; see also Office of Air Quality Planning & Standards, U.S. EPA, *New Source Review Workshop Manual* at C.4 (draft Oct. 1990) [hereinafter *NSR Manual*] ("Blanket emissions limits alone (e.g., tons/[year], lb/[hour]) are virtually impossible to verify or enforce, and are therefore not enforceable as a practical matter."), quoted in ICAS Petition at 13; Memorandum from Terrell Hunt, Assoc. Enforcement Counsel, U.S. EPA, & John Seitz, Dir., Stationary Source Compliance Div., U.S. EPA, *Guidance on Limiting Potential to Emit in New Source Permitting* 7 (June 13, 1989) (A.R. B-4) [hereinafter *1989 Guidance on Limiting PTE*].²¹ However, the Petitioners' characterization of the source-wide emission limits for NO_x and CO contained in the Permit as blanket emission limits must fail. ICAS and REDOIL Petitioners do not acknowledge the Region's explanation in the Response to Comments for why it chose to apply source-wide emission limits in the Permit, nor do they establish that the Region's fundamentally technical determinations contravene Agency guidance.

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

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

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

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

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

²² The 1989 Guidance on Limiting PTE recommends that the time limit over which production or operational limits extend should be “as short term as possible” in order for such limitations to be enforceable as a practical matter, and generally not exceeding one month, but the Guidance also recognizes that in rare circumstances a limit spanning a longer time may be appropriate. *1989 Guidance on Limiting PTE* at 9. The Guidance specifies that a limit spanning a longer time is appropriate if it is rolling and that it should not exceed an annual limit rolled on a monthly basis. *Id.* The Guidance also notes that:

[P]ermits where longer rolling limits are used to restrict production should be issued only to sources with substantial and unpredictable annual variation in production[] * * * Rolling limits could be used as well for sources which shut down or curtail operation during part of a year on a regular seasonal cycle, but the permitting authority should first explore the possibility of imposing a month-by-month limit.

Id. at 9-10. In this instance, although the Guidance was written prior to Congress authorizing EPA to regulate air emissions from sources located on certain areas of the OCS, *see* Region Response at 17, including the Arctic, the circumstances the Guidance anticipates that would make a longer time limit appropriate apply in this instance to the *Kulluk* permit, where the operations are seasonal and thus variation in production would be substantial. *See 1989 Guidance on Limiting PTE* at 9-10.

²³ Although the Board agrees with Petitioners that the Region did not cite this decision until it submitted its response to the petitions for review, and thus accepts their reply briefs with respect to this point, *see supra* Part V, the Board nonetheless disagrees that this publicly available decision of the Administrator is inapposite to the current appeal. The *Pope & Talbot* decision underscores the Agency’s ability to exercise its discretion and its technical expertise in order to craft practically enforceable synthetic minor limits.

compared to other stationary sources, the Permit's PTE limits are not practically enforceable. *See* Region Response at 17. Rather, Petitioners hew closely to the language in the 1989 Guidance on Limiting PTE prohibiting blanket emissions, asserting instead that because the Permit does not contain production or operational limits to restrict PTE, the NO_x and CO emission limits constitute blanket emission limits that contravene Agency guidance. ICAS Petition at 11-14; REDOIL Petition at 9-11. The 1989 Guidance on Limiting PTE sets forth the types of limitations that will restrict a source's PTE and states in relevant part:

To appropriately limit potential to emit * * * permits * * * must contain a production or operational limitation in addition to the emission limitation in cases where the emission limitation does not reflect the maximum emissions of the source operating at full design capacity without pollution control equipment. Restrictions on production or operation that will limit potential to emit include limitations on quantities of raw materials consumed, fuel combusted, hours of operation, or conditions which specify that the source must install and maintain controls that reduce emissions to a specified emission rate or to a specified efficiency level.

1989 Guidance on Limiting PTE at 5-6.²⁴ In addition, neither ICAS nor REDOIL Petitioners address the operational limits included in the Permit and discussed in

²⁴ The Guidance also acknowledges that the "particular circumstances of some individual sources make it difficult to state operating parameters for control equipment limits in a manner that is easily enforceable as a practical matter" and lists two exceptions. *1989 Guidance on Limiting PTE* at 7. Although the Guidance preceded EPA's authority to regulate air emissions on parts of the OCS, *see* Region Response at 17, and thus could not have anticipated the circumstances of the permit at issue in these appeals, the Region nonetheless asserts that the circumstances surrounding the current permit are sufficiently analogous to the second exception for volatile organic compound ("VOC") surface coating operations, which contemplates no add-on controls but allows for the restriction of PTE by limiting the VOC contents and quantities of coatings used. *Id.* at 17-19 (referring to *1989 Guidance on Limiting PTE* at 8).

The VOC exception focuses on circumstances where operating and production parameters could not be readily set due to the wide variety of coatings and products and due to the unpredictable nature of the operations. *1989 Guidance on Limiting PTE* at 8. The Region asserted that the rationale informing the VOC surface coating operation exception is sufficiently similar to the present circumstances and analogized that an effective way to restrict NO_x and CO was through source-wide emissions limits supported by test-derived or specified emission factors, similar to the VOC content of coatings, continuous monitoring and recording of operational parameters, and tracking the quantity of VOC coating used. RTC at 30; Region Response at 18. REDOIL Petitioners and ICAS assert that the VOC exception should be construed quite narrowly and that the VOC surface coating operation exception within the 1989 Guidance on Limiting PTE could not apply to the *Kulluk* and the Associated Fleet. *See* ICAS Petition at 20; REDOIL Petition at 13-14. Petitioners do not state more than a differ-

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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 OxyCat 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 factors²⁵ or emission factors derived from *Discoverer* source test data for a minority of units. RTC at 32-33; *see also* Region Response at 20-21. In support of its decision to utilize a mix of source-specific testing for emission factors in addition to using AP-42 and *Discoverer* test data emission factors, the Region stated that it “believes the permit strikes an appropriate balance between the need for accurate emission factors to reliably calculate emis-

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

In *Peabody*, the permittee was a large coal-processing plant built prior to the effective date of the PSD program that requested a PTE limit for particulate matter with a diameter of 10 microns or less (“PM₁₀”) in the permittee’s Title V permit so that the facility could remain a synthetic minor source for PM₁₀ 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 PM₁₀ 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 PM₁₀, 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 PM₁₀ 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).

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 Petitioners²⁷ 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 results²⁸ that ICAS alleges, the Region points to the technical litera-

²⁷ REDOIL Petitioners contend that the Region's recognition that Shell's approach involves "inherent uncertainty" regarding what equipment will be aboard the *Kulluk* and the Associated Fleet, which in turn requires "thorough source testing," coupled with the Region's refusal to require source testing for all equipment, is "internally inconsistent and thus arbitrary and unlawful." REDOIL Petition at 12. However, the Region responded that it used its technical expertise to determine that in this instance, a mix of both source-specific testing to derive emission factors, in addition to using AP-42 factors and emission factors derived from *Discoverer* test data where appropriate, was reasonable and not inconsistent. Region Response at 20-21. The Board agrees with the Region that the decision to use source-specific testing to derive emission factors, in conjunction with the emission factors developed from *Discoverer* data and from AP-42, is inherently technical. In order to effectively exercise its expertise, the Region should not, as REDOIL Petitioners suggest, be cabined by a rigid interpretation of how emission factors should be determined. REDOIL Petitioners have failed to meet the particularly high threshold for demonstrating that Board review of the Region's fundamentally technical decision is warranted. *Peabody*, 12 E.A.D. at 33-34.

²⁸ ICAS also asserts that stack tests are "conducted once a year for one or two years depending on the source," at three different loads, and even when the worst-case emissions are used, the stack tests fail to account for Shell's varying emissions. ICAS Petition at 16. The Region explained in re-

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ture Shell referenced in Shell's comments, which addresses "uncertainty in determining front-half PM [particulate matter] emission rates" and does not directly address procedures for deriving NO_x and CO emission factors. *Id.* at 22-23; *see also* Permit Conditions E.1.2, E.1.7, E.1.14 (requiring Shell to submit a testing plan and follow EPA-approved test methods, and establishing Region's authority to require additional stack tests if necessary). As the Region correctly points out, ICAS has not demonstrated that the worst-case stack test results, which embody the Region's fundamentally technical determinations, will be biased low and underreport emissions. Region Response at 22-23; *see, e.g., Teck Cominco*, 11 E.A.D. at 473 (discussing heavy burden assigned to petitioners seeking review of issues that are essentially technical in nature).

3. *ICAS Has Failed to Demonstrate That the Region Clearly Erred in Restricting the Kulluk and the Associated Fleet's Potential to Emit GHGs*

ICAS also challenges the Permit's GHG emission limit, which restricts Shell's annual GHG emissions to 80,000 tpy of carbon dioxide equivalent ("CO₂e").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, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride." 40 C.F.R. § 52.21(b)(49)(i). CO₂e 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 CO₂e, 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 CO₂e 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 CO₂e, *see* Statement of Basis at 24, the Permit restricts the potential to emit GHGs to 80,000 tpy of CO₂e 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 CO₂e, represent only 0.11% of the total GHG emissions allowed under the permit, 80,000 tpy of CO₂e. *Id.* The Region calculated an unrestricted PTE for methane emissions of 1,596 lbs/month.

³¹ The Permit imposes annual limits of 120 days of operation as an OCS source during a drilling season, which spans from July 1 through November 30, and 1,632 hours of total drilling activity in a drilling season, of which only 480 hours may be used to conduct mudline cellar drilling activity, which is expected to generate the most air pollution. *See* Permit Conditions D.3.1-D.3.5. The Permit also limits the total aggregate combustion of fuel over a 12-month rolling period, the type of fuel combusted, and the total aggregate daily waste-combusting capacity of incinerators. *See* Permit Conditions D.4.6-7, 9; *see also* RTC at 34-35. In addition, the Permit includes various monitoring and recordkeeping requirements to document when emissions should be counted toward emission limits, testing requirements for the derivation of source-specific emission factors, tracking and documentation requirements for the fuel and waste combusted, and maintenance requirements to ensure that emission units are properly operated and maintained. *See* Permit Conditions D.1-4, D.8, F.2.1-7; *see also* RTC at 36-37, 43.

³² The Region explained methane emissions from the DMS as follows:

When wells are drilled through porous, hydrocarbon[-]bearing rock, drilling fluids (mud) circulated through the drill bit can carry gaseous hydrocarbons from the well back to [the] *Kulluk*. These gases are typically released as fugitive emissions when the mud is processed for reuse on the *Kulluk* or stored and shipped away; however, some of the emissions pass through a vent.

Statement of Basis at 38.

the equivalent of 17 tons per month ("tpm") of CO₂e.³³ *Id.* The Permit accounts in Condition 4.4.2 for methane emissions encompassing the source's full unrestricted PTE of 17 tpm of CO₂e, 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 SO₂, ICAS contends that the Permit contains a blanket emission limit for GHGs that is practically unenforceable and further asserts that the requirement that GHG emissions only be calculated monthly to determine compliance with the established rolling 12-month limit is inadequate to verify compliance "in a given moment." ICAS Petition at 21-22 (citing *NSR Manual* at C.3, C.5, H.5); *see* Permit Conditions D.1.3-4. In addition, ICAS asserts that the Region clearly erred by accepting an owner-requested limit for methane attributable to mud off-gassing from the DMS that is not only unenforceable, but also less than the "maximum expected capacity" or "upper-bound projection" ConocoPhillips submitted in another Arctic OCS permit proceeding. *Id.* at 22-26.

Based on the foregoing information, ICAS's general assertion that the GHG emission limit is practically unenforceable must fail. The Region has demonstrated in both the Permit and the documentation in the record supporting the Permit that it crafted a synthetic minor limit that would not only prevent Shell from being subject to regulation under the PSD program for GHG emissions, but also

³³ In calculating the unrestricted PTE for DMS methane emissions, the Region included several conservative assumptions to ensure a wide margin of safety for total methane emissions over Shell's five-month period of operation. *See* RTC at 34; *Options for Limiting PTE* at 8 (noting that for sources with inherent physical limitations that restrict the potential emissions of an emissions unit, if such limitations can be documented and confirmed, the permitting authority may factor them into estimates of a stationary source's PTE). For example, the Region assumed that the total unrestricted PTE for DMS methane emissions for the entire five months of drilling operations would be emitted during each of the five months. RTC at 35.

In addition, despite much of the methane emissions being fugitive emissions that are not counted towards PSD applicability for exploratory drill rigs, *see* 40 C.F.R. § 52.21(b)(1)(iii), Shell agreed to consider all of the methane emissions from the DMS as point source emissions that would count towards Shell's potential to emit GHGs. *See* RTC at 35; *see also* Statement of Basis at 38-39. In its petition, ICAS disputes the Region's claim that counting such fugitive emissions towards PTE represents a conservative approach that lends a "measure of safety" and asserts that the part 71 regulations governing Title V permits require such fugitive emissions to be included. ICAS Petition at 24 (citing 40 C.F.R. § 71.3(d), which states that fugitive emissions from a part 71 source "shall be included in the permit application and the part 71 permit in the same manner as stack emissions"). However, as the Region correctly points out in its response, the definitions of major source in both 40 C.F.R. § 52.21(b)(1)(iii) and 40 C.F.R. § 71.2 make clear that fugitive emissions are not considered when determining whether a source is a major source. Region's Response at 26 n.21 (citing the Tailoring Rule and noting that it retained this approach of determining whether a source becomes subject to regulation for GHGs).

would be practically enforceable as a result of the numerous operational restrictions in combination with monitoring, recordkeeping, and reporting requirements contained in the Permit. While ICAS acknowledges the operational limits contained in the Permit, ICAS simultaneously disputes their efficacy without explaining why such operational limits will not have their intended effect of restricting Shell's potential to emit GHGs.³⁴ See ICAS Petition at 21-22. Without stating more than mere disagreement, ICAS cannot meet the especially high threshold of demonstrating that the Region's inherently technical decisions regarding the GHG emission limit warrant Board review. See, e.g., *NE Hub Partners*, 7 E.A.D. at 567; *Shell Discoverer 2012*, 15 E.A.D. at 501.

ICAS's more specific contention that the Region clearly erred by accepting an owner requested restriction for methane from mud off-gassing that is practically unenforceable is unavailing. See ICAS Petition at 22-26. ICAS raised this same argument in previous appeals of two OCS PSD permits the Region issued to Shell for operations in the Chukchi Sea of the Arctic OCS. See *Shell Discoverer 2012*, 15 E.A.D. at 514-19; see also *supra* note 20. In brief, the monthly calculation of methane to be released in mud off-gassing in both *Shell Discoverer 2012* and the current appeal are not only the same amount, 17 tpm, they also both reflect the unrestricted PTE for methane emissions from DMS operations. See RTC at 34-35; *Shell Discoverer 2012*, 15 E.A.D. at 517-18. The Board rejects ICAS's assertion in this instance, relying on the same reasons it gave in *Shell Discoverer 2012*:

[T]he Permit[] in this case do[es] not include owner requested limits on PTE for methane emissions. Rather,
* * * methane emissions were assumed to occur at the
source[s] full PTE for the five-month drilling season

³⁴ Similarly, ICAS's contention that the Region clearly erred by not requiring more frequent calculations of GHG emissions than the monthly calculations the Permit requires, see Conditions D.1.3-4, falls short. The Region explained that its decision to calculate emissions on a monthly basis stemmed from "good confidence in the overall [GHG emission] compliance technique and therefore 'yearly' emissions are required to be summed only monthly." Statement of Basis at 38. Although GHG emission calculations will be calculated once a month based on the Region's stated confidence in its compliance method, the data required to make such calculations is collected continuously through fuel usage monitoring. RTC at 43-44 ("Shell is generally required to continuously measure and record, on an hourly basis, the fuel consumed by each emission unit or group of emission units."); see also Region Response at 24 (citing *1989 Guidance on Limiting PTE* and noting that "in light of annual variations in operations and the fact that the source operates during only part of the year" the Region determined that a 12-month rolling limit for CO₂e 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

³⁵ This is the same unrestricted PTE for methane emissions as in the *Kulluk* permit (1596 lb / 2000 lb = 0.798 tons).

³⁶ In *Shell Discoverer 2012*, ICAS asserted that it was unable to evaluate the basis for Shell's estimates of DMS methane emissions that the Region had relied on to calculate PTE because Shell did not release its estimates until after the close of the comment period. 15 E.A.D. at 517 n.63. In that instance, the Board concluded that the Region was authorized to supplement the record with previously unavailable information confirming that Shell's estimate of methane PTE was a reasonable upper-bound estimation, and "[t]hus, ICAS had the opportunity to evaluate the basis for Shell's PTE estimates and the Region's assessment of those estimates in preparing its appeal to this Board." *Id.* (citing *In re Cape Wind Assoc., LLC*, 15 E.A.D. 327, 332-33, 335 (EAB 2011), and 40 C.F.R. §§ 124.17(a)-(b), -18(b)).

Continued

information, the Region exercised its technical expertise in concluding that Shell's estimates of methane emissions from the DMS were permissible, especially given the conservative assumptions the Region incorporated when calculating PTE. ICAS does not address either the record information that supports the Region's decision to accept Shell's methane estimate or the Region's stated rationale for concluding that methane monitoring is not required. *See* RTC at 35-36 (explaining that, based on the inherent limitations that exist and the relatively small contribution of the DMS to overall GHG emissions, the Region does not believe monitoring of DMS emissions or operations is necessary in addition to the monitoring already required in the permit). As this Board has often stated, a petitioner cannot demonstrate that review is warranted if the petitioner fails to substantively confront a permit issuer's response. *Peabody*, 12 E.A.D. at 33 (noting that to obtain review a petitioner must "explain why, in light of the permit issuer's rationale, the permit is clearly erroneous or otherwise deserving of review"); *see also In re BP Cherry Point*, 12 E.A.D. 209, 217 (EAB 2005). Moreover, as stated above, the Region's decision regarding the GHG emission limit is inherently technical in nature, and ICAS has fallen short of the particularly high threshold it must meet to demonstrate that review of the Region's technical determination is warranted. *See Peabody*, 12 E.A.D. at 33-34; *see also NE Hub*, 7 E.A.D. at 567-68.

4. *The Region Did Not Clearly Err in Restricting OCS Source's Potential to Emit SO₂*

The Permit restricts SO₂ emissions from the *Kulluk* and the Associated Fleet to no more than 10 tpy, well below the 250 tpy PSD threshold level. *See* Permit Condition D.4.3. Compliance with this limit is determined on a rolling 12-month basis and is achieved by requiring that Shell not combust any liquid fuel with sulfur content greater than 0.01 percent by weight in any emission unit on the *Kulluk* or the Associated Fleet and that all fuel purchased for use in emission units on the *Kulluk* and Associated Fleet have a maximum sulfur content of 0.0015 percent by weight. Permit Conditions D.4.5, D.4.9. Shell is required to keep diesel

(continued)

The material in question is not only in the record submitted with the *Discoverer* appeals, it also appears in the record for the instant appeal. *See* E-mail from Susan Childs, Shell, to Doug Hardesty, EPA Region 10 (Sept. 16, 2011 14:31 pm PDT) (A.R. CCC-438 in *Shell Discoverer 2012* and A.R. C-575 in the current appeal). Thus in the current appeal there is no question that the information from Shell clarifying and explaining its estimate of DMS methane emissions, including the highly conservative assumptions Shell included in its estimate, was at ICAS's disposal. In addition, Shell submitted further clarification of its DMS methane estimates as compared to ConocoPhillips' in order to "explain how different assumptions led to different results, and why Shell believes that ConocoPhillips' estimate is unrealistically high." E-mail from Susan Childs, Shell, to EPA Region 10 (Sept. 20, 2011 17:57 pm PDT) (A.R. C-577). ICAS's petition does not address either of these record submissions or the Region's reliance on this information to determine that the Region's calculation of methane emissions from the DMS represents "a reasonable upper-bound projection for Shell's operations [that] is not expected to be exceeded under any reasonably anticipated operating scenario." RTC at 35.

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 SO₂ emissions limits by including "purported 'operational limits'" that restrict fuel content and usage and concludes that compliance with the restricted PTE for SO₂ 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

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.

³⁹ Specifically, the guidelines for determining when minor source construction permits are shams state in relevant part:

1. Filing a PSD or nonattainment NSR permit application

If a major source or major modification permit application is filed simultaneously with or at the same time as the minor source construction permit, this is strong evidence of *an intent to circumvent the requirements of preconstruction review*.

* * *

4. Statement of authorized representatives of the source regarding plans for operation

Statements by representatives of the source to EPA or to state or local permitting agencies about the source's plans for operation can be evidence to show *intent to circumvent preconstruction review requirements*.

1989 Guidance on Limiting PTE at 14-15 (emphasis added).

B. REDOIL Petitioners Have Not Demonstrated That the Region Clearly Erred in Declining to Require PSD Increment Consumption Analyses for the Kulluk's Proposed Emissions as Part of the Title V Permitting Process

1. Section 504(e) of CAA Title V Imposes Permitting Requirements on "Temporary" Stationary Sources

The CAA's PSD program requires permit applicants to demonstrate compliance with ambient air quality "increments" (also called "PSD increments") for specific air pollutants. *See* CAA §§ 161, 163, 165(a)(3)(A), 42 U.S.C. §§ 7471, 7473, 7475(a)(3)(A); 40 C.F.R. § 52.21(c), (k). Such increments are maximum allowable increases in pollutant concentrations that may occur in particular areas.⁴⁰ They are designed to "prevent significant deterioration" of air quality in locations that already have relatively clean air by ensuring that contaminants contributed by proposed new sources, combined with levels of contamination already present in the ambient air as of a specific baseline date, fall within bounds established by the Agency. *See generally* *NSR Manual* ch. C.

As noted in Part VI.A.1.b above, Congress designed the PSD program to regulate "major" sources of air pollution, which have potential to emit certain specific pollutants in amounts exceeding major source threshold levels. "Minor" sources, which have projected emissions that fall below the PSD major source thresholds, generally are not regulated under the PSD program. The Board determined above that the *Kulluk* qualifies as a minor source for PSD purposes, and so it is not required to obtain a PSD permit. The *Kulluk* nonetheless is still subject to permitting under the CAA's Title V program. The question presented is whether section 504(e) of Title V imposes PSD increment requirements in this circumstance.

In section 504(e) of Title V Congress set out permitting requirements for "temporary" stationary sources of air pollution as follows:

The permitting authority may issue a single [Title V] permit authorizing emissions from similar operations at multiple temporary locations. No such permit shall be issued unless it includes conditions that will assure compliance with all the requirements of this chapter [i.e., the CAA] at

⁴⁰ To date, EPA has established PSD increments for four pollutants – SO₂, NO₂, PM₁₀, 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*,

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 commentators did on the draft permit, that the Region's interpretation of "applicable requirement" improperly reads the thirteenth requirement out of the regulations by subsuming it within the second requirement. REDOIL Petition at 33-34.

The Region explained in the Response to Comments why this was not so. *See* RTC at 107-08. The Region stated that "the intent of the Title V temporary source provisions is to relieve sources of the burden of applying for Title V permits for each new location, while at the same time[] assuring compliance with all requirements to which the source would be subject if it were a new [permanent] source at each such new location." *Id.* at 108. For a temporary source that is also a PSD major source, this would include ensuring that the NAAQS and increment standards are met at each future location – a requirement that, the Region pointed out, would exceed the requirements otherwise applicable to the source under the

⁴³ This state implementation plan regulation provides, in relevant part:

If the [s]tate or the Administrator determines that a[n implementation] plan is substantially inadequate to prevent significant deterioration or that an applicable increment is being violated, the plan shall be revised to correct the inadequacy or the violation.

40 C.F.R. § 51.166(a)(3). The regulations also provide, in the next subsection, that the state "shall review the adequacy of a[n implementation] plan on a periodic basis and within 60 days of such time as information becomes available that an applicable increment is being violated." *Id.* § 51.166(a)(4).

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 NO₂ NAAQS "in order to provide requisite protection of public health as appropriate under section 109 of the Clean Air Act." Primary NAAQS for NO₂, 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 NO₂

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 NO₂ 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 NO₂ concentrations anywhere in an area. *Id.* at 6493, 6502. EPA has issued guidance clarifying procedures for demonstrating compliance with the new 1-hour NO₂ 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 NO₂ 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 NO₂ National Ambient Air Quality Standard* (Mar. 1, 2011) (“Fox Memo”) (A.R. BB-83).

REDOIL Petitioners assert that Shell's ambient air quality analysis was flawed.⁴⁸ In particular, REDOIL Petitioners state that in “identifying the Kulluk's

⁴⁶ The 98th percentile form corresponds approximately to the 7th or 8th highest daily maximum concentration in a year. 75 Fed. Reg. at 6492.

⁴⁷ According to the Page Memo, the guidance was issued in response to reports that sources were modeling potential violations of the 1-hour NO₂ 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 NO₂ National Ambient Quality Standard in Prevention of Significant Deterioration Permits, Including an Interim 1-hour NO₂ Significant Impact Level” and “Applicability of Appendix W Modeling Guidance for the 1-hour NO₂ National Ambient Air Quality Standard.” *Id.* at 1-2. Although the Page Memo attaches these two memoranda, the Memo is consecutively numbered as a single document.

⁴⁸ In order to establish compliance with the NAAQS and PSD increments, permit applicants must conduct an “ambient air quality analysis,” which applicants must prepare under the permitting rules for each regulated pollutant their proposed facilities will emit in “significant” amounts. 40 C.F.R. § 52.21(b)(23)(i), (m)(1)(i). This analysis predicts a pollutant's future concentration in the ambient air by modeling a proposed facility's expected emissions of the pollutant against the backdrop of existing ambient conditions. To conduct an air quality analysis, a permit applicant compiles data on the proposed facility's physical specifications and anticipated emission rates, local topography, existing ambient air quality, meteorology, and related factors. See, e.g., *id.* § 52.21(l), (m); *id.* pt. 51 app. W (Guideline on Air Quality Models); *In re Knauf Fiber Glass, GmbH*, 8 E.A.D. 121, 145-48 (EAB 1999); *NSR Manual* at C.16-23, .31-50. These data are then processed using mathematical models that calculate the rates at which pollutants are likely to disperse into the atmosphere under various climatological conditions, with the goals of determining whether emissions from the proposed source will cause or

Continued

98th percentile cumulative impact – *i.e.*, the Kulluk's impact added to background levels of pollutants – for comparison to the 1-hour NO₂ 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.

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 NO₂ 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 NO₂ 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 Randolph, 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 “long-standing interpretation” of this exemption is set forth in a letter signed by former EPA Administrator Douglas Costle, which states that “the exemption from ambi-

⁵⁰ For an area that is not considered within the definition of “ambient air,” Shell would not have to demonstrate compliance with the NAAQS. *See* CAA §§ 109(b), 160, 163, 42 U.S.C. §§ 7409(b), 7470, 7473 (NAAQS apply to areas meeting the definition of ambient air); 40 C.F.R. § 50.1(e) (definition of “ambient air”); *In re Hibbing Taconite Co.*, 2 E.A.D. 838, 848 & nn.23-24 (Adm’r 1989); RTC at 53.

⁵¹ REDOIL Petitioners additionally argue that, should the Region’s response contain a “natural physical feature” argument similar to an argument the Region raised in its response brief in *Shell Discoverer 2012*, the Board should consider such an argument a “*post hoc* rationalization” and should disallow it, REDOIL Petition at 19; *see also Shell Discoverer 2012*, 15 E.A.D. at 510 n.52 (discussing this issue). REDOIL Petitioners also reserve the right to request leave to file a reply brief addressing this issue, REDOIL Petition at 19. Unlike the situation in *Shell Discoverer 2012*, the Board does not find that the Region’s response brief contains an explanation that is clearly different than the rationale set forth in the Response to Comments. Moreover, REDOIL Petitioners do not raise this particular issue in their reply brief. Consequently, the Board does not consider REDOIL Petitioners’ “*post hoc* rationalization” argument further.

ent air is available only for the atmosphere over land owned or controlled by the source and to which the public access is precluded by a fence or other physical barriers." Costle Letter at 1; REDOIL Petition at 16 (quoting same letter); Region Response at 29-30 (referring to same letter); Shell Response at 26-27 & n.27 (same); *see also* RTC at 51 (same). The Costle Letter also indicates that, in determining whether the exemption applies, the Agency reviews "individual situations on a case-by-case basis." Costle Letter at 1; *see also* Approval and Promulgation of State Implementation Plans, 50 Fed. Reg. 7056, 7057 (Feb. 20, 1985) (noting that, in considering ambient air exemptions, "individual variations in the type of land and nature of the limitation on access necessitate a case-by-case evaluation of the facts, and application of the principles involved in this determination").

Here, in its permitting decisions, the Region determined that, as long as certain permit conditions were being met, it was appropriate to set the ambient air boundary at a 500 meter radius from the *Kulluk*, or, in other words, the 500 meter radius "safety zone" was exempt from the ambient air definition. RTC at 51-52; *see also* Statement of Basis at 40. The terms and conditions upon which the Region relied to exempt this area prohibit the operation of vessels and emissions units unless (1) the USCG establishes a safety zone within at least 500 meters from the center of the *Kulluk*, (2) members of the public are precluded from entering the safety zone, and (3) Shell develops and implements a "public access control program."⁵² Permit at 42-43. The Region determined that, as long as these safety zone and public access restriction permit conditions are complied with, ex-

⁵² The precise terms and conditions of the Permit are as follows:

The permit does not authorize operation unless:

5.1.1. The *Kulluk* is subject to a currently effective safety zone established by the [USCG] which encompasses an area within at least 500 meters from the hull of the *Kulluk* and which prohibits members of the public from entering this area except for attending vessels or vessels authorized by the USCG (such area shall be referred to as the "Safety Zone"); and

5.1.2. The permittee has developed in writing and is implementing a public access control program to:

5.1.2.1. Locate, identify, and intercept the general public by radio, physical contact, or other reasonable measures to inform the public that they are prohibited by Coast Guard regulations from entering the Safety Zone; and

5.1.2.2. Communicate to the North Slope communities on the Beaufort Sea on a periodic basis when exploration activities are expected to begin and end at a drill site, the location of the drill site, and any restrictions on activities in the vicinity of the *Kulluk's* exploration operations.

Permit at 42-43.

empting the area within the safety zone from the ambient air definition would generally be consistent with previous Agency interpretations. RTC at 51-52. In so finding, the Region noted that “[g]iven that the permitted activities occur over open water in the Arctic, the[] criteria [for exemption included in the Costle Letter] must be adapted to some extent when applied to this environment.” *Id.* In specifically considering the applicability of the two exemption criteria, the Region stated:

Region 10 recognizes that Shell does not “own” the areas of the Beaufort Sea on which the Kulluk will be operating as might be the case for a stationary source on land. Shell has a lease authorizing the company to use these areas for the activities covered by the permits. A Coast Guard safety zone establishes legal authority for excluding the general public from the area inside the zone. EPA has previously recognized a safety zone established by the Coast Guard as evidence of sufficient ownership or control by a source over areas over water so as to qualify as a boundary for defining ambient air where that safety zone is monitored to pose a barrier to public access. Letter from Steven C. Riva, EPA Region 2, to Leon Sedefian, New York State Department of Conservation, re: Ambient Air for the Offshore LNG Broadwater Project, dated October 9, 2007 (Broadwater Letter).

To meet the second of the criteria applied by EPA and ensure the source actually takes steps to preclude public access, Shell proposed and Region 10 required as a condition of operation under the permits that Shell develop in writing and implement a public access control program to locate, identify, and intercept the general public by radio, physical contact, or other reasonable measures to inform the public that they are prohibited by Coast Guard regulations from entering the area within 500 meters of the hull of the Kulluk. Region 10 believes that, for the overwater locations in the arctic environment at issue in these permitting actions, such a program of monitoring and notification is sufficiently similar to a fence or physical barrier on land such that the area within the Coast Guard safety zone qualifies for exclusion from ambient air. *See* Broadwater Letter at 2.

RTC at 52.⁵³

Upon consideration of the administrative record and the parties' arguments, the Board concludes that Petitioners have not shown that the Region clearly erred in its decision to exempt the area within the USCG safety zone from the definition of "ambient air." The Region, in its Response to Comments, provided a reasonable interpretation of the ambient air regulation and the Agency's "longstanding interpretation" of that regulation as applied in the OCS context.⁵⁴ Furthermore, the Region's analysis was entirely consistent with a similar analysis undertaken by Region 2 in which that Region determined that it was appropriate for a permittee to use the USCG safety zone to define an ambient air boundary around a proposed offshore liquefied natural gas facility. *See* Broadwater Letter at 2. The Broadwater Letter, moreover, suggests that Region 2's analysis, as well as Region 10's, is not unique, stating that "[i]n previous permitting decisions involving * * * drilling operations, EPA Regional offices have used the USCG's safety zone as the boundary for defining ambient air." *Id.* at 2 (emphasis added). The letter explains that the Agency has found that "[t]he 'safety zone' approach represents a reasonable surrogate for a source's fence or physical barrier and thus could act as an ambient air boundary." *Id.*

Thus, while it is true, as Petitioners allege, that the Agency has generally required the source to own or control access over the area in question for that area to meet the first criterion, REDOIL Petition at 16-17, this requirement has been limited to sources located on land.⁵⁵ *See, e.g.,* Helm Letter at 1 (referring to possi-

⁵³ REDOIL Petitioners also seem to suggest that the Region's approach is flawed because it "is based upon an assumption that Shell will request, and the [USCG] will establish, a safety zone restricting the passage of other vessels." REDOIL Petition at 15 & n.45. This argument is unpersuasive because it fails to recognize that, as the permit conditions quoted in note 52 state, operation is prohibited unless these two conditions are met. *See* Permit at 42-43.

⁵⁴ As the Region rightly noted, *see* RTC at 51-52, the regulation and the Costle Letter, by their very terms, were clearly written with overland situations in mind. *See* 40 C.F.R. § 50.11(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. Dir., 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 NO₂ and ozone exposures on the Alaska Native population residing on the North Slope, and also asserts that the opportunities for public participation were inadequate. Mr. Lum challenges the lack of analysis regarding the impacts

⁵⁶ REDOIL Petitioners' arguments that the Region's determination fails to meet the second criteria because the safety zone "fails to effectuate a barrier that 'precludes' public access" are equally unpersuasive. REDOIL Petition at 17. REDOIL Petitioners focus on the fact that the USCG will limit access to the area based on safety concerns rather than for air quality considerations. *Id.* at 17-18. The important fact is that access within the zone will be strictly limited, not the reason behind it. Moreover, REDOIL Petitioners do not address the other condition of the permit that the Region relied upon for its ambient air boundary determination: the public access control program Shell is required to implement. The Board does not find clear error in the Region's conclusion that, based on the USCG limiting access to the safety zone and the permittee implementing a public access control program, the latter of which will include notification to the local residents of the location of the drilling and the fact that the public is restricted from the safety zone, the general public will be denied access to the area inside the safety zone.

⁵⁷ The Board came to the same conclusion in *Shell Discoverer* 2012. See 15 E.A.D. at 513-14. In that case, the Region had adopted and followed the same or a very similar interpretation as described in the text above. See *id.* 15 E.A.D. at 511-13. Nothing REDOIL Petitioners offer in the present case convinces the Board that anything in the prior analysis – and reiterated here – was in error.

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 population⁵⁸ may be disproportionately affected by a particular facility seeking a PSD permit. *In re EcoEléctrica, LP*, 7 E.A.D. 56, 69 n.17 (EAB 1997); *accord Shell 2010*, 15 E.A.D. at 148-49 & n.71 (citing PSD cases).

At the outset, the Board notes that both ICAS and Mr. Lum recently challenged the Region's environmental justice analysis in *Shell Discoverer 2012*. See 15 E.A.D. at 493-501. In addition, the environmental justice analysis the Region prepared in the current matter is reminiscent of the environmental justice analysis prepared for the *Discoverer* permits that were the subject of the Board's *Shell Discoverer 2012* decision. Moreover, while their petitions for review in *Shell Discoverer 2012* and the current appeal are not identical, both ICAS and Mr. Lum raise substantially similar arguments in their current appeals as they did in their appeals of the *Discoverer* permits.⁵⁹ *Compare Lum Petition with Eskimo*

⁵⁸ Under the Executive Order, the Alaska Native population residing on the North Slope qualifies as a minority population. See Statement of Basis at 55; ICAS Petition at 30.

⁵⁹ ICAS's remaining challenges to the amount and quality of public participation opportunities available pertaining to the environmental justice analysis appear to mirror its more general arguments

Continued

Whaler Petition for Review, *Shell Discoverer 2012* (Doc. No. 24), and ICAS Petition with ICAS and AEWG Petition for Review, *Shell Discoverer 2012* (Doc. No. 7).

1. Region's Environmental Justice Analysis

The Region included a fifteen-page environmental justice analysis in the administrative record to accompany the Permit and to allow for public comment on the analysis. Environmental Justice Analysis for Proposed OCS Permit No. R10 OCS030000 Kulluk Drilling Unit (undated) ("EJ Analysis") (A.R. F-1). The Region's analysis begins with a discussion of environmental justice in the permitting context and notes that "[t]he Title V operating permit program does not generally impose new substantive air quality control requirements."⁶⁰ EJ Analysis at 2. In addition, the analysis includes a discussion of how the national ambient air quality standards ("NAAQS") are crafted by integrating scientific information and evidence from rigorously reviewed studies, and a summary of the Board's case law stating that the Board views compliance with the NAAQS as "emblematic of achieving a level of public health protection that, based on the level of protection afforded by the NAAQS, demonstrates that minority or low-income populations will not experience disproportionately high and adverse human health or environmental effects due to exposure to relevant criteria pollutants." *Id.* (quoting *Shell 2010*, 15 E.A.D. at 156) (citations omitted); *see also* Statement of Basis at 54-55.

(continued)

regarding the public participation process. *See* ICAS Petition at 6-10, 38-39. Accordingly, the Board addresses ICAS's challenges to the adequacy of the public participation process, both generally and with respect to the environmental justice analysis, in Parts VI.F and VI.G below.

⁶⁰ The Region further explained that:

[T]he Title V operating permit program is generally a vehicle for ensuring that existing air quality control requirements are appropriately applied to facility emission units and that compliance with these requirements is assured. Accordingly, the primary means of addressing environmental justice issues in the Title V program is through increased public participation and review by permitting agencies, and conditions to assure compliance with applicable requirements. As discussed above, the Title V permit at issue in this case is unusual in that it requires the source, as a Title V temporary source, to meet the NAAQS and also establishes limits on the potential to emit. Region 10 has considered environmental justice concerns in this permitting action where possible in the context of assuring compliance with applicable requirements for the source, in particular assuring compliance with the NAAQS as a Title V temporary source and establishing PSD avoidance limits.

EJ Analysis at 2; *see also* Statement of Basis at 54.

The analysis goes on to catalogue the distances between Inupiat communities on the coast of the North Slope that are closest to Shell's lease blocks in the Beaufort Sea, and discusses the importance of subsistence foods obtained through hunting, fishing, and whaling to the Inupiat diet, and more generally the nexus between subsistence activities and Inupiat culture. EJ Analysis at 3, 5. The Region also included an illustration that juxtaposes the location of Shell's lease blocks, including proposed exploration sites, with onshore and offshore subsistence use areas for the northern Inupiat communities.⁶¹ *Id.* at 4; *see also* Statement of Basis at 56.

The Region then proceeded to analyze demographic, health-related, and air quality data.⁶² The demographic analysis indicates that 68% of residents living in the North Slope Borough classify themselves as Alaska Natives. EJ Analysis at 7. In addition, nearly half of North Slope residents speak a language other than English at home. *Id.* at 8. The analysis of health data revealed, among other things, that from 1990 to 2007 there has been a 158% rate of increase in the prevalence of diabetes for Alaska Natives residing on the Arctic Slope, whereas during the same time period there has been a 117% rate of increase in the prevalence in diabetes for Alaska Natives statewide.⁶³ *Id.* at 9. In addition, there is a higher incidence of outpatient visits for respiratory problems ranging from the common cold to pneumonia in the Arctic Slope than in the rest of Alaska. *Id.*

In the air impacts analysis, the Region first noted that the North Slope Borough is currently designated as attainment/unclassifiable for all of the NAAQS, meaning that the North Slope has sufficient data to determine that the area is meeting the NAAQS or that, due to no data or insufficient data, EPA cannot make a determination. *Id.* at 11 & n.15 (citing CAA § 107(d), 42 U.S.C. § 7407(d)). The

⁶¹ The analysis also includes, for some of the northern Inupiat communities, the distances residents have reported traveling offshore to hunt for traditional subsistence food sources. *See* EJ Analysis at 6 (noting that Nuiqsut residents have traveled up to 60 miles offshore to the north and as far east as Camden Bay to hunt for bowhead whale and that Kaktovik residents have traveled as far as 35 miles offshore to hunt for bowhead whale and walrus); Statement of Basis at 55; *see also* *Shell 2010*, 15 E.A.D. at 155 n.80 (noting that subsistence activities, which can take Inupiat residents living on the North Slope far from their local communities and closer to emissions sources, are a potential environmental justice consideration that may be unique to the OCS PSD permitting context); *Shell Discoverer 2012*, 15 E.A.D. at 496 n.32 (same).

⁶² The Region used demographic information gathered from the 2000 U.S. Census to compare the population of the North Slope Borough to the populations of both the State of Alaska and the entire United States, which served as reference populations for the demographic analysis. EJ Analysis at 6-8 & n.6. The North Slope Borough consists of the following eight incorporated villages: Point Hope, Point Lay, Wainwright, Atkasuk, Barrow, Nuiqsut, Kaktovik, and Anaktuvuk Pass. *See* Statement of Basis at 55.

⁶³ The Region utilized data from the Alaska Native Health Status Report 2009, which the Alaska Native Epidemiology Center and the Alaska Native Tribal Health Consortium had prepared to analyze health conditions in the North Slope Borough. *See* EJ Analysis at 8-10 & n.11.

Region then examined the total modeled concentrations of NO₂, particulate matter with a diameter of 10 micrometers or less ("PM₁₀"), particulate matter with a diameter of 2.5 micrometers or less ("PM_{2.5}"), SO₂, and CO,⁶⁴ including background concentrations and maximum concentrations from the *Kulluk* and the Associated Fleet.⁶⁵ *Id.* at 13-14 & tbl.6. The Region compared the total modeled concentrations for each of the three nearest communities while the source is in operation and found that the total maximum modeled concentrations demonstrate that the NAAQS will be attained at all locations beyond the 500-meter boundary, and that the modeled concentrations in the North Slope communities and in areas where the communities conduct subsistence activities will be below the relevant standard.⁶⁶ *Id.* at 14. Finally, the Region noted that a majority of the total impacts result from background concentrations. *Id.*

⁶⁴ The Board notes that the information included in table 5 of the air quality analysis includes modeled impacts in the nearest onshore communities from operation of the *Kulluk* alone, without impacts from the Associated Fleet or background concentrations. EJ Analysis at 12 & tbl.5. The Region explains that the maximum modeled concentrations in Nuiqsut, Deadhorse, and Kaktovik listed in table 5 are all below the significant impact levels ("SILs") established for each criteria pollutant. *Id.* at 12. In the PSD program, SILs function as threshold levels for ambient concentrations of a given pollutant; for a given pollutant and averaging period, any source that has a measured concentration that is below the SIL is considered too small to cause or contribute to a violation of the NAAQS. *Id.*

The Region made clear earlier in the environmental justice analysis that emissions from the Associated Fleet while operating within 25 miles of the *Kulluk*, together with emissions from the *Kulluk*, are considered in conducting an ambient air quality analysis to determine whether emissions from the project will cause or contribute to a violation of the NAAQS. *Id.* at 4. The Region's analysis repeatedly emphasized that compliance with the NAAQS is "emblematic of achieving a level of public health protection" that demonstrates that minority or low-income populations will not experience disproportionately high and adverse human health or environmental impacts due to exposure to relevant criteria pollutants. *Id.* at 4-5 (quoting *Shell 2010*, 15 E.A.D. at 156). While the inclusion of information on modeled impacts of emissions from the *Kulluk* alone on the nearest onshore communities is illustrative regarding the *Kulluk*'s contribution to the overall emissions profile, it is the information that encompasses both background concentrations and emissions from the *Kulluk* and the Associated Fleet when it is within 25 miles of the *Kulluk* that establishes the Region has satisfied its obligation to comply with the Executive Order.

⁶⁵ Monitoring data from Prudhoe Bay, Deadhorse, and Endicott were used for background values. EJ Analysis at 13. The Region also noted that the modeled impacts are based on conservative assumptions, including that all four wells are drilled at the same location to account for overlapping plumes, even though the drilling of four wells at a fixed location and the overlap of plumes will not occur. *Id.*

⁶⁶ Specifically, the Region noted that in Kaktovik, located 8 miles from Shell's closest lease block in the Beaufort Sea, the total maximum modeled concentrations, assuming Shell's *Discoverer* is in operation and considering background concentrations, are measured at the following percentages of the NAAQS: 11% for the 1-hour NO₂ NAAQS; 20% for the 24-hour PM_{2.5} NAAQS; 35% for the 24-hour PM₁₀ 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 NO₂ NAAQS; 48% for the 24-hour PM_{2.5} NAAQS, 35% for the 24-hour PM₁₀ 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 NO₂ NAAQS Analysis

ICAS challenges the Region's consideration of 1-hour NO₂ NAAQS⁶⁷ 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 NO₂ 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 NO₂ emissions that remain unregulated by the Permit when assessing potentially adverse health impacts of NO₂ 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 NO₂ 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 NO₂ NAAQS reviews in its December 2010 remand order. *See Shell 2010*, 15 E.A.D. at 150 nn.73-74.

sis.⁶⁸ RTC at 114; Statement of Basis at 54; *see also* EJ Analysis at 2; Region Response at 36 n.34. The Region acknowledged that the Title V permit at issue in this case is unusual in that it requires a temporary Title V source to meet the NAAQS, and the permit also establishes limits on PTE. EJ Analysis at 2; Statement of Basis at 54; RTC at 114. However, the Title V permit does not regulate mobile source emissions.⁶⁹

⁶⁸ ICAS asserts that the Board should remand the *Kulluk* permit so that the Region can assess mobile source emissions included in Shell's emissions inventory submitted to BOEMRE as part of Shell's Exploration Plan, both because it "shows that the additional emissions estimates are not as hard to obtain as Region 10 implies," and because once the Region assesses the accuracy of the inventory it can "use the information to conduct an EJ analysis that accounts *for all* of Shell's emissions." ICAS Petition at 35 (emphasis in original).

Nowhere in its petition does ICAS acknowledge the Region's statement, in the Response to Comments, that "[t]he Exploration Plan * * * does not include estimates of air emissions from these other vessels during the time they are more than 25 miles from the Kulluk or before the Kulluk becomes an OCS source." RTC at 15. The Board has consistently stated that, in order to sustain its burden of demonstrating that review is warranted, the petitioner must address the permit issuer's responses to relevant comments made during the permit proceeding. *See, e.g., Peabody*, 12 E.A.D. at 33 ("[T]he petitioner may not simply reiterate comments made during the public comment period, but must substantively confront the permit issuer's subsequent explanations.").

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

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

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

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

Despite the fact that mobile source emissions are not regulated under the Title V permit, the Region did go beyond its required review to consider mobile source emissions with respect to environmental justice in the Response to Comments. See RTC at 114-15. The Region was unable to reach a determinative conclusion with respect to these emissions due to insufficient information.

ICAS's attempt to construe the Executive Order and Board precedent to *require* in this instance the analysis of emissions from mobile sources that the Region may not have accurate or sufficient data to complete in the context of a Title V permit is unpersuasive. Notably, the Board has held that it will decline to review a permit issuer's environmental justice analysis that cannot reach a determinative conclusion due to the insufficiency of available valid data. See RTC at 115; *Avenal*, 15 E.A.D. at 401-02 (stating that where a permit issuer conducts a substantive environmental justice analysis that endeavors to include and analyze data that is germane to the environmental justice issue raised during the comment period, and the permit issuer demonstrated it exercised its considered judgment when determining that it cannot reach a determinative conclusion due to the insufficiency of available data, the Board will decline to grant review of the environmental justice analysis). Moreover, "[t]he plain language of the Executive Order imparts considerable leeway to federal agencies in determining how to comply with the spirit and letter of the Executive Order." *Avenal*, 15 E.A.D. at 401. ICAS overreads *Avenal* when it suggests that *Avenal* compels the analysis of these mobile source emissions in the context of this permit. See ICAS Petition at 35 ("The Agency has considered mobile emissions previously in its EJ analyses and should be required to do so here." (citing *Avenal*, 15 E.A.D. at 399)).⁷⁰

ICAS's challenge also fails because ICAS never responded to the Region's stated rationale in the administrative record that Title V permits generally do not impose new substantive air quality control requirements. A petitioner cannot sim-

⁷⁰ ICAS includes a citation to *Avenal* for the proposition that "motor vehicle emissions are by far the greatest concern," in support of its contention that mobile source emissions should be included in the short-term NO₂ 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 NO₂ 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 NO₂ emissions locally, as compared to 61% of NO₂ 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 NO₂ is a precursor emission. *Id.* Finally, the Agency further explained that NO₂ 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 NO₂ impacts from mobile sources in *Avenal*, where NO₂ 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 NO₂ controls and their ability to function properly in cold weather, the use of generic NO_x/NO₂ ratios in lieu of actual source tests, the use of "diurnal pairing" of NO₂ 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

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 NO₂ 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 NO₂ NAAQS in the Federal Register on February 9, 2010, and the effective date of the new hourly NO₂ 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 NO₂ 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 NO₂ 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, BOEMRE⁷⁴ is responsible for implementing regulations that address oil spill and response capabilities.⁷⁵ The Board does not have jurisdiction to consider Shell’s oil spill and re-

⁷³ As noted above, see Part VI.A.1.a, the OCS air regulations require that OCS permit proceedings follow the procedures used to issue PSD permits contained in 40 C.F.R. part 124, 40 C.F.R. § 55.6(a)(3).

⁷⁴ As the Board has noted in previous *Shell* decisions, in May 2010 the Secretary of the Department of the Interior (“DOI”) signed a Secretarial Order reorganizing the former Minerals Management Service (“MMS”) into three independent entities to better carry out its three missions of: (1) improving the management, oversight, and accountability of activities on the OCS; (2) ensuring a fair return to the taxpayer from offshore royalty and revenue collection and disbursement activities; and (3) providing independent safety and environmental oversight and enforcement of offshore activities. *Shell 2012*, 15 E.A.D. at 492 n.29; see also *Shell 2010*, 15 E.A.D. at 112 n.7; U.S. DOI, Departmental Manual, pts. 118 & 119, ch. 1 (Sept. 30, 2011), available at http://elips.doi.gov/app_dm/dm.cfm (“Departmental Manual”) (establishing the creation, authorities, objectives, and reporting relationships for the Bureau of Ocean Energy Management (“BOEM”) and Bureau of Safety and Environmental Enforcement (“BSEE”). BOEMRE assumed all of MMS’s responsibilities in the interim until the full implementation of the reorganization into the three separate entities was complete. *Shell 2012*, 15 E.A.D. at 492 n.29; see *Shell 2010*, 15 E.A.D. at 112 n.7. The transfer of the revenue collection function to the Office of Natural Resources Revenue was completed on October 1, 2010. See Secretary of the Interior, U.S. DOI, Order No. 3306, *Organizational Changes Under the Assistant Secretary – Policy, Management and Budget* (Sept. 20, 2010), available at http://elips.doi.gov/app_SO/so.cfm; Departmental Manual, pt. 112, ch. 34 (Apr. 15, 2011). One year later, on October 1, 2011, the reorganization was completed when BOEMRE was replaced by BOEM and BSEE. See Departmental Manual, pts. 118 & 119. For consistency the Board refers to BOEMRE because the Permit and the supporting documentation refer exclusively to BOEMRE.

⁷⁵ On August 4, 2011, BOEMRE (now BOEM, see note 74 above) conditionally approved Shell’s exploration plan for the Beaufort Sea. Letter from Jeff Walker, Regional Supervisor, Field Operations, Alaska OCS Region, BOEMRE, U.S. DOI, to Susan Childs, Shell Offshore, Inc. (Aug. 4, 2011).

Continued

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.

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2011) [hereinafter Beaufort EP Letter]. The approval of the Beaufort Sea exploration plan was conditioned, among other things, on Shell submitting to BOEMRE prior to the commencement of exploratory drilling operations documentation regarding the subsea well capping and containment system Shell has committed to have at its disposal. *Id.* at 3. Specifically, Shell must "submit documentation on the procedures for deployment, installation, and operation of the system under anticipated environmental conditions, including the potential presence of sea ice for approval by BOEMRE. Shell will also be required to conduct a field exercise to demonstrate Shell's ability to deploy the system." *Id.*

⁷⁶ As mentioned above, the Board remanded to the Region two OCS PSD permits in December 2010. *See generally Shell 2010*, 15 E.A.D. at 161-62. In the subsequent appeals of the permits issued upon completion of remand proceedings, the Board unequivocally stated that "in the current appeals, '[n]o new issues may be raised that could have been raised, but were not raised,' in the previous appeals." *Shell Discoverer 2012*, 15 E.A.D. at 477 (quoting *Shell 2010*, 15 E.A.D. at 162).

For all of the foregoing reasons, the Board declines to review the Region's compliance with the Executive Order and applicable Board precedent.

F. ICAS Has Failed to Demonstrate That the Region Clearly Erred or Abused Its Discretion in Providing 46 Days for Comment on the Draft Permit and in Denying ICAS's Request for Nonoverlapping Comment Periods

ICAS claims that the Region "committed clear legal error by failing to provide the public an adequate opportunity to comment on" the draft permit.⁷⁷ ICAS Petition at 6. More specifically, ICAS alleges that the Region failed to meet the parts 71 and 124 procedural requirements that require permit issuers to "allow *at least* 30 days for public comment" on draft permits. *Id.* at 7 (citing 40 C.F.R. §§ 71.11(d)(2)(i), 124.1) (emphasis added by Petitioners). Although ICAS acknowledges that the comment periods for the Permit ran from July 22, 2011, to September 6, 2011, an interval of 46 days, ICAS contends that, because the Region issued the draft *Kulluk* permit for comment at the same time it issued another draft minor source air permit for comment and in the middle of comment periods for two major source air permits for another Shell drillship,⁷⁸ in reality, ICAS only "had 16 days to comment on each of the[] permits," rather than the required minimum of 30. *Id.* at 7. This is because, according to ICAS, it "does not have the resources to comment on more than one air permit at a time." *Id.* ICAS further claims that "the short and overlapping comment periods * * * deprived [them] of a meaningful opportunity to comment on Shell's new air modeling results." *Id.* at 8.

In a related argument, ICAS asserts that the Region clearly erred in denying its request that the Region "hold nonoverlapping comment periods on the OCS permits and [] provide 45 days to comment on each permit." *Id.* at 8-9. ICAS claims that it met the regulatory standard for demonstrating the need for additional time to prepare comments. *Id.* (referring to the standard at 40 C.F.R. § 71.11(g)); *see also id.* attach. 8 (Letter from Harry Brower, Chairman, Alaska Eskimo Whaling Commission ("AEWC"), et al., to Doug Hardesty, Air Permits Project Manager, U.S. EPA Region 10 (June 15, 2011) (A.R. C-487)) (AEWC and ICAS request for nonoverlapping comment periods) [hereinafter ICAS Let-

⁷⁷ The Board also considers ICAS's claim under an abuse of discretion standard. *See infra* note 80.

⁷⁸ The Region had issued two draft permits for Shell's *Discoverer* drillship earlier in July of 2011. *See Shell Discoverer 2012*, 15 E.A.D. at 480. The comment period for those two permits ran from July 6 to August 5, 2011. *Id.*; ICAS Petition at 7. In addition, on the same date the Region had issued the *Kulluk* draft permit, it had also issued a draft permit for ConocoPhillips to operate a jackup drill rig in the Chukchi Sea. ICAS Petition at 7. The comment period for this permit originally ended at the same time as the *Kulluk* draft permit, but was later extended to September 21, 2011. ICAS Petition at 8-9; RTC at 7.

ter]; *id.* attach. 9 (Letter from Richard Albright, Director, Office of Air, Waste, & Toxics, U.S. EPA Region 10, to Harry Brower, AEWG Chairman, et al. (July 21, 2011) (A.R. C-532)) (EPA response).

The part 71 procedural regulation governing public notices and public comment periods specifically provides that “[p]ublic notice of the preparation of a draft permit * * * shall allow at least 30 days for public comment.” 40 C.F.R. § 71.11(d)(2)(i). The part 124 procedural regulations, which also apply to the Permit,⁷⁹ contain the same language. *See* 40 C.F.R. § 124.10(b). The Board has traditionally read these regulations to establish a minimum comment period length of 30 days, recognizing that the regulations clearly allow the permit issuer, in its discretion, to grant a longer comment period. *Shell Discoverer 2012*, 15 E.A.D. at 520-21 (discussing the applicable part 124 regulation); *see also In re Genesee Power Station*, 4 E.A.D. 832, 841 (EAB 1993) (noting that the part 124 regulation governing public comment periods “only require[s them] to last 30 days”). In addition, as ICAS points out, part 71 contains a separate provision specifically authorizing a permit issuer to grant additional time. It states that “[a] comment period longer than 30 days may be necessary to give commenters a reasonable opportunity to comply with the requirements of this section. Additional time shall be granted to the extent that a commenter who requests additional time demonstrates the need for such time.”⁸⁰ 40 C.F.R. § 71.11(g)).

⁷⁹ As the Region explained, the Permit is subject to the procedural requirements of both part 55 (and consequently part 124) as well as part 71:

The portion of this permit that is a Part 71 permit (e.g., the portion of the permit that applies on the Outer OCS) is issued under 40 CFR Part 55 and 40 CFR Part 71 and subject to the procedural requirements of 40 CFR Part 71 as provided in 40 CFR § 71.4(d). The portion of this permit that is a COA Title V permit and a COA minor source permit (e.g., the portion of the permit that applies on the Inner OCS) is issued under 40 CFR Part 55 and, in the absence of other applicable procedures, subject to the permit issuance procedures for PSD permits under 40 CFR Part 124, Subpart A and C. *See* 40 CFR §§ 55.6(a) (3) and 124.1.

RTC at 6 n.3.

⁸⁰ Because the regulations authorize the permit issuer to grant a longer comment period upon an adequate showing of need, the Board also considers ICAS's challenge under an abuse of discretion even though ICAS did not clearly present its challenge as such, alleging instead only “clear error.” *See Shell Discoverer 2012*, 15 E.A.D. at 521 (considering similar argument as raising an abuse of discretion claim); *In re Guam Waterworks Auth.*, 15 E.A.D. 437, 443 n.7 (EAB 2011) (explaining Board's standard in reviewing claims involving a permit issuer's exercise of discretion); *In re Desert Rock Energy Co.*, 14 E.A.D. 484, 530 (EAB 2009) (using an abuse of discretion standard where the permit issuer had “broad discretion” in making the challenged determination). The Board similarly reads ICAS's challenge to the Region's denial of nonoverlapping comment periods as raising an abuse of discretion claim.

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 overlap⁸³ – the provision does not prohibit, or even mention, overlapping comment periods.

⁸¹ As the Board discussed above in Part III, a petitioner must explain why the permit issuer's previous response to those objections is clearly erroneous or otherwise warrants review. "[A] petitioner's failure to address the permit issuer's response is fatal to its request for review." *In re In-deck-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 otherwise⁶⁴ 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

⁶⁴ The Board is unpersuaded by ICAS's argument that it had difficulty locating an expert to review the air modeling. *See* ICAS Petition at 8. As the Region indicated in its Response to Comments, RTC at 8, other commenters provided substantive, technical comments on the air modeling, which suggests that the comment period was sufficient to allow opportunity for meaningful comment. *See Fla. Power & Light Co. v. United States*, 846 F.2d 765, 772 (D.C. Cir. 1988) (upholding a short comment period as sufficient where the agency had received numerous comments, some lengthy, and the comments had had a "measurable impact" on the final rule); *Conference of State Bank Supervisors v. Office of Thrift Supervision*, 792 F. Supp. 837, 844 (D.D.C. 1992) (holding length of comment period not unreasonable especially in light of the comments that plaintiffs and other parties submitted). Furthermore, as the Region points out, it notified ICAS in May that the comment periods would begin in July. *See* Letter from Doug Hardesty, EPA, to North Slope Borough et al. (May 25, 2011) (A.R. HH-1). The Region also conducted three separate informational meetings in Barrow and Kaktovik, Alaska, more than a month prior to the start of the public comment period for the Permit "to inform the North Slope community of the draft permit and to describe opportunities for public participation." RTC at 6.

Inupiat interpreter for the hearing.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.* §§ 71.11(j)(1)(ii), 124.17(a)(1). Importantly, none of the aforementioned regulations refer to, or in any way mention, a requirement to provide an interpreter or a requirement to provide written materials at the hearing.

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

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

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

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

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

⁸⁶ As discussed above, the regulatory requirement is for a permit issuer to respond to significant comments. *See* 40 C.F.R. § 77.11(j)(1)(ii), 124.17(a)(1). Thus, had ICAS identified significant comments raised at the public hearing that the Region failed to address, ICAS’s arguments would have been more persuasive. *See, e.g., In re Rockgen Energy Ctr.*, 8 E.A.D. 536, 557 (EAB 1999) (remanding so that permit issuer could demonstrate it had given thoughtful and full consideration to public comments); *In re W. Suburban Recycling & Energy Ctr., L.P.*, 6 E.A.D. 692, 710-12 (EAB 1996) (remanding permit and requiring permit issuer to comply with procedures under part 124 including provision requiring a response to all significant comments received); *see also In re N. Mich. Univ.*, 14 E.A.D. 283, 317-18 (EAB 2009) (discussing part 124 requirement to adequately respond to comments).

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

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

issuer to provide copies of a presentation to the audience attending an informational meeting, failure to do so at the meeting – or at a subsequent public hearing – does not constitute clear error or otherwise warrant Board review.

ICAS's final contention – that the Region committed clear procedural error by not adequately informing the public that an interpreter was available at the public hearing – is also unconvincing. Importantly, as noted above, there is no regulatory requirement for an interpreter in either part 71 or part 124, nor is there a provision specifying the method a permit issuer should use to inform the public of the availability of an interpreter at the public hearing.⁸⁹ ICAS has not pointed to any other requirement, regulatory or otherwise, requiring an interpreter or prescribing the method for announcing one. Accordingly, while it may be preferable for the permit issuer to formally announce the availability of an interpreter at the beginning of the public hearing, and in both languages, failure to do so does not constitute clear error or otherwise warrant Board review.

In sum, ICAS has failed to demonstrate that the public hearing procedures utilized by the Region constituted clear error. ICAS has not shown that the Region violated any part 71 or 124 procedural regulation. Moreover, the alleged problems ICAS has identified do not, even if the Board were to find them to constitute a deficiency in some way, warrant Board review. Consequently, the Board denies review of the Permit on this ground.

VII. CONCLUSION AND ORDER

For the foregoing reasons, the Board concludes that none of the petitioners have demonstrated that review of Permit No. R10 OCS030000 is warranted on any of the grounds presented. The Board therefore denies review of the Permit.

So ordered.

⁸⁹ The parties seemingly dispute the method in which the Region notified the public of the availability of the interpreter. The Region stated in its Response to Comments that, "[p]rior to the Barrow public hearing, Region 10 contacted [ICAS] to arrange for an 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 Enforcement, U.S. EPA, to EPA Regional Air Division Directors, 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 Env'tl. Quality, *Prevention of Significant Deterioration Air Quality Permit, Permit No. 1052*, at 4 (Aug. 8, 2018) (Administrative Record ("A.R.") 23) ("Permit"). Tucson Electric plans to use these new Units to support increased use of wind and solar-generated electrical power sources. The new Units can compensate for the variability of wind and solar power sources by providing "[r]eliable, efficient, grid-balancing resources which can ramp up quickly and provide 100 percent of their [effective load carrying capability] during multiple peak periods of any length." Tucson Elec. Power, *Application for a Prevention of Significant Deterioration (PSD) Authorization and Significant Revision to Class I Air Quality Permit for Irvington Generating Station 2-2, 2-5* (July 2017) (A.R. 2) ("Permit Application").

The Irvington Generating Station is a major stationary source subject to the Clean Air Act's PSD program and is in an area designated by EPA as in attainment. Permit at 4. Because the proposed addition of ten new Units would significantly increase potential emissions of several regulated pollutants, this expansion of the facility qualifies as a major modification and triggers PSD requirements. *Id.* Accordingly, Tucson Electric applied to Pima County to amend its existing air quality permit (referred to as a Class I permit) and convert it to a combined PSD permit and Class I permit.³

The modified facility would have triggered PSD requirements for its NO_x emissions; however, Tucson Electric requested a limit on NO_x emissions – referred to by the parties as a NO_x emissions cap – for the new Units to keep their emissions below the PSD threshold.⁴ *See* Letter from Conrad Spencer, Tucson Elec. Power,

³ The Class I permit was required to allow construction and operation of the original facility under the Arizona Administrative Code, *see* Ariz. Admin. Code § R18-2-302, which implements Arizona's operating permits program, authorized by EPA under Title V of the Clean Air Act, 42 U.S.C. §§ 7661-7661f. *See* Clean Air Act Full Approval of the Arizona Operating Permits Program, 66 Fed. Reg. 63,175 (Dec. 5, 2001) (final rule fully approving Arizona's operating permits program).

⁴ In the Administrative Record, the limitation on NO_x emissions is described interchangeably as a "cap" and a "limit." *See, e.g.*, Permit at Part B § II.A.1. For clarity

to Rupesh Patel, Pima Cty. Dep't of Env'tl. Prot. (Feb. 23, 2018) (A.R. 13) (requesting NO_x emissions cap of 170 tons per year). Tucson Electric also identified in its permit application three other aspects of the modified facility that would curtail NO_x emissions from the new Units or the overall facility. First, each new Unit would be equipped with a selective catalytic reduction device that would substantially reduce NO_x emissions. *See* Permit Application at 2-6, 3-3. Second, the Units would be limited to five startups per day. *See id.* at 2-6. Third, two existing steam-generating units at the facility would be permanently shut down offsetting, in part, the increase in NO_x emissions from the addition of the ten new Units. *See id.* at 2-5, 4-9. In combination, these terms of operation would limit the net increase in NO_x emissions from the expansion of the Irvington facility to an amount that is below the “significant” level of 40 tons per year.⁵ Permit at 4.

We describe below: (i) the terms of the proposed combined PSD and Class I permit (“Proposed Permit”) noticed for public comment with a focus on the compliance monitoring requirements pertaining to the NO_x emissions cap, *see* Part IV.B; and (ii) Sierra Club’s comments on the Proposed Permit and Pima County’s response to those comments, *see* Part IV.C.

B. *The Proposed Permit’s Requirements Concerning the NO_x Emissions Cap*

In February 2018, Pima County issued the Proposed Permit for public comment. The Proposed Permit included the conditions necessary to restrict NO_x emissions below the level triggering PSD requirements – requiring use of selective catalytic reduction devices on each new Unit, limiting startups of the new Units to five per day, retiring two existing steam-generating units, and a 170 tons per year NO_x emissions cap – and imposed requirements to verify compliance with the NO_x

and consistency, the Board will use the term “cap” to refer to the limitation on NO_x emissions.

⁵ The to-be-eliminated steam units emit approximately 140 tons per year of NO_x. Thus, the replacement of these units with the ten new Units (limited to a combined total of 170 tons per year of NO_x) would result in a net legally-allowed increase of NO_x of approximately 30 tons per year. *See* Pima Cty. Dep't of Env'tl. 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 Env'tl. Quality, *Technical Support Document* attach. B at 2 tbl.B-2 (Aug. 2018) (A.R. 24).

emissions cap. Pima Cty. Dep't of Env'tl. 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 NO_x emissions; (ii) the catalyst in the devices must be cleaned and replaced according to the manufacturer’s recommendations; (iii) two key operating parameters of the devices – ammonia injection rate and temperature – must be monitored and recorded at least once every fifteen minutes; (iv) if ammonia injection to a device fails and cannot be restored in ten minutes, the Unit must be shut down; (v) records must be kept of any instance in which ammonia injection fails for more than two minutes; and (vi) the selective catalytic reduction devices must have a continuous NO_x process monitor (which measures NO_x concentration and adjusts ammonia injection levels to achieve desired NO_x reduction). Proposed Permit at Part B § II.A.1.c, II.B.3, II.C.4; *see* Hug Eng’g, *Operating Manual: Control Unit SNQ 1* (v03.00 Mar. 6, 2013) (A.R. 12).

C. *Sierra Club's Comments on the Proposed Permit and Pima County's Response*

Sierra Club submitted comments on the Proposed Permit arguing, among other things, that the NO_x emissions cap is not “practically enforceable,”⁶ and thus the cap cannot be considered a limitation on the facility’s potential to emit NO_x. Sierra Club, *Intent to Approve: Proposed Revision to the existing Air Quality Permit No. 1052 to Tucson Electric Power (TEP) Irvington/H. Wilson Sundt Generating Station (IGS)* 8-9 & attach. at 20 (Mar. 29, 2018) (A.R. 21.2) (“Sierra Club Comments”). Sierra Club contended that absent a practically enforceable limitation on the facility’s potential to emit NO_x, Pima County erred in concluding that PSD requirements are not applicable to NO_x emissions. In its comments and in an expert report attached to its comments, Sierra Club advanced three arguments as to why the NO_x emissions cap is not practically enforceable.

First, Sierra Club contended that the Proposed Permit’s compliance monitoring for NO_x was inadequate because it relied on stack tests that could be performed as infrequently as every two years. *Id.* at 2, 9. Sierra Club argued that “using stack tests once every two years to determine whether the [Units] are in compliance with the permit is woefully inadequate.” *Id.* The expert report attached to Sierra Club’s comments asserted that stack tests “may not be representative for emissions during routine operations” because stack tests do not provide data on whether pollution control devices at a facility are functioning at an effective level at times other than when the stack test is performed. *Id.* attach. at 21-22 & n.59 (citing to EPA comment letters on state permits that raise this concern as a reason to require additional compliance monitoring to supplement annual stack tests). The solution, according to the expert report, would be to require Continuous Emissions Monitors. *Id.* attach. at 23. The report argued that without Continuous Emissions Monitors, “community members will not be able to protect themselves against harmful emissions and local, state, and federal regulatory agencies cannot detect and cure violations of permit conditions.” *Id.*

Second, Sierra Club argued that the NO_x emissions cap is not practically enforceable because the Permit does not contain an “unambiguous methodology for calculating NO_x emissions from the emission [stack] test.” *Id.* attach. at 25; *see*

⁶ Sierra Club uses the term “practicably enforceable” as well as “practically enforceable” in its Petition. *See, e.g.*, Petition for Review of Prevention of Significant Deterioration Permit 1, 6 (Sept. 7, 2018) (“Pet.”). But as we see no difference between the two (and Sierra Club does not assert that there is), the Board will use the term “practically enforceable” for clarity and consistency.

also id. at 2, 9. Sierra Club requested that the Proposed Permit “be revised to include an equation that lays out the emission calculation in detail.” *Id.* attach. at 25.

Third, Sierra Club asserted that there was no record support for a manufacturer-supplied NO_x emission rate during startup, which was to be used to calculate emissions during startup operating periods. *Id.* at 2, 9 & attach. at 25. Although the Proposed Permit referred to the NO_x startup emission rate as “guaranteed,” Sierra Club noted that there was no manufacturer guarantee provided for a startup NO_x emission rate included in an attachment to the draft Technical Support Document. *Id.* attach. at 25.

In August 2018, Pima County issued the Permit and its response to the public comments (“Response to Comments”) received on the Proposed Permit, including its response to each of Sierra Club’s comments on whether the NO_x emissions cap is practically enforceable.

As to Sierra Club’s comment about the adequacy of stack tests for determining continuing compliance with the NO_x emissions cap, Pima County acknowledged that “EPA has indicated * * * that annual [stack] tests alone are insufficient to assure compliance with emission limits.” Pima Cty. Dep’t of Env’tl. 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) ("Pct."). 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

546-67 (EAB 2012), and *In re Pope & Talbot, Inc., Lumber Mill*, Pct. No. VIII-2006-04, 2007 EPA CAA Title V LEXIS 3, at *12-13 (Adm'r Mar. 22, 2007). *Tucson Electric Resp.* at 7. We reject this argument. The Board's two main decisions involving a similar issue, *Shell Offshore* and *Peabody*, 12 E.A.D. at 34-47, as well as the Administrator's decision in *Pope & Talbot*, turned on a fact-based analysis of the permit in question, the nature of the facility, and the claims of the petitioner. They do not stand for the proposition that any permit using emission factors and monitoring of control devices to verify compliance with an emissions cap can be summarily affirmed as sufficient to ensure the practical enforceability of that cap.

⁸ At times, several of *Sierra Club's* statements in its *Petition* and its comments appear to question the adequacy of the regulatorily-established requirements for conducting performance (stack) tests in subpart JJJJ, 40 C.F.R. § 60.4244, to determine the compliance of internal combustion engines with NO_x emission limitations. *See* *Pet.* at 11 (arguing that stack tests provide inadequate emissions compliance data due to the shortness of the tests and because they are conducted under ideal, prearranged conditions); *Sierra Club Comments attach.* at 21-22 & n.59 (same). To the extent *Sierra Club* intends this *Petition* to be a challenge to the requirements for tests in subpart JJJJ, 40 C.F.R. § 60.4244, that question is not properly before the Board because challenges to Clean Air Act regulations must be brought in the U.S. Court of Appeals, District of Columbia Circuit, within 60 days of promulgation. 42 U.S.C. § 7607(b). Moreover, the Board does not

emission factors based on those biennial stack tests to project monthly and yearly emissions – standing alone – would be sufficient to verify compliance with the NO_x emissions cap. What remains at issue, however, are Sierra Club’s challenges to: (i) Pima County’s reliance on two aspects of the Permit’s compliance monitoring requirements – monitoring of the selective catalytic reduction devices and the conservative methodology for calculating emission factors for non-startup operating periods – to ensure the NO_x emissions cap is practically enforceable; and (ii) the adequacy of Pima County’s response to Sierra Club’s comments on the practical enforceability of the NO_x emissions cap. We address these contentions in turn below.

A. Sierra Club’s Challenges to the Permit’s Compliance Monitoring Requirements

1. Sierra Club Fails to Show Clear Error in Pima County’s Reliance on Monitoring of the Selective Catalytic Reduction Devices to Ensure the NO_x Emissions Cap is Practically Enforceable

As discussed, the Permit’s compliance monitoring requirements have two main components in addition to stack tests. The first component involves calculating monthly and yearly NO_x emissions for each Unit during non-startup and startup operating periods. NO_x emissions for non-startup periods are based on NO_x emission factors derived from stack tests conducted every two years and for startup periods are based on manufacturer data. The second component is monitoring of the selective catalytic reduction devices.

In its Petition, Sierra Club contends that the monitoring requirements for the selective catalytic reduction devices do not cure the problem with the Permit’s reliance on stack tests and stack test-derived emission factors because the monitoring does not produce data to be “included in the formula to establish the NO_x emission factor.” Pet. at 12. To the extent Sierra Club is challenging Pima County’s conclusion that the monitoring requirements for the selective catalytic reduction devices are, in combination with the Permit’s other monitoring requirements, adequate to ensure the NO_x emissions cap is practically enforceable, this argument is raised for the first time in Sierra Club’s Petition. As a result, it has not been preserved for Board review. The regulations governing Board review of

review EPA regulations as part of permit appeals. See *In re FutureGen Indus. All., Inc.*, 16 E.A.D. 717, 724 (EAB 2015) (the Board “is not the appropriate forum” for raising dissatisfaction with an EPA regulation); *In re Tondur Energy Co.*, 9 E.A.D. 710, 715-16 (EAB 2001) (“As we have repeatedly stated, permit appeals are not appropriate fora for challenging Agency regulations.”).

permit appeals, require that the party seeking review establish “that each issue being raised in the petition was raised during the public comment period (including any public hearing),” or demonstrate that the issue was not “reasonably ascertainable” at that time. 40 C.F.R. § 124.13, 19(a)(4)(ii); *see, e.g., In re Seneca Res. Corp.*, 16 E.A.D. 411, 415 (EAD 2014). As the Board has previously explained, “[t]he effective, efficient and predictable administration of the permitting process demands that the permit issuer be given the opportunity to address potential problems with draft permits before they become final.” *In re Encogen Cogeneration Facility*, 8 E.A.D. 244, 250 (EAB 1999). This is a particularly important requirement as to technical issues such as the adequacy of the compliance monitoring requirements presented here because “the locus of responsibility for important technical decisionmaking rests primarily with the permitting authority, which has the relevant specialized expertise and experience.” *Peabody*, 12 E.A.D. at 33.

Although Sierra Club did challenge the practical enforceability of the NO_x emissions cap in its comments, Sierra Club did not include as part of that challenge any critique of the role that the monitoring requirements for the selective catalytic reduction devices play. In fact, Sierra Club’s comments never even mentioned the Permit’s monitoring requirements for the selective catalytic reduction devices.

The section in Sierra Club’s comments addressing practical enforceability of the NO_x emissions cap contains four paragraphs: (1) two paragraphs describing in general terms the legal requirement for practically enforceable emission limits; (2) one paragraph arguing that the Permit contained nothing more than a “[b]lanket” emission limitation, which was not practically enforceable; and (3) a final paragraph raising the frequency of stack tests and two other unrelated concerns with practical enforceability of the NO_x emissions cap. Sierra Club Comments at 8-9. The two other concerns were described in that final paragraph as follows:

[Sierra Club’s] expert comments detail at length the enforceability issues with the proposed permit. Specifically, using stack tests once every two years to determine whether the [Units] are in compliance with the permit is woefully inadequate. *The permit does not contain an unambiguous methodology for demonstrating compliance with the annual NO_x emission cap, and there is no support for the applicant’s “vendor-guaranteed” NO_x rate that is used to demonstrate compliance.*

Id. at 9 (emphasis added) (footnote omitted). While Sierra Club’s expert report, which was attached to its comments, expanded on the concerns raised with stack

tests, the methodology issue as to emission factors, and the manufacturer data on NO_x emissions during startup, that report did not raise concerns with or otherwise discuss the Permit's monitoring requirements for the selective catalytic reduction devices. *See Id.* attach. at 20-25.

Sierra Club cannot claim that Pima County did not provide notice of the role that monitoring of the selective catalytic reduction devices plays in verifying compliance with the NO_x emissions cap. On its face, the Proposed Permit expressly stated that its requirements for monitoring of selective catalytic reduction devices are an element bearing on verifying compliance with the NO_x emissions cap. Condition II.A.1.b of the Proposed Permit provided that “[c]ompliance with the NO_x emission limit shall be demonstrated by performance [i.e. stack] tests as detailed in Condition II.D, monitoring as detailed in Condition II.B, and recordkeeping as detailed in Conditions II.C.” Proposed Permit at Part B § II.A.1.b. And Conditions II.B and II.C on monitoring and recordkeeping, as well as Condition II.A addressing emission limitations, contain multiple requirements pertaining to monitoring of the selective catalytic reduction devices in addition to requirements as to stack tests and calculation of monthly and yearly emissions. *See id.* at Part B § II.A.1 (setting the 170 tons per year NO_x emission limit, requiring installation of selective catalytic reduction devices with continuous NO_x process monitors, and imposing operating requirements on such devices); *id.* at Part B § II.B (requiring monitoring of fuel consumption and startups of the new Units and monitoring of operating parameters – ammonia injection rate and temperature – for selective catalytic reduction devices); *id.* at Part B § II.C (requiring records be kept of the monitoring of fuel consumption, of startups of the engines, and of the operating parameters of the selective catalytic reduction devices; and specifying that monthly and yearly NO_x emissions must be calculated). Thus, the Permit's reliance on monitoring of the selective catalytic reduction devices as a key part of determining compliance with the NO_x emissions cap was reasonably ascertainable at the time of the comment period. Any challenge to the way in which the monitoring of the selective catalytic reduction devices functioned in verifying compliance with the NO_x emissions cap should have been presented to the permit issuer in the first instance.

In any event, even if Sierra Club's challenge to Pima County's reliance on the monitoring of the selective catalytic reduction devices to verify compliance with the NO_x emissions cap was preserved for Board review, Sierra Club's specific challenge (the monitoring results are not “included in the formula to establish the ‘NO_x emission factor’”) reflects a misunderstanding of how the Permit works. *See Pet.* at 12. In response to Sierra Club's general argument about the lack of practical enforceability of the NO_x emissions cap through reliance on biennial stack tests,

Pima County explained that it was not relying solely on stack tests to verify compliance. In addition to the required stack tests, Pima County pointed to the Permit's requirements to calculate monthly and yearly NO_x emissions and the monitoring of the selective catalytic reduction devices. RTC at 10-13. As to the latter, Pima County explained that monitoring of the selective catalytic reduction devices would assure that the devices were functioning properly "at all times." *Id.* at 10. Pima County's intent was not to obtain data from this monitoring to adjust the emission factors. Instead, the data are required to make sure the selective catalytic reduction devices are working properly at all times. Thus, Sierra Club's argument in its Petition is not responsive to the role of monitoring of the selective catalytic reduction devices as described by Pima County.

2. *Sierra Club Fails to Show Clear Error in Pima County's Determination that the Non-Startup Emission Factors Are Conservative*

In a footnote to its Petition, Sierra Club also takes issue with Pima County's assertion that the methodology for calculating emission factors for non-startup operating periods is conservative. Pet. at 16 n.37. Under Board case law, a determination such as this one by Pima County "requires the sort of quintessential technical expertise the permit issuer possesses." *In re Shell Offshore, Inc.*, 15 E.A.D. 536, 558 (EAB 2012) (upholding a permit issuer's choice of emission factors in a challenge to the practical enforceability of an emissions cap limiting a facility's potential to emit). Sierra Club has not met the "particularly heavy burden" it bears on this technical question. *See Peabody*, 12 E.A.D. at 41.

Sierra Club disputes that calculating non-startup emission factors from the highest emission rate produced during required stack tests will, as Pima County claims, result in an emission factor that "over-calculat[es]" NO_x emissions. Pet. at 16, n.37. Sierra Club maintains that there is no support in the record for this conclusion and no specific calculation of the quantitative extent of the over-calculation. We find no merit in Sierra Club's argument.⁹

⁹ Sierra Club's argument here also appears for the first time in its Petition. However, neither the Proposed Permit nor draft Technical Support Document explained that the conservative nature of the methodology for calculating non-startup emission factors was a consideration bearing on the practical enforceability of the NO_x emissions cap. That explanation appears for the first time in the Response to Comments, RTC at 13, and thus Sierra Club's challenge to that rationale may be raised on appeal. *See In re Pio Pico Energy Ctr.*, 16 E.A.D.56, 102 (EAB 2013) (allowing consideration of an issue not

First, although Pima County does state at one point that the Permit's methodology for calculating emission factors based on stack tests will overstate actual emissions, the record as a whole suggests that Pima County did not design the procedure for establishing emission factors to overstate emissions by a specific quantitative amount but rather to guard against understating emissions. For example, Pima County introduced its emission factor methodology by explaining that "certain elements [of the methodology] * * * will inherently produce a conservative calculation of emissions (i.e., a tendency to over-calculate, rather than under-calculate, engine NO_x emissions)." RTC at 13. Nor does the record show that Pima County relied upon a specific quantitative degree of over-calculation in the emission factors to justify the practical enforceability of the NO_x emissions cap.

Second, the Permit's description of the methodology for establishing an emission factor for non-startup operating periods provides sufficient record support for Pima County's description of emission factors as conservative (i.e., likely to overstate emissions). The emission factor methodology requires Tucson Electric to identify the maximum NO_x emissions that will be emitted across the full range of load levels during non-startup operating periods. To do this, the Permit requires Tucson Electric to conduct each stack test across the full range of non-startup operating load levels. Permit at Part B § II.D.2.b. The methodology then requires that the emission factor be calculated using the maximum emission rate found in that test as the presumed emission rate whenever the engine is operating in non-startup conditions, irrespective of the load level at which it is operating. *Id.* at Part B § II.D.2.c. Given that the methodology requires that the highest measured emission rate from stack tests be used in the calculation of emission factors, it was reasonable for Pima County to conclude that this approach is a conservative one. Sierra Club's "bare assertion" to the contrary is not adequate to support the opposite conclusion. *See Shell Offshore*, 15 E.A.D. at 561 n.28 (the Board refuses to rely on a petitioner's "bare assertion" that stack tests supporting emission factors were too infrequent).¹⁰

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 Env'tl. 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*

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

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.

Pritchett, Jacob A.

Subject: USS
Location: Legal Counsel

Start: Mon 4/29/2019 10:00 AM
End: Mon 4/29/2019 11:00 AM
Show Time As: Tentative

Recurrence: (none)

Meeting Status: Not yet responded

Organizer: Carter, Sally
Required Attendees: Chris Romaine

We need to talk and look at some documents.

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Kras, Kim

From: Carter, Sally
Sent: Thursday, May 4, 2017 9:01 AM
To: Romaine, Chris
Cc: Patel, Minesh
Subject: RE: Today

My plan will be to first discuss PSD and then move onto the draft.

From: Romaine, Chris
Sent: Thursday, May 04, 2017 9:00 AM
To: Carter, Sally
Cc: Patel, Minesh
Subject: RE: Today

Yes.

From: Carter, Sally
Sent: Thursday, May 04, 2017 8:05 AM
To: Romaine, Chris
Cc: Patel, Minesh
Subject: Today
Importance: High

No pressure..... just asking because someone else asked me. Are we going to have a draft to share at 10:30 today or not?
I am flexible. Just putting together game plan for today.

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Pritchett, Jacob A.

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

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

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

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

That sounds fine.

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

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

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

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

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

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

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

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

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

FYI

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

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

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Pritchett, Jacob A.

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

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

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

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Kras, Kim

From: Patel, Minesh
Sent: Thursday, May 6, 2021 1:19 PM
To: Romaine, Chris
Subject: 96030056.doc
Attachments: 96030056.doc

CAAPP APPLICATION COMPLETENESS DETERMINATION

APPLICANT

U. S. Steel Corporation
Granite City Works
Attn: Bryan Kresak
20th and State Streets
Granite City, Illinois 62040

Date of Determination: January 3, 2014

Application/Permit No.: 96030056

I.D. Number: 119813AAI

Date Received: December 3, 2013

Source Name: U. S. Steel Corporation, Granite City Works

Location of Source: 20th & State Streets, Granite City, Madison County

Dear Mr. Kresak:

This letter provides notification that your Clean Air Act Permit Program (CAAPP) application received on the date indicated above, has been determined by the Illinois EPA to be complete pursuant to Section 39.5(5) of the Illinois Environmental Protection Act (Act).

Based on the completeness determination, the owner or operator of the CAAPP source is not required to renew existing state operating permits for emission units at the CAAPP source. The owner or operator of the CAAPP source is not, however, relieved of any obligation to obtain state operating permits for emission units at the CAAPP source for which no current state operating permit exists.

Notwithstanding the completeness determination, the Illinois EPA may request additional information necessary to evaluate or take final action on the CAAPP application. If such additional information affects your allowable emission limits, a revised form 292-CAAPP-FEE DETERMINATION FOR CAAPP PERMIT must be submitted with the requested information. The failure to submit to the Illinois EPA the requested information within the time frame specified by the Illinois EPA, may force the Illinois EPA to deny your CAAPP application pursuant to Section 39.5 of the Act.

If you have any questions concerning this matter, please contact the Division of Air Pollution Control Permit Section at 217/785-1705.

Raymond E. Pilapil
Acting Manager, Permit Section
Division of Air Pollution Control

REP:MTR:lsm

cc: FOS, Region 1
Application File

217/785-1705

TITLE V - CLEAN AIR ACT PERMIT PROGRAM (CAAPP) PERMIT
REVISEDPERMITTEE:

U. S. Steel Corporation
Granite City Works
Attn: Bryan Kresak
20th and State Streets
Granite City, Illinois 62040

I.D. No.: 119813AAI
Application No.: 96030056

Date Originally Received: March 6, 1996
Date Originally Issued: September 3, 2009
Date Revised Permit Issued: March 4, 2013
Expiration Date: September 3, 2014

Operation of: Integrated Steel Mill
Source Location: 20th and State Streets, Granite City
Responsible Official: Richard E. Veitch, General Manager

This permit is hereby granted to the above-designated Permittee to OPERATE an Integrated Steel Mill Plant, pursuant to the above referenced permit application. This permit is subject to the conditions contained herein.

This permit was revised on March 4, 2013, in accordance with Sections 39.5(9)(e) through (g) of the Environmental Protection Act, pursuant to an order from Lisa P. Jackson, Administrator of the USEPA, *In the Matter of United States Steel Corporation - Granite City Works*, Petition Number V-2011-2 (December 3, 2012), which order was received by the Illinois EPA on December 4, 2012.

If you have any questions concerning this permit, please contact Anatoly Belogorsky or Michael Reed at 217/785-1705.

Edwin C. Bakowski, P.E.
Manager, Permit Section
Division of Air Pollution Control

ECB:MR:psj

cc: Illinois EPA, FOS, Region 3
CES
Lotus Notes

Except as provided in Conditions 1.5 and 8.7 of this permit.

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1.0 SOURCE IDENTIFICATION**1.1 Source**

U. S. Steel Corporation
Granite City Works
20th and State Streets
Granite City, Illinois 62040
618/451-3456

I.D. No.: 119813AAI

County: Madison

Standard Industrial Classification: 3312, Integrated Steel Mill

Responsible Official: Richard E. Veitch, General Manager

Delegated Authorities:

Michelle Fields, Division Manager - Coke and Iron Making;

Michael Terry, Division Manager - Steelmaking

1.2 Owner/Parent Company

United States Steel Corporation
600 Grant Street
Pittsburgh, Pennsylvania 15219

1.3 Operator

U. S. Steel Corporation
Granite City Works
20th and State Streets
Granite City, Illinois 62040

Contact Person:

Bryan Kresak, Manager Environmental Control
618/451-3456

1.4 Source Description

Integrated steel manufacturing employing raw material processing/preparation, coke production, iron production, steel production, and steel finishing.

1.5 Title I Conditions

As generally identified below, this CAAPP permit contains certain conditions for emission units at this source that address the applicability of permitting programs for the construction and modification of sources, which programs were established pursuant to Title I of the Clean Air Act (CAA) and regulations thereunder. These programs include 40 CFR 52.21, Prevention of Significant Deterioration (PSD) and 35 IAC Part 203, Major Stationary Sources Construction and Modification (MSSCAM), and are implemented by the Illinois EPA pursuant to Sections 9, 9.1, 39(a) and 39.5(7)(a) of the Illinois Environmental Protection Act (Act). These conditions continue in effect,

Page 5

notwithstanding the expiration date specified on the first page of this permit, as their authority derives from Titles I and V of the CAA, as well as Titles II and X of the Act. (See also Condition 8.7.)

- a. This permit contains "Title I Conditions" that reflect Title I requirements established in permits previously issued for this source, which conditions are specifically designated as "T1".
- b. This permit contains Title I conditions that are newly established in this CAAPP permit, which conditions are specifically designated as "T1N".

2.0 LIST OF ABBREVIATIONS AND ACRONYMS COMMONLY USED

ACMA	Alternative Compliance Market Account
Act	Illinois Environmental Protection Act [415 ILCS 5/1 et seq.]
AP-42	Compilation of Air Pollutant Emission Factors, Volume 1, Stationary Point and Other Sources (and Supplements A through F), USEPA, Office of Air Quality Planning and Standards, Research Triangle Park, NC 27711
ATU	Allotment Trading Unit
BACT	Best Available Control Technology
BAT	Best Available Technology
BFG	Blast Furnace Gas
BOF	Basic Oxygen Furnace
BOPF	Basic Oxygen Process Furnace
BTX	Benzene, toluene and xylene
CAA	Clean Air Act [42 U.S.C. Section 7401 et seq.]
CAAPP	Clean Air Act Permit Program
CAM	Compliance Assurance Monitoring
CEMS	Continuous Emission Monitoring System
CFR	Code of Federal Regulations
COG	Coke Oven Gas
COG-DS	Coke Oven Gas Desulfurization System
COMS	Continuous Opacity Monitoring System
CPMS	Continuous Parameters Monitoring System
dscf	Dry standard cubic feet
ERMS	Emissions Reduction Market System
ESP	Electro Static Precipitator
°F	Fahrenheit
FESOP	Federally Enforceable State Operating Permit
GHG	Greenhouse Gases
gr	grains
HAP	Hazardous Air Pollutant
HCL	Hydrogen Chloride
H ₂ S	Hydrogen Sulfate
IAC	Illinois Administrative Code
I.D. No.	Identification Number of Source, assigned by Illinois EPA
ILCS	Illinois Compiled Statutes
Illinois EPA	Illinois Environmental Protection Agency
LAER	Lowest Achievable Emission Rate
LMF	Ladle Metallurgy Furnace
MACT	Maximum Achievable Control Technology
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO _x	Nitrogen Oxides
NSPS	New Source Performance Standards
PM	Particulate Matter
PM ₁₀	Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 microns as measured by applicable test or monitoring methods

PM _{2.5}	Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 microns as measured by applicable test or monitoring methods
ppm	Parts per million
PSD	Prevention of Significant Deterioration
RMP	Risk Management Plan
scf	Standard cubic feet
SO ₂	Sulfur Dioxide
SSM	Startup, Shutdown and Malfunction
T1	Title I - identifies Title I conditions that have been carried over from an existing permit
T1N	Title I New - identifies Title I conditions that are being established in this permit
T1R	Title I Revised - identifies Title I conditions that have been carried over from an existing permit and subsequently revised in this permit
USEPA	United States Environmental Protection Agency
VHAP	Volatile Hazardous Air Pollutant
VOM	Volatile Organic Material

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3.0 CONDITIONS FOR INSIGNIFICANT ACTIVITIES

3.1 Identification of Insignificant Activities

The following activities at the source constitute insignificant activities as specified in 35 IAC 201.210:

3.1.1 Activities determined by the Illinois EPA to be insignificant activities, pursuant to 35 IAC 201.210(a)(1) and 201.211, as follows:

a. Material Handling and Processing Operations

N/A

b. Coke Production

N/A

c. Coke Oven Gas By-Products Recovery Plant

Ammonium Sulfate Handling

d. Blast Furnaces

N/A

e. Basic Oxygen Furnaces

N/A

f. Continuous Casting

Tanks #543, #544, #545, #555

g. Finishing Operations

Scale Pits

#6 Zinc Pot (Backup)

#7 and #8 Zinc Pots

Storage Tanks ##306-310, #403, #427, #800, #815

h. Wastewater Treatment

N/A

i. Boiler Houses

N/A

3.1.2 Activities that are insignificant activities based upon maximum emissions, pursuant to 35 IAC 201.210(a)(2) or (a)(3), as follows:

a. Material Handling Operations

N/A

b. Coke Production

N/A

c. Coke Oven Gas By-Products Recovery Plant

Storage Tanks #116, #117, #118, #120

d. Blast Furnaces

Torpedo Car Dekishing

e. Basic Oxygen Furnaces

Lime/Magnesium Handling and Storage Unit

f. Continuous Casting

N/A

g. Finishing Operations

72" Line and Cold Mill

h. Wastewater Treatment

N/A

i. Boiler Houses

N/A

3.1.3 Activities that are insignificant activities based upon their type or character, pursuant to 35 IAC 201.210(a)(4) through (18), as follows:

a. Material Handling Operations

Direct combustion units designed and used for comfort heating purposes and fuel combustion emission units as follows: (A) Units with a rated heat input capacity of less than 2.5 mmBtu/hr that fire only natural gas, propane, or liquefied petroleum gas; (B) Units with a rated heat input capacity of less than 1.0 mmBtu/hr that fire only oil or oil in combination with only natural gas, propane, or liquefied petroleum gas; and (C) Units with a rated heat input capacity of less than 200,000 Btu/hr which never burn refuse, or treated or chemically contaminated wood [35 IAC 201.210(a)(4)].

b. Coke Production

Direct combustion units designed and used for comfort heating purposes and fuel combustion emission units as follows: (A) Units with a rated heat input capacity of less than 2.5 mmBtu/hr that fire only natural gas, propane, or liquefied petroleum gas; (B) Units with a rated heat input capacity of less than 1.0 mmBtu/hr that fire only oil or oil in combination with only natural gas, propane, or liquefied petroleum gas; and (C) Units with a rated heat input capacity of less than 200,000 Btu/hr which never burn refuse, or treated or chemically contaminated wood [35 IAC 201.210(a)(4)].

Storage tanks of virgin or re-refined distillate oil, hydrocarbon condensate from natural gas pipeline or storage systems, lubricating oil, or residual fuel oils [35 IAC 201.210(a)(11)].

Storage tanks of any size containing exclusively soaps, detergents, surfactants, glycerin, waxes, vegetable oils, greases, animal fats, sweeteners, corn syrup, aqueous salt solutions, or aqueous caustic solutions, provided an organic solvent has not been mixed with such materials [35 IAC 201.210(a)(17)].

c. Coke Oven Gas By-Products Recovery Plant

Storage tanks of organic liquids with a capacity of less than 10,000 gallons and an annual throughput of less than 100,000 gallons, provided the storage tank is not used for the storage of gasoline or any material listed as a HAP pursuant to Section 112(b) of the CAA [35 IAC 201.210(a)(10)].

Storage tanks of virgin or re-refined distillate oil, hydrocarbon condensate from natural gas pipeline or storage systems, lubricating oil, or residual fuel oils [35 IAC 201.210(a)(11)].

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d. Blast Furnaces

Direct combustion units designed and used for comfort heating purposes and fuel combustion emission units as follows: (A) Units with a rated heat input capacity of less than 2.5 mmBtu/hr that fire only natural gas, propane, or liquefied petroleum gas; (B) Units with a rated heat input capacity of less than 1.0 mmBtu/hr that fire only oil or oil in combination with only natural gas, propane, or liquefied petroleum gas; and (C) Units with a rated heat

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e. Basic Oxygen Furnaces

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f. Continuous Casting

Direct combustion units designed and used for comfort heating purposes and fuel combustion emission units as follows: (A) Units with a rated heat input capacity of less than 2.5 mmBtu/hr that fire only natural gas, propane, or liquefied petroleum gas; (B) Units with a rated heat input capacity of less than 1.0 mmBtu/hr that fire only oil or oil in combination with only natural gas, propane, or liquefied petroleum gas; and (C) Units with a rated heat input capacity of less than 200,000 Btu/hr which never burn refuse, or treated or chemically contaminated wood [35 IAC 201.210(a)(4)].

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g. Finishing Operations

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h. Wastewater Treatment

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i. Boiler Houses

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Storage tanks of virgin or re-refined distillate oil, hydrocarbon condensate from natural gas pipeline or storage systems, lubricating oil, or residual fuel oils [35 IAC 201.210(a)(11)].

Gas turbines and stationary reciprocating internal combustion engines of less than 112 kW (150 horsepower) power output [35 IAC 201.210(a)(15)].

Storage tanks of any size containing exclusively soaps, detergents, surfactants, glycerin, waxes, vegetable oils, greases, animal fats, sweeteners, corn syrup, aqueous salt solutions, or aqueous caustic solutions, provided an organic solvent has not been mixed with such materials [35 IAC 201.210(a)(17)].

- 3.1.4 Activities that are considered insignificant activities pursuant to 35 IAC 201.210(b). Note: These activities are not required to be individually listed.

3.2 Compliance with Applicable Requirements

Insignificant activities are subject to applicable requirements notwithstanding status as insignificant activities. In particular, in addition to regulations of general applicability, such as 35 IAC 212.301 and 212.123 (Condition 5.3.2), the Permittee shall comply with the following requirements, as applicable:

- 3.2.1 For each particulate matter process emission unit, the Permittee shall comply with the applicable particulate matter emission limit of 35 IAC 212.321 or 212.322 (see Attachment 2) and 35 IAC Part 266. For example, the particulate matter emissions from a process emission unit shall not exceed 0.55 pounds per hour if the emission unit's process weight rate is 100 pounds per hour or less, pursuant to 35 IAC 266.110.
- 3.2.2 For each organic material emission unit that uses organic material, e.g., a mixer or printing line, the Permittee shall comply with the applicable VOM emission limit of 35 IAC 219.301, which requires that organic material emissions not exceed 8.0 pounds per hour or, if no odor nuisance exists, do not qualify as photochemically reactive material as defined in 35 IAC 211.4690.
- 3.2.3 For each cold cleaning degreaser, the Permittee shall comply with the applicable equipment and operating requirements of 35 IAC 219.182.
- 3.2.4 For each open burning activity, the Permittee shall comply with 35 IAC Part 237, including the requirement to obtain a permit for open burning in accordance with 35 IAC 237.201, if necessary.
- 3.2.5 For each storage tank that has a storage capacity greater than 946 liters (250 gallons) and, if no odor nuisance exists, that stores an organic material with a vapor pressure exceeding 2.5 psia, the Permittee shall comply with the applicable requirements of 35 IAC 219.122, which requires use of a permanent submerged loading pipe, submerged fill, a vapor recovery system, or an equivalent device approved by the Illinois EPA. [Note: storage tanks used for storing gasoline and any hazardous air pollutants are not eligible for insignificant activities].
- 3.2.6 For sulfuric acid operations and storage, the Permittee shall comply with the following emission limits of sulfuric acid and/or sulfur trioxide from all emission sources (with the exception of fuel combustion emission sources and acid manufacturing) at a plant or premises, pursuant to 35 IAC 214.303:
- a. 45.4 grams in any one hour period for sulfuric acid usage less than 1180 Mg/yr (100 percent acid basis) (0.10 lbs/hr up to 1300 T/yr); and
 - b. 250 grams per metric ton of acid used for sulfuric acid usage greater than or equal to 1180 Mg/yr (100 percent acid basis) (0.50 lbs/T over 1300 T/yr).

3.3 Addition of Insignificant Activities

- 3.3.1 The Permittee is not required to notify the Illinois EPA of additional insignificant activities present at the source of a

type that is identified in Condition 3.1, until the renewal application for this permit is submitted, pursuant to 35 IAC 201.212(a).

3.3.2 The Permittee must notify the Illinois EPA of any proposed addition of a new insignificant activity of a type addressed by 35 IAC 201.210(a) and 201.211 other than those identified in Condition 3.1, pursuant to Section 39.5(12)(b) of the Act.

3.3.3 The Permittee is not required to notify the Illinois EPA of additional insignificant activities present at the source of a type identified in 35 IAC 201.210(b).

4.0 SUMMARY OF SIGNIFICANT EMISSION UNITS AT THIS SOURCE

Department	Description	Emission Control Equipment	Section
Material Handling and Processing Operations	Coal Crusher, Coal Pulverizer, Conveyors, Screens, Storage Bins, Feed Hoppers	Baghouse, Various Dust Collectors and Enclosures	7.1
Coke Production	Coke Oven Batteries "A" and "B" Coke Quenching	Water Scrubber; Flares Tower, Baffles	7.2
Coke By-Product Recovery Plant	Various Storage Tanks and Process Vessels	Vapor Recovery System and Various Blanketing and Negative Pressure Systems	7.3
COG Desulfurization System	Amine Unit and SRU Unit	Thermal Oxidizer	7.4
COG System	Holding Tank and COG Flare	None	
Blast Furnaces	Blast Furnaces "A" and "B" BFG Flares #1 and #2	Casthouse Baghouse; Iron Spout Baghouse	7.4
Basic Oxygen Processes	BOF #1/#2 and Auxiliary Equipment	Electrostatic Precipitator; Baghouses	7.5
Continuous Casting	Continuous Casting and Slab Formation	None	7.6
Hot Strip Mill	Slab Reheat Furnaces	None	7.7
Finishing Operations	Pickling Line, Galvanizing Lines, Coating Operations	Fume Scrubbers; Catalytic Converter	7.8
Wastewater Treatment Plant	Various tanks, filtration and Lagoons	None	7.9
Boilers	Power Boiler #1 Boilers #11 and #12 Cooling Water Tower Portable Boilers #1 - #4	Flue Gas Recirculation (planned for Boilers #11 and #12)	7.10
Internal Combustion Engine	Emergency Engine-Generator	None	7.11
Gasoline Storage and Dispensing	Four Gasoline Storage Tanks and associated Dispensing Operations	None	7.12

Department	Description	Emission Control Equipment	Section
Fugitive Dust	Landfill Vehicular Traffic on Roadways, Parking Lots and Other Open Areas Storage Piles including truck unloading, wind erosion and material transfer from storage piles, beaching areas	None	7.13

5.0 OVERALL SOURCE CONDITIONS

5.1 Applicability of Clean Air Act Permit Program (CAAPP)

- 5.1.1 This permit is issued based on the source requiring a CAAPP permit as a major source of NO_x, PM₁₀, SO₂, VOM, CO, GHG and HAP emissions.
- 5.1.2 For purposes of the CAAPP, U.S. Steel is considered a single source with Stein Steel Mill Services (I.D. 119813AAD) located at 20th Street and Edwardsville in Granite City. Stein Steel Mill Services has a separate CAAPP permit for its operations.
- 5.1.3 For purposes of the CAAPP, U.S. Steel is considered a single source with Granite City Slag, LLC (I.D. 119040ATF) located at 20th Street and Edwardsville in Granite City. Granite City Slag has a separate CAAPP permit for its operations.
- 5.1.4 For purposes of the CAAPP, U.S. Steel is considered a single source with AKJ Industries, Inc (I.D. 119040AEB) located at 20th Street and Edwardsville in Granite City. AKJ Industries has a separate CAAPP permit for its operations.
- 5.1.5 For purposes of the CAAPP, U.S. Steel is considered a single source with Oil Technology, Inc (I.D. 119040ATG) located onsite of Granite City Steel (Route 203) in Granite City. Oil Technology has a separate CAAPP permit for its operations.
- 5.1.6 For purposes of the CAAPP, U.S. Steel is considered a single source with Tube City IMS (I.D. 119040ATL) located at 2500 East 23rd Street in Granite City. Tube City has a separate CAAPP permit for its operations.
- 5.1.7 For purposes of the CAAPP, U.S. Steel is considered a single source with Gateway Energy & Coke Co LLC (I.D. 119040ATN) located at Edwardsville Road in Granite City. Gateway Energy & Coke has elected to obtain a separate CAAPP permit for its operations.

5.2 Area Designation

- 5.2.1 This permit is issued based on the source being located in an area that, as of the date of permit issuance, is designated nonattainment for the National Ambient Air Quality Standards for ozone (moderate nonattainment), PM_{2.5} and lead, and attainment or unclassifiable for all other criteria pollutants (PM₁₀, CO, NO_x, SO₂).

5.3 Source-Wide Applicable Provisions and Regulations

- 5.3.1 Specific emission units at this source are subject to particular regulations as set forth in Section 7 (Unit-Specific Conditions for Specific Emission Units) of this permit.
- 5.3.2 Fugitive Dust

- a. This source shall be operated under the provisions of Fugitive Particulate Matter Operating Program prepared by the Permittee and submitted to the Illinois EPA for its review. Such operating program shall be designed to significantly reduce fugitive particulate matter emissions [35 IAC 212.309(a)]. The Permittee shall comply with the fugitive particulate matter operating program and any amendments to the program submitted pursuant to Condition 5.3.2(b), as required by 35 IAC 212.309. As a minimum, the operating program shall include provisions identified in 35 IAC 212.310(a) through (g) and the following:
 - i. A detailed description of the best management practices utilized to achieve compliance with 35 IAC 212.304 through 212.308.
 - ii. Estimated frequency of application of dust suppressants by location; and
 - iii. Such other information as may be necessary to facilitate the Illinois EPA's review of the operating program.
- b. Pursuant to 35 IAC 212.312, the operating program shall be amended from time to time by the Permittee so that the operating program is current. Such amendments shall be consistent with the requirements set forth by this Condition 5.3.2 and shall be submitted to the Illinois EPA within 30 days of such amendment.
- c. In addition to the items described above in Condition 5.3.2(a), the Permittee shall include the following additional plans and programs as part of the Fugitive Particulate Matter Operating Program:
 - i. Housekeeping program for non-roadway areas as required by Condition 7.13.5(a) (i) (B);
 - ii. Road Cleaning Program as required by Condition 7.13.5(d); and
 - iii. On-site fugitive dust control program as referenced in Condition 7.13.9(b).
- d. The revised Fugitive Particulate Matter Operating Program, submitted by the Permittee on August 12, 2009, (identified as Revision 8 and necessitated by changes to responsible officials and description of areas treated) and containing an attached Table and Map for the iron-making and steel-making roads respectively), is incorporated herein by reference. The document constitutes the formal operating program required under 35 IAC 212.310, addressing the control of fugitive particulate matter emissions from all plant roadways, including the iron-making and steel-making

roads, storage piles, access areas near storage piles, and other subject operations located at the facility that are subject to 35 IAC 212.309.

Any future revision to the aforementioned operating program made by the Permittee during the permit term is automatically incorporated by reference provided that said revision is not expressly disapproved, in writing, by the Illinois EPA within 30 days of receipt of said revision. In the event that the Illinois EPA notifies the Permittee of a deficiency with any revision to the operating program, the Permittee shall be required to revise and resubmit the operating program within 30 days of receipt of notification to address the deficiency [415 ILCS 39.5(7)(a)].

- e. Pursuant to 35 IAC 212.301, the affected emission units at the source shall not cause or allow the emission of fugitive particulate matter from any process, including any material handling or storage activity, that is visible by an observer looking generally toward the zenith at a point beyond the property line of the source.
- f. Pursuant to 35 IAC 212.307, all unloading and transporting operations of materials collected by pollution control equipment shall be enclosed or shall utilize spraying, pelletizing, screw conveying or other equivalent methods.

5.3.3 PM₁₀ Contingency Measure Plan

- a. This stationary source meets the criteria in 35 IAC 212.700 and is required to prepare and submit a contingency measure plan reflecting the PM₁₀ emission reductions as set forth in 35 IAC 212.701 and 212.703.
- b. PM₁₀ Contingency Measure Plan shall be implemented by the Permittee in accordance with 35 IAC 212.704 upon notification from the Illinois EPA.
- c. Pursuant to 35 IAC 212.701(c), for operational changes subject to Sections 212.304, 212.305, 212.306, 212.308, 212.316(a) through (e), 212.424 or 212.464 which require either a new permit or a revision to an existing permit the Permittee shall, within 30 days after such changes, submit a request to modify this CAAPP permit in order to include a new, appropriate contingency measure plan.
- d. The plan, as submitted by the Permittee on November 15, 1994 (which includes tabulations of PM₁₀ fugitive emissions, maps for the steel-works and iron making respectively, and a comparative analysis of contingency requirements and existing road programs), is incorporated herein by reference. The document constitutes the formal PM₁₀ Contingency Measure Plan required by 35 IAC 212.701, addressing the Levels 1 and 2 control measures for reducing annual source-wide fugitive emissions of PM₁₀ from plant

roads (paved and unpaved) and materials handling operations in the event of an exceedance of the 24-hour ambient air quality standard for PM10 under 35 IAC 212.704 or 212.705.

5.3.4 Ozone Depleting Substances

The Permittee shall comply with the standards for recycling and emissions reduction of ozone depleting substances pursuant to 40 CFR Part 82, Subpart F, except as provided for motor vehicle air conditioners in Subpart B of 40 CFR Part 82:

- a. Persons opening appliances for maintenance, service, repair, or disposal must comply with the required practices pursuant to 40 CFR 82.156.
- b. Equipment used during the maintenance, service, repair, or disposal of appliances must comply with the standards for recycling and recovery equipment pursuant to 40 CFR 82.158.
- c. Persons performing maintenance, service, repair, or disposal of appliances must be certified by an approved technician certification program pursuant to 40 CFR 82.161.

5.3.5 Standards for Asbestos Demolition and Renovation (40 CFR 61.145)

- a. Prior to demolition or renovation of the affected facility or part of the affected facility, the Permittee shall fulfill notification requirements established by 40 CFR 61.145(b).
- b. During demolition or renovation, the Permittee shall comply with the procedures for asbestos emission control established by 40 CFR 61.145(c).

5.3.6 Future Emission Standards

Should this stationary source become subject to a regulation under 40 CFR Parts 60, 61, 62, or 63, or 35 IAC Subtitle B after the date this permit is issued, then the owner or operator shall, in accordance with the applicable regulation(s), comply with the applicable requirements by the date(s) specified and shall certify compliance with the applicable requirements of such regulation(s) as part of the annual compliance certification, as required by Condition 9.8. This permit may also have to be revised or reopened to address such new regulations (see Condition 9.12.2).

5.3.7 Episode Action Plan

- a. Pursuant to 35 IAC 244.141, the Permittee shall maintain at the source and have on file with the Illinois EPA a written Episode Action Plan (plan) for reducing the levels of emissions during yellow alerts, red alerts, and emergencies, consistent with safe operating procedures.

- b. The Permittee shall immediately implement the appropriate steps described in this plan should an air pollution alert or emergency be declared, as required by 35 IAC 244.169, or as may otherwise be required under 35 IAC 244, Appendix D.
- c. If an operational change occurs at the source which invalidates the plan, a revised plan shall be submitted to the Illinois EPA for review within 30 days of the change, pursuant to 35 IAC 244.143(d). Such plans shall be further revised if disapproved by the Illinois EPA.
- d. The revised plan, submitted by the Permittee on October 19, 2009, (which contains a completed APC Form 100 and attached Tables I-V identifying additional actions to be implemented), is incorporated herein by reference. The document constitutes the formal Episode Action Plan required by 35 IAC 244.142, addressing the actions that will be implemented to reduce SO₂, PM₁₀, NO₂, CO and VOM emissions from various emissions units in the event of a yellow alert, red alert or emergency issued under 35 IAC 244.161-244.165.

Any future revision to the aforementioned plan made by the Permittee during the permit term is automatically incorporated by reference provided that said revision is not expressly disapproved, in writing, by the Illinois EPA within 30 days of receipt of said revision. In the event that the Illinois EPA notifies the Permittee of a deficiency with any revision to the plan, the Permittee shall be required to revise and resubmit the plan within 30 days of receipt of notification to address the deficiency [415 ILCS 39.5(7)(a)].

5.3.8 Risk Management Plan (RMP)

Should this stationary source, as defined in 40 CFR 68.3, become subject to the federal regulations for Chemical Accident Prevention in 40 CFR Part 68, then the owner or operator shall submit the items below. This condition is imposed in this permit pursuant to 40 CFR 68.215(a)(2)(i) and (ii).

- a. A compliance schedule for meeting the requirements of 40 CFR Part 68 by the date provided in 40 CFR 68.10(a); or
- b. A certification statement that the source is in compliance with all requirements of 40 CFR Part 68, including the registration and submission of the RMP, as part of the annual compliance certification required by Condition 9.8.

5.3.9 Energy Assessment (40 CFR 63, Subpart DDDDD)

Pursuant to 40 CFR 63.7500(a)(1) and Item 3 of Table 3 of 40 CFR 63 Subpart DDDDD, the Permittee must have a one-time energy assessment performed on the major source facility (i.e., the facility) by a qualified energy assessor. This energy

assessment shall be completed no later than the applicable compliance date of this NESHAP for existing sources and meet requirements in Table 3, including preparation of a comprehensive report detailing the ways to improve efficiency, the cost of specific improvements, benefits, and the time frame for recouping those investments. This energy assessment shall be conducted consistent with the definitions for "energy assessment", "energy management practices" and "energy use system" in 40 CFR 63.7575

5.4 Source-Wide Non-Applicability of Regulations of Concern

- a. Except where noted, 35 IAC 212.321 and 212.322 shall not apply to the steel manufacturing processes subject to 35 IAC 212.442 through 212.452 [35 IAC 212.441].
- b. Except where noted, emission limitations of 35 IAC 212.324 are not applicable to any emission unit subject to a specific emissions standard or limitation contained in 35 IAC Subpart R, Primary and Fabricated Metal Products and Machinery Manufacture pursuant to 35 IAC 212.324(a)(3)(C).
- c. This source (as a source of coke manufacturing, by-products recovery plant, iron and steel production) is excluded from the control requirements of 35 IAC Part 219 Subpart TT pursuant to 35 IAC 219.980(e).
- d. This source does not receive any off-site waste as defined in 40 CFR 63.680(b) and, therefore is not subject to 40 CFR Part 63 Subpart DD "Off-site Waste and Recovery Operations".
- e. The source is not required to address 40 CFR Part 64, Compliance Assurance Monitoring (CAM) for Major Stationary Sources at the time of issuance of this permit, because the initial CAAPP application was submitted prior to April 1998 [40 CFR 64.5(a)(1)].

5.5 Source-Wide Control Requirements and Work Practices

The Permittee (U.S. Steel), in conjunction with Gateway Energy and Coke Company shall maintain 267.77 tons of PM₁₀ emission offsets generated by the following activities/projects (see also Sections 7.3 and 7.13):

Activity/Project	(Tons/Year)
Coke Oven Gas (COG) Desulfurization Project	31.74
Road Cleaning Program	236.03
Total:	267.77

- a. These emission reductions have been relied upon by the Illinois EPA to issue Construction Permits 06070088 and 06070020 for projects by the Permittee and Gateway, respectively and cannot be used as emission reduction credits for other purposes.
- b. If the Permittee proposes to rely upon emission offsets from other sources or other activities/projects, the Permittee shall

apply for and obtain a revision to Permit 06070088 prior to relying on such emission offsets, which application shall be accompanied by detailed documentation for the nature and amount of those alternative emission offsets.

5.6 Source-Wide Production and Emission Limitations

5.6.1 Emissions of Hazardous Air Pollutants

Source-wide emission limitations for HAPs as listed in Section 112(b) of the CAA are not set. This source is considered to be a major source of HAPs.

5.6.2 Other Source-Wide Production and Emission Limitations from existing permits:

a. Provisions from Construction Permit #95010001

- i. Total production of iron and steel by U.S. Steel/Granite City plant shall not exceed the following limits. Compliance with these annual production limits shall be determined on a month by month basis by showing that the actual production of iron and steel from the plant did not exceed the scheduled rate of production for a month given in the most recent production schedule provided to the Illinois EPA Compliance Section and Collinsville Regional Office as provided below [T1]:

Product	Net tons/yr
Iron	3,165,000
Steel	3,580,000

- A. If no production schedule is submitted to the Illinois EPA by the Permittee for a particular year, the scheduled monthly production of iron and steel shall be set at one twelfth of the annual production limits in Condition 5.6.2(a)(i) above.
- B.
 1. The Permittee may submit a schedule for iron and steel production for each month of the calendar year. Such schedule shall provide the scheduled monthly iron and steel production for each month and the total of such scheduled production shall not exceed the annual production limits in Condition 5.6.2(a)(i) above. This schedule shall be submitted each year no later than December 15th of the preceding year.
 2. During the course of the year, the Permittee may submit a revised production

schedule which accounts for actual production levels which were below that scheduled for the previous months, provided that in no case shall the scheduled production for prior months in such a revised schedule be lowered to less than actual production levels or raised. Such revised schedule shall be submitted no later than 15 days after the first day of the month for which scheduled production has been raised. Such schedule shall be accompanied by data on actual production in preceding months.

- ii. Total fuel usage for blast furnaces stoves (A and B), boilers 11 and 12, ladle drying preheaters and blast furnace gas flare #1 and shall not exceed the following limits. Compliance with the monthly limits shall be determined by direct comparison of monthly data to the applicable limit. Compliance with the annual limits shall be determined based on a calendar year [T1]:

A. Natural Gas usage:

225 million ft³ per month and 1,346 million ft³ per year;

B. Blast Furnace Gas (BFG) usage:

30,800 million ft³ per month and 185,030 million ft³ per year; and

C. Fuel Oil usage:

60,000 gallons per month and 365,000 gallons per year.

- iii. A. Annual emissions from the fuel combustion units identified in Condition 5.6.2(a)(ii) above shall not exceed the following limits in tons/year:

PM/PM ₁₀	SO ₂ *	NO _x	VOM	CO	Lead
274	641	706	2	1,295	0.06

* These limits have been addressed by an enforcement action, with a compliance schedule established for compliance with these limits. (See Condition 7.4.13)

- B. Annual emissions from each individual fuel used in the fuel combustion units identified in

Condition 5.6.2(a)(ii) above shall not exceed the following limits:

1. Natural Gas

<u>Pollutant</u>	<u>Emission Factor (Lbs/mmcf)</u>	<u>Maximum Emissions (Tons/Yr)</u>
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

<u>Pollutant</u>	<u>Emission Factor (Lbs/mmcf)</u>	<u>Maximum Emissions (Tons/Yr)</u>
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

<u>Pollutant</u>	<u>Emission Factor (Lbs/Mgal)</u>	<u>Maximum Emissions (Tons/Yr)</u>
PM	9.72	1.77
PM ₁₀	9.75	1.77
SO ₂	141.30	25.79
NO _x	55.00	10.04
VOM	0.28	0.05
CO	5.00	0.91
Lead	0.336	0.06
		(Waste Oil)

C. Compliance with the annual limits in Condition 5.6.2(a)(iii) shall be determined based on a calendar year.

b. Provisions from Construction Permit #06070022:

Annual emissions of the source from combustion of COG shall not exceed the following limits [T1]]

	Limits (Tons/Year)	
	PM ₁₀	SO ₂
"Outage" of Affected System	47.55	530.59
Total (includes normal and outage):	224.80	807.90

c. Provisions from FESOP #94120017:

Emissions of SO₂ from the so called "sulfur dioxide emission units" operated at the source shall not exceed the following limits. Compliance with the limits shall be determined in accordance with the procedure in Condition 5.12.

Unit Operating Group	Sulfur Dioxide Emissions		
	(Lbs/3-Hours)	(Lbs/Day)	(Tons/Yr)
Slab Reheat Furnaces 1-3	2,299	9,754	987
Slab Reheat Furnace 4	---	11,873	1,204
Blast Furnace Stoves A and B	---	19,774	3,609
Boilers 11 and 12	---	20,584	3,756
Ladle Drying Preheaters	555	2,786	509
Blast Furnace Cathouse Baghouse	---	3,430	626
Iron Spout Baghouse	---	170	31

5.7 Source-Wide Testing Requirements

Pursuant to 35 IAC 201.282 and Section 4(b) of the Act, every emission source or air pollution control equipment shall be subject to the following testing requirements for the purpose of determining the nature and quantities of specified air contaminant emissions and for the purpose of determining ground level and ambient air concentrations of such air contaminants:

- a. **Testing by Owner or Operator:** The Illinois EPA may require the owner or operator of the emission source or air pollution control equipment to conduct such tests in accordance with procedures adopted by the Illinois EPA, at such reasonable times as may be specified by the Illinois EPA and at the expense of the owner or operator of the emission source or air pollution control equipment. All such tests shall be made by or under the direction of a person qualified by training and/or experience in the field of air pollution testing. The Illinois EPA shall have the right to observe all aspects of such tests [35 IAC 201.282(a)].

- b. Testing by the Illinois EPA: The Illinois EPA shall have the right to conduct such tests at any time at its own expense. Upon request of the Illinois EPA, the owner or operator of the emission source or air pollution control equipment shall provide, without charge to the Illinois EPA, necessary holes in stacks or ducts and other safe and proper testing facilities, including scaffolding, but excluding instruments and sensing devices, as may be necessary [35 IAC 201.282(b)].
- c. Any such tests are also subject to the Testing Procedures of Condition 8.5 set forth in the General Permit Conditions of Section 8.

5.8 Source-Wide Monitoring Requirements

- a. Requirements for coke oven gas (COG) flow meters from FESOP #94120017: for purposes of these conditions, a Unit Operating Group is a group of emission units as defined in Condition 5.6.2(c).

Note: Requirements for monitoring the sulfur content of COG as present in FESOP #94120017 are included in Section 7.3 of this CAAPP permit.

- i. The Permittee shall test, operate, and maintain a system for measuring the COG usage for each unit operating group.
- ii. A flow meter shall be maintained on the main Blast Furnace and Steelworks COG feed lines and each individual emission unit or unit operating group and shall be used to measure the COG usage rate. The total COG usage for each unit operating group as a whole shall be the sum of the individual usage for the emission units of that group as measured by the individual meters or that measured by a single flow meter measuring the COG usage for the unit operating group as a whole.
- iii. The COG flow meter system shall be capable of recording the COG usage in standard cubic feet on an hourly and daily basis. COG usage shall be obtained from the COG flow meter system to allow the determination of hourly and/or daily COG usage for each unit operating group, as needed for the emission rate calculations of this permit.
- iv. The COG flow meter system shall be operated, and data collected, reduced and maintained, in accordance with the applicable requirements of 40 CFR 60.13 and 35 Ill. Adm. Code Part 201 Subpart L.
 - A. Each COG flow meter shall be tested at least every 12 months, in accordance with the procedures of 40 CFR 60, Appendix B, Performance Specification 6.

- B. The results of these flow meter performance tests shall be sent to the Illinois EPA's Division of Air Pollution Control, Permit Section and Regional Office within 14 days after completion of the tests. In addition, the results shall be maintained in accordance with the recordkeeping requirements specified in this permit.
- C. If a single flow meter on an unit operating group fails, then the COG usage for that group may be calculated using the difference between overall total COG usage and the total COG usage at the remaining properly operating COG flow meters, or the difference in COG usage from the main COG feed line of the affected unit operating group and the COG usage at the remaining properly operating flow meters associated with that main feed line.
- D. In the event that several flow meters are down such that the above COG usage calculation is not possible, the COG usage for the affected unit operating group(s) shall be determined by a method approved by the Illinois EPA (e.g., use of temporary backup measurement system). In no case shall COG usage not be determined by a method described in this permit, or an approved alternative method, so as to result in insufficient data being obtained to determine the COG usage for any unit operating group as needed to evaluate compliance using the emission rate calculations of this permit.
- v. In the event of malfunction or breakdown of a COG flow meter system, the Permittee shall repair and recalibrate the meter or monitoring system as soon as practicable but no later than 10 days after the malfunction or breakdown is detected, unless prior Illinois EPA approval is obtained by submitting a notification of extended outage and adequate justification to the Illinois EPA detailing the reasons for delay. Records of repair and recalibration must be maintained in accordance with the recordkeeping requirements of this CAAPP permit. This condition does not relieve the Permittee of the minimum data obtaining requirements of this CAAPP permit.
- b. The Permittee shall conduct observations at the property line of the source for visible emissions of fugitive particular matter from the source to address compliance with 35 IAC 212.301, upon request by the Illinois EPA, as follows:

For this purpose, daily observations shall be conducted for a week for particular area(s) of concern at the source, as specified in the request. Observations shall begin either within one day or three days of receipt of a written request

from the Illinois EPA, depending, respectively, upon whether observations will be conducted by employees of the Permittee or a third-party observer hired by the Permittee to conduct observations on its behalf. The Permittee shall keep records for these observations, including identity of the observer, the date and time of observations, the location(s) from which observations were made, and duration of any fugitive emissions event(s).

- c. Pursuant to FESOP 94120017, the Permittee shall analyze the fuel oil used at the source in accordance with the following.
 - i. The sulfur content and density as determined by the ASTM methods specified in the testing requirements of FESOP 94120017 shall be used in emission calculations.
 - ii. The sulfur content and density of the fuel oil shall be determined upon each instance of fuel oil usage.

5.9 Source-Wide Recordkeeping Requirements

5.9.1 Records for Opacity and Emission Limits

The Permittee shall maintain the following records pursuant to Section 39.5(7)(b) of the Act:

- a. The Permittee shall maintain records of the total annual net production of iron and steel on a monthly basis and a total calendar year basis, to verify compliance with Condition 5.6.2(a)(i).
- b. The Permittee shall maintain records of monthly and annual use of fuels to verify compliance with Condition 5.6.2(a)(ii).
- c. The Permittee shall maintain records of annual emissions from the emission units listed in Condition 5.6.2(a)(ii) for comparison to the annual emission limits in Condition 5.6.2(a)(iii)(A) for PM/PM₁₀, SO₂, NO_x, VOM, CO and lead.
- d. The Permittee shall maintain the following records for the emission units identified in Condition 5.6.2(a)(ii) to verify the emission factors for different fuels listed in Condition 5.6.2(a)(iii)(B):
 - i. For emissions of NO_x, PM, PM₁₀, VOM, and CO, records for the emission factors used by the Permittee to determine emissions of the pollutant from the subject emission units for firing of natural gas, blast furnace gas and oil, with supporting documentation and analysis, and the "maximum" annual emission factors for the different fuels and pollutants calculated as a weighted average of the individual

factors for different emission units, weighted for the greatest relative annual use of fuel in different units, beginning with the unit that has the highest emission factor. For example, if the boilers have the highest emission factors for NO_x, the factors shall be weighted for the greatest percentage of fuels expected to be used in the boilers, and then for the units that have the next highest emission factor(s), and so forth until all of the fuel has been accounted for. These records shall be reviewed and updated by the Permittee as necessary to assure that the emission factors that it uses to determine emissions of the subject unit do not understate emissions, including review when emission testing is conducted for the subject emission units, review when emission testing of similar emission units is conducted at other facilities (as would be needed if the Permittee is relying upon data from emission testing at other US Steel facilities), and review when USEPA revises its *Compilation of Air Pollutant Emission Factors*, AP-42 (as would be needed if the Permittee has relied upon emission factors from AP-42). These records shall be prepared and copies submitted to the Illinois EPA in accordance with Condition 5.9.6(c).

- ii. Records for the sulfur content of COG and BFG, as measured pursuant to Conditions 5.9.1(e) and 7.3.9(f) and Condition 7.10.8-1(c), respectively, which data shall either be used when determined SO₂ emissions from combustion of the fuels or used to confirm that the determinations of SO₂ emissions from combustion of these fuels do not understate actual SO₂ emissions.
- iii. Records for the actual average annual emission rates for different fuels and pollutants, including SO₂ and lead, calculated by dividing the actual emissions of the subject units for different fuels and pollutants by the annual usage of fuels. These records shall be compiled on an annual basis by the Permittee when the records for annual emissions of the subject units are compiled.
- e. The Permittee shall maintain the following records for the emissions of PM₁₀* and SO₂ associated with use of COG to verify compliance with the emission limits in Condition 5.6.2(b). (See also recordkeeping requirements in Section 7.3 of the permit.)
 - * For the purpose of this condition, the Permittee shall address total PM₁₀, including both filterable and condensable particulate, rather than only filterable particulate.

- i. Records for the volumes of COG that are and are not processed by the COG Desulfurization System (scf), with data for undesulfurized COG on a 3-hour, daily and monthly basis and data for desulfurized COG on a daily and monthly basis.
- ii. Records for the sulfur contents of COG (gr/scf or gr/100 scf), with data for undesulfurized COG on a 3-hour, daily and monthly basis and data for desulfurized COG on a daily and monthly basis.
- iii. Records for the emission factors used by the Permittee to determine the PM₁₀ emissions from firing desulfurized and undesulfurized COG for the emission units at the facility that fire COG, with supporting documentation and analysis, and the "maximum" annual PM₁₀ emission factor calculated as a weighted average of the individual factors for different emission units, weighted for the greatest relative annual use of COG in different units, beginning with the unit that has the highest emission factor. These records shall be reviewed and updated by the Permittee as necessary to assure that the emission factors that it uses to determine emissions of units firing COG do not understate emissions, including review when PM₁₀ emission testing is conducted for units at the facility and review when PM₁₀ emission testing of similar emission units is conducted at other facility.
- iv. Records for the annual PM₁₀ and SO₂ emissions from the facility from combustion of COG that has not been desulfurized, determined from the summation of the volume of such COG multiplied by either its sulfur content or the established PM₁₀ emission factor for undesulfurized COG.
- v. Records for the annual PM₁₀ and SO₂ emissions from the facility from combustion of COG that has been desulfurized, determined from the summation of the volume of such COG multiplied by either its sulfur content or the established PM₁₀ emission factor for desulfurized COG.
- vi. Records for the total annual PM₁₀ and SO₂ emissions from the facility from combustion of COG, determined as the sum of the annual emission from combustion of COG that has and has not been desulfurized.

5.9.2 Records for HAP Emissions

The Permittee shall maintain source-wide records of HAP emissions on a calendar year basis and individually for the emission units or group of emission units covered by Section 7 (Unit Specific Conditions for Specific Emission Units) of this

permit and emitting HAPs, pursuant to Section 39.5(7)(b) of the Act.

5.9.3 Records for Source-Wide Control Requirements and Work Practices

- a. The Permittee shall keep a copy of the fugitive particulate matter operating plan, and any amendments or revisions to the plan, as required by Condition 5.3.2. The Permittee shall also keep a record of activities completed according to the plan.
- b. The Permittee shall keep copy of the PM₁₀ contingency plan, and any amendments or revisions as described by Condition 5.3.3. The Permittee shall also keep a record of activities completed according to the plan.
- c. The Permittee shall keep a copy of the Episode Action Plan, and any amendments or revisions to the plan, as described in Condition 5.3.7. The Permittee shall also keep a record of activities completed according to the plan.
- d. The Permittee shall keep a record of property line observations required by Condition 5.8(b).

5.9.4 Records to address SO₂ emission limits in Condition 5.6.2(c) from FESOP #94120017:

- a. SO₂ emissions of each unit operating group in terms of the associated emission limits of this permit (i.e., lbs/3-hrs and lbs/day) accompanied by the data from which they were determined.
- b. SO₂ emissions of each unit operating group in tons/month.
- c. SO₂ emissions of each unit operating group in tons/year determined by using a rolling total of the previous 12 consecutive months of data.
- d. Records for repairs of any COG flow meter, as required by Condition 5.8(a)(v), including copies of any notifications to the Illinois EPA for extended outage of a flow meter.
- e. Records for any fuel oil usage instances with the results of the sampling and analysis of oil sulfur content.

5.9.5 The Permittee shall retain copies of all emission test reports and other test reports and other submittals to the Illinois EPA related to testing that are required by Conditions 5.7 and 5.10 and other conditions of this permit.

5.9.6 Retention, Availability and Submittal of Records

Pursuant to Section 39.5(7)(e)(ii) of the Act, the Permittee shall keep the records required by this permit as follows:

- a. All records and logs required by this permit shall be retained for at least five years from the date of entry (unless a longer retention period is specified by the particular recordkeeping provision herein). The Permittee shall keep the last 3 years of data on-site and remaining 2 years data may be kept at an offsite location. The Permittee shall make all these readily accessible records available to the Illinois EPA or USEPA for inspection and/or copying upon request.
- b. The Permittee shall retrieve and print, on paper during normal source office hours, any records retained in an electronic format (e.g., computer) in response to an Illinois EPA or USEPA request for records during the course of a source inspection.
- c. For certain records related to emission factors or emission rates required to be kept by this permit for various emission units at this source, as specifically identified in other conditions of this permit, the Permittee shall submit a copy of the records to the Illinois EPA as provided below:
 - i. Copies of initial records shall be submitted to the Illinois EPA within 15 days of the date that the Permittee prepares these records for subject unit(s), which shall in no case be later than January 20, 2012.
 - ii. Thereafter, copies of revised records shall be submitted to the Illinois EPA with the emission test reports for subject emission unit(s) if the records were revised as a consequence of emission testing or otherwise within 15 days of the date that the Permittee completes the preparation of revised records for subject unit(s).

5.9.7 Inspection, Sampling and Observations Documentation

Inspection, sampling and observation performed as required by this permit shall have documentation in addition to the records elsewhere in this permit that identifies at least the following:

- a. Name of person(s) or representative performing such activity;
- b. Date and time of such activity;
- c. Any applicable industry standards or other specific procedures for such activities; and
- d. Any quality assurance or quality control results.

5.10 Source-Wide Reporting Requirements

5.10.1 General Source-Wide Reporting Requirements

- a. Pursuant to Section 39.5(7)(f)(ii) of the Act, the Permittee shall promptly notify the Illinois EPA, Air Compliance Section, within 30 days of deviations from applicable requirements as follows:
 - i. Requirements in Condition 5.3.2(d) and (e)
 - ii. Requirements in Condition 5.5.
 - iii. Requirements in Condition 5.6.2.
- b. All such deviations shall be summarized and reported as part of the semiannual monitoring report required by Condition 8.6.1.
- c. The Permittee shall notify the Illinois EPA, Air Compliance Section, of all other deviations as part of the semiannual monitoring reports required by in Condition 8.6.1.
- d. All required deviation reports described in Condition 5.10.1 above shall contain the following information:
 - i. Date and time of the deviation;
 - ii. Emission units(s)/operation involved;
 - iii. The duration of the event;
 - iv. Probable cause of the deviation;
 - v. Any corrective actions or preventative measures taken;
 - vi. Reporting on malfunction and breakdown shall be performed in accordance with Condition 5.10.5; and
 - vii. Reporting on startup shall be performed in accordance with Condition 5.10.5.

5.10.2 Annual Emissions Report

- a. The annual emissions report required pursuant to Condition 9.7 shall contain emissions information, including HAP emissions, for the previous calendar year.
- b. The Permittee shall submit the following additional information from the prior calendar year with the Annual Emissions Report, due May 1st of each year, pursuant to Permit 95010001:

- i. Iron and steel production (tons/month and tons/yr, each);
 - ii. Natural gas and BFG usage (mmft³/month and mmft³/yr, each); and
 - iii. Fuel oil usage (thousand gallons/month and thousand gallons/yr, for each type of oil).
- c. The Permittee shall submit an annual report to the Illinois EPA with its Annual Emission Report describing the implementation of the Road Cleaning Program for the affected road segments, as defined in Condition 7.13.5(d), during the previous year. This report shall at a minimum provide: the number of times each road segment was cleaned; the number of times that scheduled cleaning was not performed, with explanation; a description of any significant changes in road cleaning equipment or cleaning practices, with explanation; and a description of other significant changes to the Program, including changes in contractors [Permit #06070088].

5.10.3 Reporting requirements from FESOP #94120017

- a. The Permittee shall submit quarterly reports (every 3 calendar months) to the Illinois EPA. This report is due 30 days after the end of the reporting period and may be submitted on computer disk. This report shall contain the following information for the days during the quarter:
 - i. A summary showing the emissions of SO₂ for each unit operating group for each day and the 12 month rolling average in tons/year.
 - ii. A statement identifying any apparent violations which occurred during the quarter covered by the report or, if there have been no apparent violations, a statement to that effect.
 - iii. A summary of any COG flow meter downtime.
 - iv. Identification of any days for which data for at least 75% of the operating hours of the unit operating group was not obtained by an approved method; justification for not obtaining the data; and description of corrective action taken.
- b. These reports shall be sent to IEPA Compliance Section in Springfield and IEPA Regional Office in Collinsville.
- c. Copies of the Final Report for the tests identified in Condition 5.8(a)(iv) shall be submitted to the Illinois EPA along with the quarterly reports required by this CAAPP permit within 30 days after the reported quarter.

5.10.4 Other Source-Wide Reporting Requirements

- a. i. A quarterly report shall be submitted to the Illinois EPA stating the following: the dates any necessary control measures were not implemented, a listing of those control measures, the reasons that the control measures were not implemented, and any corrective actions taken. This information includes, but is not limited to, those dates when controls were not applied based on a belief that application of such control measures would have been unreasonable given prevailing atmospheric conditions, which shall constitute a defense to the requirements of this Section. This report shall be submitted to the Illinois EPA thirty (30) calendar days from the end of a quarter. Quarters end March 31, June 30, September 30, and December 31 [35 IAC 212.316(g) (5)].
- ii. The reporting requirements from the above are established for fugitive particulate matter control measures implemented for the certain operations identified in 35 IAC 212.316(b) through 212.316(f).
- iii. Control measures for this condition are those identified in the Fugitive Particulate Matter Operating Program.
- b. Upon written request by the Illinois EPA, a report shall be submitted to the Illinois EPA for any period specified in the request stating the following: the dates during which any process emission unit was in operation when the air pollution control equipment was not in operation or was not operating properly, documentation of causes for pollution control equipment not operating or not operating properly, and a statement of what corrective actions were taken and what repairs were made [35 IAC 212.324(g) (6)].

5.10.5-1 Reporting for Startups (State Authorization)

Pursuant to 39.5(7)(a) and (f)(ii) of the Act, when startup reports are required for an emission unit by unit specific conditions in Chapter 7 of this permit, such reports shall be submitted to the Illinois EPA, Air Compliance Section and Collinsville Regional Field Office on a semi-annual basis, and include the following information related to startups of such emission unit and associated air pollution control equipment.

- a. If startups occurred during the reporting period, the report shall include the following:
 - i. The number of startups.
 - ii. The number of departures from established procedures.

- iii. The number of exceedances of each applicable standard.
 - iv. A general explanation for the magnitude of the numbers reported and the significance or meaning of those numbers.
 - v. A general explanation for the departures.
 - vi. A general explanation for the exceedances.
 - vii. A general discussion of whether any improvements were made to startup practices
- b. If there were no startups for the reporting period, a statement that "No startups occurred during this reporting period."
 - c. Startups that resulted in excess emissions shall be addressed in the deviation reports as required by unit specific conditions in Chapter 7 of this permit.

5.10.5-2 Reporting for Malfunction or Breakdown (State Authorization)

- a. The Permittee shall provide the following notification and reports to the Illinois EPA, Air Compliance Section and Collinsville Regional Field Office, pursuant to 35 IAC 201.263, concerning continued operation of an affected emission unit or related air pollution control equipment when such continued operation would cause a violation of a standard or limitation in 35 IAC Subtitle B, Chapter 1, subchapter c:
 - i. If an emission unit or control device operates during a malfunction/breakdown, the Permittee shall immediately report such event to the Illinois EPA within 2 working days after such event occurs. The immediate notification shall be provided to the Illinois EPA's Springfield Office (Compliance Section) by a telephone, facsimile, electronic mail or other alternative method of correspondence that constitutes the fastest available alternative. The immediate notification shall be followed by a letter to the Illinois EPA's Springfield Office (Compliance Section), postmarked within 7 working days after the end of the event. The 7 day follow-up letter shall contain the name, title, and signature of the owner or operator or other responsible official certifying its accuracy, explaining the circumstances and reasons for event, describing all excess emissions and/or parameter monitoring exceedances which may have occurred during the malfunction/breakdown event, actions taken to minimize emissions or parameter exceedance and all repairs made in conjunction with such malfunction/breakdown event.

- ii. If all the necessary information identified above is contained within the 2-day immediate notification and the notification was done by means of written correspondence, a 7-day follow-up letter is not required to be submitted.
- iii. A summary of these malfunction/breakdown reports required by this permit shall be submitted to the Illinois EPA's Springfield Office Compliance Section on a quarterly basis and contain the following:
 - A. Date and time of malfunction/breakdown;
 - B. Emission unit(s)/control involved;
 - C. The duration of the event;
 - D. Probable cause of malfunction/breakdown; and
 - E. Repairs and other corrective actions taken.

5.10.5-3 Federal Startup Shutdown and Malfunction/Breakdown Requirements

- a. For those emission units subject to a NESHAP standard and for which an SSM plan is required under 40 CFR 63.10(d)(5), the Permittee shall submit reports as required by the NESHAP including:
 - i. Periodic startup, shutdown or malfunction reports [40 CFR 63.10(d)(5)(i)]
 - A. 1. If actions taken by an owner or operator during a startup or shutdown (and the startup or shutdown causes the affected emission unit to exceed any applicable emission limitation in the relevant NESHAP emission standards specified in Section 7 of this permit), or malfunction of an affected emission unit (including actions taken to correct a malfunction) are consistent with the procedures specified in the source's startup, shutdown, and malfunction plan (see 40 CFR 63.6(e)(3)), the Permittee shall state such information in a startup, shutdown, and malfunction report.
 - 2. Actions taken to minimize emissions during such startups, shutdowns, and malfunctions shall be summarized in the report and may be done in checklist form; if actions taken are the same for each event, only one checklist is necessary.

3. Such a report shall also include the number, duration, and a brief description for each type of malfunction which occurred during the reporting period and which caused or may have caused any applicable emission limitation to be exceeded.
- B. The startup, shutdown, and malfunction report shall consist of the following:

A letter, containing the name, title, and signature of the owner or operator or other responsible official who is certifying its accuracy.
- C. Reports shall only be required if a startup, shutdown or malfunction occurred during the reporting period.
- D. The SSM Report shall be submitted to the Illinois EPA semiannually and shall be delivered or postmarked by the 30th day following the end of each calendar half (or other calendar reporting period, as appropriate).
- E. If the owner or operator is required to submit excess emissions and continuous monitoring system performance (or other periodic) reports required by this permit, the startup, shutdown, and malfunction reports required under 40 CFR 63.10(d) may be submitted simultaneously with the excess emissions and continuous monitoring system performance (or other) reports.
- F. If startup, shutdown, and malfunction reports are submitted with excess emissions and continuous monitoring system performance (or other periodic) reports, and the owner or operator receives approval to reduce the frequency of reporting for the latter under 40 CFR 63.10(e), the frequency of reporting for the startup, shutdown, and malfunction reports also may be reduced if the Illinois EPA does not object to the intended change. The procedures to implement the allowance in the preceding sentence shall be the same as the procedures specified in 40 CFR 63.10(e)(3).
- ii. Immediate startup, shutdown or malfunction reports [40 CFR 63.10(d)(5)(ii)]
 - A. Notwithstanding the allowance to reduce the frequency of reporting for periodic startup,

shutdown, and malfunction reports under 40 CFR 63.10(d)(5)(i), any time an action taken by an owner or operator during a startup or shutdown that caused the source to exceed any applicable emission limitation in the relevant NESHAP emission standards specified in Section 7 of this CAAPP, or malfunction (including actions taken to correct a malfunction) is not consistent with the procedures specified in the affected source's startup, shutdown, and malfunction plan, the owner or operator shall submit an immediate report stating the actions taken for that event within 2 working days after commencing actions inconsistent with the plan and a follow-up report submitted within 7 working days after the end of the event.

- B. The immediate report shall consist of a telephone call (or facsimile (FAX) transmission) to the Illinois EPA.
- C. The follow-up report shall consist of the following:
 - 1. The name, title, and signature of the owner or operator or other responsible official who is certifying its accuracy and explaining the circumstances of the event.
 - 2. The reasons for not following the startup, shutdown, and malfunction plan.
 - 3. Description all excess emissions and/or parameter monitoring exceedances which are believed to have occurred (or could have occurred in the case of malfunctions).
 - 4. And actions taken to minimize emissions in conformance with 40 CFR 63.6(e)(1)(i).

5.10.6 Separate copies of all reports required by this permit shall be sent to the IEPA Regional Office in Collinsville.

5.10.7 40 CFR 63, Subpart DDDDD (Notification of Compliance)

- a. Pursuant to 40 CFR 63.7545(b), the Permittee must submit an initial Notification according to 40 CFR 63.9(b)(2).
- b. Pursuant to 40 CFR 63.7545(e), the Permittee must submit a Notification of Compliance Status according to 40 CFR 63.9(h)(2)(ii). For the initial compliance demonstration for each affected unit, the Permittee must submit the Notification of Compliance Status, including all

performance test results and fuel analyses, before the close of business on the 60th day following the completion of all performance test and/or other initial compliance demonstrations for the affected unit according to 40 CFR 63.10(d)(2).

- c. For subject emission units, for which Permittee must conduct an initial compliance demonstration, the report shall include the information specified in 40 CFR 63.9(h)(2) and 63.7545(e).
- d. In addition to the information required by 40 CFR 63.9(h)(2), the notification of compliance status must include the following certification(s) of compliance, as applicable, and signed by a responsible official:
 - i. "This facility complies with the requirements in 40 CFR 63.7540(a)(10) to conduct an annual or biennial tune-up, as applicable, of each unit."
 - ii. "This facility has had an energy assessment performed according to 40 CFR 63.7530(e)."
 - iii. "No secondary materials that are solid waste were combusted in any affected unit."
- e. Pursuant to 40 CFR 63.7530(e), the Permittee must include with the Notification of Compliance Status a signed certification that the energy assessment was completed according to Table 3 of 40 CFR Part 63, Subpart DDDDD and is an accurate depiction of the affected facility.
- f. Pursuant to 40 CFR 63.7530(d), the Permittee must submit a signed statement in the Notification of Compliance Status report that indicates a tune-up was completed on each existing unit firing natural gas with a heat input capacity of less than 10 million Btu per hour.

5.11 Source-Wide Operational Flexibility/Anticipated Operating Scenarios

No source-wide operational flexibility/anticipated operating scenarios have been established in this permit.

5.12 Source-Wide Compliance Procedures

Compliance Provisions for Condition 5.6.2(c) (adopted from FESOP 94120017):

- a. Compliance with the lbs/3-hours limits in Condition 5.6.2(c) shall be demonstrated by using emission rate calculations for eight discrete 3-hour periods per day, with the first period beginning at midnight.

- b. Compliance with the daily emission limits in Condition 5.6.2(c) shall be demonstrated by using emission rate calculations on a daily block basis (i.e., midnight to midnight).
- c. The compliance calculations shall be the primary compliance method for determining compliance with the emission limits in Condition 5.6.2(c), except for the blast furnace casthouse baghouse and iron spout baghouse, for which stack testing shall be the primary means of determining compliance.
- d. Total SO₂ emissions from an unit operating group for determination of compliance with the SO₂ limits in Condition 5.6.2(c) shall be the sum of the emissions resulting from the use of COG and fuel oil at the unit operating group, i.e.:

Lbs SO₂ per unit operating group = SO₂ emissions from fuel oil usage + SO₂ emissions from COG usage

Note: When FESOP Permit 94120017 was originally issued, the SO₂ emissions which would result from the use of blast furnace gas and natural gas in the unit operating groups were accounted for in the SO₂ limits of that permit. This was accomplished by lowering the permitted SO₂ from the SO₂ levels used for air quality modeling by an amount equal to the SO₂ which would have been emitted should the unit operating groups use blast furnace gas or natural gas continuously. The SO₂ emissions from blast furnace gas and natural gas were calculated using standard emission factors as found in AIRS Facility Subsystem, Source Classification Codes and Emission Factor Listing for Criteria Air Pollutants, EPA Document Number EPA 450/4-90-003, and Compilation of Air Pollution Emission Factors, Vol. 1, Stationary Point and Other Sources, AP-42.

- e. The SO₂ emissions attributable to fuel oil usage shall be calculated from the records required by the CAAPP permit for usage of fuel oil and the sulfur and heat content of oil (See Condition 5.9.4) and the following equation:

Lbs SO₂/period = gallons of oil burned per period x sulfur content in weight percent of the fuel oil used x density of the fuel oil used in pounds per gallon x 2.

- f. The SO₂ emissions attributable to COG usage shall be calculated from the records required by the CAAPP permit for the amount of COG burned and the sulfur content of the COG (See Condition 5.9.1(e)) and the following equation:

Lbs SO₂/period = thousand standard cubic feet of COG burned per period x average H₂S content of the COG in grains per standard cubic foot for the period x 0.269.

- g. Stack test measurement shall be the primary method of determining the compliance of the Blast Furnace Casthouse and Iron Spout Baghouse with the lbs/day limits in Condition 5.6.2(c). The secondary means of determining compliance shall be the following:
 - i. The SO₂ attributable to the Blast Furnace Casthouse Baghouse shall be calculated using an emission factor of 0.173 lbs SO₂ per ton of hot metal cast.
 - ii. The SO₂ attributable to the Iron Spout Baghouse shall be calculated using an emission factor of 0.0063 lbs SO₂ per ton of hot metal cast.
 - h. Compliance with the tons/yr limits in Condition 5.6.2(c)) shall be determined using a rolling total of 12 consecutive calendar months of data.
 - i. When fuel oil is used and data is not available for the fuel oil at the individual unit operating groups, the oil usage during such period shall be calculated from the data for total usage of oil apportioned among the individual operating groups using oil based on the relative heat inputs the unit operating group during that period.
 - j. Usage of COG shall be determined from data collected by the COG flow meters.
- Note: For this purpose, data from flow meters for both desulfurized and undesulfurized COG may be used in accordance with Condition 5.9.1(e) (i).
- k. The average H₂S content of COG for the lbs/3-hours compliance calculations shall be calculated using an arithmetic average of all available H₂S data during the 3-hour period that COG was burned. In the event that the H₂S monitoring system is unable to obtain a single reading for the 3-hour period, the H₂S content for that 3-hour period shall be obtained by one of the alternative methods specified in Condition 7.3.9(f) of this permit (i.e., manual sampling of H₂S content or determined by type of coal used during that period and previous recorded H₂S content when using this coal type).
- For this purpose, data from H₂S monitoring systems for both desulfurized and undesulfurized COG, in accordance with Condition 5.9.1(e) (ii), shall be used as appropriate depending upon whether desulfurized or undesulfurized COG is being combustion.
- l. The daily average H₂S content of COG for use in the lbs/day compliance calculations shall be calculated using an arithmetic average of all available hourly average H₂S content data for

that day, and at least data from 75% of the daily operating hours.

Note: For this purpose, data from the H₂S monitoring systems for both desulfurized and undesulfurized COG, in accordance with Condition 5.9.1(e)(ii).

5.13 General Procedures for Certain Permit Limits on Emissions

Pursuant to Sections 39.5(7)(b) and (p)(v) of the Act, these procedures are applicable for the emission limits in Conditions 7.1.6(b)(i) through (iv), 7.4.6(b) through (f), 7.5.6(c) through (g) and 7.6.6(a) through (e), which address the rates of emissions or "emission factors" (commonly in pounds/ton) and the annual emissions or "maximum emissions" (in tons/year) of certain emission units, as the Permittee determines compliance with these limits with "emission factors," using the common meaning of this term. In particular, notwithstanding the fact that the above listed conditions set "emission factor limits" or limits on the rates of emissions, for purposes of this condition, an "emission factor" is a set value for the mass of a pollutant emitted by a particular emission unit relative to the amount of material that is processed or handled by the unit, or in the case of lead, a set value for the mass of lead emissions for each hour that the particular unit operates, which value is used in the determination of the emissions of the unit.

Note: For the emission units (i.e., operations and processes) that are subject to the above emission limits, Conditions 7.1.9(h), 7.4.9(h)(vii) and (i), 7.5.9(f) and (g), and 7.6.9(c) require the Permittee to keep records for the emissions factors that it is using to determine compliance with these emission limits, along with records for the emissions of these units. The specific emission factors being used by the Permittee for the various subject units, based on information provided by the Permittee as of the date of issuance of this revised permit, are found in Attachment 3 of this permit.

- a. The emission factors used by the Permittee to determine compliance with these emission limits shall not understate actual emissions.
- b. Compliance with these emission limits shall be determined as follows. For terms that are expressed in pounds per ton or, for lead, pounds per hour (i.e., the same terms as the relevant emission factor), compliance shall be determined by comparison against the relevant emission factor for the unit and mode of operation, as applicable. For each annual limit, compliance shall be determined by comparison against the annual emissions of the unit, calculated as the product of the actual annual operation of the unit and the relevant emission factor. If more than one emission factor is needed to address the actual annual emissions of a unit, to address different modes of operation, the annual emissions of the unit shall be calculated as the sum of the annual emissions, calculated as above, for each mode of operation of the unit for which there is a different emission factor. If there are additional emissions that are not accounted

for by the established emission factor(s), these additional emissions shall also be included in the calculation of annual emissions.

- c. The Permittee shall, at a minimum, review and, if necessary, update the relevant emission factors that it is using as follows, to assure that the emission factors that it uses to calculate emissions for purposes of determining compliance with these limits are appropriate, i.e., do not understate actual emissions.
 - i. For emission units that are subject to limits for which emission testing is required to be conducted by this permit, whenever such testing is conducted, relevant emission factors shall be reviewed based on the results of such testing and, if necessary, updated based on those results.
 - ii. For emission units that are subject to limits for which emission testing is not required to be conducted by this permit, the relevant emission factors shall be reviewed and, if necessary, updated on at least an annual basis, considering new information on emissions of such units that has become available, including revisions of USEPA's *Compilation of Air Pollutant Emission Factors*, AP-42, other information published by USEPA, information related to other emission units operated by U.S. Steel, information presented in specific papers and reports concerning the steel industry, and other salient information.
- d. The Permittee shall comply with the following reporting requirements related to the emission factors that it is using to determine compliance with these emission limits:
 - i. If the Permittee updates the emission factors that it is using, as a result of its review of the relevant emission factors, as provided for by Condition 5.13(c)(i) or (ii), copies of the revised records for such emission factor(s) shall be submitted to the Illinois EPA in accordance with Condition 5.9.6(c)(ii).
 - ii. At the same time that it submits its Annual Emission Report, as addressed by Condition 5.10.2, the Permittee shall also submit a report confirming its review of relevant emission factors in accordance with Condition 5.13(c)(i) and (ii) during the previous year, which report shall, for each applicable emission limit, include an identification of the testing conducted during the previous year, if any, or a description of all new information that was considered, if any, and the findings and conclusion of its review of such information and any updates that it made to the emission factors that it uses, with explanation.
- e. Upon written notification from the Illinois EPA or USEPA that it has determined one or more of the following, the Permittee shall conduct appropriate further review for the emission factor(s)

that are the subject of such notification and submit a written response to the Illinois EPA and, if applicable, USEPA within 45 days, which response may be accompanied by updates to those emission factor(s).

- i. The Permittee's records for the applicable emission factor(s), as addressed by Condition 5.9.6(c)(ii) or 5.13(d)(i) do not contain adequate documentation for the selected emission factor(s).
- ii. The Permittee's report pursuant to Condition 5.13(d)(ii) does not provide adequate explanation for the updates that were made to the emission factor(s).
- iii. The emission factor(s) used by the Permittee do not appear to appropriately address a new mode of operation of the subject unit.
- iv. There is new information, as described in or included with the notification, that appears pertinent that the Permittee has not considered in its review for the emission factor(s).

5.14 Source-wide State-Only Conditions

5.14.1 Permitted Emissions for Fees

Emission limitations are not set for the source for the purpose of permit fees. The Permittee shall pay the applicable fee pursuant to Section 39.5 of the Act.

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6.0 CONDITIONS FOR EMISSIONS CONTROL PROGRAMS

This section is reserved for emissions control programs. As of the date of issuance of this permit, there are no such programs applicable to this source.

7.0 UNIT SPECIFIC CONDITIONS FOR SPECIFIC EMISSION UNITS

7.1 Material Handling and Processing Operations

7.1.1 Description

Coal handling systems:

The crusher is mainly used in the winter to break-up frozen chunks of coal to prepare the coal to be processed in the pulverizer.

There are two coal pulverizers. Only one pulverizer can be used at any one time. The remaining pulverizer is maintained as a backup unit. The pulverizers reduce the size of the coal to prepare it for the coking process. A baghouse controls the discharge outlets of the coal pulverizers.

Blast furnace raw material handling systems:

Raw materials such as coke, iron-bearing materials, and fluxes are charged to blast furnaces in the iron making process. The materials are charged in the top of the furnace from skip cars, which are filled in the stockhouse from conveyors or hoppers. Iron pellets and coke are screened prior to charging.

New Coke Conveyance System:

The new coke conveyor system transfers coke from Gateway Energy to US Steel to be used in the existing Blast Furnaces.

Steel making system:

Raw materials used in the BOFs and LMF are delivered to the facility by both truck and railcar. The trucks and railcars are either unloaded to the ground or directly into an underground feed hopper. Materials unloaded to the ground are placed in storage piles, or in super sacks, endloaders are used to transfer the materials from the storage piles or super sacks to the underground feed hopper. The underground feed hopper then feeds material onto BOF material transfer conveyor C-1. This material transfer is controlled by the Trackhopper Baghouse, this bag house empties back onto C-1 conveyor.

Materials added in the BOF and LMF are transferred from the underground feed hopper, by a conveyor system consisting of three conveyors (nos. C-1, C-2, and C-3) arranged in series. From conveyor C-3 the materials are offloaded into storage bins 1 thru 10, or a rotating hopper known as the lazy susan, or onto conveyor C-5. The storage bins unload materials to conveyor C-4, which transfers and off-loads the materials into the BOF feed hoppers for #1 vessel or #2 vessel. The lazy susan feeds directly into the BOFs Alloy transfer car. Conveyor C-5 transfers materials to the LMF material handling system. All operations carried out within this unit take place within

enclosed structures. The transfer from conveyors C-1 to C-2 and C-2 to C-3 are controlled by the Binfloor Baghouse, this bag house empties into Bin #2.

Materials are transferred from the BOF Binfloor to the LMF on conveyor C-5. This conveyor off-loads into storage bins which transfer to conveyor C-6. The emissions from the transfer from conveyor C-5 to C-6 are handled by Baghouse #1. Additional raw materials used in the LMF are transferred from the Tripper Conveyor to a set of storage bins. Emissions generated by loadout of the Tripper Conveyor are controlled by Baghouse #2.

Note: This narrative description is for informational purposes only and is not enforceable.

7.1.2 List of Emission Units and Air Pollution Control Equipment

Area	Emission Unit Description	Emission Control Equipment	Date Constructed
Coal Handling and Processing	Coal Crusher	None	Pre-1974
	Coal Pulverizers (2)	Baghouse	
	Conveyors	None	
Blast Furnace	Screens (3) - Two Coke - One Iron Pellet	None	Pre-1974
	Conveyors and Feed Hoppers	None	
	Stock House Storage Bins	None	
	New Coke Conveyance System - Conveyors and Hoppers - Day Bins	Baghouses	2009
Steelmaking	Dump Pit Conveyor	Trackhopper Baghouse	Pre-1974
	Conveyors and Storage Bins	Bin floor Baghouse	
		LMF Conveyors and Storage Bins	Baghouse #1

7.1.3 Applicable Provisions and Regulations

- a. i. The "affected material handling operations" for the purpose of these unit-specific conditions, are the emission units described in Conditions 7.1.1 and 7.1.2.
- ii. The "affected crushing operations" for the purpose of these unit-specific conditions, are the crusher and pulverizers described in Conditions 7.1.1 and 7.1.2.
- iii. The "affected screening operations" for the purpose of these unit-specific conditions, are the iron

pellet and coke screens described in Conditions 7.1.1 and 7.1.2.

- iv. The "affected transfer operations" for the purpose of these unit-specific conditions, are the conveyors, storage bins, new coke conveyance system and feed hoppers described in Conditions 7.1.1 and 7.1.2.
- b. Pursuant to 35 IAC 212.316(b), the Permittee shall not cause or allow fugitive particulate matter emissions generated by the affected crushing and screening operations to exceed an opacity of 10 percent.
- c. Pursuant to 35 IAC 212.316(f), the Permittee shall not cause or allow fugitive particulate matter emissions generated by the affected transfer operations to exceed an opacity of 20 percent.
- d. Pursuant to 35 IAC 212.321(a), the Permittee shall not cause or allow the emission of particulate matter into the atmosphere in any one hour period from the new coke conveyor system or LMF conveyors and LMF storage bins for which, either alone or in combination with the emission of particulate matter from all other similar process emission units for which construction or modification commenced on or after April 14, 1972, at a source or premises, exceeds the allowable emission rates specified in subsection (c) of 35 IAC 212.321 (see also Attachment 2).
- e. Pursuant to 35 IAC 212.322(a), the Permittee shall not cause or allow the emission of particulate matter into the atmosphere in any one hour period from any affected material handling operation for which construction or modification commenced prior to April 14, 1972*, which, either alone or in combination with the emission of particulate matter from all other similar process emission units at a source or premises, exceeds the allowable emission rates specified in subsection (c) of 35 IAC 212.322 (see also Attachment 2).
 - * The new coke conveyor system and LMF conveyors and LMF storage bins constructed after April 14, 1972, is not subject to 35 IAC 212.322.
- f. Pursuant to 35 IAC 212.458(b) (7) and (c), the Permittee shall not cause or allow emissions of PM10, other than that of fugitive particulate matter, into the atmosphere from any affected material handling operation to exceed 0.01 gr/scf during any one hour period, except for this mass emission limit shall not apply to those emission units with no visible emissions other than that of fugitive particulate matter; however, if a stack test is performed, this subsection is not a defense to a finding of a violation of the mass emission limits contained in this condition.

7.1.4 Non-Applicability of Regulations of Concern

The emission limitations of 35 IAC 212.324 are not applicable to the affected material handling operations, as provided by 35 IAC 212.324(a)(3), because the affected operations are subject to standards in 35 IAC Part 212, Subpart R, "Primary and Fabricated Metal Products and Machinery Manufacture".

7.1.5 Control Requirements and Work Practices

- a. The affected material handling operations shall be operated under the provisions of a fugitive particulate matter operating program consistent with the provisions of 35 IAC 212.309, 212.310 and 212.312 (see also Condition 5.3.2(a)) [35 IAC 212.309].
- b. Pursuant to 35 IAC 212.307, material collected by control equipment on the affected material handling operations shall be handled in accordance with Condition 5.3.2(e).
- c. For the air pollution control equipment on the affected operations, the Permittee shall comply with maintenance and repair requirements in 35 IAC 212.324(f), as follows, pursuant to 35 IAC 212.458(d):

The Permittee shall maintain and repair all air pollution control equipment in a manner that assures that the emission limits and standards in 35 IAC 212.458 shall be met at all times. Proper maintenance shall include the following minimum requirements:

- i. Visual inspections of air pollution control equipment;
 - ii. Maintenance of an adequate inventory of spare parts; and
 - iii. Expeditionary repairs, unless the emission unit is shutdown.
- d. BACT/LAER requirements for the new coke conveyor system, from Permit 06070088:
 - i. PM and PM₁₀ emissions from the day bins shall be controlled by [T1]:
 - A. Enclosure of the day bin so as to prevent visible fugitive emissions, as defined by 40 CFR 60.671.
 - B. Aspiration of the day bins or the enclosure in which they are enclosed to a control device, which device shall be operated in accordance with good air pollution control practice to

minimize emissions. For this purpose, the control device shall be a baghouse or other filtration type device unless the Permittee demonstrates and the Illinois EPA concurs that another type of control device is preferable due to considerations of operational safety.

- ii. PM and PM₁₀ emissions from the new coke conveyance system shall be controlled by enclosure so as to prevent visible fugitive emissions, as defined by 40 CFR 60.671 [T1].
- iii. Emissions of PM and PM₁₀ from the control devices for the new coke conveyance system shall not exceed 0.005 gr/dscf [T1].

Condition 7.1.5(d) represents the application of Best Available Control Technology and Lowest Achievable Emission Rate.

7.1.6 Production and Emission Limitations

- a. Production and emission limits for the new coke conveyor system from Permit 06070088:
 - i. The new coke conveyance system shall not transfer more than 740,000 tons of coke per year [T1].
 - ii. The emissions from the new coke conveyance system shall not exceed 0.95 tons/year of PM and 0.45 tons/year of PM₁₀ [T1].
 - iii. Compliance with the annual limits of Condition 7.1.6(a) shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total) [T1].
- b. Emission limits for blast furnace and steel making material handling operations from Permit 95010001:
 - i. Emissions from Material HS and Deslagging Station shall not exceed the following limits [T1]:

<u>Pollutant</u>	<u>Emission Factors (Lbs/Ton of steel)</u>	<u>Maximum Emissions (Tons/Yr)</u>
PM	0.00355	6.35
PM ₁₀	0.00355	6.35

- ii. BOF Additive System (Trackhopper Baghouse) emissions shall not exceed the following limits [T1]:

<u>Pollutant</u>	<u>Emission Factors (Lbs/Ton of steel)</u>	<u>Maximum Emissions (Tons/Yr)</u>
PM	0.00032	0.57
PM ₁₀	0.00032	0.57

- iii. Flux conveyor & transfer points (Bin Floor Baghouse) emissions shall not exceed the following limits [T1]:

<u>Pollutant</u>	<u>Emission Factors (Lbs/Ton of steel)</u>	<u>Maximum Emissions (Tons/Yr)</u>
PM	0.0016	2.86
PM ₁₀	0.0016	2.86

- iv. Iron Pellet Screen emissions shall not exceed the following limits [T1]:

<u>Pollutant</u>	<u>Emission Factors (Lbs/Ton Iron)</u>	<u>Maximum Emissions (Tons/Yr)</u>
PM	0.00279	6.01
PM ₁₀	0.00279	6.01

- v. Compliance with the annual limits in Condition 7.1.6(b) shall be determined based on a calendar year [T1].

7.1.7 Testing Requirements

The following emission tests and opacity observations shall be conducted pursuant to Section 39.5.(7)(d) and (p) of the Act.

- a. i. The Permittee shall measure the opacity from the affected crushing, screening and transfer operations unless prolonged weather conditions preclude scheduled observations. These observations shall be conducted by a qualified observer in accordance with Method 9, as further specified below, pursuant to Section 39.5(7)(d) of the Act.
 - A. This testing shall be conducted at least annually.
 - B. Upon written request by the Illinois EPA, such testing shall be conducted for specific affected operation(s) within 45 calendar days of the request or by the date agreed upon by the Illinois EPA, whichever is later. At least 30 days prior to the scheduled test date, the Permittee shall submit a detailed test plan to

the Illinois EPA, describing the manner of operation of the affected activity and all control measures that will be implemented during the testing. The results of the testing will be submitted within thirty calendar days of the completion of the tests.

- ii. The duration of opacity observations for each test shall be at least 30 minutes (five 6-minute averages).
- b. The Permittee shall test for opacity and PM/PM₁₀ emissions from the baghouse for the coal pulverizers and either the trackhopper baghouse, bin floor baghouse or baghouse #1 as will be specified by the Illinois EPA within 30 days of receipt of the test protocol. These two tests shall be completed within 30 months of the effective date of this permit condition. The Permittee shall use the following methods:

Location of Sample Points	Method 1
Gas Flow and Velocity	Method 2, 2A - H
Flue Gas Weight	Method 3, 3A - C
Moisture	Method 4
PM/PM ₁₀ as provided for by 35 IAC 212.108	Method 5, 201 or 201A

7.1.8 Monitoring Requirements

The Permittee shall perform the following inspections, pursuant to Section 39.5(7)(p)(ii) of the Act:

- a. Affected material handling operations other than the new coke conveyance system.

The Permittee shall perform quarterly inspections of the control measures, while the affected material handling operations are in use. For purposes of this condition, all affected material means each type of material handled. Types of material are materials such as: 1) coal; 2) coke; 3) limestone; 4) iron pellets; 5) alloy materials; 6) desulfurization reagents; and 7) slag materials. These inspections shall, at a minimum, include the following:

- i. Verification that control measures, including reliance on characteristics of materials, is being properly implemented. For conveyors, these inspections shall include, where applicable, verification that all covers, enclosures and dribble pans are present and in good working condition. For crushers, these inspections shall also include verifications for choke feeding.
- ii. For the baghouses on the affected material handling operations - a check of differential pressure and

inspection of the dust removal system, compressed air system, bag condition, fan condition and structural components.

- iii. As part of the inspections, the Permittee shall perform observations for visible emissions by Method 22. These observations shall be conducted during the operations of each activity for a minimum of 18 minutes, or for activities that operate on a batch basis, for a minimum of six consecutive batches or 18 minutes. If visible emissions are observed, the Permittee shall take corrective action within 2 hours to return the status of the operations to no visible emissions or observations of opacity by Method 9 shall be conducted. For the purpose of this condition, returning the status of operations to no visible emissions does not include, for any activity, temporary idling or the lack of operations between batches.

b. Affected new coke conveyance system

- i. The Permittee shall conduct inspections of the new coke conveyor system on at least a monthly basis for the specific purpose of verifying that control measures required to control emissions from the new coke conveyor system are being properly implemented.
- ii. These inspections shall include observation for the presence of visible emissions, performed in accordance with USEPA Method 22, from the conveyors and day bins.

7.1.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items, pursuant to Sections 39.5(7) (a) and (e) of the Act:

a. The Permittee shall keep the following file(s) and log(s):

File(s) containing the following information for the affected material handling operations with supporting information:

- i. Information related to the dust collection equipment associated with the affected operations, including design control efficiency or performance specifications and maximum design particulate matter emissions, gr/dscf.
- ii. The maximum design capacity of each operation, (tons/hr).

b. For the air pollution control equipment on affected operations, the Permittee shall keep the following records

related to maintenance and repair, as required by 35 IAC 212.458(d):

- i. Records of inventory of spare parts and documentation of inspections, maintenance, and repairs of all air pollution control equipment shall be kept in accordance with 35 IAC 212.324(f) [35 IAC 212.324(g) (1)].
 - ii. Records documenting any period during which any process emission unit was in operation when the air pollution control equipment was not in operation or was malfunctioning so as to cause an emissions level in excess of the emissions limitation. These records shall include documentation of causes for pollution control equipment not operating or such malfunction and shall state what corrective actions were taken and what repairs were made [35 IAC 212.324(g) (2)].
 - iii. A written record of the inventory of all spare parts not readily available from local suppliers shall be kept and updated [35 IAC 212.324(g) (3)].
- c. The Permittee shall keep the written records required by 35 IAC 212.316(g) (1) as follows:
- i. For fugitive particulate matter emission units subject to 35 IAC 212.316, records related to the application of control measures for compliance with the opacity limitations of 35 IAC 212.316, including submittals to the Illinois EPA an annual report containing a summary of the information in these records.
 - ii. These records shall include at least the information specified by 35 IAC 212.316(g) (2), as follows:
 - A. The name and address of the source;
 - B. The name and address of the owner and/or operator of the source;
 - C. A map or diagram showing the location of all emission units controlled;
 - D. For application of physical or chemical control agents: the name of the agent, application rate and frequency, and total quantity of agent, and, if diluted, percent of concentration, used each day; and
 - E. A log recording incidents when control measures were not used and a statement of explanation.
 - iii. These records shall be handled as follows:

- A. Copies of all records required by 35 IAC 212.316 shall be submitted to the Illinois EPA within ten (10) working days after a written request by the Illinois EPA and shall be transmitted to the Illinois EPA by a company-designated person with authority to release such records [35 IAC 212.316(g) (3)].
 - B. The records required under 35 IAC 212.316 shall be kept and maintained for at least five (5) years at the source and be available for inspection and copying by Illinois EPA representatives during working hours [35 IAC 212.316(g) (4)].
- d. The Permittee shall maintain records for:
- i. The amount of coke handled by the new coke conveyor system (tons/month and tons/year).
 - ii. The amount of iron pellets screened (tons/month and tons/year).
- e. The Permittee shall maintain the following records for the inspections required by Condition 7.1.8:
- i. For the inspections required by Condition 7.1.8(a) for each affected material handling operation:
 - A. Date and time the inspection was performed and name(s) of inspection personnel.
 - B. The observed condition of the control measures for each affected operation, including the presence of any visible emissions or accumulations of dust in the vicinity of the operation.
 - C. A description of any maintenance or repair associated with established control measures that are recommended as a result of the inspection and a review of outstanding recommendations for maintenance or repair from previous inspection(s), i.e., whether recommended action has been taken, is yet to be performed or no longer appears to be required.
 - D. A summary of the observed implementation or status of actual control measures.
 - ii. For the inspections required by Condition 7.1.8(b) for the affected new coke conveyor system, pursuant to Permit 06070088:

- A. The Permittee shall maintain a file, which shall be kept current, that contains the maximum operating capacity of the new coke conveyance system (tons/day).
- B.
 - 1. The Permittee shall keep inspection and maintenance log(s) or other records for the control measures associated with the new coke conveyance system, including enclosures and fabric filters.
 - 2. These records shall include the following information for the inspections required by Condition 7.1.8(a) and (b):
 - I. Date and time the inspection was performed.
 - II. The observed condition of the control measures, including the presence of any visible emissions.
 - III. A description of any maintenance or repair associated with the control measures that are recommended as a result of the inspection and a review of outstanding recommendations for maintenance or repair from previous inspection(s), i.e., whether recommended action has been taken, is yet to be performed or no longer appears to be required.
- f. In the operational logs or other records for the operation of the affected material handling operations for steelmaking, the Permittee shall include information confirming routine implementation of normal practices for unloading of materials into the receiving hopper and housekeeping practices for this hopper and information identifying departures from those practices, with description, explanation, and corrective actions taken.
- g. The Permittee shall maintain records of the following for each incident when any affected material handling operations and the new coke conveyor system operate without control measures:
 - i. The date of the incident and identification of the operations that were involved.
 - ii. A description of the incident, including the control measures that were not present or implemented; the control measures that were present, if any; other control measures or mitigation measures that were

implemented, if any; and the magnitude of the PM emissions during the incident.

- iii. The time at and means by which the incident was identified, e.g., scheduled inspection or observation by operating personnel.
 - iv. The length of time after the incident was identified that the operations continued to operate before control measures were in place or the operations were shutdown (to resume operation only after control measures were in place) and, if this time was more than one hour, an explanation why this time was not shorter, including a description of any mitigation measures that were implemented during the incident.
 - v. The estimated total duration of the incident, i.e., the total length of time that the operations ran without control measures and the estimated amount of coal handled during the incident.
 - vi. A discussion of the probable cause of the incident and any preventative measures taken.
 - vii. A discussion whether any applicable emission standards, as listed in Condition 7.1.3, may have been violated during the incident, with supporting explanation.
- h. The Permittee shall maintain the following records for the new coke conveyor system and each other operation subject to limits on PM/PM₁₀ emissions in Condition 7.1.6:
- i. A file containing the emission factors used by the Permittee to determine emissions of each operation, with supporting documentation. These records shall be reviewed and updated by the Permittee as necessary to assure that the emission factors that it uses to determine emissions of the affected operations do not understate actual emissions. These records shall be prepared and copies sent to the Illinois EPA in accordance with Condition 5.9.6(c).
 - ii. Records for any periods of operation of such operations that are not otherwise addressed in the required records during which the established emission factor in Condition 7.1.9(f)(i) would understate actual emissions of such operation, with description of the period of operation and an estimate of the additional emissions during such period that would not be accounted for by the established factor, with supporting explanation and calculations.

- iii. Records for the annual PM/PM₁₀ emissions of each operation, based on operating data and appropriate emission factors for comparison to the limits in Conditions 7.1.6(b), with supporting documentation and calculations.
- i. The Permittee shall keep records for all opacity measurements conducted in accordance with Method 9 that it conducts or that it orders to be conducted. For each occasion on which such measurements are made, these records shall include the identity of the observer, a description of the measurements that were made, the operating condition of the operations, the observed opacity, and copies of the raw data sheets for the measurements.
- j. The Permittee shall keep copies of all tests performed on the affected material handling operations and new coke conveyor system.

7.1.10 Reporting Requirements

- a. i. The Permittee shall submit quarterly and annual reports to the Illinois EPA in accordance with 35 IAC 212.316(g) (1) and (5) [35 IAC 212.316(g)].
 - ii. Pursuant to 35 IAC 212.324(g) (6), upon written request by the IEPA, a report shall be submitted to the IEPA for any period specified in the request stating the following: the dates during which any process emission unit was in operation when the air pollution control equipment was not in operation or was not operating properly, documentation of causes for pollution control equipment not operating or not operating properly, and a statement of what corrective actions were taken and what repairs were made.
 - iii. Pursuant to Permit 06070088 for the new coke conveyor system, the Permittee shall notify the Illinois EPA within 30 days of deviations from applicable emission standards or operating requirements that continue* for more than 24 hours.
- * For this purpose, time shall be measured from the start of a particular event. The absence of a deviation for a short period shall not be considered to end the event if the deviation resumes. In such circumstances, the event shall be considered to continue until corrective actions are taken so that the deviation ceases or the Permittee takes the affected unit out of service for repairs.
- b. i. Pursuant to Section 39.5(7)(f)(ii) of the Act, the Permittee shall promptly notify the Illinois EPA, Air

Compliance Section, within 30 days of deviations by the affected material handling operations and new coke conveyor system from applicable requirements as follows:

- A. Requirements in Condition 7.1.3(b) through (f).
- B. Requirements in Condition 7.1.5.
- C. Requirements in Condition 7.1.6.
- ii. All such deviations shall be summarized and reported as part of the semiannual monitoring report required by Condition 8.6.1.
- iii. The Permittee shall notify the Illinois EPA, Air Compliance Section, of all other deviations from permit requirements as part of the semiannual monitoring reports required by Condition 8.6.1.
- iv. All deviation reports described in Condition 7.1.11(b) above shall contain the following:
 - A. Date, time and duration of the deviation;
 - B. Description of the deviation;
 - C. Probable cause of the deviation; and
 - D. Any corrective actions or preventive measures taken.

7.1.11 Operational Flexibility/Anticipated Operating Scenarios

Operational flexibility is not set for the affected material handling operations and new coke conveyor system.

7.1.12 Compliance Procedures

Compliance with the emission standards in Condition 7.1.3 and the operational/emission limits in Condition 7.1.6 is addressed by the testing requirements of Condition 7.1.7, inspection requirements of Condition 7.1.8 and recordkeeping requirements of Condition 7.1.9.

7.1.13 State-Only Conditions

State-only conditions are not being established.

7.2 Coke Production

7.2.1 Description

Two coke oven batteries (45 ovens each), dual collecting main by-product coke oven batteries, referred to as batteries A and B, are utilized at this iron and steel mill. Each is capable of processing 454,000 tons/year of coal. Potential emissions from these batteries consist of particulate matter, sulfur dioxide, nitrogen oxides, carbon monoxide, volatile organic materials, and HAPs.

Topside:

Emission points include leaks from coke oven charging, lids, off takes, soaking and emergency flares. Coal is charged to the ovens through four charging port lids, on each oven, utilizing sequential charging with steam aspiration to the collecting mains. Each oven has two off takes to the collecting mains that duct raw coke oven gas from the coking process to the by-products plant (see Section 7.3 of this permit). Soaking occurs after the coking process is completed, when an oven is dampered off from the collecting mains and its off takes' standpipes are opened before beginning pushing. Each battery also has an emergency by-pass on the collecting main (one on each main, two per battery). In the event of an emergency which would lead to excess pressure in a main, e.g., loss of suction from the by-product plant, the by-pass opens. The raw coke oven gas is then combusted in the associated emergency flare.

Doors:

Emissions consist of leaks from coke oven doors. Each oven has two doors, with one on its push side and one on its coke side.

Pushing:

Once the coking cycle in an oven has been completed, the push and coke side doors are removed, respectively, by the pushing machine and coke-side door machines. A ram on the pushing machine pushes the coke out through a guide on the door machine. The coke falls through the guide, which is covered by a hood on the machine, and into the quench box. The emissions from oven pushing are controlled by the pushing system. This mobile control system consists of a venturi scrubber, mist eliminator and exhaust fan. The Permittee currently has two mobile scrubber cars for pushing (PCS cars #3 and #4). The quench box and car travel with this system to the coke quenching operation.

Coke Quenching:

In this operation, loads of hot coke from the ovens are quenched with water. There are two locations where quenching normally takes place. The primary is the West Quench Tower. This tower is equipped with a baffle system. The east quench station,

which is utilized as a backup for the West Tower, does not currently have a quench tower, however, the Permittee is currently engaged in a project to upgrade the quenching operations, adding a quench tower to the East Quench Station and replacing the conventional Quench Tower at the West Quench Station with a low emission quench tower (Construction Permit 08060026).

Underfiring:

Coke oven gas (COG) is combusted to generate the heat required to convert coal to coke. This COG would be treated by both by-products plant and, except during maintenance and outage, by the COG desulfurization system. Natural gas may also be added through the blending station in order to stabilize the heat content of the COG. Emissions from this unit occur at the main stacks of each battery and are mainly the by-products of combustion, including particulate matter, sulfur dioxide, nitrogen oxides, carbon monoxide, and volatile organic materials.

Note: This narrative description is for informational purposes only and is not enforceable.

7.2.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Date Constructed	Emission Control Equipment
Coke Oven Batteries "A" and "B"	Coke Oven Battery "A"	Battery "A" was rebuilt between 1979 and 1980	Emergency Bypass Flares
	Coke Oven Battery "B"	Battery "B" was rebuilt between 1981 and 1982	Emergency Bypass Flares
	2 Larry Cars		None
	2 Pushing/Quench Cars		Mobile Venturi Scrubber (PCS Cars #3 & #4)
	East Quench Station (backup)		Tower and Baffles (planned)
	West Quench Station		Tower and Baffles
	Coke Oven Underfiring (coke oven combustion stacks)		None

7.2.3 Applicable Provisions

- a. The "affected coke oven operations" for the purpose of these unit-specific conditions, are the emission units and activities described in Conditions 7.2.1 and 7.2.2.
- b. The affected coke oven operations are subject to 35 IAC 212.443. Certain provisions of this regulation are discussed further in this subsection.
- c.
 - i. The following affected coke oven operations are subject to 40 CFR Part 63, Subpart L Coke Oven Batteries: charging, doors, lids, off takes, collecting mains and bleeder stacks. The Permittee is complying with the so-called LAER track under this NESHAP, as provided for by 40 CFR 63.304.
 - ii. For affected coke oven operations, the Permittee shall comply with applicable provisions of the NESHAP, 40 CFR 63 Subpart A.
- d.
 - i. The following affected coke oven operations are subject to 40 CFR Part 63, Subpart CCCCC: pushing, soaking, quenching and battery underfiring stacks.
 - ii. For affected operations at the coke oven battery, the Permittee shall comply with applicable provisions of the NESHAP, 40 CFR 63 Subpart A as specified in Table 1 in 40 CFR 63 Subpart CCCCC.

7.2.3-1 Applicable Standards: Coke Oven Charging

- a. 35 IAC 212.443(b) (1) (A)

No person shall cause or allow the emission of visible particulate matter from any coke oven charging operation, from the introduction of coal into the first charge port, as indicated by the first mechanical movement of the coal feeding mechanism on the larry car, to the replacement of the final charge port lid for more than a total of 125 seconds over 5 consecutive charges; provided however that 1 charge out of any 20 consecutive charges may be deemed an uncountable charge at the option of the operator.

Compliance with this limit shall be determined in accordance with the applicable procedures in 35 IAC 212.443(b) (1) (B) and Condition 7.2.12.

- b. 40 CFR 63.304(b) (2) (iv)

Emissions to the atmosphere from coke oven charging shall not exceed 12 seconds of visible emissions per charge, as determined by the procedures in 40 CFR 63.309(d) (2).

c. Battery B

The aggregate of visible emissions from the charging of coke ovens at Battery B shall not exceed a total 55 seconds during any 5 consecutive charges [T1].

Note: This limit is the determination of LAER for charging for Battery B made in Construction Permit C808048.

7.2.3-2 Applicable Standards: Leaks from Doorsa. 35 IAC 212.443(d)

- i. No person shall cause or allow visible emissions from more than 10 percent of all coke oven doors at any time. Compliance shall be determined by a one pass observation of all coke oven doors on any one battery.
- ii. No person shall cause or allow the operation of a coke oven unless there is on the plant premises at all times an adequate inventory of spare coke oven doors and seals and unless there is a readily available coke oven door repair facility.

b. Battery B

At no time shall there be any visible emissions from more than 5 percent of the door areas on Battery B [T1].

Note: This limit is the determination of LAER for door leaks for Battery B was established in Construction Permit C808048.

c. 40 CFR 63.304(b)(3)(ii)

3.3 percent leaking coke oven doors for each by-product coke oven battery not subject to the emission limitation 40 CFR 63.304(b)(3)(i), as determined by the procedures in 40 CFR 63.309(d)(1).

7.2.3-3 Applicable Standards: Leaks from Lidsa. 35 IAC 212.443(e)

No person shall cause or allow visible emissions from more than 5 percent of all coke oven lids at any time. Compliance shall be determined by a one pass observation of all coke oven lids.

b. Battery B

There shall be no visible emissions from more than 1 percent of the charging ports or lids [T1].

Note: This limit is the determination of LAER for lid leaks for Battery B made in Construction Permit C808048.

c. 40 CFR 63.304(b) (2) (ii)

0.4 percent leaking topside port lids, as determined by the procedures in 40 CFR 63.309(d) (1) .

7.2.3-4 Applicable Standards: Leaks from Off Takes

a. 35 IAC 212.443(f)

No person shall cause or allow visible emissions from more than 10 percent of all coke oven off take piping at any time. Compliance shall be determined by a one pass observation of all coke oven off take piping.

b. Battery B

There shall be no visible emissions from more than 4 percent of the off take piping on the coke ovens on Battery B [T1].

Note: This limit is the determination of LAER for off take leaks for Battery B made in Construction Permit C808048.

c. 40 CFR 63.304(b) (2) (iii)

2.5 percent leaking off take system(s), as determined by the procedures in 40 CFR 63.309(d) (1) .

7.2.3-5 Applicable Standards: Coke Oven Pushing

a. 35 IAC 212.443(c) (1) (A)

Emissions of uncaptured particulate matter from pushing operations shall not exceed an average of 20 percent opacity for 4 consecutive pushes considering the highest average of six consecutive readings in each push.

Compliance with this limit shall be determined in accordance with the procedures in 35 IAC 212.443(c) (1) (B) and Condition 7.2.12.

b. 35 IAC 212.443(c) (2)

i. The particulate emissions from control equipment used to control emissions during pushing operations shall not exceed 0.040 pounds per ton of coke pushed. Compliance shall be determined in accordance with the procedures set forth in 40 CFR Part 60, Appendix A, Methods 1-5, incorporated by reference in Section 212.113. Compliance shall be based on an arithmetic average of three runs (stack tests) and the

calculations shall be based on the duration of a push as defined in 35 IAC 212.443(c)(1)(A).

- ii. The opacity of emissions from control equipment used to control emissions during pushing operations shall not exceed 20%. For a push of less than six minutes duration, the actual number of 15-second readings taken shall be averaged. Compliance shall be determined in accordance with 40 CFR Part 60, Appendix A, Method 9, incorporated by reference in 35 IAC 212.113, Section 2.5 of 40 CFR Part 60, Appendix A, Method 9, incorporated by reference in 35 IAC 212.113, for data reduction shall not be used for pushes of less than six minutes duration [35 IAC 212.443(c)(2)(B)].

c. 40 CFR 63.7290(a)(4)

Particulate matter emissions to the atmosphere from the mobile scrubber car for pushing which captures emissions during travel shall not exceed 0.04 lb/ton of coke.

d. Battery B

Pushing emissions from Battery B shall be captured and cleaned by a single-spot, coke guide evacuated, enclosed quench car/scrubber car system which meets the following limitations [T1]:

- i. The gas cleaning device shall be operated to meet 0.04 pounds of particulate matter per ton of coke pushed during the pushing operation.
- ii. Visible emissions from the gas cleaning device outlet and uncaptured fugitive emissions shall not exceed 20 percent opacity.

Note: These limits are the determination of LAER for pushing emissions from Battery B made in Construction Permit C808048.

7.2.3-6 Applicable Standards: Coke Quenching

a. i. 40 CFR 63.7295(a)(1)(i)

For the quenching of hot coke, the Permittee must meet the following requirements of 40 CFR 63.7295(a)(1)(i):

The concentration of total dissolved solids (TDS) in the water used for quenching must not exceed 1,100 milligrams per liter (mg/L).

ii. 40 CFR 63.7295(a) (2)

The Permittee must use acceptable makeup water, as defined in 40 CFR 63.7352, as makeup water for quenching.

iii. 40 CFR 63.7295(b)

For each quench tower at a coke oven battery, the Permittee must meet each of the following requirements:

- A. Pursuant to 40 CFR 63.7295(b) (1), each tower is equipped with baffles such that no more than 5 percent of the cross sectional area of the tower may be uncovered or open to the sky;
- B. Pursuant to 40 CFR 63.7295(b) (2), baffles in each quench tower shall be washed once each day that the tower is used to quench coke, except as specified below:
 - 1. Baffles in a quench tower are not required to be washed if the highest measured ambient temperature remains less than 30 degrees Fahrenheit throughout that day (24-hour period). If the measured ambient temperature rises to 30 degrees Fahrenheit or more during the day, the Permittee shall resume daily washing.
 - 2. The Permittee shall continuously record the ambient temperature on days that the baffles were not washed.
- C. Pursuant to 40 CFR 63.7295(b) (3) and (4), the Permittee shall comply with inspection and repair provisions (see Condition 7.2.8-3).

b. 35 IAC 212.443(h) (1)

All coke oven quench towers shall be equipped with grit arrestors or equipment of comparable effectiveness. Baffles shall cover 95 percent or more of the cross sectional area of the exhaust vent or stack and must be maintained. Quench water shall not include untreated coke by-product plant effluent. All water placed on the coke being quenched shall be quench water.

c. 35 IAC 212.443(h) (2)

Total dissolved solids concentrations in the quench water shall not exceed a weekly average of 1200 mg/L.

7.2.3-7 Applicable Standards: Combustion (Battery) Stack

a. 35 IAC 212.443(g)

- i. No person shall cause or allow the emissions of particulate matter from a coke oven combustion stack to exceed 110 mg/dscm (0.05 gr/dscf); and
- ii. No person shall cause or allow the emission of particulate matter from a coke oven combustion stack to exceed 30% opacity. Compliance shall be determined in accordance with 40 CFR Part 60, Appendix A, Method 9, incorporated by reference in 35 IAC 212.113. However, the opacity limit shall not apply to a coke oven combustion stack when a leak between any coke oven and the oven's vertical or crossover flues is being repaired, after pushing coke from the oven is completed, but before resumption of charging. The exemption from the opacity limit shall not exceed three (3) hours per oven repaired. The owner or operator shall keep written records identifying the oven repaired, and the date, time, and duration of all repair periods. These records shall be subject to the requirements of 35 IAC 212.324(g) (4) and (g) (5).

b. 40 CFR 63.7296

The Permittee must not discharge to the atmosphere any emissions from any battery stack at an existing by-product coke oven battery that exhibits opacity greater than the following applicable limits:

- i. Daily average of 15 percent opacity for a battery on a normal coking cycle.
- ii. Daily average of 20 percent opacity for a battery on batterywide extended coking.

c. Battery B

Pursuant to Construction Permit 82060043, non-sulfate particulate matter emissions from the battery stack serving Battery B shall not exceed 0.03 gr/dscf [T1].

7.2.3-8 Applicable Standards: Bypass/Bleeder Stack

- a. i. Pursuant to 40 CFR 63.307(a)(1), the Permittee shall operate and properly maintain a bypass/bleeder stack flare system that is capable of controlling 120 percent of the normal gas flow generated by the affected battery.
- ii. Coke oven emissions shall not be vented to the atmosphere through bypass/bleeder stacks, except

through the flare system or an alternative control device as described in 40 CFR 63.307(d) [40 CFR 63.307(a)(2)].

- iii. Each flare installed pursuant to 40 CFR 63.307 shall meet the applicable requirements specified by 40 CFR 63.307(b) with compliance determined as specified by 40 CFR 63.309(h).
- b. Pursuant to 40 CFR 63.307(c), the flare shall be operated with no visible emissions, as determined by the methods specified in 40 CFR 63.309(h)(1), except for periods not to exceed a total of 5 minutes during any 2 consecutive hours.

7.2.4 Non-Applicability of Regulations of Concern

- a. The emission limitations of 35 IAC 212.324 are not applicable to any emission unit subject to a specific emissions standard or limitation contained in 35 IAC Part 212 Subpart R, Primary and Fabricated Metal Products and Machinery Manufacture, pursuant to 35 IAC 212.324 (a)(3).
- b. The affected coke oven operations are not fuel combustion emission units as defined in 35 IAC 211.2470 and therefore are not subject to the standards for fuel combustion emission units in 35 IAC Parts 212, 214, 216 and 217.
- c. This permit is issued based on the affected coke oven operations not being subject to the applicable requirements of 35 IAC 219.301 because there is 85 percent reduction of uncontrolled organic material that would otherwise be emitted into atmosphere, pursuant to 35 IAC 219.302.

7.2.5-1 Work Practices: Soaking Plan (40 CFR 63.7294)

Pursuant to 40 CFR 63.7294(a), the Permittee shall operate the coke ovens pursuant to a written work practice plan for soaking, which includes the measures specified by 40 CFR 63.7294(a), including, if soaking emissions are caused by leaks from the collecting main, the Permittee shall take corrective actions to eliminate soaking emissions in accordance with the actions identified in the soaking plan. If soaking emissions are not caused by leaks, the Permittee must determine whether the soaking emissions are due to incomplete coking. If incomplete coking is the cause of the soaking emissions, the Permittee must put the oven back on the collecting main until it is completely coked or the Permittee must ignite the standpipe emissions as specified by 40 CFR 63.7294(a)(4) and (5).

7.2.5-2 Work Practice Plan (40 CFR 63.306)

- a. Pursuant to 40 CFR 63.306(c), for affected units subject to the NESHAP, 40 CFR 63 Subpart L, the Permittee shall implement a written emission control Work Practice Plan for each affected coke oven battery designed to achieve

compliance with visible emission limitations for coke oven doors, topside port lids, off take systems, and charging operations.

- b. Pursuant to 40 CFR 63.306(a)(1) and (b), the Permittee shall organize the work practice plan to indicate clearly which parts of the plan pertain to each emission point subject to visible emission standards under 40 CFR Subpart L. Each of the following provisions, at a minimum, shall be addressed in the plan in sufficient detail and with sufficient specificity to allow USEPA and the Illinois EPA to evaluate the plan for completeness and enforceability:
 - i. An initial and refresher training program for all coke plant operating personnel with responsibilities that impact emissions, including contractors, in job requirements related to emission control and the requirements of 40 CFR Subpart L, including work practice requirements, that includes all the elements specified by 40 CFR 63.306(b)(1). Contractors with responsibilities that impact emission control may be trained by the Permittee or by qualified contractor personnel; however, the Permittee shall ensure that the contractor training program complies with the requirements of 40 CFR 63.306(b)(1).
 - ii. Procedures for controlling emissions from coke oven doors on by-product coke oven batteries, including the elements specified by 40 CFR 63.306(b)(2).
 - iii. Procedures for controlling emissions from charging operations on by-product coke oven batteries, including the elements specified by 40 CFR 63.306(b)(3).
 - iv. Procedures for controlling emissions from topside port lids on by-product coke oven batteries, including the elements specified by 40 CFR 63.306(b)(4).
 - v. Procedures for controlling emissions from off take system(s) on by-product coke oven batteries, including the elements specified by 40 CFR 63.306(b)(5).
 - vi. Procedures for each emission point subject to visible emission limitations under 40 CFR 63 Subpart L for maintaining a daily record of the performance of plan requirements pertaining to the daily operations of the affected coke oven operations as defined in Condition 7.2.3(c) and its emission control equipment, including the elements specified by 40 CFR 63.306(b)(7).

- vii. Any additional work practices or requirements specified by the USEPA or Illinois EPA pursuant to 40 CFR 63.306(d).
- c. Pursuant to 40 CFR 63.306(c) the Permittee shall implement the provisions of the work practice plan pertaining to a particular emission point:
 - i. Following the second independent exceedance of the visible emission limitation for the emission point in any consecutive 6-month period, by no later than 3 days after receipt of written notification of the second such exceedance from the certified observer. For this purpose, the second exceedance is "independent" if the criteria of 40 CFR 63.306(c)(1)(i)(A), (B) or (C) are met.
 - ii. And continue to implement such plan provisions until the visible emission limitation for the emission point is achieved for 90 consecutive days. After the visible emission limitation for a particular emission point is achieved for 90 consecutive days, any exceedances prior to the beginning of the 90 days are not included in making the above determination of exceedances.
- d. Revisions to the work practice plan shall be done in accordance with 40 CFR 63.306(d) and (a)(2).
- e. The Work Practice Plan, as submitted by the Permittee on November 12, 1993, (which contains various training and standard operating procedures for the A & B coke oven batteries), is incorporated herein by reference. The document constitutes the formal work practice plan required by 40 CFR 306(a) for each coke oven battery, addressing work practices for achieving compliance with the visible emissions limitations of Subpart L.

Any future revision to the aforementioned plan made by the Permittee during the permit term is automatically incorporated by reference provided that said revision is not expressly disapproved, in writing, by the Illinois EPA within 30 days of receipt of said revision. In the event that the Illinois EPA notifies the Permittee of a deficiency with any revision to the plan, the Permittee shall be required to revise and resubmit the plan within 30 days of receipt of notification to address the deficiency [Section 39.5(7)(a) of the Act].

7.2.5-3 NESHAP Provisions for Startup, Shutdown and Malfunction

- a. Pursuant to 40 CFR 63.7310(a) and (c), for affected coke oven operations subject to 40 CFR 63 Subpart CCCCC:

- i. The Permittee shall comply with the emission limitations, work practice standards, and operating and maintenance requirements of 40 CFR 63 Subpart CCCCC, at all times except periods of startup, shutdown, and malfunction as defined at 40 CFR 63.2.
 - ii. The Permittee shall develop and implement a written startup, shutdown and malfunction plan according to the provisions in 40 CFR 63.6(e)(3).
- b. Pursuant to 40 CFR 63.310, for affected coke oven operations subject to 40 CFR 63 Subpart L:
- i. At all times, including periods of startup, shutdown, and malfunction, the Permittee shall operate and maintain the affected coke oven operations, and associated pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions to the levels required by standards under 40 CFR Subpart L. Failure to adhere to the requirement of 40 CFR 63.310 shall not constitute a separate violation if a violation of an applicable performance or work practice standard has also occurred [40 CFR 63.310(a)].
 - ii. The Permittee shall develop and implement according to 40 CFR 63.310(c), a written startup, shutdown, and malfunction plan that describes procedures for operating the affected units, including associated air pollution control equipment, during a period of a startup, shutdown, or malfunction in a manner consistent with good air pollution control practices for minimizing emissions, and procedures for correcting malfunctioning process and air pollution control equipment as quickly as practicable [40 CFR 63.310(b)].
 - iii. Pursuant to 40 CFR 63.310(c), during a period of startup, shutdown, or malfunction the Permittee shall operate the battery (including associated air pollution control equipment) in accordance with the procedure specified in the startup, shutdown, and malfunction plan; and malfunctions shall be corrected as soon as practicable after their occurrence, in accordance with the plan.
 - iv. To satisfy the requirement for a startup, shutdown, and malfunction plan, the Permittee may use the standard operating procedures manual for the battery, provided the manual meets all the requirements of 40 CFR 63.310 and is made available for inspection at reasonable times when requested by the Administrator (USEPA) or Illinois EPA, as provided by 40 CFR 63.310(g).

- v. The USEPA or Illinois EPA may require reasonable revisions to a startup, shutdown, and malfunction plan as provided by 40 CFR 63.310(h).
- vi. Pursuant to 40 CR 63.310((i), if the Permittee demonstrates to the satisfaction of the Administrator (USEPA and Illinois EPA) that a startup, shutdown, or malfunction has occurred, then an observation occurring during such startup, shutdown, or malfunction shall not:
 - A. Constitute a violation of relevant requirements of 40 CFR 63 Subpart L;
 - B. Be used in any compliance determination under 40 CFR 63.309; or
 - C. Be considered for purposes of 40 CFR 63.306 (the work practice plan), until the Administrator (USEPA and Illinois EPA) has resolved the claim that a startup, shutdown, or malfunction has occurred, as further provided by 40 CFR 63.310(i)(3).
- vii. The Permittee shall maintain all records related to startup, shutdown and malfunction, including internal reports which form the basis of each malfunction notification under 40 CFR 63.310(d) as required by 40 CFR 63.310(f).

7.2.5-4 Startup Authorization Pursuant to State Rule

Pursuant to 35 IAC 201.149 and Part 201, Subpart I, subject to the following terms and conditions, for the affected coke ovens, the Permittee is authorized to violate the applicable standards in 35 IAC 212.443 during startup. For this purpose a start-up is the resumption of normal production following the period when the battery has been idled.

Note: This authorization is provided because the Permittee has applied for such authorization in its CAAPP application, generally describing the efforts that will be used "...to minimize startup emissions, duration of individual starts, and frequency of startups".

- a. This authorization does not relieve the Permittee from the continuing obligation to demonstrate that all reasonable efforts are made to minimize startup emissions, duration of individual startups and frequency of startups.
- b. The Permittee shall conduct startup of the affected coke oven operations in accordance with the manufacturer's written instructions or other written procedures prepared by the Permittee and maintained at the source (see

Condition 7.2.9(g)(i)), that are specifically developed to minimize emissions from the startup.

- c. The Permittee shall fulfill applicable recordkeeping of Condition 7.2.9(g).
- d. The Permittee shall fulfill applicable reporting of Condition 5.10.5-1.
- e. As provided by 35 IAC 201.265, an authorization in a permit for excess emissions during startup does not shield a Permittee from enforcement for any violation of applicable emission standard(s) that occurs during startup and only constitutes a prima facie defense to such an enforcement action provided that the Permittee has fully complied with all terms and conditions connected with such authorization.

7.2.5-5 Malfunction and Breakdown Authorization Pursuant to State Rule

- a. Pursuant to 35 IAC 201.149 and Part 201, Subpart I, subject to the following terms and conditions, the Permittee is authorized to continue operation of the affected coke oven batteries in excess of the applicable state standards in 35 IAC 212.443 in the event of a malfunction or breakdown.

Note: This authorization is provided because the Permittee applied for such authorization in its CAAPP application, generally explaining why such continued operation would be required to prevent injury to personnel or severe damage to equipment, and describing the measures that will be taken to minimize emissions from any malfunctions and breakdowns.

- i. This authorization only allows such continued operation as necessary to prevent injury to personnel or severe damage to equipment and does not extend to continued operation solely for the economic benefit of the Permittee.
- ii. Upon occurrence of excess emissions due to malfunction or breakdown, the Permittee shall repair the responsible affected coke oven operations or other responsible equipment and/or re-establish the applicable control practices (e.g., the rail system for quench car).
- iii. The Permittee shall fulfill the applicable recordkeeping and reporting requirements of Conditions 7.2.9(h) and Condition 5.10.5-2, respectively. For these purposes, time shall be measured from the start of a particular incident. The absence of excess emissions for a short period shall not be considered to end the incident if excess emissions resume.

- iv. Following notification to the Illinois EPA (see Condition 5.10.5-2(a)(i)) of a malfunction or breakdown with excess emissions, the Permittee shall comply with all reasonable directives of the Illinois EPA with respect to such incident.
- v. This authorization does not relieve the Permittee from the continuing obligation to minimize excess emissions during malfunction or breakdown. As provided by 35 IAC 201.265, an authorization in a permit for continued operation with excess emissions during malfunction and breakdown does not shield the Permittee from enforcement for any such violation and only constitutes a prima facie defense to such an enforcement action provided that the Permittee has fully complied with all terms and conditions connected with such authorization.
- b. During the period when only one quench station is available (i.e., the other quench station is not operable because of construction work on a new quench tower) or there is a malfunction or breakdown preventing hot coke from being moved to a tower-equipped quench station (e.g., rail line malfunction), the Permittee is authorized to continue operation of the coke ovens with emergency quenching, i.e., quenching without a quench tower or at a quench station that is experiencing a malfunction or breakdown (see Condition 7.2.5-5).

7.2.6 Production and Emission Limitations

- a. i. The amount of coal charged to the affected Battery "B" shall not exceed 454,000 tons per year [Construction Permit C808048].
- b. i. Emissions of PM from the mobile scrubber cars for pushing shall not exceed 4.2 lb/hr and 18.3 t/yr [T1].

Compliance with annual limits shall be determined from a running total of 12 months of data [Construction Permit 88070071].
- ii. Spare cars, parts inventories and maintenance practices shall be maintained and implemented by the Permittee for the pushing operations (quench cars and mobile scrubbers) consistent with good air pollution control practices [Permit 88070071].
- c. i. Supplementary natural gas usage for the coke ovens shall not exceed 20 million scf/month and 123 million scf/yr [T1].
- ii. Emissions attributable to the combustion of natural gas for the underfiring of the batteries shall not exceed the following limits. Compliance with the

annual limits shall be determined from a running total of 12 months of data [T1]:

Pollutant	Emissions	
	(Tons/Month)	(Tons/Year)
NO _x	2.80	17.22
CO	0.84	5.17
PM	0.12	0.73
PM ₁₀	0.11	0.62
VOM	0.06	0.34
SO ₂	0.01	0.04

iii. The above limitations were established in the Permit 04110018.

d. i. Once shakedown of the new quench tower on the West Quench Station has been completed, the Permittee shall use the West Quench Station preferentially. For this purpose, on an annual basis*, excluding periods when the West Quench Station cannot be used due to malfunction or breakdown, the East Quench Station shall not quench more than: 5 percent of the total number of quenches or 15,000 tons of coke, whichever is greater, not to exceed 30,000 tons of coke per year.

* This limit shall apply for the 12 month period from July 1 of one year through June 30 of the following year. This limit shall also apply for the initial 12 months following shakedown of the West Quench Station with new quench tower.

ii. Shakedown of each affected quench tower shall be completed within 180 days of the initial quench with each tower.

iii. The above limitations were established in the Permit 08060026.

7.2.7-1 Emission Testing for Coke Oven Pushing

a. Testing requirements established by 40 CFR Part 63 Subpart CCCCC:

i. Pursuant to 40 CFR 63.7321, for each control device subject to an emission limit for particulate matter in 40 CFR 63.7290(a), the Permittee must conduct performance tests no less frequently than twice (at mid-term and renewal) during each term of the CAAPP permit (i.e., every 30 months).

- ii. The Permittee must conduct each performance test according to the following requirements in 40 CFR 63.7322.
 - A. To determine compliance with a process-weighted mass rate of particulate matter (lb/ton of coke) from a control device applied to pushing emissions where a cokeside shed is not used, follow these test methods and procedures to determine the concentration of particulate matter according to the following test methods in Appendix A to 40 CFR Part 60:
 - 1. Method 1 to select sampling port locations and the number of traverse points. Sampling sites must be located at the outlet of the control device and prior to any releases to the atmosphere.
 - 2. Method 2, 2F, or 2G to determine the volumetric flow rate of the stack gas.
 - 3. Method 3, 3A, or 3B to determine the dry molecular weight of the stack gas.
 - 4. Method 4 to determine the moisture content of the stack gas.
 - 5. Method 5 or 5D, as applicable, to determine the concentration of front half particulate matter in the stack gas.
 - B. During each particulate matter test run, sample only during periods of actual pushing when the capture system fan and control device are engaged. Collect a minimum sample volume of 30 dry standard cubic feet of gas during each test run. Three valid test runs are needed to comprise a performance test. Each run must start at the beginning of a push and finish at the end of a push (i.e., sample for an integral number of pushes).
 - C. Determine the total combined weight in tons of coke pushed during the duration of each test run according to the procedures in the Permittee's source test plan for calculating coke yield from the quantity of coal charged to an individual oven.

- D. Compute the process-weighted mass emissions (E_p) for each test run using the following equation:

$$E_p = \frac{C \times Q \times T}{P \times K} \quad (\text{Eq. 1})$$

Where:

E_p = Process weighted mass emissions of particulate matter, lb/ton;

C = Concentration of particulate matter, gr/dscf;

Q = Volumetric flow rate of stack gas, dscf/hr;

T = Total time during a run that a sample is withdrawn from the stack during pushing, hr;

P = Total amount of coke pushed during the test run, tons; and

K = Conversion factor, 7,000 gr/lb.

- b. Testing requirements to address 35 IAC 212.443(c) (2)

If the PM emissions measured during the emissions testing conducted pursuant to Condition 7.2.7-1(a) are more than 0.036 lb/ton, the Permittee shall conduct a follow-up test between 12 and 18 months after such test, unless subsequent emission testing conducted in the 12 month period following such test shows PM emissions are no more than 0.030 lb/ton.

7.2.7-2 Testing Requirements for Coke Quenching

- a. Requirements of 40 CFR Part 63 Subpart CCCCC

- i. Pursuant to 40 CFR 63.7333(f), the Permittee shall sample and analyze quench water for total dissolved solids on at least a weekly basis in accordance with the procedures specified by 40 CFR 63.7325(a).
- ii. If the Permittee elects to comply with the TDS limit for quench water in 40 CFR 63.7295(a) (1) (i), the Permittee must conduct each performance test that applies to the affected quenching operations according to the following conditions in 40 CFR 63.7325(a) (1) and (2):

- A. Take the quench water sample from a location that provides a representative sample of the quench water as applied to the coke (e.g., from the header that feeds water to the quench tower reservoirs). Conduct sampling under normal and representative operating conditions.
 - B. Determine the TDS concentration of the sample using Method 160.1 in 40 CFR part 136.3 (see residue-filterable"), except that you must dry the total filterable residue at 103 to 105°C instead of 180°C.
- b. Requirements of 35 IAC 212.443(h)
- i. Pursuant to 35 IAC 212.443(h) (3), the quench water shall be sampled for total dissolved solids concentrations in accordance with the methods specified in Standard Methods for the Examination of Water and Wastewater, Section 209C, "Total Filterable Residue Dried at 103-105°C" 15th Edition, 1980, incorporated by reference in 35 IAC 212.113. Analyses shall be performed on grab samples of the quench water as applied to the coke in accordance with the sampling schedule in Condition 7.2.12(c).
 - ii. If the quench station is not used during any given calendar week, the grab samples for that quench station need not be analyzed.
- c. Testing requirements for West Quench Station from Permit 08060026

Within two years after initial startup of the West Quench Station with low emission quench tower, the Permittee shall have emission test(s) conducted for this quench station at its expense as follows:

- i. The emissions test(s) shall be designed to measure the PM, PM₁₀, and PM_{2.5} emission rates (lb/ton coke) from the quench tower under conditions that are representative of the maximum emissions as the station is normally operated.
- ii. The Permittee shall install any facilities necessary to accommodate this emissions testing.
- iii. The following methods and procedures shall be used for testing emissions of PM unless other method(s) are approved by the Illinois EPA as part of its review of the test plan.
 - A. The following USEPA Test Methods:

Refer to 40 CFR 60, Appendix A for USEPA test methods and www.epa.gov/ttn/emc/prelim.html for other test methods.

Location of Sample Points	USEPA Method 1
Gas Flow and Velocity	USEPA Method 2
Flue Gas Weight	USEPA Method 3
Moisture	USEPA Method 4
PM	USEPA Method 5

- B. Testing for emissions of filterable and condensable PM₁₀ shall be conducted using an appropriate Test Method developed by USEPA, e.g., Method 201/201A or Other Test Method (OTM) 27 and Method 202 or OTM 28, or a Reference Method proposed by USEPA, subject to review by the Illinois EPA as part of the review of the test plan.
- C. Testing for emissions of filterable PM_{2.5} shall be conducted using an applicable Reference Method, as adopted by USEPA in 40 CFR Part 51, Appendix M, or in 40 CFR Part 60, Appendix A. If USEPA has not adopted a Reference Method for testing of filterable PM_{2.5} when testing must be performed, testing for filterable PM_{2.5} shall be conducted using an appropriate Test Method developed by USEPA, e.g., OTM 27, or a Reference Method proposed by USEPA, subject to review by the Illinois EPA as part of the review of the test plan.
- iv. For this emission testing, test notification and reporting shall be done by the Permittee in accordance with Conditions 8.6.2 and 8.6.3 of this permit.

7.2.7-3 Compliance Demonstrations and Emission Testing for Coke Oven Underfiring (combustion stacks)

- a. For compliance demonstration with opacity limits, the Permittee must conduct each performance test that applies to the affected operations according to the following requirements in 40 CFR 63.7324(b):

To determine compliance with the daily average opacity limit for stacks of 15 percent for a by-product coke oven battery on a normal coking cycle or 20 percent for a by-product coke oven battery on batterywide extended coking, follow the test methods and procedures outlined below:

- i. Using the continuous opacity monitoring system (COMS) required in 40 CFR 63.7330(e), measure and record the

opacity of emissions from each battery stack for a 24-hour period.

- ii. Reduce the monitoring data to hourly averages as specified in 40 CFR 63.8(g)(2).
- iii. Compute and record the 24-hour (daily) average of the COMS data.

b. Pursuant to Sections 39.5(7)(d) and (p) of the Act, the Permittee shall conduct emission tests for each coke oven combustion stack under conditions that are representative of maximum emissions as follows:

- i. Testing for PM emissions (filterable PM from Battery A and filterable and filterable non-sulfate PM from Battery B) shall be conducted as follows:
 - A. Initial testing shall be conducted within 24 months of the effective date of this permit condition.
 - B. Thereafter, emission testing shall be repeated in 30 months, unless the PM emission rate measured from both stacks during the previous testing is less than 0.040 gr/dscf for filterable PM and less than 0.024 gr/dscf for filterable non-sulfate PM from the combustion stack on Battery B, in which case testing shall be repeated in 60 months.
 - C. Testing shall also be conducted for combustion stack(s) upon written request from the Illinois EPA as specified in the request. This testing shall be completed within 90 days of the date of the request or such later date agreed to by the Illinois EPA.
- ii. In conjunction with the initial testing for PM emissions required by Condition 7.2.7-3(b)(i)(A), the Permittee shall also test for CO and NO_x from one of the coke oven combustion stacks, as selected by the Illinois EPA.
- iii. The following USEPA test methods shall be used for testing of emissions, unless another USEPA test method is approved by the Illinois EPA. Refer to 40 CFR 51, Appendix M, and 40 CFR 60, Appendix A, for test methods.

Location of Sample Points	Method 1
Gas Flow and Velocity	Method 2
Flue Gas Weight	Method 3
Moisture	Method 4

PM (filterable)	Method 5
PM (non-sulfate filterable)	Method 5F
CO	Method 10
NO _x	Method 7 or 7E

- iv. For this emission testing, test notification and reporting shall be done by the Permittee in accordance with Conditions 8.6.2 and 8.6.3 of this permit.
- v. With the report for emission testing, the Permittee shall also provide a summary of the opacity data monitored during the period of testing (6 minute averages and daily average), the sulfur content of COG being combusted during the period of testing, as measured by the monitoring system(s) for COG, the PM content of COG combusted during the period of testing, and data for the firing rate of the battery during testing (mmBtu or SCF of COG and natural gas per hour) for each test run, with supporting calculations.

- c. Testing conditions above are established pursuant to Sections 39.5(7) (d) and (p) of the Act.

7.2.8-1 Monitoring Requirements for Charging, Doors, Lids and Off Takes

- a. i. Pursuant to 40 CFR 63.309(a), daily performance tests shall be conducted by a certified observer each day, 7 days per week for the affected battery, as specified by 40 CFR 63.309, the results of which shall be used in accordance with procedures specified in 40 CFR 63 Subpart L to determine compliance with each of the applicable visible emission limitations for coke oven doors, topside port lids, off take systems, and charging operations in 40 CFR 63 Subpart L.
- ii. The Permittee shall enter into a contract providing for the inspections and performance tests required under the NESHAP, 40 CFR 63 Subpart L, to be performed by a Method 303 certified observer. The inspections and performance tests will be conducted at the expense of the Permittee, during the period that the USEPA is the implementing agency [40 CFR 63.309(a) (5) (ii)].
 - A. The certified observer shall conduct daily performance tests according to the requirements specified in 40 CFR 63.309(c).
 - B. Pursuant to 40 CFR 63.309(c) (3), upon request of the certified observer the Permittee shall demonstrate pursuant to Reference Method 303 the accuracy of the pressure measurement device

for the collecting mains and shall not adjust the pressure to a level below the range of normal operation during or prior to the inspection.

C. In no case shall the owner or operator knowingly block a coke oven door, or any portion of a door for the purpose of concealing emissions or preventing observations by the certified observer, as prohibited by 40 CFR 63.309(c) (6).

D. 1. Pursuant to 40 CFR 63.309(e), the certified observer shall make available to the implementing agency, as well as to the Permittee, a copy of the daily inspection results by the end of the day and shall make available the calculated rolling average for each emission point to the Permittee as soon as practicable following each performance test. The information provided by the certified observer is not a compliance determination. For the purposes of notifying the owner or operator of the results obtained by a certified observer, the person does not have to be certified.

2. Pursuant to 40 CFR 63.306(d) (3), if the certified observer calculates that a second exceedance (or if applicable, a second independent exceedance) has occurred, the certified observer shall notify the Permittee. No later than 10 days after receipt of such notification, the Permittee shall notify the administrator (USEPA) and Illinois EPA of any finding of whether work practices are related to the cause or solution of the problem.

Note: Pursuant to 40 CFR 63.306(d) (6), the reviewing authority (USEPA) may disapprove the submitted finding if it determines that a revised work practice plan is needed to prevent exceedances of the applicable visible emission limitations.

iii. Pursuant to 40 CFR 63.309(f), compliance with the NESHAP, 40 CFR 63 Subpart L shall not be determined more often than the schedule provided for performance tests under 40 CFR 63.309. If additional valid emissions observations are obtained (or in the case

of charging, valid sets of emission observations), the arithmetic average of all valid values (or valid sets of values) obtained during the day shall be used in any computations performed to determine compliance under 40 CFR 63.309(d) or determinations under 40 CFR 63.306.

- iv. Pursuant to 40 CFR 63.309(i), no observations obtained during any program for training or for certifying observers under 40 CFR 63 Subpart L shall be used to determine compliance with the requirements of 40 CFR 63 Subpart L or any other federally enforceable standard.
- b. Pursuant to 40 CFR 63.308, for the collecting mains, the Permittee shall conduct daily inspections for leaks and promptly repair any leaks as specified by 40 CFR 63.308(a) through (d).
- c. Pursuant to Section 39.5(7)(d) of the Act, the Permittee shall have daily inspections conducted for charging and doors, lids and off takes to confirm compliance by Battery A with 35 IAC 212.443(b), (d), (e) and (f) and by Battery B with LAER limit (See Conditions 7.2.3-1(c), 7.2.3-2(b), 7.2.3-3(b), and 7.2.3-4(b)). These inspections shall be conducted in accordance with applicable procedures in Condition 7.2.12(a). These inspections may be coordinated with the daily inspections required by the NESHAP, provided that appropriate observations are made and collected to address these applicable limits under state rule and permit.

7.2.8-2 Monitoring Requirements for Pushing

- a. Pursuant to 40 CFR 63.7330(b), For each venturi scrubber applied to pushing emissions, the Permittee must at all times monitor the pressure drop and water flow rate using a CPMS according to the following requirements:

Pursuant to 40 CFR 63.7331(e), operate, and maintain CPMS to measure and record the pressure drop across the scrubber and scrubber water flow rate during each push according to the requirements in the site specific monitoring plan as well as the following:

- i. Each CPMS must complete a measurement at least once per push [40 CFR 63.7331(e)(1)];
- ii. Each CPMS must produce valid data for all pushes [40 CFR 63.7331(e)(2)]; and
- iii. Each CPMS must determine and record the daily (24-hour) average of all recorded readings [40 CFR 63.7331(e)(3)].

- b. Pursuant to 40 CFR 63.7330(d), For each capture system applied to pushing emissions, the Permittee must at all times operate and maintain a device to measure the fan RPM.
- c. Pursuant to 40 CFR 63.7331(b), the Permittee must maintain and make available for inspection upon request by the Illinois EPA and USEPA a site-specific monitoring plan for each Continuous Parameter Monitoring System (CPMS) that addresses the following requirements:
 - i. Installation of the CPMS sampling probe or other interface at a measurement location relative to each affected process unit such that the measurement is representative of control of the exhaust emissions (e.g., on or downstream of the last control device) [40 CFR 63.7331(b)(1)];
 - ii. Performance and equipment specifications for the sample interface, the parametric signal analyzer, and the data collection and reduction system [40 CFR 63.7331(b)(2)];
 - iii. Performance evaluation procedures and acceptance criteria (e.g., calibrations) [40 CFR 63.7331(b)(3)];
 - iv. Ongoing operation and maintenance procedures in accordance with the general requirements of 40 CFR 63.8(c)(1), (3), (4)(ii), (7), and (8) [40 CFR 63.7331(b)(4)];
 - v. Ongoing data quality assurance procedures in accordance with the general requirements of 40 CFR 63.8(d) [40 CFR 63.7331(b)(5)]; and
 - vi. Ongoing recordkeeping and reporting procedures in accordance with the general requirements of 40 CFR 63.10(c), (e)(1), and (e)(2)(i) [40 CFR 63.7331(b)(6)].
- d. Pursuant to 40 CFR 63.7331(d), the Permittee must operate and maintain the CPMS in continuous operation according to the site-specific monitoring plan.
- e. Pursuant to 40 CFR 63.7332(a), except for monitor malfunctions, associated repairs, and required quality assurance or control activities (including as applicable, calibration checks and required zero and span adjustments), you must monitor continuously (or collect data at all required intervals) at all times the affected source is operating.

- f. Pursuant to 40 CFR 63.7332(b), the Permittee may not use data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities in data averages and calculations used to report emission or operating levels, or in fulfilling a minimum data availability requirement, if applicable. You must use all the data collected during all other periods in assessing compliance. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitor to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.
- g. Pursuant to 40 CFR 63.7333(d)(3)(ii), check the fan RPM at least every 8 hours to verify the daily average fan RPM is at or above the minimum level in Condition 7.2.8-2(h) and recording the results of each check.
- h. i. Pursuant to 40 CFR 63.7290(b)(1), for each venturi scrubber applied to pushing emissions, the Permittee must maintain the daily average pressure drop and scrubber water flow rate at or above (no lower than) the following minimum levels established as the site-specific operating limits during testing:

PCS Car	Scrubber Water Flow Rate, gal/min	Pressure Drop, in. wc
#3	860	37
#4	607	33

- ii. Pursuant to 40 CFR 63.7290(b)(3)(ii), for each capture system the Permittee must maintain the daily average fan revolutions per minute (RPM) at or above (no lower than) the minimum level established as the site-specific operating limits during testing:

PCS Car	RPM
#3	1650
#4	1743

- iii. Pursuant to 40 CFR 63.7323 (e)(1) through (3), the Permittee may change the operating limit for a venturi scrubber, capture system, or mobile control device that captures emissions during pushing if the Permittee meets the following requirements described below:
- A. Submit a written notification to the Illinois EPA of Permittee's request to conduct a new performance test to revise the operating limit.
- B. Conduct a performance test to demonstrate that emissions of particulate matter from the

control device do not exceed the applicable limit in 40 CFR 63.7290(a).

C. Establish revised operating limits according to the applicable procedures in 40 CFR 63.7323.

i. The Permittee shall comply with the work practice standards for fugitive pushing emissions as specified by 40 CFR 63.7291. In particular:

i. The Permittee shall observe and record the opacity of fugitive pushing emissions as required by 40 CFR 63.7291(a)(1), (a)(2), (a)(3) and (a)(4).

ii. The Permittee shall undertake corrective action(s) in the event that the opacity of fugitive pushing emissions exceeds the applicable limit, as required by 40 CFR 63.7291(a)(5) through (a)(7).

iii. Pursuant to 40 CFR 63.7291(b), the Permittee may request to use an alternative to the work practice standards in 40 CFR 63.7291(a) using the procedure provided in 40 CFR 63.6(g).

j. For each by-product coke oven battery with vertical flues subject to the work practice standards for fugitive pushing emissions in 40 CFR 63.7291(a), the Permittee must demonstrate continuous compliance according to the following requirements of 40 CFR 63.7334(a)(1) through (8):

i. The Permittee shall observe and record the opacity of fugitive emissions for four consecutive pushes per operating day, except the Permittee may make fewer or non-consecutive observations as permitted by 40 CFR 63.7291(a)(3). The Permittee shall maintain records of the pushing schedule for each oven and records indicating the legitimate operational reason for any change in the pushing schedule according to 40 CFR 63.7291(a)(4).

ii. The Permittee shall observe and record the opacity of fugitive emissions from each oven in a battery at least once every 90 days. If an oven cannot be observed during a 90-day period, the Permittee shall observe and record the opacity of the first push of that oven following the close of the 90-day period that can be read in accordance with the procedures in 40 CFR 63.7334(a)(1) through (8).

iii. The Permittee shall make all observations and calculations for opacity observations of fugitive pushing emissions in accordance with Method 9 in appendix A to 40 CFR Part 60 using a Method 9

certified observer unless the Permittee has an approved alternative procedure under 40 CFR 63.7334(a)(7).

- iv. The Permittee shall record pushing opacity observations at 15-second intervals as required in section 2.4 of Method 9 Appendix A to 40 CFR Part 60. The following requirements do not apply: (section 2.4 of Method 9) for a minimum of 24 observations; the data reduction requirements in (section 2.5 of Method 9); and obtaining at least 3 hours of observations (thirty 6-minute averages) to demonstrate initial compliance (40 CFR 63.6(h)(5)(ii)(B)) does not apply.
- v. If fewer than six but at least four 15-second observations can be made, the Permittee shall use the average of the total number of observations to calculate average opacity for the push. Missing one or more observations during the push (e.g., as the quench car passes behind a building) does not invalidate the observations before or after the interference for that push. However, a minimum of four 15-second readings must be made by the Permittee for a valid observation.
- vi. The Permittee shall begin observations for a push at the first detectable movement of the coke mass. The Permittee shall end observations of a push when the quench car enters the quench tower.
 - A. For a battery without a cokeside shed, the Permittee shall observe fugitive pushing emissions from a position at least 10 meters from the quench car that provides an unobstructed view and avoids interferences from the topside of the battery. This may require the observer to be positioned at an angle to the quench car rather than perpendicular to it. Typical interferences for the observer to avoid include emissions from open standpipes and charging. Opacity of emissions shall be observed above the battery top with the sky as the background where possible. The Permittee shall record the oven number of any push not observed because of obstructions or interferences.
 - B. An observer may reposition after the push to observe emissions during travel if necessary.

- vii. If it is infeasible to implement the procedures in 40 CFR 63.7334 (a)(1) through (6) for an oven due to physical obstructions, nighttime pushes, or other reasons, the Permittee may apply to an appropriate permitting authority (USEPA) for permission to use an alternative procedure. The application must provide a detailed explanation of why it is infeasible to use the procedures in 40 CFR 63.7334 (a)(1) through (6), identify the oven and battery numbers, and describe the alternative procedure. An alternative procedure must identify whether the coke in that oven is not completely coked, either before, during, or after an oven is pushed.
- viii. For each oven observed that exceeds an opacity of 30 percent for any short battery, the Permittee must take corrective action and/or increase the coking time in accordance with 40 CFR 63.7291(a). The Permittee shall maintain records documenting conformance with the requirements in 40 CFR 63.7291(a).
- k. Pursuant to Section 39.5(7)(d) of the Act, the Permittee shall have daily observations conducted for pushing to confirm compliance with 35 IAC 212.443(c)(1)(A) (Condition 7.2.3-5(a)). These observations shall be conducted in accordance with applicable procedures in Condition 7.2.12(b). These observations may be coordinated with the observations required by the NESHAP provided that appropriate observations are made and data collected to address the applicable standard under state rule. These observations shall also include, on a monthly basis, opacity observations for the stack of the mobile scrubber car.
- l. For each coke oven battery with a capture system or control device applied to pushing emissions, the Permittee shall demonstrate continuous compliance with the operation and maintenance requirements in 40 CFR 63.7300(c) by meeting the following requirements outlined in 40 CFR 63.7335(b):
 - i. Making monthly inspections of capture systems according to 40 CFR 63.7300(c)(1) and recording all information needed to document conformance with these requirements; and
 - ii. Performing preventative maintenance for each control device according to 40 CFR 63.7300(c)(2) and recording all information needed to document conformance with these requirements.

7.2.8-3 Monitoring Requirements for Quenching

- a. For each coke oven battery subject to the work practice standard for quenching in 40 CFR 63.7295(b), the Permittee must demonstrate continuous compliance according to the following requirements of 40 CFR 63.7334(e)(1) through (3):
 - i. Maintaining baffles in each quench tower such that no more than 5 percent of the cross-sectional area of the tower is uncovered or open to the sky as required in 40 CFR 63.7295(b)(1);
 - ii. Maintaining records that document conformance with the washing, inspection, and repair requirements in 40 CFR 63.7295(b)(2), including records of the ambient temperature on any day that the baffles were not washed; and
 - iii. Maintaining records of the source of makeup water to document conformance with the requirement for acceptable makeup water in 40 CFR 63.7295(a)(2).
- b. Pursuant to 40 CFR 63.7295(b), for the quench tower, the Permittee shall perform inspections on at least a monthly basis for damaged or missing baffles and initiate repair or replacement within 30 days, which shall be completed as soon as practicable, as specified by 40 CFR 63.7295(b)(3) and (4).

7.2.8-4 Monitoring Requirements for Combustion Stacks

- a. Pursuant to 40 CFR 63.7330(e), for each coke oven battery stack, the Permittee must operate and maintain a COMS to measure and record the opacity of emissions exiting each stack according to the requirements in 40 CFR 63.7331(j)(1) through (5) and the following below:
 - i. The Permittee must operate, and maintain each COMS according to the requirements in 40 CFR 63.8(e) and Performance Specification 1 in 40 CFR Part 60, Appendix B. The Permittee shall identify periods the COMS is out-of-control, including any periods that the COMS fails to pass a daily calibration drift assessment, quarterly performance audit, or annual zero alignment audit.
 - ii. The Permittee must conduct a performance evaluation of each COMS according to the requirements in 40 CFR 63.8 and Performance Specification 1 in Appendix B to 40 CFR Part 60.
 - iii. The Permittee must develop and implement a quality control program for operating and maintaining each

COMS according to the requirements in 40 CFR 63.8(d). At minimum, the quality control program must include a daily calibration drift assessment, quarterly performance audit, and an annual zero alignment audit of each COMS.

- iv. Each COMS installed, operated and maintained by the Permittee must complete a minimum of one cycle of sampling and analyzing for each successive 10-second period and one cycle of data recording for each successive 6-minute period. The Permittee must reduce the COMS data as specified in 40 CFR 63.8(g) (2).
 - v. The Permittee must determine and record the hourly and daily (24-hour) average opacity according to the procedures in 40 CFR 63.7324(b) using all the 6-minute averages collected for periods during which the COMS is not out-of-control.
- b. Pursuant to Sections 39.5(7)(d) and (p) of the Act, the Permittee shall also record 6-minute average opacity data from the COMS required by Condition 7.2.8-4(a).

7.2.8-5 Monitoring Requirements for Emergency By-pass Bleeder Stacks

Pursuant to 40 CFR 63.309(h)(1), for a flare installed to meet the requirements of 40 CFR 63.307(b) (see Condition 7.2.3-8(b)):

If any emergency by-pass bleeder stack flare operates more than 5 minutes (cumulative) during any 2 hour period, visible emissions observations shall be conducted by using Method 22 in Appendix A of 40 CFR Part 60.

7.2.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items for the affected coke production operations, pursuant to Sections 39.5(7)(a) and (e) of the Act:

- a. 40 CFR 63, Subpart CCCCC (40 CFR 63.7334(d))

For each by-product coke oven battery subject to the work practice standard for soaking in 40 CFR 63.7294(a), the Permittee must demonstrate continuous compliance by maintaining records that document conformance with requirements in 40 CFR 63.7294(a)(1) through (5).

- b. 40 CFR 63, Subpart CCCCC (40 CFR 63.7342 and 63.7343)

- i. The Permittee shall keep the following records specified in 40 CFR 63.7342 (a)(1) through (3):

- A. A copy of each notification and report that the Permittee submitted to comply with 40 CFR 63 Subpart CCCCC, including all documentation supporting any initial notification or notification of compliance status that the Permittee submitted, according to the requirements in 40 CFR 63.10(b) (2) (xiv).
 - B. The records in 40 CFR 63.6(e) (3) (iii) through (v) related to startup, shutdown, and malfunction.
 - C. Records of performance tests, performance evaluations, and opacity observations as required in 40 CFR 63.10(b) (2) (viii).
- ii. For each COMS or CEMS, the Permittee shall keep the following records specified in 40 CFR 63.7342(b) (1) through (4):
- A. Records described in 40 CFR 63.10(b) (2) (vi) through (xi).
 - B. Monitoring data for COMS during a performance evaluation as required in 40 CFR 63.6(h) (7) (i) and (ii).
 - C. Previous (that is, superseded) versions of the performance evaluation plan as required in 40 CFR 63.8(d) (3).
 - D. Records of the date and time that each deviation started and stopped, and whether the deviation occurred during a period of startup, shutdown, or malfunction or during another period.
- iii. The Permittee shall keep the records in 40 CFR 63.6(h) (6) for visual observations [40 CFR 63.7342(c)].
- iv. The Permittee shall keep the records required in 40 CFR 63.7333 through 63.7335 to show continuous compliance with each emission limitation, work practice standard, and operation and maintenance requirement that applies to the Permittee [40 CFR 63.7342(d)].
- v. The Permittee shall keep its records in a form suitable and readily available for expeditious review, according to 40 CFR 63.10(b) (1) [40 CFR 63.7343(a)].

- vi. As specified in 40 CFR 63.10(b)(1), the Permittee shall keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record [40 CFR 63.7343(b)].
 - vii. The Permittee shall keep each record on site for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to 40 CFR 63.10(b)(1). The Permittee may keep the records offsite for the remaining 3 years [40 CFR 63.7343(c)].
- c. 40 CFR 63, Subpart CCCCC (40 CFR 63.7326)
- i. Pursuant to 40 CFR 63.7326(a)(2), For each venturi scrubber applied to pushing emissions, the Permittee shall have a record of the pressure drop and scrubber water flow rate measured during the performance test in accordance with 40 CFR 63.7323(a).
 - ii. Pursuant to 40 CFR 63.7326(a)(4)(iii), For each capture system applied to pushing emissions, the Permittee shall have a record of the fan RPM measured during the performance test in accordance with 40 CFR 63.7323(c)(3).
- d. 40 CFR Part 63, Subpart L (40 CFR 63.311(f) and (g))

The Permittee shall maintain files of all required information in a permanent form suitable for inspection at an onsite location for at least 1 year and must thereafter be accessible within 3 working days to the Administrator for the time period specified in 40 CFR 70.6(a)(3)(ii)(B). Copies of the work practice plan developed under 40 CFR 63.306 and the startup, shutdown, and malfunction plan developed under 40 CFR 63.310 shall be kept onsite at all times. The Permittee shall maintain the following information:

- i. A copy of the work practice plan required by 40 CFR 63.306 and any revision to the plan [40 CFR 63.311(f)(3)];
- ii. If the Permittee is required under 40 CFR 63.306I to implement the provisions of a work practice plan for a particular emission point, the following records shall be maintained by the Permittee regarding the implementation of plan requirements for that emission point during the implementation period [40 CFR 63.311(f)(4)]:

- A. Copies of all written and audiovisual materials used in the training, the dates of each class, the names of the participants in each class, and documentation that all appropriate personnel have successfully completed the training required under 40 CFR 63.306(b)(1);
 - B. The records required to be maintained by the plan provisions implementing 40 CFR 63.306(b)(7);
 - C. Records resulting from audits of the effectiveness of the work practice program for the particular emission point, as required under 40 CFR 63.306(b)(2)(i), 63.306(b)(3)(i), 63.306(b)(4)(i), or 63.306(b)(5)(i); and
 - D. If the plan provisions for coke oven doors must be implemented, records of the inventory of doors and jambs as required under 40 CFR 63.306(b)(2)(vi).
- iii. The design drawings and engineering specifications for the bypass/bleeder stack flare system or approved alternative control device or system as required under 40 CFR 63.307 [40 CFR 63.311(f)(5)].
- iv. Records specified in 40 CFR 63.310(f) regarding the basis of each malfunction notification [40 CFR 63.311(f)(6)].
- v. Records required to be maintained and reports required to be filed with the Illinois EPA under Subpart L shall be made available in accordance with the requirements of 40 CFR 63.311(g) by the Permittee to the authorized collective bargaining representative of the employees at a coke oven battery, for inspection and copying.
- A. Requests under 40 CFR 63.311(g) shall be submitted in writing, and shall identify the records or reports that are subject to the request with reasonable specificity;
 - B. The Permittee shall produce the reports for inspection and copying within a reasonable period of time, not to exceed 30 days. A reasonable fee may be charged for copying (except for the first copy of any document), which shall not exceed the copying fee charged by the Illinois EPA under the Act;

- C. Nothing in 40 CFR 63.311(g) shall require the production for inspection or copying of any portion of a document that contains trade secrets or confidential business information that the Illinois EPA would be prohibited from disclosing to the public under the Act; and
 - D. The inspection or copying of a document under 40 CFR 63.311(g) shall not in any way affect any property right of the owner or operator in such document under laws for the protection of intellectual property, including the copyright laws.
- e. Implementation of the good air pollution control practices, as required by Condition 7.2.5-3(b) (i), shall be supported by maintaining logs or other records for the implementation of operation practices and for maintenance activities performed by Permittee.
 - f. Records of the total annual coke production at batteries "A" and "B" (ton/yr) and separately for the Battery B [39.5(7) (b) of the Act].
 - g. Records for Startups of Affected coke ovens, pursuant to Section 39.5(7) (b) of the Act
 - i. The Permittee shall maintain startup procedures for each affected coke oven, as required by Condition 7.2.5-4(b).
 - ii. The Permittee shall maintain the following records for each startup of an affected coke oven:
 - A. Date, time and duration of the startup.
 - B. A description of the startup and reason(s) for the startup.
 - C. Whether a violation of an applicable standard may have occurred during startup accompanied by the information in Condition 7.2.9(g) (iv) if a violation may have or did occur.
 - D. Whether the established startup procedures, maintained above, were followed accompanied by the information in Condition 7.2.9(g) (iii) if there were departure(s) from those procedures.
 - iii. If the established startup procedures were not followed during a startup, the Permittee shall maintain the following records:

- A. A description of the departure(s) from the established procedures.
 - B. The reason(s) for the departure(s) from the established procedures.
 - C. An explanation of the consequences of the departure(s) for emissions, such as whether the departure(s) prolonged the startup or resulted in additional emissions, and if so:
 - 1. The actions taken to minimize emissions and the duration of the startup; and
 - 2. An explanation whether similar incidents might be prevented in the future and if so, the corrective actions taken or to be taken to prevent similar incidents.
- iv. If a violation did or may have occurred during a startup, the Permittee shall maintain the following records:
- A. Identification of the applicable standard(s) that were or may have been violated.
 - B. An explanation of the nature of such violation(s), including the magnitude of such excess emissions.
 - C. A description of the actions taken to minimize the magnitude of emissions and duration of the startup.
 - D. An explanation whether similar incidents could be prevented or ameliorated in the future and if so, a description of the actions taken or to be taken to prevent similar incidents in the future.

h. Records for Malfunctions or Breakdowns

Pursuant to 35 IAC 201.263, the Permittee shall maintain records of continued operation of the affected coke ovens as addressed by Condition 7.2.5-4, during malfunctions or breakdowns, which at a minimum, shall include the following records. The preparation of these records shall be completed within 45 days of an incident, unless the Permittee conducts a root cause analysis for the incident, in which case the preparation of these records, other than

the root cause analysis, shall be completed within 120 days of the incident.

- i. Date, time and duration of the incident.
- ii. A detailed description of the incident, including:
 - A. A chronology of significant events during and leading up to the incident.
 - B. Relevant operating data for the unit, including information such as operator log entries and directives provided by management during the incident.
 - C. The measures taken to reduce the quantity of emissions and the duration of the incident including the resources utilized to address the incident.
 - D. The magnitude of emissions during the incident.
- iii. An explanation why continued operation of an affected coke oven was necessary to prevent personnel injury or prevent equipment damage.
- iv. A discussion of the cause(s) or probable cause(s) of the incident including the following:
 - A. Whether the incident was sudden, unavoidable, or preventable, including:
 1. Why the equipment design did not prevent the incident;
 2. Why better maintenance could not have avoided the incident;
 3. Why better operating practices could not have avoided the incident; and
 4. Why there was no advance indication for the incident.
 - B. Whether the incident stemmed from any activity or event that could have been foreseen, avoided or planned for,
 - C. Whether the incident was or is part of a recurring pattern indicative of inadequate design, operation or maintenance.

- v. A description of any steps taken to prevent similar future incidents or reduce their frequency and severity.
- vi. As an alternative to keeping the records required by Condition 7.2.9(h)(iv), the Permittee may perform a root cause analysis. For this purpose, a root cause analysis is an analysis whose purpose is to determine, correct and eliminate the primary causes of the incident and the excess emissions resulting there from. If the Permittee performs a root cause analysis method that would define the problem, define all causal relationships, provide a causal path to the root cause, delineate the evidence, and provide solutions to prevent a recurrence. Such an analysis shall be completed within one year of the incident.

i. Quench stations

The Permittee shall maintain the following records for quenching operations:

- i. A file listing the emissions factors used by the Permittee to determine the emissions of the various quenching operations, with supporting documentation and analysis. These records shall be prepared and copies sent to the Illinois EPA in accordance with Condition 5.9.6(c).
- ii. Records for the total number of quenches (ovens pushed), the total amount of coke quenched (tons) and the average amount of coke per quench (tons/quench) on a monthly and annual basis*.
- iii. A log showing each period of time when coke was quenched at the East Quench Station, with number of quenches during the period and explanation of reason for use of the East Quench Station.
- iv. Records on an annual basis* for the:
 - A. Total number of quenches.
 - B. For the East Quench Station:
 - 1. Total number of quenches and amount of coke quenched at the East Quench Station.
 - 2. Total number of quenches and amount of coke quenched at the East Quench Station due to malfunction and breakdown.
 - 3. Percentage of total quenches that occurred at the East Quench Station.

C. For the emergency quench station:

1. Total number of quenches and amount of coke quenched at the emergency quench station.
2. Percentage of total quenches that occurred at the emergency quench station.

* These records shall be kept for the 12-month period from July 1 to June 30 and the initial 12-month period following shakedown of the West Quench Station with new quench tower.

- v. Records for emissions of PM, PM₁₀, and PM_{2.5} from each affected quench station and from the emergency quench station (tons/month and tons/year), with supporting calculations.
- j. i. A file containing the emission rates (lb/hr and lb/ton) used by the Permittee to determine PM emissions from the mobile quench cars, with supporting documentation, which rates shall be reviewed when new data becomes available to assure that these rates do not understate actual emissions. These records shall be prepared and copies sent to the Illinois EPA in accordance with Condition 5.9.6(c).
- ii. Records of PM emissions of the mobile scrubber cars (tons/month and tons/year), with supporting calculations.
- k. i. Monthly and annual records of supplementary natural gas usage (scf) for underfiring the coke oven batteries and associated emissions (tons) with supporting calculations.
- ii. Records of emissions as addressed in Condition 7.2.6(c).
- l. Records of observations of duration of charging, percentage of leaks or opacity that are conducted by the Permittee or on its behalf to determine compliance with 35 IAC 212.443(b) and (c)(1)(A) in addition to the observations required by Condition 7.2.8-1 and 7.2.8-2.
- m. Records of all test reports and submittals related to emission testing required by Section 7.2 of this permit.

7.2.10 Reporting Requirements

- a. Opacity Monitoring Reports for Combustion Stacks

Pursuant to Sections 39.5(7)(a), (d) and (p) of the Act, the Permittee shall provide the following reports for each coke oven battery to the Illinois EPA, including a copy directly to Collinsville Regional Office, on a quarterly basis.

- i. "Excess opacity reports" that list all opacity measurements which exceed 30 percent, averages over a six minute period. These reports shall also provide, for each such incident, the percent opacity measured as well as the date and span of such incident. These reports shall state the reasons for excess opacity. These reports shall also specify the date of those periods during which the continuous monitoring system was not in operation.
- ii. "Summary reports" that provide the average opacity, 6-minute average, measured during the reporting period and the distribution of opacity measurements, 6-minute average and hourly average, during the reporting period, by percent, in ranges as follows:

Ranges	
6-Minute Averages	Hourly Averages
< 2	< 1
> 2 and < 5	> 1 and < 3
> 5 and < 10	> 3 and < 6
> 10 and < 15	> 6 and < 10
> 15 and < 20	> 10 and < 15
> 20 and < 30	> 15
> 30	

- b. 40 CFR Part 63, Subpart CCCCC (40 CFR 63.7336)

Pursuant to 63.7336(a) the Permittee must report each instance in which it did not meet each emission limitation in Conditions 7.2.3-5(c), 7.2.3-6(a) and 7.2.3-7(b). This includes periods of startup, shutdown, and malfunction. The Permittee must also report each instance in which it did not meet each work practice standard or operation and maintenance requirement in Condition 7.2.8-2(h). These instances are deviations from the emission limitations (including operating limits), work practice standards, and operation and maintenance requirements. These deviations must be reported according to the requirements in 40 CFR 63.7341.

- c. 40 CFR Part 63, Subpart CCCCC (40 CFR 63.7341)

- i. Pursuant to 40 CFR 63.7341(a)(3) and (4), compliance report due dates. Unless the Illinois EPA has approved a different schedule, the Permittee shall submit quarterly compliance reports for battery

stacks and semiannual compliance reports for all other affected sources to the Illinois EPA according to the following requirements:

- A. All quarterly compliance reports for battery stacks must be postmarked or delivered no later than one calendar month following the end of the quarterly reporting period. All semiannual compliance reports must be postmarked or delivered no later than July 31 or January 31, whichever date is the first date following the end of the semiannual reporting period.
 - B. If the Illinois EPA has established dates for submitting semiannual reports pursuant to 40 CFR 70.6(a)(3)(iii)(A), the Permittee may submit compliance reports according to the dates the Illinois EPA has established instead of according to the dates in 40 CFR 63.7341(a)(1) through (3).
- ii. Quarterly compliance report contents. Each quarterly report must provide information on compliance with the emission limitations for battery stacks in 40 CFR 63.7296. The reports must include the information in 40 CFR 63.7341(c)(1) through (3), and as applicable, 40 CFR 63.7341(c)(4) through (8).
 - iii. Semiannual compliance report contents. Each compliance report must provide information on compliance with the emission limitations, work practice standards, and operation and maintenance requirements for all affected sources except battery stacks. The reports must include the following information [40 CFR 63.7341(c)]:
 - A. Company name and address.
 - B. Statement by a responsible official, with the official's name, title, and signature, certifying the truth, accuracy, and completeness of the content of the report.
 - C. Date of report and beginning and ending dates of the reporting period.
 - D. If the Permittee had a startup, shutdown, or malfunction during the reporting period and the Permittee took actions consistent with the startup, shutdown, and malfunction plan, the compliance report must include the information in 40 CFR 63.10(d)(5)(i).

- E.** If there were no deviations from the continuous compliance requirements in 40 CFR 63.7333(e) for battery stacks, a statement that there were no deviations from the emission limitations during the reporting period. If there were no deviations from the continuous compliance requirements in 40 CFR 63.7333 through 63.7335 that apply to the Permittee (for all affected sources other than battery stacks), a statement that there were no deviations from the emission limitations, work practice standards, or operation and maintenance requirements during the reporting period.
- F.** If there were no periods during which a continuous monitoring system (including COMS, continuous emission monitoring system (CEMS), or CPMS) was out-of-control as specified in 40 CFR 63.8(c)(7), a statement that there were no periods during which a continuous monitoring system was out-of-control during the reporting period.
- G.** For each deviation from an emission limitation in Subpart CCCCC (including quench water limits) and for each deviation from the requirements for work practice standards in Subpart CCCCC that occurs at an affected source where the Permittee is not using a continuous monitoring system (including a COMS, CEMS, or CPMS) to comply with the emission limitations in Subpart CCCCC, the compliance report must contain the following information (this includes periods of startup, shutdown, and malfunction):
1. The total operating time of each affected source during the reporting period.
 2. Information on the number, duration, and cause of deviations (including unknown cause, if applicable) as applicable and the corrective action taken.
- H.** For each deviation from an emission limitation occurring at an affected source where the Permittee is using a continuous monitoring system (including COMS, CEMS, or CPMS) to comply with the emission limitation in Subpart CCCCC, the Permittee shall include the

following information (this includes periods of startup, shutdown, and malfunction):

1. The date and time that each malfunction started and stopped.
2. The date and time that each continuous monitoring system (including COMS, CEMS, or CPMS) was inoperative, except for zero (low-level) and high-level checks.
3. The date, time, and duration that each continuous monitoring system (including COMS, CEMS, or CPMS) was out-of-control, including the information in 40 CFR 63.8(c)(8).
4. The date and time that each deviation started and stopped, and whether each deviation occurred during a period of startup, shutdown, or malfunction or during another period.
5. A summary of the total duration of the deviation during the reporting period and the total duration as a percent of the total source operating time during that reporting period.
6. A breakdown of the total duration of the deviations during the reporting period into those that are due to startup, shutdown, control equipment problems, process problems, other known causes, and other unknown causes.
7. A summary of the total duration of continuous monitoring system downtime during the reporting period and the total duration of continuous monitoring system downtime as a percent of the total source operating time during the reporting period.
8. An identification of each HAP that was monitored at the affected source.
9. A brief description of the process units.
10. A brief description of the continuous monitoring system.

11. The date of the latest continuous monitoring system certification or audit.
 12. A description of any changes in continuous monitoring systems, processes, or controls since the last reporting period.
- iv. Immediate startup, shutdown, and malfunction report. If the Permittee had a startup, shutdown, or malfunction during the semiannual reporting period that was not consistent with the Permittee's startup, shutdown, and malfunction plan, the Permittee shall submit an immediate startup, shutdown, and malfunction report according to the requirements in 40 CFR 63.10(d)(5)(ii).
- d. 40 CFR Part 63, Subpart L (40 CFR 63.311)
- i. Semiannual compliance certification. The Permittee shall include the following information in the semiannual compliance certification [40 CFR 63.311(d)]:
 - A. Certification, signed by the Permittee, that no coke oven gas was vented, except through the bypass/bleeder stack flare system of a by-product coke oven battery during the reporting period or that a venting report has been submitted according to the requirements in 40 CFR 63.311(e).
 - B. Certification, signed by the Permittee, that a startup, shutdown, or malfunction event did not occur for a coke oven battery during the reporting period or that a startup, shutdown, and malfunction event did occur and a report was submitted according to the requirements in 40 CFR 63.310(e).
 - C. Certification, signed by the Permittee, that work practices were implemented if applicable under 40 CFR 63.306.
 - ii. Report for the venting of coke oven gas other than through a flare system. The Permittee shall report any venting of coke oven gas through a bypass/bleeder stack that was not vented through the bypass/bleeder stack flare system to the Administrator as soon as practicable but no later than 24 hours after the beginning of the event. A written report shall be submitted within 30 days of the event and shall include a description of the event and, if applicable, a copy of the notification for a

hazardous substance release required, pursuant to 40 CFR 63.311(e).

iii. 40 CFR Part 63, Subpart L (40 CFR 63.310)

- A. Pursuant to 40 CFR 63.310(d), in order for the provisions of 40 CFR 63.310(i) to apply with respect to the observation (or set of observations) for a particular day, notification of a startup, shutdown, or a malfunction shall be made by the Permittee:

If practicable, to the certified observer if the observer is at the source during the occurrence; or to the enforcement agencies (USEPA and Illinois EPA), in writing, within 24 hours of the occurrence first being documented by personnel, and if the notification to the certified observer was not made, an explanation of why no such notification was made.

- B. Pursuant to 40 CFR 63.310(e), within 14 days of the notification made under 40 CFR 63.310 (d), or after a startup or shutdown, the Permittee shall submit a written report to the Illinois EPA that describes the time and circumstances of the startup, shutdown, or malfunction; and describes actions taken that might be considered inconsistent with the startup, shutdown, or malfunction plan.

- e. i. Pursuant to Section 39.5(7)(f)(ii) of the Act, the Permittee shall promptly notify the Illinois EPA, Air Compliance Section, within 30 days of deviations by the affected coke oven operations from applicable requirements unless a NESHAP standard specifies a different timeframe as identified in Condition 7.2.11(c) and (d), as follows:

- A. Requirements in Condition 7.2.3(d).
- B. Requirements in Condition 7.2.3-1.
- C. Requirements in Condition 7.2.3-2.
- D. Requirements in Condition 7.2.3-3.
- E. Requirements in Condition 7.2.3-4.
- F. Requirements in Condition 7.2.3-5.
- G. Requirements in Condition 7.2.3-6.
- H. Requirements in Condition 7.2.3-7.

- I. Requirements in Condition 7.2.3-8.
- J. Requirements in Condition 7.2.5-1.
- K. Requirements in Condition 7.2.5-2.
- L. Requirements in Condition 7.2.6.
- ii. All such deviations shall be summarized and reported as part of the semiannual monitoring report required by Condition 8.6.1.
- iii. The Permittee shall notify the Illinois EPA, Air Compliance Section, of all other deviations as part of the semiannual monitoring reports required by Condition 8.6.1.
- iv. All deviation reports described in Condition 7.2.10(e) above shall contain the following:
 - A. Date, time and duration of the deviation;
 - B. Description of the deviation;
 - C. Probable cause of the deviation; and
 - D. Any corrective actions or preventive measures taken.
- f. Quench stations [08060026]

The Permittee shall provide the following notification and reports to the Illinois EPA, Air Compliance Section and Regional Field Office, pursuant to 35 IAC 201.263, concerning continued operation of quenching operations during malfunction or breakdown that does not meet the requirements of 35 IAC 212.443(h)(1):

- i. For noncompliance due to malfunction or breakdown that lasts more than 30 minutes (quenching of four ovens):
 - A. The Permittee shall notify the Illinois EPA's regional office by telephone as soon as possible during normal working hours, but no later than the next Agency business day.
 - B. Upon achievement of compliance, the Permittee shall give a written follow-up notice within 15 days to the Illinois EPA, Air Compliance Section and Regional Field Office, providing a detailed explanation of the event, the length of time during which operation continued under such conditions, the measures taken by the Permittee to minimize and correct deficiencies

with chronology, and when the repairs were completed.

- C. If compliance is not achieved within 48 hours of the occurrence, the Permittee shall submit interim status reports to the Illinois EPA, Air Compliance Section and Regional Field Office, on a daily basis, until compliance is achieved. These interim reports shall provide a brief explanation of the nature of the malfunction or breakdown, corrective actions accomplished to date, actions anticipated to occur with schedule, and the expected date on which repairs will be complete.
- ii. For noncompliance due to malfunction or breakdown that is no more than 30 minutes in duration, the Permittee shall provide the information for the incident or period with the periodic compliance reports required by 40 CFR 63, Subpart CCCCC.
- iii. Within two years of initial startup of the low emission quench tower on the West Quench Station, the Permittee shall submit a report evaluating the reduction in filterable and total PM_{2.5} and PM₁₀ emissions achieved by this project, on both in terms of emissions per ton of coke quenched and in terms of annual emissions.
- g. Reporting on the State malfunction and breakdown authorization shall be performed in accordance with Condition 5.10.5-2.
- h. Reporting on the State startup authorization shall be performed in accordance with Condition 5.10.5-1.
- i. Reporting on the Federal SSM authorization shall be performed in accordance with Condition 5.10.5-3.

7.2.11 Operational Flexibility/Anticipated Operating Scenarios

Operational flexibility is not set for the affected coke oven operations.

7.2.12 Compliance Procedures

For purposes of 35 IAC 212.443:

- a. Coke Oven Charging, Leaks from Doors, Leaks from Lids and Leaks from Off Takes: Observations shall be conducted in accordance with 40 CFR 63, Appendix A, Method 303 which is consistent with the procedures specified in 35 IAC 280.104 to 280.107 and the Consent Decree, Civil Action No. 81-3009 referenced in Construction Permit C808048.

i. Battery A and B - Charging:

Observations shall be conducted in accordance with 40 CFR 63, Appendix A, Method 303 which is consistent with the procedures specified in 35 IAC 280.104 to 280.107 and the Consent Decree, Civil Action No. 81-3009 referenced in Construction Permit C808048.

Observation of charging emissions shall be made from any point or points on the topside of a coke oven battery from which a qualified observer can obtain an unobstructed view of the charging operation.

The qualified observer shall time the visible emissions with a stopwatch while observing the charging operation. Only emissions from the charge port and any part of the larry car shall be timed. The observation shall commence as soon as coal is introduced into the first charge port as indicated by the first charge port as indicated by the first mechanical movement of the coal feeding mechanism on the larry car and shall terminate when the last charge port lid has been replaced. Simultaneous emissions from more than one emission point shall be timed and recorded as one emission and shall not be added individually to the total time.

The qualified observer shall determine and record the total number of seconds that charging emissions are visible during the charging of coal to the coke oven.

For each charge observed, the qualified observer shall record the total number of seconds of visible emissions, the clock time for the initiation and completion of the charging operation and the battery identification and oven number.

The qualified observer shall not record any emissions observed after all charging port lids have been firmly seated following removal of the larry car, such as emissions occurring when a lid has been temporarily removed to permit spilled coal to be swept into the oven.

In the event that observations of emissions from a charge are interrupted due to events beyond the control of the observer, the data from that charge shall be invalidated and the observer shall note on his observation sheet the reason for invalidating the data. The observer shall then resume observation of the next consecutive charge or charges, and continue until he has obtained a set of consecutive charges immediately preceding the interrupted charge and the charge immediately following the interrupted charge shall constitute consecutive charges. Compliance

shall be determined by summing the seconds of charging emission observed during a set of five consecutive charges. Any one charge may be included in only one set of consecutive charges.

ii. Battery A and B - Doors:

Compliance with the percent door area leakage standard shall be determined in accordance with the following method:

Observations of door emissions shall be made from a minimum distance of 25 feet from each door. Each door shall be observed in sequence for only that period necessary to determine whether or not, at the time, there are visible emissions from any point on the door while the observer walks along the side of the battery. If the observer's view of a door is more than momentarily obstructed, as, for example, by door machinery, pushing machinery, coke guide, luter truck, or opaque steam plumes, he shall record the door obstructed and the nature of the obstruction and continue the observations with the next door in sequence which is not obstructed. The observer shall continue this procedure along the entire length of the battery for both sides and shall record the battery identification, battery side, and oven door identification number of each door exhibiting visible emissions. Before completing the traverse or immediately thereafter he shall attempt to reobserve the obstructed doors.

iii. Battery A and B - Charging Ports/Lids:

For purposes of determining compliance with limits on visible emissions from charging ports, observations of any visible emissions shall be made and recorded during the time an observer walks the topside of a battery from one end to the other. Each oven shall be observed in sequence. The observer may also observe off take pipe leaks during this traverse of the battery. The observer shall record the battery identification, the points of emissions from each oven, the oven number, and whether an oven was dampered off. Compliance shall be determined by application of the following formula which shall exclude the ports on up to 3 ovens ahead of the oven being pushed which are dampered off.

iv. Battery A and B - Off Takes:

For purposes of determining compliance with limits on visible emissions from off take pipes, observations of any visible emissions from the off take piping shall be made by traversing the topside of the

battery. During the traverse(s), the observer shall walk as near to the center of the battery as safety considerations permit but may walk as close as necessary to the off take piping to determine whether an observed emission is emanating from the off take piping. Each oven shall be observed in sequence. The observer may also observe charging port emissions during this traverse of the battery. The observer shall record the battery identification, the points of off take piping emission from any oven and the oven number.

b. Coke Oven Pushing:

i. Battery A and B:

Opacity readings shall be taken by a qualified observer located in a position where the oven being pushed, the coke receiving car and the path to the quench tower are visible. The opacity shall be read as the emissions rise and clear the top of the coke battery gas mains. The qualified observer shall record opacity readings of emissions originating at the receiving car and associated equipment and the coke oven, including the standpipe on the coke side of the oven being pushed. Opacity readings shall be taken in accordance with the procedures set forth in 40 CFR Part 60, Appendix A, Method 9, incorporated by reference in 35 IAC 212.113, except that Section 2.5 for data reduction shall not be used. The qualified observer referenced in this subsection shall be certified pursuant to 40 CFR Part 60, Appendix A, Method 9, incorporated by reference in 35 IAC 212.113.

ii. Battery A:

Opacity readings shall be taken at 15-second intervals, beginning from the time the coke falls into the receiving car or is first visible as it emerges from the coke guide whichever occurs earlier, until the receiving car enters the quench tower or quenching device. For a push of less than 90 seconds duration, the actual number of 15-second readings shall be averaged.

At least four consecutive pushes per day.

iii. Battery B:

Opacity readings shall be taken at 15-second intervals, beginning from the time the coke falls into the receiving car or is first visible as it emerges from the coke guide whichever occurs earlier, until the end of the sixth reading. During the

pushing operation, the observer shall observe all the pushing emissions including, but not limited to, fugitive emissions from the pushing emission control device and from open quench cars during travel.

At a minimum, one push per day.

c. Coke Quenching (35 IAC 212.443(h)(2))

- i. Samples shall be taken from each quench station as separate grab samples or composite samples.
- ii. Samples shall be collected a minimum of five days per week and analyzed to report a weekly concentration. The samples for each week shall be analyzed either:
 - A. Separately, with the average of the individual daily concentrations determined; or
 - B. As one composite sample, with equal volumes of the individual daily samples combined to form the composite sample.

7.2.13 State-Only Conditions

State-only conditions are not being established.

7.3 Coke By-Product Recovery Plant and COG Desulfurization System

7.3.1 Description

COG is made up of various organic materials volatilized during the coal-to-coke conversion process. The raw coke oven gas from U. S. Steel two existing coke oven batteries is processed in the coke by-product recovery plant, where various byproducts are removed. Once treated, the COG is used as a fuel in the coke batteries and in various boilers and furnaces throughout the facility.

Coke Oven Gas (COG) Processing Unit:

COG from the coke ovens first passes through the primary cooler where it is cooled. The cooling of COG causes tar, naphthalene, and liquor to condense. The cool COG is then pushed through the entire by-product plant with the aid of exhausters. More tar and liquor are removed by the centrifugal force created in the exhausters. Droplets of tar, naphthalene, and liquor accumulate and drain to the tar sump. Ammonia present in the COG is then removed by passing it through ammonia absorber. The removal of ammonia is accomplished by exposing the COG to a spray of sulfuric acid in the ammonia absorber. The COG then enters the Tar Spray Final Cooler where the COG is further cooled and most of the naphthalene is removed with tar injection. Next COG passes through the Light Oil Scrubber, which is designed to remove the remaining naphthalene and "Light Oils".

From the light oil scrubber, the treated COG is normally further processed in the COG desulfurization system to remove sulfur. The COG is not always processed by desulfurization system because of the need for periodic maintenance on the system. The permit limits the amount of time during which this may occur. COG desulfurization system consists of a packed tower amine unit, hydrogen cyanide destruction unit, and a Claus sulfur recovery unit with tail gas oxidizer. The system removes hydrogen sulfide (H_2S) from the treated COG stream from the by-product plant. The COG desulfurization system is not part of the by-products recovery plant.

The COG stream from the by-product plant is sent to a pressure holding tank from where the COG is distributed to underfire the Coke Oven Batteries and various parts of the plant.

Light Oil Processing Unit:

Processing the Light Oil generated at the Light Oil Scrubber, also called Benzol Washer, is the main activity of this unit. In the Light Oil Scrubber, wash oil is used to scrub out Light Oil from the Coke Oven Gas. Next wash oil is cleaned and re-circulated back through the Light Oil scrubber as described below.

After scrubbing out the light oil in the Light Oil Scrubber, the wash oil passes through two oil to vapor heat exchangers, where the light oil is vaporized. The vapors are then passed through two cool water condensers to condense out the light oil. The light oil then passes through the Secondary Light Oil Separator, where any remaining wash oil and water is removed. The liquid oil is then pumped into one of six storage tanks.

After passing through the oil to vapor heat exchangers, the wash oil passes through steam heaters, the Wash Oil Still, coolers, and finally the Wash Oil Recirculating Tank before it is reintroduced in the Light Oil Scrubber.

Coal Tar Processing:

Tar is collected into a tar sump. The tar is decanted by passing through one of three decanters. Sludge from the decanters is dumped into hoppers from where it is collected by a company for further treatment. Tar from the decanters pass through two dehydration tanks where the water is removed. The tar is then pumped to a storage tank, where it is stored until shipment.

Note: This narrative description is for informational purposes only and is not enforceable.

7.3.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Date Constructed	Emission Control Equipment
By-Product Recovery	Coke oven Gas Processing Unit (coke oven gas transfer and handling; gas coolers; gas processing/cleaning unit)	Prior to 06/1982	Steam Blanketing
By-Product Recovery (Continued)	Light Oil Processing (still; process condensers; sumps) Coal Tar Processing (tar collection and transfer; tar storage tanks) Tar Storage Tanks; Dehydration Tanks; Decanters; Light Oil Storage Tanks; Ammonia Liquor; Storage Tanks	Prior to 06/1982	Clean Gas Blanketing; Steam Blanketing; Negative Pressure Systems

Emission Unit	Description	Date Constructed	Emission Control Equipment
	Railcar/Truck Loading	2004	Vapor Recovery System; Negative Pressure
COG Desulfurization System	Packed tower amine unit and hydrogen cyanide destruction unit		Closed Systems
	Claus Sulfur Recovery Unit		Thermal Oxidizer
COG Flare	COG holding tank and flare		None

7.3.3 Applicable Provisions and Regulations

- a.
 - i. The "affected by-product recovery plant" for the purpose of these unit-specific conditions, is the group of emission units and/operations in the coke by-product recovery plant described in Conditions 7.3.1 and 7.3.2.
 - ii. The COG desulfurization system is the system for desulfurization of treated COG described in Conditions 7.3.1 and 7.3.2.
 - iii. The COG flare is the system for burning of excess of COG described in Conditions 7.3.1 and 7.3.2.
- b. The affected by-product recovery plant is subject to the work practices in 40 CFR Part 61, Subpart L, National Emission Standards for Benzene Emissions from Coke By-Product Recovery Plants.
- c. The affected by-product recovery plant is subject to the work practices in 40 CFR Part 61, Subpart V, National Emission Standards for Equipment Leaks (Fugitive Emissions).
- d. The affected by-product recovery plant is subject to the work practices in 40 CFR Part 61, Subpart FF, National Emission Standard for Benzene Waste Operations.
- e. No person shall cause or allow the loading of any organic material into any stationary tank having a storage capacity of greater than 946 liters (250 gallons), unless such tank is equipped with a permanent submerged loading pipe or an equivalent device approved by the Illinois EPA according to the provisions of 35 IAC 201, and further processed consistent with 35 IAC 219.108, or unless such tank is a pressure tank as described in 35 IAC 219.121(a) or is

fitted with a recovery system as described in 35 IAC 219.121(b) (2) [35 IAC 219.122(b)].

- f. The affected by-product recovery plant, COG desulfurization system and COG flare are subject to 35 IAC 212.123(a), no person shall cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from any emission unit other than those emission units subject to the requirements of 35 IAC 212.122, except as allowed by 35 IAC 212.123(b) and 212.124.
- g. SO₂ emissions from the affected by-product recovery plant and COG flare shall not exceed 2000 ppm pursuant to 35 IAC 214.301.

7.3.4 Non-Applicability of Regulations of Concern

- a. The storage tanks used at the affected by-product recovery plant are not subject to 35 IAC 219.120 because of the exemption for vessels at coke by-product plants in 35 IAC 219.119(b).
- b. The storage tanks used at the affected by-product recovery plant are not subject to 35 IAC 219.121 (Storage Containers of Volatile Petroleum Liquids (VPL)) because the liquids kept in those tanks are not the product of petroleum refinery and, therefore, do not meet the definition of VPL/petroleum liquids of 35 IAC Part 211.
- c. This permit is issued based on the affected by-product recovery plant not being subject to the applicable requirements of 35 IAC 219.301 because there is 85% reduction of uncontrolled organic material that would otherwise be emitted into atmosphere, pursuant to 35 IAC 219.302.
- d. The COG desulfurization system and COG flare are not subject to 40 CFR 63 Subpart L, National Emission Standards for Benzene Emissions from Coke By-Product Recovery Plants, because both COG systems are not involved in the separation and recovery of coal tar derivatives evolved from coal during the coking process of a coke oven battery.
- e. This permit is issued based on the COG desulfurization system (thermal oxidizer) not being subject to 35 IAC 214.301 pursuant to 35 IAC 214.302, which provides that 35 IAC 214.301 shall not apply to processes designed to remove sulfur compounds from the flue gases of fuel combustion emission sources.

7.3.5 Operation of COG Flare during Malfunction and Breakdown

Pursuant to 35 IAC 201.149 and Part 201 Subpart I, subject to the following terms and conditions, the Permittee is authorized

to continue to operate the COG flare in excess of the applicable state standard in Condition 7.3.3(f) in the event of a malfunction or breakdown.

Note: This authorization is provided because the Permittee applied for such authorization in its CAAPP application, generally explaining why such continued operation would be required to prevent injury to personnel or severe damage to equipment, and describing the measures that will be taken to minimize emissions from any malfunctions and breakdowns.

- a. This authorization only allows such continued operation as necessary to prevent injury to personnel or severe damage to equipment and does not extend to continued operation solely for the economic benefit of the Permittee.
- b. Upon occurrence of excess emissions due to malfunction or breakdown, the Permittee shall, as soon as practicable, repair the COG flare, reduce flare load or remove it from service so that excess emissions cease.
- c. The Permittee shall fulfill the applicable recordkeeping and reporting requirements of Conditions 7.3.10(h) and 5.10.5-2. For these purposes, time shall be measured from the start of a particular incident. The absence of excess emissions for a short period shall not be considered to end the incident if excess emissions resume.
- d. Following notification to the Illinois EPA (see Condition 5.10.5-2(a)(i)) of a malfunction or breakdown with excess emissions, the Permittee shall comply with all reasonable directives of the Illinois EPA with respect to such incident.
- e. This authorization does not relieve the Permittee from the continuing obligation to minimize excess emissions during malfunction or breakdown. As provided by 35 IAC 201.265, an authorization in a permit for continued operation with excess emissions during malfunction and breakdown does not shield the Permittee from enforcement for any such violation and only constitutes a prima facie defense to such an enforcement action provided that the Permittee has fully complied with all terms and conditions connected with such authorization.

7.3.6 Control Requirements and Work Practices

- a. 40 CFR Part 61, Subpart L:
 - i. The Permittee shall operate and maintain a Control System to meet the standards specified below in 40 CFR Part 61 Subpart L. This Control System consists of a Positive Pressure Gas Blanketing System supplied with clean coke oven gas controlling the light oil

area and a Negative Pressure or Steam Blanketing System controlling tar, ammonia and liquor tanks.

- ii. These control systems shall be designed to operate with no detectable emissions (an organic chemical concentration more than 500 ppm above a background concentration), as determined by the methods specified in 40 CFR 61.245, pursuant to 40 CFR 61.132(b).
- iii. The Permittee shall comply with 40 CFR 61.132 - Standard: Process vessels, storage tanks, and tar-intercepting sumps, which includes the following:
 - A. Each owner or operator of a furnace byproduct recovery plant shall enclose and seal all openings on each process vessel, tar storage tank, and tar-intercepting sump.
 - B. The owner or operator shall duct gases from each process vessel, tar storage tank, and tar-intercepting sump to the gas collection system, gas distribution system, or other enclosed point in the by-product recovery process where the benzene in the gas will be recovered or destroyed. This control positive pressure blanketing system shall be designed and operated for no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background and visual inspections, as determined by the methods specified in 40 CFR 61.245(c).
 - 1. Except, the owner or operator may elect to install, operate, and maintain a pressure relief device, vacuum relief device, an access hatch, and a sampling port on each process vessel, tar storage tank, and tar-intercepting sump. Each access hatch and sampling port must be equipped with a gasket and a cover, seal, or lid that must be kept in a closed position at all times, unless in actual use.
 - 2. The owner or operator may elect to leave open to the atmosphere the portion of the liquid surface in each tar decanter necessary to permit operation of a sludge conveyor. If the owner or operator elects to maintain an opening on part of the liquid surface of the tar decanter, the owner or operator shall install, operate, and maintain a water leg seal on the tar decanter roof near the sludge

discharge chute to ensure enclosure of the major portion of liquid surface not necessary for the operation of the sludge conveyor.

- C. Each owner or operator of a furnace coke by-product recovery plant also shall comply with the requirements of 40 CFR 61.132(a) through (c) for each benzene storage tank, BTX storage tank, light-oil storage tank, and excess ammonia-liquor storage tank.
- iv. The Permittee shall comply with 40 CFR 61.133 - Standard: Light-oil sumps, which includes the following, pursuant to 40 CFR 61.133(a) and 61.133(c):
- A. Each owner or operator of a light-oil sump shall enclose and seal the liquid surface in the sump to form a closed system to contain the emissions.
 - 1. Except, the owner or operator may elect to install, operate, and maintain a vent on the light-oil sump cover. Each vent pipe must be equipped with a water leg seal, a pressure relief device, or vacuum relief device.
 - 2. Except, the owner or operator may elect to install, operate, and maintain an access hatch on each light-oil sump cover. Each access hatch must be equipped with a gasket and a cover, seal, or lid that must be kept in a closed position at all times, unless in actual use.
 - 3. The light-oil sump cover may be removed for periodic maintenance but must be replaced (with seal) at completion of the maintenance operation.
 - B. The venting of steam or other gases from the by-product process to the light-oil sump is not permitted [40 CFR 61.133(a)].
 - C. Following the installation of any control equipment used to meet the requirements of 40 CFR 61.133(a), the owner or operator shall monitor the connections and seals on each control system to determine if it is operating with no detectable emissions, using Method 21 (40 CFR Part 60, Appendix A) and the procedures specified in 40 CFR 61.245(c), and shall

visually inspect each source (including sealing materials) for evidence of visible defects such as gaps or tears. This monitoring and inspection shall be conducted semiannually and at any other time the cover is removed.

1. If an instrument reading indicates an organic chemical concentration more than 500 ppm above a background concentration, as measured by Method 21, a leak is detected.
 2. If visible defects such as gaps in sealing materials are observed during a visual inspection, a leak is detected.
 3. When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected.
 4. A first attempt at repair of any leak or visible defect shall be made no later than 5 calendar days after each leak is detected [40 CFR 61.133(c)].
- v. The Permittee shall comply with 40 CFR 61.135 - Standard: Equipment leaks.
- A. Each piece of equipment in benzene service to which 40 CFR 61 Subpart L applies shall be marked in such a manner that it can be distinguished readily from other pieces of equipment in benzene service [40 CFR 61.135(c)].
 - B. Each owner or operator of equipment in benzene service shall comply with requirements of 40 CFR 61, Subpart V.
 - C. The provisions of 40 CFR 61.242-3 and 61.242-9 of Subpart V do not apply to Subpart L.
- b. 40 CFR Part 61, Subpart V:
- 40 CFR 61.242-10: Standards: Delay of Repair
- i. Delay of repair of equipment for which leaks have been detected will be allowed if repair within 15 days is technically infeasible without a process unit shutdown. Repair of this equipment shall occur before the end of the next process unit shutdown.
 - ii. Delay of repair of equipment for which leaks have been detected will be allowed for equipment that is

isolated from the process and that does not remain in VHAP (volatile hazardous air pollutant) service.

- iii. Delay of repair for valves will be allowed if:
 - A. The owner or operator demonstrates that emissions of purged material resulting from immediate repair are greater than the fugitive emissions likely to result from delay of repair; and
 - B. When repair procedures are affected, the purged material is collected and destroyed or recovered in a control device complying with 40 CFR 61.242-11.
 - iv. Delay of repair for pumps will be allowed if:
 - A. Repair requires the use of a dual mechanical seal system that includes a barrier fluid system; and
 - B. Repair is completed as soon as practicable, but not later than 6 months after the leak was detected.
 - v. Delay of repair beyond a process unit shutdown will be allowed for a valve if valve assembly replacement is necessary during the process unit shutdown, valve assembly supplies have been depleted, and valve assembly supplies had been sufficiently stocked before the supplies were depleted. Delay of repair beyond the next process unit shutdown will not be allowed unless the next process unit shutdown occurs sooner than 6 months after the first process unit shutdown.
- c. 40 CFR 61 Subpart FF (61.355(a)(3) through (a)(5)).
- i. Pursuant to 40 CFR 61.355(a)(3), if the total annual benzene quantity from facility waste is equal to or greater than 10 Mg/yr (11 tons/yr), then the owner or operator shall comply with the requirements of 40 CFR 61.342(c), (d), or (e).
 - ii. Pursuant to 40 CFR 61.355(a)(4), if the total annual benzene quantity from facility waste is less than 10 Mg/yr (11 tons/yr) but is equal to or greater than 1 Mg/yr, (1.1 ton/yr), then the owner or operator shall:
 - A. Comply with the recordkeeping requirements of 40 CFR 61.356 and reporting requirements of 40 CFR 61.357; and

- B. Repeat the determination of total annual benzene quantity from facility waste at least once per year and whenever there is a change in the process generating the waste that could cause the total annual benzene quantity from facility waste to increase to 10 Mg/yr (11 ton/yr) or more.
 - iii. Pursuant to 40 CFR 61.355(a)(5), if the total annual benzene quantity from facility waste is less than 1 Mg/yr (1.1 ton/yr), then the owner or operator shall:
 - A. Comply with the recordkeeping requirements of 40 CFR 61.356 and reporting requirements of 40 CFR 61.357; and
 - B. Repeat the determination of total annual benzene quantity from facility waste whenever there is a change in the process generating the waste that could cause the total annual benzene quantity from facility waste to increase to 1 Mg/yr (1.1 ton/yr) or more.
- d. The COG flare shall be operated with a flame present at all times when COG is vented to the flare [Section 39.5(7)(a) of the Act].

7.3.7 Production and Emission Limits for the COG Desulfurization System from Permit 06070022

- a. The Permittee shall operate COG desulfurization system (COG-DS) at all times the by-products plant is producing COG, except when undertaking maintenance or repairs of the system. This total "outage" period shall not exceed 35 days (840 hours) per calendar year.
- b.
 - i. Raw COG production during periods of time when the COG-DS is not operating shall not exceed 1,092 mmscf/year.
 - ii. Total amount of COG generated by Coke Oven Batteries A and B and processed by by-products plant shall not exceed 1,140 mmscf/month and 11,400 mmscf/year.
- c.
 - i. The COG-DS shall be operated and maintained in conformance with good air pollution control practices.
 - ii. The thermal oxidizer combustion chamber for the sulfur recovery unit shall be operated at a temperature that is greater than 1,100°F.
- d.
 - i. The H₂S content of the raw COG entering the COG-DS shall not exceed 500 grains of H₂S/100 scf of COG, daily average.

- ii. The H₂S content of desulfurized COG exiting the COG-DS shall not exceed 66 grains/100 scf of COG, annual average.
- iii. During periods of time when the COG-DS is operating, the H₂S content of COG shall not exceed the following limits: 25 grains of H₂S/100 scf of COG, monthly average, excluding outages, startup, shutdown, and upsets such as failure of fans, pumps or heat exchangers and aberrations in the composition or condition of the raw COG.
- e. i. Emissions from the thermal oxidizer on the COG-DS shall not exceed the following limits:

PM ₁₀		SO ₂	
(Lbs/Hr)	(Tons/Yr)	(Lbs/Hr)	(Tons/Yr)
5.6	24.6	67.3	294.7

- ii. Combined emissions of PM₁₀ and SO₂ from the thermal oxidizer on COG-DS and combustion of coke oven gas shall not exceed 246.8 and 1,074.1 tons/year for PM₁₀ and SO₂, respectively [T1].
- iii. Compliance with the annual limits in Conditions 7.3.7(b) and (e) shall be determined from a running total of 12 months of data, unless otherwise specified [T1].

7.3.8 Testing Requirements

- a. The Permittee, as the owner or operator of a by-products plant, subject to the provisions of 40 CFR Part 61 Subpart L, shall comply with the requirements in 40 CFR 61.245.
- b. The Permittee shall determine the total annual benzene (TAB) quantity of the facility using the test methods and procedures for determination in 40 CFR 61.355(a)(5). In particular, if the total annual benzene quantity from facility waste is less than 1 Mg/yr (1.1 ton/yr), then the owner or operator shall repeat the determination of total annual benzene quantity from facility waste whenever there is a change in the process generating the waste that could cause the total annual benzene quantity from facility waste to increase to 1 Mg/yr (1.1 ton/yr) or more.
- c. For the COG flare and the thermal oxidizer in the COG-DS, the Permittee shall conduct observations for visible emissions and/or opacity, using USEPA Method 22 and 9, respectively. These observations shall be conducted by individual(s) certified to observe opacity by USEPA Method 9. The observer(s) may either conduct observations for opacity or conduct observations for visible emissions, immediately followed by observations for opacity if visible

emissions are observed. Observations shall be conducted in at least a monthly basis for the COG flare and an annual basis for the COG-DS thermal oxidizer. In addition, for the COG flare, observations shall be coordinated with weather conditions so that at least two observations are made in each calendar year during elevated wind speed conditions, i.e., wind speed of at least 16 miles per hour.

- d. Upon the written request from the Illinois EPA, the emission tests shall be conducted by the Permittee for the COG-DS to verify compliance with emission limits in Condition 7.3.7(e) as follows [Section 39.5(7)(d) and (p) of the Act]:

- i. The following USEPA test methods shall be used, unless another USEPA method is approved by the Illinois EPA.

Location of Sample Points	Method 1
Gas Flow and Velocity	Method 2
Flue Gas Weight	Method 3
Moisture	Method 4
PM ₁₀	Method 201 or 201A
SO ₂	Method 6

- ii. Observations of opacity shall be conducted during these emission tests in accordance with Method 9 and the results of these observations included in the reports for emission testing.
- iii. For this emission testing, test notifications and reporting shall be done by the Permittee in accordance with Conditions 8.6.2 and 8.6.3 of this permit.

7.3.9 Monitoring Requirements

- a. For the coke by-product recovery plant, when equipment operated in benzene service is tested for compliance with or monitored for no detectable emissions, the owner or operator shall comply with the following requirements [40 CFR 61.245(c)]:
- i. The requirements of 40 CFR 61.245 (b) (1) through (4) shall apply.
- ii. The background level shall be determined, as set forth in Method 21.
- iii. The instrument probe shall be traversed around all potential leak interfaces as close to the interface as possible as described in Method 21.

- iv. The arithmetic difference between the maximum concentration indicated by the instrument and the background level is compared with 500 ppm for determining compliance.
- b. Alternatives procedures are not established for each exhauster, as provided by 40 CFR 61.135(e) through (g) and 40 CFR 61.136(d). Therefore, pursuant to 40 CFR 61.135(d), each exhauster shall be monitored quarterly to detect leaks 10,000 ppm or greater by the methods specified in 40 CFR 61.245(b).
- c. For the coke by-product recovery plant, the owner or operator shall monitor the connections and seals on each control system to determine if it is operating with no detectable emissions, using Method 21 (40 CFR Part 60, Appendix A) and procedures specified in 40 CFR 61.245(c), and shall visually inspect each source (including sealing materials) and the ductwork of the control system for evidence of visible defects such as gaps or tears. This monitoring and inspection shall be conducted on a semiannual basis and at any other time after the control system is repressurized with blanketing gas following removal of the cover or opening of the access hatch.
 - i. If an instrument reading indicates an organic chemical concentration more than 500 ppm above a background concentration, as measured by Method 21, a leak is detected.
 - ii. If visible defects such as gaps in sealing materials are observed during a visual inspection, a leak is detected.
 - iii. When a leak is detected, it shall be repaired by the Permittee as soon as practicable, but not later than 15 calendar days after it is detected.
 - iv. A first attempt at repair of any leak or visible defect shall be made by the Permittee no later than 5 calendar days after each leak is detected.
- d. Pursuant to 40 CFR Part 61.132(a), the Permittee shall operate and maintain Control Systems on the coke by-product plant in accordance with the work practices in 40 CFR Part 61 Subpart L, as specified below. This Control System consists of a Positive Pressure Gas Blanketing System supplied with clean coke oven gas controlling the light oil area and a Negative Pressure or Steam Blanketing System controlling tar, ammonia and liquor tanks.
 - i. The following procedures shall be conducted on the control system on a semiannual basis and after each time the control system is repressurized and the Permittee shall [40 CFR 61.132(b)]:

- A. Inspect the ductwork for evidence of visible defects such as gaps or tears.
 - B. Monitor the connections and seals to determine if operating with no detectable emissions.
 - ii. A maintenance inspection of the control system shall be conducted on an annual basis for evidence of system abnormalities such as blocked or plugged lines, sticking valves, plugged condensate traps and other maintenance defects that could result in abnormal system operation. The owner or operator shall make a first attempt at repair within 5 days, with repair within 15 days of detection [40 CFR 61.132(c)].
- e. COG flare
- Pursuant to Sections 39.5(7)(a) and (d) of the Act, for the COG flare:
- i. The Permittee shall either:
 - A. Install, operate and maintain instrumentation, with alarm, to confirm the presence of a flame at the flare tip; or
 - B. Monitor for the presence of a pilot flame using a thermocouple or other equivalent device to detect the presence of a flame; or
 - C. Verify, once per shift, the presence of a flame at the tip of the flare, and that the flare gas header has a positive pressure.
 - ii. The Permittee shall perform the following inspections of the flare:
 - A. An inspection of the ignition system on an annual basis;
 - B. A detailed maintenance and repair inspection during the period when the flare is out of service and/or idled.
- f. Monitoring requirements for COG established by FESOP 94120017, Permit 06070022 and Section 39.5(7)(a) of the Act:
- i. The Permittee shall operate systems for monitoring the hydrogen sulfide (H₂S) content of the COG exiting the affected by-product plant and exiting the COG-DS.

The H₂S concentration shall be measured on a wet gas basis.

- ii. These H₂S monitoring systems shall be equipped with a strip chart recorder or disk storage and shall be capable of recording the H₂S content in grains per standard cubic feet.
- iii. These H₂S monitoring systems shall meet the applicable requirements of Performance Specification 7 of 40 CFR 60, Appendix B. These H₂S monitoring systems shall be operated, and data collected, reduced and maintained, in accordance with the applicable requirements of 40 CFR 60.13 and 35 IAC Part 201 Subpart L.
- iv. The H₂S monitoring system for COG exiting the by-product plant shall comply with the following requirements for collection of data:
 - A. The system shall collect hourly average H₂S content data for at least 75% of the daily operating hours in which COG is not treated by the COG-DS (e.g., at 24 hours/day COG production, at least 18 hourly averages of H₂S content must be obtained). In the event that this minimum data requirement cannot be met by the H₂S monitoring system, the H₂S content data shall be supplemented or obtained by one of the following alternative methods.
 - I. H₂S determined by type of coal used during that period and previous recorded H₂S content when using this coal type. This method shall only be used for a maximum of 15 days per calendar year.
 - II. A manual sample of COG shall be taken daily and the H₂S content shall be determined by 40 CFR 60, Appendix A, Method 11, as adapted to measure higher ranges of H₂S. This value, or a value based on the mean of the daily values plus two standard deviations for the previous 90 days for which a reading was obtained, whichever is higher, shall be used. Should a coal blend change occur during the period this alternative method is being used, the mean value plus two standard deviations will be adjusted to reflect any potential change in the H₂S content from that of the previous coal blend.

- B. The system shall collect H₂S content data for at least 75% of the daily operating hours in which COG is treated by the COG-DS with this data being the average over at least 5 minutes in each such operating hour. In the event that this minimum data requirement cannot be met by the H₂S monitoring system or can only be met with manual cycling of the H₂S monitoring system for treated COG data shall be supplemented or obtained by one of the following alternative methods:
 - I. H₂S data as obtained by manual sampling and analysis at least one per day; or
 - II. H₂S data as obtained from the H₂S monitoring system for treated COG at least twice per day, at least 8 hours apart.
 - C. The alternative methods provided for in this condition shall only be used in the event of a malfunction or breakdown of the H₂S monitoring systems, i.e., not during periods when a monitoring system is functioning properly to collect valid data.
- v. These H₂S monitors shall be tested at least every 12 months in accordance with 40 CFR 60, Appendix B, Performance Specification 7. The results of these tests shall be sent to the IEPA's Division of Air Pollution, Control Permit Section and Regional Office within 14 days after summarizing of results. In addition, the results shall be maintained in accordance with the recordkeeping specified in this permit. For the H₂S monitoring system for COG exiting the by-product plant, this testing shall be conducted as follows:
- A. The H₂S content in grains per standard cubic foot of COG shall be determined using 40 CFR 60, Appendix A, Method 11 as adapted to measure higher ranges of H₂S.
 - B. The following revisions shall be made to Method 11 to allow the measuring of higher ranges of H₂S:
 - 1. Diluent air shall mean air containing less than 0.5 ppm total sulfur compounds and less than 10 ppm each of moisture and hydrocarbons.

2. 7.0 Procedure - Located after the sampling valve, there will be a gas mixing box with a metered supply of (heated) diluent air. This metered supply of diluent air will be introduced prior to sampling and adjusted so that the final dilution of the sample will be 1:20 (i.e., 0.05 liters/min of sample to 0.95 liters/min of dilution air).

3. 9.4 - V_m = Volume of gas sample through the gas meter (meter conditions), liters/20.

V_{mCSTD} = (Corrected) volume at standard conditions of gas sampled through the dry gas meter. (Standard Liters).

vi. In the event of malfunction or breakdown of the H₂S monitoring systems, the Permittee shall repair and recalibrate the meter or monitoring systems as soon as practicable but no later than 10 days after the malfunction or breakdown is detected, unless prior Illinois EPA approval is obtained by submitting adequate justification to the Illinois EPA detailing the reasons for delay. Records of repair and recalibration must be maintained in accordance with the recordkeeping requirements of this permit. This condition does not relieve the Permittee of the minimum data collection requirements of this permit.

g. The Permittee shall equip the thermal oxidizer in the COG-DS with a continuous monitoring system, which shall be calibrated, maintained, and operated at all times the COG-DS thermal oxidizer is in operation, to monitor the combustion chamber temperature of the thermal oxidizer [Sections 39.5(7)(a) and (d) of the Act].

h. The Permittee shall sample and analyze the COG exiting the byproduct plant and treated COG from the COG-DS for PM content using appropriate ASTM methods or other comparable methodology. These measurements shall be conducted at least annually. The records for this activity shall also include data for the H₂S content of COG at the time of sampling [Sections 39.5.7(a) and (d) of the Act].

7.3.10 Recordkeeping Requirements

The Permittee shall maintain records of the following items for the affected by-product recovery plant, the COG-DS and COG flare, pursuant to Sections 39.5(7)(a) and (e) of the Act:

a. 40 CFR Part 61 Subpart L (40 CFR 61.138):

- i. The following information pertaining to the design of control equipment installed to comply with 40 CFR 61.132 through 61.134 shall be recorded and kept in a readily accessible location:
 - A. Detailed schematics, design specifications, and piping and instrumentation diagrams.
 - B. The dates and descriptions of any changes in the design specifications.
- ii. The following information pertaining to sources subject to 40 CFR 61.132 and sources subject to 40 CFR 61.133 shall be recorded and maintained for 2 years following each semiannual (and other) inspection and each annual maintenance inspection:
 - A. The date of the inspection and the name of the inspector.
 - B. A brief description of each visible defect in the source or control equipment and the method and date of repair of the defect.
 - C. The presence of a leak, as measured using the method described in 40 CFR 61.245(c). The record shall include the date of attempted and actual repair and method of repair of the leak.
 - D. A brief description of any system abnormalities found during the annual maintenance inspection, the repairs made, the date of attempted repair, and the date of actual repair.
- b. 40 CFR Part 61 Subpart FF (40 CFR 61.356):
 - i. Each owner or operator of a facility subject to the provisions of Subpart FF shall comply with the recordkeeping requirements of 40 CFR 61.356. Each record shall be maintained in a readily accessible location at the facility site for a period not less than two years from the date the information is recorded unless otherwise specified [40 CFR 61.356(a)].
 - ii. Each owner or operator shall maintain records that identify each waste stream at the facility subject to Subpart FF, and indicate whether or not the waste stream is controlled for benzene emissions in accordance with this subpart. In addition the owner or operator shall maintain the following records [40 CFR 61.356(b)]:

- A. For each waste stream not controlled for benzene emissions in accordance with Subpart FF, the records shall include all test results, measurements, calculations, and other documentation used to determine the following information for the waste stream: waste stream identification, water content, whether or not the waste stream is a process wastewater stream, annual waste quantity, range of benzene concentrations, annual average flow-weighted benzene concentration, and annual benzene quantity.
- B. For each waste stream exempt from 40 CFR 61.342(c)(1) in accordance with 40 CFR 61.342(c)(3), the records shall include:
 - 1. All measurements, calculations, and other documentation used to determine that the continuous flow of process wastewater is less than 0.02 liters (0.005 gallons) per minute or the annual waste quantity of process wastewater is less than 10 Mg/yr (11 ton/yr) in accordance with 40 CFR 61.342(c)(3)(i), or
 - 2. All measurements, calculations, and other documentation used to determine that the sum of the total annual benzene quantity in all exempt waste streams does not exceed 2.0 Mg/yr (2.2 ton/yr) in accordance with 40 CFR 61.342(c)(3)(ii).
- C. For each facility where process wastewater streams are controlled for benzene emissions in accordance with 40 CFR 61.342(d), the records shall include for each treated process wastewater stream all measurements, calculations, and other documentation used to determine the annual benzene quantity in the process wastewater stream exiting the treatment process.
- D. For each facility where waste streams are controlled for benzene emissions in accordance with 40 CFR 61.342(e), the records shall include for each waste stream all measurements, including the locations of the measurements, calculations, and other documentation used to determine that the total benzene quantity does not exceed 6.0 Mg/yr (6.6 ton/yr).
- E. For each facility where the annual waste quantity for process unit turnaround waste is determined in accordance with 40 CFR

61.355(b)(5), the records shall include all test results, measurements, calculations, and other documentation used to determine the following information: identification of each process unit at the facility that undergoes turnarounds, the date of the most recent turnaround for each process unit, identification of each process unit turnaround waste, the water content of each process unit turnaround waste, the annual waste quantity determined in accordance with 40 CFR 61.355(b)(5), the range of benzene concentrations in the waste, the annual average flow-weighted benzene concentration of the waste, and the annual benzene quantity calculated in accordance with 40 CFR 61.355(a)(1)(iii).

F. For each facility where wastewater streams are controlled for benzene emissions in accordance with 40 CFR 61.348(b)(2), the records shall include all measurements, calculations, and other documentation used to determine the annual benzene content of the waste streams and the total annual benzene quantity contained in all waste streams managed or treated in exempt waste management units.

iii. An owner or operator shall maintain a record for each visual inspection required by 40 CFR 61.343 through 61.347 that identifies a problem (such as a broken seal, gap or other problem) which could result in benzene emissions. The record shall include the date of the inspection, waste management unit and control equipment location where the problem is identified, a description of the problem, a description of the corrective action taken, and the date the corrective action was completed [40 CFR 61.356(g)].

c. 40 CFR Part 61 Subpart V (40 CFR 61.246):

- i. A. Each owner or operator subject to the provisions of Subpart V shall comply with the recordkeeping requirements of 40 CFR 61.246 [40 CFR 61.246(a)(1)].
- B. An owner or operator of more than one process unit subject to the provisions of Subpart V may comply with the recordkeeping requirements for these process units in one recordkeeping system if the system identifies each record by each process unit [40 CFR 61.246(a)(2)].
- ii. When each leak is detected as specified in 40 CFR 61.242-2, 61.242-3, 61.242-7, 61.242-8, and 61.135,

the following requirements apply to the Permittee [40 CFR 61.246(b)]:

- A. A weatherproof and readily visible identification, marked with the equipment identification number, shall be attached to the leaking equipment.
 - B. The identification on a valve may be removed after it has been monitored for 2 successive months as specified in 40 CFR 61.242-7(c) and no leak has been detected during those 2 months.
 - C. The identification on equipment, except on a valve, may be removed after it has been repaired.
- iii. When each leak is detected as specified in 40 CFR 61.242-2, 61.242-3, 61.242-7, 61.242-8, and 61.135, the following information shall be recorded by the Permittee in a log and shall be kept for 2 years in a readily accessible location [40 CFR 61.246(c)]:
- A. The instrument and operator identification numbers and the equipment identification number.
 - B. The date the leak was detected and the dates of each attempt to repair the leak.
 - C. Repair methods applied in each attempt to repair the leak.
 - D. Above 10,000 if the maximum instrument reading measured by the methods specified in 40 CFR 61.245(a) after each repair attempt is equal to or greater than 10,000 ppm.
 - E. Repair delayed and the reason for the delay if a leak is not repaired within 15 calendar days after discovery of the leak.
 - F. The signature of the owner or operator (or designate) whose decision it was that repair could not be effected without a process shutdown.
 - G. The expected date of successful repair of the leak if a leak is not repaired within 15 calendar days.
 - H. Dates of process unit shutdowns that occur while the equipment is unrepaired.

- I. The date of successful repair of the leak.
- iv. The following information pertaining to all equipment to which a standard applies shall be recorded in a log that is kept in a readily accessible location by the Permittee [40 CFR 61.246(e)]:
 - A. A list of identification numbers for equipment (except welded fittings) subject to the requirements of Subpart V.
 - B.
 - 1. A list of identification numbers for equipment that the owner or operator elects to designate for no detectable emissions as indicated by an instrument reading of less than 500 ppm above background.
 - 2. The designation of this equipment for no detectable emissions shall be signed by the owner or operator.
 - C. A list of equipment identification numbers for pressure relief devices required to comply with 40 CFR 61.242-4(a).
 - D.
 - 1. The dates of each compliance test required in 40 CFR 61.242-2(e), 61.242-3(i), 61.242-4, 61.242-7(f), and 61.135(g).
 - 2. The background level measured during each compliance test.
 - 3. The maximum instrument reading measured at the equipment during each compliance test.
 - E. A list of identification numbers for equipment in vacuum service.
- v. The following information pertaining to all valves subject to the requirements of 40 CFR 61.242-7(g) and (h) and to all pumps subject to the requirements of 40 CFR 61.242-2(g) shall be recorded by the Permittee in a log that is kept in a readily accessible location [40 CFR 61.246(f)]:
 - A. A list of identification numbers for valves and pumps that are designated as unsafe to monitor, an explanation for each valve or pump stating why the valve or pump is unsafe to monitor, and the plan for monitoring each valve or pump.

- B. A list of identification numbers for valves that are designated as difficult to monitor, an explanation for each valve stating why the valve is difficult to monitor, and the planned schedule for monitoring each valve.
- vi. The following information shall be recorded by the Permittee for valves complying with 40 CFR 61.243-2 [40 CFR 61.246(g)]:
 - A. A schedule of monitoring.
 - B. The percent of valves found leaking during each monitoring period.
- vii. The following information shall be recorded in a log by the Permittee that is kept in a readily accessible location [40 CFR 61.246(h)]:
 - A. Design criterion required in 40 CFR 61.242-2(d)(5), 61.242-3(e)(2), and 61.135(e)(4) and an explanation of the design criterion; and
 - B. Any changes to this criterion and the reasons for the changes.
- viii. The following information shall be recorded in a log by the Permittee that is kept in a readily accessible location for use in determining exemptions as provided in the applicability section of this subpart and other specific Subparts [40 CFR 61.246(i)]:
 - A. An analysis demonstrating the design capacity of the process unit, and
 - B. An analysis demonstrating that equipment is not in VHAP service.
- ix. Information and data used to demonstrate that a piece of equipment is not in VHAP service shall be recorded in a log by the Permittee that is kept in a readily accessible location [40 CFR 61.246(j)].
- d. The Permittee shall keep the following records for the COG flare [Section 39.5(7)(e) of the Act]:
 - i. Records of inspections and maintenance or repair activities conducted pursuant to Condition 7.3.9(e)(ii).
 - ii. H₂S content in the COG with supporting calculations of SO₂ emissions from the flare.
- e. The following records for the COG-DS pursuant to Permit 06070022:

- i. Temperature monitoring system for thermal oxidizer on the Claus Sulfur Recovery Unit:
 - A. Recorded data.
 - B. A log of operating time for the control system or devices, monitoring system, and the coke oven byproducts plant.
 - C. A maintenance log for the oxidizer and monitoring device detailing all routine and non-routine maintenance performed including dates and duration of any outages.
- ii. Operating Records for the Packed Tower Amine Unit:
 - A. Amine temperature leaving the unit (°F).
 - B. Amine flow (gallons/minute).
 - C. COG flow into or out of the unit.
- iii. Logs:
 - A. Operating logs.
 - B. Maintenance logs detailing all routine and non-routine maintenance performed including dates and duration of any outages.
- iv. Production Records:
 - A. COG production during periods of time when the COG-DS is operating (mmscf/month and mmscf/year).
 - B. COG production during periods of time when the COG-DS is not operating (mmscf/month and mmscf/year).
- v. Records of H₂S content in COG, with supporting data and calculations:
 - A. H₂S content of COG exiting the by-product plant, daily average.
 - B. H₂S content of COG, annual average.
 - C. H₂S content of treated COG, excluding outages, startup, shutdown, and upsets, monthly average.
- vi. Emission Records for the COG Desulfurization System (Claus Sulfur Recovery Unit) [Sections 39.5.7(a) and (d) of the Act]

- A. A file containing the emission factors used by the Permittee to determine emissions of PM₁₀ and SO₂ from the Claus Sulfur Recovery Unit, with supporting documentation. These records shall be reviewed and updated by the Permittee as necessary to assure that the emission factors that it uses to determine emissions of this unit do not understate actual emissions. These records shall be prepared and copies sent to the Illinois EPA in accordance with Condition 5.9.6(c).
- B. Engineering calculations for typical and maximum hourly PM₁₀ and SO₂ emissions (lbs/hour) Claus Sulfur Recovery Unit, with supporting documentation.
- C. Records for the concentration of SO₂ and H₂S (percent by volume) in the tail gas of the Claus Sulfur Recovery Unit, which is sent to the thermal oxidizer, as measured by process instrumentation.
- D. Records for any periods of operation of the Claus Sulfur Recovery Unit that are not otherwise addressed in the required records during which the established emission factor in Condition 7.3.10(e)(vi)(A) would understate actual emissions of this unit, with description of the period of operation and an estimate of the additional emissions during such period that would not be accounted for by the established factor, with supporting explanation and calculations.
- D. Records for any periods of operation of the Claus Sulfur Recovery Unit that are not otherwise addressed in the required records during which the established emission rate in Condition 7.3.10(e)(vi)(B) would understate the actual emissions of this unit, with description of the period of operation, including date, time and duration, explanation, and an estimate of the additional emissions during such period that would not be accounted for by the established rate, with supporting explanation and calculations.
- F. Records for the annual PM₁₀ and SO₂ emissions of the Claus Sulfur Recovery Unit for comparison to the limits in Conditions 7.3.7(e), with supporting calculations.

Note: Records for PM₁₀ and SO₂ emissions associated with combustion of COG at the facility are contained in Condition 5.9.1(e).

- f. The following records for the H₂S monitoring system for COG exiting the by-product plant, pursuant to FESOP 94120017:
 - i. The hourly average, 3-hour average and daily average H₂S content of the COG in grains per standard cubic foot.
 - ii. The H₂S monitor strip chart or disk storage.
 - iii. Thousand standard cubic feet of COG used per 3-hours for slab reheat furnaces 1-3 and ladle drying preheaters and per day for each unit operating group.
 - iv. The calibration, maintenance and repair of the H₂S monitor used in compliance calculations.
- g. Other Records
 - i. Records of the amount of raw coke oven gas being received from the coke ovens (scf/mo and acf/yr).
 - ii. Records of the following by-products being produced:
 - A. Clean coke oven gas (scf/mo and scf/yr);
 - B. Light oil (gal/mo and gal/yr); and
 - C. Tar (ton/mo and ton/yr).
 - iii. If the Permittee operates under manufacturer's specifications or manufacturer's instructions, such manufacturer's documentation shall be kept at the source as part of the required records.
 - iv. Records of annual benzene waste generated on site (tons/yr).
 - v. Annual emissions of VOM from the affected by-product recovery plant.
- h. Records for Malfunctions or Breakdowns

Pursuant to 35 IAC 201.263, the Permittee shall maintain records of continued operation of the affected COG flare as addressed by Condition 7.3.5 during malfunctions or breakdowns, which at a minimum, shall include the following records. The preparation of these records shall be completed within 45 days of an incident, unless the Permittee conducts a root cause analysis for the incident, in which case the preparation of these records, other than

the root cause analysis, shall be completed within 120 days of the incident.

- i. Date, time and duration of the incident.
- ii. A detailed description of the incident, including:
 - A. A chronology of significant events during and leading up to the incident.
 - B. Relevant operating data for the unit, including information such as operator log entries and directives provided by management during the incident.
 - C. The measures taken to reduce the quantity of emissions and the duration of the incident including the resources utilized to address the incident.
 - D. The magnitude of emissions during the incident.
- iii. An explanation why continued operation of an affected COG flare was necessary to prevent personnel injury or prevent equipment damage.
- iv. A discussion of the cause(s) or probable cause(s) of the incident including the following:
 - A. Whether the incident was sudden, unavoidable, or preventable, including:
 1. Why the equipment design did not prevent the incident;
 2. Why better maintenance could not have avoided the incident;
 3. Why better operating practices could not have avoided the incident; and
 4. Why there was no advance indication for the incident.
 - B. Whether the incident stemmed from any activity or event that could have been foreseen, avoided or planned for.
 - C. Whether the incident was or is part of a recurring pattern indicative of inadequate design, operation or maintenance.
- v. A description of any steps taken or to be taken to prevent similar future incidents or reduce their frequency and severity.

- vi. As an alternative to keeping the records required by Condition 7.3.10(h)(iv), the Permittee may perform a root cause analysis. For this purpose, a root cause analysis is an analysis whose purpose is to determine, correct and eliminate the primary causes of the incident and the excess emissions resulting there from. If the Permittee performs a root cause analysis method that would define the problem, define all causal relationships, provide a causal path to the root cause, delineate the evidence, and provide solutions to prevent a recurrence. Such an analysis shall be completed within one year of the incident.

7.3.11 Reporting Requirements

The Permittee shall submit the following reports pursuant to Section 39.5(7)(a) and (c) of the Act:

a. 40 CFR 61 Subpart L (40 CFR 61.138):

- i. A report shall be submitted to the Illinois EPA semiannually starting 6 months after the initial reports required in 40 CFR 61.138(e) and 40 CFR 61.10, which includes the following information [40 CFR 61.138(f)]:
 - A. For sources subject to 40 CFR 61.132 and sources subject to 40 CFR 61.133:
 - 1. A brief description of any visible defect in the source or ductwork;
 - 2. The number of leaks detected and repaired; and
 - 3. A brief description of any system abnormalities found during each annual maintenance inspection that occurred in the reporting period and the repairs made.
 - B. For equipment in benzene service subject to 40 CFR 61.135(a), information required by 40 CFR 61.247(b).
 - C. For each exhaustor subject to 40 CFR 61.135 for each quarter during the semiannual reporting period:
 - 1. The number of exhaustors for which leaks were detected as described in 40 CFR 61.135(d) and (e)(5);

2. The number of exhausters for which leaks were repaired as required in 40 CFR 61.135(d) and (e)(6); and
 3. The results of performance tests to determine compliance with 40 CFR 61.135(g) conducted within the semiannual reporting period.
- D. A statement signed by the owner or operator stating whether all provisions of 40 CFR part 61, subpart L, have been fulfilled during the semiannual reporting period.
- b. 40 CFR 61 Subpart V (40 CFR 61.247):
- i. An owner or operator of any piece of equipment to which Subpart V applies shall submit a statement in writing notifying the Illinois EPA that the requirements of 40 CFR 61.242, 61.245, 61.246, and 61.247 are being implemented [40 CFR 61.247(a)(1)].
 - ii. A report shall be submitted to the Illinois EPA semiannually starting 6 months after the initial report required in 40 CFR 61.247(a), that includes the following information [40 CFR 61.247(b)]:
 - A. Process unit identification.
 - B. For each month during the semiannual reporting period:
 1. Number of valves for which leaks were detected as described in 40 CFR 61.242-7(b) of 61.243-2.
 2. Number of valves for which leaks were not repaired as required in 40 CFR 61.242-7(d).
 3. Number of pumps for which leaks were detected as described in 40 CFR 61.242-2(b) and (d)(6).
 4. Number of pumps for which leaks were not repaired as required in 40 CFR 61.242-2(c) and (d)(6).
 5. Number of compressors for which leaks were detected as described in 40 CFR 61.242-3(f).
 6. Number of compressors for which leaks were not repaired as required in 40 CFR 61.242-3(g).

7. The facts that explain any delay of repairs and, where appropriate, why a process unit shutdown was technically infeasible.
 - C. Dates of process unit shutdowns which occurred within the semiannual reporting period.
 - D. Revisions to items reported according to 40 CFR 61.247(a) if changes have occurred since the initial report or subsequent revisions to the initial report.
 - E. The results of all performance tests and monitoring to determine compliance with no detectable emissions and with 40 CFR 61.243-1 and 61.243-2 conducted within the semiannual reporting period.
- c. 40 CFR 61 Subpart FF (40 CFR 61.357)
- i. If the total annual benzene quantity from facility waste is less than 1 Mg/yr (1.1 ton/yr), then the owner or operator shall submit to the Illinois EPA and the Administrator a report that updates the information listed in 40 CFR 61.357(a)(1) through (a)(3) whenever there is a change in the process generating the waste stream that could cause the total annual benzene quantity from facility waste to increase to 1 Mg/yr (1.1 ton/yr) or more [40 CFR 61.357(b)].
 - ii. If the total annual benzene quantity from facility waste is less than 10 Mg/yr (11 ton/yr) but is equal to or greater than 1 Mg/yr (1.1 ton/yr) then the owner or operator shall submit to the Illinois EPA and the Administrator a report that updates the information listed in 40 CFR 61.357 (a)(1) through (a)(3). The report shall be submitted annually and whenever there is a change in the process generating the waste stream that could cause the total annual benzene quantity from facility waste to increase to 10 Mg/yr (11 ton/yr) or more. If the information in the annual report required by 40 CFR 61.357 (a)(1) through (a)(3) is not changed in the following year, the owner or operator may submit a statement to that effect [40 CFR 61.357(c)].
 - iii. If the total annual benzene quantity from facility waste is equal to or greater than 10 Mg/yr (11 ton/yr), then the owner or operator shall submit to the Illinois EPA and the Administrator reports described in 40 CFR 61.357(d) [40 CFR 61.357(d)].

- d. i. Pursuant to Section 39.5(7)(f)(ii) of the Act, the Permittee shall promptly notify the Illinois EPA, Air Compliance Section, within 30 days of deviations by the affected coke by-product recovery plant, COG system and COG flare from applicable requirements, unless a NESHAP standard specifies a different timeframe, as follows:
 - A. Requirements in Condition 7.3.3(e), (f) and (g).
 - B. Requirements in Condition 7.3.6.
 - C. Requirements in Condition 7.3.7.
- ii. All such deviations shall be summarized and reported as part of the semiannual monitoring report required by Condition 8.6.1.
- iii. The Permittee shall notify the Illinois EPA, Air Compliance Section, of all other deviations as part of the semiannual monitoring reports required by Condition 8.6.1.
- iv. All required deviation reports described in Condition 7.3.11(d) above shall contain the following information:
 - A. Date, time and duration of the deviation;
 - B. Description of the deviation;
 - C. Probable cause of the deviation; and
 - D. Any corrective action or preventive measures taken.
- e. Reporting on the State malfunction and breakdown authorization shall be performed in accordance with Condition 5.10.5-2.
- f. Reporting on the Federal SSM authorization shall be performed in accordance with Condition 5.10.5-3.

7.3.12 Operational Flexibility/Anticipated Operating Scenarios

The following requirements established by Construction Permit 09030019 shall be followed during idling of the affected coke batteries and coke by-product recovery plant:

This permit authorizes operation of adsorber systems to control emissions from the equipment in the Coke By-Product Recovery Plant, as an alternative to the various blanketing systems on the by-products plant during idling or other interruptions in

these blanketing systems, as addressed by Permit 09030019, subject to the following requirements:

- a. Each system will use a canister-type vessel containing activated carbon to "filter" organic material from the exhaust from the units. The adsorber vessels will not be regenerated on-site but replaced when the capacity of the vessel to adsorb organic material is approached.
- b. Various equipment or affected operations at the by-products plant, including processing vessels such as tar decanters, light oil decanters and storage tanks which are subject to NESHAP (the associated operations).
 - i. The affected adsorbers shall be designed and operated to achieve at least 98 percent control of emissions of benzene from the associated operations, as required by 40 CFR 61.139(a), with compliance determined in accordance with applicable requirements of 40 CFR 61.139(b) and (h).
 - ii. As the by-products plant is subject to 40 CFR 61, Subpart L, the Permittee will continue to be subject to applicable requirements of 40 CFR 61, Subpart A, General Provisions for associated operations, including 40 CFR 61.12(c), which requires that the Permittee maintain and operate these operations, including associated equipment for air pollution control, in a manner consistent with good air pollution control practice for minimizing emissions.
 - iii. A. The Permittee shall have access to sampling equipment and other capabilities necessary to conduct monitoring for the affected adsorbers, i.e., operational measurements for the concentration of benzene or hydrocarbons in the exhaust from the adsorbers.

B. While the adsorbers serve to control emissions from the associated operations, the Permittee shall conduct applicable monitoring for the affected adsorbers required by 40 CFR 61, Subparts A and L, including 40 CFR 61.139(e).
 - iv. For the associated operations while controlled by the adsorbers, the Permittee shall fulfill applicable recordkeeping requirements of 40 CFR 61, Subparts A and L, including 40 CFR 61.139(i).
 - v. The Permittee shall keep a file for each adsorber system that contains documentation for the adsorption capacity of the adsorption vessel and engineering calculations for the rate at which the associated operations would generate emissions and the expected operating life of an adsorption vessel in days.

- vi. The operating records that the Permittee maintains for the associated operations and adsorbers shall include the following information, in addition to other required information:
 - A. The date that an adsorber vessel is switched out, with reason and measured hydrocarbon concentration in the exhaust prior to switchout.
 - B. For periods when the adsorbers operated properly, i.e., in accordance with Condition 7.3.12(a), relevant information to generally confirm proper operation.
 - C. For periods when an adsorber did not operate properly, identification of each such period and the associated operations that were operating, with detailed information describing: 1) The operation of the adsorber, including the monitored exhaust concentration; 2) The potential consequences for additional emissions of organic material with an estimate of the additional emissions, with explanation; 3) The actions taken to restore proper operation; and 4) Any actions taken to prevent similar events in the future.
- vii. The maintenance records that the Permittee maintains for the associated operations and adsorbers shall include the following information, in addition to other required information:
 - A. Until the operations are idled, date and time that an inspection or maintenance/repair activity on the units was performed, with description of activity and name(s) of the responsible personnel.
 - B. While the associated operations are idled, date and time that an inspection or maintenance/repair activity for the preservation measures on the operations was performed, with description of activity and name(s) of the responsible personnel.
- viii. The Permittee shall fulfill applicable reporting requirements of 40 CFR 61, Subparts A and L, for the associated operations while they are controlled by the affected adsorbers.
- ix. The Permittee shall notify the Illinois EPA of the following events for the coke by-product plant:

- A. The date that existing control systems for the plant are shut off, within 15 days of such date. This report shall describe any difficulties that were encountered in the transition to control with the affected adsorbers, confirm the integrity of the ductwork of each affected adsorber, and include the results of initial measurements for the hydrocarbon concentrations in the exhaust from each affected adsorber, conducted in accordance with Condition 7.3.12(a).
- B. The date that operation of all adsorbers is no longer required by 40 CFR 61, Subpart L, within 30 days of such date. This report shall indicate the date when the emptying and cleaning of each group of the associated operations was completed, the current status of each affected adsorber (i.e., physically removed from the plant, scheduled to be removed, or left in place pending further developments), and the actions that are planned to maintain the condition and integrity of the affected associated operations while they are idle.

Note: During a period when the affected plant is idle, even if all associated operations are cleaned and emptied, the Permittee must continue to submit the routine semiannual compliance reports required by 40 CFR 61, Subpart L.

- C. The date that resumption of normal operation of the by-product plant is planned, at least 10 days prior to such date. This report shall generally describe the sequence of events that will accompany resumption of operation of the existing control systems for the plant.

7.3.13 Compliance Procedures

For the affected coke by-product recovery plant, COG system and COG flare, compliance with Conditions 7.3.3 and 7.3.7 is addressed by the work practices, testing, monitoring, recordkeeping and reporting requirements in Section 7.3 of this permit.

7.3.14 State-Only Conditions

State-only conditions are not being established.

7.4 Blast Furnaces

7.4.1 Description

Blast Furnaces and Casthouse:

Iron ore is converted to molten iron in the "A" and "B" Blast Furnaces. Iron ore, coke and a variety of fluxes (collectively called the burden) are charged into the top of the furnace, while heated air is blown up through the burden at a high velocity. Molten iron and slag accumulate in the bottom of the furnace, where a taphole is periodically drilled. The molten iron and slag pour out of the furnace into a trough, where the slag is separated from the iron. The iron moves down runners until it pours into torpedo cars. From here, the iron is taken to the Basic Oxygen Furnace (BOF) shop, where it is converted into steel. The slag travels down a separate runner and dumps into the slag pits. The molten slag is quenched with a mixture of water and potassium permanganate solution.

Charging of the Blast Furnace generates particulate matter emissions. Each furnace has a double-bell system to minimize emissions from charging.

Casthouse emissions consisting of particulate matter, sulfur dioxide, nitrogen oxides, carbon monoxide, and organic materials are generated during tapping of the furnace and the miscellaneous operations that take place within the casthouse structure. Emissions are controlled by the Casthouse Baghouse and the Iron Spout Baghouse.

Emissions may also be discharged from a blast furnace during startup, malfunctions and shutdowns for routine maintenance. Each furnace is equipped with bleeder valves which will relieve to the atmosphere if the furnace becomes over pressurized. This can occur during furnace slops when material in the furnace bridges forming a void and then collapses. Slips can cause over pressurization. In this condition, the stock in the furnace will bridge and cause a void to develop. The void will increase until the bridge collapses. Backdrafting of the blast furnaces is conducted to perform certain repairs, both routine and non-routine. Steam is utilized to draw furnace gases back through the tuyeres and out of backdraft stacks.

Blast Air Stoves:

The blast air stoves heat the blast air for the blast furnaces. Emissions from the stoves consist of particulate matter, sulfur dioxide, nitrogen oxides, and carbon monoxide generated as by-products of the combustion of Blast Furnace Gas (BFG) and Coke Oven Gas (COG). In addition, the blast furnaces can also use fuel oil in the event that other fuels are not available.

The byproduct gases from the blast furnaces are first cleaned in a BFG Pretreatment system with mechanical separation and water

wash to remove entrained dust and are then combusted in the stoves for the blast furnaces and other units at the source. BFG is primarily made up of carbon monoxide. The heat generated by the combustion of these gases is used to heat the brick inside of the stoves. The air flow is switched and this stored heat is then transferred to the blast air that is blown into the blast furnaces as part of the iron making process. There are three stoves for each furnace, which enables a continuous supply of blast air to the blast furnace. Only two of the three stoves will burn at any given time. All three stoves are exhausted to a common stack.

Excess BFG is also used in the various other fuel combustion emission units at the source. BFG that cannot be used as fuel is flared in either BFG flare #1 or #2.

Note: This narrative description is for informational purposes only and is not enforceable.

7.4.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Date Constructed	Emission Control Equipment
Blast Furnaces	• Blast Furnaces (A and B including charging and BFG pretreatment system)	Before 1972	None
	• Blast Furnace Casthouse (Tapping, Iron and Slag Runner, Slag Pits and Torpedo Car Loading Emissions From A and B Furnaces)		Casthouse Baghouse; and Iron Spout Baghouse;
	• Blast Furnace Gas Flare #1		None
	• (6) Blast Air Stoves (BFG, COG and natural Gas) (3 per each furnace)	Before 1972	None
	• Blast Furnace Gas Flare #2	2008	None
	• Slag pits	Before 1972	None

7.4.3 Applicable Provisions

- a. The "affected blast furnace processes" for the purpose of these unit-specific conditions, are the emission units and activities described in Conditions 7.4.1 and 7.4.2.
- b. Pursuant to 35 IAC 212.445, emissions of PM shall not exceed the following limits:

- i. Uncaptured particulate matter from any opening in a blast furnace cast house shall not exceed 20 percent opacity on a six (6) minute rolling average basis beginning from initiation of the opening of the tap hole up to the point where the iron and slag stops flowing in the trough. Opacity observations shall be taken in accordance with the procedures of 40 CFR 60, Appendix A, Method 9 [35 IAC 212.445(a)].
- ii. A. Particulate matter emissions from control equipment used to collect any of the emissions from the tap hole, trough, iron or slag runners or iron or slag spouts shall not exceed 0.023 g/dscm (0.010 gr/dscf). Compliance with this standard shall be determined in accordance with the procedures set out in 40 CFR 60, Appendix A, Methods 1 through 5, incorporated by reference in 35 IAC 212.113 and shall be based on the duration of a cast. For this purpose, a cast is defined as the initiation of the opening of the tap hole up to the point where the iron and slag stop flowing through the trough consistent with 35 IAC 212.445(a)(i) [35 IAC 212.445(b)(1)].

B. The opacity of emissions from control equipment used to collect any of the particulate matter emissions from the tap hole, trough, iron or slag runners or iron or slag spouts shall not exceed 10 percent on a six (6) minute rolling average basis [35 IAC 212.445(b)(2)].
- c. Pursuant to 35 IAC 214.301, the affected blast furnace processes shall comply with the following: no person shall cause or allow the emission of sulfur dioxide into the atmosphere from any process emission source to exceed 2000 ppm.
- d. The affected blast furnace processes other than the cast house are subject to 35 IAC 212.123(a), which provides that no person shall cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from any emission unit other than those emission units subject to the requirements of 35 IAC 212.122, except as allowed by 35 IAC 212.123(b) and 212.124.
- e. Pursuant to 40 CFR 63.7790(a) and Paragraph 7 of Table 1, of 40 CFR 63 Subpart FFFFFF, the emissions shall not exceed the following limits from each casthouse at an existing blast furnace:

- i. Particulate matter emissions from a control device shall not exceed 0.01 gr/dscf; and
- ii. Any secondary emissions that exit any opening in the casthouse or structure housing the blast furnace shall not exceed opacity greater than 20 percent (6 minute average).
- f. Pursuant to 40 CFR 63.7790(b)(1), the Permittee must operate each capture system applied to emissions from blast furnace casthouse at or above the lowest value or settings established for the operating limits in the Permittee's operation and maintenance plan.
- g. Pursuant to 35 IAC 212.316(f), uncaptured particulate matter emissions from blast furnace charging shall not exceed opacity of 20 percent.
- h. Pursuant to 35 IAC 212.458(b)(7) and (c), blast furnace stoves shall comply with the following: No person shall cause or allow emissions of PM₁₀ into the atmosphere to exceed 22.9 mg/scm (0.01 gr/scf) during any one hour period, provided that this limit shall not apply if there are no visible emissions, except if a stack test is performed, the absence of visible emissions is not a defense to a finding violation.

7.4.4 Non-Applicability of Regulations of Concern

- a. The emission limitations of 35 IAC 212.324 are not applicable to any affected blast furnace processes that are subject to a specific emissions standard or limitation contained in 35 IAC Part 212 Subpart R, Primary and Fabricated Metal Products and Machinery Manufacture, pursuant to 35 IAC 212.324 (a)(3).
- b. The affected blast furnace processes are not subject to 35 IAC 212.321 and 35 IAC 212.322, pursuant 35 IAC 212.441, which provides that, except where noted, 35 IAC 212.321 and 212.322 shall not apply to the steel manufacturing processes subject to 35 IAC 212.442 through 35 IAC 212.452.
- c. This permit is issued based on the affected blast furnace processes not being subject to the applicable requirements of 35 IAC 219.301 because the affected processes do not emit photochemically reactive organic material as defined in 35 IAC 211.4690.
- d. The affected blast furnace processes are not subject to 35 IAC 216.121 because the affected blast furnace processes are not the fuel combustion emission sources, as defined 35 IAC 211.2470.
- e. Pursuant to 40 CFR 63.7491(g), the Blast Furnace Stoves are not subject to any applicable requirements in 40 CFR Part

63, Subpart DDDDD, NESHAP: Industrial, Commercial, and Institutional Boilers and Process Heaters.

7.4.5-1 Work Practices: Operation and Maintenance Plan (40 CFR 63.7800)

- a. As required by 40 CFR 63.6(e)(1)(i), the Permittee shall always operate and maintain the affected blast furnace processes that are subject 40 CFR 63 Subpart FFFFF, including air pollution control and monitoring equipment, in a manner consistent with good air pollution control practices for minimizing emissions at least to the levels required by 40 CFR 63 Subpart FFFFF.
- b. The Permittee shall prepare and operate at all times each capture system or control device according to a written operation and maintenance plan for affected blast furnace casthouse. Each written operation and maintenance plan shall address the following elements:
 - i. Monthly inspections of the equipment that is important to the performance of the total capture system (e.g., pressure sensors, dampers, and damper switches). This inspection must include observations of the physical appearance of the equipment (e.g., presence of holes in ductwork or hoods, flow constrictions caused by dents or accumulated dust in the ductwork, and fan erosion). The operation and maintenance plan also must include requirements to repair any defect or deficiency in the capture system before the next scheduled inspection.
 - ii. Preventative maintenance for each control device, including a preventative maintenance schedule that is consistent with the manufacturer's instructions for routine and long-term maintenance.
 - iii. Operating limits for each capture system applied to emissions from a blast furnace casthouse. The Permittee shall establish the operating limits according to the following requirements in 40 CFR 63.7800(b)(3)(i) through (iii):
 - A. Select operating limit parameters appropriate for the capture system design that are representative and reliable indicators of the performance of the capture system. At a minimum, the Permittee shall use appropriate operating limit parameters that indicate the level of the ventilation draft and the damper position settings for the capture system when operating to collect emissions, including revised settings for seasonal variations.

Appropriate operating limit parameters for ventilation draft include, but are not limited to, volumetric flow rate through each separately ducted hood, total volumetric flow rate at the inlet to the control device to which the capture system is vented, fan motor amperage, or static pressure.

- B. For each operating limit parameter selected as described above, the Permittee shall designate the value or setting for the parameter at which the capture system operates during the process operation. If the operation allows for more than one process to be operating simultaneously, the Permittee shall designate the value or setting for the parameter at which the capture system operates during each possible configuration that the source may operate.
 - C. Include documentation in the plan to support selection of the operating limits established for the capture system. This documentation must include a description of the capture system design, a description of the capture system operating during production, a description of each selected operating limit parameter, a rationale for why the Permittee chose the parameter, a description of the method used to monitor the parameter according to the requirements of 40 CFR 63.7830(a), and the data used to set the value or setting for the parameter for each process configurations.
- iv. Pursuant to 40 CFR 63.7800(b)(4), corrective action procedures for baghouses equipped with bag leak detection systems. In the event a bag leak detection system alarm is triggered, the Permittee shall initiate corrective action to determine the cause of the alarm within 1 hour of the alarm, initiate corrective action to correct the cause of the problem within 24 hours of the alarm, and complete the corrective action. Corrective actions may include, but are not limited to:
- A. Inspecting the baghouse for air leaks, torn or broken bags or filter media, or any other condition that may cause an increase in emissions [40 CFR 63.7800(b)(4)(i)].
 - B. Sealing off defective bags or filter media [40 CFR 63.7800(b)(4)(ii)].

- C. Replacing defective bags or filter media or otherwise repairing the control device [40 CFR 63.7800(b)(4)(iii)].
- D. Sealing off a defective baghouse compartment [40 CFR 63.7800(b)(4)(iv)].
- E. Cleaning the bag leak detection system probe, or otherwise repair the bag leak detection system [40 CFR 63.7800(b)(4)(v)].
- F. Shutting down the process producing the particulate emissions [40 CFR 63.7800(b)(4)(vi)].

7.4.5-2 Work Practices: Startup, Shutdown and Malfunction

- a. Provisions Related to 40 CFR 63, Subpart FFFFF
 - i. Pursuant to 40 CFR 63.7810, the Permittee must be in compliance with the emission limitations and operation and maintenance requirements in 40 CFR 63 Subpart FFFFF at all times, except during periods of startup, shutdown and malfunction as defined in 40 CFR 63.2
 - ii. Pursuant to 40 CFR 63.7810(c), the Permittee shall develop a written startup, shutdown, and malfunction plan for the affected blast furnaces and casthouses according to the provisions established in 40 CFR 63.6(e)(3).
 - iii. Pursuant to 40 CFR 63.7835, consistent with 40 CFR 63.6(e) and 63.7(e)(1), deviations that occur during a period of startup, shutdown, or malfunction are not violations if the Permittee demonstrates that it was operating in accordance with 40 CFR 63.6(e)(1).
 - iv. The Permittee shall fulfill the applicable reporting requirements identified in 40 CFR 63.10(d) (Condition 5.10.5(b)) and 40 CFR 63.7841(b)(4).
 - v. The Permittee shall keep records in accordance with 40 CFR 63.7842(a)(2) related to startup, shutdown and malfunction.
- b. Startup and Malfunction/Breakdown Authorizations
 - i. Malfunction and Breakdown, pursuant to 201.149 and Part 201, Subpart I

- A. Subject to the following terms and conditions, the Permittee is authorized to continue operation of the affected blast furnace processes in excess of the applicable state standards in 35 IAC 212.445(b)(1) in the event of a malfunction or breakdown. This shall include blast furnace over pressurization, slips, use of auxiliary tap-holes, and back-drafting associated with periods of malfunction and breakdown.

Note: This authorization is provided because the Permittee applied for such authorization in its CAAPP application, generally explaining why such continued operation would be required to prevent injury to personnel or severe damage to equipment, and describing the measures that will be taken to minimize emissions from any malfunctions and breakdowns.

- B. This authorization only allows such continued operation as necessary to prevent injury to personnel or severe damage to equipment and does not extend to continued operation solely for the economic benefit of the Permittee.
- C. Upon occurrence of excess emissions due to malfunction or breakdown, the Permittee shall repair the affected emission/process units and/or re-establish applicable control practices.
- D. The Permittee shall fulfill the applicable recordkeeping and reporting requirements of Conditions 7.4.9(e) and 5.10.5-2, respectively. For these purposes, time shall be measured from the start of a particular incident. The absence of excess emissions for a short period shall not be considered to end the incident if excess emissions resume.
- E. Following notification to the Illinois EPA (see Condition 5.10.5-2(a)(ii)) of a malfunction or breakdown with excess emissions, the Permittee shall comply with all reasonable directives of the Illinois EPA with respect to such incident.
- F. This authorization does not relieve the Permittee from the continuing obligation to minimize excess emissions during malfunction or breakdown. As provided by 35 IAC 201.265, an authorization in a permit for continued operation with excess emissions during malfunction and breakdown does not shield the

Permittee from enforcement for any such violation and only constitutes a prima facie defense to such an enforcement action provided that the Permittee has fully complied with all terms and conditions connected with such authorization.

ii. Startup, pursuant to 35 IAC 201.149 and Part 201, Subpart I

- A. Subject to the following terms and conditions, for the affected blast furnace, the Permittee is authorized to violate the applicable standards of 35 IAC 212.445(b)(1), 212.445(b)(2) and 35 IAC 214.301 during startup.

Note: This authorization is provided because the Permittee applied for such authorization in its CAAPP application, generally describing the efforts that will be used "...to minimize startup emissions, duration of individual starts, and frequency of startups".

- B. This authorization does not relieve the Permittee from the continuing obligation to demonstrate that all reasonable efforts are made to minimize startup emissions, duration of individual startups and frequency of startups.
- C. The Permittee shall follow the written startup, shutdown, and malfunction plan for the affected blast furnace processes prepared pursuant to 40 CFR 63.6(e)(3) and Condition 7.4.5-2. In addition, the Permittee shall also review the operating condition of the affected blast furnace process prior to initiating startup.
- D. The Permittee shall fulfill applicable recordkeeping requirements of Condition 7.4.9(d).
- E. The Permittee shall fulfill applicable reporting requirements of Condition 5.10.5-1.
- F. As provided by 35 IAC 201.265, an authorization in a permit for excess emissions during startup does not shield a Permittee from enforcement for any violation of applicable emission standard(s) that occurs during startup and only constitutes a prima facie defense to such an enforcement action provided that the Permittee has fully complied with all terms and conditions connected with such authorization.

7.4.5-3 Work Practices from State Permits

- a. Except during periods of runner maintenance, the hot metal runners and the short slag runner shall be covered with permanent type runner covers [72080034, 72080036, T1].
- b. Water spraying of the slag for the purpose of cooling and minimizing slag load-out emissions will take place after completion of the slagging operation and prior to slag-loadout [85030039, T1].
- c. BFG flare #1 shall be operated with no visible emissions as determined by USEPA Method 22, except for periods not to exceed a total of 5 minutes during any 2 consecutive hours [0607023, T1].
- d. Requirements for BFG Flare #2 from Permit 06070023:
 - i. BFG flare #2 shall be operated to comply with the following equipment work practices [T1]:
 - A. BFG flare #2 shall be operated with no visible emissions as determined by the methods specified in 40 CFR 60.18(f), except for periods not to exceed a total of 5 minutes during any 2 consecutive hours.
 - B. BFG flare #2 shall be operated with a flame present at all times.
 - ii. Emissions of PM and PM₁₀ from BFG flare #2 shall be controlled by the existing BFG pretreatment system, which entails treatment by dust catchers and wet scrubbers [T1].
 - iii. BFG and natural gas shall be the only fuels combusted in BFG flare #2 [T1].

7.4.5-4 Other Work Practices

The following requirements are established pursuant to Section 39.5(7)(a) of the Act:

- a. The Permittee shall maintain the double-bell system of the blast furnaces in order to minimize emissions from furnace charging.
- b. The Permittee shall develop and implement operating practices plan for slag handling processing associated with the slag pits for minimizing emissions and keeping them below the levels established in Condition 7.4.6(e).

7.4.6 Production and Emission Limitations from Existing Permits

- a. i. Total combined production of hot metal (a.k.a., iron) from blast furnaces A and B shall not exceed 9,849 net tons per day, averaged over any calendar month [72080034, 7208036, 95010001, T1]; and
- ii. Maximum amount of pellets charged shall not exceed 4,308,581 tons/yr [95010001, T1].

- b. Casthouse Baghouse emissions shall not exceed the following limits [95010001, T1]:

<u>Pollutant</u>	<u>Emission Factors (Lbs/Ton Iron)</u>	<u>Maximum Emissions (Tons/Yr)</u>
PM	0.0703	111.19
PM ₁₀	0.0703	111.19
SO ₂	0.2006	422.00
NO _x	0.0144	22.79
VOM	0.0946	149.68

- c. Blast Furnace uncaptured fugitives emissions shall not exceed the following limits [95010001, T1]:

<u>Pollutant</u>	<u>Emission Factors (Lbs/Ton Iron)</u>	<u>Maximum Emissions (Tons/Yr)</u>
PM	0.031	49.06
PM ₁₀	0.0155	24.53
SO ₂	0.0104	21.94
NO _x	0.0007	1.14
VOM	0.0047	7.42

- d. Blast Furnace Charging emissions shall not exceed the following limits [95010001, T1]:

<u>Pollutant</u>	<u>Emission Factors (Lbs/Ton Pellets)</u>	<u>Maximum Emissions (Tons/Yr)</u>
PM	0.0024	5.17
PM ₁₀	0.0024	5.17

- e. Slag Pits emissions shall not exceed the following limits [95010001, T1]:

<u>Pollutant</u>	<u>Emission Factors (Lbs/Ton Iron)</u>	<u>Maximum Emissions (Tons/Yr)</u>
PM	0.00417	6.60
PM ₁₀	0.00417	6.60
SO ₂	0.0100	15.83

- f. Iron Spout Baghouse emissions shall not exceed the following limits [95010001, T1]:

<u>Pollutant</u>	<u>Emission Factors (Lbs/Ton Iron)</u>	<u>Maximum Emissions (Tons/Yr)</u>
PM	0.02548	40.32
PM ₁₀	0.02548	40.32
SO ₂	0.0073	13.89

- g. Total emissions from blast furnace operations shall not exceed the following limits, tons/yr [95010001, T1]:

	<u>PM*</u>	<u>PM₁₀*</u>	<u>SO₂</u>	<u>NO_x</u>	<u>VOM</u>
Blast Furnace Operations	212	188	474	24	157

* Limit does not address the iron pellet screen (See Section 7.1)

- h. Compliance with the daily limit of Condition 7.4.6(a) (i) shall be determined from a monthly total of the relevant daily data divided by the number of days in the month [95010001].
- i. Compliance with the annual limits of Condition 7.4.6(a) (2) and Conditions 7.4.6(b) through (g) shall be determined based on a calendar year [95010001].
- j. Overlapping casting of "A" and "B" Blast Furnaces shall not exceed a casting rate of 6 tons per minute per furnace [72080034 and 7208036, T1].
- k. The PM content of the BFG burned at the facility shall not exceed 0.01 grains/dscf [06070023, T1].

7.4.7 Testing Requirements

- a. Blast furnace casthouse pursuant to NESHAP.

The Permittee shall comply with the following testing requirements pursuant to 40 CFR Part 63 Subpart FFFFF:

- i. Pursuant to 40 CFR 63.7821(c), for each emissions unit equipped with a baghouse, the Permittee must conduct performance tests no less frequently than once every five years.
- ii. Test methods for compliance demonstration with the emission limits for particulate matter [40 CFR 63.7822(b)]:

- A. Determine the concentration of particulate matter according to the following test methods in Appendix A to 40 CFR Part 60.
 - 1. Method 1 to select sampling port locations and the number of traverse points. Sampling sites must be located at the outlet of the control device and prior to any releases to the atmosphere.
 - 2. Method 2, 2F, or 2G to determine the volumetric flow rate of the stack gas.
 - 3. Method 3, 3A, or 3B to determine the dry molecular weight of the stack gas.
 - 4. Method 4 to determine the moisture content of the stack gas.
 - 5. Method 5, 5D, or 17, as applicable, to determine the concentration of particulate matter (front half filterable catch only).
 - B. Collect a minimum sample volume of 60 dry standard cubic feet (dscf) of gas during each particulate matter test run. Three valid test runs are needed to comprise a performance test.
- iii. Test methods for compliance demonstration with the opacity limits [40 CFR 63.7823(b) and (c)]:
- A. The Permittee shall conduct each visible emissions performance test such that the opacity observations overlap with the performance test for particulate matter [40 CFR 63.7823(b)].
 - B. To determine compliance with the applicable opacity limit for a blast furnace casthouse, the Permittee shall:
 - 1. Use a certified observer to determine the opacity of emissions according to Method 9 in Appendix A to 40 CFR Part 60.
 - 2. Obtain a minimum of 30 6-minute block averages. For a blast furnace casthouse, the Permittee shall make observations during tapping of the furnace. Tapping begins when the furnace is opened, usually by creating a hole near the

bottom of the furnace, and ends when the hole is plugged.

b. Blast furnace casthouse.

The Permittee shall comply with the following testing requirements pursuant to Sections 39.5(7)(d) and (p) of the Act:

- i. For uncaptured emissions (roof monitor) or secondary emissions:
 - A. The Permittee shall have the opacity (6-minute average), of the exhaust of the building housing the blast furnace casthouse determined by a qualified observer in accordance with USEPA Method 9 while the affected blast furnace(s) are being tapped, as further specified below.
 - B. The duration of opacity observations for each test shall be at least 30 minutes unless no visible emissions are observed as determined by USEPA Method 22 or the average opacities for the first 12 minutes of observations conducted for the point of release that displays the greatest opacity, 6-minute average, are both no more than 10.0 percent.
 - C.
 1. Observations of opacity shall be conducted on the following frequency unless absence of adequate daylight or weather conditions preclude scheduled observation, in which case, the next observations shall be conducted on the next day during which observations of opacity can properly be conducted in accordance with USEPA Method 9:
 - I. On a weekly basis (at least once every 7 operating days of the casthouse) except as provided below.
 - II. On a daily basis (at least 5 days out of 7 operating days of the casthouse) if the maximum opacity observed during any of the five previous observations was 18 percent or more, 6-minute average, continuing on a daily basis until the maximum opacities measured in five consecutive daily observations are all less than 18 percent, 6-minute average, at which time

observations on a weekly basis shall resume.

2. Upon written request by the Illinois EPA, additional opacity observations shall be conducted within five operating days for the casthouse from the date of the request by the Illinois EPA or on the date agreed upon by the Illinois EPA, whichever is later. For such observations conducted pursuant to a request from the Illinois EPA:

- I. The Permittee shall notify the Illinois EPA at least 24 hours in advance of the date and time of these observations, in order to enable the Illinois EPA to witness the observations. This notification shall include the name and employer of the qualified observer(s).
- II. The Permittee shall promptly notify the Illinois EPA of any changes in the time or date for observations.
- III. The duration of these observations shall cover a complete heat or cycle of the affected blast furnace.
- IV. The Permittee shall provide a copy of the current certification for the opacity observer and observer's readings to the Illinois EPA at the time of the observations, if the Illinois EPA personnel are present.

- D. The Permittee shall keep records for all opacity measurements for the casthouse made in accordance with USEPA Method 9 that the Permittee conducts or that are conducted at its behest by individuals who are qualified to make such observations. For each occasion on which such measurements are made, these records shall include the formal report for the measurements if conducted pursuant to Condition 7.4.7(b)(i)(2), or otherwise the identity of the observer, a description of the measurements that were made, the operating condition of the casthouse, the observed opacity, and copies of the raw data sheets for the measurements.

- ii. Emissions from control equipment [35 IAC 212.445(b)]:
 - A. Upon request from the Illinois EPA, compliance with emission limits of 35 IAC 212.445(b)(1) (see also Condition 7.4.3(b)(ii)(A)) shall be determined in accordance with the procedures set out in 40 CFR Part 60, Appendix A, Methods 1 through 5, incorporated by reference in 35 IAC 212.113, and shall be based on the arithmetic average of three runs. Calculations shall be based on the duration of a cast defined in 35 IAC 212.445(a)(1).
 - B. Upon request from the Illinois EPA, opacity readings, for verifying compliance with emission limit of 35 IAC 212.445(b)(2) (see also Condition 7.4.3(b)(ii)(B)), shall be taken in accordance with the observation procedures set out in 40 CFR part 60, Appendix A, Method 9, incorporated by reference in 35 IAC 212.113.
- c. Additional Emission Testing for the Casthouse Baghouse and the Iron Spout Baghouse, pursuant to Sections 39.5(7)(d) and (p) of the Act:
 - i. As part of the emission testing required by Condition 7.4.7(a), the Permittee shall also measure the SO₂, NO_x and VOM emissions from each baghouse.
 - ii. The following USEPA Test Methods shall be used for testing of emissions, unless another USEPA Test Method is approved by the Illinois EPA.

Location of Sample Points	Method 1
Gas Flow and Velocity	Method 2
Flue Gas Weight	Method 3
Moisture	Method 4
SO ₂	Method 6
NO _x	Method 7
VOM	Method 25
 - iii. For this emission testing, test notification and reporting shall be done by the Permittee in accordance with Conditions 8.6.2 and 8.6.3 of this permit.
- d. BFG Flares:

Pursuant to Sections 39.5(7)(d) and (p) of the Act, the Permittee shall conduct observations for each BFG flare for the presence of visible emissions and/or opacity, using USEPA Method 22 and 9, respectively. These observations shall be conducted on at least a monthly basis for each

flare. In addition, observations shall be coordinated with weather conditions so that at least two observations are made in each calendar year during elevated wind speed conditions, i.e., wind speed of at least 16 miles per hour. These observations shall be conducted by individual(s) certified to observe opacity by USEPA Method 9. The observer(s) shall initially conduct observations for visible emissions. If any visible emissions are observed, the observations shall continue for two hours or until the cumulative duration of visible emissions exceeds ten minutes, whichever occurs first. If any visible emissions are observed, observations for opacity shall also be conducted.

7.4.8 Monitoring Requirements

a. Monitoring requirements pursuant to 40 CFR 63.7830(a)

For each capture system subject to an operating limit in 40 CFR 63.7790(b)(1) established in the Permittee's capture system operation and maintenance plan, the Permittee must install, operate, and maintain a CPMS according to the following requirements:

Dampers that are manually set and remain in the same position are exempt from the requirement to install and operate a CPMS. If dampers are not manually set and remain in the same position, the Permittee shall make a visual check at least once every 24 hours to verify that each damper for the capture system is in the same position as during the initial performance test.

b. Monitoring requirements pursuant to 40 CFR 7830(b)(1)

The casthouse baghouse and iron spout baghouse shall each be equipped with a bag leak detection system which the Permittee shall operate and maintain according to the following requirements of 40 CFR 63.7831(f):

- i. The system must be certified by the manufacturer to be capable of detecting emissions of particulate matter at concentrations of 10 milligrams per actual cubic meter (0.0044 grains per actual cubic foot) or less [40 CFR 63.7831(f)(1)].
- ii. The system must provide output of relative changes in particulate matter loadings [40 CFR 63.7831(f)(2)].
- iii. The system must be equipped with an alarm that will sound when an increase in relative particulate loadings is detected over a preset level. The alarm must be located such that it can be heard by the appropriate plant personnel [40 CFR 63.7831(f)(3)].

- iv. Each system that works based on the triboelectric effect must be installed, operated, and maintained in a manner consistent with the guidance document, "Fabric Filter Bag Leak Detection Guidance," EPA-454/R-98-015, September 1997 [40 CFR 63.7831(f)(4)].
 - v. Following the initial adjustment, do not adjust the sensitivity or range, averaging period, alarm set points, or alarm delay time, except as detailed in your operation and maintenance plan. Do not increase the sensitivity by more than 100 percent or decrease the sensitivity by more than 50 percent over a 365-day period unless a responsible official certifies, in writing, that the baghouse has been inspected and found to be in good operating condition [40 CFR 63.7831(f)(6)].
- c. The Permittee shall conduct inspections of each baghouse at the specified frequencies according to the following requirements [40 CFR 63.7830(b)(4)]:
- i. Monitor the pressure drop across each baghouse cell each day to ensure pressure drop is within the normal operating range identified in the operation and maintenance plan manual.
 - ii. Confirm that dust is being removed from hoppers through weekly visual inspections or other means of ensuring the proper functioning of removal mechanisms.
 - iii. Check the compressed air supply for pulse-jet baghouses each day.
 - iv. Monitor cleaning cycles to ensure proper operation using an appropriate methodology.
 - v. Check bag cleaning mechanisms for proper functioning through monthly visual inspection or equivalent means.
 - vi. Make monthly visual checks of bag tension on reverse air and shaker-type baghouses to ensure that bags are not kinked (knead or bent) or laying on their sides. You do not have to make this check for shaker-type baghouses using self-tensioning (spring-loaded) devices.
 - vii. Confirm the physical integrity of the baghouse through quarterly visual inspections of the baghouse interior for air leaks.

viii. Inspect fans for wear, material buildup, and corrosion through quarterly visual inspections, vibration detectors, or equivalent means.

d. Site-specific monitoring plan requirements pursuant to 40 CFR 63.7831(a)

For each CPMS required in 40 CFR 63.7830, the Permittee shall develop and make available for inspection upon request by the Illinois EPA a site-specific monitoring plan that addresses the following requirements of 40 CFR 63.7831(a) (1) through (a) (6), including:

- i. Installation of the CPMS sampling probe or other interface at a measurement location relative to each affected process unit such that the measurement is representative of control of the exhaust emissions (e.g., on or downstream of the last control device) [40 CFR 63.7831(a) (1)];
- ii. Performance and equipment specifications for the sample interface, the parametric signal analyzer, and the data collection and reduction system [40 CFR 63.7831(a) (2);
- iii. Performance evaluation procedures and acceptance criteria (e.g., calibrations) [40 CFR 63.7831(a) (3);
- iv. Ongoing operation and maintenance procedures in accordance with the general requirements of 40 CFR 63.8(c) (1), (c) (3), (c) (4) (ii), (c) (7), and (c) (8) [40 CFR 63.7831(a) (4);
- v. Ongoing data quality assurance procedures in accordance with the general requirements of 40 CFR 63.8(d) [40 CFR 63.7831(a) (5); and
- vi. Ongoing recordkeeping and reporting procedures in accordance with the general requirements of 40 CFR 63.10(c), (e) (1), and (e) (2) (i) [40 CFR 63.7831(a) (6).

e. Pursuant to 40 CFR 63.7831(b), unless otherwise specified by the NESHAP, each CPMS must:

- i. Complete a minimum of one cycle of operation for each successive 15-minute period and collect a minimum of three of the required four data points to constitute a valid hour of data;
- ii. Provide valid hourly data for at least 95 percent of every averaging period; and

- iii. Determine and record the hourly average of all recorded readings.
- f. Pursuant to 40 CFR 63.7831(c), the Permittee shall conduct a performance evaluation of each CPMS in accordance with the site-specific monitoring plan.
- g. Pursuant to 40 CFR 63.7831(d), the Permittee shall operate and maintain the CPMS in continuous operation according to the site-specific monitoring plan.
- h. Pursuant to 40 CFR 63.7790(b)(1) and 63.7800(b)(3)(i), the Permittee shall operate each capture system applied to emissions from a blast furnace casthouse at or above the lowest value or settings as established in the Permittee's operation and maintenance plan and which are currently as follows:
 - i. Casthouse Baghouse:
 - A. Motor amperage (total), both blast furnaces casting: 245 amps
 - B. Motor amperage, one blast furnace casting: 125 amps
 - ii. Iron Spout Baghouse:
 - A. Motor amperage, both blast furnaces casting (total): 245 amps
 - B. Motor amperage, one blast furnace casting: 131 amps
 - C. Blast Furnace A iron spout damper positions (3): 2 or less open all of the time; 3 open less than 5 minutes
 - D. Blast Furnace B tilting runner damper position: open
- i. Pursuant to 40 CFR 63.7824(c), the Permittee may change the operating limits for the capture system if the Permittee meets the following requirements:
 - i. Submits a written notification to the Illinois EPA of the Permittee's request to conduct a new performance test to revise the operating limit.

- ii. Conducts a performance test to demonstrate compliance with the applicable emission in Table 1 to 40 CFR 63 Subpart FFFFF.
 - iii. Establishes revised operating limits according to the applicable procedures in 40 CFR 63.7824(a).
- j. Monitoring and Collecting Data pursuant to 40 CFR 63.7832:
 - i. Except for monitoring malfunctions, out-of-control periods as specified in 40 CFR 63.8(c)(7), associated repairs, and required quality assurance or control activities (including as applicable, calibration checks and required zero and span adjustments), the Permittee shall monitor continuously (or collect data at all required intervals) at all times an affected source is operating.
 - ii. The Permittee may not use data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities in data averages and calculations used to report emission or operating levels or to fulfill a minimum data availability requirement, if applicable. The Permittee shall use all the data collected during all other periods in assessing compliance.
 - iii. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.
- k. Pursuant to the operation and maintenance requirements of the O/M plan required by 40 CFR 63.7800(b), the Permittee shall comply with following inspection procedures for the capture systems:

Monthly inspections of the equipment that is important to the performance of the total capture system. This inspection must include observations of the physical appearance of the equipment (e.g., presence of holes in ductwork or hoods, flow constrictions caused by dents or accumulated dust in the ductwork, and fan erosion). Repair of any defect or deficiency in the capture system shall be done before the next scheduled inspection.
- l. Inspection and Monitoring for BFG Flares [Section 39.5(7)(d) of the Act]
 - i. For BFG flare #1, the Permittee shall either:

- A. Install, operate and maintain instrumentation, with alarm, to confirm the presence of a flame at the flare tip; or
 - B. Monitor the presence of a pilot flame in accordance with Condition 7.4.8(1)(ii); or
 - C. Verify daily, the following to ensure BFG flare #1 is operating: The presence of a flame or thermal plume at the tip of the flare and that the flare gas header has a positive pressure.
- ii. For BFG flare #2, the Permittee shall monitor the presence of a flare pilot flame using a thermocouple or other equivalent device to detect the presence of a flame.
 - iii. The Permittee shall perform detailed inspections of each BFG flare every 18 months. These inspections shall include all maintenance and repair activities performed based on the inspection results. If the flare cannot be inspected within 18 months, as required, the Permittee may request in writing from IEPA's Permit Section an extension of time to complete this inspection. The request for an extension must be supported with adequate justification for the extension and an assurance that the flare is continuing to operate without any problems. Under no circumstances shall the extension go beyond an additional 6 months.
- m. Pursuant to Permits 72080034 and 72080036 [T1]:
 - i. The Permittee shall maintain and operate a pressure drop continuous recording system on the casthouse baghouse. The recorded data shall be retained for a period of six months shall be made available to the Illinois EPA personnel upon request.
 - ii. The Permittee shall maintain and operate a continuous pressure drop recording system on the iron spout baghouse.
 - n. The Permittee shall conduct observations for opacity for operations associated with the blast furnace in accordance with USEPA Method 9 for a minimum of 30 minutes for each operation unless no visible emissions are observed during the first 12 minutes of observations:
 - i. Blast furnace charging: Annually
 - ii. Blast furnace stoves stacks: Semiannually

iii. Slag pits: Quarterly

7.4.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items for the affected Blast Furnaces Processes, pursuant to Sections 39.5(7)(a), (e) and (p) of the Act:

a. 40 CFR Part 63 Subpart FFFFF (40 CFR 63.7842 and 63.7843):

i. The Permittee shall keep the following records, as specified in 40 CFR 63.7842 (a)(1) through (a)(3):

A. A copy of each notification and report that the Permittee submitted to comply with 40 CFR 63 Subpart FFFFF, including all documentation supporting any initial notification or notification of compliance status that the Permittee submitted, according to the requirements in 40 CFR 63.10(b)(2)(xiv).

B. The records in 40 CFR 63.6(e)(3)(iii) through (v) related to startup, shutdown, and malfunction.

C. Records of performance tests, performance evaluations, and opacity observations as required in 40 CFR 63.10(b)(2)(viii).

ii. The Permittee shall keep the records in 40 CFR 63.6(h)(6) for visual observations.

iii. The Permittee shall keep the records required in 40 CFR 63.7833 and 63.7834 (including a current copy of the operation and maintenance plan) to show continuous compliance with each emission limitation and operation and maintenance requirement that applies to the Permittee.

iv. The Permittee shall keep its records in a form suitable and readily available for expeditious review, according to 40 CFR 63.10(b)(1).

v. As specified in 40 CFR 63.10(b)(1), the Permittee shall keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

vi. The Permittee shall keep each record on site for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report,

or record, according to 40 CFR 63.10(b)(1). The Permittee may keep the records offsite for the remaining 3 years.

b. 40 CFR Part 63 Subpart FFFFF [40 CFR 63.7834(b)]:

The Permittee shall maintain a current copy of the operation and maintenance plan required in 40 CFR 63.7800(b) onsite and available for inspection upon request.

c. The following records of Permits #72080034, #72080036 and #95010001:

i. The Permittee shall maintain records for each beaching event in which iron is beached that, as a minimum, shall include:

- A. An explanation why beaching occurred.
- B. The date, time and duration of beaching.
- C. The measures used to reduce the amount of beaching.
- D. The maximum rate of beaching, tons/minute, (or information showing that the beaching rate did not exceed 20 tons/minute).

d. Records for Startups of Affected Blast Furnace Processes, pursuant to Section 39.5(7)(b) of the Act

i. The Permittee shall maintain startup procedures for each affected blast furnace process, as required by Condition 7.4.5-2(b)(ii)(C).

ii. The Permittee shall maintain the following records for each startup of an affected blast furnace process:

- A. Date, time and duration of the startup.
- B. A description of the startup and reason(s) for the startup.
- C. Whether a violation of an applicable standard may have occurred during startup accompanied by the information in Condition 7.4.9(d)(iv) if a violation may have or did occur.
- D. Whether the established startup procedures, maintained above, were followed accompanied by the information in Condition 7.4.9(d)(iii) if there were departure(s) from those procedures.

- iii. If the established startup procedures were not followed during a startup, the Permittee shall maintain the following records:
 - A. A description of the departure(s) from the established procedures.
 - B. The reason(s) for the departure(s) from the established procedures.
 - C. An explanation of the consequences of the departure(s) for emissions, such as whether the departure(s) prolonged the startup or resulted in additional emissions, and if so,
 - 1. The actions taken to minimize emissions and the duration of the startup; and
 - 2. An explanation whether similar incidents might be prevented in the future and if so, the corrective actions taken or to be taken to prevent similar incidents.
- iv. If a violation did or may have occurred during a startup, the Permittee shall maintain the following records:
 - A. Identification of the applicable standard(s) that were or may have been violated.
 - B. An explanation of the nature of such violation(s), including the magnitude of such excess emissions.
 - C. A description of the actions taken to minimize the magnitude of emissions and duration of the startup.
 - D. An explanation whether similar incidents could be prevented or ameliorated in the future and if so, a description of the actions taken or to be taken to prevent similar incidents in the future.

e. Records for Malfunctions or Breakdowns

Pursuant to 35 IAC 201.263, the Permittee shall maintain records of continued operation of the affected Blast Furnace Processes as addressed by Condition 7.4.5-2(b)(i), during malfunctions or breakdowns, which at a minimum, shall include the following records. The preparation of these records shall be completed within 45 days of an incident, unless the Permittee conducts a root cause analysis for the incident, in which case the preparation of

these records, other than the root cause analysis, shall be completed within 120 days of the incident.

- i. Date, time and duration of the incident.
- ii. A detailed description of the incident, including:
 - A. A chronology of significant events during and leading up to the incident.
 - B. Relevant operating data for the unit, including information such as operator log entries and directives provided by management during the incident.
 - C. The measures taken to reduce the quantity of emissions and the duration of the incident including the resources utilized to address the incident.
 - D. The magnitude of emissions during the incident.
- iii. An explanation why continued operation of an affected blast furnace was necessary to prevent personnel injury or prevent equipment damage.
- iv. A discussion of the cause(s) or probable cause(s) of the incident including the following:
 - A. Whether the incident was sudden, unavoidable, or preventable, including:
 1. Why the equipment design did not prevent the incident;
 2. Why better maintenance could not have avoided the incident;
 3. Why better operating practices could not have avoided the incident; and
 4. Why there was no advance indication for the incident.
 - B. Whether the incident stemmed from any activity or event that could have been foreseen, avoided or planned for.
 - C. Whether the incident was or is part of a recurring pattern indicative of inadequate design, operation or maintenance.
- v. A description of any steps taken to prevent similar future incidents or reduce their frequency and severity.

- vi. As an alternative to keeping the records required by Condition 7.4.9(e)(iv), the Permittee may perform a root cause analysis. For this purpose, a root cause analysis is an analysis whose purpose is to determine, correct and eliminate the primary causes of the incident and the excess emissions resulting there from. If the Permittee performs a root cause analysis method that would define the problem, define all causal relationships, provide a causal path to the root cause, delineate the evidence, and provide solutions to prevent a recurrence. Such an analysis shall be completed within one year of the incident.

f. Recordkeeping for Backdrafting.

The Permittee shall maintain records for each period when an affected blast furnace is backdrafted. These records shall include, at a minimum for each occurrence, the blast furnace identification, date and timeframe of backdraft, reason for backdrafting (e.g., planned shutdowns and/or routine maintenance), and steps taken to minimize emissions during the backdraft period.

g. Records for BFG Flares

The Permittee shall maintain the following records for BFG flares:

- i. Records of opacity observations performed as required by Condition 7.4.7(d).
- ii. Records of inspections and maintenance activities conducted pursuant to Condition 7.4.8(1).
- iii. For BFG flare #2, date and duration of any time when the pilot flame monitoring equipment of the affected unit was not in operation, with explanation.
- iv. Date and duration of any time when there was no pilot flame present at the flare, with explanation.
- v. Date, duration and description of any other deviations.

h. The Permittee shall maintain the following operating records for the affected blast furnaces:

- i. Monthly and annual usage of natural gas, blast furnace gas and coke oven gas (million ft³) used by the affected blast furnace stoves.
- ii. Blast Furnace hot metal production (total combined daily, monthly and annual in tons), including documentation on iron and slag losses.

- iii. Records of iron pellets charged (tons/month and tons/year).
 - iv. Records of slag processed (tons/month and tons/year).
 - v. For overlapping tapping of both furnaces, records to demonstrate that the tapping rate of each furnace does not exceed 6 tons per minute.
 - vi. If the Permittee operates under manufacturer's specifications or manufacturer's instructions, the Permittee shall maintain such manufacturer's documentation, which shall be kept at the facility as part of the required records.
 - vii. Records identifying process upsets in the operations at the casthouse that result in the generation of additional opacity or PM emissions, such as refractory clay falling into the trough during a missed stop. For these upsets, these records shall include the time of the upset, a description of the upset and a discussion of the consequences for opacity and PM emissions from the casthouse.
- i. The Permittee shall keep the following records related to the emissions of the affected blast furnace processes to verify compliance with the applicable limits in Condition 7.4.6(b) through (g):
- i. A file containing the emission factors used by the Permittee to determine emissions of different pollutants from the various processes, with supporting documentation. These records shall be reviewed and updated by the Permittee as necessary to assure that the emission factors that it uses to determine emissions of the processes do not understate actual emissions, including review when emission testing is conducted for such processes. These records shall be prepared and copies sent to the Illinois EPA in accordance with Condition 5.9.6(c).
 - ii. Records for any periods of operation of such processes that are not otherwise addressed in the required records during which the established emission factor in Condition 7.4.9(i) (i) would understate actual emissions of the process, with description of the period of operation and an estimate of the additional emissions during such period that would not be accounted for by the established factor, with supporting explanation and calculations.

- iii. Records for the annual emissions of such processes for comparison to the limits in Conditions 7.4.6(b) through (f), with supporting calculations.
- iv. Records for combined annual emissions of the affected processes, based on the summation of the above data, for comparison to the limits in Condition 7.4.6(g).

7.4.10 Reporting Requirements

- a. 40 CFR 63 Subpart FFFFF (40 CFR 63.7841):
 - i. Compliance report due dates. The Permittee shall submit the semiannual compliance reports to the Illinois EPA according to the following requirements:
 - A. Semi-annual compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.
 - B. Each compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date comes first after the end of the semiannual reporting period.
 - ii. Compliance report contents. Each compliance report must include the following information:
 - A. Company name and address.
 - B. Statement by a responsible official, with that official's name, title, and signature, certifying the truth, accuracy, and completeness of the content of the report.
 - C. Date of report and beginning and ending dates of the reporting period.
 - D. If the Permittee had a startup, shutdown, or malfunction during the reporting period and the Permittee took actions consistent with the source's startup, shutdown, and malfunction plan, the compliance report must include the information in 40 CFR 63.10(d)(5)(i).
 - E. If there were no deviations from the continuous compliance requirements in 40 CFR 63.7833 and 63.7834 that apply to the Permittee, a statement that there were no deviations from the emission limitations or operation and

maintenance requirements during the reporting period.

- F. If there were no periods during which a continuous monitoring system (including a CPMS, COMS, or continuous emission monitoring system (CEMS)) was out-of-control as specified in 40 CFR 63.8(c)(7), a statement that there were no periods during which the CPMS was out-of-control during the reporting period.
- G. For each deviation from an emission limitation in 40 CFR 63.7790 that occurs at an affected source where the Permittee is not using a continuous monitoring system (including a CPMS, COMS, or CEMS) to comply with an emission limitation in Subpart FFFFF, the compliance report must contain the information described in Condition 7.4.10(a)(ii) and the following information (this includes periods of startup, shutdown, and malfunction):
1. The total operating time of each affected source during the reporting period.
 2. Information on the number, duration, and cause of deviations (including unknown cause, if applicable) as applicable and the corrective action taken.
- H. For each deviation from an emission limitation occurring at an affected source where the Permittee is using a continuous monitoring system (including a CPMS or COMS) to comply with the emission limitation in Subpart FFFFF, the Permittee must include the information described in Condition 7.4.10(a)(ii) and the following information (this includes periods of startup, shutdown, and malfunction):
1. The date and time that each malfunction started and stopped.
 2. The date and time that each continuous monitoring was inoperative, except for zero (low-level) and high-level checks.
 3. The date, time, and duration that each continuous monitoring system was out-of-control as specified in 40 CFR 63.8(c)(7), including the information in 40 CFR 63.8(c)(8).

4. The date and time that each deviation started and stopped, and whether each deviation occurred during a period of startup, shutdown, or malfunction or during another period.
 5. A summary of the total duration of the deviation during the reporting period and the total duration as a percent of the total source operating time during that reporting period.
 6. A breakdown of the total duration of the deviations during the reporting period including those that are due to startup, shutdown, control equipment problems, process problems, other known causes, and other unknown causes.
 7. A summary of the total duration of continuous monitoring system downtime during the reporting period and the total duration of continuous monitoring system downtime as a percent of the total source operating time during the reporting period.
 8. A brief description of the Blast Furnace processes.
 9. A brief description of the continuous monitoring system.
 10. The date of the latest continuous monitoring system certification or audit.
 11. A description of any changes in continuous monitoring systems, processes, or controls since the last reporting period.
- iii. Immediate startup, shutdown, and malfunction report. If the Permittee had a startup, shutdown, or malfunction during the semiannual reporting period that was not consistent with the source's startup, shutdown, and malfunction plan, the Permittee shall submit an immediate startup, shutdown, and malfunction report according to the requirements in 40 CFR 63.10(d)(5)(ii).

- b. Reporting requirements for malfunctions and breakdowns (Permits #72080034, #72080036 and #95010001):

The Permittee shall notify the Illinois EPA's regional office by telephone as soon as possible during normal working hours, but no later than the next Agency business day, upon the occurrence of excess emissions due to malfunctions or breakdowns. The Permittee shall submit a quarterly report to the Illinois EPA's regional office in Collinsville providing an explanation of the occurrence of such events.

- c. i. Pursuant to Section 39.5(7)(f)(ii) of the Act, the Permittee shall promptly notify the Illinois EPA, Air Compliance Section, within 30 days of deviations by the affected blast furnace processes from applicable requirements unless a NESHAP standard specifies a different timeframe, as follows:
- A. Requirements in Condition 7.4.3(b) through (f).
 - B. Requirements in Condition 7.4.5-1.
 - C. Requirements in Condition 7.4.5-3.
 - D. Requirements in Condition 7.4.5-4.
 - E. Requirements in Condition 7.4.6(a) through (j).
- ii. All such deviations shall be summarized and reported as part of the semiannual monitoring report required by Condition 8.6.1.
- iii. The Permittee shall notify the Illinois EPA, Air Compliance Section, of all other deviations as part of the semiannual monitoring reports required by Condition 8.6.1.
- iv. All required deviation reports described in Condition 7.4.10(c) above shall contain the following information:
- A. Date, time and duration of the deviation;
 - B. Description of deviation;
 - C. Probable cause of the deviation;
 - D. Any corrective action or preventative measures taken;

- d. Reporting on the State startup authorization shall be performed in accordance with Condition 5.10.5-1.
- e. Reporting on the Federal SSM authorization shall be performed in accordance with Condition 5.10.5-3.

7.4.11 Operational Flexibility

Backdrafting the blast furnaces in order to conduct planned/routine maintenance (not associated with malfunction and breakdowns) shall follow procedures designed to minimize the release of emissions during such activities.

7.4.12 Compliance Procedures

- a. For affected blast furnace processes, compliance with the applicable standards of Condition 7.4.3 is addressed by the work practices, testing, monitoring, recordkeeping and reporting requirements in Section 7.4 of this permit.
- b. Compliance with the production/emission limits of Conditions 7.4.6 and 5.6.2 is addressed by the work practices, testing, monitoring, recordkeeping, and reporting requirements in Sections 7.4 and 5 of this permit.

7.4.13 Compliance Schedule and Current Enforcement Status

- a. The Permittee shall comply with the following schedule of compliance related to SO₂ emissions from combustion of Blast Furnace Gas in various emission units at the source, as established in accordance with Consent Order No. 05-CH-750 (December 18, 2007 as amended on December 23, 2009):

Commitment	Timing
Use the correct emission factor for the Blast Furnace Gas SO ₂ emissions when calculating, recording and reporting SO ₂ emissions and for any other purpose under the Act.	Immediately and at all times going forward.
Work with the Illinois EPA, including providing additional information to the Agency when requested.	Within 30 days of the request.
Obtain a revised PSD Construction Permit.	Subject to Agency final issuance.

- b. Submittal of Progress Reports

Quarterly Progress Reports shall be submitted beginning with the fourth quarter of 2009 and ending upon the achievement of compliance. Each quarterly report shall be submitted no later than 30 days after the end of the

corresponding calendar quarter. The Progress Report shall contain at least the following:

- i. The required date for achieving commitments, and actual dates when such commitments were achieved.
 - ii. Any commitments accepted by the Permittee or otherwise established for the affected BOF as part of the resolution of the above referenced Consent Order, with the associated timing for each commitment.
 - iii. A discussion of progress in complying with commitments that is subject to future deadlines.
 - iv. If any commitment was not met, an explanation of why the required timeframe or commitment was not met, and any preventive or corrective measures adopted to achieve required commitment.
- c. After completion of all required commitments and certification of compliance, as identified in Condition 7.4.13(a) no further Quarterly Progress Reports are required to be submitted.

Note: US Steel informed the Illinois EPA during deliberations on Consent Order 05-CH-750 of possible violations involving SO2 emissions from use of Blast Furnace Gas. The violations involved exceedances of the SO2 limit in Construction Permit 95010001 issued on July 23, 1996. The violations were addressed, working with the Office of the Illinois Attorney General, in Consent Order 05-CH-750, which was entered on December 18, 2007 in the Circuit Court for the Third Judicial Circuit, Madison County, Illinois. This Consent Order required US Steel to submit a complete and accurate application including required SO2 modeling to modify Construction Permit 95010001 by January 31, 2008. That application has been submitted by US Steel.

7.4.14 State-Only Conditions

State-only conditions are not being established.

7.5 Basic Oxygen Processes

7.5.1 Description

Reladling and Desulfurization Stations:

Molten iron from the blast furnaces is transported to the BOF by torpedo cars. The iron is then transferred to the charging ladles at the reladling station. In the desulfurization stations a combination of lime and magnesium is injected into the molten iron to remove the sulfur. The sulfur reacts with the lime and magnesium and forms a layer of slag on the surface of the iron. A collection system with a positive pressure baghouse is used to control emissions of particulate matter from these stations.

Slag Skimming:

After the molten iron is desulfurized, the ladle it is moved to this station where a mechanical arm is used to scrape slag from the surface of the iron. This slag is scraped from the iron ladles and into slag pots. A collection system with a baghouse is used to control emissions from this process.

Basic Oxygen Furnaces (BOF):

A fresh BOF charge usually begins with scrap metal. The scrap is charged into the BOF vessel. Molten iron is then charged into the vessel. A secondary hood is utilized to capture emissions during the charge. During periods of reduced molten iron availability scrap may be preheated with a natural gas fired lance to increase the temperature and reduce the amount of molten iron needed for a heat of steel. The BOF is then closed off and an oxygen lance is inserted to begin the melting and refining process. The oxygen lance openings on each BOF is equipped with steam rings. The steam rings are control measures for emissions of particulate matter from the BOF during the "oxygen blow" or refining phase when oxygen is being fed into the furnaces. The steam rings would inject steam in the area between the oxygen lance and the "lance hole" in the lid of the furnaces, acting to suppress the emissions of particulate through this area during the refining phase. In the BOF, the injected oxygen reacts exothermically with the carbon in the iron generating heat which melts the scrap and reducing the amount of carbon in the bath thus converting the iron to steel. When the refining process is completed, the molten steel is poured into a steel transfer ladle. Materials such as aluminum, silica, and manganese are added, as required, depending upon the particular steel alloy being produced. After the molten steel is tapped, the remaining slag is then dumped into a slag ladle. Emissions from these operations are captured and controlled with an electrostatic precipitator (ESP).

Ladle Preheating and Drying:

In this unit, lances combust either natural gas or coke oven gas to produce the heat needed to dry and preheat iron and steel handling ladles. The refractory linings of freshly re-bricked or repaired ladles must be completely dried and preheated before use. The drying process is necessary because any moisture left in the refractory would immediately vaporize and expand when the ladles are filled with molten iron or steel. This sudden expansion could cause the refractory lining to split which would allow the molten iron and steel to come into contact with, and damage the shell of the ladle. Emissions from this unit consist of particulate matter, sulfur dioxide, nitrogen oxides, carbon monoxide and organic materials generated by fuel combustion.

Ladle Metallurgy Furnaces (LMF) and Argon Stirring Stations:

At the LMF station and the argon stirring stations, final adjustments are made to the composition of a ladle of steel and the steel is held pending casting. At the LMF station, electricity can also be used to heat a ladle of steel if it has cooled below the range at which steel can be cast.

If the steel does not need to be reheated and at most minor adjustments are needed to its composition, the ladle of steel goes to one of the two argon stirring stations. At these stations, stirring lances are inserted into the steel and argon is pumped into the steel to maintain uniform composition and temperature. A baghouse is also used to control emissions from the operations.

Note: This narrative description is for informational purposes only and is not enforceable.

7.5.2 List of Emission Units and Air Pollution Control Equipment

Location	Basic Oxygen Process Descriptions	Date Constructed	Emission Control Equipment
Basic Oxygen Process Furnace Shop (BOPF)	Hot Metal Transfer Station	Prior to 05/1983	Reladle/ Desulfurization Baghouse
	(2) Hot Metal Desulfurization Stations		
	Slag Skimming Station	1985	Skimmer Baghouse
	Basic Oxygen Furnaces (BOF) #1 and #2 with Steam Rings	Prior to 08/1972	Electrostatic Precipitator
	Ladle Drying/Preheating (coke oven gas and natural gas modes)	Prior to 08/1972	None

Location	Basic Oxygen Process Descriptions	Date Constructed	Emission Control Equipment
	Ladle Metallurgy Furnace (LMF) Station	Prior to 1986	Baghouse #2
	Argon Stirring Stations	Around 1988	

7.5.3 Applicable Provisions

- a. Pursuant to 35 IAC 212.446, emissions of particulate matter from basic oxygen processes shall be controlled as follows:
 - i. Charging, Refining and Tapping (BOF Operations). Particulate matter emissions from all basic oxygen furnaces (BOF) shall be collected and ducted to pollution control equipment. Emissions from basic oxygen furnace operations during the entire cycle (operations from the beginning of the charging process through the end of the tapping process) shall not exceed the allowable emission rate specified by 35 IAC 212.322. For purposes of computing the process weight rate, nongaseous material charged to the furnace and process oxygen shall be included. No material shall be included more than once [35 IAC 212.446(a)].
 - ii. Hot Metal Transfer, Hot Metal Desulfurization and Ladle Lancing.

Particulate matter emissions from hot metal transfers to a mixer or ladle, hot metal desulfurization operations and ladle lancing shall be collected and ducted to pollution control equipment, and emissions from the pollution control equipment shall not exceed 69 mg/dscm (0.03 gr/dscf) [35 IAC 212.446(b)(1)].
 - iii. For openings in the building housing the BOF, no person shall cause or allow emissions to exceed an opacity of 20 percent, as determined by averaging any 12 consecutive observations taken at 15 second intervals [35 IAC 212.446(c)].
- b. Pursuant to 35 IAC 212.458, no person shall cause or allow emissions of PM₁₀, other than that of fugitive particulate matter, into the atmosphere to exceed the following limits during any one hour period:
 - i. 32.25 ng/J (0.075 lbs/mmBtu) of heat input from the burning of coke oven gas (at ladle dryers/preheaters) [35 IAC 212.458(b)(9)].

- ii. 27.24 kg/hr (60 lbs/hr) and 0.1125 kg/Mg (0.225 lbs/T) of total steel in process whichever limit is more stringent for the total of all basic oxygen furnace operations (charging, refining and tapping, as described in 35 IAC 212.446(a)) and measured at the BOF stack [35 IAC 212.458(b)(23)].
- iii. 22.9 mg/scm (0.01 gr/scf) from any process emissions unit, except as otherwise provided in 35 IAC 212.458 or in 212.443 and 212.446 [35 IAC 212.458(b)(7)].
- c. Pursuant to 35 IAC 212.123(a), no person shall cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from any emission unit other than those emission units subject to the requirements of 35 IAC 212.122, except as allowed by 35 IAC 212.123(b) and 212.124.
- d. The Basic Oxygen Processes are subject to 40 CFR Part 63, Subpart FFFFF, Integrated Iron and Steel Manufacturing Facilities. Applicable provisions of this NESHAP are addressed below and in other conditions of this section of the permit.
- e. Pursuant to 40 CFR 63.7790(a) and Table 1 to 40 CFR Part 63 Subpart FFFFF, the emissions from the Basic Oxygen Processes shall not exceed the following limits applicable to operation at existing basic oxygen process furnace (BOPF) identified in paragraphs 9 through 12 of Table 1 to Subpart FFFFF:
 - i. The Permittee must not cause to be discharged to the atmosphere any gases that exit from a primary emission control system for a BOPF with an open hood system at an existing BOPF shop that contain, on a flow-weighted basis, particulate matter in excess of 0.02 gr/dscf during the steel production cycle.
 - ii. For each hot metal transfer, slag skimming, and hot metal desulfurization operation, the Permittee must not cause to be discharged to the atmosphere any gases that exit from a control device that contain particulate matter in excess of 0.01 gr/dscf.
 - iii. For each ladle metallurgy furnace operation, the Permittee must not cause to be discharged to the atmosphere any gases that exit from a control device that contain particulate matter in excess of 0.01 gr/dscf.
 - iv. For each roof monitor on the BOPF Shop, the Permittee must not cause to be discharged to the atmosphere any secondary emissions that exit any opening in the BOPF shop or any other building housing the BOF or basic

oxygen process that exhibit opacity greater than 20 percent (3-minute average).

- f. Pursuant to 40 CFR 63.7790(b)(3), for the electrostatic precipitator applied to control emissions from a BOF, the Permittee must maintain the hourly average opacity of emissions exiting the control device at or below 10 percent.
- g. The basic oxygen furnaces are subject to 35 IAC 214.301, which provides that no person shall cause or allow the emission of sulfur dioxide into the atmosphere from any process emission source to exceed 2000 ppm.

7.5.4 Non-Applicability of Regulations of Concern

- a. Pursuant to 35 IAC 212.324(a)(3) and 212.316(f), the emission limitations of 35 IAC 212.324 and 212.316 are not applicable to the basic oxygen processes because these operations are subject to specific emission standards and limitations contained in 35 IAC Part 212 Subpart R, as addressed in Condition 7.5.3(a).
- b. Except where noted, 35 IAC 212.321 and 35 IAC 212.322 shall not apply to the steel manufacturing processes subject to 35 IAC 212.442 through 35 IAC 212.452 [35 IAC 212.441].
- c. This permit is issued based on the affected basic oxygen processes not being subject to the applicable requirements of 35 IAC 219.301 because these processes do not emit photochemically reactive organic material as defined in 35 IAC 211.4690.
- d. The basic oxygen processes are not subject to 35 IAC 216.121 because they are not fuel combustion emission units as defined in 35 IAC 211.2470.

7.5.5-1 Work Practices Provisions for Operation and Maintenance Plan (40 CFR 63.7800)

- a. Pursuant to 40 CFR 63.6(e)(1)(i), the Permittee must always operate and maintain the basic oxygen processes, including air pollution control and monitoring equipment, in a manner consistent with good air pollution control practices for minimizing emissions at least to the levels required by 40 CFR 63 Subpart FFFFF.
- b. The Permittee shall prepare and operate at all times according to a written operation and maintenance plan for each capture system or control device subject to an operating limit in 40 CFR 63.7790(b). Each plan shall address the following elements:

- i. Monthly inspections of the equipment that is important to the performance of the total capture system (e.g., pressure sensors, dampers, and damper switches). This inspection shall include observations of the physical appearance of the equipment (e.g., presence of holes in ductwork or hoods, flow constrictions caused by dents or accumulated dust in the ductwork, and fan erosion). The operation and maintenance plan also must include requirements to repair any defect or deficiency in the capture system before the next scheduled inspection.
- ii. Preventative maintenance for each control device, including a preventative maintenance schedule that is consistent with the manufacturer's instructions for routine and long-term maintenance.
- iii. Corrective action procedures for baghouses equipped with bag leak detection systems. In the event a bag leak detection system alarm is triggered, the Permittee shall initiate corrective action to determine the cause of the alarm within 1 hour of the alarm, initiate corrective action to correct the cause of the problem within 24 hours of the alarm, and complete the corrective action as soon as practicable. Corrective actions may include, but are not limited to:
 - A. Inspecting the baghouse for air leaks, torn or broken bags or filter media, or any other condition that may cause an increase in emissions.
 - B. Sealing off defective bags or filter media.
 - C. Replacing defective bags or filter media or otherwise repairing the control device.
 - D. Sealing off a defective baghouse compartment.
 - E. Cleaning the bag leak detection system probe, or otherwise repair the bag leak detection system.
 - F. Shutting down the process producing the particulate emissions.
- iv. Corrective action procedures for electrostatic precipitator (ESP) equipped with COMS. In the event an ESP exceeds the operating limit in 40 CFR 63.7790(b)(3), the Permittee shall take corrective

actions consistent with the site-specific monitoring plan in accordance with 40 CFR 63.7831(a).

7.5.5-2 Work Practices Provisions for Startup, Shutdown and Malfunction Plans and associated procedures

a. NESHAP Provisions

- i. Pursuant to 40 CFR 63.7810, the Permittee must be in compliance with the emission limitations and operation and maintenance requirements in 40 CFR 63 Subpart FFFFF at all times, except during periods of startup, shutdown and malfunction as defined in 40 CFR 63.2
 - ii. Pursuant to 40 CFR 63.7810(c), the Permittee shall develop a written startup, shutdown, and malfunction plan for BOF according to the provisions of 40 CFR 63.6(e)(3).
 - iii. Pursuant to 40 CFR 63.7835:
 - A. Consistent with 40 CFR 63.6(e) and 63.7(e)(1), deviations from NESHAP requirements that occur during a period of startup, shutdown, or malfunction are not violations if the Permittee demonstrates to the Illinois EPA that the Permittee was operating in accordance with 40 CFR 63.6(e)(1).
 - B. The Illinois EPA will determine whether deviations that occur during a period of startup, shutdown, or malfunction are violations, according to the provisions in 40 CFR 63.6(e).
 - iv. The Permittee shall fulfill the applicable reporting requirements identified in Condition 5.10.5(b) and 40 CFR 63.7841(b)(4) and (c).
 - v. The Permittee shall keep records in accordance with 40 CFR 63.7842(a)(2) related to startup, shutdown and malfunction.
- b. Provisions of State Emission Standards, pursuant to 35 IAC 201.149 and Part 201 Subpart I
- i. Subject to the following terms and conditions, the Permittee is authorized to continue to operate in violation of the applicable standards as specified below in the event of a malfunction or breakdown.

- A. For the basic oxygen furnace, the applicable state standards in Condition 7.5.3(a)(iii), (b)(ii) and (c)), and
- B. For the LMF, the applicable state standards in Conditions 7.5.3(b)(iii) and (c).

Note: This authorization is provided because the Permittee applied for such authorization in its CAAPP application, generally explaining why such continued operation would be required to prevent injury to personnel or severe damage to equipment, and describing the measures that will be taken to minimize emissions from any malfunctions and breakdowns.

- ii. This authorization only allows such continued operation as necessary to prevent injury to personnel or severe damage to equipment and does not extend to continued operation solely for the economic benefit of the Permittee.
- iv. Upon occurrence of excess emissions due to malfunction or breakdown, the Permittee shall, as soon as practicable, repair the units and/or re-establish applicable control practices.
- v. The Permittee shall fulfill the applicable recordkeeping requirements of Condition 7.5.9(g) and reporting requirements of Condition 5.10.5-2.
- vi. Following notification to the Illinois EPA (see Condition 5.10.5-2(a)(i)) of a malfunction or breakdown with excess emissions, the Permittee shall comply with all reasonable directives of the Illinois EPA with respect to such incident.
- vii. This authorization does not relieve the Permittee from the continuing obligation to minimize excess emissions during malfunction or breakdown. As provided by 35 IAC 201.265, an authorization in a permit for continued operation with excess emissions during malfunction and breakdown does not shield the Permittee from enforcement for any such violation and only constitutes a prima facie defense to such an enforcement action provided that the Permittee has fully complied with all terms and conditions connected with such authorization.

7.5.5-3 Work Practices from Permits 72080043, 95010001 and 10080021

- a. Pursuant to Permit 72080043 [T1]:
 - i. Overlapping operations of the BOF vessels is allowed under the following conditions:

- A. The hot metal charge of the second vessel shall be initiated and completed during the time between completion of the blow and start of tap on the first vessel while sufficient draft at the ESP capture system is established and maintained for both vessels.
 - B. The charge and/or blow on one vessel shall not begin until sufficient draft has been established at the associated ESP capture system (a.k.a., doghouse) and the alloy addition at the vessel tapping has been completed for at least 1 minute.
 - C. Sufficient draft at the ESP capture system of the vessel being tapped shall be maintained for at least 1 minute after alloy addition has been completed. After such period, the capture system draft may be transferred over to the other vessel in order to satisfy Condition (A) above.
 - D. Only overlapping of the hot metal charge of the second vessel after the end of blow and prior to onset of tap of the first vessel and overlapping of tapping of the first vessel, after alloy addition, and the hot metal charge and/or blow on the second vessel are allowed.
 - E. Condition (B) and (C) above shall be part of the Standard Operating Procedure (SOP) of the BOF vessels.
- ii. Each BOF vessel shall be equipped with a Fume Suppression System which shall be in use at all times that tapping is occurring during overlapping operations.
- b. Pursuant to Permit 95010001 [T1]:
- i. The BOF capture system shall be operated at the above minimum set points (see Condition 7.5.6(h)) until and unless the Illinois EPA approves a lower minimum set point based on a demonstration that a better level of particulate matter control will occur, except for purposes of emissions testing as related to the set point [T1].
 - ii. The Permittee shall operate, maintain, and repair the BOF ESP in a manner that assures compliance with the conditions of Permit 95010001 [T1].
 - iii. The Permittee shall maintain an adequate inventory of spare parts for the BOF ESP at all times [T1].

c. Pursuant to Permit 10080021 [T1]:

- i. Beginning October 31, 2012, during the refining phase of operation, the steam rings on the BOFs shall be operated in accordance with written procedures developed by the Permittee that set forth the timing and rate of steam injection as related to furnace operation and reflect good air pollution control practice to minimize emissions of particulate matter.
- ii. Prior to October 31, 2012, during the refining phase of operation, the steam rings on the BOFs shall be operated in accordance with good air pollution control practice to minimize emissions of particulate matter.

7.5.6 Production and Emission Limitations from Permit 95010001

- a. Total combined production of liquid steel from the affected BOFs shall not exceed 11,000 net tons per day, averaged over any calendar month [T1].
- b. BOF Shop Emissions (tons/yr total) shall not exceed the following limits [T1]:

<u>PM</u>	<u>PM₁₀</u>	<u>NO_x</u>	<u>VOM</u>	<u>CO</u>	<u>Lead</u>
510	451	70	12	16,097	1.43

- c. BOF ESP Stack (charge, refine, tap) emissions shall not exceed the following limits [T1]:

<u>Pollutant</u>	<u>Emission Factor (Lbs/Ton)</u>	<u>Maximum Emissions (Tons/Yr)</u>
PM	0.16	262.80
PM ₁₀	0.16	262.80
NO _x	0.0389	69.63
VOM	0.0060	10.74
CO	8.993	16,097.47
Lead	0.1934 lbs/hr	1.26

- d. BOF Roof Monitor emissions shall not exceed the following limits [T1]:

<u>Pollutant</u>	<u>Emission Factor (Lbs/Ton)</u>	<u>Maximum Emissions (Tons/Yr)</u>
PM	0.0987	176.71
PM ₁₀	0.06614	118.40
Lead	0.0129 lbs/hr	0.08

- e. Hot Metal Desulfurization and Hot Metal Transfer emissions shall not exceed the following limits [T1]:

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

- f. Hot metal charging and ladle slag skimming emissions shall not exceed the following limits [T1]:

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

- g. Emissions from Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy Baghouse #2) shall not exceed the following limits (see Section 7.1):

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

- h. The stack gas pulpit set point of the BOF ESP control system shall be set in accordance with the following, so as to establish sufficient particulate matter capture efficiency of the charging and primary hoods [T1]:

- i. Set point requirements while only a single BOF vessel is in operation:

- A. Minimum set point during charging operation:
550,000 cfm;
- B. Minimum set point during refining operation:
650,000 cfm; and
- C. Minimum set point during tapping operation:
200,000 cfm (until one minute after completing alloy addition).

- ii. During dual operation of BOF vessels (a.k.a., overlapping BOF operation) the minimum set point shall be 700,000 cfm.

- i. Compliance with the annual limits shall be determined on a calendar year basis [T1].

Note: These provisions (Conditions 7.5.6(a) through (i)) were originally established in Construction Permit 95010001.

- j. Emissions of particulate matter from the Ladle metallurgy station and the existing argon stirring station shall not exceed 16.20 TPY [T1].
- k. The maximum process weight for 1) argon stirring, 2) ladle reheat, 3) alloy addition, 4) ladle slag skimming, and 5) hot metal desulfurization shall not exceed 356.7 t/hr for 8,760 hours per year [T1].

Note: These provisions (Conditions 7.5.6(j) and (k)) were originally established in Permit 83050042.

7.5.7 Testing Requirements

a. Testing requirements in 40 CFR Part 63 Subpart FFFFF:

- i. Pursuant to 40 CFR 63.7821(b), for the Basic Oxygen Furnaces (which are equipped with a control device other than a baghouse), the Permittee shall conduct subsequent performance tests no less frequently than twice (at mid-term and renewal) during each term of the title V operating permit (i.e., this CAAPP permit).
- ii. Pursuant to 40 CFR 63.7821(c), for each Basic Oxygen Furnace Process equipped with a baghouse, the Permittee shall conduct subsequent performance tests no less frequently than once during each term of the Title V operating permit (every 60 months).
- iii. The Permittee shall use the following test methods for compliance demonstration with the emission limits for particulate matter [40 CFR 63.7822(b)]:

A. The Permittee shall determine the concentration of particulate matter according to the following test methods in Appendix A to 40 CFR Part 60.

- 1. Method 1 to select sampling port locations and the number of traverse points. Sampling ports must be located at the outlet of the control device and prior to any releases to the atmosphere.
- 2. Method 2, 2F, or 2G to determine the volumetric flow rate of the stack gas.
- 3. Method 3, 3A, or 3B to determine the dry molecular weight of the stack gas.

4. Method 4 to determine the moisture content of the stack gas.
 5. Method 5, 5D, or 17, as applicable, to determine the concentration of particulate matter (front half filterable catch only).
- B. The Permittee shall collect a minimum sample volume of 60 dry standard cubic feet (dscf) of gas during each particulate matter test run. Three valid test runs are needed to comprise a performance test.
- iv. Pursuant to 40 CFR 63.7822(g), for the BOF ESP (which is a primary emission control system applied to emissions from a BOF with an open hood system), the Permittee shall complete the following requirements:
- A. Sample only during the steel production cycle. The Permittee shall conduct sampling under conditions that are representative of normal operation. The Permittee shall record the start and end time of each steel production cycle and each period of abnormal operation; and
 - B. Sample for an integral number of steel production cycles. The steel production cycle begins when the scrap is charged to the BOF and ends 3 minutes after the slag is emptied from the vessel into the slag pot.
- v. Pursuant to 40 CFR 63.7822(h), for a control device applied to emissions from BOPF shop ancillary operations (hot metal transfer, slag skimming, hot metal desulfurization, or ladle metallurgy), the Permittee shall sample only when the operation(s) is being conducted.
- vi. The Permittee shall conduct each visible emissions performance test such that the opacity observations overlap with the performance test for particulate matter [40 CFR 63.7823(b)].
- vii. The following test methods shall be used for opacity observations pursuant to 40 CFR 63.7823(d):

Using a certified observer, the Permittee shall determine the opacity of emissions according to Method 9 in Appendix A to Part 60 as specified below:

- A. Instead of procedures in section 2.4 of Method 9 in Appendix A to 40 CFR Part 60, the Permittee shall record observations to the nearest 5 percent at 15-second intervals for at least three steel production cycles.
 - B. Instead of procedures in section 2.5 of Method 9 in Appendix A to 40 CFR Part 60, the Permittee shall determine the 3-minute block average opacity from the average of 12 consecutive observations recorded at 15-second intervals.
- b. Pursuant to Sections 39.5(7)(d) and (p) of the Act, in conjunction with the testing of emissions required for an emission unit in the BOF shop by the NESHAP (Condition 7.5.7(a) which requires testing at the midterm and renewal of this CAAPP permit), the Permittee shall also have testing conducted to measure emissions of other pollutants as follows.
- i. Testing shall be conducted for PM/PM₁₀*, lead and other pollutants as follow: BOF Furnaces (ESP) - NO_x, VOM and CO; and Hot Metal Desulfurization and Slag Skimming (Baghouses) - VOM.
- * As an alternative to measurements for PM₁₀ emissions, the measured results for PM, as determined in accordance with the NESHAP, shall be considered PM₁₀, as provided for by 35 IAC 212.108.
- ii. The relevant test method specified by the NESHAP or the following USEPA test methods shall be used for this testing, unless another USEPA test method is approved by the Illinois EPA during the review of a Test Plan submitted by the Permittee prior to testing.
- | | |
|---------------------------|------------------|
| Location of Sample Points | Method 1 |
| Gas Flow and Velocity | Method 2 |
| Flue Gas Weight | Method 3 |
| Moisture | Method 4 |
| VOM | Method 18 or 25A |
| NO _x | Method 7E or 19 |
| CO | Method 10 or 10B |
| Lead | Method 29 |
- iii. For this emission testing, test notifications and reporting shall be done by the Permittee in accordance with Condition 8.6.2 and 8.6.3 of this permit.

- c. As provided by 35 IAC 212.446(c), observations to determine compliance with the opacity standard in 35 IAC 212.446(c) (see Condition 7.5.3(a)(iii)) shall be performed in accordance with 40 CFR Part 60, Appendix A, Method 9, incorporated by reference in 35 IAC 212.113, except that compliance shall be determined by averaging any 12 consecutive observations taken at 15 second intervals.

7.5.8 Monitoring and Inspection Requirements

a. Monitoring (40 CFR 63.7830)

- i. For the capture system for secondary emissions from the Basic Oxygen Furnaces (which are subject to an operating limit in 40 CFR 63.7790(b)(1) established in Permittee's capture system operation and maintenance plan), the Permittee shall install, operate, and maintain a continuous parameter monitoring system (CPMS) according to the requirements in 40 CFR 63.7831(e) and the requirements in 40 CFR 63.7830(a)(1) through (3).
- ii. The Permittee shall operate and maintain a bag leak detection system on Baghouse #2 and the slag skimmer baghouse according to 40 CFR 63.7831(f) and monitor the relative change in particulate matter loadings according to the requirements in 40 CFR 63.7832.
- iii. The Permittee shall conduct inspections of each baghouse at the specified frequencies according to the following requirements [40 CFR 63.7830(b)(4)]:
 - A. Monitor the pressure drop across each baghouse cell each day to ensure pressure drop is within the normal operating range identified in the operation and maintenance manual.
 - B. Confirm that dust is being removed from hoppers through weekly visual inspections or other means of ensuring the proper functioning of removal mechanisms.
 - C. Check the compressed air supply for pulse-jet baghouses each day.
 - D. Monitor cleaning cycles to ensure proper operation using an appropriate methodology.
 - E. Check bag cleaning mechanisms for proper functioning through monthly visual inspections or equivalent means.

- F. Make monthly visual checks of bag tension on reverse air and shaker-type baghouses to ensure that bags are not kinked (knead or bent) or laying on their sides. The Permittee does not have to make this check for shaker-type baghouses using self-tensioning (spring-loaded) devices.
- G. Confirm the physical integrity of the baghouse through quarterly visual inspections of the baghouse interior for air leaks.
- H. Inspect fans for wear, material buildup, and corrosion through quarterly visual inspections, vibration detectors, or equivalent means.

iv. For the ESP controlling the BOF furnaces (which are subject to an opacity limit of 10 percent, hourly average, pursuant to 40 CFR 63.7790(b)(3)), the Permittee shall operate and maintain a continuous opacity monitoring system (COMS) according to the requirements in 40 CFR 63.7831(h) and monitor the hourly average opacity of emissions exiting the stack according to the requirements in 40 CFR 63.7832 [40 CFR 63.7830(d)].

If the hourly average opacity for the ESP exceeds the operating limit, the Permittee shall follow the following procedures [40 CFR 63.7833(g)]:

- A. The Permittee shall initiate corrective action to determine the cause of the exceedance within 1 hour. During any period of corrective action, the Permittee must continue to monitor and record all required operating parameters for equipment that remains in operation. Within 24 hours of the exceedance, the Permittee shall measure and record the hourly average operating parameter value for the emission unit on which corrective action was taken. If the hourly average parameter value meets the applicable operating limit, then the corrective action was successful and the emission unit is in compliance with the applicable operating limit.
- B. If the required initial corrective action was not successful, the Permittee shall complete additional corrective action within the next 24 hours (48 hours from the time of the exceedance). During any period of corrective action, the Permittee shall continue to monitor

and record all required operating parameters for equipment that remains in operation. After this second 24-hour period, the Permittee shall again measure and record the hourly average operating parameter value for the emission unit on which corrective action was taken. If the hourly average parameter value meets the applicable operating limit, then the corrective action was successful and the emission unit is in compliance with the applicable operating limit.

- C. For purposes of 40 CFR 63.7833(g)(1) and (2), in the case of an exceedance of the hourly average opacity operating limit for an ESP, measurements of the hourly average opacity based on visible emission observations in accordance with Method 9 may be taken to evaluate the effectiveness of corrective action.
 - D. If the second attempt at corrective action required in paragraph 40 CFR 63.7833 (g)(2) was not successful, the Permittee shall report the exceedance as a deviation in the next semiannual compliance report according to 40 CFR 63.7841(b).
- b. Installation, operation, and maintenance requirements for monitors [40 CFR 63.7831]
- i. For the slag skimmer baghouse and Baghouse #2 (which are subject to 40 CFR 63.7830(b)(1)), the Permittee shall operate and maintain the bag leak detection system according to the following requirements [40 CFR 63.7831(f)]:
 - A. The system must be certified by the manufacturer to be capable of detecting emissions of particulate matter at concentrations of 10 milligrams per actual cubic meter (0.0044 grains per actual cubic foot) or less.
 - B. The system must provide output of relative changes in particulate matter loadings.
 - C. The system must be equipped with an alarm that will sound when an increase in relative particulate loadings is detected over a preset level. The alarm must be located such that it

can be heard by the appropriate plant personnel.

- D. Each system that works based on the triboelectric effect must be installed, operated, and maintained in a manner consistent with the guidance document, "Fabric Filter Bag Leak Detection Guidance," EPA-454/R-98-015, September 1997. The Permittee may install, operate, and maintain other types of bag leak detection systems in a manner consistent with the manufacturer's written specifications and recommendations.
 - E. To make the initial adjustment of the system, the Permittee shall establish the baseline output by adjusting the sensitivity (range) and the averaging period of the device. Then, the Permittee shall establish the alarm set points and the alarm delay time.
 - F. Following the initial adjustment, the Permittee may not adjust the sensitivity or range, averaging period, alarm set points, or alarm delay time, except as detailed in the Permittee's operation and maintenance plan. The Permittee may not increase the sensitivity by more than 100 percent or decrease the sensitivity by more than 50 percent over a 365-day period unless a responsible official certifies, in writing, that the baghouse has been inspected and found to be in good operating condition.
 - G. Where multiple detectors are required, the system's instrumentation and alarm may be shared among detectors.
- ii. For the ESP (which is subject to the opacity limit in 40 CFR 63.7790(b)(3)), the Permittee shall install, operate, and maintain a COMS according to the following requirements in 40 CFR 63.7831 (h)(1) through (4):
- A. The Permittee shall install, operate, and maintain each COMS according to Performance Specification 1 in 40 CFR Part 60, Appendix B.
 - B. The Permittee shall conduct a performance evaluation of each COMS according to 40 CFR 63.8 and Performance Specification 1 in Appendix B to 40 CFR Part 60.

- C. Each COMS must complete a minimum of one cycle of sampling and analyzing for each successive 10-second period and one cycle of data recording for each successive 6-minute period.
 - D. COMS data must be reduced to 6-minute averages as specified in 40 CFR 63.8(g)(2) and to hourly averages where required by 40 CFR 63 Subpart FFFFF.
- c. Pursuant to the operation and maintenance requirements of the O/M plan required by 40 CFR 63.7800(b), the Permittee shall comply with following inspection procedures for the capture systems and controls:
- Monthly inspections of the equipment that is important to the performance of the total capture system. This inspection must include observations of the physical appearance of the equipment (e.g., presence of holes in ductwork or hoods, flow constrictions caused by dents or accumulated dust in the ductwork, and fan erosion). Repair of any defect or deficiency in the capture system shall be done before the next scheduled inspection.
- d. Monitoring of capture and control systems for Basic Oxygen Furnaces (from Permit 95010001):
- i. The Permittee shall operate and maintain the waste gas suction monitor system for the capture system for the Basic Oxygen Furnace that continually measures and records each operation (i.e., for each charge, each refine, each tap) of each steel production cycle the static pressure in the main downcomer duct of the ESP emissions capture and transport system.
 - A. The Permittee shall use the waste gas suction monitoring system as a mechanism to ensure sufficient draft is maintained in the emissions capture hoods and transport ducts so as to maximize emissions capture and transport and minimize uncaptured emissions and emission leaks.
 - B. The Permittee shall operate and maintain the system to ensure that accurate and useful data is collected.
 - C. The Permittee shall continuously record the static pressure in the main down comer duct of the ESP emissions capture and transport system.

- ii. The Permittee shall calibrate, operate, and maintain a continuous strip chart recorder or disk storage of the ESP stack gas flow rate as measured by the stack gas flow meter during ESP use.
- iii. The stack gas flow meter shall be calibrated on at least a quarterly basis.
- iv. A. The Permittee shall visually inspect at least monthly all visible BOF vessel enclosures, hooding and ducts used to capture and transport emissions for the BOF ESP control system.
B. A log shall be maintained of these inspections which includes observations of the physical appearance of the capture system and any noted deficiencies (e.g., the presence of any holes in ductwork or hoods, flow constrictions caused by dents or accumulated dust in ductwork, and fan erosion).
C. Any leaks or areas otherwise noted to be in need of repair, shall be repaired expeditiously.
- e. Opacity observations for 35 IAC 212.446(c);

The following opacity observations shall be performed pursuant to Section 39.5(7)(a) and (p) of the Act:

- i. The Permittee shall have the opacity of the exhaust of the building housing the BOF determined by a qualified observer in accordance with USEPA Method 9 while the affected BOF(s) is operating, as further specified below.
 - A. Observations of opacity shall be conducted on the following frequency unless absence of adequate daylight or weather conditions preclude scheduled observation, in which case, the next observations shall be conducted on the next operating day of the BOF during which observations of opacity can reasonably be conducted in accordance with USEPA Method 9, except that reading shall be taken as a 3-minute average (12 consecutive observations taken 15 seconds intervals).
 - B. If a baghouse is not installed for control of tapping emissions from the BOF, these readings shall be performed for at least five days out of every seven. A day is defined as any day when a BOF is in operation for a minimum of

four hours during conditions that are acceptable for Method 9 readings. A minimum of 60 consecutive minutes of opacity readings must be obtained and must encompass at least one steel production cycle. A production cycle is defined as the beginning of scrap charging to the completion of deslagging of the steelmaking vessel. Results of these readings shall be reduced to three minute rolling averages.

C. Beginning 30 days after initial startup of a baghouse for control of tapping emissions from the BOFs, the Permittee shall have the opacity of the exhaust of the building housing the BOF determined by a qualified observer in accordance with USEPA Method 9 while the affected BOF(s) are operating, as further specified below.

1. The duration of opacity observations for each test shall be one complete steel making cycle.
2. Observations of opacity shall be conducted on the following frequency unless absence of adequate daylight or weather conditions preclude scheduled observation, in which case, the next observations shall be conducted on the next operating day of the BOF during which observations of opacity can reasonably be conducted in accordance with USEPA Method 9.
3. On a weekly basis (at least once every seven operating days of BOF) except as provided below.
4. On a daily basis (at least 5 days out of seven operating days of BOF) if any of the five previous 3-minute average observations measured opacity of 18 percent or more, continuing on a daily basis until the maximum opacities measured in five consecutive daily observations are all less than 18 percent, at which time observations on a weekly basis shall resume.

ii. Upon written request by the Illinois EPA, additional opacity observations shall be conducted within 5 operating days for the BOF from the date of the request by the Illinois EPA or on the date agreed upon by the Illinois EPA, whichever is later. For

such observations conducted pursuant to a request from the Illinois EPA:

- A. The Permittee shall notify the Illinois EPA at least 24 hours in advance of the date and time of these observations, in order to enable the Illinois EPA to witness the observations. This notification shall include the name and employer of the qualified observer(s).
 - B. The Permittee shall promptly notify the Illinois EPA of any changes in the time or date for observations.
 - C. The duration of these observations shall cover a complete heat or cycle of the affected BOF.
 - D. The Permittee shall provide a copy of the current certification for the opacity observer and observer's readings to the Illinois EPA at the time of the observations, if the Illinois EPA personnel are present.
 - E. The Permittee shall keep records for all opacity measurements for the BOF made in accordance with USEPA Method 9 for the affected operations that the Permittee conducts or that are conducted at its behest by individuals who are qualified to make such observations. For each occasion on which such measurements are made, these records shall include the formal report for the measurements, a description of the measurements that were made, the operating condition of the affected operations, the observed opacity, and copies of the raw data sheets for the measurements.
- iii. A. The Permittee shall determine the opacity from the BOF ESP stack for at least one hour on any normal work day that the continuous opacity monitor on the BOF ESP stack has an outage that exceeds two consecutive hours and is still down. The readings shall commence as soon as possible after the opacity monitor has been down for two consecutive hours. If meteorological conditions or lack of visibility preclude these observations from being conducted, then this shall be noted in the log book.
- B. The opacity shall be determined in accordance with the observation procedures set out in 40 CFR Part 60, Appendix A, Method 9.

f. Monitoring and Collecting Data [40 CFR 63.7832]:

- i. For purposes of the NESHAP, 40 CFR 63 Subpart FFFFF, except for monitoring malfunctions, out-of-control periods as specified in 40 CFR 63.8(c)(7), associated repairs, and required quality assurance or control activities (including as applicable, calibration checks and required zero and span adjustments), the Permittee shall monitor continuously (or collect data at all required intervals) at all times a subject control/capture system is operating.
- ii. The Permittee may not use data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities in data averages and calculations used to report emission or operating levels or to fulfill a minimum data availability requirement, if applicable. The Permittee shall use all the data collected during all other periods in assessing compliance.
- iii. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.

g. Operational Monitoring for Steam Rings from Construction Permit 10080021:

The Permittee shall install, maintain and operate a continuous monitoring system on each steam ring for the steam valve position (open or closed) and the rate at which steam is being injected.

7.5.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items pursuant to Sections 39.5(7)(a) and (e) of the Act:

- a. 40 CFR 63 Subpart FFFFF (40 CFR 63.7842 and 63.7843)
 - i. The Permittee shall keep the following records specified in 40 CFR 63.7842 (a)(1) through (a)(3):
 - A. A copy of each notification and report that the Permittee submitted to comply with 40 CFR 63 Subpart FFFFF, including all documentation supporting any initial notification or notification of compliance status that the Permittee submitted, according to the requirements in 40 CFR 63.10(b)(2)(xiv).

- B. The records in 40 CFR 63.6(e)(3)(iii) through (v) related to startup, shutdown, and malfunction.
- C. Records of performance tests, performance evaluations, and opacity observations as required in 40 CFR 63.10(b)(2)(viii).
- ii. For each COMS, the Permittee shall keep the following records specified in 40 CFR 63.7842 (b)(1) through (4):
 - A. Records described in 40 CFR 63.10(b)(2)(vi) through (xi).
 - B. Monitoring data for a performance evaluation as required in 40 CFR 63.6(h)(7)(i) and (ii).
 - C. Previous (that is, superseded) versions of the performance evaluation plan as required in 40 CFR 63.8(d)(3).
 - D. Records of the date and time that each deviation started and stopped, and whether the deviation occurred during a period of startup, shutdown, or malfunction or during another period.
- iii. The Permittee shall keep the records specified in 40 CFR 63.6(h)(6) for visual observations.
- iv. The Permittee shall keep the records required in 40 CFR 63.7833 and 63.7834 to show continuous compliance with each emission limitation and operation and maintenance requirement that applies to the Permittee.
- v. The Permittee shall keep the records in a form suitable and readily available for expeditious review, according to 40 CFR 63.10(b)(1).
- vi. As specified in 40 CFR 63.10(b)(1), the Permittee shall keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.
- vii. The Permittee shall keep each record on site for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to 40 CFR 63.10(b)(1). The

Permittee may keep the records offsite for the remaining 3 years.

- viii. The Permittee shall maintain a current copy of the operation and maintenance plan required in 40 CFR 63.7800(b) onsite and available for inspection upon request.
- ix. A. The Permittee shall maintain a copy of the site-specific monitoring plan for each CPMS required by 40 CFR 63.7830, pursuant to 40 CFR 63.7831(a).

B. If the Permittee operates under manufacturer's specifications or manufacturer's instructions, such manufacturer's documentation shall be kept at the source as part of the required records.

b. Recordkeeping from Permits 72080043 and 95010001:

- i. Operating time of the BOFs;
- ii. Operating time of the capture systems and performance parameters, including air flow and fan amperage through the fan motors, gas temperature at inlet to ESP, damper settings, and steam injection rate;
- iii. Operating time of the ESP and performance parameters, including voltage and amperage of each transformer/rectifier set, number of sections in use;
- iv. All routine and nonroutine maintenance performed, including dates and duration of outages, inspection schedule and findings, leaks detected, repair actions, and replacements;
- v. Total production of molten steel at the BOFs (daily, monthly, and annual production in tons);
- vi. The Permittee shall keep a continuous strip chart recorder or disk storage of the stack gas flow rate during ESP use.
- vii. The Permittee shall records for each steel production cycle the various stack gas flow rates for each process (i.e., for each charge, each refine, each tap) of each steel production cycle. That is, the Permittee shall be able to distinguish the measured flow rate of stack gas during each production cycle.
- ix. Records of all opacity observations.

c. Recordkeeping carried over from Permit 08110016:

The operating and maintenance records that the Permittee maintains for the ESP shall include the following information for the induced draft fans on the ESP, in addition to other required information:

- i. The periods of time when the BOFs operated with less than three properly functioning fans, with description and explanation.
- ii. The periods of time when the BOFs are operating and a spare fan is not available, with the identity of the fan(s) that were not available and explanation, e.g., spare fan not available due to regularly scheduled maintenance or spare fan not available due to unplanned breakdown of the main bearings.

d. Recordkeeping for the steam rings on the BOF furnaces from Construction Permit 10080021:

- i. A. The Permittee shall maintain a record of the steam valve position (open or closed) and the rate at which steam is being injected, as determined by the continuous monitoring systems required by Condition 7.5.8(g).
- B. In addition to keeping records of the data measured by these monitoring systems, the Permittee shall keep records of the operation, calibration and maintenance of these systems.
- ii. The Permittee shall maintain an operating log or other records for the BOF and steam rings that contain information generally documenting the steam rings are being operated in accordance with Condition 7.5.5-3(c), including information for the timing of the refining phase of each heat of a BOF furnace.
- iii. The Permittee shall maintain detailed records of the following information for each heat in a BOF furnace in which the steam ring was not operated during the refining phase:
 - A. Identification of the heat and the duration of the incident, i.e., start time and time normal operation was achieved or the refining phase was completed.
 - B. Description of the incident, impact on effectiveness of the steam ring, probable cause, and corrective actions.

- C. Verification that the established procedures were followed or a description and explanation why procedures were not followed.

Note: These records may be kept with other logs or records that the Permittee keeps for the BOF furnaces and their instrumentation and need not be kept as a separate record.

- e. The Permittee shall keep annual records (tons/year) of steel processed at the slag skimming station, the argon stirring station and ladle metallurgy furnace station.

- f. Emission Records

The Permittee shall keep the following records related to the emissions of the affected basic oxygen processes to verify compliance with the applicable limits in Conditions 7.5.6(b) through (g):

- i. A file containing the emission factors used by the Permittee to determine emissions of different pollutants from such processes, with supporting documentation. These records shall be reviewed and updated by the Permittee as necessary to assure that the emission factors that it uses to determine emissions of the affected processes do not understate actual emissions, including review when emission testing is conducted for an affected process. These records shall be prepared and copies sent to the Illinois EPA in accordance with Condition 5.9.6(c), except that copies of the initial records shall be submitted to the Illinois EPA no later than August 3, 2012.
- ii. Records for any periods of operation of an affected process that are not otherwise addressed in the required records during which the established emission factor in Condition 7.5.9(f)(i) would understate actual emissions of the process, with description of the period of operation and an estimate of the additional emissions during such period that are not accounted for by the established factor, with supporting explanation and calculations.
- iii. Records for the annual emissions of such processes for comparison to the limits in Conditions 7.5.6(c) through (g), with supporting calculations.
- iv. Records for combined annual emissions of such affected processes, based on the summation of the above data, for comparison to the limits in Condition 7.5.6(b).

- g. In the operational logs or other records for the operation of the affected basic oxygen processes, the Permittee shall keep records identifying process upsets that result in the generation of additional opacity or PM emissions, such as loss of the slag cover on the molten metal in a vessel or a spill of molten metal. For these upsets, these records shall include the time of the upset, a description of the upset, and a discussion of the consequences for PM emissions from the affected basic oxygen processes.

- h. Records for Malfunctions or Breakdowns

Pursuant to 35 IAC 201.263, the Permittee shall maintain records of continued operation of the affected Basic Oxygen Furnace and Ladle Metallurgy Furnace as addressed by Condition 7.5.5-2(b), during malfunctions or breakdowns, which at a minimum, shall include the following records. The preparation of these records shall be completed within 45 days of an incident, unless the Permittee conducts a root cause analysis for the incident, in which case the preparation of these records, other than the root cause analysis, shall be completed within 120 days of the incident.

- i. Date, time and duration of the incident.
- ii. A detailed description of the incident, including:
 - A. A chronology of significant events during and leading up to the incident.
 - B. Relevant operating data for the unit, including information such as operator log entries and directives provided by management during the incident.
 - C. The measures taken to reduce the quantity of emissions and the duration of the incident including the resources utilized to address the incident.
 - D. The magnitude of emissions during the incident.
- iii. An explanation why continued operation of an affected basic oxygen furnace was necessary to prevent personnel injury or prevent equipment damage.
- iv. A discussion of the cause(s) or probable cause(s) of the incident including the following,
 - A. Whether the incident was sudden, unavoidable, or preventable, including:
 - 1. Why the equipment design did not prevent the incident;

- 2. Why better maintenance could not have avoided the incident;
 - 3. Why better operating practices could not have avoided the incident; and
 - 4. Why there was no advance indication for the incident.
- B. Whether the incident stemmed from any activity or event that could have been foreseen, avoided or planned for.
 - C. Whether the incident was or is part of a recurring pattern indicative of inadequate design, operation or maintenance.
- v. A description of any steps taken or to be taken to prevent similar future incidents or reduce their frequency and severity.
 - vi. As an alternative to keeping the records required by Condition 7.5.9(g)(iv), the Permittee may perform a root cause analysis. For this purpose, a root cause analysis is an analysis whose purpose is to determine, correct and eliminate the primary causes of the incident and the excess emissions resulting there from. If the Permittee performs a root cause analysis method that would define the problem, define all causal relationships, provide a causal path to the root cause, delineate the evidence, and provide solutions to prevent a recurrence. Such an analysis shall be completed within one year of the incident.

7.5.10 Reporting Requirements

- a. 40 CFR Part 63, Subpart FFFFF (40 CFR 63.7841)
 - i. Compliance report due dates. Unless the Administrator has approved a different schedule, the Permittee shall submit a semiannual compliance report to the permitting authority according to the following requirements:
 - A. Semi-annual compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.
 - B. Each compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date comes first after the end of the semiannual reporting period.

- ii. Compliance report contents. Each compliance report shall include the following information:
- A. Company name and address.
 - B. Statement by a responsible official, with that official's name, title, and signature, certifying the truth, accuracy, and completeness of the content of the report.
 - C. Date of report and beginning and ending dates of the reporting period.
 - D. If the Permittee had a startup, shutdown, or malfunction during the reporting period and the Permittee took actions consistent with the source's startup, shutdown, and malfunction plan, the compliance report must include the information in 40 CFR 63.10(d)(5)(i).
 - E. If there were no deviations from the continuous compliance requirements in 40 CFR 63.7833 and 63.7834 that apply to the Permittee, a statement that there were no deviations from the emission limitations or operation and maintenance requirements during the reporting period.
 - F. If there were no periods during which a continuous monitoring system (including a CPMS, COMS, or continuous emission monitoring system (CEMS)) was out-of-control as specified in 40 CFR 63.8(c)(7), a statement that there were no periods during which the CPMS was out-of-control during the reporting period.
 - G. For each deviation from an emission limitation in 40 CFR 63.7790 that occurs at each Basic Oxygen Process where the Permittee is not using a continuous monitoring system (including a CPMS, COMS, or CEMS) to comply with an emission limitation in 40 CFR Subpart FFFFFF, the compliance report must contain the information described in Condition 7.5.10(a)(ii)(A) through (F) and the following information (this includes periods of startup, shutdown, and malfunction):
 - 1. The total operating time of each Basic Oxygen Process during the reporting period.

2. Information on the number, duration, and cause of deviations (including unknown cause, if applicable) as applicable and the corrective action taken.

H. For each deviation from an emission limitation occurring at each Basic Oxygen Furnace Process where the Permittee is using a continuous monitoring system (including a CPMS or COMS) to comply with the emission limitation in 40 CFR 63 Subpart FFFFFF, the Permittee shall include the following information (this includes periods of startup, shutdown, and malfunction):

1. The date and time that each malfunction started and stopped.
2. The date and time that each continuous monitoring was inoperative, except for zero (low-level) and high-level checks.
3. The date, time, and duration that each continuous monitoring system was out-of-control as specified in 40 CFR 63.8(c)(7), including the information in 40 CFR 63.8(c)(8).
4. The date and time that each deviation started and stopped, and whether each deviation occurred during a period of startup, shutdown, or malfunction or during another period.
5. A summary of the total duration of the deviation during the reporting period and the total duration as a percent of the total source operating time during that reporting period.
6. A breakdown of the total duration of the deviations during the reporting period including those that are due to startup, shutdown, control equipment problems, process problems, other known causes, and other unknown causes.
7. A summary of the total duration of continuous monitoring system downtime during the reporting period and the total duration of continuous monitoring system downtime as a percent of the total source

operating time during the reporting period.

8. A brief description of the Basic Oxygen Processes.
9. A brief description of the continuous monitoring system.
10. The date of the latest continuous monitoring system certification or audit.
11. A description of any changes in continuous monitoring systems, processes, or controls since the last reporting period.

iii. Immediate startup, shutdown, and malfunction report. If the Permittee had a startup, shutdown, or malfunction during the semiannual reporting period that was not consistent with the source's startup, shutdown, and malfunction plan, the Permittee shall submit an immediate startup, shutdown, and malfunction report according to the requirements in 40 CFR 63.10(d)(5)(ii).

b. Monthly Opacity Exceedance Report.

Monthly opacity exceedance reports for the BOF ESP shall be sent to the Illinois EPA Regional Office. These reports shall contain all opacity measurements which exceed 30 percent, averaged over a six minute period. These "excess opacity" reports shall provide, for each such incident, the percent opacity measured as well as the date and span of such incident. These reports shall state the reasons for the excess opacity. The reports shall also specify the dates of those periods during which the continuous monitoring system was not in operation [Section 39.5(7)(f)(ii) of the Act].

c. Reporting Requirements from Permit 08110016:

After the initial year of operation (12 calendar months) of the BOF with an ESP with four fans, the Permittee shall submit a report to the Illinois EPA that evaluates the impacts of the addition of a fourth fan to the ESP on the particulate matter emissions of the BOF. This report shall, at a minimum, include the following information and address impacts on both stack emissions of particulate matter (i.e., emissions from the ESP stack) and uncaptured emissions of particulate matter (e.g., emissions from the roof monitor of the BOPF Shop). This report shall be

submitted by the end of the third month following the initial year of operation with an ESP with four fans.

- i. A description of typical operating scenarios in which the availability of a spare fan resulted in a decrease in short-term emissions, with an assessment of the changes in the hourly emission rates, with supporting documentation and calculations.
 - ii. A description of typical operating scenarios, if any, in which the availability of a spare fan resulted in an increase in short-term emissions, with an assessment of the changes in the hourly emission rates, with supporting documentation and calculations.
 - iii. An assessment of the overall effect of the addition of a fourth fan on actual annual emissions of the BOF, with supporting operating data and calculations.
- d. i. Pursuant to Section 39.5(7)(f)(ii) of the Act, the Permittee shall promptly notify the Illinois EPA, Air Compliance Section, within 30 days of deviations by the Basic Oxygen Furnace Processes from applicable requirements, unless a NESHAP standard specifies a different timeframe, as follows:
- A. Requirements in Condition 7.5.3.
 - B. Requirements in Condition 7.5.5-1.
 - C. Requirements in Condition 7.5.5-3.
 - D. Requirements in Condition 7.5.6(a) through (k).
- ii. All such deviations shall be summarized and reported as part of the semiannual monitoring report required by Condition 8.6.1.
 - iii. The Permittee shall notify the Illinois EPA, Air Compliance Section, of all other deviations as part of the semiannual monitoring reports required by Condition 8.6.1.
 - iv. All required deviation reports described in Condition 7.5.10(d) above shall contain the following information:
 - A. Date, time and duration of the deviation;
 - B. Description of the deviation;
 - C. Probable cause of the deviation; and

- D. Any corrective action or preventative measures taken.
- e. Reporting on malfunction and breakdown shall be performed in accordance with Condition 5.10.5-2
- f. Reporting Requirements from Permit 10080021:
 - i. Within six months of initial startup of the steam rings on the affected BOFs, the Permittee shall submit to the Illinois EPA: 1) A Project Report; and 2) A draft of the Permittee's written operating procedures for the steam rings, as required by Condition 7.5.5-3(c), for review and comment by the Illinois EPA. This Project Report shall include the following:
 - A. An assessment, with supporting documentation, of the effect of the steam rings on the opacity and, as feasible, particulate loading of the exhaust from the roof monitor of the BOPF Shop during refining, correlated with the rate of steam injection and other operating parameters of the BOF's and their control system; and
 - B. An identification of circumstances, if any, in which the steam rings must be operated to maintain compliance with applicable emission standards.
 - ii. The Permittee shall submit reports to the Illinois EPA on a semi-annual basis that include the following information for the operation of the steam rings on the affected BOFs:
 - A. Total number of heats during the reporting period.
 - B. Number of heats during the reporting period without steam rings operating properly, by type of incident, e.g., breakdown of the steam ring interrupting operation, malfunction of the steam ring with insufficient steam flow, or breakdown of support system.
- g. Reporting on the Federal SSM authorization shall be performed in accordance with Condition 5.10.5-3.

7.5.11 Operational Flexibility/Anticipated Operating Scenarios

The Basic Oxygen Furnaces shall only be operated as top oxygen injected vessels, except that, for purposes of checkout and emission testing only, the furnaces may be operated as peripheral and bottom oxygen injected furnaces for a maximum of

120 days. Any further operation of the furnaces as other than top oxygen injected vessels shall be pursuant to a permit granted for such additional operation [72080043].

7.5.12 Compliance Procedures

- a. Compliance with the applicable standards of Condition 7.5.3 is addressed by the work practices, testing, monitoring, recordkeeping and reporting requirements in Section 7.5 of this permit.
- b. Compliance with the production/emission limits of Conditions 7.5.6 and 5.6.2 is addressed by the work practices, testing monitoring, recordkeeping and reporting requirements in Sections 7.5 and 5 of this permit.

7.5.13 Compliance Schedule and Current Enforcement Status

- a. The Permittee shall comply with the following schedule of compliance applicable to BOF shop emissions and established in accordance with modified Consent Order 05-CH-750 (December 23, 2009):

Commitment	Timing
Certify compliance	March 31, 2011

- b. Submittal of Progress Reports

Quarterly Progress Reports shall be submitted beginning with September 2011 and ending upon the achievement of compliance. Each quarterly report shall be submitted no later than 5 days after the end of the corresponding calendar month. The Progress Report shall contain at least the following:

- i. The required date for achieving commitments, and actual dates when such commitments were achieved.
 - ii. Any commitments accepted by the Permittee or otherwise established for the affected BOF as part of the resolution of the above referenced Consent Order, with the associated timing for each commitment.
 - iii. A discussion of progress in complying with commitments that are subject to future deadlines.
 - iv. If any commitment was not met, an explanation of why the required timeframe or commitment was not met, and any preventive or corrective measures adopted to achieve required commitment.
- c. After completion of all required commitments and certification of compliance, as identified in Condition

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7.5.13(a) no further Quarterly Progress Reports are required to be submitted.

7.5.14 State-Only Conditions

State-only conditions are not being established.

7.6 Continuous Casting

7.6.1 Description

There are two continuous casting lines in operation in the caster building. Ladles of molten steel are hoisted by crane and placed in revolving turrets located at the top of the casters. Each turret holds two ladles at a time. When one ladle of steel has been cast the turret is rotated and the second ladle is tapped. The empty ladle is then replaced with a full one. The tapping process involves opening the taphole located on the bottom of the ladle and allowing the molten steel to flow into an intermediate chamber called a "Tundish". The Tundish has a taphole in the bottom through which the molten steel flows directly into the casters. The Tundish maintains a steady stream of molten steel flowing into the caster while ladles are being changed.

The molten steel from the casters continuously passes through a system of rollers and straighteners. Water is sprayed onto the slab throughout this process to complete the solidification of the slab.

Note: This narrative description is for informational purposes only and is not enforceable.

7.6.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Date Constructed	Emission Control Equipment
Continuous Casting	Steel Deslagging Station	Pre-1986	None
	Caster Molds 1 and 2	Pre-1990	None
	Casters #1 and #2: Spray Chambers	Pre-1981 (#1) Around 1988 (#2)	None
	Slab Cut-off	N/A	None
	Slab Ripping	N/A	None

7.6.3 Applicable Provisions and Regulations

- a. The "affected continuous casting operations" for the purpose of these unit-specific conditions are the operations and emission units described in Conditions 7.6.1 and 7.6.2.
- b. Pursuant to 35 IAC 212.458(b) and (c), the affected continuous casting operations shall comply with the following:

No person shall cause or allow emissions of PM₁₀, other than that of fugitive particulate matter, into the atmosphere to exceed the following limits during any one hour period:

- i. 22.9 mg/scm (0.01 gr/scf) from any process emissions unit provided however that this limit shall not apply if there are no visible emissions, except if a stack test is performed, the absence of visible emissions is not a defense to a finding of violation [35 IAC 212.458(b)(7) and (c)]; and
- ii. 5 percent opacity for continuous caster spray chambers or continuous casting operations [35 IAC 212.458(b)(8)].

Note: These standards currently do not apply to slab cut-off and slab ripping processes which are not vented through stacks.

- c. Pursuant to 35 IAC 212.316(f), the affected continuous casting operations shall comply with the following:

No person shall cause or allow fugitive particulate matter emissions from any emission unit to exceed an opacity of 20 percent.

7.6.4 Non-Applicability of Regulations of Concern

- a. The emission limitations of 35 IAC 212.324 are not applicable to any emission unit subject to a specific emissions standard or limitation contained in 35 IAC Part 212 Subpart R, Primary and Fabricated Metal Products and Machinery Manufacture, pursuant to 35 IAC 212.324(a)(3).
- b. The affected continuous casting operations are not subject to 40 CFR Part 63 Subpart FFFFF, Integrated Iron and Steel Manufacturing, because continuous casting is not defined as part of BOPF and shop ancillary operations in 40 CFR 63.7782(c).
- c. The affected continuous casting operations are not subject to 35 IAC 212.309 and 212.310 because those operations are not identified in 35 IAC 212.304 through 212.308.

7.6.5 Control Requirements and Work Practices

Pursuant to 35 IAC 212.450, particulate matter emissions from liquid steel charging in continuous casting operations shall be controlled by chemical or mechanical shrouds.

7.6.6 Production and Emission Limits from Permit 95010001 [T1]:

- a. Emissions from Deslagging Station and associated Material Handling System (see Section 7.1) shall not exceed the following limits:

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

- b. Emissions from Caster Molds - Casting shall not exceed the following limits:

<u>Pollutant</u>	<u>Emission Factor (Lbs/Ton)</u>	<u>Maximum Emissions (Tons/Yr)</u>
PM	0.006	10.74
PM ₁₀	0.006	10.74
NO _x	0.050	89.50

- c. Emissions from Casters Spray Chambers shall not exceed the following limits:

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

- d. Emissions from Slab Cut-off shall not exceed the following limits:

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

- e. Emissions from Slab Ripping shall not exceed the following limits:

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

- f. Total Emissions from Continuous Casting operations shall not exceed the following limits:

	PM (Tons/Yr)	PM ₁₀ (Tons/Yr)	NO _x (Tons/Yr)
Continuous Casting Operations	71	71	90.0

- g. Compliance with annual limits shall be determined on a calendar year basis [T1].

7.6.7 Testing Requirements

- a. The Permittee shall conduct opacity observations for the affected continuous casting operations as specified below [Sections 39.5(7)(d) and (p) of the Act]:
- i. Semi-annual observations shall be performed by a qualified observer in accordance with USEPA Method 9 for each spray chamber stack and continuous caster building openings while the casters are operating. The duration of opacity observations for each stack and the building shall be at least 30 minutes unless no visible emissions are observed from a stack or the building during the first 12 minutes of observations.
 - ii. Upon written request by the Illinois EPA, additional opacity observations shall be conducted within 5 operating days from the date of the request or by the date agreed upon by the Illinois EPA, whichever is later. For these observations:
 - A. The Permittee shall notify the Illinois EPA at least 24 hours in advance of the date and time of these observations, in order to enable the Illinois EPA to witness the observations. This notification shall include the name and employer of the qualified observer(s).
 - B. The Permittee shall promptly notify the Illinois EPA of any changes in the time or date for observations.
 - C. The duration of these observations shall be three hours for each spray chamber stack.
 - D. The Permittee shall provide a copy of the current certification for the opacity observer and observer's readings to the Illinois EPA at the time of the observations, if the Illinois EPA personnel are present.
- b. The Permittee shall have emission tests conducted for the PM/PM₁₀ emissions of the spray chambers of the affected continuous casting operations as specified below to verify

compliance with emission limits in Condition 7.6.6(c) [Sections 39.5(7)(d) and (p) of the Act]:

- i. A. Emission testing shall be conducted within 30 months of the effective date of this permit condition. This testing shall be conducted for one caster as selected by the Illinois EPA.
- B. Upon written request from the Illinois EPA, additional emission testing shall be conducted within 90 operating days from the date of the request or by the date agreed upon by the Illinois EPA, whichever is later.
- ii. The following USEPA test methods shall be used for this testing, unless another USEPA method is approved by the Illinois EPA:
 - A. Location of Sample Points Method 1
 - B. Gas Flow and Velocity Method 2
 - C. Flue Gas Weight Method 3
 - D. Moisture Method 4
 - E. PM/PM₁₀ Methods 5, 201 or 201A
- iii. Observations for visible emissions and opacity shall be conducted during all emission tests in accordance with USEPA Methods 22 and 9, respectively, and the results of these observations included in the reports for emission testing.
- iv. For this emission testing, test notifications and reporting shall be done by the Permittee in accordance with Conditions 8.6.2 and 8.6.3 of this permit.

7.6.8 Monitoring Requirements

The Permittee shall perform monthly inspections of the continuous casting operations. These inspections shall include [Sections 39.5(7)(a) and (d) of the Act]:

- a. Inspection of the mechanical shrouds on the continuous casting operations to ensure their physical presence and integrity.
- b. Observations for visible emissions from stacks conducted in accordance with Method 22. If visible emissions are observed, opacity observations by Method 9 shall be conducted within one week.

7.6.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items for the affected continuous casting operations, pursuant to Sections 39.5(7)(a) and (e) of the Act:

- a. Amount of steel cast (ton/mo and ton/yr).
- b. The Permittee shall maintain records of the inspections required by Condition 7.6.8.
- c. The Permittee shall keep the following records related to the emissions of the affected continuous casting operations:
 - i. A file containing the emission factors used by the Permittee to determine emissions of different pollutants from the various affected operations, with supporting documentation. These records shall be reviewed and updated by the Permittee as necessary to assure that the emission factors that it uses to determine emissions of the affected operations do not understate actual emissions. These records shall be prepared and copies sent to the Illinois EPA in accordance with Condition 5.9.6(c).
 - ii. Records for any periods of operation of an affected operations that are not otherwise addressed in the required records during which the established emission factor in Condition 7.6.9(c)(i) would understate actual emissions, with description of the period of operation and an estimate of the additional emissions during such period that would not be accounted for by the established factor, with supporting explanation and calculations.
 - iii. Records for the annual emissions of the various affected operations for comparison to the limits in Conditions 7.6.6(a) through (e), with supporting calculations.
 - iv. Records for combined annual emissions of the affected continuous casting operations, based on the summation of the above data, for comparison to the limits in Condition 7.6.6(f).
- d. The Permittee shall keep records for all opacity readings for the affected continuous casting operations conducted in accordance with Condition 7.6.7.

7.6.10 Reporting Requirements

- a. i. Pursuant to Section 39.5(7)(f)(ii) of the Act, the Permittee shall promptly notify the Illinois EPA, Air Compliance Section, within 30 days of deviations by

the affected continuous casting operations from applicable requirements, as follows:

- A. Requirements in Condition 7.6.3(b) and (c).
 - B. Requirements in Condition 7.6.6.
- ii. All such deviations shall be summarized and reported as part of the semiannual monitoring report required by Condition 8.6.1.
- b. The Permittee shall notify the Illinois EPA, Air Compliance Section, of all other deviations as part of the semiannual monitoring reports required by Condition 8.6.1.
 - c. All deviation reports described in Condition 7.6.10 above shall contain the following:
 - i. Date, time and duration of the deviation;
 - ii. Description of the deviation;
 - iii. Probable cause of the deviation; and
 - iv. Any corrective action or preventive measures taken.

7.6.11 Operational Flexibility/Anticipated Operating Scenarios

Operational flexibility is not set for the affected continuous casting operations.

7.6.12 Compliance Procedures

For affected continuous casting, compliance with the applicable standards of Conditions 7.6.3(b) and (c) and with the limitations of Condition 7.6.6 is addressed by the work practices, testing, monitoring, recordkeeping and reporting requirements in Section 7.6 of this permit.

7.6.13 State-Only Conditions

State-only conditions are not being established.

7.7 Hot Strip Mill Reheat Furnaces

7.7.1 Description

Steel slabs are heated in the slab reheat furnaces, so they can be formed further in the facility's hot strip mill. Some of the slabs are shipped to the facility from outside suppliers.

The following fuels or combination of these fuels are fired by all the four furnaces: natural gas and coke oven gas (COG). In the past, the reheat furnaces also fired oil, but they no longer have that capability.

Note: This narrative description is for informational purposes only and is not enforceable.

7.7.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Date Constructed	Emission Control Equipment
Reheat Furnaces	Slab Reheat Furnaces #1, #2 & #3 equipped with low-NO _x burners Nominal firing rate: 322 mmBtu/hr each	Pre-1972	None
	Slab Reheat Furnace #4 equipped with low-NO _x burners Nominal firing rate: 495 mmBtu/hr	Pre-1977	None

7.7.3 Applicable Provisions and Regulations

- The "affected slab reheat furnaces" for the purpose of these unit-specific conditions, are the emission/production units as described in Conditions 7.7.1 and 7.7.2 above.
- The affected slab reheat furnaces are subject to 35 IAC 212.458(b)(10) and (c), which provide that no person shall cause or allow emissions of PM₁₀, other than that of fugitive particulate matter, into the atmosphere to exceed 38.7 ng/J (0.09 lbs/mmBtu) of heat input from the slab furnaces at steel plants in the vicinity of Granite City during any one hour period, provided however that this limit shall not apply if there are no visible emissions, except if a stack test is performed, the absence of visible emissions is not a defense to a finding of violation.
- The affected slab reheat furnace #4 is subject to 35 IAC 212.321(a), which provides that:

No person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any new process emission unit, which either alone or in combination with the emission of particulate matter from all other similar process emission units for which construction or modification commenced on or after April 14, 1972, at a source or premises, exceeds the allowable emission rates specified in 35 IAC 212.321(c) (See also Attachment 2) [35 IAC 212.321(a)].

- d. The affected slab reheat furnaces #1, #2 and #3 are subject to 35 IAC 212.322(a), which provides that:

No person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any process emission unit for which construction or modification commenced prior to April 14, 1972, which, either alone or in combination with the emission of particulate matter from all other similar existing process emission units at a source or premises, exceeds the allowable emission rates specified in 35 IAC 212.322(c) (See also Attachment 2) [35 IAC 212.322(a)].

- e. Pursuant to 35 IAC 214.301, the affected slab reheat furnaces shall comply with the following: no person shall cause or allow the emission of sulfur dioxide into the atmosphere from any process emission source to exceed 2000 ppm.
- f. Pursuant to 35 IAC 212.123(a), the affected slab reheat furnaces shall comply with the following: no person shall cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from any emission unit other than those emission units subject to the requirements of 35 IAC 212.122, except as allowed by 35 IAC 212.123(b) and 212.124.
- g. Pursuant to 35 IAC 212.458(b) (7) and (c), the affected slab reheat furnaces shall comply with the following:

No person shall cause or allow emissions of PM₁₀, other than that of fugitive particulate matter, into the atmosphere to exceed the following limits during any one hour period:

22.9 mg/scm (0.01 gr/scf) from any process emissions unit provided however that this limit shall not apply if there are no visible emissions, except if a stack test is performed, the absence of visible emissions is not a defense to a finding of violation [35 IAC 212.458(b) (7) and (c)].

7.7.4 Non-Applicability of Regulations of Concern

- a. The emission limitations of 35 IAC 212.324 are not applicable to the affected slab reheat furnaces, because

they are subject to a specific emissions standard or limitation contained in 35 IAC Part 212 Subpart R, pursuant to 35 IAC 212.324 (a) (3).

- b. The affected slab reheat furnaces are not subject to 40 CFR Part 63 Subpart FFFFF, Integrated Iron and Steel Manufacturing, because reheat furnaces are not covered by this NESHAP [see 40 CFR 63.7782(c)].
- c. This permit is issued based on the Permittee not being subject to the work practice and recordkeeping requirements of 35 IAC 212.324(f) because the affected slab reheat furnaces do not use air pollution control equipment for particulate matter.

7.7.5 Startup Provisions

- a. Pursuant to 35 IAC 201.149 and Part 201 Subpart I, subject to the following terms and conditions for affected slab reheat furnaces, the Permittee is authorized to violate the applicable opacity standards in 35 IAC 212.123(a) of Condition 7.7.3(f) during startup.

Note: This authorization is provided because the Permittee applied for such authorization in its CAAPP application, generally describing the efforts that will be used "...to minimize startup emissions, duration of individual starts, and frequency of startups".

- i. This authorization does not relieve the Permittee from the continuing obligation to demonstrate that all reasonable efforts are made to minimize startup emissions, duration of individual startups and frequency of startups.
- ii. The Permittee shall conduct startup of the affected slab reheat furnaces in accordance with written procedures prepared by the Permittee and maintained at the source (see Condition 7.7.10(d)(i)) for the affected slab reheat furnaces, that are specifically developed to minimize emissions from startups and that include, at a minimum:
 - A. A review of the operational condition of the affected reheat furnaces prior to initiating startup of the furnaces;
 - B. Initiation of startups to provide adequate time to implement the established startup procedures;
 - C. Sequential startup of the burners in the different zones of each furnace; and
 - D. Temperature levels achieved during startup.

- iii. The Permittee shall fulfill applicable recordkeeping of Condition 7.7.10(d).
- iv. The Permittee shall fulfill applicable reporting of Condition 5.10.5-1.
- b. As provided by 35 IAC 201.265, an authorization in a permit for excess emissions during startup does not shield a Permittee from enforcement for any violation of applicable emission standard(s) that occurs during startup and only constitutes a prima facie defense to such an enforcement action provided that the Permittee has fully complied with all terms and conditions connected with such authorization.

7.7.6 Control Requirements and Work Practices

- a. Pursuant to Permit 06070022, the affected slab reheat furnaces shall be equipped, operated, and maintained with low NO_x burners. The low NO_x burners shall be operated and maintained in conformance with good air pollution control practices. These low-NO_x burners shall be operated in the following zones of the affected slab reheat furnace [T1R]:
 - i. Slab reheat furnaces #1 through #3: heat and intermediate zones; and
 - ii. Slab reheat furnace #4: heat zone.
- b. The affected slab reheat furnaces are allowed to burn natural gas and coke oven gas only as a fuel [Section 39.5(7)(a) of the Act].

7.7.7 Operating and Emission Limits

The following operating and emission limits are established for the affected slab reheat furnaces [06070022, T1]:

- a. Operation of the affected slab reheat furnaces shall not exceed the following limits:

Emission Unit	Total Gas Usage (mmBtu/year)	COG Usage (mmBtu/year)
Slab Reheat Furnace #3	1,654,304	1,187,790
Slab Reheat Furnace #4	2,206,238	1,544,367
Total (Furnaces 1-4)	7,169,150	2,421,388

- b. Emissions of NO_x from the affected slab reheat furnaces shall not exceed the following limits:

Furnace	Limit (Lbs/mmBtu)
Slab Reheat Furnace #1	0.150
Slab Reheat Furnace #2	0.150
Slab Reheat Furnace #3	0.264
Slab Reheat Furnace #4	0.283

- c. Emissions of NO_x from the affected slab reheat furnaces (combined) shall not exceed 73 tons/month and 724.09 tons/year.
- d. Compliance with above annual limits shall be determined from a running total of 12 months of data.

7.7.8 Testing Requirements

- a. Pursuant to Section 39.5(7)(d) and (p) of the Act, the Permittee shall conduct a performance test on each affected slab reheat furnace within 18 months of the effective date of this permit condition and furnish the Illinois EPA a written report of the results of such test(s).

- i. These tests shall be conducted while the reheat furnace is firing COG at the maximum level in the normal mix of fuel for the furnace.
- ii. The following methods and procedures shall be used for testing of emissions, unless another method is approved by the Illinois EPA: Refer to 40 CFR 60, Appendix A, for USEPA test methods.

Location of Sample Points	USEPA Method 1
Gas Flow and Velocity	USEPA Method 2
Flue Gas Weight	USEPA Method 3
Moisture	USEPA Method 4
NO _x	USEPA Method 7E or 19

- b. The Permittee shall conduct tests for PM/PM₁₀ and NO_x emissions of the affected reheat furnaces upon written request from the Illinois EPA, for furnace(s) and fuel mix, as specified in the request. This testing shall be completed within 90 days of the request of by such later date agreed to by the Illinois EPA. For NO_x, this testing shall be conducted in accordance with Condition 7.7.8(a)(i). For PM/PM₁₀, testing shall be conducted using USEPA Test Methods as specified in 35 IAC 212.108(a).
- c. For all required emission tests, the Permittee shall conduct opacity observations in accordance with USEPA Method 9 during each run and report the results in the test report. The duration of observations for each run shall be 30-minutes unless visible emissions are not observed during

the first 12 minutes. Notwithstanding the above, if weather conditions during the period of testing are not suitable for conducting opacity observations, observations may be conducted within 48 hours of the time of testing, in which case, the duration of observations shall be 3 hours unless visible emissions are not observed during the first 36 minutes of observations.

- d. With the reports for all emission testing, the Permittee shall also provide the sulfur content of the COG being combusted during the period of testing, as measured by the monitoring system for COG, and sulfur content of the mixed fuel combusted during the period of testing, with supporting calculations.
- e. For this emission testing, test notifications and reporting shall be done by the Permittee in accordance with Conditions 8.6.2 and 8.6.3 of this permit.

7.7.9 Monitoring Requirements

The affected slab reheat furnaces are subject to the following monitoring requirements, pursuant to Sections 39.5(7)(a) and (d) of the Act:

- a. The Permittee shall conduct opacity observations for each affected slab reheat furnace on a semi-annual basis, in accordance with USEPA Method 9, for a minimum of 30 minutes per furnace, unless no visible emissions are observed during the first 12 minutes of observations. The results of these observations shall be reported to the Illinois EPA within 45 days after each observation is conducted.
- b. Unless annual performance tests or continuous monitoring for emissions of NO_x is being conducted for an affected slab reheat furnace pursuant to 35 IAC Part 217, Subpart D, the Permittee shall perform combustion evaluations/inspections of the burners on each affected slab reheat furnace on a regular basis, including inspections of the various components of the burner for their condition and proper functioning, and diagnostic measures of the NO_x concentration in the exhaust of the furnace before and after performance evaluation. These inspections/evaluations shall be conducted on a semi-annual basis if accommodated by the schedule for maintenance outages on an affected furnace, and otherwise on at least an annual basis.

7.7.10 Recordkeeping Requirements

The Permittee shall maintain records of the following items for the affected slab reheat furnaces, pursuant to Sections 39.5(7)(a) and (e) of the Act:

- a. i. Records for heat input:

- A. For COG (mmBtu/month and mmBtu/year) for all affected slab reheat furnaces (combined) and for furnaces #3 and #4 (individually).
 - B. For natural gas (mmBtu/month and mmBtu/year) for all affected slab reheat furnaces (combined) and for furnaces #3 and #4 (individually).
- ii. Records for the amount for each type of fuel used (mmscf/mo).
- b. A log or other records that will serve to identify the fuel or fuels being fired during each hour in each affected reheat furnace:
 - i. For furnaces # 1, 2 and 3, whether natural gas or COG is being fired.
 - ii. For furnace #4, the setting for the mix of natural gas and COG that is being fired.
- c. Records for all emission tests and opacity observations for the affected slab reheat furnaces.
- d. Records for Startups of Affected Slab reheat furnaces, pursuant to Section 39.5(7)(b) of the Act
 - i. The Permittee shall maintain startup procedures for each affected slab reheat furnace, as required by Condition 7.7.5(a)(ii).
 - ii. The Permittee shall maintain the following records for each startup of an affected furnace:
 - A. Date, time and duration of the startup.
 - B. A description of the startup and reason(s) for the startup.
 - C. Whether a violation of an applicable standard may have occurred during startup accompanied by the information in Condition 7.7.9(d)(iv) if a violation may have or did occur.
 - D. Whether the established startup procedures, maintained above, were followed accompanied by the information in Condition 7.7.9(d)(iii) if there were departure(s) from those procedures.
 - iii. If the established startup procedures were not followed during a startup, the Permittee shall maintain the following records:

- A. A description of the departure(s) from the established procedures.
- B. The reason(s) for the departure(s) from the established procedures.
- C. An explanation of the consequences of the departure(s) for emissions, such as whether the departure(s) prolonged the startup or resulted in additional emissions, and if so,
 - 1. The actions taken to minimize emissions and the duration of the startup; and
 - 2. An explanation whether similar incidents might be prevented in the future and if so, the corrective actions taken or to be taken to prevent similar incidents.
- iv. If a violation did or may have occurred during a startup, the Permittee shall maintain the following records:
 - A. Identification of the applicable standard(s) that were or may have been violated.
 - B. An explanation of the nature of such violation(s), including the magnitude of such excess emissions.
 - C. A description of the actions taken to minimize the magnitude of emissions and duration of the startup.
 - D. An explanation whether similar incidents could be prevented or ameliorated in the future and if so, a description of the actions taken or to be taken to prevent similar incidents in the future.
- e. A maintenance and repair log for each affected slab reheat furnace, listing each activity performed with date.
- f. The following records related to the emissions of PM/PM₁₀, SO₂, and NO_x from the affected slab reheat furnaces:
 - i. A file containing the emission factors used by the Permittee to determine emissions of pollutants other than SO₂ from the affected slab reheat furnaces, with supporting documentation. These records shall be reviewed and updated by the Permittee as necessary to assure that the emission factors that it uses to determine emissions of the affected furnace do not understate actual emissions. These records shall be

prepared and copies sent to the Illinois EPA in accordance with Condition 5.9.6(c).

- ii. If different emission factors are used for furnaces #1 and #2, records for the individual usage of fuels by these furnaces (scf/month and scf/year).
- iii. Records of emissions of PM/PM₁₀, SO₂, NO_x from the affected slab reheat furnaces (tons/month and tons/year), with supporting calculations.

7.7.11 Reporting Requirements

- a. i. Pursuant to Section 39.5(7)(f)(ii) of the Act, the Permittee shall promptly notify the Illinois EPA, Air Compliance Section, within 30 days of deviations by the affected slab reheat furnaces from applicable requirements, as follows:
 - A. Requirements in Condition 7.7.3(b) through (f).
 - B. Requirements in Condition 7.7.6.
 - C. Requirements in Condition 7.7.7.
- ii. All such deviations shall be summarized and reported as part of the semiannual monitoring report required by Condition 8.6.1.
- b. The Permittee shall notify the Illinois EPA, Air Compliance Section, of all other deviations as part of the semiannual monitoring reports required by Condition 8.6.1.
- c. All deviation reports described in Condition 7.7.11 above shall contain the following:
 - i. Date, time and duration of the deviation;
 - ii. Description of the deviation;
 - iii. Probable cause of the deviation; and
 - v. Any corrective action or preventive measures taken.
- d. Reporting on the State startup authorization shall be performed in accordance with Condition 5.10.5-1.

7.7.12 Operational Flexibility/Anticipated Operating Scenarios

No operational flexibility has been established for the affected slab reheat furnaces.

7.7.13 Compliance Procedures

For affected slab reheat furnaces, compliance with the applicable standards of Condition 7.7.3 and with the operating and emission limits of Condition 7.7.7 is addressed by the work practices, testing, monitoring, recordkeeping and reporting requirements in Section 7.7 of this permit.

7.7.14 State-Only Conditions

Pursuant to 35 IAC 217.150, 217.152, and 217.160, by the applicable compliance date for 35 IAC Part 217 Subparts D and I, the Permittee shall comply with applicable requirements of these rules for the affected slab reheat furnaces, including:

- a. Certifying to the Illinois EPA that the affected slab reheat furnaces will be in compliance with the applicable emission limitation(s) of 35 IAC 217.244(a) by the applicable compliance date.
- b. Operation of each affected slab reheat furnaces in a manner consistent with good air pollution control practices to minimize NO_x emissions,
- c. Compliance with the applicable NO_x emission limitation(s) in accordance with 35 IAC 217.154 or 217.157.
- d. Compliance with the applicable monitoring, recordkeeping and reporting requirements in accordance with 35 IAC 217.157(b) and 217.156.

7.8 Finishing Operations

7.8.1 Description

Pickling Line:

Coils are processed in this unit to clean the steel and prepare it for other treatments such as cold rolling or galvanizing. At the start of the pickling line, the coils are unwound and the leading edge of each coil is trimmed off square. The leading edge of each coil is then spot (resistance) welded to the trailing edge of the previous coil. By joining the coils in this manner the pickling line runs a continuous ribbon of steel and does not need to be taken out of production to reload. After the steel coils are joined the steel is passed through an acid bath. This acid bath consists of four dip tanks arranged in series and uses a solution of hydrochloric acid and water to clean the surfaces of the steel sheet. A scrubbing system with mist eliminator is used to control hydrogen chloride emissions from this process. When the steel comes out of the fourth acid dip tank it is passed through a cold rinse tank in which cool water is used to rinse the acid off of the steel. The next step is to pass the steel through a hot rinse tank. In this tank hot water is used to rinse any remaining acid away from the steel and to raise the temperature of the steel to speed the drying process. The steel is then passed through a hot air dryer to complete the drying process. The steel that is to be shipped is coated with oil immediately prior to recoiling to inhibit corrosion. In the final step of the pickling process, the steel is recoiled.

Galvanizing Line Steel Preparation:

Steel coils that are to be galvanized in this unit are first joined end to end by spot (resistance) welding the leading edge of one coil to the trailing edge of another coil. The steel is then passed through a rinse station where it is rinsed with either a weak alkaline solution or a weak acid solution. The purpose of this rinse is to clean the steel and break down any oils that may be on the surfaces. The emissions from this unit are exhausted to a packed column wet scrubber. After cleaning and rinsing the steel is dried by a steam dryer.

Galvanizing Line Finishing Processes:

After the steel is coated with zinc, it is cooled and then dipped into a "Chem-treat" bath. This non-organic chemical puts a layer of rust-preventative on the steel. The steel is coated with oil to protect the surfaces, recoiled, and sprayed with edge sealer (oil) to protect the edges of the steel. The oil applied to the steel is a light petroleum based oil used to inhibit corrosion. Edge sealers are oils used to protect the edges of the steel and inhibit corrosion.

Note: This narrative description is for informational purposes only and is not enforceable.

7.8.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Date Constructed	Emission Control Equipment
Finishing Operations	HCL Pickling Line	Pre-1973	Two Fume Scrubbers
	Galvanizing Line #7A; the line is comprised of the following significant components: • Cleaner section • Natural Gas furnace • Galvanizing pot • Miscellaneous heaters	Pre-1973	Fume Scrubber
	Galvanizing Line #8; the line is comprised of the following significant components: • Cleaner Section (with fume scrubber) • Natural gas fired Furnace (with NO_x catalytic converter) • 2 Galvanizing Pots • Space Heaters • Miscellaneous Heaters • Melting Kettle Building and Storage Areas Heaters	1995	Fume Scrubber; NO _x catalytic converter
	Coating Operations	Pre-1973	None

7.8.3 Applicable Provisions and Regulations

- a. The "affected finishing operations" for the purpose of these unit-specific conditions, are the emission units described in Conditions 7.8.1 and 7.8.2.
- b. Pursuant to 35 IAC 212.458(b) (7) and (c), the affected finishing operations shall comply with the following:

No person shall cause or allow emissions of PM₁₀, other than that of fugitive particulate matter, into the atmosphere to exceed the following limits during any one hour period:

22.9 mg/scm (0.01 gr/scf) from any process emissions unit provided however that this limit shall not apply if there are no visible emissions, except if a stack test is performed. The absence of visible emissions is not a defense to a finding of violation [35 IAC 212.458(b)(7) and (c)]

- c. The following process emission units in the affected finishing operation constructed or modified prior to April 14, 1972 are subject to IAC 212.322(a): cleaner section and galvanizing pot of Galvanizing Line #7A and coating operations. No person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any process emission unit for which construction or modification commenced prior to April 14, 1972, which, either alone or in combination with the emission of particulate matter from all other similar process emission units at a source or premises, exceeds the allowable emission rates specified in subsection (c) of 35 IAC 212.322 (see also Attachment 2) [35 IAC 212.322(a)].
- d. The following process emission units in the affected finishing operation constructed or modified on or after April 14, 1972 are subject to IAC 212.321(a): cleaner section, two galvanizing pots and the melting kettle of Galvanizing Line #8. No person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any process emission unit for which construction or modification commenced on or after April 14, 1972, which, either alone or in combination with the emission of particulate matter from all other similar process emission units at a source or premises, exceeds the allowable emission rates specified in subsection (c) of 35 IAC 212.321 (see also Attachment 2) [35 IAC 212.321(a)].
- e. Coating operations performed as part of the affected finishing operations are subject to 35 IAC 219.204, with which the Permittee must comply by application of compliant coating as established by 35 IAC 219.204(d) for coil coating:
 - i. No owner or operator of an affected coil coating operation shall apply at any time any coating in which the VOM content exceeds the following emission limitations. The following emission limitation is expressed in units of VOM per volume of coating (minus water and any compounds which are specifically exempted from the definition of VOM) as applied at each coating applicator:

kg/llb/gal

0.20

1.7

- ii. Compounds which are specifically exempted from the definition of VOM should be treated as water for the purpose of calculating the "less water" part of the coating composites.
- f. The HCL pickling line operates as a part of the affected finishing operations and is subject to 40 CFR Part 63 Subpart CCC "National Emission Standards for Hazardous Air Pollutants for Steel Pickling-HCl Process Facilities and Hydrochloric Acid Regeneration Plants". Specific requirements of Subpart CCC are set forth later in this subsection.
- g. Pursuant to 35 IAC 212.123(a), no person shall cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from any emission unit other than those emission units subject to the requirements of 35 IAC 212.122, except as allowed by 35 IAC 212.123(b) and 212.124.

7.8.4 Non-Applicability of Regulations of Concern

- a. The emission limitations of 35 IAC 212.324 are not applicable to any emission unit subject to a specific emissions standard or limitation contained in 35 IAC Part 212 Subpart R, pursuant to 35 IAC 212.324 (a) (3).
- b. This permit is issued based on the coating operations operated as a part of the affected finishing operations not being subject to 40 CFR 63 Subpart SSSS "National Emission Standards for Hazardous Air Pollutants: Surface Coating of Metal Coil" pursuant to the definition of coating used by Subpart SSSS (Decorative, protective, or functional materials that consist only of solvents, protective oils, acids, bases, or any combination of these substances are not considered coatings for the purposes of Subpart SSSS).
- c. This permit is issued based on the coating operations operated as a part of the affected finishing operations not being subject to 40 CFR 63 Subpart MMMM "National Emission Standards for Hazardous Air Pollutants for Surface Coating of Miscellaneous Metal Parts and Products" pursuant to definition of coating used by Subpart MMMM (Decorative, protective, or functional materials that consist only of solvents, protective oils, acids, bases, or any combination of these substances are not considered coatings for the purposes of Subpart MMMM).

- d. The pickling operations are not subject to 35 IAC 212.321 or 212.322 pursuant to 35 IAC 266.190.

7.8.5-1 NESHAP Emission Standards

- a. The affected pickling line is subject to 40 CFR 63.1157(a), which provides that no owner or operator of an existing affected continuous or batch pickling line at a steel pickling facility shall cause or allow to be discharged into the atmosphere from such line:
 - i. Any gases that contain HCl in a concentration in excess of 18 parts per million by volume (ppmv); or
 - ii. HCl at a mass emission rate that corresponds to a collection efficiency of less than 97 percent.
- b. This standard shall apply at all times, including startup, shutdown and malfunction/breakdown, as 40 CFR 63.6(f) has been vacated.

7.8.5-2 NESHAP Work Practices (Galvanizing Lines)

Affected Galvanizing Furnaces #7A and #8 as well as miscellaneous heaters on Galvanizing Line #8 are subject to the NESHAP, 40 CFR Part 63, Subpart DDDDD. Pursuant to 40 CFR 63.7499, these affected units are in the Gas 1 Subcategory for purposes of this NESHAP, as they only burn natural gas.

- a. Beginning on of the compliance date of this NESHAP, the Permittee must conduct a tune-up on each affected unit as follows:
 - i. For Galvanizing Furnaces #7A and #8, the Permittee must conduct a tune-up of each furnace annually [40 CFR 63.7540(a)(10)].
 - ii. For miscellaneous heaters on galvanizing line #8, the Permittee must conduct a biennial tune-up of each heater [40 CFR 63.7540(a)(11)].
 - iii. If a unit is not operating on the required date for a tune-up, the tune-up must be conducted within one week of startup [40 CFR 63.7540(a)(12)].
- b. Pursuant to 40 CFR 63.7540(a)(10), each required tune-up shall consist of the following:
 - i. As applicable, inspect the burner, and clean or replace any components of the burner as necessary (the burner inspection may be delayed until the next scheduled unit shutdown, but each burner must be inspected at least once every 36 months) [40 CFR 63.7640(a)(10)(i)];

- ii. Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern. The adjustment should be consistent with the manufacturer's specifications, if available [40 CFR 63.7640(a)(10)(ii)];
 - iii. Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly [40 CFR 63.7640(a)(10)(iii)];
 - iv. Optimize total emissions of CO. This optimization should be consistent with the manufacturer's specifications, if available [40 CFR 63.7640(a)(10)(iv)];
 - v. Measure the concentrations in the effluent stream of CO in parts per million, by volume (ppmv), and oxygen in volume percent, before and after the adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made) [40 CFR 63.7640(a)(10)(v)].
- c. Pursuant to 40 CFR 63.7640(a)(10)(vi), the Permittee shall maintain on-site and submit, if requested by the Illinois EPA, an annual report containing the following for the required tune-ups:
- i. The concentrations of CO in the effluent stream in ppmv, and oxygen in volume percent, measured before and after the adjustments of the furnace;
 - ii. A description of any corrective actions taken as a part of the combustion adjustment; and
 - iii. The type and amount of fuel used over the 12 months prior to the annual adjustment, but only if the unit was physically and legally capable of using more than one type of fuel during that period. Units sharing a fuel meter may estimate the fuel use by each unit.

7.8.6 Control Requirements and Work Practices

- a. Hydrochloric acid storage vessels. The owner or operator of an affected vessel shall provide and operate, except during loading and unloading of acid, a closed-vent system for each vessel. Loading and unloading shall be conducted either through enclosed lines or each point where the acid is exposed to the atmosphere shall be equipped with a local fume capture system, ventilated through an air pollution control device [40 CFR 63.1159(b)].

Note: HCL storage tanks associated with the affected pickling line are insignificant activities addressed in

Section 3.0 of this permit. Loading and unloading is currently conducted through enclosed lines.

b. Maintenance requirements [40 CFR 63.1160(b)]

- i. The Permittee shall comply with the operation and maintenance requirements prescribed under 40 CFR 63.6(e) for the HCL pickling line.
- ii. In addition to the requirements specified in 40 CFR 63.6(e), the Permittee shall operate in accordance with an operation and maintenance plan that it prepares for each emission control device. Such plan shall be consistent with good maintenance practices and, for a scrubber emission control device, shall at a minimum address the following:
 - A. Require monitoring and recording the pressure drop across the scrubber once per shift while the scrubber is operating in order to identify changes that may indicate a need for maintenance;
 - B. Require the manufacturer's recommended maintenance at the recommended intervals on fresh solvent pumps, re-circulating pumps, discharge pumps, and other liquid pumps, in addition to exhaust system and scrubber fans and motors associated with those pumps and fans;
 - C. Require cleaning of the scrubber internals and mist eliminators at intervals sufficient to prevent buildup of solids or other fouling;
 - D. Require an inspection of each scrubber at intervals of no less than 3 months with:
 1. Cleaning or replacement of any plugged spray nozzles or other liquid delivery devices;
 2. Repair or replacement of missing, misaligned, or damaged baffles, trays, or other internal components;
 3. Repair or replacement of droplet eliminator elements as needed;
 4. Repair or replacement of heat exchanger elements used to control the temperature of fluids entering or leaving the scrubber; and

5. Adjustment of damper settings for consistency with the required air flow.
- E. If the scrubber is not equipped with a viewport or access hatch allowing visual inspection, alternate means of inspection approved by the Administrator may be used.
- F. The owner or operator shall initiate procedures for corrective action within 1 working day of detection of an operating problem and complete all corrective actions as soon as practicable. Procedures to be initiated are the applicable actions that are specified in the maintenance plan. Failure to initiate or provide appropriate repair, replacement, or other corrective action is a violation of the maintenance requirement of 40 CFR 63, Subpart CCC.
- G. The owner or operator shall maintain a record of each inspection, including each item identified in 40 CFR 63.1160(b)(2)(iv), that is signed by the responsible maintenance official and that shows the date of each inspection, the problem identified, a description of the repair, replacement, or other corrective action taken, and the date of the repair, replacement, or other corrective action taken.

7.8.7 Production and Emission Limits from Permit 95010005 [T1].

- a. The operation of Galvanizing Line #8 shall not exceed the following [T1]:
 - i. The maximum firing rate of the furnace shall not exceed 54.6 million British thermal units (mmBtu) per hour.
 - ii. The maximum firing rate of each of the five space heaters shall not exceed 3.44 mmBtu/hour.
 - iii. The total combined maximum firing rate of the building and storage area heaters shall not exceed 9.84 mmBtu/hour.
 - iv. The total combined natural gas usage of the 11 miscellaneous heaters shall not exceed 21,895 ft³/hour and 191.8 million ft³/year.
 - v. The operation of the melting kettle shall not exceed 32,000 tons of product/month and 384,000 tons of product/year.

- b. The emissions of Galvanizing Line #8 shall not exceed the following [T1]:
- i. Furnace
 - A. The NO_x emissions of the furnace shall not exceed 2.07 lbs/hour and 9.04 tons/year.
 - B. Emissions of other pollutants from the furnace shall not exceed the following limits:

Carbon Monoxide:	8.37 tons/year
Particulate Matter:	0.72 tons/year
PM ₁₀ :	0.72 tons/year
VOM:	0.67 tons/year
SO ₂ :	0.14 tons/year
 - ii. Five Space Heaters (total)
 - A. The total combined NO_x emissions of the 5 space heaters shall not exceed 1.69 lbs/hour and 7.39 tons/year.
 - B. Total emissions of other pollutants from the 5 space heaters shall not exceed the following limits:

Carbon Monoxide:	1.48 tons/year
Particulate Matter:	0.22 tons/year
PM ₁₀ :	0.22 tons/year
VOM:	0.39 tons/year
SO ₂ :	0.04 tons/year
 - iii. Drying Oven and the Building and Storage Area Heaters (total)
 - A. The total combined NO_x emissions of the drying oven and the building and storage area heaters shall not exceed 0.97 lbs/hour and 4.29 tons/year.
 - B. Total emissions of other pollutants from the drying oven and the building and storage area heaters shall not exceed the following limits:

Carbon Monoxide:	0.85 tons/year
Particulate Matter:	0.13 tons/year
PM ₁₀ :	0.13 tons/year
VOM:	0.22 tons/year
SO ₂ :	0.03 tons/year

iv. Miscellaneous Heaters (total)

A. Total combined NO_x emissions of the 11 miscellaneous heaters shall not exceed 2.19 lbs/hour and 9.60 tons/year.

B. Total combined emissions of other pollutants from the 11 miscellaneous heaters shall not exceed the following limits:

Carbon Monoxide:	1.92 tons/year
Particulate Matter:	0.29 tons/year
PM ₁₀ :	0.29 tons/year
VOM:	0.51 tons/year
SO ₂ :	0.06 tons/year

v. Cleaner Section

Emissions of particulate matter from the cleaner section, which is controlled with a fume scrubber, shall not exceed 0.24 lbs/hour and 1.06 tons/year.

vi. Melting Kettle

Particulate matter emissions from the melting kettle shall not exceed 0.16 tons/month and 1.92 tons/year.

vii. Other emission units

Emissions of NO_x, CO, PM, VOM and SO₂ from the welder, two galvanizing pots and chemical treatment tank shall not exceed negligible rates of 0.1 lb/hour and 0.44 tons/year for each pollutant from each such emission unit.

c. Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total) [T1].

7.8.8 Testing Requirements

a. For testing emissions of the HCl Pickling Line pursuant to 40 CFR 63, Subpart CCC:

i. The Permittee shall use the following test methods in Appendix A of 40 CFR Part 60 pursuant to 40 CFR 63.1161(d), unless an equivalent alternative measurement method is approved by the Administrator, to determine compliance under 40 CFR 63.1157(a):

A. Method 1, to determine the number and location of sampling points, with the exception that no traverse point shall be within one inch of the stack or duct wall;

- B. Method 2, to determine gas velocity and volumetric flow rate;
- C. Method 3, to determine the molecular weight of the stack gas;
- D. Method 4, to determine the moisture content of the stack gas; and
- E. Method 26A, "Determination of Hydrogen Halide and Halogen Emissions from Stationary Sources--Isokinetic Method," to determine the HCl mass flows at the inlet and outlet of a control device or the concentration of HCl discharged to the atmosphere, and also to determine the concentration of Cl₂ discharged to the atmosphere from acid regeneration plants. If compliance with a collection efficiency standard is being demonstrated, inlet and outlet measurements shall be performed simultaneously. The minimum sampling time for each run shall be 60 minutes and the minimum sample volume 0.85 dry standard cubic meters (30 dry standard cubic feet). The concentrations of HCl and Cl₂ shall be calculated for each run as follows:

$$C_{HCl} \text{ (ppmv)} = 0.659 C_{HCl} \text{ (mg/dscm)},$$

$$\text{and } C_{Cl_2} \text{ (ppmv)} = 0.339 C_{Cl_2} \text{ (mg/dscm)},$$

where C(ppmv) is concentration in ppmv and C(mg/dscm) is concentration in milligrams per dry standard cubic meter as calculated by the procedure given in Method 26A.

- ii. Pursuant to 40 CFR 63.1162(a)(1), the Permittee shall conduct performance tests a minimum of once every 2 years to measure the HCl mass flows at the control device inlet and outlet or the concentration of HCl exiting the control.
 - iii. If any performance test shows that the HCl emission limitation is being exceeded, then the owner or operator is in violation of the emission limit.
- b. Upon written request from the Illinois EPA, emission tests shall be conducted by the Permittee for the furnace, melting kettle and cleaner section (all of galvanizing line #8) to verify compliance with emission limits in Condition 7.8.7, as follows [Section 39.5(7)(d) and (p) of the Act].

- i. The following USEPA test methods shall be used, unless another USEPA method is approved by the Illinois EPA.
 - A. Location of Sample Points Method 1
 - B. Gas Flow and Velocity Method 2
 - C. Flue Gas Weight Method 3
 - D. Moisture Method 4
 - E. PM/PM₁₀ (furnace, kettle, and cleaner section) Methods 5, 201 or 201A
 - vi. NO_x (furnace) Method 7E or 19
- ii. Observations of opacity shall be conducted during these emission tests in accordance with Method 9 and the results of these observations included in the reports for emission testing.
- c. Upon written request by the Illinois EPA, the Permittee shall conduct opacity observations from any finishing operation, as specified in the request, as follows [Sections 39.5(7)(d) and (p) of the Act]:
 - i. These observations shall be conducted within 45 calendar days of the requires or by the date agreed upon by the Illinois EPA, whichever is later.
 - ii. The readings shall be performed by a qualified observer in accordance with USEPA Method 9 while the affected finishing operation is operating.
- d. For this testing, test notifications and reporting shall be done by the Permittee in accordance with Conditions 8.6.2 and 8.6.3 of this permit.

7.8.9 Monitoring Requirements

- a. For the affected pickling line, the Permittee shall comply with the following requirements of 40 CFR 63.1160(b)(2) and 63.1162(a)(2) Section 39.5(7)(a):
 - i. The Permittee shall operate, and maintain systems for the measurement and recording of the scrubber makeup water flow rate and, if required, recirculation water flow rate. These flow rates shall be monitored continuously and recorded at least once per shift while the scrubber is operating.* If operation of the wet scrubber results in excursions of scrubber makeup water flow rate and recirculation water flow rate less than the minimum values established, the Permittee shall initiate corrective action within 1

working day as specified by the maintenance requirements in 40 CFR 63.1160(b)(2). Failure to initiate or provide appropriate repair, replacement, or other corrective action is a violation of the maintenance requirement of 40 CFR 63.1160(b)(2).

- ii. The Permittee shall monitor and record the pressure drop across the scrubber once per shift* while the scrubber is operating in order to identify changes that may indicate a need for maintenance. The Permittee shall initiate procedures for corrective action within 1 working day of detection of an operating problem and complete all corrective actions as soon as practicable. Procedures to be initiated are the applicable actions that are specified in the maintenance plan. Failure to initiate or provide appropriate repair, replacement, or other corrective action is a violation of the maintenance requirement of 40 CFR 63.1160(b)(2).

* See also Condition 7.8.9(g)

- iii. Corrective action as referenced in Condition 7.8.9(a)(i) and (ii) and as prescribed by "the Operation and Maintenance Plan" required by Condition 7.8.6(b)(ii), shall consist of the following:
 - A. Notify the pickle line shift manager or cold mill shift manager as soon as practicable but not later than the end of the shift of the operating problem detected.
 - B. The pickle line shift manager or cold mill shift manager shall notify the mechanical or electrical shift manager no later than the end of the shift.
 - C. Any of the above shift managers shall investigate the nature of the operating problem and implement corrective actions, such as manufacturer's recommended maintenance on:
 - 1. Pumps;
 - 2. Exhaust systems;
 - 3. Fans and motors;
 - 4. Clean scrubber internals and mist eliminators to remove buildup of solids or other fouling.
 - D. The pickle line or cold mill shift manager shall complete an upset conditions report upon completion of corrected action.

- b. Pursuant 40 CFR 63.1162(a)(4), failure to record each of the operating parameters (scrubber makeup water flow rate and recirculated water flow rate) is a violation of the monitoring requirements of 40 CFR 63 Subpart CCC.
- c. Pursuant to 40 CFR 63.1162(a)(5), each monitoring device shall be certified by the manufacturer to be accurate to within 5 percent and shall be calibrated in accordance with the manufacturer's instructions but not less frequently than once per year.
- d. Pursuant to 40 CFR 63.1161(b), the Permittee may reestablish compliant operating parameter values as part of any performance test that is conducted subsequent to the initial test or tests.
- e. Pursuant to 40 CFR 63.1160(b)(2)(ii) through (iv), the Permittee shall conduct the following maintenance requirements:
 - i. Cleaning of the scrubber internals and mist eliminators at intervals sufficient to prevent buildup of solids or other fouling;
 - ii. Inspect each scrubber at intervals of no less than 3 months with:
 - A. Cleaning or replacement of any plugged spray nozzles or other liquid delivery devices;
 - B. Repair or replacement of missing, misaligned, or damaged baffles, trays, or other internal components;
 - C. Repair or replacement of droplet eliminator elements as needed;
 - D. Repair or replacement of heat exchanger elements used to control the temperature of fluids entering or leaving the scrubber; and
 - E. Adjustment of damper settings for consistency with the required air flow.
- f. The owner or operator of an affected hydrochloric acid* storage vessel shall inspect each vessel semiannually to determine that the closed-vent system and either the air pollution control device or the enclosed loading and unloading line, whichever is applicable, are installed and operating when required [40 CFR 63.1162(c)].

* See also Condition 7.8.9(g)

- g. Notwithstanding the requirements of 40 CFR 63, Subpart CCC, the Permittee shall:
 - i. Record monitored operating data for each scrubber at least twice per shift and initiate corrective action for the scrubber if any recorded data indicates an operating problem with a scrubber;
 - ii. Inspect the affected HCL storage vessels on at least a quarterly basis to confirm compliance.
- h. Testing for VOM content of coatings shall be performed as follows [35 IAC 219.105(a) and 219.211(a) and Section 39.5(7)(b) of the Act]:
 - i. Upon written request by the Illinois EPA, the VOM content of specific coatings used by the coating operations shall be determined according to USEPA Reference Method 24 of 40 CFR 60 Appendix A and the procedures of 35 IAC 219.105(a) and 219.211(a); or
 - ii. This testing may be performed by the supplier of a material provided that the supplier provides appropriate documentation for such testing to the Permittee and the Permittee's records directly reflect the application of such materials.
- i. Pursuant to Sections 39.5(7)(a) and (d) of the Act, the Permittee shall measure or monitor the pressure differential and scrubbant flow rate on the fume scrubbers controlling the cleaner sections on Galvanizing Lines #7A and #8, as follows:
 - i. The pressure differential shall be determined in inches of water column.
 - ii. Scrubbant flow rate shall be determined in gallons per minute (gpm).
 - iii. Pressure differential and scrubbant flow rate shall be recorded at least once per shift if data is not automatically recorded.
- j. Pursuant to Sections 39.5(7)(a) and (d) of the Act, the Permittee shall operate instrumentation for the #8 Galvanizing Furnace for the NO_x concentration (ppm) in the flue gas exhaust stream and the inlet temperature (°C or °F) of the associated NO_x catalytic converter, as follows:
 - i. NO_x concentration (ppm) and inlet temperature shall be recorded at least once per shift if hourly average data is not automatically recorded.

- ii. The Permittee shall follow manufacturer's procedures for the operation and maintenance of the NO_x instrumentation.

7.8.10 Recordkeeping Requirements

The Permittee shall maintain records of the following items for the affected finishing operations, pursuant to Sections 39.5(7)(a) and (e) of the Act:

a. Recordkeeping required for the pickling line by the NESHAP:

- i. The "general records" required by the NESHAP, as required by 40 CFR 63.10(b)(2) and 63.1165.
- ii. Records of the following, as required by 40 CFR 63.1165(b), which records shall be retained for 5 years from the date of each record:
 - A. Scrubber makeup water flow rate and recirculation water flow rate if a wet scrubber is used;
 - B. Calibration and manufacturer certification that monitoring devices are accurate to within 5 percent; and
 - C. Each maintenance inspection and repair, replacement, or other corrective action.
- iii. The Permittee shall keep the written operation and maintenance plan on record after it is developed to be made available for inspection, upon request, by the Illinois EPA for the life of the affected source or until the source is no longer subject to the provisions of 40 CFR 63 Subpart CCC. In addition, if the operation and maintenance plan is revised, the Permittee shall keep the previous (i.e., superseded) versions of the plan on record to be made available for inspection by the Illinois EPA for a period of 5 years after each revision to the plan.
- iv. If the Permittee operates under manufacturer's specifications or manufacturer's instructions, such manufacturer's documentation shall be kept at the source as part of the required records.

b. Recordkeeping requirements for galvanizing lines:

Pursuant to Sections 39.5(7)(a) and (f) of the Act, the Permittee shall keep the following records for the various emission units on the galvanizing lines:

- i. The following records related to the tune-ups conducted on furnaces and process heaters on the lines pursuant to 40 CFR 63.7540(a)(10):
 - A. Records for each tune-up that include the following: Date and time tune-up was conducted and responsible person; Identification of the unit; Summary of inspections performed and required maintenance; Results of all calibrations performed; and CO concentrations in ppmv in the effluent stream and oxygen in volume percent, before and after the adjustments are made.
 - B. A copy of the manufacturers specifications for burners used for optimization of emissions and flame pattern during tune-ups.
 - ii. Records for emission tests, opacity observations, engineering calculations and other compliance determinations conducted for units to verify compliance with applicable standards, limitations and other requirements in Conditions 7.8.3, 7.8.6 and 7.8.7.
 - iii. Pursuant to 40 CFR 63.7555(h), if the Permittee uses an alternative fuel other than natural gas during a period of natural gas curtailment or supply interruption, the Permittee must keep records of the total hours per calendar year that alternative fuel is burned.
- c. Recordkeeping for Galvanizing Line #8:
- i. The following design and operating records for Galvanizing Line #8:
 - A. A file containing the rated heat input capacity of the furnace and each other fuel burning unit (mmBtu/hour), with supporting documentation.
 - B. Records of monthly and annual natural gas usage (mmscf/mo and mmscf/yr) for the furnace and other fuel burning units on the line.
 - ii. For the melting kettle, the following records:
 - A. Records of production (tons of product per month and year).
 - B. A file containing the emission factor used by the Permittee to calculate PM emissions from the kettle, with supporting documentation, which file shall be reviewed and updated if needed when new emission data become available

to assure that the factor does not understate actual PM emissions.

- C. Records for actual PM emissions (lbs/month and tons/year), with supporting calculations.

iii. For the furnace and associated catalytic converter, the following records:

- A. Engineering calculations for typical and maximum hourly NO_x emissions before and after control by catalytic converter (lbs/hour), with supporting documentation for the controlled emission rate from the furnace.
- B. The normal range of operating parameters (inlet temperature and NO_x concentration in the exhaust stream) for the catalytic converter.
- C. An operating log or other records for the catalytic converter that include information confirming proper operation on a daily basis and provide detailed information for any upset of the catalytic converter.
- D. An inspection and maintenance log or other records for the catalytic converter that identify activities performed, with date, description and the responsible individual(s).
- E. Usage or purchases of reagent for the catalytic converter (pounds/year).
- F. Records for actual NO_x emissions of the furnace (tons/year), with supporting calculations.
- G. A file containing the emission factors used by the Permittee to calculate emissions of PM/PM₁₀, CO, VOM and SO₂ from the furnace, with supporting documentation, and either engineering calculations for the maximum annual emissions of these pollutants (tons/year) or records of actual emissions of these pollutants (tons/year) to verify compliance with applicable limits.

iv. For the various emission units that combust fuel on the line, the following records:

- A. A file containing engineering calculations for the maximum hourly emissions of NO_x (lbs/hour) from each unit or group of units, with supporting documentation.

- B. A file containing the emission factors used by the Permittee to calculate emissions from these units, with supporting documentation, and either engineering calculations for the maximum annual emissions of NO_x and other pollutants (tons/year) from each unit or group of units or records of actual emissions (tons/year) to verify compliance with applicable limits.
 - v. For the cleaner section, the following records:
 - A. Engineering calculations for typical and maximum hourly PM emissions before and after control by the scrubber (lbs/hour), with supporting documentation for the controlled emission rate from the unit.
 - B. The normal range of operating parameters of the scrubber.
 - C. An operating log or other records for the scrubber that include information confirming proper operation on a daily basis and provide detailed information for any upset of the scrubber.
 - D. An inspection and maintenance log or other records for the scrubber that identify activities performed, with date, description and the responsible individual(s).
 - E. Records for actual PM emissions (tons/year), with supporting calculations.
 - vi.
 - A. The records required by Conditions 7.8.10(c) (ii) (B), (c) (iii) (G) and (c) (iv) (B) shall be prepared and copies sent to the Illinois EPA in accordance with Condition 5.9.6(c).
 - B. Copies of the initial records required by Conditions 7.8.10(c) (iii) (A), (c) (iv) (A) and (c) (v) (A) shall be sent to the Illinois EPA within 45 days of the effective date of these conditions. Copies of revisions to these conditions shall be sent to the Illinois EPA in accordance with Condition 5.9.6(c) (ii).
- d. Recordkeeping for the coating operations:
 - i. Records for coating usage (gal/mo and gal/yr, by coating or category of coating).

- ii. Records of the VOM content of each coating or category of coating as applied (pounds/gallon, less exempt compounds), with supporting documentation.
- iii. Records for testing or analysis conducted for the VOM content of coatings (pounds/gallon, less exempt compounds) that include identification of the tested coating(s), the results of the analysis, documentation for the analysis methodology, and identification of the person or party that performed the analysis.

7.8.11 Reporting Requirements

- a. i. Pursuant to Section 39.5(7)(f)(ii) of the Act, the Permittee shall promptly notify the Illinois EPA, Air Compliance Section, within 30 days of deviations by the affected finishing operations from applicable requirements unless a NESHAP standard specifies a different time frame, as follows:
 - A. Requirements in Condition 7.8.3(b) through (e).
 - B. Requirements in Condition 7.8.5-1.
 - C. Requirements in Condition 7.8.6.
 - D. Requirements in Condition 7.8.7.
- ii. All such deviations shall be summarized and reported as part of the semiannual monitoring report required by Condition 8.6.1.
- iii. The Permittee shall notify the Illinois EPA of all other deviations as part of the semiannual monitoring reports required by Condition 8.6.1.
- iv. All deviation reports required by Condition 7.8.11(a) above shall contain the following:
 - A. Date, time and duration of the deviation;
 - B. Description of the deviation;
 - C. Probable cause of the deviation; and
 - D. Any corrective action or preventive measures taken.
- b. The Permittee shall comply with the reporting requirements of 40 CFR 63.1164, including the following:
 - i. Reporting results of performance tests. As required by 40 CFR 63.10(d)(2), the owner or operator of an affected source shall report the results of any

performance test as part of the notification of compliance status required in 40 CFR 63.1163.

- ii. Progress reports. The owner or operator of an affected source who is required to submit progress reports under 40 CFR 63.6(i) shall submit such reports to the Administrator (or the State with an approved permit program) by the dates specified in the written extension of compliance.
- iii. Periodic startup, shutdown, and malfunction reports. Pursuant to 40 CFR 63.6(e), the owner or operator of an affected source shall operate and maintain each affected emission source, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions at least to the level required by the standard at all times, including during any period of startup, shutdown, or malfunction. Malfunctions must be corrected as soon as practicable after their occurrence.
 - A. Plan. As required by 40 CFR 63.6(e)(3), the owner or operator shall develop a written startup, shutdown, and malfunction plan that describes, in detail, procedures for operating and maintaining the source during periods of startup, shutdown, or malfunction, and a program of corrective action for malfunctioning process and air pollution control equipment used to comply with the relevant standards.
 - B. Reports. As required by 40 CFR 63.10(d)(5)(i), if actions taken by an owner or operator during a startup, shutdown, or malfunction of an affected source (including actions taken to correct a malfunction) are consistent with the procedures specified in the startup, shutdown, and malfunction plan, the owner or operator shall state such information in a semiannual report. The report, to be certified by the owner or operator or other responsible official, shall be submitted semiannually and delivered or postmarked by the 30th day following the end of each calendar half.
 - C. Immediate Reports. Any time an action taken by an owner or operator during a startup, shutdown, or malfunction (including actions taken to correct a malfunction) is not consistent with the procedures in the startup, shutdown, and malfunction plan, the owner or operator shall comply with all requirements of 40 CFR 63.10(d)(5)(ii).

- c. Pursuant to 35 IAC 219.211(c)(3), for the affected coating operations, the Permittee shall notify the Illinois EPA in the following instances:
 - i. Any record showing violation of 35 IAC 219.204 shall be reported by sending a copy of such record to the Illinois EPA within 30 days following the occurrence of the violation.
 - ii. At least 30 calendar days before changing the method of compliance from 35 IAC 219.204 to 35 IAC 219.205 or 219.207, the Permittee shall comply with all requirements of 35 IAC 219.211(d)(1) or (e)(1), respectively. Upon changing the method of compliance from 35 IAC 219.204 to 35 IAC 219.205 or 219.207, the Permittee shall comply with all requirements of 35 IAC 219.204(d) or (e), respectively.
- d. i. If the Permittee operates a unit using a fuel other than natural gas, to fire the affected unit during a period of natural gas curtailment or supply interruption, as defined in 40 CFR 63.7575, the Permittee must submit a notification of alternative fuel use within 48 hours of the declaration of each period of natural gas curtailment or supply interruption. The notification must include the information specified in 40 CFR 63.7545(f)(1) through (f)(5) [40 CFR 63.7545(f)].
- ii. If the Permittee intends to use fuel other than natural gas and other than during a period of natural gas curtailment or supply interruption as addressed by 40 CFR 63.7545(f), the Permittee must provide 30 days prior notice of the date upon which the fuels will be switched [40 CFR 63.7545(h)].

7.8.12 Operational Flexibility/Anticipated Operating Scenarios

Operational flexibility is not set for the affected finishing operations.

7.8.13 Compliance Procedures

For affected finishing operations, compliance with the applicable standards, limitations and requirements of Conditions 7.8.3, 7.8.5 and 7.8.7 is addressed by the work practices, testing, monitoring, recordkeeping and reporting requirements in Section 7.8 of this permit.

7.8.14 State-Only Conditions

Pursuant to 35 IAC 217.150, 217.152, and 217.160, by the applicable compliance date for 35 IAC Part 217 Subparts D and I, the Permittee shall comply with applicable requirements of these rules for the affected galvanizing furnaces, including:

- a. Certifying to the Illinois EPA that each affected galvanizing furnaces will be in compliance with the applicable emission limitation(s) of 35 IAC 217.244(a) by the applicable compliance date.
- b. Operation of each affected galvanizing furnaces in a manner consistent with good air pollution control practices to minimize NO_x emissions.
- c. Compliance with the applicable NO_x emission limitation(s) in accordance with 35 IAC 217.154 or 217.157.
- d. Compliance with the applicable monitoring, recordkeeping and reporting requirements in accordance with 35 IAC 217.157(b) and 217.156.

7.9 Wastewater Treatment Plant

7.9.1 Description

Primary Wastewater Treatment System:

The system is used to treat waste process water generated in both the iron and steelworks manufacturing areas in the facility. Emissions from this system are attributed to the blast furnace (BF) clarifiers, dust ponds, BF ditch, BF lagoon, steelworks ditch, steel works lagoon, and the wastewater treatment plant, itself. The ditches are used to transfer the BF and steelworks wastewater streams to the lagoons. The wastewater treatment plant is a simple system used to remove suspended solids and breakdown organic prior to discharge.

By-Products Wastewater Treatment System:

The system is used to treat waste process water generated in the coke oven by-product plant. Waste process water from the by-products plant is piped to the by-products wastewater treatment plant. The water treated in this system is primarily made up of process wastewater used to cool the processes and equipment used in the by-products plant. The treatment process carried out consists of the use of biological activity to breakdown the organic materials contained in the waste stream.

Note: This narrative description is for informational purposes only and is not enforceable.

7.9.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Date Constructed	Emission Control Equipment
Wastewater Treatment	Equalization Tanks	N/R	None
	BFG Clarifiers		
	Aeration Basin Clarifiers		
	Lagoons		
	Sand Filters		

7.9.3 Applicable Provisions and Regulations

The "affected wastewater treatment system" for the purpose of these unit-specific conditions is the treatment systems described in Conditions 7.9.1 and 7.9.2.

7.9.4 Non-Applicability of Regulations of Concern

- a. The affected wastewater treatment systems are not subject to the operating and control requirements of 40 CFR 61 Subpart FF in general and 40 CFR 61.344 or 40 CFR 61.343 in particular, as provided by 40 CFR 61.342(a). This determination is based on the amount of benzene waste

generated on site being less than 10 Mg/yr (11 ton/yr). If conditions at the facility change and the total annual benzene calculation increases to 10 Mg/yr or more, the facility will become subject to operating and control requirements of 40 CFR 61 Subpart FF and the Permittee must apply for a revision to this permit, which could affect applicable requirements for the affected wastewater treatment plant.

- b. The affected wastewater treatment system is not subject to 40 CFR Part 63, Subpart QQ, National Emission Standards for Surface Impoundments. This determination is based on the applicability criteria of 40 CFR 63.940, which provides that 40 CFR 63 Subpart QQ applies to impoundments when an applicable Subpart of Parts 40 CFR 60, 61 or 63 references the use of Subpart QQ for air emission control. However, applicable Subpart FF does not reference to 40 CFR 63 Subpart QQ.
- c. This permit is issued based on the affected wastewater treatment system not being subject to the applicable requirements of 35 IAC 219.301 because the affected plant does not emit photochemically reactive organic material as defined in 35 IAC 211.4690.

7.9.5 Control Requirements and Work Practices

Control requirements and work practices are not set for the affected wastewater treatment systems.

7.9.6 Production and Emission Limitations

The production and emission limits are not set for the affected wastewater treatment systems.

7.9.7 Testing Requirements

Testing requirements are not set for the affected wastewater treatment systems.

7.9.8 Monitoring Requirements

If operation(s) at the facility change, the Permittee shall evaluate whether the change affects the wastewater treatment systems such that it become subject to the requirements of 35 IAC 219.301 and must apply for a revision of this permit.

7.9.9 Recordkeeping Requirements

No recordkeeping requirements are established at this time.

7.9.10 Reporting Requirements

- a. Pursuant to Section 39.5(7)(f)(ii) of the Act, the Permittee shall promptly notify the Illinois EPA, Air Compliance Section, within 30 days if the following occurs:
 - i. The affected wastewater treatment systems become subject to the control requirements of 40 CFR 61 Subpart FF;
 - ii. The affected wastewater treatment system become subject to 35 IAC 219.301.
- b. The notifications described in Condition 7.9.10 above shall contain the following:
 - i. Date of applicability;
 - ii. Emission units(s)/operation involved; and
 - iii. Method by which compliance would be demonstrated.

7.9.11 Operational Flexibility/Anticipated Operating Scenarios

Operational flexibility is not set for the affected wastewater treatment systems.

7.9.12 Compliance Procedures

Compliance procedures are not set for the affected wastewater treatment systems.

7.9.13 State-Only Conditions

State-only conditions are not established.

7.10 Boilers

7.10.1 Description

Boilers 11 and 12 are located in Boiler House 2 and are rated at 225 mmBtu/hour each. Each of these boilers are physically capable of combusting various combinations of natural gas, coke oven gas (COG) and blast furnace gas (BFG). The Permittee has a construction permit to install Flue Gas Recirculation on these boilers for control of NO_x emissions (Construction Permit 10080022).

The Permittee completed construction of a new boiler pursuant to Construction Permit 06070023. The new boiler (Power Boiler #1) is used for cogeneration, producing both electricity and process steam as it supplies high pressure steam which is sent to a steam turbine that generates electricity for use at the source. Low-pressure steam from this turbine is used for manufacturing operations at the source.

BFG is a primary fuel for this boiler. Natural gas would be used for the pilot flame and also for combustion control.

A cooling tower operates in conjunction with the new boiler and associated steam turbine.

Portable boilers not yet constructed.

Note: This narrative description is for informational purposes only and is not enforceable.

7.10.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Date Constructed	Emission Control Equipment
Boilers	<u>Boiler House 2</u> Boiler 11 & 12 - 225 mmBtu/Hr each	Pre-1973	Flue Gas Recirculation (planned)
	Power Boiler #1 (nominal capacity 505 mmBtu/hour)	2009	None
Portable Boilers	Portable Boilers #1 through #4 (planned)	Planned	Low NO _x burners and Flue Gas Recirculation (planned)
Cooling Tower	Cooling Tower associated with Power Boiler #1	2009	None

7.10.3 Applicable Provisions and Regulations

- a. i. The "affected boilers" for the purpose of these unit-specific conditions, are Boiler #11 and #12 and Power

Boiler #1 as described in Conditions 7.10.1 and 7.10.2.

- ii. The "affected cooling tower" for the purpose of these unit-specific conditions is the unit described in Conditions 7.10.1 and 7.10.2.
- b. i. Affected Boilers #11 and #12 may be subject to 40 CFR Part 63, Subpart DDDDD, NESHAP for Industrial, Commercial, and Institutional Boilers and Process Heaters. For these boilers, pursuant to 40 CFE 63.7540(a), unless an affected boiler is operating as a blast furnace gas fuel-fired boiler, as defined in 40 CFR 63.7575, or is otherwise not subject to this NESHAP, beginning on the compliance date of this NESHAP for existing sources, the Permittee shall comply with each applicable emission limit, operating limit, and work practice standard in Table 2 of this NESHAP according to the methods specified in Table 8 to this NESHAP and relevant provisions in 40 CFR 63.7540(a)(1) through (11), as applicable.
- ii. In particular, if affected Boiler #11 or #12 is in the Gas 2 subcategory (other gaseous fuel) pursuant to 40 CFR 63.7499, the Permittee shall comply with the following emission limits beginning on the applicable compliance date of 40 CFR 63 Subpart DDDDD, pursuant to 40 CFR 63.7500(a)(1) and Table 2 of this NESHAP:
 - A. Particulate Matter (PM) emissions shall not exceed 0.043 lb per mmBtu of heat input or 0.026 lb per mmBtu of steam output (3-run average).
 - B. Hydrogen Chloride (HCl) emissions shall not exceed 0.0017 lb per mmBtu of heat input or 0.001 lb per mmBtu of steam output.
 - C. Mercury (Hg) emissions shall not exceed 1.3E-05 lb per mmBtu of heat input or 7.8E-06 lb per mmBtu of steam output.*
 - D. CO emissions shall not exceed 9 ppm by volume on a dry basis corrected to 3 % oxygen or 0.005 lb per mmBtu of steam output.
 - E. Dioxin/Furans (D/F) emissions shall not exceed 0.08 ng/dscm (TEQ) corrected to 7% oxygen or 3.9E-11 (TEQ) lb per mmBtu of steam output.*
- *
 - 1.3E-05 = 0.00013
 - 7.8E-06 = 0.0000078
 - 3.9E-11 = 0.0000000000039

- c. Affected Boilers #11 and #12 shall not exceed the PM₁₀ limitation of 35 IAC 212.458(b)(9):

32.25 ng/J (0.075 lbs/mmBtu) of heat input from the burning of COG.

- d. The affected Power Boiler #1 is subject to the NSPS for Industrial-Commercial-Institutional Steam Generating Units, 40 CFR 60 Subpart Db. (See relevant recordkeeping requirements in Condition 7.10.9.)
- e. For affected boilers #11 and #12, pursuant to 35 IAC 214.421, no person shall cause or allow the emission of sulfur dioxide into the atmosphere in any one hour period from any existing fuel combustion emission source at a steel mill located in the Chicago or St. Louis (Illinois) major metropolitan area burning any solid, liquid or gaseous fuel, or any combination thereof, to exceed the allowable emission rate determined by the following equation:

$$E = S_s H_s + S_d H_d + S_R H_R + S_G H_G$$

- i. Symbols in the equation mean the following:

E = allowable sulfur dioxide emission rate;

S_s = solid fuel sulfur dioxide emission standard which is applicable;

S_d = distillate oil sulfur dioxide emission standard determined from the table in 35 IAC 214.421(d) and equal to 0.46 kg/MW-hr (0.03 lb/mmBtu);

S_R = residual oil sulfur dioxide emission standard which is applicable;

S_G = maximum by-product gas sulfur dioxide emissions which would result if the applicable by-product gas which was burned had been burned alone at any time during the 12 months preceding the latest operation, on or before March 28, 1983, of an emission source using any by-product gas;

H_s = actual heat input from solid fuel;

H_d = actual heat input from distillate fuel oil;

H_R = actual heat input from residual fuel oil;

H_G = actual heat input from by-product gases, such as those produced from a blast furnace.

- ii. Metric or English units may be used in the equation as follows:

Parameter	Metric	English
E	kg/hr	lbs/hr
S _S , S _R , S _G	kg/MW-hr	lbs/mmBtu
S _d	0.46 kg/MW-hr	0.3 lbs/mmBtu
H _S , H _d , H _R , H _G	MW	mmBtu/hr

- f. The affected boilers are subject to 35 IAC 216.121 which provides that no person shall cause or allow the emission of carbon monoxide into the atmosphere from a fuel combustion emission unit to exceed 200 ppm, corrected to 50 percent excess air [35 IAC 216.121].
- g. The affected power boiler #1 is subject to 35 IAC 212.122(a), which provides that no person shall cause or allow the emission of smoke or other particulate matter into the atmosphere from any fuel combustion emission unit for which construction or modification commenced on or after April 14, 1972, with actual heat input greater than 73.2 MW (250 mmBtu/hr), having an opacity greater than 20 percent.
- h. The affected boilers #11 and #12 are subject to 35 IAC 212.123(a), which provides that no person shall cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from any emission unit other than those emission units subject to 35 IAC 212.122.
- i. Startup Provisions (All affected Boilers)

Pursuant to 35 IAC 201.149 and Part 201, Subpart I, subject to the following terms and conditions for affected Boilers #11, #12 and Power Boiler #1, the Permittee is authorized to violate the applicable opacity and carbon monoxide standards in 35 IAC 212.122(a), 212.123(a) and 216.121 (Conditions 7.10.3(g), (h) and (f)) during startup.

Note: This authorization is provided because the Permittee applied for such authorization in its CAAPP application, generally describing the efforts that will be used "...to minimize startup emissions, duration of individual starts, and frequency of startups."

- i. This authorization does not relieve the Permittee from the continuing obligation to demonstrate that all reasonable efforts are made to minimize startup emissions, duration of individual startups and frequency of startups.
- ii. The Permittee shall conduct startup of the affected boilers in accordance with the manufacturer's written instructions or other written procedures prepared by

the Permittee and maintained at the source (see Condition 7.10.9(d)(i)) for the affected boilers, that are specifically developed to minimize emissions from startups and that include, at a minimum a review of the operational condition of the affected boilers prior to initiating startup of the boiler.

- iii. The Permittee shall fulfill applicable recordkeeping requirements of Condition 7.10.9(d).
- iv. The Permittee shall fulfill applicable notification and reporting requirements of Condition 5.10.5-1.
- v. As provided by 35 IAC 201.265, an authorization in a permit for excess emissions during startup does not shield a Permittee from enforcement for any violation of applicable emission standard(s) that occurs during startup and only constitutes a prima facie defense to such an enforcement action provided that the Permittee has fully complied with all terms and conditions connected with such authorization.

j. Malfunction or Breakdown Provisions (All affected Boilers)

Pursuant to 35 IAC 201.149 and Part 201, Subpart I, subject to the following terms and conditions, the Permittee is authorized to continue to operate affected boilers #11, #12 and Power Boiler #1 in excess of the applicable opacity and carbon monoxide standards in 35 IAC 212.122(a), 212.123(a) and 216.121 (Conditions 7.10.3(g), (h) and (f)) in the event of a malfunction or breakdown.

Note: This authorization is provided because the Permittee has applied for such authorization in its CAAPP application, generally explaining why such continued operation would be required to prevent injury to persons or severe damage to equipment, and describing the measures that will be taken to minimize emissions from any malfunctions and breakdowns.

- i. This authorization only allows such continued operation as necessary to prevent injury to persons or severe damage to equipment and does not extend to continued operation solely for the economic benefit of the Permittee.
- ii. Upon occurrence of excess emissions due to malfunction or breakdown, the Permittee shall as soon as practicable reduce boiler load, repair the affected boiler, remove the affected boiler from service or undertake other action so that excess emissions cease.
- iii. The Permittee shall fulfill the applicable recordkeeping and reporting requirements of Condition

7.10.9(e) and Condition 5.10.5-2. For these purposes, time shall be measured from the start of a particular incident. The absence of excess emissions for a short period shall not be considered to end the incident if excess emissions resume.

- iv. Following notification to the Illinois EPA (see Condition 5.10.5-2(a)(i)) of a malfunction or breakdown with excess emissions, the Permittee shall comply with all reasonable directives of the Illinois EPA with respect to such incident.
- v. This authorization does not relieve the Permittee from the continuing obligation to minimize excess emissions during malfunction or breakdown. As provided by 35 IAC 201.265, an authorization in a permit for continued operation with excess emissions during malfunction and breakdown does not shield the Permittee from enforcement for any such violation and only constitutes a prima facie defense to such an enforcement action provided that the Permittee has fully complied with all terms and conditions connected with such authorization.

7.10.4 Non-Applicability of Regulations of Concern

- a. The emission limitations of 35 IAC 212.324 are not applicable to any emission unit subject to a specific emissions standard or limitation contained in 35 IAC Part 212 Subpart R, pursuant to 35 IAC 212.324 (a)(3).
- b. Affected Boilers #11 and #12 are not subject to 35 IAC 217.141 because the heat input capacity of each of these boilers is below the applicability threshold of this rule (250 mmBtu/hr).
- c. Power Boiler #1
 - i. Affected power boiler #1 is not subject to the NSPS for Electric Utility Steam Generating Units (40 CFR 60, Subpart Da) because it is not an electric utility steam generating unit as the term is defined in 40 CFR 60.41Da.
 - ii. Affected power boiler #1 is not subject to 40 CFR 60, Subpart D because it is subject to the NSPS in 40 CFR 60 Subpart Db as it meets the applicability requirements under 40 CFR 60.40b(a) [40 CFR 60.40b(j)].
 - iii. Affected Power Boiler #1 is not subject to the SO₂ standards of 40 CFR 60, Subpart Db because it meets the exemption provided at 40 CFR 60.42b(k)(2) [See also Condition 7.10.5(b)].

- iv. Affected Power Boiler #1 is not subject to the NO_x standards of 40 CFR 60, Subpart Db pursuant to 40 CFR 60.44b(c), because it has an annual capacity factor for natural gas of 10 percent or less and is subject to a federally enforceable requirement that limits operation to an annual capacity factor of 10 percent or less for natural gas [See Condition 7.10.6(a)(iii)].
- v. Affected Power Boiler #1 is not subject to particulate matter standards under 40 CFR 60, Subpart Db because it does not fire solid or liquid fuels.
- d. Affected Power Boiler #1 is not subject to 35 IAC 217.121 because it is not "fossil fuel-fired" as defined by 35 IAC 211.2425, i.e., a unit for which fossil fuels provide more than 50 percent of the annual heat input to the unit.
- e. Pursuant to 40 CFR 63.7491(k), Power Boiler #1 is not subject to 40 CFR Part 63 Subpart DDDDD because this boiler is a blast furnace gas fuel-fired boiler as defined in 40 CFR 63.7575.
- f. Cooling Tower:
 - i. The affected cooling tower is not subject to 35 IAC 219.986(d), because the cooling tower does not cool process water.
 - ii. The affected cooling tower is not subject to 40 CFR Part 63 Subpart Q because no chromium-based water treatment chemicals are used.

7.10.5 Control Requirements

- a. Requirements for affected Power Boiler #1 from Permit 06070023
 - i. Emissions of PM and PM₁₀ from the affected Power Boiler #1 shall be controlled by the existing BFG pretreatment system, which entails treatment by dust catchers and wet scrubbers [T1].
 - ii. BFG and natural gas shall be the only fuels fired in the affected Power Boiler #1 [T1].
 - iii. Affected Power Boiler #1 shall be operated for the primary purpose of supplying steam and electricity to the source with no more than 219,000 MW-hour of excess electricity sent to any utility power distribution system for sale in any calendar year from the electrical generator associated with the unit [T1].

- b. Pursuant to 40 CFR 60.42b(k) (2), the sulfur content of the fuel fired in Power Boiler #1 shall not exceed 0.16 lb/mmBtu.

- c. Requirements for affected Boilers #11 and #12

Only natural gas, coke oven gas and blast furnace gases are allowed to use as the fuels.

- d. Requirements for affected Cooling Tower

Pursuant to 40 CFR 63.402, the Permittee shall not use chromium-based water treatment chemicals in the water cooling tower.

7.10.5-1 Work Practice Requirements

- a. Pursuant to Sections 39.5(7)(a) and (d) of the Act, unless the Permittee conducts continuous emission monitoring for CO for an affected boiler, the Permittee shall conduct an annual tune-up for the boiler, as follows, to maintain compliance with 35 IAC 216.121. If annual tune-ups or combustion adjustments are required for an affected boiler pursuant to 40 CFR 63, Subpart DDDDD, these tune-ups shall also be conducted in accordance of applicable provisions of this NESHAP.
 - i. Each annual tune-up must be no more than 13 months after the previous tune-up. If the boiler is not operating on the required date for a tune-up, the tune-up must be conducted within one week of startup.
 - ii. Each tune-up shall consist of the following:
 - A. As applicable, inspect the burner, and clean or replace any components of the burner as necessary (the burner inspection may be delayed until the next scheduled unit shutdown, but each burner must be inspected at least once every 36 months);
 - B. Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern. The adjustment should be consistent with the manufacturer's specifications, if available;
 - C. Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly; and

- D. Optimize total emissions of CO. This optimization should be consistent with the manufacturer's specifications, if available.
- iii. Measure the concentrations in the effluent stream of CO in parts per million by volume (ppmv), and oxygen in volume percent, before and after the adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made); and
- iv. Submit a report to the Illinois EPA within 30 days of each tune-up that contains the following information:
 - A. The identity of the boiler, the date of the tune-up and the individual(s) who performed the tune-up and a summary of their experience with combustion tune-ups of boilers.
 - B. The concentrations of CO in the effluent stream in ppmv and oxygen in volume percent, measured before and after the adjustments of the boiler;
 - C. A description of any corrective actions taken as a part of the combustion adjustment; and
 - D. The type and amount of fuel used over the 12 months prior to the annual adjustment.
- b. Pursuant to 40 CFR 63.7530(h), for an affected boiler that is subject to emission limits in 40 CFR 63 Subpart DDDDD, the Permittee must minimize the boiler's startup and shutdown periods following the manufacturer's recommended procedures, if available. If manufacturer's recommended procedures are not available, the Permittee must follow recommended procedures for a boiler of similar design for which manufacturer's recommended procedures are available.

7.10.6 Operational, Production and Emission Limitations

- a. Limitations for affected Power Boiler #1 from Permit 06070023:

Note: Permit 06070023 includes certain limitations that apply to the combination of affected power boiler #1 and BFG flare #2, which is a new flare that was also constructed with the boiler. BFG flare #2 is generally addressed in Section 7.4 of this CAAPP permit.

- i. The maximum design firing rate of affected Power Boiler #1 shall not exceed 505 mmBtu/hour [T1].
- ii. The maximum design BFG input of affected Power Boiler #1 shall not exceed 476 mmBtu/hour [T1].

- iii. Fuel usage for affected Power Boiler #1 and BFG flare #2 (see Section 7.4) shall not exceed the following limits (rolling 12-month basis) [T1]:
- A. Natural gas: 341,666 mmBtu/year.
- B. BFG and natural gas fuel usage combined: 4,511,426 mmBtu/year.
- iv. Emissions of PM from affective Power Boiler #1, as measured by USEPA Method 5, shall not exceed 0.03 lb/mmBtu of exhaust [T1].
- v. A. Emissions from affective Power Boiler #1 shall not exceed the following limits [T1]:

Pollutant	Mode	
	BFG* (Lbs/mmBtu)	Natural Gas (Lbs/mmBtu)
NO _x	0.05	0.12
CO	0.15	0.0824
VOM	---	0.0054
PM/PM ₁₀	0.101	0.0075
SO ₂	0.20	0.0006
Indiv. Metal HAP	0.00066	0.00066
Total HAPs	0.0053	0.0053

* BFG mode entails firing a mix of BFG with up to 10 percent natural gas.

- B. Compliance with these limits shall be determined as a 3-hour average unless continuous emissions monitoring is conducted, in which compliance shall be determined as a daily average (24 operating hours).
- C. Combined emissions from affected Power Boiler #1 and BFG flare #2 (see Section 7.4) shall not exceed the following limits [T1]:

Pollutant	Emissions	
	Tons/Month	Tons/Year
NO _x	12.5	124.74
CO	33.9	338.36
VOM	0.1	0.92
PM/PM ₁₀	22.9	228.39
SO ₂	45.2	451.14
Indiv. Metal HAP	0.2	1.5
Total HAPs	1.2	12.0

- D. Compliance with annual limits in Condition 7.10.6(a) shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12

month total), unless otherwise specified in a particular condition.

- b. Limits for the affected Cooling Tower from Permit 06070023 [T1]:
 - i. The total dissolved solids content of water circulating in the affected cooling tower shall not exceed 4,190 ppm on a monthly basis.
 - ii. Emissions of PM/PM₁₀ from the affected cooling tower shall not exceed 0.39 tons/month and 3.86 tons/year. Compliance with the annual limit shall be determined from a running total of 12 months of data.

7.10.7-1 Current Testing Requirements

The Permittee shall conduct emission testing for the affected boilers as provided below pursuant to Sections 39.5(7)(c), (d) and (p) of the Act.

- a. Requirements for affected Boilers #11 and #12:
 - i. PM and CO emissions shall be measured to determine compliance with 35 IAC 212.458(b)(9) (Condition 7.10.3(c)) and 35 IAC 216.121 (Condition 7.10.3(f)) in accordance with procedures in USEPA Methods 1 through 4 and Method 5 (or Method 201A), as provided in 35 IAC 212.108, and Method 10 or 10B.
 - ii. The testing shall be completed within 30 months of the effective date of this permit condition and may be done on either affected Boiler #11 or #12, as selected by the Illinois EPA.
 - iii. In addition to other required information, the test report shall include data for the sulfur and PM content of BFG and COG during the period of testing, with supporting data.
- b. Requirements for affected Power Boiler #1:
 - i. Permittee shall conduct emission tests at least every five years on the affected Power Boiler #1.
 - ii. CO, NO_x, SO₂, PM₁₀, PM and VOM emissions shall be determined in accordance with the test methods identified below.
 - iii. These tests shall also include measurements of emissions of metals if the Permittee elects to conduct emissions testing to verify compliance with the limits for metal HAPs, as an alternative to applying data for the metal HAP content of material collected during pretreatment of the BFG.

- iv. The following USEPA test methods shall be used for testing of emissions, unless another USEPA method is approved by the Illinois EPA.

Location of Sample Points	Method 1
Gas Flow and Velocity	Method 2
Flue Gas Weight	Method 3
Moisture	Method 4
SO ₂	Method 6
PM/PM ₁₀ (filterable	Methods 201 or 201A*
PM (condensable)	Method 202
VOM	Method 18 or 25A
NO _x	Method 7E or 19
CO	Method 10 or 10B
Metals	Method 29

* The Permittee may also use Method 5 as an alternative to Method 201A, provided that the measured results shall be considered PM₁₀.

- v. In addition to other required information, the test report shall include data for the sulfur and PM content of BFG and the metals content of the material removed from raw BFG by the pretreatment system during the period of testing, with supporting calculations.
- c. For this emission testing, test notifications and reporting shall be done by the Permittee in accordance with Conditions 8.6.2 and 8.6.3 of this permit.
- d. Observation of opacity shall be conducted during all emission tests of affected boilers in accordance with Method 9 and the results of these observations included in the reports for emission testing.

7.10.7-2 Additional Performance Testing Requirements (40 CFR Part 63, Subpart DDDDD)

- a. Pursuant to 40 CFR 63.7505(c) and 63.7510, if affected Boiler #11 or #12 is subject to emission limits in 40 CFR 63 Subpart DDDDD, the Permittee must demonstrate compliance with all limits that are applicable using performance testing according to 40 CFR 63.7(a)(2) and 63.7520 and fuel analysis according to 40 CFR 63.7521, including a continuous emissions monitoring system (CEMS) where applicable, in a timely manner. The Permittee may demonstrate compliance with the applicable emission limit for hydrogen chloride or mercury using fuel analysis if the emission rate calculated according to 40 CFR 63.7530(c) is less than the applicable emission limit. Otherwise, the Permittee must demonstrate compliance for hydrogen chloride or mercury using performance testing.

- i. Pursuant to 40 CFR 63.7545(d), the Permittee must submit a Notification of Intent to conduct a performance test at least 60 days before the performance test is scheduled to begin.
 - ii. Pursuant to 40 CFR 63.7510(a), performance tests shall be conducted according to 40 CFR 63.7520(a), (c), (d) and (e) and Table 5 to 40 CFR 63, Subpart DDDDD fuel analysis for each type of fuel burned in the boiler shall be conducted according to 40 CFR 63.7521(a), (b) and (e) and Table 6 to 40 CFR 63, Subpart DDDDD, and performance evaluations for the oxygen monitor shall be conducted according to 40 CFR 63.7525.
- b. Pursuant to 40 CFR 63.7530(g), if the Permittee elects to demonstrate that the gaseous fuel fired in affected Boiler #11 or #12 meets the specifications of an "other gas 1 fuel" as defined in 40 CFR 63.7575, an initial fuel specification analyses according to 40 CFR 63.7521(f) through (i) must be conducted.
- i. If the mercury and hydrogen sulfide constituents in the gaseous fuels will never exceed the specifications included in the definition, the Permittee shall include a signed certification with the Notification of Compliance Status that the initial fuel specification test meets the gas specifications outlined in the definition of other gas 1 fuels.
 - ii. Pursuant to 40 CFR 63.7540(c), if the Permittee elects to demonstrate that the unit meets the specifications for hydrogen sulfide and mercury for the other gas 1 subcategory and cannot submit a signed certification under 40 CFR 63.7545(g) because the constituents could exceed or vary above the specifications, the Permittee must conduct monthly fuel specification testing of the gaseous fuels, according to the procedures in 40 CFR 63.7521(f) through (i) and 40 CFR 63.7540(c) and maintain records of the results of the testing as outlined in 40 CFR 63.7555(g).

7.10.8-1 Current Monitoring Requirements

Pursuant to 39.5(7)(a) and (d) of the Act, all affected boilers and the cooling tower are subject to the following monitoring requirements:

a. Opacity Observations

The Permittee shall conduct opacity observations for each affected boiler semi-annually in accordance with 40 CFR Part 60, Appendix A, Method 9. The duration of these

observations shall be a minimum of 30 minutes for each boiler.

b. Cooling Tower

- i. The Permittee shall sample and analyze the water being circulated in the affected cooling tower on at least a monthly basis for the total dissolved solids content.
- ii. Upon written request by the Illinois EPA, the Permittee shall have the water circulating in the affected cooling tower sampled and analyzed for the presence of hexavalent chromium in accordance with the procedures of 40 CFR 63.404(a) and (b).

c. Analysis of BFG

- i. The Permittee shall sample and analyze cleaned BFG after the pretreatment system for sulfur content (lb/scf and lb/mmBtu), using appropriate ASTM methods or other comparable methodology. These measurements shall be conducted on at least a quarterly basis. The records for this activity shall also include operating data for the blast furnaces and the BFG pretreatment system at the time of sampling.
- ii. The Permittee shall sample and analyze the cleaned BFG after the pretreatment system for PM content (gr/scf and lbs/mmBtu) and the material collected by the BFG pretreatment system for HAP metal content (by weight, dry basis, for individual metals as addressed by Method 29) using appropriate ASTM methods or other comparable methodology. These measurements shall be conducted at least every two years. The records for this activity shall also include operating data for the blast furnaces and the BFG pretreatment system at the time of sampling.

7.10.8-2 Additional Monitoring Requirements (40 CFR Part 63 Subpart DDDDD)

Unless an affected boiler is operating as a blast furnace gas fuel-fired boiler, as defined in 40 CFR 63.7575, or is otherwise exempt, beginning on the compliance date of this NESHAP for existing sources, the Permittee must:

- a. Install, operate, and maintain a continuous oxygen monitor according to the procedures in 40 CFR 63.7525 (a)(1) through (6) and 63.7535. The oxygen level shall be monitored at the outlet of the boilers [40 CFR 63.7525(a)].
- b. Monitor the operating parameters identified in Items 7, 8 and 9 of Table 8 of 40 CFR 63 Subpart DDDDD [40 CFR 63.7540(a)].

- c. Operation above the established maximum or below the established minimum operating limits shall constitute a deviation of established operating limits listed in Table 4 of 40 CFR 63 Subpart DDDDD except during performance tests conducted to determine compliance with the emission limits or to establish new operating limits. Operating limits must be confirmed or reestablished during performance tests [40 CFR 63.7540(a)(1)].

7.10.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items, pursuant to Sections 39.5(7)(a) and (e) of the Act:

a. Affected Power Boiler #1:

- i. A file which contains supporting documentation which demonstrates the maximum design firing rate of the affected boiler (mmBtu/hour), the maximum design BFG input, and the manufacturer's guarantees for the emission rates of the natural gas burners in the affected boiler.
- ii. NSPS Data
 - A. The applicable recordkeeping required by the NSPS for startup, shutdown and malfunction, pursuant to 40 CFR 60.7(b).
 - B. Daily records of the fuel consumption, pursuant to 40 CFR 60.49b(d)(1).
- iii. Fuel usage
 - A. Records for the amounts of fuel burned by type (mmBtu/month and mmBtu/year) for the affected boiler.
 - B. Records for the amounts of fuel burned for the affected boiler and the new BFG flare, combined, by type (mmBtu/month and mmBtu/year).
- iv. Emissions

The Permittee shall keep the following records related to the emissions of affected Power Boiler #1 to verify compliance with the applicable limits in Condition 7.10.6(a):

- A. A file containing the emission factors used by the Permittee to determine emissions of pollutants other than SO₂ from the affected boiler and BFG Flare #2, with supporting documentation. These records shall be reviewed

and updated by the Permittee as necessary to assure that the emission factors that it uses to determine emissions of the affected boiler do not understate actual emissions. These records shall be prepared and copies sent to the Illinois EPA in accordance with Condition 5.9.6(c).

- B. Records of emissions of NO_x, CO, VOM, PM/PM₁₀, SO₂ and HAPs (tons/month and tons/year) from this boiler, with supporting calculations.
- C. Records of summation of emissions of NO_x, CO, VOM, PM/PM₁₀, SO₂ and HAPs from this boiler and BFG Flare #2 (tons/month and tons/year), with supporting calculations.
- v. Records of the electricity from the generator associated with Power Boiler #1 sent to the grid for sale per calendar year (MW-hours).
- b. Affected Cooling Tower:
 - i. The Permittee shall keep records of the water circulation capacity of the cooling tower (gallons/minute, hourly average), with supporting calculations.
 - ii. The Permittee shall keep records of emissions of PM/PM₁₀ (tons/month and tons/year), with supporting calculations.
- c. Affected Boilers #11 and #12:
 - i. The following operating information for each boiler:

Usage of each type of fuel (natural gas, COG and BFG gas), in million ft³ per month and million ft³ per year.
 - ii. The Permittee shall keep inspection, maintenance, and repair logs with dates and the nature of such activities for each boiler.
 - iii. A file containing the emission factors used by the Permittee to determine emissions of NO_x and CO from affected Boilers #11 and #12, with supporting documentation. These records shall be reviewed and updated by the Permittee as necessary to assure that the emission factors that it uses to determine NO_x and CO emissions of these boilers do not understate actual emissions.
- d. Records for Startups of Affected Boilers, pursuant to Section 39.5(7)(b) of the Act

- i. The Permittee shall maintain startup procedures for each affected boiler, as required by Condition 7.10.3(i)(ii).
- ii. The Permittee shall maintain the following records for each startup of an affected boiler:
 - A. Date, time and duration of the startup.
 - B. A description of the startup and reason(s) for the startup.
 - C. Whether a violation of an applicable standard may have occurred during startup accompanied by the information in Condition 7.10.9(d)(iv) if a violation may have or did occur.
 - D. Whether the established startup procedures, maintained above, were followed accompanied by the information in Condition 7.10.9(d)(iii) if there were departure(s) from those procedures.
- iii. If the established startup procedures were not followed during a startup, the Permittee shall maintain the following records:
 - A. A description of the departure(s) from the established procedures.
 - B. The reason(s) for the departure(s) from the established procedures.
 - C. An explanation of the consequences of the departure(s) for emissions, such as whether the departure(s) prolonged the startup or resulted in additional emissions, and if so:
 - 1. The actions taken to minimize emissions and the duration of the startup; and
 - 2. An explanation whether similar incidents might be prevented in the future and if so, the corrective actions taken or to be taken to prevent similar incidents.
- iv. If a violation did or may have occurred during a startup, the Permittee shall maintain the following records:
 - A. Identification of the applicable standard(s) that were or may have been violated.

- B. An explanation of the nature of such violation(s), including the magnitude of such excess emissions.
- C. A description of the actions taken or to be taken to minimize the magnitude of emissions and duration of the startup.
- D. An explanation whether similar incidents could be prevented or ameliorated in the future and if so, a description of the actions taken or to be taken to prevent similar incidents in the future.

e. Records for Malfunctions or Breakdowns

Pursuant to 35 IAC 201.263, the Permittee shall maintain records of continued operation of the affected boilers as addressed by Condition 7.10.3(j), during malfunctions or breakdowns, which at a minimum, shall include the following records. The preparation of these records shall be completed within 45 days of an incident, unless the Permittee conducts a root cause analysis for the incident, in which case the preparation of these records, other than the root cause analysis, shall be completed within 120 days of the incident.

- i. Date, time and duration of the incident.
- ii. A detailed description of the incident, including:
 - A. A chronology of significant events during and leading up to the incident.
 - B. Relevant operating data for the unit, including information such as operator log entries and directives provided by management during the incident.
 - C. The measures taken to reduce the quantity of emissions and the duration of the incident including the resources utilized to address the incident.
 - D. The magnitude of emissions during the incident.
- iii. An explanation why continued operation of an affected boiler was necessary to prevent personnel injury or prevent equipment damage.
- iv. A discussion of the cause(s) or probable cause(s) of the incident including the following:
 - A. Whether the incident was sudden, unavoidable, or preventable, including:

1. Why the equipment design did not prevent the incident;
 2. Why better maintenance could not have avoided the incident;
 3. Why better operating practices could not have avoided the incident; and
 4. Why there was no advance indication for the incident.
- B. Whether the incident stemmed from any activity or event that could have been foreseen, avoided or planned for.
- C. Whether the incident was or is part of a recurring pattern indicative of inadequate design, operation or maintenance.
- v. A description of any steps taken or to be taken to prevent similar future incidents or reduce their frequency and severity.
- vi. As an alternative to keeping the records required by Condition 7.10.9(e)(iv), the Permittee may perform a root cause analysis. For this purpose, a root cause analysis is an analysis whose purpose is to determine, correct and eliminate the primary causes of the incident and the excess emissions resulting there from. If the Permittee performs a root cause analysis method that would define the problem, define all causal relationships, provide a causal path to the root cause, delineate the evidence, and provide solutions to prevent a recurrence. Such an analysis shall be completed within one year of the incident.
- f. Records for the emission testing conducted on the affected boilers.
- g. If the Permittee operates under manufacturer's specifications or manufacturer's instructions, such manufacturer's documentation shall be kept at the source as part of the required records.
- h. Unless an affected boiler is operating as a blast furnace gas fuel-fired boiler, as defined in 40 CFR 63.7575, or is otherwise exempt, beginning on the compliance date of this NESHAP for existing sources, the Permittee must keep records in accordance with 40 CFR 63.7555(a) through (h) as applicable.

7.10.10 Reporting Requirements

- a. i. The Permittee shall promptly notify the Illinois EPA, Air Compliance Section, within 30 days of deviations of the affected boilers and affected cooling tower from the following applicable requirements unless a NESHAP standard specifies a different time frame, pursuant to Section 39.5(7)(f)(ii) of the Act:
 - A. Requirements in Condition 7.10.3(b), (d) and (e) through (h).
 - B. Requirements in Condition 7.10.5.
 - C. Requirements in Condition 7.10.6.
- ii. All such deviations shall be summarized and reported as part of the semiannual monitoring report required by Condition 8.6.1.
- b. The Permittee shall notify the Illinois EPA, Air Compliance Section, of all other deviations as part of the semiannual monitoring reports required by Condition 8.6.1.
- c. All deviation reports described in Condition 7.10.10(a) and (b) above shall contain the following:
 - i. Date, time and duration of the deviation;
 - ii. Description of the deviation;
 - iii. Probable cause of the deviation; and
 - iv. Any corrective actions or preventive measures taken.
- d. Reporting on the State malfunction and breakdown authorization shall be performed in accordance with Condition 5.10.5-2.
- e. For affected Power Boiler #1, the Permittee shall comply with the applicable reporting requirements of the NSPS, as specified in 40 CFR 60.7 and 60.49b.
- f. Unless an affected boiler is operating as a blast furnace gas fuel-fired boiler, as defined in 40 CFR 63.7575, or is otherwise exempt, beginning on the compliance date of this NESHAP for existing sources, the Permittee must report each instance in which it did not meet each emission limit and operating limit in Tables 1 through 4 to 40 CFR 63 Subpart DDDDD that are applicable. These instances are deviations from the established emission limits. These deviations must be reported according to the requirements in 40 CFR 63.7550.

- g. Reporting on the State startup authorization shall be performed in accordance with Condition 5.10.5-1.
- h. Reporting on the Federal SSM authorization shall be performed in accordance with Condition 5.10.5-3.

7.10.11 Compliance Procedures

For affected boilers, compliance with the applicable standards of Condition 7.10.3, the work practice requirements of Condition 7.10.5-1, and the production/operating and the emission limits of Condition 7.10.6 is addressed by the work practices, testing, monitoring, recordkeeping and reporting requirements in Section 7.10 of this permit.

7.10.12 State-Only Conditions

- a. Applicable requirements for affected Boilers #11 and #12 from Permit 10080022:
 - i. Pursuant to 35 IAC 217.150, 217.152, and 217.160, by the applicable compliance date for 35 IAC Part 217 Subparts D and E, the Permittee shall comply with applicable requirements of these rules for the affected boilers, including:
 - A. Compliance with the applicable NO_x emissions limitation in lb/mmBtu, calculated in accordance with 35 IAC 217.164(b), on an ozone season (May 1 through September 30) and annual basis [35 IAC 217.164(b)].
 - B. Operation of each affected boiler in a manner consistent with good air pollution control practices to minimize NO_x emissions [35 IAC 217.150(e)].
 - C. Certifying to the Illinois EPA that the affected boilers will be in compliance with the applicable emissions limitation of 35 IAC 217.164 by the applicable compliance date [35 IAC 217.152 and 217.155(b)].
 - D. Installation, operation and maintenance of a Continuous Emissions Monitoring System (CEMS) on each affected boiler to measure emissions of NO_x, with accompanying recordkeeping and reporting for the operation and maintenance of each CEMS [35 IAC 217.157(a)(2) and 217.156(b)(9), (b)(10) and (j)].

ii. Recordkeeping Requirements [39.5(7)(e) of the Act]

Beginning on the compliance date of 35 IAC 217 Subparts D and E, the Permittee shall keep the following records for each Boiler #11 and #12:

- A. Usage of each type of fuel (natural gas, coke oven gas and blast furnace gas), in million ft³ per month and million ft³ per year.
- B. The actual heat input in mmBtu per ozone season and mmBtu per year, for each fuel, with supporting documentation for the heat content of each fuel.
- C. The applicable NO_x emission limitation in lb/mmBtu for each ozone season and each calendar year, calculated in accordance with 35 IAC 217.164(b).
- D. The average hourly NO_x emission data.
- E. The ozone season and annual NO_x emissions (pounds).
- F. The ozone season average and annual average NO_x emission rates (lbs/mmBtu heat input) calculated within 30 days of the end of the averaging periods (i.e. calculated by October 30 for ozone season averaging period and by January 30 for annual averaging period).
- G. Inspection, maintenance, and repair logs with dates and the nature of such activities for each affected boiler.

iii. Reporting Requirements [39.5(7)(f) of the Act]

If there is any deviation of the requirements of Condition 7.10.12, the Permittee shall promptly report to the Illinois EPA as specified below and report shall include a description of the deviation, the probable cause of the deviation, corrective actions taken, and any preventive measures taken:

- A. Deviations from the NO_x emission limitation in 35 IAC 217.164(b) shall be reported within 30 days of such occurrence.
- B. Other deviations shall be reported in a semi-annual report.

7.10.13 Construction Permit Conditions for Equipment that is not yet built

Applicable requirements for portable Boilers #1 through #4 from Permit 10100042:

- a. Pursuant to the NSPS, 40 CFR 60.11(d), at all times the Permittee shall, to the extent practicable, maintain and operate each portable boiler in a manner consistent with good air pollution control practices for minimizing emissions.
- b. Pursuant to 35 IAC 216.121, the emission of carbon monoxide (CO) from each portable boiler shall not exceed 200 ppm, corrected to 50 percent excess air.
- c. Pursuant to 35 IAC 212.123(a), the opacity of the exhaust from each portable boiler shall not exceed 30 percent, except as provided in 35 IAC 212.123(b).
- d. This permit is issued based on the emissions of HAPs as listed in Section 112(b) of the Clean Air Act from the affected boilers being less than 10 tons per year of a single HAP and 25 tons per year of any combinations of such HAPs, so that these boilers are considered a minor source for HAPs.
- e. This permit is issued based on the portable boilers not being subject to the control requirements of 35 IAC 217, Subparts D and E, which establish requirements that reflect Reasonably Available Control Technology (RACT) for boilers related to emission of nitrogen oxide (NO_x). This is because the NO_x emissions from each portable boiler are restricted to less than 15 tons per year and to less than 5 tons per ozone season, pursuant to 35 IAC 217.150(a), as addressed further.
- f. Natural gas shall be the only fuel fired in the portable boilers.
- g. The maximum design heat input capacity of each portable boiler, as defined by the NSPS, 40 CFR 60.41c, shall not exceed 100 mmBtu/hour.

Note: If a portable boiler were to have a heat input capacity of greater than 100 mmBtu/hr, it would be subject to the NSPS, 40 CFR 60 Subpart Db, rather than Subpart Dc.

- h.
 - i. The total consumption of natural gas by the portable boilers shall not exceed 1,738 million scf per year, combined.
 - ii. Beginning Calendar year 2012 or such later date, the natural gas usage by each portable boiler shall not exceed 812 million scf per year and 267 million scf

during each ozone season (May 1 through September 30).

- i. The portable boilers shall only be used to address interruptions in the normal steam supply to the Granite City Works. For this purpose, the portable boilers and existing boilers may operate simultaneously, as may be needed to ensure availability of the portable boilers and facilitate transitions between existing boilers and the portable boilers.
- j.
 - i. Short-term emissions from each portable boiler shall not exceed 0.036 lb of NO_x/mmBtu and 3.6 and 3.8 lbs/hour, for NO_x and CO, respectively.
 - ii. Annual emissions from the portable boilers, combined shall not exceed the following limits. These limits are established based on total fuel usage of 1,738 million scf per year. Compliance with these limitations and the annual fuel consumption limit shall be determined from a running total of 12 months of data.

Pollutant	Emission Limit (ton/year)
NO _x	31.9
CO	33.2
VOM	3.5
PM/PM ₁₀ /PM _{2.5}	1.1
SO ₂	1.3
Individual HAP ¹	1.8
Total HAP	3.5

¹ Individual HAP refers to individual pollutants, such as Formaldehyde, Benzene, Toluene, Hexane, etc.

- k. Beginning Calendar Year 2012, the NO_x emissions of each portable boiler shall be less than the applicability thresholds of 35 IAC 217, Subparts D and E, i.e., less than 15 tons per year and less than 5 tons during each ozone season.
- l. The Permittee shall operate and maintain the portable boilers in accordance with good air pollution control practices to assure proper functioning of equipment and minimize malfunctions, including maintaining the boiler in accordance with written procedures developed for this purpose.
- m. Within 90 days after a written request from the Illinois EPA or such later date agreed to by the Illinois EPA, the Permittee shall have NO_x and CO emissions of portable

boiler(s), as specified in the request, measured by an independent testing service approved by the Illinois EPA.

- n. The Permittee shall maintain the following records for the portable boilers:
 - i. A file containing the following information:
 - A. The maximum design heat input capacity of each portable boiler, mmBtu/hour, with supporting documentation.
 - B. The maximum fuel flow rate to each portable boiler, in scf/hour and mmBtu/hour, with supporting documentation.
 - C. The guarantee or other information for the NO_x and CO emission rates of each portable boiler, in lb/hour and in lb/mmBtu (NO_x only), with supporting documentation.
 - ii. An operating log or other records for the portable boilers that, at a minimum, shall include the following information:
 - A. Information identifying each period when portable boiler(s) are operated, with the explanation why the boiler(s) need to be operated to maintain the normal steam supply for the source.
 - B. If the maximum design heat input capacity of the portable boiler is more than 95 mmBtu/hour, operating records to demonstrate that the boiler is not fired at more than 100 mmBtu/hour.
 - C. Information for each startup and shutdown, including date, time and duration, as required by 40 CFR 60.7(b).
 - D. Information for any incident in which the operation of each portable boiler continued during malfunction or breakdown, as required by 40 CFR 60.7(b). These records shall include date, time, and duration; a description of the incident; whether emissions exceeded or may have exceeded any applicable standard; a description of the corrective actions taken to reduce emissions and the duration of the incident; and a description of the preventative actions taken.

- iii. An inspection, maintenance, and repair log with dates and the nature of such activities for the portable boilers.
- iv. The following records for the natural gas usage of the portable boilers:
 - A. Natural gas usage of each boiler, pursuant to 40 CFR 60.48c(g) (scf/month).
 - B. Total natural gas usage of the boilers (scf/year).
- v. Records of the monthly and annual emissions of NO_x, CO, PM/PM₁₀/PM_{2.5}, VOM, SO₂, and HAPs from the boilers (tons/month and tons/year), with supporting data and calculations.
- vi. Beginning Calendar year 2012, records of NO_x emissions for each portable boiler for the calendar year (ton/year) and for the ozone season (ton/season).
- o. Pursuant to 40 CFR 60.7(a)(3) and 60.48c(a), the Permittee shall furnish the Illinois EPA with written notification of initial startup of each portable boiler. This notification shall be submitted within 15 days after the initial startup of the portable boiler, postmarked by such date, and include the following information. For this purpose, a separate notification shall be provided each time that portable boiler(s) are installed at the Granite City Works.
 - i. The design heat input capacity of the boiler and identification of the fuels to be combusted in the boiler, pursuant to 40 CFR 60.48c(a)(1).
 - ii. The annual capacity factor at which the Permittee anticipates operating the boiler based on fuel fired, pursuant to 40 CFR 60.48c(a)(3).
 - iii. With the notification required from above, the Permittee shall also provide the manufacturer and serial number of portable boiler(s).
- p. The Permittee shall notify the Illinois EPA of deviations of the portable boilers with the requirements of Condition 7.10.13 within 30 days of an occurrence. Reports shall describe the deviation, the probable cause of such deviations, the corrective actions taken, and any preventive measures taken.

7.11 Internal Combustion Engine

7.11.1 Description

A diesel fuel fired emergency engine-generator is used for power outages at the facility.

Note: This narrative description is for informational purposes only and is not enforceable.

7.11.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Date Constructed	Emission Control Equipment
Engine	Emergency Engine-Generator (maximum power output 3,500 HP)	2001	None

7.11.3 Applicable Provisions and Regulations

- a. The "affected engine" for the purpose of these unit-specific conditions, is the emission unit described in Conditions 7.11.1 and 7.11.2.
- b. The affected engine is subject to 35 IAC 212.458(b)(7) and (c), which provides that its PM₁₀ emissions shall not exceed 22.9 mg/scm (0.01 gr/scf), provided however that this limit shall not apply if there are no visible emissions, except if a stack test is performed. The absence of visible emissions is not a defense to a finding violation.
- c. The affected engine is subject to 35 IAC 212.123(a), which provides that no person shall cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from any emission unit other than those emission units subject to the requirements of 35 IAC 212.122, except as allowed by 35 IAC 212.123(b) and 212.124.
- d. The affected engine is subject to 35 IAC 214.301 and 35 IAC 214.304/214.122, which provides that no person shall cause or allow the emission of sulfur dioxide into the atmosphere from any process emission source to exceed 2000 ppm and from any fuel burning process emission unit burning distillate oil to exceed 0.3 lbs/mmBtu.

7.11.4 Non-Applicability of Regulations of Concern

- a. The affected engine is not subject to 40 CFR Part 63 Subpart ZZZZ because it is not a spark ignition engine.
- b. The affected engine is not subject to 40 CFR Part 60 Subpart IIII, because the affected engine was manufactured before 2006 and was not modified or reconstructed

thereafter, so does not meet applicable criteria in 40 CFR 60.4200(a).

- c. The affected engine is not subject to 35 IAC Part 217, because the affected engine is not a type of process emission unit addressed by Part 217.
- d. The affected engine is not subject to the requirements of 35 IAC 212.321 because it does not have a process weight rate as defined in 35 IAC 211.5250.
- e. The affected engine is not subject to 35 IAC 216.121, because the affected engine is not by definition a fuel combustion emission unit.
- f. 35 IAC 212.324 is not applicable to the affected engine pursuant to 35 IAC 212.324(a)(3), because the affected engine is subject to 35 IAC 212.458(b)(7), an emission limitation in 35 IAC Part 212, Subpart R.

7.11.5 Control Requirements and Work Practices

The operation of the emergency generator is limited to 500 hours per year [00060003, T1].

7.11.6 Production and Emission Limitations from Permit 00060003 [T1]

- a. Emissions of the affected engine shall not exceed the following limits:

Pollutant	Emissions (lbs/hr)	Emissions (T/yr)
PM	2.48*	0.62
CO	21.11*	5.3
NO _x	79.49*	19.9
SO ₂	12.54	3.1

- * Operation at a level of 10 percent higher than the applicable hourly emissions limits above is allowed during startup.

- b. Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total) [T1].

7.11.7 Testing Requirements

Upon the written request from the Illinois EPA, the emission tests shall be conducted by the Permittee for the affected engine to verify compliance with emission limits in Condition 7.11.6 as follows [Sections 39.5(7)(c), (d) and (p) of the Act].

- a. The following USEPA test methods shall be used, unless another USEPA method is approved by the Illinois EPA.

Location of Sample Points	Method 1
Gas Flow and Velocity	Method 2
Flue Gas Weight	Method 3
Moisture	Method 4
PM	Method 5
NO _x	Method 7E or 19
CO	Method 10 or 10B

- b. Observations of opacity shall be conducted during these emission tests in accordance with Method 9 and the results of these observations included in the reports for emission testing.
- c. For this emission testing, test notifications and reporting shall be done by the Permittee in accordance with Conditions 8.6.2 and 8.6.3 of this permit.

7.11.8 Monitoring Requirements

- a. The Permittee shall perform annual sampling and analysis for sulfur content (lbs/mmBtu) in the fuel for the affected engine or obtain a certification for each fuel supplied delivery for the affected engine [Section 39.5(7)(d) of the Act].
- b. The Permittee shall conduct opacity observations for the affected engine in accordance with Method 9 on an annual basis if the affected engine starts for purposes of reliability testing. The duration of Method 9 test shall be equal to 30 minutes or the duration of the reliability test, whichever is less [Section 39.5(7)(p) of the Act].

7.11.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items for the affected engine, pursuant to Sections 39.5(7)(a) and (e) of the Act:

- a. A file for the affected engine containing:
 - i. The manufacturer's emission guarantees or emission data for the engine, for PM, CO and NO_x, both during normal operation and startup (lbs/hour and lbs/gallon) and manufacturer's data for fuel consumption and exhaust flow rate from the engine, with supporting documentation.
 - ii. Engineering calculations to demonstrate that PM emissions comply with 35 IAC 212.458(b)(7) and to determine the greatest sulfur content (lbs/mmBtu) in fuel with which compliance with 35 IAC 214.301 and 35 IAC 214.304/214.122 would be shown.

- iii. The emission rate(s) used by the Permittee to determine emissions of the affected engine when these rates are different from the manufacturer's rates, accompanied by supporting documentation. Copies of these records shall be submitted to the Illinois EPA, with initial records submitted within 15 days of the date that the records are prepared or 30 days after the effective date of this permit, whichever is later and subsequent revisions to these records submitted within 15 days of the date that the Permittee completes preparation of revised records.
- b. Records of fuel consumption (gal/month and gal/year).
- c. Records of hours of operation (hrs/yr).
- d. Records for number of startups.
- e. Records for the sulfur content (lbs/mmBtu) of fuel as determined by sampling and analyses of fuel or copies of supplier certifications for sulfur content of fuel and identification of any use of oil whose sulfur content exceeded the level for compliance, as determined pursuant to Condition 7.11.9(a)(ii).
- f. Records of emissions of PM, CO, NO_x and SO₂ (tons/month and tons/year) from the engine with supporting calculations. For this purpose, PM, CO and NO_x emissions shall be calculated from fuel usage and number of startups and the manufacturer's emission guarantees for emission rates or such higher emission rate(s) that accurately reflect actual operation of the engine. SO₂ emissions shall be calculated from the sulfur content of the fuel and fuel usage, assuming complete conversion of sulfur to SO₂.
- g. Records for stack tests and opacity observations.

7.11.10 Reporting Requirements

- a. i. Pursuant to Section 39.5(7)(f)(ii) of the Act, the Permittee shall promptly notify the Illinois EPA, Air Compliance Section, within 30 days of deviations by the affected engine as follows:
 - A. Requirements in Condition 7.11.3(b), (c) and (d).
 - B. Requirements in Condition 7.11.5.
 - C. Requirements in Condition 7.11.6.
- ii. All such deviations shall be summarized and reported as part of the semiannual monitoring report required by Condition 8.6.1.

- b. The Permittee shall notify the Illinois EPA, Air Compliance Section, of all other deviations as part of the semiannual monitoring reports required by Condition 8.6.1.
- c. All deviation reports described in Condition 7.11.10 above shall contain the following:
 - i. Date, time and duration of the deviation;
 - ii. Description of the deviation;
 - iii. Probable cause of the deviation; and
 - iv. Any corrective action or preventive measures taken.

7.11.11 Operational Flexibility/Anticipated Operating Scenarios

Operational flexibility is not set for the affected engine.

7.11.12 Compliance Procedures

For the affected engine, compliance with the applicable standards of Condition 7.11.3, the control/work practice requirements of Condition 7.11.5, and the production/emission limits of Condition 7.11.6 is addressed by testing, monitoring, recordkeeping and reporting requirements in Section 7.11 of this permit.

7.11.13 State-Only Conditions

State-only conditions are not being established.

7.12 Gasoline Storage and Dispensing

7.12.1 Description

Gasoline storage and dispensing is conducted for the Permittee's fleet of gasoline fueled vehicles. There are several such stations at the facility, so that fleet vehicles do not have to travel on public roads to reach the fueling stations.

Note: This narrative description is for informational purposes only and is not enforceable.

7.12.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Date Constructed	Emission Control Equipment
Gasoline Storage	Four storage tanks located at: Storeroom (1,000 gallons capacity); Machine Shop (1,000 gallons capacity); Wastewater Facility (250 gallons capacity); Blast Furnace Facility(1,000 gallons capacity)	N/A	Control Practices: Submerged loading pipe (all tanks) and Stage I system (tanks with 1,000 gallons capacity)

7.12.3 Applicable Provisions and Regulations

- a. The "affected gasoline storage tanks", for the purpose of these unit-specific conditions are the tanks described in Conditions 7.12.1 and 7.12.2 above.

- b. The affected gasoline storage tank at the wastewater facility is subject to the following:

No person shall cause or allow the loading of any organic material into any stationary tank having a storage capacity of greater than 946 l (250 gal), unless such tank is equipped with a permanent submerged loading pipe [35 IAC 219.122(b)].

- c. Pursuant to 35 IAC 219.583(c)(1), the affected gasoline storage tanks at the storeroom, machine shop and blast furnace facility are subject to the following requirements of 35 IAC 219.583(a): No person shall cause or allow the transfer of gasoline from any delivery vessel into any stationary storage tank at a gasoline dispensing facility unless:

- i. The tank is equipped with a submerged loading pipe [35 IAC 219.583(a)(1)].

- ii. The vapors displaced from the storage tank during filling are processed by a vapor control system [35 IAC 219.583(a)(2)].
- iii. All tank vent pipes are equipped with pressure/vacuum relief valves that are designed and shall be set to resist a pressure of at least 3.5 inches water column and to resist a vacuum of no less than 6.0 inches water column [35 IAC 219.583(a)(3)].
- d. Pursuant to 35 IAC 219.585(a), all the affected gasoline storage tanks are subject to the following: No person shall sell, offer for sale, dispense, supply, offer for supply, or transport for use in Illinois gasoline whose Reid vapor pressure exceeds the applicable limitations set forth below during the regulatory control periods, which shall be June 1 to September 15.
 - i. The Reid vapor pressure of gasoline, a measure of its volatility, shall not exceed 7.2 psi (9.68 kPa) during the regulatory control period [35 IAC 219.585(b)].
 - ii. The Reid vapor pressure of ethanol blend gasolines having at least nine percent (9%) but not more than ten percent (10%) ethyl alcohol by volume of the blended mixture, shall not exceed the limitations for gasoline set forth in Condition 7.12.2(d)(i) above by more than 1.0 psi (6.9 kPa) [35 IAC 219.585(c)].

7.12.4 Non-Applicability of Regulations of Concern

- a. This permit is issued based on the affected gasoline storage tank not being subject to the NSPS for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels), 40 CFR Part 60, Subpart Kb, because each tank is less than 40 cubic meters (10,566 gallons).
- b. This permit is issued based on the affected gasoline storage tanks not being subject to 35 IAC 219.121, because each affected tank is less than 40,000 gallons [35 IAC 219.121].
- c. This permit is issued based on the affected gasoline storage tanks not being subject to 35 IAC 219.122(a), because each affected tank is less than 40,000 gallons [35 IAC 219.122].
- d. The affected gasoline storage tanks are not subject to 35 IAC 219.301 because the affected gasoline storage tanks do not use organic material. In addition, the storage tanks are regulated by 35 IAC 219.122(b) and 35 IAC 219.583(c)(1).

- e. The affected gasoline storage and dispensing operations are not part of a bulk gasoline plant (35 IAC 219.581) or bulk gasoline terminals (35 IAC 219.582) pursuant to relevant definitions in 35 IAC Part 211.
- f. This permit is issued based on the gasoline storage and dispensing operations performed at wastewater facility not being subject to 35 IAC 219.583(a)(2) and (a)(3) pursuant to 35 IAC 219.583(b)(3), because the tank capacity is less than 575 gallons.
- g. The affected gasoline storage tanks are not eligible for the exemption from the permitting in 35 IAC 219.583(e) because they are not located at retail dispensing operations, as defined at 35 IAC 211.5630.

7.12.5 Control Requirements and Work Practices

The affected gasoline storage tanks (other than the affected gasoline storage tank at the wastewater facility) are subject to the following control requirements and work practices:

- a. Pursuant to 35 IAC 219.583(c), each owner of a gasoline dispensing operation shall:
 - i. Install all control systems and make all process modifications required by Condition 7.12.3(c) (see also 35 IAC 219.583(a)) [35 IAC 219.583(c)(1)];
 - ii. Provide instructions to the operator of the gasoline dispensing operation describing necessary maintenance operations and procedures for prompt notification of the owner in case of any malfunction of a vapor control system [35 IAC 219.583(c)(2)]; and
 - iii. Repair, replace or modify any worn out or malfunctioning component or element of design [35 IAC 219.583(c)(3)].
- b. Pursuant to 35 IAC 219.583(d), each operator of a gasoline dispensing operation shall:
 - i. Maintain and operate each vapor control system in accordance with the owner's instructions [35 IAC 219.583(d)(1)];
 - ii. Promptly notify the owner of any scheduled maintenance or malfunction requiring replacement or repair of a major component of a vapor control system [35 IAC 219.583(d)(2)];
 - iii. Maintain gauges, meters or other specified testing devices in proper working order [35 IAC 219.583(d)(3)]; and

- iv. Pursuant to 35 IAC 219.583(d)(4), operate the vapor collection system and delivery vessel unloading points in a manner that prevents:
 - A. A reading equal to or greater than 100 percent of the lower explosive limit (LEL measured as propane) when tested in accordance with the procedure described in EPA 450/2-78-051 Appendix B [35 IAC 219.583(d)(4)(A)]; and
 - B. Avoidable leaks of liquid during the filling of storage tanks [35 IAC 214.583(d)(4)(B)].
- v. Within 15 business days after discovery of the leak by the owner, operator, or the Agency, repair and retest a vapor collection system which exceeds the limits of Condition 7.12.5(iv) above [35 IAC 219.583(d)(5)].
- c. Pursuant to 35 IAC 219.584(a), the Permittee shall ensure that each gasoline delivery vessel that comes on to the property to fill the affected gasoline storage tanks at the storeroom, machine shop, or blast furnace facility are complying with the following:
 - i. Shall have a vapor space connection that is equipped with fittings which are vapor tight;
 - ii. Shall have its hatches closed at all times during unloading operations, unless a top loading vapor recovery system is used;
 - iii. Shall not internally exceed a gauge pressure of 18 inches of water or a vacuum of 6 inches of water;
 - iv. Shall be designed and maintained to be vapor tight at all times during normal operations;
 - v. Shall not be refilled in Illinois at other than a bulk gasoline terminal that complies with the requirements of 35 IAC 219.582 or a bulk gasoline plant that complies with the requirements of 35 IAC 219.581(b).
 - vi. Shall have a sticker affixed to the tank adjacent to the tank manufacturer's data plate which contains the tester's name, the tank identification number and the date of the test. The sticker shall be in a form prescribed by the Illinois EPA.

7.12.6 Production and Emission Limitations

Production and emission limitations are not set for the affected gasoline storage tanks.

7.12.7 Testing Requirements

- a. Pursuant to 35 219.583(a)(4), the Permittee shall demonstrate compliance with the pressure/vacuum relief valves specifications of Condition 7.12.3(c)(iii) at a gasoline dispensing operation by measuring and recording the pressure indicated by a pressure/vacuum gauge at each tank vent pipe 30 days after installation of each pressure/vacuum relief valve, and at least annually thereafter. The test shall be performed on each tank vent pipe within two hours after product delivery into the respective storage tank. For manifold tank vent systems, observations at any point within the system shall be adequate.
- b. The Permittee shall test the relief valves whenever there is a modification of an existing vapor control system [39.5(7)(d) and (p) of the Act].

7.12.8 Monitoring Requirements

The Permittee shall perform the following monitoring pursuant to Sections 39.5(7)(a) and (d) of the Act.

- a. The Permittee shall perform semi-annual inspections of the gasoline storage and dispensing operations at the storeroom, machine shop and blast furnace while the tank is being filled.
 - i. Retractors, hoses, breakaways, swivels
 - ii. Adapters, vapor caps, rubber gaskets, and spill containment buckets
- b. The Permittee shall perform an annual inspection of the gasoline storage tank at wastewater facility and dispensing operation to ensure that a submerged loading pipe is physically present and the condition of the pipe for integrity.

7.12.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items for the affected gasoline storage tanks, pursuant to Sections 39.5(7)(a) and (e) of the Act:

- a. Records of the testing and repair of the vapor collection system and pressure/vacuum relief valves, pursuant to Condition 7.12.7.
- b. Records of gasoline throughput (gallons per month and gallons per year).

- c. For the affected gasoline storage tanks during the regulatory control period, the Permittee shall keep the following records:
 - i. Retain a copy of an invoice, bill of lading, or other documentation used in normal business practice stating that the Reid vapor pressure of the gasoline complies with the Reid vapor pressure standard as provided in 35 IAC 219.585(h) (1) (A);
 - ii. Maintain records on the Reid vapor pressure, quantity received and date of delivery of any gasoline or ethanol blends arriving at the gasoline operation [35 IAC 219.585(h) (2)].
- d. Copies of the annual certification(s) from the supplier of gasoline that all the delivery vessels have been tested and are in compliance with the requirements of Condition 7.12.5(c).
- e. A copy of operating and maintenance procedures and instructions for the tanks and vapor control systems.
- f. Records for all inspections.

7.12.10 Reporting Requirements

- a. i. Pursuant to Section 39.5(7)(f)(ii) of the Act, the Permittee shall promptly notify the Illinois EPA, Air Compliance Section, within 30 days of deviations by the affected gasoline storage tanks from applicable requirements, as follows:
 - A. Requirements in Condition 7.12.3(b) through (d).
 - B. Requirements in Condition 7.12.5(a) and (b).
- ii. All such deviations shall be summarized and reported as part of the semiannual monitoring report required by Condition 8.6.1.
- b. The Permittee shall notify the Illinois EPA, Air Compliance Section, of all other deviations as part of the semiannual monitoring reports required by Condition 8.6.1.
- c. All deviation reports described in Condition 7.12.10 above shall contain the following:
 - i. Date, time and duration of the deviation;
 - ii. Description of the deviation;
 - iii. Probable cause of the deviation; and

iv. Any corrective action or preventive measures taken.

7.12.11 Operational Flexibility/Anticipated Operating Scenarios

Operational flexibility is not set for the affected gasoline storage tanks.

7.12.12 Compliance Procedures

For the affected gasoline storage tanks, compliance with the applicable standards of Condition 7.12.3 is addressed by the work practices, testing, monitoring, recordkeeping and reporting requirements described in Section 7.12 of this permit.

7.12.13 State-Only Conditions

State-only conditions are not being established.

7.13 Fugitive Dust

7.13.1 Description

Fugitive dust is emitted from vehicle traffic, unloading operations, wind erosion of piles, roadways, parking lots and other open areas at the facility. The source also emits fugitive dust from an on-site landfill for furnace dusts and other industrial wastes.

Note: This narrative description is for informational purposes only and is not enforceable.

7.13.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Date Constructed	Emission Control Equipment
Fugitive Emissions	Landfill Vehicular Traffic on Roadways, Parking Lots and Other Open Areas Unloading Operations Storage Piles and associated activities Beaching Areas	N/A	N/A

7.13.3 Applicable Provisions and Regulations

- a. The "affected activities" for the purpose of these unit-specific conditions, are the activities described in Conditions 7.13.1 and 7.13.2 above.
- b. The affected activities are subject to 35 IAC 212.306 which provides that all normal traffic pattern roads and parking facilities which are located on mining or manufacturing property shall be paved or treated with water, oils or chemical dust suppressants. All paved areas shall be cleaned on a regular basis. All areas treated with water, oils or chemical dust suppressants shall have the treatment applied on a regular basis, as needed, in accordance with the operating program required by 35 IAC 212.309, 212.310 and 212.312.
- c. All storage piles of materials with uncontrolled emissions of fugitive particulate matter in excess of 45.4 Mg per year (50 T/yr) which are located within a source whose potential particulate emissions from all emission units exceed 90.8 Mg/yr (100 T/yr) shall be protected by a cover or sprayed with a surfactant solution or water on a regular basis, as needed, or treated by an equivalent method, in

accordance with the operating program required by 35 IAC 212.309, 212.310 and 212.312 of 35 IAC Part 212 Subpart K [35 IAC 212.304(a)].

d. Applicable emission limitations established by 35 IAC 212.316:

- i. Emission Limitations for Storage Piles. No person shall cause or allow fugitive particulate matter emissions from any storage pile to exceed an opacity of 10 percent, to be measured four ft from the pile surface.
- ii. Additional Emissions Limitations for the Granite City Vicinity as defined in 35 IAC 212.316(e)(1):

Emissions Limitations for Roadways or Parking Areas Located at Integrated Iron and Steel Manufacturing Plants. No person shall cause or allow fugitive particulate matter emissions from any roadway or parking area located at a slag processing facility or integrated iron and steel manufacturing plant to exceed an opacity of 5 percent.

- iii. Pursuant to 35 IAC 212.316(f), emission limitation for all other activities (see the definition for emission unit in 35 IAC 211.1950). Unless an activity has been assigned a particulate matter, PM₁₀, or fugitive particulate matter emissions limitation elsewhere in 35 IAC 212.316 or in Subparts R or S of 35 IAC Part 212, no person shall cause or allow fugitive particulate matter emissions from any such activity to exceed an opacity of 20 percent.
- e. All conveyor loading operations to storage piles specified in 35 IAC 212.304 shall utilize spray systems, telescopic chutes, stone ladders or other equivalent methods in accordance with the operating program required by 35 IAC 212.309, 212.310 and 212.312 [35 IAC 212.305].

7.13.4 Non-Applicability of Regulations of Concern

The landfill operated on the site is not subject to 35 IAC Part 220 for municipal waste landfills. The landfill serves only the needs for Permittee's operations in accepting industrial waste generated on-site and no municipal or any off-site waste is accepted by this landfill.

7.13.5 Control Requirements and Work Practices

- a. Pursuant to permit #95010001 [T1], the Permittee shall comply with the following on-site and off-site fugitive dust control requirements:
 - i. On-site fugitive dust control

A. The Permittee shall sweep or flush at least every day the paved access area below the BOF ESP where ESP dust collection bags (i.e., super-sacks, storage bags or other containers for ESP dust) are used, stored and transported.

B. The Permittee shall implement a housekeeping program for the non-roadway areas below and around the BOF ESP. This program shall, at a minimum, contain the following:

1. The ground and other accessible areas where dust may gather shall be swept or cleaned at least every day;
2. Cleaning shall be performed in such a manner as to minimize the escape of dust into the atmosphere;
3. Dust collection bags shall be inspected at least daily for rips, tears, or insecure connection to the discharge of the ESP hoppers;
4. Dust collection bags shall be inspected after removal from, and connection to, the discharge of the ESP hoppers;
5. Ripped or torn bags shall be taken out of service and transported in a covered truck.

C. Unpaved Roads. For unpaved roads that are part of normal traffic patterns (including roads B, C, E, N, F-F, and CS(2)) the Permittee shall apply a chemical dust suppressant at least three times a month, with the following exceptions:

1. Road segment G-G, which shall be sprayed at least quarterly;
2. Road segment L, which shall be sprayed at least 4 times per month.
3. All other unpaved roads shall be treated as necessary.
4. Applications of suppressant may be less frequent than specified above if weather conditions, i.e., precipitation or temperature, interfere with the schedule for spraying, provided each such instance shall be recorded in accordance with the

daily records for on-site fugitive dust control required by Condition 7.13.9(b).

- D. Paved roadways and areas. Paved roadways and areas shall be maintained in good condition by the Permittee.

On paved roadways and other areas, the Permittee shall sweep or flush as follows:

1. Road segments D, K, M, F, G, J, R, and O shall be swept or flushed at least daily;
 2. Road segments P, V, W, X, Z, D-D, E-E, and CS(1) shall be swept or flushed at least five days per week;
 3. Road segments S and T shall be swept or flushed at least every other day;
 4. Road segments A and H shall be swept or flushed at least once per month;
 5. All gate areas leading from the steelworks area shall be swept or flushed at least daily;
 6. All gate areas leading from the iron making area shall be swept or flushed at least five times per week.
 7. The above on-site dust control measures shall be conducted to maximize their effectiveness by performing said measures when the roads or areas are not obstructed by parked vehicles and by preferentially using filter sweeping (e.g., Enviro-Whirl sweeper) for the gate areas, the roads and areas surrounding the BOPF shop and BOF ESP.
- b. The fugitive dust control measures outlined above do not relieve the Permittee from complying with additional control measures identified in the PM₁₀ contingency plan as required by Condition 5.3.3 of this permit [95010001, T1R].
- c. The landfill operated by the Permittee shall not accept any off-site wastes, including municipal, hospital/medical or hazardous wastes [Section 39.5(7)(1) of the Act].
- d. Pursuant to the Road Cleaning Program required by Permit #06070088, the Permittee shall comply with the following control requirements (for purposes of this condition

affected road segments are those identified in Condition 7.13.5(d)(iii):

- i. Good air pollution control practices shall be implemented to minimize and reduce nuisance dust from the affected road segments.
- ii. Cleaning of affected road segments shall be performed using vacuum cleaning equipment (such as Enviro-Whirl). Any dust laden air shall be vented through a filtering system on the vacuum cleaning equipment before discharge to atmosphere.

The handling of material collected by vacuum cleaning equipment during road cleaning shall be enclosed or shall utilize spraying, pelletizing, screw conveying or other equivalent methods to control PM emissions from transfer of material for disposal.

- iii. Affected road segments shall be cleaned on the following frequency except during extended periods of inclement weather that act to prevent emissions of fugitive dust from the affected road segments:

A. Cleaning on a twice weekly basis:

Road Segment	Segment Boundaries
Madison Ave	16th & 20th Streets
Central 20th Street	Madison St. & USS Gate
East 20th Street	USS Gate & Rte 203
21st Street	Rte 203 and Monroe St.
North Edwardsville Rd	20th & Nameoki (Rte 203)

B. Cleaning on a twice monthly basis:

Road Segment	Segment Boundaries
Rock Road	Rte 3 & W. 20th St. (Overpass Approach)
West 20th St.	Rte 3 & Rock Road
Rock Road	W. 20th & Benton St. (Railroad Overpass)
Niedringhaus	Benton St. and 16th St.
16th Street	Niedringhaus & Madison St.
South Edwardsville Rd	20th & McCambridge Ave (Rte 203)
McCambridge Ave	Edwardsville Rd (Rte 203) & 2nd St.
Route 162	Nameoki Rd (Rte 203) & Railroad Tracks
Benton Street	Rock Rd. and Niedringhaus

7.13.6 Production and Emission Limitations

Total fugitive emission of PM/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 pursuant to Permit 95010001 [T1].

7.13.7 Testing Requirements

- a. Opacity observations shall be conducted by a qualified observer in accordance with procedures published in 40 CFR Part 60, Appendix A, Method 9, except as specified below.
 - i. Opacity readings on each roadway or parking area shall be conducted at least annually. On unpaved roadways or parking areas, the reading shall not be conducted within three days of the application of any dust suppressants.
 - ii. The Permittee shall observe, one day per calendar month, the opacity of emissions from each active coal storage pile and areas travelled by equipment hauling coal from these coal storage piles to coal processing operations unless prolonged weather conditions preclude scheduled observations. In addition, the observer shall remain in the area for at least 3 hours to perform opacity readings on other coal piles which become active during this 3 hour period.
 - iii. All opacity readings conducted on visible emissions generated by vehicular traffic on roadways, parking areas and heavy equipment traffic associated with storage piles, shall be in accordance with the procedures specified in 35 IAC 212.109.
 - iv. All opacity readings on storage piles shall be measured four feet above the pile surface. The duration of opacity observations for each test shall be at least 30 minutes (five 6-minute averages) or 12 minutes without visible emissions.
- b. Upon written request by the Illinois EPA, such testing shall be conducted for specific affected operations(s) within 45 calendar days of the request or on the date agreed upon by the Illinois EPA, whichever is later. As least 30 days prior to the scheduled test date, the Permittee shall submit a detailed test plan to the Illinois EPA, describing the manner of operations of the affected activity and all control measures that will be implemented during the testing. The results of the testing will be submitted within thirty calendar days of the completion of the tests.
- c. The testing conditions from above are established in accordance with requirements of 39.5(7)(p) of the Act.
- d. Pursuant to Permit 06070088, the Permittee shall conduct silt loading measurements as follows [T1] (for purposes of

this condition affected road segments are those identified in Condition 7.13.5(d)(iii):

- i. The Permittee shall conduct measurements of the silt loading on the affected road segments, with sampling and analysis conducted using the "Procedures for Sampling Surface/Bulk Dust Loading," Appendix C.1 in Compilation of Air Pollutant Emission Factors, USEPA, AP-42. A series of samples shall be taken to determine the average silt loading on each affected road segment and address the change in silt loadings as related to the amount and nature of vehicle traffic.
- ii. Measurements for "controlled" silt loading shall be repeated at least every three years pursuant to the Road Cleaning Program of Condition 7.13.5(d).
- iii. Measurements for "controlled" silt loadings shall be conducted upon written request by the Illinois EPA, as specified in the request, which shall be completed within 75 days of the Illinois EPA's request.

7.13.8 Monitoring Requirements

- a. Except as provided in Condition 7.13.8(b), the Permittee shall perform inspections of the affected activities on at least a quarterly basis, including associated control measures, while the affected activities are in use, to confirm compliance with the requirements of Condition 7.13.3. Control measures may include material characteristics. These quarterly inspections may be scheduled so that only a number of affected activities are reviewed during each inspection, provided however, that all affected activities shall be inspected at least once during each calendar year. For the purpose of this condition, all affected activities means each type of material handled. (Sections 39.5(7)(a) and (d) of the Act).
- b. The Permittee shall perform inspections, on a once per calendar month basis, during receipt of the truck unloading each contracted supply of coal.
- c. As part of the inspections required by 7.13.8(a), the Permittee shall perform observations for visible emissions by Method 22. These observations shall be conducted during the operation of each activity for a minimum of 18 minutes, or for activities that operate on a batch basis, for a minimum of six consecutive batches. If visible emissions are observed, the Permittee shall take corrective action within 2 hours to return the status of the operation to no visible emissions or observations of opacity by Method 9 shall be conducted. For the purpose of this condition, returning the status of operations to no visible emissions

does not include, for any activity, temporary idling of lack of operation between batches.

- d. The requirements from above are established pursuant to Sections 39.5(7)(a) and (d) of the Act.

7.13.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items for the affected areas of fugitive emissions, pursuant to Sections 39.5(7)(a) and (e) of the Act:

- a. Records required by 35 IAC 212.316(g):
 - i. The owner or operator of any fugitive particulate matter emission unit subject to 35 IAC 212.316 shall keep written records of the application of control measures for compliance with the opacity limitations of 212.316 and shall submit to the Illinois EPA an annual report containing a summary of such information.
 - ii. The records shall include at least the following:
 - A. The name and address of the source;
 - B. The name and address of the owner and/or operator of the source;
 - C. A map or diagram showing the location of all emission units controlled, including the location, identification, length, and width of roadways;
 - D. For each application of water or chemical solution to roadways by truck: the name and location of the roadway controlled, application rate of each truck, frequency of each application, width of each application, identification of each truck used, total quantity of water or chemical used for each application and, for each application of chemical solution, the concentration and identity of the chemical;
 - E. For application of physical or chemical control agents: the name of the agent, application rate and frequency, and total quantity of agent, and, if diluted, percent of concentration, used each day; and
 - F. A log recording incidents when control measures were not used and a statement of explanation.

- iii. Copies of all records required by 35 IAC 212.316 shall be submitted to the Illinois EPA within ten (10) working days after a written request by the Illinois EPA and shall be transmitted to the Illinois EPA by a company-designated person with authority to release such records.
 - iv. The records required under 35 IAC 212.316 shall be kept and maintained for at least five (5) years at the source and be available for inspection and copying by Illinois EPA representatives during working hours.
- b. i. The Permittee shall maintain daily records relative to the on-site fugitive dust control program which includes the following information at a minimum, pursuant to the Permit 95010001:
- A. The date (and time for the gate areas) each road or area was treated;
 - B. The manner in which the road or area was treated (i.e., filter sweep, conventional sweep, suppressant spray or flush);
 - C. Detailed information for use of dust suppressant, including but not limited to the application rate, dilution ratio, type of suppressant used, and the number of gallons of suppressant applied;
 - D. Observations, if any, concerning the condition of the roadway, e.g., presence of parked vehicles, detection of potholes;
 - E. The amount of precipitation and temperature recorded for each day, and if determination was made to suspend application of suppressant, include name and title of person who made determination to suspend application and explanation; and
 - F. Any and all suspensions or deviations from the work practices and control procedures of Condition 7.13.5, with a date, description, and explanation for suspension of application.
- ii. The Permittee shall keep a record containing calculations and analysis for the emissions from roadways at the source with emissions calculation performed in accordance with the methodology set forth in Section 13.2.1 of AP-42, to verify compliance with Condition 7.13.6. A copy of this record shall be submitted to the Illinois EPA each time it is prepared, with submittal made within 15

days of the date that the Permittee completes the preparation of new or revised calculations and analysis.

- c. The Permittee shall maintain the most current versions of the PM₁₀ contingency plan and the fugitive particulate matter control program.
- d. The Permittee shall keep records of the silt measurements conducted pursuant to Condition 7.13.7(d), including records for the sampling and analysis activities and results.
- e. Recordkeeping requirements for the Road Cleaning Program (for purposes of this condition affected road segments are those identified in Condition 7.13.5(d)(iii):
 - i. A. The Permittee shall keep a record describing the Road Cleaning Program that at a minimum: identify any contractors implementing the program for the Permittee and their duties for implementing the Program under the contract; the equipment used by the Permittee or its contractor for cleaning roads, including for each item of equipment, a description of and the manufacturer's specifications for collection of silt from roadways and control of dust emissions from the cleaning process; and the standards practices that are used to clean roads under the Program, such as type of equipment, and speed of travel.
 - B. The Permittee shall keep records for implementation of the Road Cleaning Program that at a minimum: Identify each time that an affected road segment was cleaned, with a description of any circumstances that may have affected the extent or nature of cleaning; and identify each time that scheduled cleaning was not performed, with detailed explanation.
 - C. The Permittee shall keep records documenting maintenance and repair of road cleaning equipment.
- ii. The Permittee shall keep a record containing calculations and analysis for the annual reduction in emissions that is achieved by the Road Cleaning Program, with emissions calculation performed in accordance with the methodology set forth in Section 13.2.1 of AP-42, to verify that the Road Cleaning Program is achieving 236.03 tons/yr reduction, total, of particulate matter determined as PM₁₀ from baseline emission levels of 656.87 tons/year from the affected road segments. This record shall be prepared in

conjunction with the measurements of "controlled" silt loadings required by Condition 7.13.7(d). A copy of this record shall be submitted to the Illinois EPA each time it is prepared, with submittal made to the Illinois EPA within 15 days of the date that the Permittee completes the preparation of new or revised calculations and analysis.

7.13.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Air Compliance Section, of deviations of the affected area of fugitive emissions with the permit requirements, pursuant to Section 39.5(7)(f)(ii) of the Act. Reports submitted by the Permittee shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken.

- a. i. Pursuant 35 IAC 212.316(g)(5), the Permittee shall submit a quarterly report to the Illinois EPA stating the following: the dates any necessary control measures were not implemented, a listing of those control measures, the reasons that the control measures were not implemented, and any corrective actions taken. This information includes, but is not limited to, those dates when controls were not applied based on a belief that application of such control measures would have been unreasonable given prevailing atmospheric conditions, which shall constitute a defense to the requirements of 35 IAC 212.316. This report shall be submitted to the Agency thirty (30) calendar days from the end of a quarter. Quarters end March 31, June 30, September 30, and December 31.
- ii. Pursuant to permit 06070088, the Permittee shall submit a quarterly report to the Illinois EPA describing the implementation of the Road Cleaning Program during the previous quarter. This report shall at a minimum provide: the number of times each road segment was cleaned; the number of times that cleaning was not performed, with explanation; a description of any significant changes in road cleaning equipment or cleaning practices, with explanation; and a description of other changes to the Road Cleaning Program, including changes in contractors.
- b. i. Pursuant to Section 39.5(7)(f)(ii) of the Act, the Permittee shall promptly notify the Illinois EPA, Air Compliance Section, within 30 days of deviations in the affected areas of fugitive emissions, as follows:
 - A. Requirements in Condition 7.13.3(b) through (e).

- B. Requirements in Condition 7.13.5.
- C. Requirements in Condition 7.13.6.
- ii. All such deviations shall be summarized and reported as part of the semiannual monitoring report required by Condition 8.6.1.
- c. The Permittee shall notify the Illinois EPA, Air Compliance Section, of all other deviations as part of the semiannual monitoring reports required by Condition 8.6.1.
- d. Deviation reports described in Condition 7.13.10(b) and (c) above shall contain the following:
 - i. Date, time and duration of the deviation;
 - ii. Description of the deviation;
 - iii. Probable cause of the deviation; and
 - iv. Any corrective action or preventive measures taken.

7.13.11 Operational Flexibility/Anticipated Operating Scenarios

a. Beaching

The following requirements established by Permits 72080034 and 72080036 shall be implemented:

- i. Under the following circumstances beaching of iron may occur:
 - A. In the event that Blast Furnace A or Blast Furnace B must be shut down in order to cast the furnace dry.
 - B. In the event that an interruption in the BOF steelmaking and/or casting operations will result in a temporary surplus of iron, beyond the capacity of the system to hold, necessitating beaching in order to cast the furnace dry and provide the ability to safely shut down.
 - C. In the event that the blast furnace produces unusable iron such as high silica or low temperature iron. High silica iron shall be blended and used to the extent possible at the BOF in order to reduce beaching. Low temperature iron shall be used at the BOF to the extent possible until solidification in the car becomes imminent. In other cases of

unusable iron, such iron shall be used when possible to minimize the quantity beached.

- ii. In the event that the beaching of iron occurs the Permittee shall beach the iron as follows:
 - A. Beaching shall be allowed only in the event that alternate receptacles are not available;
 - B. Beaching shall be allowed only if all reasonable measures are taken to minimize the quantity of liquid metal beached, the frequency of a malfunction or breakdown that necessitates beaching, the duration beaching occurs, and the emissions resulting from beaching; and
 - C. Beaching shall be allowed at a controlled pour rate not to exceed 20 tons per minute.
- b. Prior to material in the beaching pit being dug and transferred to vehicles for recycling to the blast furnaces, it shall be watered or treated with other equivalent techniques to minimize particulate matter emissions during such material handling, unless such measures would cause a hazard or safety issue to employees.

7.13.12 Compliance Procedures

- a. Compliance with Condition 7.13.3(b) is addressed by the monitoring requirements in Condition 7.13.8(b) and the records in Condition 7.13.9.
- b. Compliance with Condition 7.13.3(c), (d), 7.13.5(a), (d), and 7.13.6 is addressed by the testing in Condition 7.13.7, monitoring requirements in Condition 7.13.8(a) and the records in Condition 7.13.9.
- c. Compliance with Condition 7.13.3(e) is addressed by the testing requirements Condition 7.13.7, monitoring in Condition 7.13.8(c) and the records in Condition 7.13.9.
- d. Compliance with Condition 7.13.5(c) is addressed by the records in Condition 7.13.9.

7.13.13 State-Only Conditions

State-only conditions are not being established.

8.0 GENERAL PERMIT CONDITIONS

8.1 Permit Shield

Pursuant to Section 39.5(7)(j) of the Act, the Permittee has requested and has been granted a permit shield. This permit shield provides that compliance with the conditions of this permit shall be deemed compliance with applicable requirements which were applicable as of the date the proposed permit for this source was issued, provided that either the applicable requirements are specifically identified within this permit, or the Illinois EPA, in acting on this permit application, has determined that other requirements specifically identified are not applicable to this source and this determination (or a concise summary thereof) is included in this permit.

This permit shield does not extend to applicable requirements which are promulgated after May 2, 2011, unless this permit has been modified to reflect such new requirements.

8.2 Applicability of Title IV Requirements (Acid Deposition Control)

This source is not an affected source under Title IV of the CAA and is not subject to requirements pursuant to Title IV of the CAA.

8.3 Emissions Trading Programs

No permit revision shall be required for increases in emissions allowed under any USEPA approved economic incentives, marketable permits, emissions trading, and other similar programs or processes for changes that are provided for elsewhere in this permit and that are authorized by the applicable requirement [Section 39.5(7)(o)(vii) of the Act].

8.4 Operational Flexibility/Anticipated Operating Scenarios

8.4.1 Changes Specifically Addressed by Permit

Physical or operational changes specifically addressed by the conditions of this permit that have been identified as not requiring Illinois EPA notification may be implemented without prior notice to the Illinois EPA.

8.4.2 Changes Requiring Prior Notification

The Permittee is authorized to make physical or operational changes that contravene express permit terms without applying for or obtaining an amendment to this permit, provided that [Section 39.5(12)(a)(i) of the Act]:

- a. The changes do not violate applicable requirements;
- b. The changes do not contravene federally enforceable permit terms or conditions that are monitoring (including test methods), recordkeeping, reporting, or compliance certification requirements;

- c. The changes do not constitute a modification under Title I of the CAA;
- d. Emissions will not exceed the emissions allowed under this permit following implementation of the physical or operational change; and
- e. The Permittee provides written notice to the Illinois EPA, Division of Air Pollution Control, Permit Section, at least 7 days before commencement of the change. This notice shall:
 - i. Describe the physical or operational change;
 - ii. Identify the schedule for implementing the physical or operational change;
 - iii. Provide a statement of whether or not any New Source Performance Standard (NSPS) is applicable to the physical or operational change and the reason why the NSPS does or does not apply;
 - iv. Provide emission calculations which demonstrate that the physical or operational change will not result in a modification; and
 - v. Provide a certification that the physical or operational change will not result in emissions greater than authorized under the conditions of this permit.

8.5 Testing Procedures

Tests conducted to measure composition of materials, efficiency of pollution control devices, emissions from process or control equipment, or other parameters shall be conducted using standard test methods if applicable test methods are not specified by the applicable regulations or otherwise identified in the conditions of this permit. Documentation of the test date, conditions, methodologies, calculations, and test results shall be retained pursuant to the recordkeeping procedures of this permit. Reports of any tests conducted as required by this permit or as the result of a request by the Illinois EPA shall be submitted as specified in Conditions 8.6.3 and 8.6.4.

8.6 Reporting Requirements

8.6.1 Monitoring Reports

Semiannual reports, including monitoring reports summarizing required monitoring as specified in the conditions of this permit shall be submitted to the Illinois EPA, unless more frequent submittal of such reports is required in Sections 5 or 7 of this permit [Section 39.5(7)(f) of the Act]:

Monitoring PeriodReport Due Date

January - June

July 31

July - December

January 31

All instances of deviations from permit requirements must be clearly identified in such reports. All such reports shall be certified in accordance with Condition 9.9.

8.6.2 Test Notifications

Unless otherwise specified elsewhere in this permit, a written test plan for any test required by this permit shall be submitted to the Illinois EPA for review at least 60 days prior to the testing pursuant to Section 39.5(7)(a) of the Act. The notification shall include at a minimum:

- a. The name and identification of the affected unit(s);
- b. The person(s) who will be performing sampling and analysis and their experience with similar tests;
- c. The specific conditions under which testing will be performed, including a discussion of why these conditions will be representative of maximum emissions and the means by which the specified operating parameters, as defined in Section 7 for each emission unit and any control equipment, will be determined;
- d. The specific determinations of emissions and operation that are intended to be made, including sampling and monitoring locations;
- e. The test method(s) that will be used, with the specific analysis method, if the method can be used with different analysis methods;
- f. Any minor changes in standard methodology proposed to accommodate the specific circumstances of testing, with justification; and
- g. Any proposed use of an alternative test method, with detailed justification.

8.6.3 Test Reports

Unless otherwise specified elsewhere in this permit, the results of any test required by this permit shall be submitted to the Illinois EPA within 60 days of completion of the testing. The test report shall include at a minimum [Section 39.5(7)(e)(i) of the Act]:

- a. The name and identification of the affected unit(s);
- b. The date and time of the sampling or measurements;

- c. The date any analyses were performed;
- d. The name of the company that performed the tests and/or analyses;
- e. The test and analytical methodologies used;
- f. The results of the tests including raw data, and/or analyses including sample calculations;
- g. The operating conditions at the time of the sampling or measurements; and
- h. The name of any relevant observers present including the testing company's representatives, any Illinois EPA or USEPA representatives, and the representatives of the source.

8.6.4 Reporting Addresses

- a. Unless otherwise specified in the particular provision of this permit or in the written instructions distributed by the Illinois EPA for particular reports, reports and notifications shall be sent to the Illinois EPA - Air Compliance Unit with a copy sent to the Illinois EPA - Air Regional Field Office.
- b. All test protocols, test notifications and test reports shall be sent to the Illinois EPA - Air Compliance Unit with a copy sent to the Illinois EPA - Air Regional Field Office and to the Illinois EPA - Stack Test Specialist.
- c. As of the date of issuance of this permit, the addresses of the offices that should generally be utilized for the submittal of reports and notifications are as follows:
 - i. Illinois EPA - Air Compliance Unit

Illinois Environmental Protection Agency
Bureau of Air
Compliance & Enforcement Section (MC 40)
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276
 - ii. Illinois EPA - Stack Test Specialist

Illinois Environmental Protection Agency
Division of Air Pollution Control
9511 West Harrison
Des Plaines, Illinois 60016
 - iii. Illinois EPA - Air Quality Planning Section

Illinois Environmental Protection Agency
Bureau of Air

Air Quality Planning Section (MC 39)
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276

iv. Illinois EPA - Air Regional Field Office

Illinois Environmental Protection Agency
Division of Air Pollution Control
2009 Mall Street
Collinsville, Illinois 62234

v. USEPA Region 5 - Air Branch

USEPA (AR - 17J)
Air & Radiation Division
77 West Jackson Boulevard
Chicago, Illinois 60604

- d. Permit applications should be addressed to the Air Permit Section. As of the date of issuance of this permit, the address of the Air Permit Section is as follows:

Illinois Environmental Protection Agency
Division of Air Pollution Control
Permit Section (MC 11)
1021 North Grand Avenue East
P.O. Box 19506
Springfield, Illinois 62794-9506

8.7 Title I Conditions

Notwithstanding the expiration date on the first page of this CAAPP permit, Title I conditions in this permit, which are identified by a T1, T1N, or T1R designation, remain in effect until such time as the Illinois EPA takes action to revise or terminate them in accordance with applicable procedures for action on Title I conditions. This is because these conditions either: (a) incorporate conditions of earlier permits that were issued by the Illinois EPA pursuant to authority that includes authority found in Title I of the CAA (T1 conditions), (b) were newly established in this CAAPP permit pursuant to authority that includes such Title I authority (T1N conditions), or (c) reflect a revision or combination of conditions established in this CAAPP permit (T1R conditions). (See also Condition 1.5.)

9.0 STANDARD PERMIT CONDITIONS

9.1 Effect of Permit

- 9.1.1 The issuance of this permit does not release the Permittee from compliance with State and Federal regulations which are part of the Illinois State Implementation Plan, as well as with other applicable statutes and regulations of the United States or the State of Illinois or applicable ordinances, except as specifically stated in this permit and as allowed by law and rule.
- 9.1.2 In particular, this permit does not alter or affect the following [Section 39.5(7)(j)(iv) of the Act]:
- a. The provisions of Section 303 (emergency powers) of the CAA, including USEPA's authority under that Section;
 - b. The liability of an owner or operator of a source for any violation of applicable requirements prior to or at the time of permit issuance;
 - c. The applicable requirements of the acid rain program consistent with Section 408(a) of the CAA; and
 - d. The ability of USEPA to obtain information from a source pursuant to Section 114 (inspections, monitoring, and entry) of the CAA.
- 9.1.3 This permit and the terms and conditions herein do not affect the Permittee's past and/or continuing obligation with respect to statutory or regulatory requirements governing major source construction or modification under Title I of the CAA. Further, neither the issuance of this permit nor any of the terms or conditions of the permit shall alter or affect the liability of the Permittee for any violation of applicable requirements prior to or at the time of permit issuance.
- 9.1.4 Except as provided by applicable law, the issuance of this permit by the Illinois EPA does not and shall not be construed as barring, diminishing, adjudicating or in any way affecting any currently pending or future legal, administrative or equitable rights or claims, actions, suits, causes of action or demands whatsoever that the Illinois EPA or the USEPA may have against the applicant including, but not limited to, any enforcement action authorized pursuant to the provision of applicable federal and state law.
- 9.1.5 Notwithstanding the conditions of this permit specifying compliance practices for applicable requirements, pursuant to Section 39.5(7)(j) and (p) of the Act, any person (including the Permittee) may also use other credible evidence to establish compliance or noncompliance with applicable requirements.

- 9.1.6 In the event of an action to enforce the terms or conditions of this permit, this permit does not prohibit a Permittee from invoking any affirmative defense that is provided by the applicable law or rule.

9.2 General Obligations of Permittee

9.2.1 Duty to Comply

The Permittee must comply with all terms and conditions of this permit. Any permit noncompliance constitutes a violation of the CAA and the Act, and is grounds for any or all of the following: enforcement action; permit termination, revocation and reissuance, or modification; or denial of a permit renewal application [Section 39.5(7)(o)(i) of the Act].

The Permittee shall meet applicable requirements that become effective during the permit term in a timely manner unless an alternate schedule for compliance with the applicable requirement is established.

9.2.2 Duty to Maintain Equipment

The Permittee shall maintain all equipment covered under this permit in such a manner that the performance or operation of such equipment shall not cause a violation of applicable requirements.

9.2.3 Duty to Cease Operation

No person shall cause, threaten or allow the continued operation of any emission unit during malfunction or breakdown of the emission unit or related air pollution control equipment if such operation would cause a violation of an applicable emission standard, regulatory requirement, ambient air quality standard or permit limitation unless this permit provides for such continued operation consistent with the Act and applicable Illinois Pollution Control Board regulations [Section 39.5(6)(c) of the Act].

9.2.4 Disposal Operations

The source shall be operated in such a manner that the disposal of air contaminants collected by the equipment operations, or activities shall not cause a violation of the Act or regulations promulgated there under.

9.2.5 Duty to Pay Fees

The Permittee must pay fees to the Illinois EPA consistent with the fee schedule approved pursuant to Section 39.5(18) of the Act, and submit any information relevant thereto [Section 39.5(7)(o)(vi) of the Act]. The check should be payable to "Treasurer, State of Illinois" and sent to: Fiscal Services

Section, Illinois Environmental Protection Agency, P.O. Box 19276, Springfield, Illinois, 62794-9276.

9.3 Obligation to Allow Illinois EPA Surveillance

Upon presentation of proper credentials and other documents as may be required by law and in accordance with constitutional limitations, the Permittee shall allow the Illinois EPA, or an authorized representative to perform the following [Sections 4 and 39.5(7)(a) and (p)(ii) of the Act]:

- a. Enter upon the Permittee's premises where an actual or potential emission unit is located; where any regulated equipment, operation, or activity is located or where records must be kept under the conditions of this permit;
- b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
- c. Inspect during hours of operation any sources, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit;
- d. Sample or monitor any substances or parameters at any location:
 - i. At reasonable times, for the purposes of assuring permit compliance or applicable requirements; or
 - ii. As otherwise authorized by the CAA, or the Act.
- e. Obtain and remove samples of any discharge or emission of pollutants authorized by this permit; and
- f. Enter and utilize any photographic, recording, testing, monitoring, or other equipment for the purposes of preserving, testing, monitoring, or recording any activity, discharge or emission at the source authorized by this permit.

9.4 Obligation to Comply with Other Requirements

The issuance of this permit does not release the Permittee from applicable State and Federal laws and regulations, and applicable local ordinances addressing subjects other than air pollution control.

9.5 Liability

9.5.1 Title

This permit shall not be considered as in any manner affecting the title of the premises upon which the permitted source is located.

9.5.2 Liability of Permittee

This permit does not release the Permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the sources.

9.5.3 Structural Stability

This permit does not take into consideration or attest to the structural stability of any unit or part of the source.

9.5.4 Illinois EPA Liability

This permit in no manner implies or suggests that the Illinois EPA (or its officers, agents or employees) assumes any liability, directly or indirectly, for any loss due to damage, installation, maintenance, or operation of the source.

9.5.5 Property Rights

This permit does not convey any property rights of any sort, or any exclusive privilege [Section 39.5(7)(o)(iv) of the Act].

9.6 Recordkeeping

9.6.1 Control Equipment Maintenance Records

A maintenance record shall be kept on the premises for each item of air pollution control equipment. At a minimum, this record shall show the dates of performance and nature of preventative maintenance activities.

9.6.2 Records of Changes in Operation

A record shall be kept describing changes made at the source that result in emissions of a regulated air pollutant subject to an applicable Clean Air Act requirement, but not otherwise regulated under this permit, and the emissions resulting from those changes [Section 39.5(12)(b)(iv) of the Act].

9.6.3 Retention of Records

- a. Records of all monitoring data and support information shall be retained for a period of at least 5 years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records, original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit [Section 39.5(7)(e)(ii) of the Act].
- b. Other records required by this permit including any logs, plans, procedures, or instructions required to be kept by this permit shall be retained for a period of at least 5

years from the date of entry unless a longer period is specified by a particular permit provision.

9.7 Annual Emissions Report

The Permittee shall submit an annual emissions report to the Illinois EPA, Air Quality Planning Section no later than May 1 of the following year, as required by 35 IAC Part 254.

9.8 Requirements for Compliance Certification

Pursuant to Section 39.5(7)(p)(v) of the Act, the Permittee shall submit annual compliance certifications. The compliance certifications shall be submitted no later than May 1 or more frequently as specified in the applicable requirements or by permit condition. The compliance certifications shall be submitted to the Air Compliance Unit, Air Regional Field Office, and USEPA Region 5 - Air Branch. The addresses for the submittal of the compliance certifications are provided in Condition 8.6.4 of this permit.

- a. The certification shall include the identification of each term or condition of this permit that is the basis of the certification; the compliance status; whether compliance was continuous or intermittent; the method(s) used for determining the compliance status of the source, both currently and over the reporting period consistent with the conditions of this permit.
- b. All compliance certifications shall be submitted to USEPA Region 5 in Chicago as well as to the Illinois EPA.
- c. All compliance reports required to be submitted shall include a certification in accordance with Condition 9.9.

9.9 Certification

Any document (including reports) required to be submitted by this permit shall contain a certification by a responsible official of the Permittee that meets the requirements of Section 39.5(5) of the Act and applicable regulations [Section 39.5(7)(p)(i) of the Act]. An example Certification by a Responsible Official is included as Attachment 1 to this permit.

9.10 Defense to Enforcement Actions

9.10.1 Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit [Section 39.5(7)(o)(ii) of the Act].

9.10.2 Emergency Provision

- a. An emergency shall be an affirmative defense to an action brought for noncompliance with the technology-based emission limitations under this permit if the following conditions are met through properly signed, contemporaneous operating logs, or other relevant evidence [Section 39.5(7)(k) of the Act]:

- i. An emergency occurred as provided in Section 39.5(7)(k) of the Act and the Permittee can identify the cause(s) of the emergency.

Note: For this purpose, emergency means a situation arising from sudden and reasonably unforeseeable events beyond the control of the source, as further defined by Section 39.5(7)(k)(iv) of the Act.

- ii. The permitted source was at the time being properly operated;
 - iii. The Permittee submitted notice of the emergency to the Illinois EPA within two working days of the time when emission limitations were exceeded due to the emergency. This notice must contain a detailed description of the emergency, any steps taken to mitigate emissions, and corrective actions taken; and
 - iv. During the period of the emergency the Permittee took all reasonable steps to minimize levels of emissions that exceeded the emission limitations, standards, or regulations in this permit.

- b. This provision is in addition to any emergency or upset provision contained in any applicable requirement. This provision does not relieve a Permittee of any reporting obligations under existing federal or state laws or regulations [Section 39.5(7)(k)(iv) of the Act].

9.11 Permanent Shutdown

This permit only covers emission units and control equipment while physically present at the indicated source location(s). Unless this permit specifically provides for equipment relocation, this permit is void for the operation or activity of any item of equipment on the date it is removed from the permitted location(s) or permanently shut down. This permit expires if all equipment is removed from the permitted location(s), notwithstanding the expiration date specified on this permit.

9.12 Reopening and Reissuing Permit for Cause

9.12.1 Permit Actions

This permit may be modified, revoked, reopened and reissued, or terminated for cause in accordance with applicable provisions of Section 39.5 of the Act. The filing of a request by the Permittee for a permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition [Section 39.5(7)(o)(iii) of the Act].

9.12.2 Reopening and Revision

This permit must be reopened and revised if any of the following occur [Section 39.5(15)(a) of the Act]:

- a. Additional requirements become applicable to the equipment covered by this permit and three or more years remain before expiration of this permit.
- b. Additional requirements become applicable to an affected source for acid deposition under the acid rain program.
- c. The Illinois EPA or USEPA determines that this permit contains a material mistake or that inaccurate statement were made in establishing the emission standards or limitations, or other terms or conditions of this permit.
- d. The Illinois EPA or USEPA determines that this permit must be revised or revoked to ensure compliance with the applicable requirements.

9.12.3 Inaccurate Application

The Illinois EPA has issued this permit based upon the information submitted by the Permittee in the permit application. Any misinformation, false statement or misrepresentation in the application shall be grounds for revocation and reissuance under Section 39.5(15) of the Act, pursuant to Sections 39.5(5)(e) and (i) of the Act.

9.12.4 Duty to Provide Information

The Permittee shall furnish to the Illinois EPA, within a reasonable time specified by the Illinois EPA any information that the Illinois EPA may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. Upon request, the Permittee shall also furnish to the Illinois EPA copies of records required to be kept by this permit, or for information claimed to be confidential, the Permittee may furnish such records directly to USEPA along with a claim of confidentiality [Section 39.5(7)(o)(v) of the Act].

9.13 Severability Clause

The provisions of this permit are severable. In the event of a challenge to any portion of the permit, other portions of the permit may continue to be in effect. Should any portion of this permit be determined to be illegal or unenforceable, the validity of the other provisions shall not be affected and the rights and obligations of the Permittee shall be construed and enforced as if this permit did not contain the particular provisions held to be invalid and the applicable requirements underlying these provisions shall remain in force [Section 39.5(7)(i) of the Act].

9.14 Permit Expiration and Renewal

Upon the expiration of this permit, if the source is operated, it shall be deemed to be operating without a permit unless a timely and complete CAAPP application has been submitted for renewal of this permit. However, if a timely and complete application to renew this CAAPP permit has been submitted, the terms and all conditions of this CAAPP permit will remain in effect until the issuance of a renewal permit [Section 39.5(5)(l) and (o) of the Act].

Note: Pursuant to Sections 39.5(5)(h) and (n) of the Act, upon submittal of a timely and complete renewal application, the permitted source may continue to operate until final action is taken by the Illinois EPA on the renewal application, provided, however, that this protection shall cease if the applicant fails to submit any additional information necessary to evaluate or take final action on the renewal application as requested by the Illinois EPA in writing. For a renewal application to be timely, it must be submitted no later than 9 months prior to the date of permit expiration.

9.15 General Authority for the Terms and Conditions of this Permit

The authority for terms and conditions of this permit that do not include a citation for their authority is Section 39.5(7)(a) of the Act, which provides that the Illinois EPA shall include such provisions in a CAAPP permit as are necessary to accomplish the purposes of the Act and to assure compliance with all applicable requirements. Section 39.5(7)(a) of the Act is also another basis of authority for terms and conditions of this permit that do include a specific citation for their authority.

Note: This condition is included in this permit pursuant to Section 39.5(7)(n) of the Act.

10.0 ATTACHMENTSAttachment 1 Example Certification by a Responsible Official

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: _____

Name: _____

Official Title: _____

Telephone No.: _____

Date Signed: _____

Attachment 2 Emissions of Particulate Matter from Process Emission Units

10.2.1. Process Emission Units for Which Construction or Modification Commenced On or After April 14, 1972

- a. New Process Emission Units for Which Construction or Modification Commenced On or After April 14, 1972 [35 IAC 212.321].
- b. No person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any new process emission unit, either alone or in combination with the emission of particulate matter from all other similar process emission units for which construction or modification commenced on or after April 14, 1972, at a source or premises, exceeds the allowable emission rates specified in subsection (c) of 35 IAC 212.321 [35 IAC 212.321(a)].
- i. The emissions of particulate matter into the atmosphere in any one hour period from the affected coating lines shall not exceed the allowable emission rates specified in the following equation:

$$E = A (P)^B$$

Where:

P = Process weight rate

E = Allowable emission rate

- ii. For process weight rates of 408 Mg/hr (450 T/hr):

	<u>Metric</u>	<u>English</u>
P	Mg/hr	T/hr
E	kg/hr	lbs/hr
A	1.214	2.54
B	0.534	0.534

- iii. For process weight rates in excess of 408 Mg/hr (450 T/hr):

	<u>Metric</u>	<u>English</u>
P	Mg/hr	T/hr
E	kg/hr	lbs/hr
A	11.42	24.8
B	0.16	0.16

- c. Limits for Process Emission Units for which Construction or Modification Commenced On or After April 14, 1972 [35 IAC 212.321(c)]:

Metric		English	
P	E	P	E
Mg/hr	kg/hr	T/hr	lb/hr
0.05	0.25	0.05	0.55
0.1	0.29	0.10	0.77
0.2	0.42	0.2	1.10
0.3	0.64	0.30	1.35
0.4	0.74	0.40	1.58
0.5	0.84	0.50	1.75
0.7	1.00	0.75	2.40
0.9	1.15	1.00	2.60
1.8	1.66	2.00	3.70
2.7	2.1	3.00	4.60
3.6	2.4	4.00	5.35
4.5	2.7	5.00	6.00
9.0	3.9	10.00	8.70
13.0	4.8	15.00	10.80
18.0	5.7	20.00	12.50
23.0	6.5	25.00	14.00
27.0	7.1	30.00	15.60
32.0	7.7	35.00	17.00
36.0	8.2	40.00	18.20
41.0	8.8	45.00	19.20
45.0	9.3	50.00	20.50
90.0	13.4	100.00	29.50
140.0	17.0	150.00	37.00
180.0	19.4	200.00	43.00
230.0	22.0	250.00	48.50
270.0	24.0	300.00	53.00
320.0	26.0	350.00	58.00
360.0	28.0	400.00	62.00
408.0	30.1	450.00	66.00
454.0	30.4	500.00	67.00

10.2.2 Process Emission Units for Which Construction or Modification Commenced Prior to April 14, 1972

- a. No person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any new process emission unit, either alone or in combination with the emission of particulate matter from all other similar process emission units for which construction or modification commenced prior to April 14, 1972, at a source or premises, exceeds the allowable emission rates specified in subsection (c) of 35 IAC 212.322 [35 IAC 212.322(a)].
- b. The emissions of particulate matter into the atmosphere in any one hour period from the affected unit shall not exceed the allowable emission rates specified in the following equation:

$$E = C + A (P)^B$$

Where:

P = Process weight rate

E = Allowable emission rate

- i. For process weight rates up to 27.2 Mg/hr (30 T/hr):

	<u>Metric</u>	<u>English</u>
P	Mg/hr	T/hr
E	kg/hr	lbs/hr
A	1.985	4.10
B	0.67	0.67
C	0	0

- ii. For process weight rates in excess of 27.2 Mg/hr (30 T/hr):

	<u>Metric</u>	<u>English</u>
P	Mg/hr	T/hr
E	kg/hr	lbs/hr
A	25.21	55.0
B	0.11	0.11
C	-18.4	-40.0

- c. Limits for Process Emission Units for which Construction or Modification Commenced Prior to April 14, 1972 [35 IAC 212.322(c)]:

<u>Metric</u>		<u>English</u>	
P	E	P	E
Mg/hr	kg/hr	T/hr	lb/hr
0.05	0.27	0.05	0.55
0.1	0.42	0.10	0.87
0.2	0.68	0.20	1.40
0.3	0.89	0.30	1.83
0.4	1.07	0.40	2.22
0.5	1.25	0.50	2.58
0.7	1.56	0.75	3.38
0.9	1.85	1.00	4.10
1.8	2.9	2.00	6.52
2.7	3.9	3.00	8.56
3.6	4.7	4.00	10.40
4.5	5.4	5.00	12.00
9.0	8.7	10.00	19.20
13.0	11.1	15.00	25.20
18.0	13.8	20.00	30.50
23.0	16.2	25.00	35.40
27.2	18.15	30.00	40.00
32.0	18.8	35.00	41.30
36.0	19.3	40.00	42.50
41.0	19.8	45.00	43.60
45.0	20.2	50.00	44.60
90.0	23.2	100.00	51.20
140.0	25.3	150.00	55.40
180.0	26.5	200.00	58.60
230.0	27.7	250.00	61.00
270.0	28.5	300.00	63.10
320.0	29.4	350.00	64.90
360.0	30.0	400.00	66.20
400.0	30.6	450.00	67.70
454.0	31.3	500.00	69.00

This attachment provides information, based on information provided by the Permittee as of the date of issuance of this revised permit, on the emission factors used by the Permittee to demonstrate compliance with certain emission limits for Material Handling Operations (Section 7.1), Blast Furnace Operations (Section 7.4), Basic Oxygen Process Operations (Section 7.5) and Continuous Casting Activities (Section 7.6), which limits have been carried over from Construction Permit/PSD Approval 95010001. (See also Condition 5.13.)

Operation (Permit Condition)	Pollutant	Emission Factor	Basis
Material Handling Operations (Section 7.1)			
Ladle Metallurgy Material Handling (7.1.6(b)(i))	PM	0.00355 lb/ton	steel
	PM ₁₀	0.00355 lb/ton	steel
BOF Additive System (7.1.6(b)(ii))	PM	0.00032 lb/ton	steel
	PM ₁₀	0.00032 lb/ton	steel
Flux conveyor Operations (7.1.6(b)(iii))	PM	0.0016 lb/ton	steel
	PM ₁₀	0.0016 lb/ton	steel
Iron Pellet Screening (7.1.6(b)(iv))	PM	0.00279 lb/ton	iron pellets
	PM ₁₀	0.00279 lb/ton	iron pellets
Blast Furnace Operations (Section 7.4)			
Casthouse (7.4.6(b))	PM	0.0703 lb/ton	iron
	PM ₁₀	0.0703 lb/ton	iron
	SO ₂	0.2006 lb/ton	iron
	NO _x	0.0144 lb/ton	iron
	VOM	0.0946 lb/ton	iron
Blast Furnace Uncaptured Emissions (7.4.6(c))	PM	0.031 lb/ton	iron
	PM ₁₀	0.0155 lb/ton	iron
	SO ₂	0.0104 lb/ton	iron
	NO _x	0.0007 lb/ton	iron
	VOM	0.0047 lb/ton	iron
Blast Furnace Charging (7.4.6(d))	PM	0.0024 lb/ton	iron pellets
	PM ₁₀	0.0024 lb/ton	iron pellets
Slag Pits (7.4.6(e))	PM	0.00417 lb/ton	iron
	PM ₁₀	0.00417 lb/ton	iron
	SO ₂	0.01 lb/ton	iron
Iron Spout (7.4.6(f))	PM	0.02548 lb/ton	iron
	PM ₁₀	0.02548 lb/ton	iron
	SO ₂	0.0073 lb/ton	iron

Operation (Permit Condition)	Pollutant	Emission Factor	Basis
Basic Oxygen Process Operations (Section 7.5)			
BOF Electrostatic Precipitator (7.5.6(c))	PM	0.16 lb/ton	steel
	PM ₁₀	0.16 lb/ton	steel
	NO _x	0.0389 lb/ton*	steel
	VOM	0.006 lb/ton**	steel
	CO	8.993 lb/ton	steel
	Lead	0.1934 lb/hr	-
BOF Roof Monitor (7.5.6(d))	PM	0.0987 lb/ton	steel
	PM ₁₀	0.066145 lb/ton	steel
	Lead	0.0129 lb/hour	-
Desulfurization and Hot Metal Transfer (7.5.6(e))	PM	0.03721 lb/ton	iron
	PM ₁₀	0.03721 lb/ton	iron
	VOM	0.001 lb/ton	iron
	Lead	0.0133 lb/hr	-
Slag Skimming (7.5.6(f))	PM	0.005 lb/ton	iron
	PM ₁₀	0.005 lb/ton	iron
Argon Stirring and Material Handling (7.5.6(g))	PM	0.00715 lb/ton	steel
	PM ₁₀	0.00715 lb/ton	steel
Continuous Casting Activities (Section 7.6)			
Baghouse #1 (7.6.6(a))	PM	0.00355 lb/ton	steel
	PM ₁₀	0.00355 lb/ton	steel
Continuous Caster Molds (7.6.6(b))	PM	0.006 lb/ton	steel
	PM ₁₀	0.006 lb/ton	steel
	NO _x	0.05 lb/ton	steel
Cont. Caster Spray Chambers (7.6.6(c))	PM	0.00852 lb/ton	steel
	PM ₁₀	0.00852 lb/ton	steel
Slab Cutoff (7.6.6(d))	PM	0.0071 lb/ton	steel
	PM ₁₀	0.0071 lb/ton	steel
Slab Ripping (7.6.6(e))	PM	0.00722 lb/ton	steel
	PM ₁₀	0.00722 lb/ton	steel

* As of the date of issuance of this permit, the Permittee had not notified the Illinois EPA of the updated NO_x emission factor that it will be using for the BOF ESP as a consequence of the results of recent testing that indicated that a factor of 0.0389 pounds/ton would understate actual emissions. The NO_x emission rates measured during such testing, in April 2012 and July 2012, were, respectively, 0.1273 and 0.1535 pounds per ton of steel.

** As of the date of issuance of this permit, the Permittee had not notified the Illinois EPA of the updated VOM emission factor that it will be using for the BOF ESP as a consequence of the results of recent testing that indicated that a factor of 0.006 pounds/ton would understate actual emissions. The VOM emission rates measured during such testing in April 2012 and July 2012, respectively, were 0.023 and 0.0153 pounds per ton of steel.

217/785-1705

TITLE V - CLEAN AIR ACT PERMIT PROGRAM (CAAPP) PERMIT
REVISED

PERMITTEE:

U. S. Steel Corporation
Granite City Works
Attn: Bryan Kresak
20th and State Streets
Granite City, Illinois 62040

I.D. No.: 119813AAIApplication No.: 96030056Date Received: March 6, 1996Date Originally Issued: September 3, 2009Date Revised Permit Issued: May 2, 2011Expiration Date: September 3, 2014Operation of: Integrated Steel MillSource Location: 20th and State Streets, Granite CityResponsible Official: Richard E. Veitch, General Manager

This permit is hereby granted to the above-designated Permittee to OPERATE an Integrated Steel Mill Plant, pursuant to the above referenced permit application. This permit is subject to the conditions contained herein.

Administrative Amendment Request Received: March 28, 2012Revision Date Issued: May 3, 2012

This administrative amendment reflects correction of a typographical error that now requires more frequent monitoring by the Permittee. This correction can be found in Condition 7.5.9(f). Because the change in the permit is only administrative, no formal public notice was issued.

This document only contains those portions of the entire CAAPP permit that have been revised as a result of this permitting action. If a conflict exists between this document and previous versions of the CAAPP permit, this document supercedes those terms and conditions of the permit for which the conflict exists. The previous permits issued on May 2, 2011 and October 5, 2011 are incorporated herein by reference.

Please attach a copy of this amendment to the front of the most recently issued entire permit.

If you have any questions concerning this permit, please contact Anatoly Belogorsky at 217/785-1705.

Edwin C. Bakowski, P.E.
Manager, Permit Section
Division of Air Pollution Control

ECB:AB:psj

cc: Illinois EPA, FOS, Region 3
CES
Lotus Notes

Except as provided in Conditions 1.5 and 8.7 of this permit.

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1.0 SOURCE IDENTIFICATION

1.1 Source

U. S. Steel Corporation
Granite City Works
20th and State Streets
Granite City, Illinois 62040
618/451-3456

I.D. No.: 119813AAI
County: Madison
Standard Industrial Classification: 3312, Integrated Steel Mill

Responsible Official: Richard E. Veitch, General Manager

Delegated Authorities:
Michelle Fields, Division Manager - Coke and Iron Making;
Michael Terry, Division Manager - Steelmaking

1.2 Owner/Parent Company

United States Steel Corporation
600 Grant Street
Pittsburgh, Pennsylvania 15219

1.3 Operator

U. S. Steel Corporation
Granite City Works
20th and State Streets
Granite City, Illinois 62040

Contact Person:
Jill A. Foust, Manager Environmental Control
618/451-3456

1.4 Source Description

Integrated steel manufacturing employing raw material processing/preparation, coke production, iron production, steel production, and steel finishing.

1.5 Title I Conditions

As generally identified below, this CAAPP permit contains certain conditions for emission units at this source that address the applicability of permitting programs for the construction and modification of sources, which programs were established pursuant to Title I of the Clean Air Act (CAA) and regulations thereunder. These programs include 40 CFR 52.21, Prevention of Significant Deterioration (PSD) and 35 IAC Part 203, Major Stationary Sources Construction and Modification (MSSCAM), and are implemented by the Illinois EPA pursuant to Sections 9, 9.1, 39(a) and 39.5(7)(a) of the Illinois Environmental

Protection Act (Act). These conditions continue in effect, notwithstanding the expiration date specified on the first page of this permit, as their authority derives from Titles I and V of the CAA, as well as Titles II and X of the Act. (See also Condition 8.7.)

- a. This permit contains "Title I Conditions" that reflect Title I requirements established in permits previously issued for this source, which conditions are specifically designated as "T1".
- b. This permit contains Title I conditions that are newly established in this CAAPP permit, which conditions are specifically designated as "T1N".

2.0 LIST OF ABBREVIATIONS AND ACRONYMS COMMONLY USED

ACMA	Alternative Compliance Market Account
Act	Illinois Environmental Protection Act [415 ILCS 5/1 et seq.]
AP-42	Compilation of Air Pollutant Emission Factors, Volume 1, Stationary Point and Other Sources (and Supplements A through F), USEPA, Office of Air Quality Planning and Standards, Research Triangle Park, NC 27711
ATU	Allotment Trading Unit
BACT	Best Available Control Technology
BAT	Best Available Technology
BFG	Blast Furnace Gas
BOF	Basic Oxygen Furnace
BOPF	Basic Oxygen Process Furnace
BTX	Benzene, toluene and xylene
CAA	Clean Air Act [42 U.S.C. Section 7401 et seq.]
CAAPP	Clean Air Act Permit Program
CAM	Compliance Assurance Monitoring
CEMS	Continuous Emission Monitoring System
CFR	Code of Federal Regulations
COG	Coke Oven Gas
COG-DS	Coke Oven Gas Desulfurization System
COMS	Continuous Opacity Monitoring System
CPMS	Continuous Parameters Monitoring System
dscf	Dry standard cubic feet
ERMS	Emissions Reduction Market System
ESP	Electro Static Precipitator
°F	Fahrenheit
FESOP	Federally Enforceable State Operating Permit
GHG	Greenhouse Gases
gr	grains
HAP	Hazardous Air Pollutant
HCL	Hydrogen Chloride
H ₂ S	Hydrogen Sulfate
IAC	Illinois Administrative Code
I.D. No.	Identification Number of Source, assigned by Illinois EPA
ILCS	Illinois Compiled Statutes
Illinois EPA	Illinois Environmental Protection Agency
LAER	Lowest Achievable Emission Rate
LMF	Ladle Metallurgy Furnace
MACT	Maximum Achievable Control Technology
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO _x	Nitrogen Oxides
NSPS	New Source Performance Standards
PM	Particulate Matter
PM ₁₀	Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 microns as measured by applicable test or monitoring methods

PM _{2.5}	Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 microns as measured by applicable test or monitoring methods
ppm	Parts per million
PSD	Prevention of Significant Deterioration
RMP	Risk Management Plan
scf	Standard cubic feet
SO ₂	Sulfur Dioxide
SSM	Startup, Shutdown and Malfunction
T1	Title I - identifies Title I conditions that have been carried over from an existing permit
T1N	Title I New - identifies Title I conditions that are being established in this permit
T1R	Title I Revised - identifies Title I conditions that have been carried over from an existing permit and subsequently revised in this permit
USEPA	United States Environmental Protection Agency
VHAP	Volatile Hazardous Air Pollutant
VOM	Volatile Organic Material

3.0 CONDITIONS FOR INSIGNIFICANT ACTIVITIES

3.1 Identification of Insignificant Activities

The following activities at the source constitute insignificant activities as specified in 35 IAC 201.210:

3.1.1 Activities determined by the Illinois EPA to be insignificant activities, pursuant to 35 IAC 201.210(a)(1) and 201.211, as follows:

a. Material Handling and Processing Operations

N/A

b. Coke Production

N/A

c. Coke Oven Gas By-Products Recovery Plant

Ammonium Sulfate Handling

d. Blast Furnaces

N/A

e. Basic Oxygen Furnaces

N/A

f. Continuous Casting

Tanks #543, #544, #545, #555

g. Finishing Operations

Scale Pits

#6 Zinc Pot (Backup)

#7 and #8 Zinc Pots

Storage Tanks ##306-310, #403, #427, #800, #815

h. Wastewater Treatment

N/A

i. Boiler Houses

N/A

3.1.2 Activities that are insignificant activities based upon maximum emissions, pursuant to 35 IAC 201.210(a)(2) or (a)(3), as follows:

- a. Material Handling Operations
N/A
- b. Coke Production
N/A
- c. Coke Oven Gas By-Products Recovery Plant
Storage Tanks #116, #117, #118, #120
- d. Blast Furnaces
Torpedo Car Dekishing
- e. Basic Oxygen Furnaces
Lime/Magnesium Handling and Storage Unit
- f. Continuous Casting
N/A
- g. Finishing Operations
72" Line and Cold Mill
- h. Wastewater Treatment
N/A
- i. Boiler Houses
N/A

3.1.3 Activities that are insignificant activities based upon their type or character, pursuant to 35 IAC 201.210(a)(4) through (18), as follows:

- a. Material Handling Operations
Direct combustion units designed and used for comfort heating purposes and fuel combustion emission units as follows: (A) Units with a rated heat input capacity of less than 2.5 mmBtu/hr that fire only natural gas, propane, or liquefied petroleum gas; (B) Units with a rated heat input capacity of less than 1.0 mmBtu/hr that fire only oil or oil in combination with only natural gas, propane, or liquefied petroleum gas; and (C) Units with a rated heat input capacity of less than 200,000 Btu/hr which never burn refuse, or treated or chemically contaminated wood [35 IAC 201.210(a)(4)].

b. Coke Production

Direct combustion units designed and used for comfort heating purposes and fuel combustion emission units as follows: (A) Units with a rated heat input capacity of less than 2.5 mmBtu/hr that fire only natural gas, propane, or liquefied petroleum gas; (B) Units with a rated heat input capacity of less than 1.0 mmBtu/hr that fire only oil or oil in combination with only natural gas, propane, or liquefied petroleum gas; and (C) Units with a rated heat input capacity of less than 200,000 Btu/hr which never burn refuse, or treated or chemically contaminated wood [35 IAC 201.210(a)(4)].

Storage tanks of virgin or re-refined distillate oil, hydrocarbon condensate from natural gas pipeline or storage systems, lubricating oil, or residual fuel oils [35 IAC 201.210(a)(11)].

Storage tanks of any size containing exclusively soaps, detergents, surfactants, glycerin, waxes, vegetable oils, greases, animal fats, sweeteners, corn syrup, aqueous salt solutions, or aqueous caustic solutions, provided an organic solvent has not been mixed with such materials [35 IAC 201.210(a)(17)].

c. Coke Oven Gas By-Products Recovery Plant

Storage tanks of organic liquids with a capacity of less than 10,000 gallons and an annual throughput of less than 100,000 gallons, provided the storage tank is not used for the storage of gasoline or any material listed as a HAP pursuant to Section 112(b) of the CAA [35 IAC 201.210(a)(10)].

Storage tanks of virgin or re-refined distillate oil, hydrocarbon condensate from natural gas pipeline or storage systems, lubricating oil, or residual fuel oils [35 IAC 201.210(a)(11)].

Storage tanks of any size containing exclusively soaps, detergents, surfactants, glycerin, waxes, vegetable oils, greases, animal fats, sweeteners, corn syrup, aqueous salt solutions, or aqueous caustic solutions, provided an organic solvent has not been mixed with such materials [35 IAC 201.210(a)(17)].

d. Blast Furnaces

Direct combustion units designed and used for comfort heating purposes and fuel combustion emission units as follows: (A) Units with a rated heat input capacity of less than 2.5 mmBtu/hr that fire only natural gas, propane, or liquefied petroleum gas; (B) Units with a rated heat

input capacity of less than 1.0 mmBtu/hr that fire only oil or oil in combination with only natural gas, propane, or liquefied petroleum gas; and (C) Units with a rated heat input capacity of less than 200,000 Btu/hr which never burn refuse, or treated or chemically contaminated wood [35 IAC 201.210(a)(4)].

Storage tanks of virgin or re-refined distillate oil, hydrocarbon condensate from natural gas pipeline or storage systems, lubricating oil, or residual fuel oils [35 IAC 201.210(a)(11)].

e. Basic Oxygen Furnaces

Direct combustion units designed and used for comfort heating purposes and fuel combustion emission units as follows: (A) Units with a rated heat input capacity of less than 2.5 mmBtu/hr that fire only natural gas, propane, or liquefied petroleum gas; (B) Units with a rated heat input capacity of less than 1.0 mmBtu/hr that fire only oil or oil in combination with only natural gas, propane, or liquefied petroleum gas; and (C) Units with a rated heat input capacity of less than 200,000 Btu/hr which never burn refuse, or treated or chemically contaminated wood [35 IAC 201.210(a)(4)].

Storage tanks of organic liquids with a capacity of less than 10,000 gallons and an annual throughput of less than 100,000 gallons, provided the storage tank is not used for the storage of gasoline or any material listed as a HAP pursuant to Section 112(b) of the CAA [35 IAC 201.210(a)(10)].

f. Continuous Casting

Direct combustion units designed and used for comfort heating purposes and fuel combustion emission units as follows: (A) Units with a rated heat input capacity of less than 2.5 mmBtu/hr that fire only natural gas, propane, or liquefied petroleum gas; (B) Units with a rated heat input capacity of less than 1.0 mmBtu/hr that fire only oil or oil in combination with only natural gas, propane, or liquefied petroleum gas; and (C) Units with a rated heat input capacity of less than 200,000 Btu/hr which never burn refuse, or treated or chemically contaminated wood [35 IAC 201.210(a)(4)].

Storage tanks of organic liquids with a capacity of less than 10,000 gallons and an annual throughput of less than 100,000 gallons, provided the storage tank is not used for the storage of gasoline or any material listed as a HAP pursuant to Section 112(b) of the CAA [35 IAC 201.210(a)(10)].

Storage tanks of virgin or re-refined distillate oil, hydrocarbon condensate from natural gas pipeline or storage systems, lubricating oil, or residual fuel oils [35 IAC 201.210(a)(11)].

Storage tanks of any size containing exclusively soaps, detergents, surfactants, glycerin, waxes, vegetable oils, greases, animal fats, sweeteners, corn syrup, aqueous salt solutions, or aqueous caustic solutions, provided an organic solvent has not been mixed with such materials [35 IAC 201.210(a)(17)].

g. Finishing Operations

Direct combustion units designed and used for comfort heating purposes and fuel combustion emission units as follows: (A) Units with a rated heat input capacity of less than 2.5 mmBtu/hr that fire only natural gas, propane, or liquefied petroleum gas; (B) Units with a rated heat input capacity of less than 1.0 mmBtu/hr that fire only oil or oil in combination with only natural gas, propane, or liquefied petroleum gas; and (C) Units with a rated heat input capacity of less than 200,000 Btu/hr which never burn refuse, or treated or chemically contaminated wood [35 IAC 201.210(a)(4)].

Storage tanks of organic liquids with a capacity of less than 10,000 gallons and an annual throughput of less than 100,000 gallons, provided the storage tank is not used for the storage of gasoline or any material listed as a HAP pursuant to Section 112(b) of the CAA [35 IAC 201.210(a)(10)].

Storage tanks of virgin or re-refined distillate oil, hydrocarbon condensate from natural gas pipeline or storage systems, lubricating oil, or residual fuel oils [35 IAC 201.210(a)(11)].

Storage tanks of any size containing exclusively soaps, detergents, surfactants, glycerin, waxes, vegetable oils, greases, animal fats, sweeteners, corn syrup, aqueous salt solutions, or aqueous caustic solutions, provided an organic solvent has not been mixed with such materials [35 IAC 201.210(a)(17)].

h. Wastewater Treatment

Storage tanks of organic liquids with a capacity of less than 10,000 gallons and an annual throughput of less than 100,000 gallons, provided the storage tank is not used for the storage of gasoline or any material listed as a HAP pursuant to Section 112(b) of the CAA [35 IAC 201.210(a)(10)].

Storage tanks of virgin or re-refined distillate oil, hydrocarbon condensate from natural gas pipeline or storage systems, lubricating oil, or residual fuel oils [35 IAC 201.210(a)(11)].

Storage tanks of any size containing exclusively soaps, detergents, surfactants, glycerin, waxes, vegetable oils, greases, animal fats, sweeteners, corn syrup, aqueous salt solutions, or aqueous caustic solutions, provided an organic solvent has not been mixed with such materials [35 IAC 201.210(a)(17)].

i. Boiler Houses

Direct combustion units designed and used for comfort heating purposes and fuel combustion emission units as follows: (A) Units with a rated heat input capacity of less than 2.5 mmBtu/hr that fire only natural gas, propane, or liquefied petroleum gas; (B) Units with a rated heat input capacity of less than 1.0 mmBtu/hr that fire only oil or oil in combination with only natural gas, propane, or liquefied petroleum gas; and (C) Units with a rated heat input capacity of less than 200,000 Btu/hr which never burn refuse, or treated or chemically contaminated wood [35 IAC 201.210(a)(4)].

Storage tanks of organic liquids with a capacity of less than 10,000 gallons and an annual throughput of less than 100,000 gallons, provided the storage tank is not used for the storage of gasoline or any material listed as a HAP pursuant to Section 112(b) of the CAA [35 IAC 201.210(a)(10)].

Storage tanks of virgin or re-refined distillate oil, hydrocarbon condensate from natural gas pipeline or storage systems, lubricating oil, or residual fuel oils [35 IAC 201.210(a)(11)].

Gas turbines and stationary reciprocating internal combustion engines of less than 112 kW (150 horsepower) power output [35 IAC 201.210(a)(15)].

Storage tanks of any size containing exclusively soaps, detergents, surfactants, glycerin, waxes, vegetable oils, greases, animal fats, sweeteners, corn syrup, aqueous salt solutions, or aqueous caustic solutions, provided an organic solvent has not been mixed with such materials [35 IAC 201.210(a)(17)].

- 3.1.4 Activities that are considered insignificant activities pursuant to 35 IAC 201.210(b). Note: These activities are not required to be individually listed.

3.2 Compliance with Applicable Requirements

Insignificant activities are subject to applicable requirements notwithstanding status as insignificant activities. In particular, in addition to regulations of general applicability, such as 35 IAC 212.301 and 212.123 (Condition 5.3.2), the Permittee shall comply with the following requirements, as applicable:

- 3.2.1 For each particulate matter process emission unit, the Permittee shall comply with the applicable particulate matter emission limit of 35 IAC 212.321 or 212.322 (see Attachment 2) and 35 IAC Part 266. For example, the particulate matter emissions from a process emission unit shall not exceed 0.55 pounds per hour if the emission unit's process weight rate is 100 pounds per hour or less, pursuant to 35 IAC 266.110.
- 3.2.2 For each organic material emission unit that uses organic material, e.g., a mixer or printing line, the Permittee shall comply with the applicable VOM emission limit of 35 IAC 219.301, which requires that organic material emissions not exceed 8.0 pounds per hour or, if no odor nuisance exists, do not qualify as photochemically reactive material as defined in 35 IAC 211.4690.
- 3.2.3 For each cold cleaning degreaser, the Permittee shall comply with the applicable equipment and operating requirements of 35 IAC 219.182.
- 3.2.4 For each open burning activity, the Permittee shall comply with 35 IAC Part 237, including the requirement to obtain a permit for open burning in accordance with 35 IAC 237.201, if necessary.
- 3.2.5 For each storage tank that has a storage capacity greater than 946 liters (250 gallons) and, if no odor nuisance exists, that stores an organic material with a vapor pressure exceeding 2.5 psia, the Permittee shall comply with the applicable requirements of 35 IAC 219.122, which requires use of a permanent submerged loading pipe, submerged fill, a vapor recovery system, or an equivalent device approved by the Illinois EPA. [Note: storage tanks used for storing gasoline and any hazardous air pollutants are not eligible for insignificant activities].
- 3.2.6 For sulfuric acid operations and storage, the Permittee shall comply with the following emission limits of sulfuric acid and/or sulfur trioxide from all emission sources (with the exception of fuel combustion emission sources and acid manufacturing) at a plant or premises, pursuant to 35 IAC 214.303:
 - a. 45.4 grams in any one hour period for sulfuric acid usage less than 1180 Mg/yr (100 percent acid basis) (0.10 lbs/hr up to 1300 T/yr); and

- b. 250 grams per metric ton of acid used for sulfuric acid usage greater than or equal to 1180 Mg/yr (100 percent acid basis) (0.50 lbs/T over 1300 T/yr).

3.3 Addition of Insignificant Activities

- 3.3.1 The Permittee is not required to notify the Illinois EPA of additional insignificant activities present at the source of a type that is identified in Condition 3.1, until the renewal application for this permit is submitted, pursuant to 35 IAC 201.212(a).
- 3.3.2 The Permittee must notify the Illinois EPA of any proposed addition of a new insignificant activity of a type addressed by 35 IAC 201.210(a) and 201.211 other than those identified in Condition 3.1, pursuant to Section 39.5(12)(b) of the Act.
- 3.3.3 The Permittee is not required to notify the Illinois EPA of additional insignificant activities present at the source of a type identified in 35 IAC 201.210(b).

4.0 SUMMARY OF SIGNIFICANT EMISSION UNITS AT THIS SOURCE

Department	Description	Emission Control Equipment	Section
Material Handling and Processing Operations	Coal Crusher, Coal Pulverizer, Conveyors, Screens, Storage Bins, Feed Hoppers	Baghouse, Various Dust Collectors and Enclosures	7.1
Coke Production	Coke Oven Batteries "A" and "B" Coke Quenching	Water Scrubber; Flares Tower, Baffles	7.2
Coke By-Product Recovery Plant	Various Storage Tanks and Process Vessels	Vapor Recovery System and Various Blanketing and Negative Pressure Systems	7.3
COG Desulfurization System	Amine Unit and SRU Unit	Thermal Oxidizer	
COG System	Holding Tank and COG Flare	None	
Blast Furnaces	Blast Furnaces "A" and "B" BFG Flares #1 and #2	Casthouse Baghouse; Iron Spout Baghouse	7.4
Basic Oxygen Processes	BOF #1/#2 and Auxiliary Equipment	Electrostatic Precipitator; Baghouses	7.5
Continuous Casting	Continuous Casting and Slab Formation	None	7.6
Hot Strip Mill	Slab Reheat Furnaces	None	7.7
Finishing Operations	Pickling Line, Galvanizing Lines, Coating Operations	Fume Scrubbers; Catalytic Converter	7.8
Wastewater Treatment Plant	Various tanks, filtration and Lagoons	None	7.9
Boilers	Power Boiler #1 Boilers #11 and #12 Cooling Water Tower Portable Boilers #1 - #4	Flue Gas Recirculation (planned for Boilers #11 and #12)	7.10
Internal Combustion Engine	Emergency Engine-Generator	None	7.11

Department	Description	Emission Control Equipment	Section
Gasoline Storage and Dispensing	Four Gasoline Storage Tanks and associated Dispensing Operations	None	7.12
Fugitive Dust	Landfill Vehicular Traffic on Roadways, Parking Lots and Other Open Areas Storage Piles including truck unloading, wind erosion and material transfer from storage piles, beaching areas	None	7.13

5.0 OVERALL SOURCE CONDITIONS

5.1 Applicability of Clean Air Act Permit Program (CAAPP)

- 5.1.1 This permit is issued based on the source requiring a CAAPP permit as a major source of NO_x, PM₁₀, SO₂, VOM, CO, GHG and HAP emissions.
- 5.1.2 For purposes of the CAAPP, U.S. Steel is considered a single source with Stein Steel Mill Services (I.D. 119813AAD) located at 20th Street and Edwardsville in Granite City. Stein Steel Mill Services has a separate CAAPP permit for its operations.
- 5.1.3 For purposes of the CAAPP, U.S. Steel is considered a single source with Granite City Slag, LLC (I.D. 119040ATF) located at 20th Street and Edwardsville in Granite City. Granite City Slag has a separate CAAPP permit for its operations.
- 5.1.4 For purposes of the CAAPP, U.S. Steel is considered a single source with AKJ Industries, Inc (I.D. 119040AEB) located at 20th Street and Edwardsville in Granite City. AKJ Industries has a separate CAAPP permit for its operations.
- 5.1.5 For purposes of the CAAPP, U.S. Steel is considered a single source with Oil Technology, Inc (I.D. 119040ATG) located onsite of Granite City Steel (Route 203) in Granite City. Oil Technology has a separate CAAPP permit for its operations.
- 5.1.6 For purposes of the CAAPP, U.S. Steel is considered a single source with Tube City IMS (I.D. 119040ATL) located at 2500 East 23rd Street in Granite City. Tube City has a separate CAAPP permit for its operations.
- 5.1.7 For purposes of the CAAPP, U.S. Steel is considered a single source with Gateway Energy & Coke Co LLC (I.D. 119040ATN) located at Edwardsville Road in Granite City. Gateway Energy & Coke has elected to obtain a separate CAAPP permit for its operations.

5.2 Area Designation

- 5.2.1 This permit is issued based on the source being located in an area that, as of the date of permit issuance, is designated nonattainment for the National Ambient Air Quality Standards for ozone (moderate nonattainment), PM_{2.5} and lead, and attainment or unclassifiable for all other criteria pollutants (PM₁₀, CO, NO_x, SO₂).

5.3 Source-Wide Applicable Provisions and Regulations

- 5.3.1 Specific emission units at this source are subject to particular regulations as set forth in Section 7 (Unit-Specific Conditions for Specific Emission Units) of this permit.

5.3.2 Fugitive Dust

- a. This source shall be operated under the provisions of Fugitive Particulate Matter Operating Program prepared by the Permittee and submitted to the Illinois EPA for its review. Such operating program shall be designed to significantly reduce fugitive particulate matter emissions [35 IAC 212.309(a)]. The Permittee shall comply with the fugitive particulate matter operating program and any amendments to the program submitted pursuant to Condition 5.3.2(b), as required by 35 IAC 212.309. As a minimum, the operating program shall include provisions identified in 35 IAC 212.310(a) through (g) and the following:
 - i. A detailed description of the best management practices utilized to achieve compliance with 35 IAC 212.304 through 212.308.
 - ii. Estimated frequency of application of dust suppressants by location; and
 - iii. Such other information as may be necessary to facilitate the Illinois EPA's review of the operating program.
- b. Pursuant to 35 IAC 212.312, the operating program shall be amended from time to time by the Permittee so that the operating program is current. Such amendments shall be consistent with the requirements set forth by this Condition 5.3.2 and shall be submitted to the Illinois EPA within 30 days of such amendment.
- c. In addition to the items described above in Condition 5.3.2(a), the Permittee shall include the following additional plans and programs as part of the Fugitive Particulate Matter Operating Program:
 - i. Housekeeping program for non-roadway areas as required by Condition 7.13.5(a)(i)(B);
 - ii. Road Cleaning Program as required by Condition 7.13.5(d); and
 - iii. On-site fugitive dust control program as referenced in Condition 7.13.9(b).
- d. The revised Fugitive Particulate Matter Operating Program, submitted by the Permittee on August 12, 2009, (identified as Revision 8 and necessitated by changes to responsible officials and description of areas treated) and containing an attached Table and Map for the iron-making and steel-making roads respectively), is incorporated herein by reference. The document constitutes the formal operating program required under 35 IAC 212.310, addressing the

control of fugitive particulate matter emissions from all plant roadways, including the iron-making and steel-making roads, storage piles, access areas near storage piles, and other subject operations located at the facility that are subject to 35 IAC 212.309.

Any future revision to the aforementioned operating program made by the Permittee during the permit term is automatically incorporated by reference provided that said revision is not expressly disapproved, in writing, by the Illinois EPA within 30 days of receipt of said revision. In the event that the Illinois EPA notifies the Permittee of a deficiency with any revision to the operating program, the Permittee shall be required to revise and resubmit the operating program within 30 days of receipt of notification to address the deficiency [415 ILCS 39.5(7)(a)].

- e. Pursuant to 35 IAC 212.301, the affected emission units at the source shall not cause or allow the emission of fugitive particulate matter from any process, including any material handling or storage activity, that is visible by an observer looking generally toward the zenith at a point beyond the property line of the source.
- f. Pursuant to 35 IAC 212.307, all unloading and transporting operations of materials collected by pollution control equipment shall be enclosed or shall utilize spraying, pelletizing, screw conveying or other equivalent methods.

5.3.3 PM₁₀ Contingency Measure Plan

- a. This stationary source meets the criteria in 35 IAC 212.700 and is required to prepare and submit a contingency measure plan reflecting the PM₁₀ emission reductions as set forth in 35 IAC 212.701 and 212.703.
- b. PM₁₀ Contingency Measure Plan shall be implemented by the Permittee in accordance with 35 IAC 212.704 upon notification from the Illinois EPA.
- c. Pursuant to 35 IAC 212.701(c), for operational changes subject to Sections 212.304, 212.305, 212.306, 212.308, 212.316(a) through (e), 212.424 or 212.464 which require either a new permit or a revision to an existing permit the Permittee shall, within 30 days after such changes, submit a request to modify this CAAPP permit in order to include a new, appropriate contingency measure plan.
- d. The plan, as submitted by the Permittee on November 15, 1994 (which includes tabulations of PM₁₀ fugitive emissions, maps for the steel-works and iron making respectively, and a comparative analysis of contingency requirements and existing road programs), is incorporated herein by reference. The document constitutes the formal PM₁₀

Contingency Measure Plan required by 35 IAC 212.701, addressing the Levels 1 and 2 control measures for reducing annual source-wide fugitive emissions of PM₁₀ from plant roads (paved and unpaved) and materials handling operations in the event of an exceedance of the 24-hour ambient air quality standard for PM₁₀ under 35 IAC 212.704 or 212.705.

5.3.4 Ozone Depleting Substances

The Permittee shall comply with the standards for recycling and emissions reduction of ozone depleting substances pursuant to 40 CFR Part 82, Subpart F, except as provided for motor vehicle air conditioners in Subpart B of 40 CFR Part 82:

- a. Persons opening appliances for maintenance, service, repair, or disposal must comply with the required practices pursuant to 40 CFR 82.156.
- b. Equipment used during the maintenance, service, repair, or disposal of appliances must comply with the standards for recycling and recovery equipment pursuant to 40 CFR 82.158.
- c. Persons performing maintenance, service, repair, or disposal of appliances must be certified by an approved technician certification program pursuant to 40 CFR 82.161.

5.3.5 Standards for Asbestos Demolition and Renovation (40 CFR 61.145)

- a. Prior to demolition or renovation of the affected facility or part of the affected facility, the Permittee shall fulfill notification requirements established by 40 CFR 61.145(b).
- b. During demolition or renovation, the Permittee shall comply with the procedures for asbestos emission control established by 40 CFR 61.145(c).

5.3.6 Future Emission Standards

Should this stationary source become subject to a regulation under 40 CFR Parts 60, 61, 62, or 63, or 35 IAC Subtitle B after the date this permit is issued, then the owner or operator shall, in accordance with the applicable regulation(s), comply with the applicable requirements by the date(s) specified and shall certify compliance with the applicable requirements of such regulation(s) as part of the annual compliance certification, as required by Condition 9.8. This permit may also have to be revised or reopened to address such new regulations (see Condition 9.12.2).

5.3.7 Episode Action Plan

- a. Pursuant to 35 IAC 244.141, the Permittee shall maintain at the source and have on file with the Illinois EPA a written

Episode Action Plan (plan) for reducing the levels of emissions during yellow alerts, red alerts, and emergencies, consistent with safe operating procedures.

- b. The Permittee shall immediately implement the appropriate steps described in this plan should an air pollution alert or emergency be declared, as required by 35 IAC 244.169, or as may otherwise be required under 35 IAC 244, Appendix D.
- c. If an operational change occurs at the source which invalidates the plan, a revised plan shall be submitted to the Illinois EPA for review within 30 days of the change, pursuant to 35 IAC 244.143(d). Such plans shall be further revised if disapproved by the Illinois EPA.
- d. The revised plan, submitted by the Permittee on October 19, 2009, (which contains a completed APC Form 100 and attached Tables I-V identifying additional actions to be implemented), is incorporated herein by reference. The document constitutes the formal Episode Action Plan required by 35 IAC 244.142, addressing the actions that will be implemented to reduce SO₂, PM₁₀, NO₂, CO and VOM emissions from various emissions units in the event of a yellow alert, red alert or emergency issued under 35 IAC 244.161-244.165.

Any future revision to the aforementioned plan made by the Permittee during the permit term is automatically incorporated by reference provided that said revision is not expressly disapproved, in writing, by the Illinois EPA within 30 days of receipt of said revision. In the event that the Illinois EPA notifies the Permittee of a deficiency with any revision to the plan, the Permittee shall be required to revise and resubmit the plan within 30 days of receipt of notification to address the deficiency [415 ILCS 39.5(7)(a)].

5.3.8 Risk Management Plan (RMP)

Should this stationary source, as defined in 40 CFR 68.3, become subject to the federal regulations for Chemical Accident Prevention in 40 CFR Part 68, then the owner or operator shall submit the items below. This condition is imposed in this permit pursuant to 40 CFR 68.215(a)(2)(i) and (ii).

- a. A compliance schedule for meeting the requirements of 40 CFR Part 68 by the date provided in 40 CFR 68.10(a); or
- b. A certification statement that the source is in compliance with all requirements of 40 CFR Part 68, including the registration and submission of the RMP, as part of the annual compliance certification required by Condition 9.8.

5.3.9 Energy Assessment (40 CFR 63, Subpart DDDDD)

Pursuant to 40 CFR 63.7500(a)(1) and Item 3 of Table 3 of 40 CFR 63 Subpart DDDDD, the Permittee must have a one-time energy assessment performed on the major source facility (i.e., the facility) by a qualified energy assessor. This energy assessment shall be completed no later than the applicable compliance date of this NESHAP for existing sources and meet requirements in Table 3, including preparation of a comprehensive report detailing the ways to improve efficiency, the cost of specific improvements, benefits, and the time frame for recouping those investments. This energy assessment shall be conducted consistent with the definitions for "energy assessment", "energy management practices" and "energy use system" in 40 CFR 63.7575

5.4 Source-Wide Non-Applicability of Regulations of Concern

- a. Except where noted, 35 IAC 212.321 and 212.322 shall not apply to the steel manufacturing processes subject to 35 IAC 212.442 through 212.452 [35 IAC 212.441].
- b. Except where noted, emission limitations of 35 IAC 212.324 are not applicable to any emission unit subject to a specific emissions standard or limitation contained in 35 IAC Subpart R, Primary and Fabricated Metal Products and Machinery Manufacture pursuant to 35 IAC 212.324(a)(3)(C).
- c. This source (as a source of coke manufacturing, by-products recovery plant, iron and steel production) is excluded from the control requirements of 35 IAC Part 219 Subpart TT pursuant to 35 IAC 219.980(e).
- d. This source does not receive any off-site waste as defined in 40 CFR 63.680(b) and, therefore is not subject to 40 CFR Part 63 Subpart DD "Off-site Waste and Recovery Operations".
- e. The source is not required to address 40 CFR Part 64, Compliance Assurance Monitoring (CAM) for Major Stationary Sources at the time of issuance of this permit, because the initial CAAPP application was submitted prior to April 1998 [40 CFR 64.5(a)(1)].

5.5 Source-Wide Control Requirements and Work Practices

The Permittee (U.S. Steel), in conjunction with Gateway Energy and Coke Company shall maintain 267.77 tons of PM₁₀ emission offsets generated by the following activities/projects (see also Sections 7.3 and 7.13):

Activity/Project	(Tons/Year)
Coke Oven Gas (COG) Desulfurization Project	31.74
Road Cleaning Program	236.03
Total:	267.77

- a. These emission reductions have been relied upon by the Illinois EPA to issue Construction Permits 06070088 and 06070020 for projects by the Permittee and Gateway, respectively and cannot be used as emission reduction credits for other purposes.
- b. If the Permittee proposes to rely upon emission offsets from other sources or other activities/projects, the Permittee shall apply for and obtain a revision to Permit 06070088 prior to relying on such emission offsets, which application shall be accompanied by detailed documentation for the nature and amount of those alternative emission offsets.

5.6 Source-Wide Production and Emission Limitations

5.6.1 Emissions of Hazardous Air Pollutants

Source-wide emission limitations for HAPs as listed in Section 112(b) of the CAA are not set. This source is considered to be a major source of HAPs.

5.6.2 Other Source-Wide Production and Emission Limitations from existing permits:

a. Provisions from Construction Permit #95010001

- i. Total production of iron and steel by U.S. Steel/Granite City plant shall not exceed the following limits. Compliance with these annual production limits shall be determined on a month by month basis by showing that the actual production of iron and steel from the plant did not exceed the scheduled rate of production for a month given in the most recent production schedule provided to the Illinois EPA Compliance Section and Collinsville Regional Office as provided below [T1]:

Product	Net tons/yr
Iron	3,165,000
Steel	3,580,000

- A. If no production schedule is submitted to the Illinois EPA by the Permittee for a particular year, the scheduled monthly production of iron and steel shall be set at one twelfth of the annual production limits in Condition 5.6.2(a)(i) above.

- B. 1. The Permittee may submit a schedule for iron and steel production for each month of the calendar year. Such schedule shall provide the scheduled monthly iron and steel production for each month and the total of such scheduled production

shall not exceed the annual production limits in Condition 5.6.2(a)(i) above. This schedule shall be submitted each year no later than December 15th of the preceding year.

2. During the course of the year, the Permittee may submit a revised production schedule which accounts for actual production levels which were below that scheduled for the previous months, provided that in no case shall the scheduled production for prior months in such a revised schedule be lowered to less than actual production levels or raised. Such revised schedule shall be submitted no later than 15 days after the first day of the month for which scheduled production has been raised. Such schedule shall be accompanied by data on actual production in preceding months.

- ii. Total fuel usage for blast furnaces stoves (A and B), boilers 11 and 12, ladle drying preheaters and blast furnace gas flare #1 and shall not exceed the following limits. Compliance with the monthly limits shall be determined by direct comparison of monthly data to the applicable limit. Compliance with the annual limits shall be determined based on a calendar year [T1]:

A. Natural Gas usage:

225 million ft³ per month and 1,346 million ft³ per year;

B. Blast Furnace Gas (BFG) usage:

30,800 million ft³ per month and 185,030 million ft³ per year; and

C. Fuel Oil usage:

60,000 gallons per month and 365,000 gallons per year.

- iii. A. Annual emissions from the fuel combustion units identified in Condition 5.6.2(a)(ii) above shall not exceed the following limits in tons/year:

PM/PM ₁₀	SO ₂	NO _x	VOM	CO	Lead
274	641	706	2	1,295	0.06

* These limits have been addressed by an enforcement action, with a compliance schedule established for compliance with these limits. (See Condition 7.4.13)

B. Annual emissions from each individual fuel used in the fuel combustion units identified in Condition 5.6.2(a)(ii) above shall not exceed the following limits:

1. Natural Gas

Pollutant	Emission Factor (Lbs/mmcft)	Maximum Emissions (Tons/Yr)
PM	5.1	3.43
PM ₁₀	5.1	3.43
SO ₂	0.6	0.40
NO _x	306.0	205.94
VOM	2.8	1.88
CO	40.0	26.92

2. BFG

Pollutant	Emission Factor (Lbs/mmcft)	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

Pollutant	Emission Factor (Lbs/Mgal)	Maximum Emissions (Tons/Yr)
Lead	0.336	0.06 (Waste Oil)

C. Compliance with the annual limits in Condition 5.6.2(a)(iii) shall be determined based on a calendar year.

b. Provisions from Construction Permit #06070022:

Annual emissions of the source from combustion of COG shall not exceed the following limits [T1]

	Limits (Tons/Year)	
	PM ₁₀	SO ₂
"Outage" of Affected System	47.55	530.59
Total (includes normal and outage):	224.80	807.90

c. Provisions from FESOP #94120017:

Emissions of SO₂ from the so called "sulfur dioxide emission units" operated at the source shall not exceed the following limits. Compliance with the limits shall be determined in accordance with the procedure in Condition 5.12.

Unit Operating Group	Sulfur Dioxide Emissions		
	(Lbs/3-Hours)	(Lbs/Day)	(Tons/Yr)
Slab Reheat Furnaces 1-3	2,299	9,754	987
Slab Reheat Furnace 4	---	11,873	1,204
Blast Furnace Stoves A and B	---	19,774	3,609
Boilers 11 and 12	---	20,584	3,756
Ladle Drying Preheaters	555	2,786	509
Blast Furnace Casthouse Baghouse	---	3,430	626
Iron Spout Baghouse	---	170	31

5.7 Source-Wide Testing Requirements

Pursuant to 35 IAC 201.282 and Section 4(b) of the Act, every emission source or air pollution control equipment shall be subject to the following testing requirements for the purpose of determining the nature and quantities of specified air contaminant emissions and for the purpose of determining ground level and ambient air concentrations of such air contaminants:

a. Testing by Owner or Operator: The Illinois EPA may require the owner or operator of the emission source or air pollution

control equipment to conduct such tests in accordance with procedures adopted by the Illinois EPA, at such reasonable times as may be specified by the Illinois EPA and at the expense of the owner or operator of the emission source or air pollution control equipment. All such tests shall be made by or under the direction of a person qualified by training and/or experience in the field of air pollution testing. The Illinois EPA shall have the right to observe all aspects of such tests [35 IAC 201.282(a)].

- b. Testing by the Illinois EPA: The Illinois EPA shall have the right to conduct such tests at any time at its own expense. Upon request of the Illinois EPA, the owner or operator of the emission source or air pollution control equipment shall provide, without charge to the Illinois EPA, necessary holes in stacks or ducts and other safe and proper testing facilities, including scaffolding, but excluding instruments and sensing devices, as may be necessary [35 IAC 201.282(b)].
- c. Any such tests are also subject to the Testing Procedures of Condition 8.5 set forth in the General Permit Conditions of Section 8.

5.8 Source-Wide Monitoring Requirements

- a. Requirements for coke oven gas (COG) flow meters from FESOP #94120017: for purposes of these conditions, a Unit Operating Group is a group of emission units as defined in Condition 5.6.2(c).

Note: Requirements for monitoring the sulfur content of COG as present in FESOP #94120017 are included in Section 7.3 of this CAAPP permit.

- i. The Permittee shall test, operate, and maintain a system for measuring the COG usage for each unit operating group.
- ii. A flow meter shall be maintained on the main Blast Furnace and Steelworks COG feed lines and each individual emission unit or unit operating group and shall be used to measure the COG usage rate. The total COG usage for each unit operating group as a whole shall be the sum of the individual usage for the emission units of that group as measured by the individual meters or that measured by a single flow meter measuring the COG usage for the unit operating group as a whole.
- iii. The COG flow meter system shall be capable of recording the COG usage in standard cubic feet on an hourly and daily basis. COG usage shall be obtained from the COG flow meter system to allow the determination of hourly and/or daily COG usage for each unit operating group, as needed for the emission rate calculations of this permit.

- iv. The COG flow meter system shall be operated, and data collected, reduced and maintained, in accordance with the applicable requirements of 40 CFR 60.13 and 35 Ill. Adm. Code Part 201 Subpart L.
 - A. Each COG flow meter shall be tested at least every 12 months, in accordance with the procedures of 40 CFR 60, Appendix B, Performance Specification 6.
 - B. The results of these flow meter performance tests shall be sent to the Illinois EPA's Division of Air Pollution Control, Permit Section and Regional Office within 14 days after completion of the tests. In addition, the results shall be maintained in accordance with the recordkeeping requirements specified in this permit.
 - C. If a single flow meter on an unit operating group fails, then the COG usage for that group may be calculated using the difference between overall total COG usage and the total COG usage at the remaining properly operating COG flow meters, or the difference in COG usage from the main COG feed line of the affected unit operating group and the COG usage at the remaining properly operating flow meters associated with that main feed line.
 - D. In the event that several flow meters are down such that the above COG usage calculation is not possible, the COG usage for the affected unit operating group(s) shall be determined by a method approved by the Illinois EPA (e.g., use of temporary backup measurement system). In no case shall COG usage not be determined by a method described in this permit, or an approved alternative method, so as to result in insufficient data being obtained to determine the COG usage for any unit operating group as needed to evaluate compliance using the emission rate calculations of this permit.
- v. In the event of malfunction or breakdown of a COG flow meter system, the Permittee shall repair and recalibrate the meter or monitoring system as soon as practicable but no later than 10 days after the malfunction or breakdown is detected, unless prior Illinois EPA approval is obtained by submitting a notification of extended outage and adequate justification to the Illinois EPA detailing the reasons for delay. Records of repair and recalibration must be maintained in accordance with the recordkeeping requirements of this CAAPP permit. This condition does not

relieve the Permittee of the minimum data obtaining requirements of this CAAPP permit.

- b. The Permittee shall conduct observations at the property line of the source for visible emissions of fugitive particular matter from the source to address compliance with 35 IAC 212.301, upon request by the Illinois EPA, as follows:

For this purpose, daily observations shall be conducted for a week for particular area(s) of concern at the source, as specified in the request. Observations shall begin either within one day or three days of receipt of a written request from the Illinois EPA, depending, respectively, upon whether observations will be conducted by employees of the Permittee or a third-party observer hired by the Permittee to conduct observations on its behalf. The Permittee shall keep records for these observations, including identity of the observer, the date and time of observations, the location(s) from which observations were made, and duration of any fugitive emissions event(s).

- c. Pursuant to FESOP 94120017, the Permittee shall analyze the fuel oil used at the source in accordance with the following.
 - i. The sulfur content and density as determined by the ASTM methods specified in the testing requirements of FESOP 94120017 shall be used in emission calculations.
 - ii. The sulfur content and density of the fuel oil shall be determined upon each instance of fuel oil usage.

5.9 Source-Wide Recordkeeping Requirements

5.9.1 Records for Opacity and Emission Limits

The Permittee shall maintain the following records pursuant to Section 39.5(7)(b) of the Act:

- a. The Permittee shall maintain records of the total annual net production of iron and steel on a monthly basis and a total calendar year basis, to verify compliance with Condition 5.6.2(a)(i).
- b. The Permittee shall maintain records of monthly and annual use of fuels to verify compliance with Condition 5.6.2(a)(ii).
- c. The Permittee shall maintain records of annual emissions from the emission units listed in Condition 5.6.2(a)(ii) for comparison to the annual emission limits in Condition 5.6.2(a)(iii)(A) for PM/PM₁₀, SO₂, NO_x, VOM, CO and lead.

- d. The Permittee shall maintain the following records for the emission units identified in Condition 5.6.2(a)(ii) to verify the emission factors for different fuels listed in Condition 5.6.2(a)(iii)(B):
- i. For emissions of NO_x, PM, PM₁₀, VOM, and CO, records for the emission factors used by the Permittee to determine emissions of the pollutant from the subject emission units for firing of natural gas, blast furnace gas and oil, with supporting documentation and analysis, and the "maximum" annual emission factors for the different fuels and pollutants calculated as a weighted average of the individual factors for different emission units, weighted for the greatest relative annual use of fuel in different units, beginning with the unit that has the highest emission factor. For example, if the boilers have the highest emission factors for NO_x, the factors shall be weighted for the greatest percentage of fuels expected to be used in the boilers, and then for the units that have the next highest emission factor(s), and so forth until all of the fuel has been accounted for. These records shall be reviewed and updated by the Permittee as necessary to assure that the emission factors that it uses to determine emissions of the subject unit do not understate emissions, including review when emission testing is conducted for the subject emission units, review when emission testing of similar emission units is conducted at other facilities (as would be needed if the Permittee is relying upon data from emission testing at other US Steel facilities), and review when USEPA revises its *Compilation of Air Pollutant Emission Factors*, AP-42 (as would be needed if the Permittee has relied upon emission factors from AP-42). These records shall be prepared and copies submitted to the Illinois EPA in accordance with Condition 5.9.6(c).
 - ii. Records for the sulfur content of COG and BFG, as measured pursuant to Conditions 5.9.1(e) and 7.3.9(f) and Condition 7.10.8-1(c), respectively, which data shall either be used when determined SO₂ emissions from combustion of the fuels or used to confirm that the determinations of SO₂ emissions from combustion of these fuels do not understate actual SO₂ emissions.
 - iii. Records for the actual average annual emission rates for different fuels and pollutants, including SO₂ and lead, calculated by dividing the actual emissions of the subject units for different fuels and pollutants by the annual usage of fuels. These records shall be compiled on an annual basis by the Permittee when the

records for annual emissions of the subject units are compiled.

- e. The Permittee shall maintain the following records for the emissions of PM₁₀* and SO₂ associated with use of COG to verify compliance with the emission limits in Condition 5.6.2(b). (See also recordkeeping requirements in Section 7.3 of the permit.)

- * For the purpose of this condition, the Permittee shall address total PM₁₀, including both filterable and condensable particulate, rather than only filterable particulate.
- i. Records for the volumes of COG that are and are not processed by the COG Desulfurization System (scf), with data for undesulfurized COG on a 3-hour, daily and monthly basis and data for desulfurized COG on a daily and monthly basis.
- ii. Records for the sulfur contents of COG (gr/scf or gr/100 scf), with data for undesulfurized COG on a 3-hour, daily and monthly basis and data for desulfurized COG on a daily and monthly basis.
- iii. Records for the emission factors used by the Permittee to determine the PM₁₀ emissions from firing desulfurized and undesulfurized COG for the emission units at the facility that fire COG, with supporting documentation and analysis, and the "maximum" annual PM₁₀ emission factor calculated as a weighted average of the individual factors for different emission units, weighted for the greatest relative annual use of COG in different units, beginning with the unit that has the highest emission factor. These records shall be reviewed and updated by the Permittee as necessary to assure that the emission factors that it uses to determine emissions of units firing COG do not understate emissions, including review when PM₁₀ emission testing is conducted for units at the facility and review when PM₁₀ emission testing of similar emission units is conducted at other facility.
- iv. Records for the annual PM₁₀ and SO₂ emissions from the facility from combustion of COG that has not been desulfurized, determined from the summation of the volume of such COG multiplied by either its sulfur content or the established PM₁₀ emission factor for undesulfurized COG.
- v. Records for the annual PM₁₀ and SO₂ emissions from the facility from combustion of COG that has been desulfurized, determined from the summation of the

volume of such COG multiplied by either its sulfur content or the established PM₁₀ emission factor for desulfurized COG.

- vi. Records for the total annual PM₁₀ and SO₂ emissions from the facility from combustion of COG, determined as the sum of the annual emission from combustion of COG that has and has not been desulfurized.

5.9.2 Records for HAP Emissions

The Permittee shall maintain source-wide records of HAP emissions on a calendar year basis and individually for the emission units or group of emission units covered by Section 7 (Unit Specific Conditions for Specific Emission Units) of this permit and emitting HAPs, pursuant to Section 39.5(7)(b) of the Act.

5.9.3 Records for Source-Wide Control Requirements and Work Practices

- a. The Permittee shall keep a copy of the fugitive particulate matter operating plan, and any amendments or revisions to the plan, as required by Condition 5.3.2. The Permittee shall also keep a record of activities completed according to the plan.
- b. The Permittee shall keep copy of the PM₁₀ contingency plan, and any amendments or revisions as described by Condition 5.3.3. The Permittee shall also keep a record of activities completed according to the plan.
- c. The Permittee shall keep a copy of the Episode Action Plan, and any amendments or revisions to the plan, as described in Condition 5.3.7. The Permittee shall also keep a record of activities completed according to the plan.
- d. The Permittee shall keep a record of property line observations required by Condition 5.8(b).

5.9.4 Records to address SO₂ emission limits in Condition 5.6.2(c) from FESOP #94120017:

- a. SO₂ emissions of each unit operating group in terms of the associated emission limits of this permit (i.e., lbs/3-hrs and lbs/day) accompanied by the data from which they were determined.
- b. SO₂ emissions of each unit operating group in tons/month.
- c. SO₂ emissions of each unit operating group in tons/year determined by using a rolling total of the previous 12 consecutive months of data.

- d. Records for repairs of any COG flow meter, as required by Condition 5.8(a)(v), including copies of any notifications to the Illinois EPA for extended outage of a flow meter.
- e. Records for any fuel oil usage instances with the results of the sampling and analysis of oil sulfur content.

5.9.5 The Permittee shall retain copies of all emission test reports and other test reports and other submittals to the Illinois EPA related to testing that are required by Conditions 5.7 and 5.10 and other conditions of this permit.

5.9.6 Retention, Availability and Submittal of Records

Pursuant to Section 39.5(7)(e)(ii) of the Act, the Permittee shall keep the records required by this permit as follows:

- a. All records and logs required by this permit shall be retained for at least five years from the date of entry (unless a longer retention period is specified by the particular recordkeeping provision herein). The Permittee shall keep the last 3 years of data on-site and remaining 2 years data may be kept at an offsite location. The Permittee shall make all these readily accessible records available to the Illinois EPA or USEPA for inspection and/or copying upon request.
- b. The Permittee shall retrieve and print, on paper during normal source office hours, any records retained in an electronic format (e.g., computer) in response to an Illinois EPA or USEPA request for records during the course of a source inspection.
- c. For certain records related to emission factors or emission rates required to be kept by this permit for various emission units at this source, as specifically identified in other conditions of this permit, the Permittee shall submit a copy of the records to the Illinois EPA as provided below:
 - i. Copies of initial records shall be submitted to the Illinois EPA within 15 days of the date that the Permittee prepares these records for subject unit(s), which shall in no case be later than January 20, 2012, 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).

5.9.7 Inspection, Sampling and Observations Documentation

Inspection, sampling and observation performed as required by this permit shall have documentation in addition to the records elsewhere in this permit that identifies at least the following:

- a. Name of person(s) or representative performing such activity;
- b. Date and time of such activity;
- c. Any applicable industry standards or other specific procedures for such activities; and
- d. Any quality assurance or quality control results.

5.10 Source-Wide Reporting Requirements

5.10.1 General Source-Wide Reporting Requirements

- a. Pursuant to Section 39.5(7)(f)(ii) of the Act, the Permittee shall promptly notify the Illinois EPA, Air Compliance Section, within 30 days of deviations from applicable requirements as follows:
 - i. Requirements in Condition 5.3.2(d) and (e)
 - ii. Requirements in Condition 5.5.
 - iii. Requirements in Condition 5.6.2.
- b. All such deviations shall be summarized and reported as part of the semiannual monitoring report required by Condition 8.6.1.
- c. The Permittee shall notify the Illinois EPA, Air Compliance Section, of all other deviations as part of the semiannual monitoring reports required by in Condition 8.6.1.
- d. All required deviation reports described in Condition 5.10.1 above shall contain the following information:
 - i. Date and time of the deviation;
 - ii. Emission units(s)/operation involved;
 - iii. The duration of the event;
 - iv. Probable cause of the deviation;
 - v. Any corrective actions or preventative measures taken;

- vi. Reporting on malfunction and breakdown shall be performed in accordance with Condition 5.10.5; and
- vii. Reporting on startup shall be performed in accordance with Condition 5.10.5.

5.10.2 Annual Emissions Report

- a. The annual emissions report required pursuant to Condition 9.7 shall contain emissions information, including HAP emissions, for the previous calendar year.
- b. The Permittee shall submit the following additional information from the prior calendar year with the Annual Emissions Report, due May 1st of each year, pursuant to Permit 95010001:
 - i. Iron and steel production (tons/month and tons/yr, each);
 - ii. Natural gas and BFG usage (mmft³/month and mmft³/yr, each); and
 - iii. Fuel oil usage (thousand gallons/month and thousand gallons/yr, for each type of oil).
- c. The Permittee shall submit an annual report to the Illinois EPA with its Annual Emission Report describing the implementation of the Road Cleaning Program for the affected road segments, as defined in Condition 7.13.5(d), during the previous year. This report shall at a minimum provide: the number of times each road segment was cleaned; the number of times that scheduled cleaning was not performed, with explanation; a description of any significant changes in road cleaning equipment or cleaning practices, with explanation; and a description of other significant changes to the Program, including changes in contractors [Permit #06070088].

5.10.3 Reporting requirements from FESOP #94120017

- a. The Permittee shall submit quarterly reports (every 3 calendar months) to the Illinois EPA. This report is due 30 days after the end of the reporting period and may be submitted on computer disk. This report shall contain the following information for the days during the quarter:
 - i. A summary showing the emissions of SO₂ for each unit operating group for each day and the 12 month rolling average in tons/year.
 - ii. A statement identifying any apparent violations which occurred during the quarter covered by the report or,

if there have been no apparent violations, a statement to that effect.

- iii. A summary of any COG flow meter downtime.
- iv. Identification of any days for which data for at least 75% of the operating hours of the unit operating group was not obtained by an approved method; justification for not obtaining the data; and description of corrective action taken.
- b. These reports shall be sent to IEPA Compliance Section in Springfield and IEPA Regional Office in Collinsville.
- c. Copies of the Final Report for the tests identified in Condition 5.8(a)(iv) shall be submitted to the Illinois EPA along with the quarterly reports required by this CAAPP permit within 30 days after the reported quarter.

5.10.4 Other Source-Wide Reporting Requirements

- a. i. A quarterly report shall be submitted to the Illinois EPA stating the following: the dates any necessary control measures were not implemented, a listing of those control measures, the reasons that the control measures were not implemented, and any corrective actions taken. This information includes, but is not limited to, those dates when controls were not applied based on a belief that application of such control measures would have been unreasonable given prevailing atmospheric conditions, which shall constitute a defense to the requirements of this Section. This report shall be submitted to the Illinois EPA thirty (30) calendar days from the end of a quarter. Quarters end March 31, June 30, September 30, and December 31 [35 IAC 212.316(g)(5)].
- ii. The reporting requirements from the above are established for fugitive particulate matter control measures implemented for the certain operations identified in 35 IAC 212.316(b) through 212.316(f).
- iii. Control measures for this condition are those identified in the Fugitive Particulate Matter Operating Program.
- b. Upon written request by the Illinois EPA, a report shall be submitted to the Illinois EPA for any period specified in the request stating the following: the dates during which any process emission unit was in operation when the air pollution control equipment was not in operation or was not operating properly, documentation of causes for pollution control equipment not operating or not operating properly,

and a statement of what corrective actions were taken and what repairs were made [35 IAC 212.324(g)(6)].

5.10.5-1 Reporting for Startups (State Authorization)

Pursuant to 39.5(7)(a) and (f)(ii) of the Act, when startup reports are required for an emission unit by unit specific conditions in Chapter 7 of this permit, such reports shall be submitted to the Illinois EPA, Air Compliance Section and Collinsville Regional Field Office on a semi-annual basis, and include the following information related to startups of such emission unit and associated air pollution control equipment.

- a. If startups occurred during the reporting period, the report shall include the following:
 - i. The number of startups.
 - ii. The number of departures from established procedures.
 - iii. The number of exceedances of each applicable standard.
 - iv. A general explanation for the magnitude of the numbers reported and the significance or meaning of those numbers.
 - v. A general explanation for the departures.
 - vi. A general explanation for the exceedances.
 - vii. A general discussion of whether any improvements were made to startup practices
- b. If there were no startups for the reporting period, a statement that "No startups occurred during this reporting period."
- c. Startups that resulted in excess emissions shall be addressed in the deviation reports as required by unit specific conditions in Chapter 7 of this permit.

5.10.5-2 Reporting for Malfunction or Breakdown (State Authorization)

- a. The Permittee shall provide the following notification and reports to the Illinois EPA, Air Compliance Section and Collinsville Regional Field Office, pursuant to 35 IAC 201.263, concerning continued operation of an affected emission unit or related air pollution control equipment when such continued operation would cause a violation of a standard or limitation in 35 IAC Subtitle B, Chapter I, subchapter c:

- i. If an emission unit or control device operates during a malfunction/breakdown, the Permittee shall immediately report such event to the Illinois EPA within 2 working days after such event occurs. The immediate notification shall be provided to the Illinois EPA's Springfield Office (Compliance Section) by a telephone, facsimile, electronic mail or other alternative method of correspondence that constitutes the fastest available alternative. The immediate notification shall be followed by a letter to the Illinois EPA's Springfield Office (Compliance Section), postmarked within 7 working days after the end of the event. The 7 day follow-up letter shall contain the name, title, and signature of the owner or operator or other responsible official certifying its accuracy, explaining the circumstances and reasons for event, describing all excess emissions and/or parameter monitoring exceedances which may have occurred during the malfunction/breakdown event, actions taken to minimize emissions or parameter exceedance and all repairs made in conjunction with such malfunction/breakdown event.
- ii. If all the necessary information identified above is contained within the 2-day immediate notification and the notification was done by means of written correspondence, a 7-day follow-up letter is not required to be submitted.
- iii. A summary of these malfunction/breakdown reports required by this permit shall be submitted to the Illinois EPA's Springfield Office Compliance Section on a quarterly basis and contain the following:
 - A. Date and time of malfunction/breakdown;
 - B. Emission unit(s)/control involved;
 - C. The duration of the event;
 - D. Probable cause of malfunction/breakdown; and
 - E. Repairs and other corrective actions taken.

5.10.5-3 Federal Startup Shutdown and Malfunction/Breakdown Requirements

- a. For those emission units subject to a NESHAP standard and for which an SSM plan is required under 40 CFR 63.10(d)(5), the Permittee shall submit reports as required by the NESHAP including:
 - i. Periodic startup, shutdown or malfunction reports [40 CFR 63.10(d)(5)(i)]

- A.
 - 1. If actions taken by an owner or operator during a startup or shutdown (and the startup or shutdown causes the affected emission unit to exceed any applicable emission limitation in the relevant NESHAP emission standards specified in Section 7 of this permit), or malfunction of an affected emission unit (including actions taken to correct a malfunction) are consistent with the procedures specified in the source's startup, shutdown, and malfunction plan (see 40 CFR 63.6(e)(3)), the Permittee shall state such information in a startup, shutdown, and malfunction report.
 - 2. Actions taken to minimize emissions during such startups, shutdowns, and malfunctions shall be summarized in the report and may be done in checklist form; if actions taken are the same for each event, only one checklist is necessary.
 - 3. Such a report shall also include the number, duration, and a brief description for each type of malfunction which occurred during the reporting period and which caused or may have caused any applicable emission limitation to be exceeded.
- B. The startup, shutdown, and malfunction report shall consist of the following:

A letter, containing the name, title, and signature of the owner or operator or other responsible official who is certifying its accuracy.
- C. Reports shall only be required if a startup, shutdown or malfunction occurred during the reporting period.
- D. The SSM Report shall be submitted to the Illinois EPA semiannually and shall be delivered or postmarked by the 30th day following the end of each calendar half (or other calendar reporting period, as appropriate).
- E. If the owner or operator is required to submit excess emissions and continuous monitoring system performance (or other periodic) reports required by this permit, the startup, shutdown,

and malfunction reports required under 40 CFR 63.10(d) may be submitted simultaneously with the excess emissions and continuous monitoring system performance (or other) reports.

- F. If startup, shutdown, and malfunction reports are submitted with excess emissions and continuous monitoring system performance (or other periodic) reports, and the owner or operator receives approval to reduce the frequency of reporting for the latter under 40 CFR 63.10(e), the frequency of reporting for the startup, shutdown, and malfunction reports also may be reduced if the Illinois EPA does not object to the intended change. The procedures to implement the allowance in the preceding sentence shall be the same as the procedures specified in 40 CFR 63.10(e)(3).

ii. Immediate startup, shutdown or malfunction reports [40 CFR 63.10(d)(5)(ii)]

- A. Notwithstanding the allowance to reduce the frequency of reporting for periodic startup, shutdown, and malfunction reports under 40 CFR 63.10(d)(5)(i), any time an action taken by an owner or operator during a startup or shutdown that caused the source to exceed any applicable emission limitation in the relevant NESHAP emission standards specified in Section 7 of this CAAPP, or malfunction (including actions taken to correct a malfunction) is not consistent with the procedures specified in the affected source's startup, shutdown, and malfunction plan, the owner or operator shall submit an immediate report stating the actions taken for that event within 2 working days after commencing actions inconsistent with the plan and a follow-up report submitted within 7 working days after the end of the event.
- B. The immediate report shall consist of a telephone call (or facsimile (FAX) transmission) to the Illinois EPA.
- C. The follow-up report shall consist of the following:
 - 1. The name, title, and signature of the owner or operator or other responsible official who is certifying its accuracy and explaining the circumstances of the event.

2. The reasons for not following the startup, shutdown, and malfunction plan.
3. Description all excess emissions and/or parameter monitoring exceedances which are believed to have occurred (or could have occurred in the case of malfunctions).
4. And actions taken to minimize emissions in conformance with 40 CFR 63.6(e)(1)(i).

5.10.6 Separate copies of all reports required by this permit shall be sent to the IEPA Regional Office in Collinsville.

5.10.7 40 CFR 63, Subpart DDDDD (Notification of Compliance)

- b. Pursuant to 40 CFR 63.7545(b), the Permittee must submit an initial Notification according to 40 CFR 63.9(b)(2).
- b. Pursuant to 40 CFR 63.7545(e), the Permittee must submit a Notification of Compliance Status according to 40 CFR 63.9(h)(2)(ii). For the initial compliance demonstration for each affected unit, the Permittee must submit the Notification of Compliance Status, including all performance test results and fuel analyses, before the close of business on the 60th day following the completion of all performance test and/or other initial compliance demonstrations for the affected unit according to 40 CFR 63.10(d)(2).
- c. For subject emission units, for which Permittee must conduct an initial compliance demonstration, the report shall include the information specified in 40 CFR 63.9(h)(2) and 63.7545(e).
- d. In addition to the information required by 40 CFR 63.9(h)(2), the notification of compliance status must include the following certification(s) of compliance, as applicable, and signed by a responsible official:
 - i. "This facility complies with the requirements in 40 CFR 63.7540(a)(10) to conduct an annual or biennial tune-up, as applicable, of each unit."
 - ii. "This facility has had an energy assessment performed according to 40 CFR 63.7530(e)."
 - iii. "No secondary materials that are solid waste were combusted in any affected unit."
- e. Pursuant to 40 CFR 63.7530(e), the Permittee must include with the Notification of Compliance Status a signed certification that the energy assessment was completed

according to Table 3 of 40 CFR Part 63, Subpart DDDDD and is an accurate depiction of the affected facility.

- f. Pursuant to 40 CFR 63.7530(d), the Permittee must submit a signed statement in the Notification of Compliance Status report that indicates a tune-up was completed on each existing unit firing natural gas with a heat input capacity of less than 10 million Btu per hour.

5.11 Source-Wide Operational Flexibility/Anticipated Operating Scenarios

No source-wide operational flexibility/anticipated operating scenarios have been established in this permit.

5.12 Source-Wide Compliance Procedures

Compliance Provisions for Condition 5.6.2(c) (adopted from FESOP 94120017):

- a. Compliance with the lbs/3-hours limits in Condition 5.6.2(c) shall be demonstrated by using emission rate calculations for eight discrete 3-hour periods per day, with the first period beginning at midnight.
- b. Compliance with the daily emission limits in Condition 5.6.2(c) shall be demonstrated by using emission rate calculations on a daily block basis (i.e., midnight to midnight).
- c. The compliance calculations shall be the primary compliance method for determining compliance with the emission limits in Condition 5.6.2(c), except for the blast furnace casthouse baghouse and iron spout baghouse, for which stack testing shall be the primary means of determining compliance.
- d. Total SO₂ emissions from an unit operating group for determination of compliance with the SO₂ limits in Condition 5.6.2(c) shall be the sum of the emissions resulting from the use of COG and fuel oil at the unit operating group, i.e.:

Lbs SO₂ per unit operating group = SO₂ emissions from fuel oil usage + SO₂ emissions from COG usage

Note: When FESOP Permit 94120017 was originally issued, the SO₂ emissions which would result from the use of blast furnace gas and natural gas in the unit operating groups were accounted for in the SO₂ limits of that permit. This was accomplished by lowering the permitted SO₂ from the SO₂ levels used for air quality modeling by an amount equal to the SO₂ which would have been emitted should the unit operating groups use blast furnace gas or natural gas continuously. The SO₂ emissions from blast furnace gas and natural gas were calculated using standard emission factors as found in AIRS Facility Subsystem, Source

Classification Codes and Emission Factor Listing for Criteria Air Pollutants, EPA Document Number EPA 450/4-90-003, and Compilation of Air Pollution Emission Factors, Vol. 1, Stationary Point and Other Sources, AP-42.

- e. The SO₂ emissions attributable to fuel oil usage shall be calculated from the records required by the CAAPP permit for usage of fuel oil and the sulfur and heat content of oil (See Condition 5.9.4) and the following equation:

$$\text{Lbs SO}_2/\text{period} = \text{gallons of oil burned per period} \times \text{sulfur content in weight percent of the fuel oil used} \times \text{density of the fuel oil used in pounds per gallon} \times 2.$$

- f. The SO₂ emissions attributable to COG usage shall be calculated from the records required by the CAAPP permit for the amount of COG burned and the sulfur content of the COG (See Condition 5.9.1(e)) and the following equation:

$$\text{Lbs SO}_2/\text{period} = \text{thousand standard cubic feet of COG burned per period} \times \text{average H}_2\text{S content of the COG in grains per standard cubic foot for the period} \times 0.269.$$

- g. Stack test measurement shall be the primary method of determining the compliance of the Blast Furnace Casthouse and Iron Spout Baghouse with the lbs/day limits in Condition 5.6.2(c). The secondary means of determining compliance shall be the following:

- i. The SO₂ attributable to the Blast Furnace Casthouse Baghouse shall be calculated using an emission factor of 0.173 lbs SO₂ per ton of hot metal cast.
- ii. The SO₂ attributable to the Iron Spout Baghouse shall be calculated using an emission factor of 0.0063 lbs SO₂ per ton of hot metal cast.

- h. Compliance with the tons/yr limits in Condition 5.6.2(c)) shall be determined using a rolling total of 12 consecutive calendar months of data.

- i. When fuel oil is used and data is not available for the fuel oil at the individual unit operating groups, the oil usage during such period shall be calculated from the data for total usage of oil apportioned among the individual operating groups using oil based on the relative heat inputs the unit operating group during that period.

- j. Usage of COG shall be determined from data collected by the COG flow meters.

Note: For this purpose, data from flow meters for both desulfurized and undesulfurized COG may be used in accordance with Condition 5.9.1(e) (i).

- k. The average H₂S content of COG for the lbs/3-hours compliance calculations shall be calculated using an arithmetic average of all available H₂S data during the 3-hour period that COG was burned. In the event that the H₂S monitoring system is unable to obtain a single reading for the 3-hour period, the H₂S content for that 3-hour period shall be obtained by one of the alternative methods specified in Condition 7.3.9(f) of this permit (i.e., manual sampling of H₂S content or determined by type of coal used during that period and previous recorded H₂S content when using this coal type).

For this purpose, data from H₂S monitoring systems for both desulfurized and undesulfurized COG, in accordance with Condition 5.9.1(e) (ii), shall be used as appropriate depending upon whether desulfurized or undesulfurized COG is being combustion.

- l. The daily average H₂S content of COG for use in the lbs/day compliance calculations shall be calculated using an arithmetic average of all available hourly average H₂S content data for that day, and at least data from 75% of the daily operating hours.

Note: For this purpose, data from the H₂S monitoring systems for both desulfurized and undesulfurized COG, in accordance with Condition 5.9.1(e) (ii).

5.13 Source-wide State-Only Conditions

5.13.1 Permitted Emissions for Fees

Emission limitations are not set for the source for the purpose of permit fees. The Permittee shall pay the applicable fee pursuant to Section 39.5 of the Act.

6.0 CONDITIONS FOR EMISSIONS CONTROL PROGRAMS

This section is reserved for emissions control programs. As of the date of issuance of this permit, there are no such programs applicable to this source.

7.0 UNIT SPECIFIC CONDITIONS FOR SPECIFIC EMISSION UNITS

7.1 Material Handling and Processing Operations

7.1.1 Description

Coal handling systems:

The crusher is mainly used in the winter to break-up frozen chunks of coal to prepare the coal to be processed in the pulverizer.

There are two coal pulverizers. Only one pulverizer can be used at any one time. The remaining pulverizer is maintained as a backup unit. The pulverizers reduce the size of the coal to prepare it for the coking process. A baghouse controls the discharge outlets of the coal pulverizers.

Blast furnace raw material handling systems:

Raw materials such as coke, iron-bearing materials, and fluxes are charged to blast furnaces in the iron making process. The materials are charged in the top of the furnace from skip cars, which are filled in the stockhouse from conveyors or hoppers. Iron pellets and coke are screened prior to charging.

New Coke Conveyance System:

The new coke conveyor system transfers coke from Gateway Energy to US Steel to be used in the existing Blast Furnaces.

Steel making system:

Raw materials used in the BOFs and LMF are delivered to the facility by both truck and railcar. The trucks and railcars are either unloaded to the ground or directly into an underground feed hopper. Materials unloaded to the ground are placed in storage piles, or in super sacks, endloaders are used to transfer the materials from the storage piles or super sacks to the underground feed hopper. The underground feed hopper then feeds material onto BOF material transfer conveyor C-1. This material transfer is controlled by the Trackhopper Baghouse, this bag house empties back onto C-1 conveyor.

Materials added in the BOF and LMF are transferred from the underground feed hopper, by a conveyor system consisting of three conveyors (nos. C-1, C-2, and C-3) arranged in series. From conveyor C-3 the materials are offloaded into storage bins 1 thru 10, or a rotating hopper known as the lazy susan, or onto conveyor C-5. The storage bins unload materials to conveyor C-4, which transfers and off-loads the materials into the BOF feed hoppers for #1 vessel or #2 vessel. The lazy susan feeds directly into the BOFs Alloy transfer car. Conveyor C-5 transfers materials to the LMF material handling system. All

operations carried out within this unit take place within enclosed structures. The transfer from conveyors C-1 to C-2 and C-2 to C-3 are controlled by the Binfloor Baghouse, this bag house empties into Bin #2.

Materials are transferred from the BOF Binfloor to the LMF on conveyor C-5. This conveyor off-loads into storage bins which transfer to conveyor C-6. The emissions from the transfer from conveyor C-5 to C-6 are handled by Baghouse #1. Additional raw materials used in the LMF are transferred from the Tripper Conveyor to a set of storage bins. Emissions generated by loadout of the Tripper Conveyor are controlled by Baghouse #2.

Note: This narrative description is for informational purposes only and is not enforceable.

7.1.2 List of Emission Units and Air Pollution Control Equipment

Area	Emission Unit Description	Emission Control Equipment	Date Constructed
Coal Handling and Processing	Coal Crusher	None	Pre-1974
	Coal Pulverizers (2)	Baghouse	
	Conveyors	None	
Blast Furnace	Screens (3) - Two Coke - One Iron Pellet	None	Pre-1974
	Conveyors and Feed Hoppers	None	
	Stock House Storage Bins	None	
	New Coke Conveyance System - Conveyors and Hoppers - Day Bins	Baghouses	2009
Steelmaking	Dump Pit Conveyor	Trackhopper Baghouse	Pre-1974
	Conveyors and Storage Bins	Bin floor Baghouse	
	LMF Conveyors and Storage Bins	Baghouse #1	Prior to 1986

7.1.3 Applicable Provisions and Regulations

- a. i. The "affected material handling operations" for the purpose of these unit-specific conditions, are the emission units described in Conditions 7.1.1 and 7.1.2.
- ii. The "affected crushing operations" for the purpose of these unit-specific conditions, are the crusher and pulverizers described in Conditions 7.1.1 and 7.1.2.

- iii. The "affected screening operations" for the purpose of these unit-specific conditions, are the iron pellet and coke screens described in Conditions 7.1.1 and 7.1.2.
 - iv. The "affected transfer operations" for the purpose of these unit-specific conditions, are the conveyors, storage bins, new coke conveyance system and feed hoppers described in Conditions 7.1.1 and 7.1.2.
- b. Pursuant to 35 IAC 212.316(b), the Permittee shall not cause or allow fugitive particulate matter emissions generated by the affected crushing and screening operations to exceed an opacity of 10 percent.
 - c. Pursuant to 35 IAC 212.316(f), the Permittee shall not cause or allow fugitive particulate matter emissions generated by the affected transfer operations to exceed an opacity of 20 percent.
 - d. Pursuant to 35 IAC 212.321(a), the Permittee shall not cause or allow the emission of particulate matter into the atmosphere in any one hour period from the new coke conveyor system or LMF conveyors and LMF storage bins for which, either alone or in combination with the emission of particulate matter from all other similar process emission units for which construction or modification commenced on or after April 14, 1972, at a source or premises, exceeds the allowable emission rates specified in subsection (c) of 35 IAC 212.321 (see also Attachment 2).
 - e. Pursuant to 35 IAC 212.322(a), the Permittee shall not cause or allow the emission of particulate matter into the atmosphere in any one hour period from any affected material handling operation for which construction or modification commenced prior to April 14, 1972*, which, either alone or in combination with the emission of particulate matter from all other similar process emission units at a source or premises, exceeds the allowable emission rates specified in subsection (c) of 35 IAC 212.322 (see also Attachment 2).
- * The new coke conveyor system and LMF conveyors and LMF storage bins constructed after April 14, 1972, is not subject to 35 IAC 212.322.
- f. Pursuant to 35 IAC 212.458(b)(7) and (c), the Permittee shall not cause or allow emissions of PM₁₀, other than that of fugitive particulate matter, into the atmosphere from any affected material handling operation to exceed 0.01 gr/scf during any one hour period, except for this mass emission limit shall not apply to those emission units with no visible emissions other than that of fugitive particulate matter; however, if a stack test is performed,

this subsection is not a defense to a finding of a violation of the mass emission limits contained in this condition.

7.1.4 Non-Applicability of Regulations of Concern

The emission limitations of 35 IAC 212.324 are not applicable to the affected material handling operations, as provided by 35 IAC 212.324(a)(3), because the affected operations are subject to standards in 35 IAC Part 212, Subpart R, "Primary and Fabricated Metal Products and Machinery Manufacture".

7.1.5 Control Requirements and Work Practices

- a. The affected material handling operations shall be operated under the provisions of a fugitive particulate matter operating program consistent with the provisions of 35 IAC 212.309, 212.310 and 212.312 (see also Condition 5.3.2(a)) [35 IAC 212.309].
- b. Pursuant to 35 IAC 212.307, material collected by control equipment on the affected material handling operations shall be handled in accordance with Condition 5.3.2(e).
- c. For the air pollution control equipment on the affected operations, the Permittee shall comply with maintenance and repair requirements in 35 IAC 212.324(f), as follows, pursuant to 35 IAC 212.458(d):

The Permittee shall maintain and repair all air pollution control equipment in a manner that assures that the emission limits and standards in 35 IAC 212.458 shall be met at all times. Proper maintenance shall include the following minimum requirements:

- i. Visual inspections of air pollution control equipment;
 - ii. Maintenance of an adequate inventory of spare parts; and
 - iii. Expedition repairs, unless the emission unit is shutdown.
- d. BACT/LAER requirements for the new coke conveyor system, from Permit 06070088:
 - i. PM and PM₁₀ emissions from the day bins shall be controlled by [T1]:
 - A. Enclosure of the day bin so as to prevent visible fugitive emissions, as defined by 40 CFR 60.671.

- B. Aspiration of the day bins or the enclosure in which they are enclosed to a control device, which device shall be operated in accordance with good air pollution control practice to minimize emissions. For this purpose, the control device shall be a baghouse or other filtration type device unless the Permittee demonstrates and the Illinois EPA concurs that another type of control device is preferable due to considerations of operational safety.
- ii. PM and PM₁₀ emissions from the new coke conveyance system shall be controlled by enclosure so as to prevent visible fugitive emissions, as defined by 40 CFR 60.671 [T1].
- iii. Emissions of PM and PM₁₀ from the control devices for the new coke conveyance system shall not exceed 0.005 gr/dscf [T1].

Condition 7.1.5(d) represents the application of Best Available Control Technology and Lowest Achievable Emission Rate.

7.1.6 Production and Emission Limitations

- a. Production and emission limits for the new coke conveyor system from Permit 06070088:
- i. The new coke conveyance system shall not transfer more than 740,000 tons of coke per year [T1].
- ii. The emissions from the new coke conveyance system shall not exceed 0.95 tons/year of PM and 0.45 tons/year of PM₁₀ [T1].
- iii. Compliance with the annual limits of Condition 7.1.6(a) shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total) [T1].
- b. Emission limits for blast furnace and steel making material handling operations from Permit 95010001:
- i. Emissions from Material HS and Deslagging Station shall not exceed the following limits [T1]:

<u>Pollutant</u>	<u>Emission Factors (Lbs/Ton of steel)</u>	<u>Maximum Emissions (Tons/Yr)</u>
PM	0.00355	6.35
PM ₁₀	0.00355	6.35

- ii. BOF Additive System (Trackhopper Baghouse) emissions shall not exceed the following limits [T1]:

<u>Pollutant</u>	<u>Emission Factors (Lbs/Ton of steel)</u>	<u>Maximum Emissions (Tons/Yr)</u>
PM	0.00032	0.57
PM ₁₀	0.00032	0.57

- iii. Flux conveyor & transfer points (Bin Floor Baghouse) emissions shall not exceed the following limits [T1]:

<u>Pollutant</u>	<u>Emission Factors (Lbs/Ton of steel)</u>	<u>Maximum Emissions (Tons/Yr)</u>
PM	0.0016	2.86
PM ₁₀	0.0016	2.86

- iv. Iron Pellet Screen emissions shall not exceed the following limits [T1]:

<u>Pollutant</u>	<u>Emission Factors (Lbs/Ton Iron)</u>	<u>Maximum Emissions (Tons/Yr)</u>
PM	0.00279	6.01
PM ₁₀	0.00279	6.01

- v. Compliance with the annual limits in Condition 7.1.6(b) shall be determined based on a calendar year [T1].

7.1.7 Testing Requirements

The following emission tests and opacity observations shall be conducted pursuant to Section 39.5.(7)(d) and (p) of the Act.

- a. i. The Permittee shall measure the opacity from the affected crushing, screening and transfer operations unless prolonged weather conditions preclude scheduled observations. These observations shall be conducted by a qualified observer in accordance with Method 9, as further specified below, pursuant to Section 39.5(7)(d) of the Act.
- A. This testing shall be conducted at least annually.
- B. Upon written request by the Illinois EPA, such testing shall be conducted for specific affected operation(s) within 45 calendar days of the request or by the date agreed upon by the Illinois EPA, whichever is later. At least 30 days prior to the scheduled test date, the

Permittee shall submit a detailed test plan to the Illinois EPA, describing the manner of operation of the affected activity and all control measures that will be implemented during the testing. The results of the testing will be submitted within thirty calendar days of the completion of the tests.

- ii. The duration of opacity observations for each test shall be at least 30 minutes (five 6-minute averages).
- b. The Permittee shall test for opacity and PM/PM10 emissions from the baghouse for the coal pulverizers and either the trackhopper baghouse, bin floor baghouse or baghouse #1 as will be specified by the Illinois EPA within 30 days of receipt of the test protocol. These two tests shall be completed within 30 months of the effective date of this permit condition. The Permittee shall use the following methods:

Location of Sample Points	Method 1
Gas Flow and Velocity	Method 2, 2A - H
Flue Gas Weight	Method 3, 3A - C
Moisture	Method 4
PM/PM ₁₀ as provided for by 35 IAC 212.108	Method 5, 201 or 201A

7.1.8 Monitoring Requirements

The Permittee shall perform the following inspections, pursuant to Section 39.5(7)(p)(ii) of the Act:

- a. Affected material handling operations other than the new coke conveyance system.

The Permittee shall perform quarterly inspections of the control measures, while the affected material handling operations are in use. For purposes of this condition, all affected material means each type of material handled. Types of material are materials such as: 1) coal; 2) coke; 3) limestone; 4) iron pellets; 5) alloy materials; 6) desulfurization reagents; and 7) slag materials. These inspections shall, at a minimum, include the following:

- i. Verification that control measures, including reliance on characteristics of materials, is being properly implemented. For conveyors, these inspections shall include, where applicable, verification that all covers, enclosures and dribble pans are present and in good working condition. For crushers, these inspections shall also include verifications for choke feeding.

- ii. For the baghouses on the affected material handling operations - a check of differential pressure and inspection of the dust removal system, compressed air system, bag condition, fan condition and structural components.
- iii. As part of the inspections, the Permittee shall perform observations for visible emissions by Method 22. These observations shall be conducted during the operations of each activity for a minimum of 18 minutes, or for activities that operate on a batch basis, for a minimum of six consecutive batches or 18 minutes. If visible emissions are observed, the Permittee shall take corrective action within 2 hours to return the status of the operations to no visible emissions or observations of opacity by Method 9 shall be conducted. For the purpose of this condition, returning the status of operations to no visible emissions does not include, for any activity, temporary idling or the lack of operations between batches.

b. Affected new coke conveyance system

- i. The Permittee shall conduct inspections of the new coke conveyor system on at least a monthly basis for the specific purpose of verifying that control measures required to control emissions from the new coke conveyor system are being properly implemented.
- ii. These inspections shall include observation for the presence of visible emissions, performed in accordance with USEPA Method 22, from the conveyors and day bins.

7.1.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items, pursuant to Sections 39.5(7)(a) and (e) of the Act:

a. The Permittee shall keep the following file(s) and log(s):

File(s) containing the following information for the affected material handling operations with supporting information:

- i. Information related to the dust collection equipment associated with the affected operations, including design control efficiency or performance specifications and maximum design particulate matter emissions, gr/dscf.
- ii. The maximum design capacity of each operation, (tons/hr).

- b. For the air pollution control equipment on affected operations, the Permittee shall keep the following records related to maintenance and repair, as required by 35 IAC 212.458(d):
 - i. Records of inventory of spare parts and documentation of inspections, maintenance, and repairs of all air pollution control equipment shall be kept in accordance with 35 IAC 212.324(f) [35 IAC 212.324(g) (1)].
 - ii. Records documenting any period during which any process emission unit was in operation when the air pollution control equipment was not in operation or was malfunctioning so as to cause an emissions level in excess of the emissions limitation. These records shall include documentation of causes for pollution control equipment not operating or such malfunction and shall state what corrective actions were taken and what repairs were made [35 IAC 212.324(g) (2)].
 - iii. A written record of the inventory of all spare parts not readily available from local suppliers shall be kept and updated [35 IAC 212.324(g) (3)].
- c. The Permittee shall keep the written records required by 35 IAC 212.316(g) (1) as follows:
 - i. For fugitive particulate matter emission units subject to 35 IAC 212.316, records related to the application of control measures for compliance with the opacity limitations of 35 IAC 212.316, including submittals to the Illinois EPA an annual report containing a summary of the information in these records.
 - ii. These records shall include at least the information specified by 35 IAC 212.316(g) (2), as follows:
 - A. The name and address of the source;
 - B. The name and address of the owner and/or operator of the source;
 - C. A map or diagram showing the location of all emission units controlled;
 - D. For application of physical or chemical control agents: the name of the agent, application rate and frequency, and total quantity of agent, and, if diluted, percent of concentration, used each day; and

- E. A log recording incidents when control measures were not used and a statement of explanation.
- iii. These records shall be handled as follows:
 - A. Copies of all records required by 35 IAC 212.316 shall be submitted to the Illinois EPA within ten (10) working days after a written request by the Illinois EPA and shall be transmitted to the Illinois EPA by a company-designated person with authority to release such records [35 IAC 212.316(g) (3)].
 - B. The records required under 35 IAC 212.316 shall be kept and maintained for at least five (5) years at the source and be available for inspection and copying by Illinois EPA representatives during working hours [35 IAC 212.316(g) (4)].
- d. The Permittee shall maintain records for:
 - i. The amount of coke handled by the new coke conveyor system (tons/month and tons/year).
 - ii. The amount of iron pellets screened (tons/month and tons/year).
- e. The Permittee shall maintain the following records for the inspections required by Condition 7.1.8:
 - i. For the inspections required by Condition 7.1.8(a) for each affected material handling operation:
 - A. Date and time the inspection was performed and name(s) of inspection personnel.
 - B. The observed condition of the control measures for each affected operation, including the presence of any visible emissions or accumulations of dust in the vicinity of the operation.
 - C. A description of any maintenance or repair associated with established control measures that are recommended as a result of the inspection and a review of outstanding recommendations for maintenance or repair from previous inspection(s), i.e., whether recommended action has been taken, is yet to be performed or no longer appears to be required.
 - D. A summary of the observed implementation or status of actual control measures.

- ii. For the inspections required by Condition 7.1.8(b) for the affected new coke conveyor system, pursuant to Permit 06070088:
 - A. The Permittee shall maintain a file, which shall be kept current, that contains the maximum operating capacity of the new coke conveyance system (tons/day).
 - B.
 - 1. The Permittee shall keep inspection and maintenance log(s) or other records for the control measures associated with the new coke conveyance system, including enclosures and fabric filters.
 - 2. These records shall include the following information for the inspections required by Condition 7.1.8(a) and (b):
 - I. Date and time the inspection was performed.
 - II. The observed condition of the control measures, including the presence of any visible emissions.
 - III. A description of any maintenance or repair associated with the control measures that are recommended as a result of the inspection and a review of outstanding recommendations for maintenance or repair from previous inspection(s), i.e., whether recommended action has been taken, is yet to be performed or no longer appears to be required.
- f. In the operational logs or other records for the operation of the affected material handling operations for steelmaking, the Permittee shall include information confirming routine implementation of normal practices for unloading of materials into the receiving hopper and housekeeping practices for this hopper and information identifying departures from those practices, with description, explanation, and corrective actions taken.
- g. The Permittee shall maintain records of the following for each incident when any affected material handling operations and the new coke conveyor system operate without control measures:

- i. The date of the incident and identification of the operations that were involved.
 - ii. A description of the incident, including the control measures that were not present or implemented; the control measures that were present, if any; other control measures or mitigation measures that were implemented, if any; and the magnitude of the PM emissions during the incident.
 - iii. The time at and means by which the incident was identified, e.g., scheduled inspection or observation by operating personnel.
 - iv. The length of time after the incident was identified that the operations continued to operate before control measures were in place or the operations were shutdown (to resume operation only after control measures were in place) and, if this time was more than one hour, an explanation why this time was not shorter, including a description of any mitigation measures that were implemented during the incident.
 - v. The estimated total duration of the incident, i.e., the total length of time that the operations ran without control measures and the estimated amount of coal handled during the incident.
 - vi. A discussion of the probable cause of the incident and any preventative measures taken.
 - vii. A discussion whether any applicable emission standards, as listed in Condition 7.1.3, may have been violated during the incident, with supporting explanation.
- h. The Permittee shall maintain the following records for the new coke conveyor system and each other operation subject to limits on PM/PM₁₀ emissions in Condition 7.1.6:
- i. A file containing the emission factors used by the Permittee to determine emissions of each operation, with supporting documentation. These records shall be reviewed and updated by the Permittee as necessary to assure that the emission factors that it uses to determine emissions of the affected operations do not understate actual emissions. These records shall be prepared and copies sent to the Illinois EPA in accordance with Condition 5.9.6(c).
 - ii. Records for any periods of operation of such operations that are not otherwise addressed in the required records during which the established emission factor in Condition 7.1.9(f)(i) would

understate actual emissions of such operation, with description of the period of operation and an estimate of the additional emissions during such period that would not be accounted for by the established factor, with supporting explanation and calculations.

- iii. Records for the annual PM/PM₁₀ emissions of each operation, based on operating data and appropriate emission factors for comparison to the limits in Conditions 7.1.6(b), with supporting documentation and calculations.
- i. The Permittee shall keep records for all opacity measurements conducted in accordance with Method 9 that it conducts or that it orders to be conducted. For each occasion on which such measurements are made, these records shall include the identity of the observer, a description of the measurements that were made, the operating condition of the operations, the observed opacity, and copies of the raw data sheets for the measurements.
- j. The Permittee shall keep copies of all tests performed on the affected material handling operations and new coke conveyor system.

7.1.10 Reporting Requirements

- a. i. The Permittee shall submit quarterly and annual reports to the Illinois EPA in accordance with 35 IAC 212.316(g) (1) and (5) [35 IAC 212.316(g)].
- ii. Pursuant to 35 IAC 212.324(g) (6), upon written request by the IEPA, a report shall be submitted to the IEPA for any period specified in the request stating the following: the dates during which any process emission unit was in operation when the air pollution control equipment was not in operation or was not operating properly, documentation of causes for pollution control equipment not operating or not operating properly, and a statement of what corrective actions were taken and what repairs were made.
- iii. Pursuant to Permit 06070088 for the new coke conveyor system, the Permittee shall notify the Illinois EPA within 30 days of deviations from applicable emission standards or operating requirements that continue* for more than 24 hours.

* For this purpose, time shall be measured from the start of a particular event. The absence of a deviation for a short period shall not be considered to end the event if the deviation

resumes. In such circumstances, the event shall be considered to continue until corrective actions are taken so that the deviation ceases or the Permittee takes the affected unit out of service for repairs.

- b. i. Pursuant to Section 39.5(7)(f)(ii) of the Act, the Permittee shall promptly notify the Illinois EPA, Air Compliance Section, within 30 days of deviations by the affected material handling operations and new coke conveyor system from applicable requirements as follows:
 - A. Requirements in Condition 7.1.3(b) through (f).
 - B. Requirements in Condition 7.1.5.
 - C. Requirements in Condition 7.1.6.
- ii. All such deviations shall be summarized and reported as part of the semiannual monitoring report required by Condition 8.6.1.
- iii. The Permittee shall notify the Illinois EPA, Air Compliance Section, of all other deviations from permit requirements as part of the semiannual monitoring reports required by Condition 8.6.1.
- iv. All deviation reports described in Condition 7.1.11(b) above shall contain the following:
 - A. Date, time and duration of the deviation;
 - B. Description of the deviation;
 - C. Probable cause of the deviation; and
 - D. Any corrective actions or preventive measures taken.

7.1.11 Operational Flexibility/Anticipated Operating Scenarios

Operational flexibility is not set for the affected material handling operations and new coke conveyor system.

7.1.12 Compliance Procedures

Compliance with the emission standards in Condition 7.1.3 and the operational/emission limits in Condition 7.1.6 is addressed by the testing requirements of Condition 7.1.7, inspection requirements of Condition 7.1.8 and recordkeeping requirements of Condition 7.1.9.

7.1.13 State-Only Conditions

State-only conditions are not being established.

7.2 Coke Production

7.2.1 Description

Two coke oven batteries (45 ovens each), dual collecting main by-product coke oven batteries, referred to as batteries A and B, are utilized at this iron and steel mill. Each is capable of processing 454,000 tons/year of coal. Potential emissions from these batteries consist of particulate matter, sulfur dioxide, nitrogen oxides, carbon monoxide, volatile organic materials, and HAPs.

Topside:

Emission points include leaks from coke oven charging, lids, off takes, soaking and emergency flares. Coal is charged to the ovens through four charging port lids, on each oven, utilizing sequential charging with steam aspiration to the collecting mains. Each oven has two off takes to the collecting mains that duct raw coke oven gas from the coking process to the by-products plant (see Section 7.3 of this permit). Soaking occurs after the coking process is completed, when an oven is dampered off from the collecting mains and its off takes' standpipes are opened before beginning pushing. Each battery also has an emergency by-pass on the collecting main (one on each main, two per battery). In the event of an emergency which would lead to excess pressure in a main, e.g., loss of suction from the by-product plant, the by-pass opens. The raw coke oven gas is then combusted in the associated emergency flare.

Doors:

Emissions consist of leaks from coke oven doors. Each oven has two doors, with one on its push side and one on its coke side.

Pushing:

Once the coking cycle in an oven has been completed, the push and coke side doors are removed, respectively, by the pushing machine and coke-side door machines. A ram on the pushing machine pushes the coke out through a guide on the door machine. The coke falls through the guide, which is covered by a hood on the machine, and into the quench box. The emissions from oven pushing are controlled by the pushing system. This mobile control system consists of a venturi scrubber, mist eliminator and exhaust fan. The Permittee currently has two mobile scrubber cars for pushing (PCS cars #3 and #4). The quench box and car travel with this system to the coke quenching operation.

Coke Quenching:

In this operation, loads of hot coke from the ovens are quenched with water. There are two locations where quenching normally takes place. The primary is the West Quench Tower. This tower

is equipped with a baffle system. The east quench station, which is utilized as a backup for the West Tower, does not currently have a quench tower, however, the Permittee is currently engaged in a project to upgrade the quenching operations, adding a quench tower to the East Quench Station and replacing the conventional Quench Tower at the West Quench Station with a low emission quench tower (Construction Permit 08060026).

Underfiring:

Coke oven gas (COG) is combusted to generate the heat required to convert coal to coke. This COG would be treated by both by-products plant and, except during maintenance and outage, by the COG desulfurization system. Natural gas may also be added through the blending station in order to stabilize the heat content of the COG. Emissions from this unit occur at the main stacks of each battery and are mainly the by-products of combustion, including particulate matter, sulfur dioxide, nitrogen oxides, carbon monoxide, and volatile organic materials.

Note: This narrative description is for informational purposes only and is not enforceable.

7.2.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Date Constructed	Emission Control Equipment
Coke Oven Batteries "A" and "B"	Coke Oven Battery "A"	Battery "A" was rebuilt between 1979 and 1980	Emergency Bypass Flares
	Coke Oven Battery "B"	Battery "B" was rebuilt between 1981 and 1982	Emergency Bypass Flares
	2 Larry Cars		None
	2 Pushing/Quench Cars		Mobile Venturi Scrubber (PCS Cars #3 & #4)
	East Quench Station (backup)		Tower and Baffles (planned)
	West Quench Station		Tower and Baffles
	Coke Oven Underfiring (coke oven combustion stacks)		None

7.2.3 Applicable Provisions

- a. The "affected coke oven operations" for the purpose of these unit-specific conditions, are the emission units and activities described in Conditions 7.2.1 and 7.2.2.
- b. The affected coke oven operations are subject to 35 IAC 212.443. Certain provisions of this regulation are discussed further in this subsection.
- c.
 - i. The following affected coke oven operations are subject to 40 CFR Part 63, Subpart L Coke Oven Batteries: charging, doors, lids, off takes, collecting mains and bleeder stacks. The Permittee is complying with the so-called LAER track under this NESHAP, as provided for by 40 CFR 63.304.
 - ii. For affected coke oven operations, the Permittee shall comply with applicable provisions of the NESHAP, 40 CFR 63 Subpart A.
- d.
 - i. The following affected coke oven operations are subject to 40 CFR Part 63, Subpart CCCCC: pushing, soaking, quenching and battery underfiring stacks.
 - ii. For affected operations at the coke oven battery, the Permittee shall comply with applicable provisions of the NESHAP, 40 CFR 63 Subpart A as specified in Table 1 in 40 CFR 63 Subpart CCCCC.

7.2.3-1 Applicable Standards: Coke Oven Charging

- a. 35 IAC 212.443(b) (1) (A)

No person shall cause or allow the emission of visible particulate matter from any coke oven charging operation, from the introduction of coal into the first charge port, as indicated by the first mechanical movement of the coal feeding mechanism on the larry car, to the replacement of the final charge port lid for more than a total of 125 seconds over 5 consecutive charges; provided however that 1 charge out of any 20 consecutive charges may be deemed an uncountable charge at the option of the operator.

Compliance with this limit shall be determined in accordance with the applicable procedures in 35 IAC 212.443(b) (1) (B) and Condition 7.2.12.

- b. 40 CFR 63.304(b) (2) (iv)

Emissions to the atmosphere from coke oven charging shall not exceed 12 seconds of visible emissions per charge, as determined by the procedures in 40 CFR 63.309(d) (2).

c. Battery B

The aggregate of visible emissions from the charging of coke ovens at Battery B shall not exceed a total 55 seconds during any 5 consecutive charges [T1].

Note: This limit is the determination of LAER for charging for Battery B made in Construction Permit C808048.

7.2.3-2 Applicable Standards: Leaks from Doorsa. 35 IAC 212.443(d)

- i. No person shall cause or allow visible emissions from more than 10 percent of all coke oven doors at any time. Compliance shall be determined by a one pass observation of all coke oven doors on any one battery.
- ii. No person shall cause or allow the operation of a coke oven unless there is on the plant premises at all times an adequate inventory of spare coke oven doors and seals and unless there is a readily available coke oven door repair facility.

b. Battery B

At no time shall there be any visible emissions from more than 5 percent of the door areas on Battery B [T1].

Note: This limit is the determination of LAER for door leaks for Battery B was established in Construction Permit C808048.

c. 40 CFR 63.304(b) (3) (ii)

3.3 percent leaking coke oven doors for each by-product coke oven battery not subject to the emission limitation 40 CFR 63.304(b) (3) (i), as determined by the procedures in 40 CFR 63.309(d) (1).

7.2.3-3 Applicable Standards: Leaks from Lidsa. 35 IAC 212.443(e)

No person shall cause or allow visible emissions from more than 5 percent of all coke oven lids at any time. Compliance shall be determined by a one pass observation of all coke oven lids.

b. Battery B

There shall be no visible emissions from more than 1 percent of the charging ports or lids [T1].

Note: This limit is the determination of LAER for lid leaks for Battery B made in Construction Permit C808048.

c. 40 CFR 63.304(b) (2) (ii)

0.4 percent leaking topside port lids, as determined by the procedures in 40 CFR 63.309(d) (1).

7.2.3-4 Applicable Standards: Leaks from Off Takes

a. 35 IAC 212.443(f)

No person shall cause or allow visible emissions from more than 10 percent of all coke oven off take piping at any time. Compliance shall be determined by a one pass observation of all coke oven off take piping.

b. Battery B

There shall be no visible emissions from more than 4 percent of the off take piping on the coke ovens on Battery B [T1].

Note: This limit is the determination of LAER for off take leaks for Battery B made in Construction Permit C808048.

c. 40 CFR 63.304(b) (2) (iii)

2.5 percent leaking off take system(s), as determined by the procedures in 40 CFR 63.309(d) (1).

7.2.3-5 Applicable Standards: Coke Oven Pushing

a. 35 IAC 212.443(c) (1) (A)

Emissions of uncaptured particulate matter from pushing operations shall not exceed an average of 20 percent opacity for 4 consecutive pushes considering the highest average of six consecutive readings in each push.

Compliance with this limit shall be determined in accordance with the procedures in 35 IAC 212.443(c) (1) (B) and Condition 7.2.12.

b. 35 IAC 212.443(c) (2)

i. The particulate emissions from control equipment used to control emissions during pushing operations shall not exceed 0.040 pounds per ton of coke pushed. Compliance shall be determined in accordance with the procedures set forth in 40 CFR Part 60, Appendix A, Methods 1-5, incorporated by reference in Section 212.113. Compliance shall be based on an arithmetic

average of three runs (stack tests) and the calculations shall be based on the duration of a push as defined in 35 IAC 212.443(c) (1) (A).

- ii. The opacity of emissions from control equipment used to control emissions during pushing operations shall not exceed 20%. For a push of less than six minutes duration, the actual number of 15-second readings taken shall be averaged. Compliance shall be determined in accordance with 40 CFR Part 60, Appendix A, Method 9, incorporated by reference in 35 IAC 212.113, Section 2.5 of 40 CFR Part 60, Appendix A, Method 9, incorporated by reference in 35 IAC 212.113, for data reduction shall not be used for pushes of less than six minutes duration [35 IAC 212.443(c) (2) (B)].

c. 40 CFR 63.7290(a) (4)

Particulate matter emissions to the atmosphere from the mobile scrubber car for pushing which captures emissions during travel shall not exceed 0.04 lb/ton of coke.

d. Battery B

Pushing emissions from Battery B shall be captured and cleaned by a single-spot, coke guide evacuated, enclosed quench car/scrubber car system which meets the following limitations [T1]:

- i. The gas cleaning device shall be operated to meet 0.04 pounds of particulate matter per ton of coke pushed during the pushing operation.
- ii. Visible emissions from the gas cleaning device outlet and uncaptured fugitive emissions shall not exceed 20 percent opacity.

Note: These limits are the determination of LAER for pushing emissions from Battery B made in Construction Permit C808048.

7.2.3-6 Applicable Standards: Coke Quenching

a. i. 40 CFR 63.7295(a) (1) (i)

For the quenching of hot coke, the Permittee must meet the following requirements of 40 CFR 63.7295(a) (1) (i):

The concentration of total dissolved solids (TDS) in the water used for quenching must not exceed 1,100 milligrams per liter (mg/L).

ii. 40 CFR 63.7295(a)(2)

The Permittee must use acceptable makeup water, as defined in 40 CFR 63.7352, as makeup water for quenching.

iii. 40 CFR 63.7295(b)

For each quench tower at a coke oven battery, the Permittee must meet each of the following requirements:

- A. Pursuant to 40 CFR 63.7295(b)(1), each tower is equipped with baffles such that no more than 5 percent of the cross sectional area of the tower may be uncovered or open to the sky;
- B. Pursuant to 40 CFR 63.7295(b)(2), baffles in each quench tower shall be washed once each day that the tower is used to quench coke, except as specified below:
 - 1. Baffles in a quench tower are not required to be washed if the highest measured ambient temperature remains less than 30 degrees Fahrenheit throughout that day (24-hour period). If the measured ambient temperature rises to 30 degrees Fahrenheit or more during the day, the Permittee shall resume daily washing.
 - 2. The Permittee shall continuously record the ambient temperature on days that the baffles were not washed.
- C. Pursuant to 40 CFR 63.7295(b)(3) and (4), the Permittee shall comply with inspection and repair provisions (see Condition 7.2.8-3).

b. 35 IAC 212.443(h)(1)

All coke oven quench towers shall be equipped with grit arrestors or equipment of comparable effectiveness. Baffles shall cover 95 percent or more of the cross sectional area of the exhaust vent or stack and must be maintained. Quench water shall not include untreated coke by-product plant effluent. All water placed on the coke being quenched shall be quench water.

c. 35 IAC 212.443(h)(2)

Total dissolved solids concentrations in the quench water shall not exceed a weekly average of 1200 mg/L.

7.2.3-7 Applicable Standards: Combustion (Battery) Stack

a. 35 IAC 212.443(g)

- i. No person shall cause or allow the emissions of particulate matter from a coke oven combustion stack to exceed 110 mg/dscm (0.05 gr/dscf); and
- ii. No person shall cause or allow the emission of particulate matter from a coke oven combustion stack to exceed 30% opacity. Compliance shall be determined in accordance with 40 CFR Part 60, Appendix A, Method 9, incorporated by reference in 35 IAC 212.113. However, the opacity limit shall not apply to a coke oven combustion stack when a leak between any coke oven and the oven's vertical or crossover flues is being repaired, after pushing coke from the oven is completed, but before resumption of charging. The exemption from the opacity limit shall not exceed three (3) hours per oven repaired. The owner or operator shall keep written records identifying the oven repaired, and the date, time, and duration of all repair periods. These records shall be subject to the requirements of 35 IAC 212.324(g) (4) and (g) (5).

b. 40 CFR 63.7296

The Permittee must not discharge to the atmosphere any emissions from any battery stack at an existing by-product coke oven battery that exhibits opacity greater than the following applicable limits:

- i. Daily average of 15 percent opacity for a battery on a normal coking cycle.
- ii. Daily average of 20 percent opacity for a battery on batterywide extended coking.

c. Battery B

Pursuant to Construction Permit 82060043, non-sulfate particulate matter emissions from the battery stack serving Battery B shall not exceed 0.03 gr/dscf [T1].

7.2.3-8 Applicable Standards: Bypass/Bleeder Stack

- a. i. Pursuant to 40 CFR 63.307(a) (1), the Permittee shall operate and properly maintain a bypass/bleeder stack flare system that is capable of controlling 120 percent of the normal gas flow generated by the affected battery.

- ii. Coke oven emissions shall not be vented to the atmosphere through bypass/bleeder stacks, except through the flare system or an alternative control device as described in 40 CFR 63.307(d) [40 CFR 63.307(a)(2)].
- iii. Each flare installed pursuant to 40 CFR 63.307 shall meet the applicable requirements specified by 40 CFR 63.307(b) with compliance determined as specified by 40 CFR 63.309(h).
- b. Pursuant to 40 CFR 63.307(c), the flare shall be operated with no visible emissions, as determined by the methods specified in 40 CFR 63.309(h)(1), except for periods not to exceed a total of 5 minutes during any 2 consecutive hours.

7.2.4 Non-Applicability of Regulations of Concern

- a. The emission limitations of 35 IAC 212.324 are not applicable to any emission unit subject to a specific emissions standard or limitation contained in 35 IAC Part 212 Subpart R, Primary and Fabricated Metal Products and Machinery Manufacture, pursuant to 35 IAC 212.324 (a)(3).
- b. The affected coke oven operations are not fuel combustion emission units as defined in 35 IAC 211.2470 and therefore are not subject to the standards for fuel combustion emission units in 35 IAC Parts 212, 214, 216 and 217.
- c. This permit is issued based on the affected coke oven operations not being subject to the applicable requirements of 35 IAC 219.301 because there is 85 percent reduction of uncontrolled organic material that would otherwise be emitted into atmosphere, pursuant to 35 IAC 219.302.

7.2.5-1 Work Practices: Soaking Plan (40 CFR 63.7294)

Pursuant to 40 CFR 63.7294(a), the Permittee shall operate the coke ovens pursuant to a written work practice plan for soaking, which includes the measures specified by 40 CFR 63.7294(a), including, if soaking emissions are caused by leaks from the collecting main, the Permittee shall take corrective actions to eliminate soaking emissions in accordance with the actions identified in the soaking plan. If soaking emissions are not caused by leaks, the Permittee must determine whether the soaking emissions are due to incomplete coking. If incomplete coking is the cause of the soaking emissions, the Permittee must put the oven back on the collecting main until it is completely coked or the Permittee must ignite the standpipe emissions as specified by 40 CFR 63.7294(a)(4) and (5).

7.2.5-2 Work Practice Plan (40 CFR 63.306)

- a. Pursuant to 40 CFR 63.306(c), for affected units subject to the NESHAP, 40 CFR 63 Subpart L, the Permittee shall implement a written emission control Work Practice Plan for each affected coke oven battery designed to achieve compliance with visible emission limitations for coke oven doors, topside port lids, off take systems, and charging operations.
- b. Pursuant to 40 CFR 63.306(a)(1) and (b), the Permittee shall organize the work practice plan to indicate clearly which parts of the plan pertain to each emission point subject to visible emission standards under 40 CFR Subpart L. Each of the following provisions, at a minimum, shall be addressed in the plan in sufficient detail and with sufficient specificity to allow USEPA and the Illinois EPA to evaluate the plan for completeness and enforceability:
 - i. An initial and refresher training program for all coke plant operating personnel with responsibilities that impact emissions, including contractors, in job requirements related to emission control and the requirements of 40 CFR Subpart L, including work practice requirements, that includes all the elements specified by 40 CFR 63.306(b)(1). Contractors with responsibilities that impact emission control may be trained by the Permittee or by qualified contractor personnel; however, the Permittee shall ensure that the contractor training program complies with the requirements of 40 CFR 63.306(b)(1).
 - ii. Procedures for controlling emissions from coke oven doors on by-product coke oven batteries, including the elements specified by 40 CFR 63.306(b)(2).
 - iii. Procedures for controlling emissions from charging operations on by-product coke oven batteries, including the elements specified by 40 CFR 63.306(b)(3).
 - iv. Procedures for controlling emissions from topside port lids on by-product coke oven batteries, including the elements specified by 40 CFR 63.306(b)(4).
 - v. Procedures for controlling emissions from off take system(s) on by-product coke oven batteries, including the elements specified by 40 CFR 63.306(b)(5).
 - vi. Procedures for each emission point subject to visible emission limitations under 40 CFR 63 Subpart L for maintaining a daily record of the performance of plan

requirements pertaining to the daily operations of the affected coke oven operations as defined in Condition 7.2.3(c) and its emission control equipment, including the elements specified by 40 CFR 63.306(b)(7).

- vii. Any additional work practices or requirements specified by the USEPA or Illinois EPA pursuant to 40 CFR 63.306(d).
- c. Pursuant to 40 CFR 63.306(c) the Permittee shall implement the provisions of the work practice plan pertaining to a particular emission point:
 - i. Following the second independent exceedance of the visible emission limitation for the emission point in any consecutive 6-month period, by no later than 3 days after receipt of written notification of the second such exceedance from the certified observer. For this purpose, the second exceedance is "independent" if the criteria of 40 CFR 63.306(c)(1)(i)(A), (B) or (C) are met.
 - ii. And continue to implement such plan provisions until the visible emission limitation for the emission point is achieved for 90 consecutive days. After the visible emission limitation for a particular emission point is achieved for 90 consecutive days, any exceedances prior to the beginning of the 90 days are not included in making the above determination of exceedances.
- d. Revisions to the work practice plan shall be done in accordance with 40 CFR 63.306(d) and (a)(2).
- e. The Work Practice Plan, as submitted by the Permittee on November 12, 1993, (which contains various training and standard operating procedures for the A & B coke oven batteries), is incorporated herein by reference. The document constitutes the formal work practice plan required by 40 CFR 306(a) for each coke oven battery, addressing work practices for achieving compliance with the visible emissions limitations of Subpart L.

Any future revision to the aforementioned plan made by the Permittee during the permit term is automatically incorporated by reference provided that said revision is not expressly disapproved, in writing, by the Illinois EPA within 30 days of receipt of said revision. In the event that the Illinois EPA notifies the Permittee of a deficiency with any revision to the plan, the Permittee shall be required to revise and resubmit the plan within 30 days of receipt of notification to address the deficiency [Section 39.5(7)(a) of the Act].

7.2.5-3 NESHAP Provisions for Startup, Shutdown and Malfunction

- a. Pursuant to 40 CFR 63.7310(a) and (c), for affected coke oven operations subject to 40 CFR 63 Subpart CCCCC:
 - i. The Permittee shall comply with the emission limitations, work practice standards, and operating and maintenance requirements of 40 CFR 63 Subpart CCCCC, at all times except periods of startup, shutdown, and malfunction as defined at 40 CFR 63.2.
 - ii. The Permittee shall develop and implement a written startup, shutdown and malfunction plan according to the provisions in 40 CFR 63.6(e)(3).
- b. Pursuant to 40 CFR 63.310, for affected coke oven operations subject to 40 CFR 63 Subpart L:
 - i. At all times, including periods of startup, shutdown, and malfunction, the Permittee shall operate and maintain the affected coke oven operations, and associated pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions to the levels required by standards under 40 CFR Subpart L. Failure to adhere to the requirement of 40 CFR 63.310 shall not constitute a separate violation if a violation of an applicable performance or work practice standard has also occurred [40 CFR 63.310(a)].
 - ii. The Permittee shall develop and implement according to 40 CFR 63.310(c), a written startup, shutdown, and malfunction plan that describes procedures for operating the affected units, including associated air pollution control equipment, during a period of a startup, shutdown, or malfunction in a manner consistent with good air pollution control practices for minimizing emissions, and procedures for correcting malfunctioning process and air pollution control equipment as quickly as practicable [40 CFR 63.310(b)].
 - iii. Pursuant to 40 CFR 63.310(c), during a period of startup, shutdown, or malfunction the Permittee shall operate the battery (including associated air pollution control equipment) in accordance with the procedure specified in the startup, shutdown, and malfunction plan; and malfunctions shall be corrected as soon as practicable after their occurrence, in accordance with the plan.
 - iv. To satisfy the requirement for a startup, shutdown, and malfunction plan, the Permittee may use the

standard operating procedures manual for the battery, provided the manual meets all the requirements of 40 CFR 63.310 and is made available for inspection at reasonable times when requested by the Administrator (USEPA) or Illinois EPA, as provided by 40 CFR 63.310(g).

- v. The USEPA or Illinois EPA may require reasonable revisions to a startup, shutdown, and malfunction plan as provided by 40 CFR 63.310(h).
- vi. Pursuant to 40 CR 63.310(i), if the Permittee demonstrates to the satisfaction of the Administrator (USEPA and Illinois EPA) that a startup, shutdown, or malfunction has occurred, then an observation occurring during such startup, shutdown, or malfunction shall not:
 - A. Constitute a violation of relevant requirements of 40 CFR 63 Subpart L;
 - B. Be used in any compliance determination under 40 CFR 63.309; or
 - C. Be considered for purposes of 40 CFR 63.306 (the work practice plan), until the Administrator (USEPA and Illinois EPA) has resolved the claim that a startup, shutdown, or malfunction has occurred, as further provided by 40 CFR 63.310(i)(3).
- vii. The Permittee shall maintain all records related to startup, shutdown and malfunction, including internal reports which form the basis of each malfunction notification under 40 CFR 63.310(d) as required by 40 CFR 63.310(f).

7.2.5-4 Startup Authorization Pursuant to State Rule

Pursuant to 35 IAC 201.149 and Part 201, Subpart I, subject to the following terms and conditions, for the affected coke ovens, the Permittee is authorized to violate the applicable standards in 35 IAC 212.443 during startup. For this purpose a start-up is the resumption of normal production following the period when the battery has been idled.

Note: This authorization is provided because the Permittee has applied for such authorization in its CAAPP application, generally describing the efforts that will be used "...to minimize startup emissions, duration of individual starts, and frequency of startups".

- a. This authorization does not relieve the Permittee from the continuing obligation to demonstrate that all reasonable

efforts are made to minimize startup emissions, duration of individual startups and frequency of startups.

- b. The Permittee shall conduct startup of the affected coke oven operations in accordance with the manufacturer's written instructions or other written procedures prepared by the Permittee and maintained at the source (see Condition 7.2.9(g)(i)), that are specifically developed to minimize emissions from the startup.
- c. The Permittee shall fulfill applicable recordkeeping of Condition 7.2.9(g).
- d. The Permittee shall fulfill applicable reporting of Condition 5.10.5-1.
- e. As provided by 35 IAC 201.265, an authorization in a permit for excess emissions during startup does not shield a Permittee from enforcement for any violation of applicable emission standard(s) that occurs during startup and only constitutes a prima facie defense to such an enforcement action provided that the Permittee has fully complied with all terms and conditions connected with such authorization.

7.2.5-5 Malfunction and Breakdown Authorization Pursuant to State Rule

- a. Pursuant to 35 IAC 201.149 and Part 201, Subpart I, subject to the following terms and conditions, the Permittee is authorized to continue operation of the affected coke oven batteries in excess of the applicable state standards in 35 IAC 212.443 in the event of a malfunction or breakdown.

Note: This authorization is provided because the Permittee applied for such authorization in its CAAPP application, generally explaining why such continued operation would be required to prevent injury to personnel or severe damage to equipment, and describing the measures that will be taken to minimize emissions from any malfunctions and breakdowns.

- i. This authorization only allows such continued operation as necessary to prevent injury to personnel or severe damage to equipment and does not extend to continued operation solely for the economic benefit of the Permittee.
- ii. Upon occurrence of excess emissions due to malfunction or breakdown, the Permittee shall repair the responsible affected coke oven operations or other responsible equipment and/or re-establish the applicable control practices (e.g., the rail system for quench car).
- iii. The Permittee shall fulfill the applicable recordkeeping and reporting requirements of

Conditions 7.2.9(h) and Condition 5.10.5-2, respectively. For these purposes, time shall be measured from the start of a particular incident. The absence of excess emissions for a short period shall not be considered to end the incident if excess emissions resume.

- iv. Following notification to the Illinois EPA (see Condition 5.10.5-2(a)(i)) of a malfunction or breakdown with excess emissions, the Permittee shall comply with all reasonable directives of the Illinois EPA with respect to such incident.
- v. This authorization does not relieve the Permittee from the continuing obligation to minimize excess emissions during malfunction or breakdown. As provided by 35 IAC 201.265, an authorization in a permit for continued operation with excess emissions during malfunction and breakdown does not shield the Permittee from enforcement for any such violation and only constitutes a prima facie defense to such an enforcement action provided that the Permittee has fully complied with all terms and conditions connected with such authorization.
- b. During the period when only one quench station is available (i.e., the other quench station is not operable because of construction work on a new quench tower) or there is a malfunction or breakdown preventing hot coke from being moved to a tower-equipped quench station (e.g., rail line malfunction), the Permittee is authorized to continue operation of the coke ovens with emergency quenching, i.e., quenching without a quench tower or at a quench station that is experiencing a malfunction or breakdown (see Condition 7.2.5-5).

7.2.6 Production and Emission Limitations

- a. i. The amount of coal charged to the affected Battery "B" shall not exceed 454,000 tons per year [Construction Permit C808048].
- b. i. Emissions of PM from the mobile scrubber cars for pushing shall not exceed 4.2 lb/hr and 18.3 t/yr [T1].

Compliance with annual limits shall be determined from a running total of 12 months of data [Construction Permit 88070071].
- ii. Spare cars, parts inventories and maintenance practices shall be maintained and implemented by the Permittee for the pushing operations (quench cars and mobile scrubbers) consistent with good air pollution control practices [Permit 88070071].

- c. i. Supplementary natural gas usage for the coke ovens shall not exceed 20 million scf/month and 123 million scf/yr [T1].
- ii. Emissions attributable to the combustion of natural gas for the underfiring of the batteries shall not exceed the following limits. Compliance with the annual limits shall be determined from a running total of 12 months of data [T1]:

Pollutant	Emissions	
	(Tons/Month)	(Tons/Year)
NO _x	2.80	17.22
CO	0.84	5.17
PM	0.12	0.73
PM ₁₀	0.11	0.62
VOM	0.06	0.34
SO ₂	0.01	0.04

- iii. The above limitations were established in the Permit 04110018.
- d. i. Once shakedown of the new quench tower on the West Quench Station has been completed, the Permittee shall use the West Quench Station preferentially. For this purpose, on an annual basis*, excluding periods when the West Quench Station cannot be used due to malfunction or breakdown, the East Quench Station shall not quench more than: 5 percent of the total number of quenches or 15,000 tons of coke, whichever is greater, not to exceed 30,000 tons of coke per year.

* This limit shall apply for the 12 month period from July 1 of one year through June 30 of the following year. This limit shall also apply for the initial 12 months following shakedown of the West Quench Station with new quench tower.

- ii. Shakedown of each affected quench tower shall be completed within 180 days of the initial quench with each tower.
- iii. The above limitations were established in the Permit 08060026.

7.2.7-1 Emission Testing for Coke Oven Pushing

- a. Testing requirements established by 40 CFR Part 63 Subpart CCCCC:

- i. Pursuant to 40 CFR 63.7321, for each control device subject to an emission limit for particulate matter in 40 CFR 63.7290(a), the Permittee must conduct performance tests no less frequently than twice (at mid-term and renewal) during each term of the CAAPP permit (i.e., every 30 months).
- ii. The Permittee must conduct each performance test according to the following requirements in 40 CFR 63.7322.
 - A. To determine compliance with a process-weighted mass rate of particulate matter (lb/ton of coke) from a control device applied to pushing emissions where a cokeside shed is not used, follow these test methods and procedures to determine the concentration of particulate matter according to the following test methods in Appendix A to 40 CFR Part 60:
 1. Method 1 to select sampling port locations and the number of traverse points. Sampling sites must be located at the outlet of the control device and prior to any releases to the atmosphere.
 2. Method 2, 2F, or 2G to determine the volumetric flow rate of the stack gas.
 3. Method 3, 3A, or 3B to determine the dry molecular weight of the stack gas.
 4. Method 4 to determine the moisture content of the stack gas.
 5. Method 5 or 5D, as applicable, to determine the concentration of front half particulate matter in the stack gas.
 - B. During each particulate matter test run, sample only during periods of actual pushing when the capture system fan and control device are engaged. Collect a minimum sample volume of 30 dry standard cubic feet of gas during each test run. Three valid test runs are needed to comprise a performance test. Each run must start at the beginning of a push and finish at the end of a push (i.e., sample for an integral number of pushes).

- C. Determine the total combined weight in tons of coke pushed during the duration of each test run according to the procedures in the Permittee's source test plan for calculating coke yield from the quantity of coal charged to an individual oven.
- D. Compute the process-weighted mass emissions (E_p) for each test run using the following equation:

$$E_p = \frac{C \times Q \times T}{P \times K} \quad (\text{Eq. 1})$$

Where:

- E_p = Process weighted mass emissions of particulate matter, lb/ton;
- C = Concentration of particulate matter, gr/dscf;
- Q = Volumetric flow rate of stack gas, dscf/hr;
- T = Total time during a run that a sample is withdrawn from the stack during pushing, hr;
- P = Total amount of coke pushed during the test run, tons; and
- K = Conversion factor, 7,000 gr/lb.

- b. Testing requirements to address 35 IAC 212.443(c) (2)

If the PM emissions measured during the emissions testing conducted pursuant to Condition 7.2.7-1(a) are more than 0.036 lb/ton, the Permittee shall conduct a follow-up test between 12 and 18 months after such test, unless subsequent emission testing conducted in the 12 month period following such test shows PM emissions are no more than 0.030 lb/ton.

7.2.7-2 Testing Requirements for Coke Quenching

- a. Requirements of 40 CFR Part 63 Subpart CCCCC
 - i. Pursuant to 40 CFR 63.7333(f), the Permittee shall sample and analyze quench water for total dissolved solids on at least a weekly basis in accordance with the procedures specified by 40 CFR 63.7325(a).

- ii. If the Permittee elects to comply with the TDS limit for quench water in 40 CFR 63.7295(a)(1)(i), the Permittee must conduct each performance test that applies to the affected quenching operations according to the following conditions in 40 CFR 63.7325(a)(1) and (2):
 - A. Take the quench water sample from a location that provides a representative sample of the quench water as applied to the coke (e.g., from the header that feeds water to the quench tower reservoirs). Conduct sampling under normal and representative operating conditions.
 - B. Determine the TDS concentration of the sample using Method 160.1 in 40 CFR part 136.3 (see residue-filterable"), except that you must dry the total filterable residue at 103 to 105°C instead of 180°C.

b. Requirements of 35 IAC 212.443(h)

- iii. Pursuant to 35 IAC 212.443(h)(3), the quench water shall be sampled for total dissolved solids concentrations in accordance with the methods specified in Standard Methods for the Examination of Water and Wastewater, Section 209C, "Total Filterable Residue Dried at 103-105°C" 15th Edition, 1980, incorporated by reference in 35 IAC 212.113. Analyses shall be performed on grab samples of the quench water as applied to the coke in accordance with the sampling schedule in Condition 7.2.12(c).
- iv. If the quench station is not used during any given calendar week, the grab samples for that quench station need not be analyzed.

c. Testing requirements for West Quench Station from Permit 08060026

Within two years after initial startup of the West Quench Station with low emission quench tower, the Permittee shall have emission test(s) conducted for this quench station at its expense as follows:

- i. The emissions test(s) shall be designed to measure the PM, PM₁₀, and PM_{2.5} emission rates (lb/ton coke) from the quench tower under conditions that are representative of the maximum emissions as the station is normally operated.
- ii. The Permittee shall install any facilities necessary to accommodate this emissions testing.

- iii. The following methods and procedures shall be used for testing emissions of PM unless other method(s) are approved by the Illinois EPA as part of its review of the test plan.

- A. The following USEPA Test Methods:

Refer to 40 CFR 60, Appendix A for USEPA test methods and www.epa.gov/ttn/emc/prelim.html for other test methods.

Location of Sample Points	USEPA Method 1
Gas Flow and Velocity	USEPA Method 2
Flue Gas Weight	USEPA Method 3
Moisture	USEPA Method 4
PM	USEPA Method 5

- B. Testing for emissions of filterable and condensable PM₁₀ shall be conducted using an appropriate Test Method developed by USEPA, e.g., Method 201/201A or Other Test Method (OTM) 27 and Method 202 or OTM 28, or a Reference Method proposed by USEPA, subject to review by the Illinois EPA as part of the review of the test plan.
- C. Testing for emissions of filterable PM_{2.5} shall be conducted using an applicable Reference Method, as adopted by USEPA in 40 CFR Part 51, Appendix M, or in 40 CFR Part 60, Appendix A. If USEPA has not adopted a Reference Method for testing of filterable PM_{2.5} when testing must be performed, testing for filterable PM_{2.5} shall be conducted using an appropriate Test Method developed by USEPA, e.g., OTM 27, or a Reference Method proposed by USEPA, subject to review by the Illinois EPA as part of the review of the test plan.

- iv. For this emission testing, test notification and reporting shall be done by the Permittee in accordance with Conditions 8.6.2 and 8.6.3 of this permit.

7.2.7-3 Compliance Demonstrations and Emission Testing for Coke Oven Underfiring (combustion stacks)

- a. For compliance demonstration with opacity limits, the Permittee must conduct each performance test that applies to the affected operations according to the following requirements in 40 CFR 63.7324(b):

To determine compliance with the daily average opacity limit for stacks of 15 percent for a by-product coke oven battery on a normal coking cycle or 20 percent for a by-product coke oven battery on batterywide extended coking, follow the test methods and procedures outlined below:

- i. Using the continuous opacity monitoring system (COMS) required in 40 CFR 63.7330(e), measure and record the opacity of emissions from each battery stack for a 24-hour period.
 - ii. Reduce the monitoring data to hourly averages as specified in 40 CFR 63.8(g)(2).
 - iii. Compute and record the 24-hour (daily) average of the COMS data.
- b. Pursuant to Sections 39.5(7)(d) and (p) of the Act, the Permittee shall conduct emission tests for each coke oven combustion stack under conditions that are representative of maximum emissions as follows:
- i. Testing for PM emissions (filterable PM from Battery A and filterable and filterable non-sulfate PM from Battery B) shall be conducted as follows:
 - A. Initial testing shall be conducted within 24 months of the effective date of this permit condition.
 - B. Thereafter, emission testing shall be repeated in 30 months, unless the PM emission rate measured from both stacks during the previous testing is less than 0.040 gr/dscf for filterable PM and less than 0.024 gr/dscf for filterable non-sulfate PM from the combustion stack on Battery B, in which case testing shall be repeated in 60 months.
 - C. Testing shall also be conducted for combustion stack(s) upon written request from the Illinois EPA as specified in the request. This testing shall be completed within 90 days of the date of the request or such later date agreed to by the Illinois EPA.
 - ii. In conjunction with the initial testing for PM emissions required by Condition 7.2.7-3(b)(i)(A), the Permittee shall also test for CO and NO_x from one of the coke oven combustion stacks, as selected by the Illinois EPA.

- iii. The following USEPA test methods shall be used for testing of emissions, unless another USEPA test method is approved by the Illinois EPA. Refer to 40 CFR 51, Appendix M, and 40 CFR 60, Appendix A, for test methods.

Location of Sample Points	Method 1
Gas Flow and Velocity	Method 2
Flue Gas Weight	Method 3
Moisture	Method 4
PM (filterable)	Method 5
PM (non-sulfate filterable)	Method 5F
CO	Method 10
NO _x	Method 7 or 7E

- iv. For this emission testing, test notification and reporting shall be done by the Permittee in accordance with Conditions 8.6.2 and 8.6.3 of this permit.
- v. With the report for emission testing, the Permittee shall also provide a summary of the opacity data monitored during the period of testing (6 minute averages and daily average), the sulfur content of COG being combusted during the period of testing, as measured by the monitoring system(s) for COG, the PM content of COG combusted during the period of testing, and data for the firing rate of the battery during testing (mmBtu or SCF of COG and natural gas per hour) for each test run, with supporting calculations.
- c. Testing conditions above are established pursuant to Sections 39.5(7)(d) and (p) of the Act.

7.2.8-1 Monitoring Requirements for Charging, Doors, Lids and Off Takes

- a. i. Pursuant to 40 CFR 63.309(a), daily performance tests shall be conducted by a certified observer each day, 7 days per week for the affected battery, as specified by 40 CFR 63.309, the results of which shall be used in accordance with procedures specified in 40 CFR 63 Subpart L to determine compliance with each of the applicable visible emission limitations for coke oven doors, topside port lids, off take systems, and charging operations in 40 CFR 63 Subpart L.
- ii. The Permittee shall enter into a contract providing for the inspections and performance tests required under the NESHAP, 40 CFR 63 Subpart L, to be performed by a Method 303 certified observer. The inspections and performance tests will be conducted at the expense of the Permittee, during the period

that the USEPA is the implementing agency [40 CFR 63.309(a)(5)(ii)].

- A. The certified observer shall conduct daily performance tests according to the requirements specified in 40 CFR 63.309(c).
- B. Pursuant to 40 CFR 63.309(c)(3), upon request of the certified observer the Permittee shall demonstrate pursuant to Reference Method 303 the accuracy of the pressure measurement device for the collecting mains and shall not adjust the pressure to a level below the range of normal operation during or prior to the inspection.
- C. In no case shall the owner or operator knowingly block a coke oven door, or any portion of a door for the purpose of concealing emissions or preventing observations by the certified observer, as prohibited by 40 CFR 63.309(c)(6).
- D.
 - 1. Pursuant to 40 CFR 63.309(e), the certified observer shall make available to the implementing agency, as well as to the Permittee, a copy of the daily inspection results by the end of the day and shall make available the calculated rolling average for each emission point to the Permittee as soon as practicable following each performance test. The information provided by the certified observer is not a compliance determination. For the purposes of notifying the owner or operator of the results obtained by a certified observer, the person does not have to be certified.
 - 2. Pursuant to 40 CFR 63.306(d)(3), if the certified observer calculates that a second exceedance (or if applicable, a second independent exceedance) has occurred, the certified observer shall notify the Permittee. No later than 10 days after receipt of such notification, the Permittee shall notify the administrator (USEPA) and Illinois EPA of any finding of whether work practices are related to the cause or solution of the problem.

Note: Pursuant to 40 CFR 63.306(d)(6), the reviewing authority (USEPA) may

disapprove the submitted finding if it determines that a revised work practice plan is needed to prevent exceedances of the applicable visible emission limitations.

- iii. Pursuant to 40 CFR 63.309(f), compliance with the NESHAP, 40 CFR 63 Subpart L shall not be determined more often than the schedule provided for performance tests under 40 CFR 63.309. If additional valid emissions observations are obtained (or in the case of charging, valid sets of emission observations), the arithmetic average of all valid values (or valid sets of values) obtained during the day shall be used in any computations performed to determine compliance under 40 CFR 63.309(d) or determinations under 40 CFR 63.306.
- iv. Pursuant to 40 CFR 63.309(i), no observations obtained during any program for training or for certifying observers under 40 CFR 63 Subpart L shall be used to determine compliance with the requirements of 40 CFR 63 Subpart L or any other federally enforceable standard.
- b. Pursuant to 40 CFR 63.308, for the collecting mains, the Permittee shall conduct daily inspections for leaks and promptly repair any leaks as specified by 40 CFR 63.308(a) through (d).
- c. Pursuant to Section 39.5(7)(d) of the Act, the Permittee shall have daily inspections conducted for charging and doors, lids and off takes to confirm compliance by Battery A with 35 IAC 212.443(b), (d), (e) and (f) and by Battery B with LAER limit (See Conditions 7.2.3-1(c), 7.2.3-2(b), 7.2.3-3(b), and 7.2.3-4(b)). These inspections shall be conducted in accordance with applicable procedures in Condition 7.2.12(a). These inspections may be coordinated with the daily inspections required by the NESHAP, provided that appropriate observations are made and collected to address these applicable limits under state rule and permit.

7.2.8-2 Monitoring Requirements for Pushing

- a. Pursuant to 40 CFR 63.7330(b), For each venturi scrubber applied to pushing emissions, the Permittee must at all times monitor the pressure drop and water flow rate using a CPMS according to the following requirements:

Pursuant to 40 CFR 63.7331(e), operate, and maintain CPMS to measure and record the pressure drop across the scrubber and scrubber water flow rate during each push according to

the requirements in the site specific monitoring plan as well as the following:

- i. Each CPMS must complete a measurement at least once per push [40 CFR 63.7331(e)(1)];
 - ii. Each CPMS must produce valid data for all pushes [40 CFR 63.7331(e)(2)]; and
 - iii. Each CPMS must determine and record the daily (24-hour) average of all recorded readings [40 CFR 63.7331(e)(3)].
- b. Pursuant to 40 CFR 63.7330(d), For each capture system applied to pushing emissions, the Permittee must at all times operate and maintain a device to measure the fan RPM.
- c. Pursuant to 40 CFR 63.7331(b), the Permittee must maintain and make available for inspection upon request by the Illinois EPA and USEPA a site-specific monitoring plan for each Continuous Parameter Monitoring System (CPMS) that addresses the following requirements:
- i. Installation of the CPMS sampling probe or other interface at a measurement location relative to each affected process unit such that the measurement is representative of control of the exhaust emissions (e.g., on or downstream of the last control device) [40 CFR 63.7331(b)(1)];
 - ii. Performance and equipment specifications for the sample interface, the parametric signal analyzer, and the data collection and reduction system [40 CFR 63.7331(b)(2)];
 - iii. Performance evaluation procedures and acceptance criteria (e.g., calibrations) [40 CFR 63.7331(b)(3)];
 - iv. Ongoing operation and maintenance procedures in accordance with the general requirements of 40 CFR 63.8(c)(1), (3), (4)(ii), (7), and (8) [40 CFR 63.7331(b)(4)];
 - v. Ongoing data quality assurance procedures in accordance with the general requirements of 40 CFR 63.8(d) [40 CFR 63.7331(b)(5)]; and
 - vi. Ongoing recordkeeping and reporting procedures in accordance with the general requirements of 40 CFR 63.10(c), (e)(1), and (e)(2)(i) [40 CFR 63.7331(b)(6)].

- d. Pursuant to 40 CFR 63.7331(d), the Permittee must operate and maintain the CPMS in continuous operation according to the site-specific monitoring plan.
- e. Pursuant to 40 CFR 63.7332(a), except for monitor malfunctions, associated repairs, and required quality assurance or control activities (including as applicable, calibration checks and required zero and span adjustments), you must monitor continuously (or collect data at all required intervals) at all times the affected source is operating.
- f. Pursuant to 40 CFR 63.7332(b), the Permittee may not use data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities in data averages and calculations used to report emission or operating levels, or in fulfilling a minimum data availability requirement, if applicable. You must use all the data collected during all other periods in assessing compliance. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitor to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.
- g. Pursuant to 40 CFR 63.7333(d)(3)(ii), check the fan RPM at least every 8 hours to verify the daily average fan RPM is at or above the minimum level in Condition 7.2.8-2(h) and recording the results of each check.
- h. i. Pursuant to 40 CFR 63.7290(b)(1), for each venturi scrubber applied to pushing emissions, the Permittee must maintain the daily average pressure drop and scrubber water flow rate at or above (no lower than) the following minimum levels established as the site-specific operating limits during testing:

PCS Car	Scrubber Water Flow Rate, gal/min	Pressure Drop, in. wc
#3	860	37
#4	607	33

- ii. Pursuant to 40 CFR 63.7290(b)(3)(ii), for each capture system the Permittee must maintain the daily average fan revolutions per minute (RPM) at or above (no lower than) the minimum level established as the site-specific operating limits during testing:

PCS Car	RPM
#3	1650
#4	1743

- iii. Pursuant to 40 CFR 63.7323 (e) (1) through (3), the Permittee may change the operating limit for a venturi scrubber, capture system, or mobile control device that captures emissions during pushing if the Permittee meets the following requirements described below:
 - A. Submit a written notification to the Illinois EPA of Permittee's request to conduct a new performance test to revise the operating limit.
 - B. Conduct a performance test to demonstrate that emissions of particulate matter from the control device do not exceed the applicable limit in 40 CFR 63.7290(a).
 - C. Establish revised operating limits according to the applicable procedures in 40 CFR 63.7323.
 - i. The Permittee shall comply with the work practice standards for fugitive pushing emissions as specified by 40 CFR 63.7291. In particular:
 - i. The Permittee shall observe and record the opacity of fugitive pushing emissions as required by 40 CFR 63.7291(a) (1), (a) (2), (a) (3) and (a) (4).
 - ii. The Permittee shall undertake corrective action(s) in the event that the opacity of fugitive pushing emissions exceeds the applicable limit, as required by 40 CFR 63.7291(a) (5) through (a) (7).
 - iii. Pursuant to 40 CFR 63.7291(b), the Permittee may request to use an alternative to the work practice standards in 40 CFR 63.7291(a) using the procedure provided in 40 CFR 63.6(g).
 - j. For each by-product coke oven battery with vertical flues subject to the work practice standards for fugitive pushing emissions in 40 CFR 63.7291(a), the Permittee must demonstrate continuous compliance according to the following requirements of 40 CFR 63.7334(a) (1) through (8):
 - i. The Permittee shall observe and record the opacity of fugitive emissions for four consecutive pushes per operating day, except the Permittee may make fewer or non-consecutive observations as permitted by 40 CFR 63.7291(a) (3). The Permittee shall maintain records of the pushing schedule for each oven and records indicating the legitimate operational reason for any change in the pushing schedule according to 40 CFR 63.7291(a) (4).

- ii. The Permittee shall observe and record the opacity of fugitive emissions from each oven in a battery at least once every 90 days. If an oven cannot be observed during a 90-day period, the Permittee shall observe and record the opacity of the first push of that oven following the close of the 90-day period that can be read in accordance with the procedures in 40 CFR 63.7334(a)(1) through (8).
- iii. The Permittee shall make all observations and calculations for opacity observations of fugitive pushing emissions in accordance with Method 9 in appendix A to 40 CFR Part 60 using a Method 9 certified observer unless the Permittee has an approved alternative procedure under 40 CFR 63.7334(a)(7).
- iv. The Permittee shall record pushing opacity observations at 15-second intervals as required in section 2.4 of Method 9 Appendix A to 40 CFR Part 60. The following requirements do not apply: (section 2.4 of Method 9) for a minimum of 24 observations; the data reduction requirements in (section 2.5 of Method 9); and obtaining at least 3 hours of observations (thirty 6-minute averages) to demonstrate initial compliance (40 CFR 63.6(h)(5)(ii)(B)) does not apply.
- v. If fewer than six but at least four 15-second observations can be made, the Permittee shall use the average of the total number of observations to calculate average opacity for the push. Missing one or more observations during the push (e.g., as the quench car passes behind a building) does not invalidate the observations before or after the interference for that push. However, a minimum of four 15-second readings must be made by the Permittee for a valid observation.
- vi. The Permittee shall begin observations for a push at the first detectable movement of the coke mass. The Permittee shall end observations of a push when the quench car enters the quench tower.
 - A. For a battery without a cokeside shed, the Permittee shall observe fugitive pushing emissions from a position at least 10 meters from the quench car that provides an unobstructed view and avoids interferences from the topside of the battery. This may require the observer to be positioned at an angle to

the quench car rather than perpendicular to it. Typical interferences for the observer to avoid include emissions from open standpipes and charging. Opacity of emissions shall be observed above the battery top with the sky as the background where possible. The Permittee shall record the oven number of any push not observed because of obstructions or interferences.

- B. An observer may reposition after the push to observe emissions during travel if necessary.
- vii. If it is infeasible to implement the procedures in 40 CFR 63.7334 (a)(1) through (6) for an oven due to physical obstructions, nighttime pushes, or other reasons, the Permittee may apply to an appropriate permitting authority (USEPA) for permission to use an alternative procedure. The application must provide a detailed explanation of why it is infeasible to use the procedures in 40 CFR 63.7334 (a)(1) through (6), identify the oven and battery numbers, and describe the alternative procedure. An alternative procedure must identify whether the coke in that oven is not completely coked, either before, during, or after an oven is pushed.
- viii. For each oven observed that exceeds an opacity of 30 percent for any short battery, the Permittee must take corrective action and/or increase the coking time in accordance with 40 CFR 63.7291(a). The Permittee shall maintain records documenting conformance with the requirements in 40 CFR 63.7291(a).
- k. Pursuant to Section 39.5(7)(d) of the Act, the Permittee shall have daily observations conducted for pushing to confirm compliance with 35 IAC 212.443(c)(1)(A) (Condition 7.2.3-5(a)). These observations shall be conducted in accordance with applicable procedures in Condition 7.2.12(b). These observations may be coordinated with the observations required by the NESHAP provided that appropriate observations are made and data collected to address the applicable standard under state rule. These observations shall also include, on a monthly basis, opacity observations for the stack of the mobile scrubber car.
- 1. For each coke oven battery with a capture system or control device applied to pushing emissions, the Permittee shall demonstrate continuous compliance with the operation and

maintenance requirements in 40 CFR 63.7300(c) by meeting the following requirements outlined in 40 CFR 63.7335(b):

- i. Making monthly inspections of capture systems according to 40 CFR 63.7300(c) (1) and recording all information needed to document conformance with these requirements; and
- ii. Performing preventative maintenance for each control device according to 40 CFR 63.7300(c) (2) and recording all information needed to document conformance with these requirements.

7.2.8-3 Monitoring Requirements for Quenching

- a. For each coke oven battery subject to the work practice standard for quenching in 40 CFR 63.7295(b), the Permittee must demonstrate continuous compliance according to the following requirements of 40 CFR 63.7334(e) (1) through (3):
 - i. Maintaining baffles in each quench tower such that no more than 5 percent of the cross-sectional area of the tower is uncovered or open to the sky as required in 40 CFR 63.7295(b) (1);
 - ii. Maintaining records that document conformance with the washing, inspection, and repair requirements in 40 CFR 63.7295(b) (2), including records of the ambient temperature on any day that the baffles were not washed; and
 - iii. Maintaining records of the source of makeup water to document conformance with the requirement for acceptable makeup water in 40 CFR 63.7295(a) (2).
- b. Pursuant to 40 CFR 63.7295(b), for the quench tower, the Permittee shall perform inspections on at least a monthly basis for damaged or missing baffles and initiate repair or replacement within 30 days, which shall be completed as soon as practicable, as specified by 40 CFR 63.7295(b) (3) and (4).

7.2.8-4 Monitoring Requirements for Combustion Stacks

- a. Pursuant to 40 CFR 63.7330(e), for each coke oven battery stack, the Permittee must operate and maintain a COMS to measure and record the opacity of emissions exiting each stack according to the requirements in 40 CFR 63.7331(j) (1) through (5) and the following below:

- i. The Permittee must operate, and maintain each COMS according to the requirements in 40 CFR 63.8(e) and Performance Specification 1 in 40 CFR Part 60, Appendix B. The Permittee shall identify periods the COMS is out-of-control, including any periods that the COMS fails to pass a daily calibration drift assessment, quarterly performance audit, or annual zero alignment audit.
 - ii. The Permittee must conduct a performance evaluation of each COMS according to the requirements in 40 CFR 63.8 and Performance Specification 1 in Appendix B to 40 CFR Part 60.
 - iii. The Permittee must develop and implement a quality control program for operating and maintaining each COMS according to the requirements in 40 CFR 63.8(d). At minimum, the quality control program must include a daily calibration drift assessment, quarterly performance audit, and an annual zero alignment audit of each COMS.
 - iv. Each COMS installed, operated and maintained by the Permittee must complete a minimum of one cycle of sampling and analyzing for each successive 10-second period and one cycle of data recording for each successive 6-minute period. The Permittee must reduce the COMS data as specified in 40 CFR 63.8(g)(2).
 - v. The Permittee must determine and record the hourly and daily (24-hour) average opacity according to the procedures in 40 CFR 63.7324(b) using all the 6-minute averages collected for periods during which the COMS is not out-of-control.
- b. Pursuant to Sections 39.5(7)(d) and (p) of the Act, the Permittee shall also record 6-minute average opacity data from the COMS required by Condition 7.2.8-4(a).

7.2.8-5 Monitoring Requirements for Emergency By-pass Bleeder Stacks

Pursuant to 40 CFR 63.309(h)(1), for a flare installed to meet the requirements of 40 CFR 63.307(b) (see Condition 7.2.3-8(b)):

If any emergency by-pass bleeder stack flare operates more than 5 minutes (cumulative) during any 2 hour period, visible emissions observations shall be conducted by using Method 22 in Appendix A of 40 CFR Part 60.

7.2.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items for the affected coke production operations, pursuant to Sections 39.5(7)(a) and (e) of the Act:

a. 40 CFR 63, Subpart CCCCC (40 CFR 63.7334(d))

For each by-product coke oven battery subject to the work practice standard for soaking in 40 CFR 63.7294(a), the Permittee must demonstrate continuous compliance by maintaining records that document conformance with requirements in 40 CFR 63.7294(a)(1) through (5).

b. 40 CFR 63, Subpart CCCCC (40 CFR 63.7342 and 63.7343)

- i. The Permittee shall keep the following records specified in 40 CFR 63.7342 (a)(1) through (3):
 - A. A copy of each notification and report that the Permittee submitted to comply with 40 CFR 63 Subpart CCCCC, including all documentation supporting any initial notification or notification of compliance status that the Permittee submitted, according to the requirements in 40 CFR 63.10(b)(2)(xiv).
 - B. The records in 40 CFR 63.6(e)(3)(iii) through (v) related to startup, shutdown, and malfunction.
 - C. Records of performance tests, performance evaluations, and opacity observations as required in 40 CFR 63.10(b)(2)(viii).
- ii. For each COMS or CEMS, the Permittee shall keep the following records specified in 40 CFR 63.7342(b)(1) through (4):
 - A. Records described in 40 CFR 63.10(b)(2)(vi) through (xi).
 - B. Monitoring data for COMS during a performance evaluation as required in 40 CFR 63.6(h)(7)(i) and (ii).
 - C. Previous (that is, superseded) versions of the performance evaluation plan as required in 40 CFR 63.8(d)(3).
 - D. Records of the date and time that each deviation started and stopped, and whether the

deviation occurred during a period of startup, shutdown, or malfunction or during another period.

- iii. The Permittee shall keep the records in 40 CFR 63.6(h)(6) for visual observations [40 CFR 63.7342(c)].
- iv. The Permittee shall keep the records required in 40 CFR 63.7333 through 63.7335 to show continuous compliance with each emission limitation, work practice standard, and operation and maintenance requirement that applies to the Permittee [40 CFR 63.7342(d)].
- v. The Permittee shall keep its records in a form suitable and readily available for expeditious review, according to 40 CFR 63.10(b)(1) [40 CFR 63.7343(a)].
- vi. As specified in 40 CFR 63.10(b)(1), the Permittee shall keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record [40 CFR 63.7343(b)].
- vii. The Permittee shall keep each record on site for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to 40 CFR 63.10(b)(1). The Permittee may keep the records offsite for the remaining 3 years [40 CFR 63.7343(c)].
- c. 40 CFR 63, Subpart CCCCC (40 CFR 63.7326)
 - i. Pursuant to 40 CFR 63.7326(a)(2), For each venturi scrubber applied to pushing emissions, the Permittee shall have a record of the pressure drop and scrubber water flow rate measured during the performance test in accordance with 40 CFR 63.7323(a).
 - ii. Pursuant to 40 CFR 63.7326(a)(4)(iii), For each capture system applied to pushing emissions, the Permittee shall have a record of the fan RPM measured during the performance test in accordance with 40 CFR 63.7323(c)(3).
- d. 40 CFR Part 63, Subpart L (40 CFR 63.311(f) and (g))

The Permittee shall maintain files of all required information in a permanent form suitable for inspection at an onsite location for at least 1 year and must thereafter

be accessible within 3 working days to the Administrator for the time period specified in 40 CFR 70.6(a)(3)(ii)(B). Copies of the work practice plan developed under 40 CFR 63.306 and the startup, shutdown, and malfunction plan developed under 40 CFR 63.310 shall be kept onsite at all times. The Permittee shall maintain the following information:

- i. A copy of the work practice plan required by 40 CFR 63.306 and any revision to the plan [40 CFR 63.311(f)(3)];
- ii. If the Permittee is required under 40 CFR 63.306I to implement the provisions of a work practice plan for a particular emission point, the following records shall be maintained by the Permittee regarding the implementation of plan requirements for that emission point during the implementation period [40 CFR 63.311(f)(4)]:
 - A. Copies of all written and audiovisual materials used in the training, the dates of each class, the names of the participants in each class, and documentation that all appropriate personnel have successfully completed the training required under 40 CFR 63.306(b)(1);
 - B. The records required to be maintained by the plan provisions implementing 40 CFR 63.306(b)(7);
 - C. Records resulting from audits of the effectiveness of the work practice program for the particular emission point, as required under 40 CFR 63.306(b)(2)(i), 63.306(b)(3)(i), 63.306(b)(4)(i), or 63.306(b)(5)(i); and
 - D. If the plan provisions for coke oven doors must be implemented, records of the inventory of doors and jambs as required under 40 CFR 63.306(b)(2)(vi).
- iii. The design drawings and engineering specifications for the bypass/bleeder stack flare system or approved alternative control device or system as required under 40 CFR 63.307 [40 CFR 63.311(f)(5)].
- iv. Records specified in 40 CFR 63.310(f) regarding the basis of each malfunction notification [40 CFR 63.311(f)(6)].

- v. Records required to be maintained and reports required to be filed with the Illinois EPA under Subpart L shall be made available in accordance with the requirements of 40 CFR 63.311(g) by the Permittee to the authorized collective bargaining representative of the employees at a coke oven battery, for inspection and copying.
 - A. Requests under 40 CFR 63.311(g) shall be submitted in writing, and shall identify the records or reports that are subject to the request with reasonable specificity;
 - B. The Permittee shall produce the reports for inspection and copying within a reasonable period of time, not to exceed 30 days. A reasonable fee may be charged for copying (except for the first copy of any document), which shall not exceed the copying fee charged by the Illinois EPA under the Act;
 - C. Nothing in 40 CFR 63.311(g) shall require the production for inspection or copying of any portion of a document that contains trade secrets or confidential business information that the Illinois EPA would be prohibited from disclosing to the public under the Act; and
 - D. The inspection or copying of a document under 40 CFR 63.311(g) shall not in any way affect any property right of the owner or operator in such document under laws for the protection of intellectual property, including the copyright laws.
- e. Implementation of the good air pollution control practices, as required by Condition 7.2.5-3(b) (i), shall be supported by maintaining logs or other records for the implementation of operation practices and for maintenance activities performed by Permittee.
- f. Records of the total annual coke production at batteries "A" and "B" (ton/yr) and separately for the Battery B [39.5(7) (b) of the Act].
- g. Records for Startups of Affected coke ovens, pursuant to Section 39.5(7) (b) of the Act
 - i. The Permittee shall maintain startup procedures for each affected coke oven, as required by Condition 7.2.5-4 (b) .

- ii. The Permittee shall maintain the following records for each startup of an affected coke oven:
 - A. Date, time and duration of the startup.
 - B. A description of the startup and reason(s) for the startup.
 - C. Whether a violation of an applicable standard may have occurred during startup accompanied by the information in Condition 7.2.9(g) (iv) if a violation may have or did occur.
 - D. Whether the established startup procedures, maintained above, were followed accompanied by the information in Condition 7.2.9(g) (iii) if there were departure(s) from those procedures.
- iii. If the established startup procedures were not followed during a startup, the Permittee shall maintain the following records:
 - A. A description of the departure(s) from the established procedures.
 - B. The reason(s) for the departure(s) from the established procedures.
 - C. An explanation of the consequences of the departure(s) for emissions, such as whether the departure(s) prolonged the startup or resulted in additional emissions, and if so:
 - 1. The actions taken to minimize emissions and the duration of the startup; and
 - 2. An explanation whether similar incidents might be prevented in the future and if so, the corrective actions taken or to be taken to prevent similar incidents.
- iv. If a violation did or may have occurred during a startup, the Permittee shall maintain the following records:
 - A. Identification of the applicable standard(s) that were or may have been violated.
 - B. An explanation of the nature of such violation(s), including the magnitude of such excess emissions.

- C. A description of the actions taken to minimize the magnitude of emissions and duration of the startup.
- D. An explanation whether similar incidents could be prevented or ameliorated in the future and if so, a description of the actions taken or to be taken to prevent similar incidents in the future.

h. Records for Malfunctions or Breakdowns

Pursuant to 35 IAC 201.263, the Permittee shall maintain records of continued operation of the affected coke ovens as addressed by Condition 7.2.5-4, during malfunctions or breakdowns, which at a minimum, shall include the following records. The preparation of these records shall be completed within 45 days of an incident, unless the Permittee conducts a root cause analysis for the incident, in which case the preparation of these records, other than the root cause analysis, shall be completed within 120 days of the incident.

- i. Date, time and duration of the incident.
- ii. A detailed description of the incident, including:
 - A. A chronology of significant events during and leading up to the incident.
 - B. Relevant operating data for the unit, including information such as operator log entries and directives provided by management during the incident.
 - C. The measures taken to reduce the quantity of emissions and the duration of the incident including the resources utilized to address the incident.
 - D. The magnitude of emissions during the incident.
- iii. An explanation why continued operation of an affected coke oven was necessary to prevent personnel injury or prevent equipment damage.
- iv. A discussion of the cause(s) or probable cause(s) of the incident including the following:
 - A. Whether the incident was sudden, unavoidable, or preventable, including:

1. Why the equipment design did not prevent the incident;
 2. Why better maintenance could not have avoided the incident;
 3. Why better operating practices could not have avoided the incident; and
 4. Why there was no advance indication for the incident.
- B. Whether the incident stemmed from any activity or event that could have been foreseen, avoided or planned for,
- C. Whether the incident was or is part of a recurring pattern indicative of inadequate design, operation or maintenance.
- v. A description of any steps taken to prevent similar future incidents or reduce their frequency and severity.
- vi. As an alternative to keeping the records required by Condition 7.2.9(h) (iv), the Permittee may perform a root cause analysis. For this purpose, a root cause analysis is an analysis whose purpose is to determine, correct and eliminate the primary causes of the incident and the excess emissions resulting there from. If the Permittee performs a root cause analysis method that would define the problem, define all causal relationships, provide a causal path to the root cause, delineate the evidence, and provide solutions to prevent a recurrence. Such an analysis shall be completed within one year of the incident.
- i. Quench stations
- The Permittee shall maintain the following records for quenching operations:
- i. A file listing the emissions factors used by the Permittee to determine the emissions of the various quenching operations, with supporting documentation and analysis. These records shall be prepared and copies sent to the Illinois EPA in accordance with Condition 5.9.6(c).
 - ii. Records for the total number of quenches (ovens pushed), the total amount of coke quenched (tons) and

the average amount of coke per quench (tons/quench) on a monthly and annual basis*.

- iii. A log showing each period of time when coke was quenched at the East Quench Station, with number of quenches during the period and explanation of reason for use of the East Quench Station.
- iv. Records on an annual basis* for the:
 - A. Total number of quenches.
 - B. For the East Quench Station:
 - 1. Total number of quenches and amount of coke quenched at the East Quench Station.
 - 2. Total number of quenches and amount of coke quenched at the East Quench Station due to malfunction and breakdown.
 - 3. Percentage of total quenches that occurred at the East Quench Station.
 - C. For the emergency quench station:
 - 1. Total number of quenches and amount of coke quenched at the emergency quench station.
 - 2. Percentage of total quenches that occurred at the emergency quench station.
- * These records shall be kept for the 12-month period from July 1 to June 30 and the initial 12-month period following shakedown of the West Quench Station with new quench tower.
- v. Records for emissions of PM, PM₁₀, and PM_{2.5} from each affected quench station and from the emergency quench station (tons/month and tons/year), with supporting calculations.
- j. i. A file containing the emission rates (lb/hr and lb/ton) used by the Permittee to determine PM emissions from the mobile quench cars, with supporting documentation, which rates shall be reviewed when new data becomes available to assure that these rates do not understate actual emissions. These records shall be prepared and copies sent to the Illinois EPA in accordance with Condition 5.9.6(c).

- ii. Records of PM emissions of the mobile scrubber cars (tons/month and tons/year), with supporting calculations.
- k. i. Monthly and annual records of supplementary natural gas usage (scf) for underfiring the coke oven batteries and associated emissions (tons) with supporting calculations.
- ii. Records of emissions as addressed in Condition 7.2.6(c).
- l. Records of observations of duration of charging, percentage of leaks or opacity that are conducted by the Permittee or on its behalf to determine compliance with 35 IAC 212.443(b) and (c)(1)(A) in addition to the observations required by Condition 7.2.8-1 and 7.2.8-2.
- m. Records of all test reports and submittals related to emission testing required by Section 7.2 of this permit.

7.2.10 Reporting Requirements

a. Opacity Monitoring Reports for Combustion Stacks

Pursuant to Sections 39.5(7)(a), (d) and (p) of the Act, the Permittee shall provide the following reports for each coke oven battery to the Illinois EPA, including a copy directly to Collinsville Regional Office, on a quarterly basis.

- i. "Excess opacity reports" that list all opacity measurements which exceed 30 percent, averages over a six minute period. These reports shall also provide, for each such incident, the percent opacity measured as well as the date and span of such incident. These reports shall state the reasons for excess opacity. These reports shall also specify the date of those periods during which the continuous monitoring system was not in operation.
- ii. "Summary reports" that provide the average opacity, 6-minute average, measured during the reporting period and the distribution of opacity measurements, 6-minute average and hourly average, during the reporting period, by percent, in ranges as follows:

Ranges	
6-Minute Averages	Hourly Averages
< 2	< 1
> 2 and < 5	> 1 and < 3
> 5 and < 10	> 3 and < 6
> 10 and < 15	> 6 and < 10
> 15 and < 20	> 10 and < 15

Ranges	
6-Minute Averages	Hourly Averages
> 20 and < 30	> 15
> 30	

b. 40 CFR Part 63, Subpart CCCCC (40 CFR 63.7336)

Pursuant to 63.7336(a) the Permittee must report each instance in which it did not meet each emission limitation in Conditions 7.2.3-5(c), 7.2.3-6(a) and 7.2.3-7(b). This includes periods of startup, shutdown, and malfunction. The Permittee must also report each instance in which it did not meet each work practice standard or operation and maintenance requirement in Condition 7.2.8-2(h). These instances are deviations from the emission limitations (including operating limits), work practice standards, and operation and maintenance requirements. These deviations must be reported according to the requirements in 40 CFR 63.7341.

c. 40 CFR Part 63, Subpart CCCCC (40 CFR 63.7341)

- i. Pursuant to 40 CFR 63.7341(a)(3) and (4), compliance report due dates. Unless the Illinois EPA has approved a different schedule, the Permittee shall submit quarterly compliance reports for battery stacks and semiannual compliance reports for all other affected sources to the Illinois EPA according to the following requirements:
 - A. All quarterly compliance reports for battery stacks must be postmarked or delivered no later than one calendar month following the end of the quarterly reporting period. All semiannual compliance reports must be postmarked or delivered no later than July 31 or January 31, whichever date is the first date following the end of the semiannual reporting period.
 - B. If the Illinois EPA has established dates for submitting semiannual reports pursuant to 40 CFR 70.6(a)(3)(iii)(A), the Permittee may submit compliance reports according to the dates the Illinois EPA has established instead of according to the dates in 40 CFR 63.7341(a)(1) through (3).
- ii. Quarterly compliance report contents. Each quarterly report must provide information on compliance with the emission limitations for battery stacks in 40 CFR 63.7296. The reports must include the information in

40 CFR 63.7341(c) (1) through (3), and as applicable, 40 CFR 63.7341(c) (4) through (8).

- iii. Semiannual compliance report contents. Each compliance report must provide information on compliance with the emission limitations, work practice standards, and operation and maintenance requirements for all affected sources except battery stacks. The reports must include the following information [40 CFR 63.7341(c)]:
- A. Company name and address.
 - B. Statement by a responsible official, with the official's name, title, and signature, certifying the truth, accuracy, and completeness of the content of the report.
 - C. Date of report and beginning and ending dates of the reporting period.
 - D. If the Permittee had a startup, shutdown, or malfunction during the reporting period and the Permittee took actions consistent with the startup, shutdown, and malfunction plan, the compliance report must include the information in 40 CFR 63.10(d) (5) (i).
 - E. If there were no deviations from the continuous compliance requirements in 40 CFR 63.7333(e) for battery stacks, a statement that there were no deviations from the emission limitations during the reporting period. If there were no deviations from the continuous compliance requirements in 40 CFR 63.7333 through 63.7335 that apply to the Permittee (for all affected sources other than battery stacks), a statement that there were no deviations from the emission limitations, work practice standards, or operation and maintenance requirements during the reporting period.
 - F. If there were no periods during which a continuous monitoring system (including COMS, continuous emission monitoring system (CEMS), or CPMS) was out-of-control as specified in 40 CFR 63.8(c) (7), a statement that there were no periods during which a continuous monitoring system was out-of-control during the reporting period.

G. For each deviation from an emission limitation in Subpart CCCCC (including quench water limits) and for each deviation from the requirements for work practice standards in Subpart CCCCC that occurs at an affected source where the Permittee is not using a continuous monitoring system (including a COMS, CEMS, or CPMS) to comply with the emission limitations in Subpart CCCCC, the compliance report must contain the following information (this includes periods of startup, shutdown, and malfunction):

1. The total operating time of each affected source during the reporting period.
2. Information on the number, duration, and cause of deviations (including unknown cause, if applicable) as applicable and the corrective action taken.

H. For each deviation from an emission limitation occurring at an affected source where the Permittee is using a continuous monitoring system (including COMS, CEMS, or CPMS) to comply with the emission limitation in Subpart CCCCC, the Permittee shall include the following information (this includes periods of startup, shutdown, and malfunction):

1. The date and time that each malfunction started and stopped.
2. The date and time that each continuous monitoring system (including COMS, CEMS, or CPMS) was inoperative, except for zero (low-level) and high-level checks.
3. The date, time, and duration that each continuous monitoring system (including COMS, CEMS, or CPMS) was out-of-control, including the information in 40 CFR 63.8(c)(8).
4. The date and time that each deviation started and stopped, and whether each deviation occurred during a period of startup, shutdown, or malfunction or during another period.

5. A summary of the total duration of the deviation during the reporting period and the total duration as a percent of the total source operating time during that reporting period.
 6. A breakdown of the total duration of the deviations during the reporting period into those that are due to startup, shutdown, control equipment problems, process problems, other known causes, and other unknown causes.
 7. A summary of the total duration of continuous monitoring system downtime during the reporting period and the total duration of continuous monitoring system downtime as a percent of the total source operating time during the reporting period.
 8. An identification of each HAP that was monitored at the affected source.
 9. A brief description of the process units.
 10. A brief description of the continuous monitoring system.
 11. The date of the latest continuous monitoring system certification or audit.
 12. A description of any changes in continuous monitoring systems, processes, or controls since the last reporting period.
- iv. Immediate startup, shutdown, and malfunction report. If the Permittee had a startup, shutdown, or malfunction during the semiannual reporting period that was not consistent with the Permittee's startup, shutdown, and malfunction plan, the Permittee shall submit an immediate startup, shutdown, and malfunction report according to the requirements in 40 CFR 63.10(d)(5)(ii).
- d. 40 CFR Part 63, Subpart L (40 CFR 63.311)
- i. Semiannual compliance certification. The Permittee shall include the following information in the

semiannual compliance certification [40 CFR 63.311(d)]:

- A. Certification, signed by the Permittee, that no coke oven gas was vented, except through the bypass/bleeder stack flare system of a by-product coke oven battery during the reporting period or that a venting report has been submitted according to the requirements in 40 CFR 63.311(e).
 - B. Certification, signed by the Permittee, that a startup, shutdown, or malfunction event did not occur for a coke oven battery during the reporting period or that a startup, shutdown, and malfunction event did occur and a report was submitted according to the requirements in 40 CFR 63.310(e).
 - C. Certification, signed by the Permittee, that work practices were implemented if applicable under 40 CFR 63.306.
- ii. Report for the venting of coke oven gas other than through a flare system. The Permittee shall report any venting of coke oven gas through a bypass/bleeder stack that was not vented through the bypass/bleeder stack flare system to the Administrator as soon as practicable but no later than 24 hours after the beginning of the event. A written report shall be submitted within 30 days of the event and shall include a description of the event and, if applicable, a copy of the notification for a hazardous substance release required, pursuant to 40 CFR 63.311(e).
- iii. 40 CFR Part 63, Subpart L (40 CFR 63.310)
- A. Pursuant to 40 CFR 63.310(d), in order for the provisions of 40 CFR 63.310(i) to apply with respect to the observation (or set of observations) for a particular day, notification of a startup, shutdown, or a malfunction shall be made by the Permittee:

If practicable, to the certified observer if the observer is at the source during the occurrence; or to the enforcement agencies (USEPA and Illinois EPA), in writing, within 24 hours of the occurrence first being documented by personnel, and if the notification to the certified observer was not made, an explanation of why no such notification was made.

- B. Pursuant to 40 CFR 63.310(e), within 14 days of the notification made under 40 CFR 63.310 (d), or after a startup or shutdown, the Permittee shall submit a written report to the Illinois EPA that describes the time and circumstances of the startup, shutdown, or malfunction; and describes actions taken that might be considered inconsistent with the startup, shutdown, or malfunction plan.
- e. i. Pursuant to Section 39.5(7)(f)(ii) of the Act, the Permittee shall promptly notify the Illinois EPA, Air Compliance Section, within 30 days of deviations by the affected coke oven operations from applicable requirements unless a NESHAP standard specifies a different timeframe as identified in Condition 7.2.11(c) and (d), as follows:
 - A. Requirements in Condition 7.2.3(d).
 - B. Requirements in Condition 7.2.3-1.
 - C. Requirements in Condition 7.2.3-2.
 - D. Requirements in Condition 7.2.3-3.
 - E. Requirements in Condition 7.2.3-4.
 - F. Requirements in Condition 7.2.3-5.
 - G. Requirements in Condition 7.2.3-6.
 - H. Requirements in Condition 7.2.3-7.
 - I. Requirements in Condition 7.2.3-8.
 - J. Requirements in Condition 7.2.5-1.
 - K. Requirements in Condition 7.2.5-2.
 - L. Requirements in Condition 7.2.6.
- ii. All such deviations shall be summarized and reported as part of the semiannual monitoring report required by Condition 8.6.1.
- iii. The Permittee shall notify the Illinois EPA, Air Compliance Section, of all other deviations as part of the semiannual monitoring reports required by Condition 8.6.1.
- iv. All deviation reports described in Condition 7.2.10(e) above shall contain the following:

- A. Date, time and duration of the deviation;
- B. Description of the deviation;
- C. Probable cause of the deviation; and
- D. Any corrective actions or preventive measures taken.

f. Quench stations [08060026]

The Permittee shall provide the following notification and reports to the Illinois EPA, Air Compliance Section and Regional Field Office, pursuant to 35 IAC 201.263, concerning continued operation of quenching operations during malfunction or breakdown that does not meet the requirements of 35 IAC 212.443(h)(1):

- i. For noncompliance due to malfunction or breakdown that lasts more than 30 minutes (quenching of four ovens):
 - A. The Permittee shall notify the Illinois EPA's regional office by telephone as soon as possible during normal working hours, but no later than the next Agency business day.
 - B. Upon achievement of compliance, the Permittee shall give a written follow-up notice within 15 days to the Illinois EPA, Air Compliance Section and Regional Field Office, providing a detailed explanation of the event, the length of time during which operation continued under such conditions, the measures taken by the Permittee to minimize and correct deficiencies with chronology, and when the repairs were completed.
 - C. If compliance is not achieved within 48 hours of the occurrence, the Permittee shall submit interim status reports to the Illinois EPA, Air Compliance Section and Regional Field Office, on a daily basis, until compliance is achieved. These interim reports shall provide a brief explanation of the nature of the malfunction or breakdown, corrective actions accomplished to date, actions anticipated to occur with schedule, and the expected date on which repairs will be complete.
- ii. For noncompliance due to malfunction or breakdown that is no more than 30 minutes in duration, the Permittee shall provide the information for the

incident or period with the periodic compliance reports required by 40 CFR 63, Subpart CCCCC.

- iii. Within two years of initial startup of the low emission quench tower on the West Quench Station, the Permittee shall submit a report evaluating the reduction in filterable and total PM_{2.5} and PM₁₀ emissions achieved by this project, on both in terms of emissions per ton of coke quenched and in terms of annual emissions.
- g. Reporting on the State malfunction and breakdown authorization shall be performed in accordance with Condition 5.10.5-2.
- h. Reporting on the State startup authorization shall be performed in accordance with Condition 5.10.5-1.
- i. Reporting on the Federal SSM authorization shall be performed in accordance with Condition 5.10.5-3.

7.2.11 Operational Flexibility/Anticipated Operating Scenarios

Operational flexibility is not set for the affected coke oven operations.

7.2.12 Compliance Procedures

For purposes of 35 IAC 212.443:

- a. Coke Oven Charging, Leaks from Doors, Leaks from Lids and Leaks from Off Takes: Observations shall be conducted in accordance with 40 CFR 63, Appendix A, Method 303 which is consistent with the procedures specified in 35 IAC 280.104 to 280.107 and the Consent Decree, Civil Action No. 81-3009 referenced in Construction Permit C808048.

- i. Battery A and B - Charging:

Observations shall be conducted in accordance with 40 CFR 63, Appendix A, Method 303 which is consistent with the procedures specified in 35 IAC 280.104 to 280.107 and the Consent Decree, Civil Action No. 81-3009 referenced in Construction Permit C808048.

Observation of charging emissions shall be made from any point or points on the topside of a coke oven battery from which a qualified observer can obtain an unobstructed view of the charging operation.

The qualified observer shall time the visible emissions with a stopwatch while observing the charging operation. Only emissions from the charge port and any part of the larry car shall be timed.

The observation shall commence as soon as coal is introduced into the first charge port as indicated by the first charge port as indicated by the first mechanical movement of the coal feeding mechanism on the larry car and shall terminate when the last charge port lid has been replaced. Simultaneous emissions from more than one emission point shall be timed and recorded as one emission and shall not be added individually to the total time.

The qualified observer shall determine and record the total number of seconds that charging emissions are visible during the charging of coal to the coke oven.

For each charge observed, the qualified observer shall record the total number of seconds of visible emissions, the clock time for the initiation and completion of the charging operation and the battery identification and oven number.

The qualified observer shall not record any emissions observed after all charging port lids have been firmly seated following removal of the larry car, such as emissions occurring when a lid has been temporarily removed to permit spilled coal to be swept into the oven.

In the event that observations of emissions from a charge are interrupted due to events beyond the control of the observer, the data from that charge shall be invalidated and the observer shall note on his observation sheet the reason for invalidating the data. The observer shall then resume observation of the next consecutive charge or charges, and continue until he has obtained a set of consecutive charges immediately preceding the interrupted charge and the charge immediately following the interrupted charge shall constitute consecutive charges. Compliance shall be determined by summing the seconds of charging emission observed during a set of five consecutive charges. Any one charge may be included in only one set of consecutive charges.

ii. Battery A and B - Doors:

Compliance with the percent door area leakage standard shall be determined in accordance with the following method:

Observations of door emissions shall be made from a minimum distance of 25 feet from each door. Each door shall be observed in sequence for only that period necessary to determine whether or not, at the time, there are visible emissions from any point on

the door while the observer walks along the side of the battery. If the observer's view of a door is more than momentarily obstructed, as, for example, by door machinery, pushing machinery, coke guide, luter truck, or opaque steam plumes, he shall record the door obstructed and the nature of the obstruction and continue the observations with the next door in sequence which is not obstructed. The observer shall continue this procedure along the entire length of the battery for both sides and shall record the battery identification, battery side, and oven door identification number of each door exhibiting visible emissions. Before completing the traverse or immediately thereafter he shall attempt to reobserve the obstructed doors.

iii. Battery A and B - Charging Ports/Lids:

For purposes of determining compliance with limits on visible emissions from charging ports, observations of any visible emissions shall be made and recorded during the time an observer walks the topside of a battery from one end to the other. Each oven shall be observed in sequence. The observer may also observe off take pipe leaks during this traverse of the battery. The observer shall record the battery identification, the points of emissions from each oven, the oven number, and whether an oven was dampered off. Compliance shall be determined by application of the following formula which shall exclude the ports on up to 3 ovens ahead of the oven being pushed which are dampered off.

iv. Battery A and B - Off Takes:

For purposes of determining compliance with limits on visible emissions from off take pipes, observations of any visible emissions from the off take piping shall be made by traversing the topside of the battery. During the traverse(s), the observer shall walk as near to the center of the battery as safety considerations permit but may walk as close as necessary to the off take piping to determine whether an observed emission is emanating from the off take piping. Each oven shall be observed in sequence. The observer may also observe charging port emissions during this traverse of the battery. The observer shall record the battery identification, the points of off take piping emission from any oven and the oven number.

b. Coke Oven Pushing:

i. Battery A and B:

Opacity readings shall be taken by a qualified observer located in a position where the oven being pushed, the coke receiving car and the path to the quench tower are visible. The opacity shall be read as the emissions rise and clear the top of the coke battery gas mains. The qualified observer shall record opacity readings of emissions originating at the receiving car and associated equipment and the coke oven, including the standpipe on the coke side of the oven being pushed. Opacity readings shall be taken in accordance with the procedures set forth in 40 CFR Part 60, Appendix A, Method 9, incorporated by reference in 35 IAC 212.113, except that Section 2.5 for data reduction shall not be used. The qualified observer referenced in this subsection shall be certified pursuant to 40 CFR Part 60, Appendix A, Method 9, incorporated by reference in 35 IAC 212.113.

ii. Battery A:

Opacity readings shall be taken at 15-second intervals, beginning from the time the coke falls into the receiving car or is first visible as it emerges from the coke guide whichever occurs earlier, until the receiving car enters the quench tower or quenching device. For a push of less than 90 seconds duration, the actual number of 15-second readings shall be averaged.

At least four consecutive pushes per day.

iii. Battery B:

Opacity readings shall be taken at 15-second intervals, beginning from the time the coke falls into the receiving car or is first visible as it emerges from the coke guide whichever occurs earlier, until the end of the sixth reading. During the pushing operation, the observer shall observe all the pushing emissions including, but not limited to, fugitive emissions from the pushing emission control device and from open quench cars during travel.

At a minimum, one push per day.

c. Coke Quenching (35 IAC 212.443(h)(2))

- i. Samples shall be taken from each quench station as separate grab samples or composite samples.

- ii. Samples shall be collected a minimum of five days per week and analyzed to report a weekly concentration. The samples for each week shall be analyzed either:
 - A. Separately, with the average of the individual daily concentrations determined; or
 - B. As one composite sample, with equal volumes of the individual daily samples combined to form the composite sample.

7.2.13 State-Only Conditions

State-only conditions are not being established.

7.3 Coke By-Product Recovery Plant and COG Desulfurization System

7.3.1 Description

COG is made up of various organic materials volatilized during the coal-to-coke conversion process. The raw coke oven gas from U. S. Steel two existing coke oven batteries is processed in the coke by-product recovery plant, where various byproducts are removed. Once treated, the COG is used as a fuel in the coke batteries and in various boilers and furnaces throughout the facility.

Coke Oven Gas (COG) Processing Unit:

COG from the coke ovens first passes through the primary cooler where it is cooled. The cooling of COG causes tar, naphthalene, and liquor to condense. The cool COG is then pushed through the entire by-product plant with the aid of exhausters. More tar and liquor are removed by the centrifugal force created in the exhausters. Droplets of tar, naphthalene, and liquor accumulate and drain to the tar sump. Ammonia present in the COG is then removed by passing it through ammonia absorber. The removal of ammonia is accomplished by exposing the COG to a spray of sulfuric acid in the ammonia absorber. The COG then enters the Tar Spray Final Cooler where the COG is further cooled and most of the naphthalene is removed with tar injection. Next COG passes through the Light Oil Scrubber, which is designed to remove the remaining naphthalene and "Light Oils".

From the light oil scrubber, the treated COG is normally further processed in the COG desulfurization system to remove sulfur. The COG is not always processed by desulfurization system because of the need for periodic maintenance on the system. The permit limits the amount of time during which this may occur. COG desulfurization system consists of a packed tower amine unit, hydrogen cyanide destruction unit, and a Claus sulfur recovery unit with tail gas oxidizer. The system removes hydrogen sulfide (H_2S) from the treated COG stream from the by-product plant. The COG desulfurization system is not part of the by-products recovery plant.

The COG stream from the by-product plant is sent to a pressure holding tank from where the COG is distributed to underfire the Coke Oven Batteries and various parts of the plant.

Light Oil Processing Unit:

Processing the Light Oil generated at the Light Oil Scrubber, also called Benzol Washer, is the main activity of this unit. In the Light Oil Scrubber, wash oil is used to scrub out Light Oil from the Coke Oven Gas. Next wash oil is cleaned and re-circulated back through the Light Oil scrubber as described below.

After scrubbing out the light oil in the Light Oil Scrubber, the wash oil passes through two oil to vapor heat exchangers, where the light oil is vaporized. The vapors are then passed through two cool water condensers to condense out the light oil. The light oil then passes through the Secondary Light Oil Separator, where any remaining wash oil and water is removed. The liquid oil is then pumped into one of six storage tanks.

After passing through the oil to vapor heat exchangers, the wash oil passes through steam heaters, the Wash Oil Still, coolers, and finally the Wash Oil Recirculating Tank before it is reintroduced in the Light Oil Scrubber.

Coal Tar Processing:

Tar is collected into a tar sump. The tar is decanted by passing through one of three decanters. Sludge from the decanters is dumped into hoppers from where it is collected by a company for further treatment. Tar from the decanters pass through two dehydration tanks where the water is removed. The tar is then pumped to a storage tank, where it is stored until shipment.

Note: This narrative description is for informational purposes only and is not enforceable.

7.3.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Date Constructed	Emission Control Equipment
By-Product Recovery	Coke oven Gas Processing Unit (coke oven gas transfer and handling; gas coolers; gas processing/cleaning unit)	Prior to 06/1982	Steam Blanketing
By-Product Recovery (Continued)	Light Oil Processing (still; process condensers; sumps) Coal Tar Processing (tar collection and transfer; tar storage tanks) Tar Storage Tanks; Dehydration Tanks; Decanters; Light Oil Storage Tanks; Ammonia Liquor; Storage Tanks	Prior to 06/1982	Clean Gas Blanketing; Steam Blanketing; Negative Pressure Systems

Emission Unit	Description	Date Constructed	Emission Control Equipment
	Railcar/Truck Loading	2004	Vapor Recovery System; Negative Pressure
COG Desulfurization System	Packed tower amine unit and hydrogen cyanide destruction unit		Closed Systems
	Claus Sulfur Recovery Unit		Thermal Oxidizer
COG Flare	COG holding tank and flare		None

7.3.3 Applicable Provisions and Regulations

- a. i. The "affected by-product recovery plant" for the purpose of these unit-specific conditions, is the group of emission units and/operations in the coke by-product recovery plant described in Conditions 7.3.1 and 7.3.2.
- ii. The COG desulfurization system is the system for desulfurization of treated COG described in Conditions 7.3.1 and 7.3.2.
- iii. The COG flare is the system for burning of excess of COG described in Conditions 7.3.1 and 7.3.2.
- b. The affected by-product recovery plant is subject to the work practices in 40 CFR Part 61, Subpart L, National Emission Standards for Benzene Emissions from Coke By-Product Recovery Plants.
- c. The affected by-product recovery plant is subject to the work practices in 40 CFR Part 61, Subpart V, National Emission Standards for Equipment Leaks (Fugitive Emissions).
- d. The affected by-product recovery plant is subject to the work practices in 40 CFR Part 61, Subpart FF, National Emission Standard for Benzene Waste Operations.
- e. No person shall cause or allow the loading of any organic material into any stationary tank having a storage capacity of greater than 946 liters (250 gallons), unless such tank is equipped with a permanent submerged loading pipe or an equivalent device approved by the Illinois EPA according to the provisions of 35 IAC 201, and further processed consistent with 35 IAC 219.108, or unless such tank is a pressure tank as described in 35 IAC 219.121(a) or is

fitted with a recovery system as described in 35 IAC 219.121(b) (2) [35 IAC 219.122(b)].

- f. The affected by-product recovery plant, COG desulfurization system and COG flare are subject to 35 IAC 212.123(a), no person shall cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from any emission unit other than those emission units subject to the requirements of 35 IAC 212.122, except as allowed by 35 IAC 212.123(b) and 212.124.
- g. SO₂ emissions from the affected by-product recovery plant and COG flare shall not exceed 2000 ppm pursuant to 35 IAC 214.301.

7.3.4 Non-Applicability of Regulations of Concern

- a. The storage tanks used at the affected by-product recovery plant are not subject to 35 IAC 219.120 because of the exemption for vessels at coke by-product plants in 35 IAC 219.119(b).
- b. The storage tanks used at the affected by-product recovery plant are not subject to 35 IAC 219.121 (Storage Containers of Volatile Petroleum Liquids (VPL)) because the liquids kept in those tanks are not the product of petroleum refinery and, therefore, do not meet the definition of VPL/petroleum liquids of 35 IAC Part 211.
- c. This permit is issued based on the affected by-product recovery plant not being subject to the applicable requirements of 35 IAC 219.301 because there is 85% reduction of uncontrolled organic material that would otherwise be emitted into atmosphere, pursuant to 35 IAC 219.302.
- d. The COG desulfurization system and COG flare are not subject to 40 CFR 63 Subpart L, National Emission Standards for Benzene Emissions from Coke By-Product Recovery Plants, because both COG systems are not involved in the separation and recovery of coal tar derivatives evolved from coal during the coking process of a coke oven battery.
- e. This permit is issued based on the COG desulfurization system (thermal oxidizer) not being subject to 35 IAC 214.301 pursuant to 35 IAC 214.302, which provides that 35 IAC 214.301 shall not apply to processes designed to remove sulfur compounds from the flue gases of fuel combustion emission sources.

7.3.5 Operation of COG Flare during Malfunction and Breakdown

Pursuant to 35 IAC 201.149 and Part 201 Subpart I, subject to the following terms and conditions, the Permittee is authorized to continue to operate the COG flare in excess of the applicable state standard in Condition 7.3.3(f) in the event of a malfunction or breakdown.

Note: This authorization is provided because the Permittee applied for such authorization in its CAAPP application, generally explaining why such continued operation would be required to prevent injury to personnel or severe damage to equipment, and describing the measures that will be taken to minimize emissions from any malfunctions and breakdowns.

- a. This authorization only allows such continued operation as necessary to prevent injury to personnel or severe damage to equipment and does not extend to continued operation solely for the economic benefit of the Permittee.
- b. Upon occurrence of excess emissions due to malfunction or breakdown, the Permittee shall, as soon as practicable, repair the COG flare, reduce flare load or remove it from service so that excess emissions cease.
- c. The Permittee shall fulfill the applicable recordkeeping and reporting requirements of Conditions 7.3.10(h) and 5.10.5-2. For these purposes, time shall be measured from the start of a particular incident. The absence of excess emissions for a short period shall not be considered to end the incident if excess emissions resume.
- d. Following notification to the Illinois EPA (see Condition 5.10.5-2(a)(i)) of a malfunction or breakdown with excess emissions, the Permittee shall comply with all reasonable directives of the Illinois EPA with respect to such incident.
- e. This authorization does not relieve the Permittee from the continuing obligation to minimize excess emissions during malfunction or breakdown. As provided by 35 IAC 201.265, an authorization in a permit for continued operation with excess emissions during malfunction and breakdown does not shield the Permittee from enforcement for any such violation and only constitutes a prima facie defense to such an enforcement action provided that the Permittee has fully complied with all terms and conditions connected with such authorization.

7.3.6 Control Requirements and Work Practices

- a. 40 CFR Part 61, Subpart L:

- i. The Permittee shall operate and maintain a Control System to meet the standards specified below in 40 CFR Part 61 Subpart L. This Control System consists of a Positive Pressure Gas Blanketing System supplied with clean coke oven gas controlling the light oil area and a Negative Pressure or Steam Blanketing System controlling tar, ammonia and liquor tanks.
- ii. These control systems shall be designed to operate with no detectable emissions (an organic chemical concentration more than 500 ppm above a background concentration), as determined by the methods specified in 40 CFR 61.245, pursuant to 40 CFR 61.132(b).
- iii. The Permittee shall comply with 40 CFR 61.132 - Standard: Process vessels, storage tanks, and tar-intercepting sumps, which includes the following:
 - A. Each owner or operator of a furnace byproduct recovery plant shall enclose and seal all openings on each process vessel, tar storage tank, and tar-intercepting sump.
 - B. The owner or operator shall duct gases from each process vessel, tar storage tank, and tar-intercepting sump to the gas collection system, gas distribution system, or other enclosed point in the by-product recovery process where the benzene in the gas will be recovered or destroyed. This control positive pressure blanketing system shall be designed and operated for no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background and visual inspections, as determined by the methods specified in 40 CFR 61.245(c).
 1. Except, the owner or operator may elect to install, operate, and maintain a pressure relief device, vacuum relief device, an access hatch, and a sampling port on each process vessel, tar storage tank, and tar-intercepting sump. Each access hatch and sampling port must be equipped with a gasket and a cover, seal, or lid that must be kept in a closed position at all times, unless in actual use.
 2. The owner or operator may elect to leave open to the atmosphere the portion of the liquid surface in each tar decanter necessary to permit operation of a sludge

conveyor. If the owner or operator elects to maintain an opening on part of the liquid surface of the tar decanter, the owner or operator shall install, operate, and maintain a water leg seal on the tar decanter roof near the sludge discharge chute to ensure enclosure of the major portion of liquid surface not necessary for the operation of the sludge conveyor.

- C. Each owner or operator of a furnace coke by-product recovery plant also shall comply with the requirements of 40 CFR 61.132(a) through (c) for each benzene storage tank, BTX storage tank, light-oil storage tank, and excess ammonia-liquor storage tank.

iv. The Permittee shall comply with 40 CFR 61.133 - Standard: Light-oil sumps, which includes the following, pursuant to 40 CFR 61.133(a) and 61.133(c):

- A. Each owner or operator of a light-oil sump shall enclose and seal the liquid surface in the sump to form a closed system to contain the emissions.
 - 1. Except, the owner or operator may elect to install, operate, and maintain a vent on the light-oil sump cover. Each vent pipe must be equipped with a water leg seal, a pressure relief device, or vacuum relief device.
 - 2. Except, the owner or operator may elect to install, operate, and maintain an access hatch on each light-oil sump cover. Each access hatch must be equipped with a gasket and a cover, seal, or lid that must be kept in a closed position at all times, unless in actual use.
 - 3. The light-oil sump cover may be removed for periodic maintenance but must be replaced (with seal) at completion of the maintenance operation.
- B. The venting of steam or other gases from the by-product process to the light-oil sump is not permitted [40 CFR 61.133(a)].

- C. Following the installation of any control equipment used to meet the requirements of 40 CFR 61.133(a), the owner or operator shall monitor the connections and seals on each control system to determine if it is operating with no detectable emissions, using Method 21 (40 CFR Part 60, Appendix A) and the procedures specified in 40 CFR 61.245(c), and shall visually inspect each source (including sealing materials) for evidence of visible defects such as gaps or tears. This monitoring and inspection shall be conducted semiannually and at any other time the cover is removed.
 - 1. If an instrument reading indicates an organic chemical concentration more than 500 ppm above a background concentration, as measured by Method 21, a leak is detected.
 - 2. If visible defects such as gaps in sealing materials are observed during a visual inspection, a leak is detected.
 - 3. When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected.
 - 4. A first attempt at repair of any leak or visible defect shall be made no later than 5 calendar days after each leak is detected [40 CFR 61.133(c)].
- v. The Permittee shall comply with 40 CFR 61.135 - Standard: Equipment leaks.
 - A. Each piece of equipment in benzene service to which 40 CFR 61 Subpart L applies shall be marked in such a manner that it can be distinguished readily from other pieces of equipment in benzene service [40 CFR 61.135(c)].
 - B. Each owner or operator of equipment in benzene service shall comply with requirements of 40 CFR 61, Subpart V.
 - C. The provisions of 40 CFR 61.242-3 and 61.242-9 of Subpart V do not apply to Subpart L.
- b. 40 CFR Part 61, Subpart V:
 - 40 CFR 61.242-10: Standards: Delay of Repair

- i. Delay of repair of equipment for which leaks have been detected will be allowed if repair within 15 days is technically infeasible without a process unit shutdown. Repair of this equipment shall occur before the end of the next process unit shutdown.
 - ii. Delay of repair of equipment for which leaks have been detected will be allowed for equipment that is isolated from the process and that does not remain in VHAP (volatile hazardous air pollutant) service.
 - iii. Delay of repair for valves will be allowed if:
 - A. The owner or operator demonstrates that emissions of purged material resulting from immediate repair are greater than the fugitive emissions likely to result from delay of repair; and
 - B. When repair procedures are affected, the purged material is collected and destroyed or recovered in a control device complying with 40 CFR 61.242-11.
 - iv. Delay of repair for pumps will be allowed if:
 - A. Repair requires the use of a dual mechanical seal system that includes a barrier fluid system; and
 - B. Repair is completed as soon as practicable, but not later than 6 months after the leak was detected.
 - v. Delay of repair beyond a process unit shutdown will be allowed for a valve if valve assembly replacement is necessary during the process unit shutdown, valve assembly supplies have been depleted, and valve assembly supplies had been sufficiently stocked before the supplies were depleted. Delay of repair beyond the next process unit shutdown will not be allowed unless the next process unit shutdown occurs sooner than 6 months after the first process unit shutdown.
- c. 40 CFR 61 Subpart FF (61.355(a)(3) through (a)(5)).
- i. Pursuant to 40 CFR 61.355(a)(3), if the total annual benzene quantity from facility waste is equal to or greater than 10 Mg/yr (11 tons/yr), then the owner or operator shall comply with the requirements of 40 CFR 61.342(c), (d), or (e).

- ii. Pursuant to 40 CFR 61.355(a)(4), if the total annual benzene quantity from facility waste is less than 10 Mg/yr (11 tons/yr) but is equal to or greater than 1 Mg/yr, (1.1 ton/yr), then the owner or operator shall:
 - A. Comply with the recordkeeping requirements of 40 CFR 61.356 and reporting requirements of 40 CFR 61.357; and
 - B. Repeat the determination of total annual benzene quantity from facility waste at least once per year and whenever there is a change in the process generating the waste that could cause the total annual benzene quantity from facility waste to increase to 10 Mg/yr (11 ton/yr) or more.
- iii. Pursuant to 40 CFR 61.355(a)(5), if the total annual benzene quantity from facility waste is less than 1 Mg/yr (1.1 ton/yr), then the owner or operator shall:
 - A. Comply with the recordkeeping requirements of 40 CFR 61.356 and reporting requirements of 40 CFR 61.357; and
 - B. Repeat the determination of total annual benzene quantity from facility waste whenever there is a change in the process generating the waste that could cause the total annual benzene quantity from facility waste to increase to 1 Mg/yr (1.1 ton/yr) or more.
- d. The COG flare shall be operated with a flame present at all times when COG is vented to the flare [Section 39.5(7)(a) of the Act].

7.3.7 Production and Emission Limits for the COG Desulfurization System from Permit 06070022

- a. The Permittee shall operate COG desulfurization system (COG-DS) at all times the by-products plant is producing COG, except when undertaking maintenance or repairs of the system. This total "outage" period shall not exceed 35 days (840 hours) per calendar year.
- b. i. Raw COG production during periods of time when the COG-DS is not operating shall not exceed 1,092 mmscf/year.
- ii. Total amount of COG generated by Coke Oven Batteries A and B and processed by by-products plant shall not exceed 1,140 mmscf/month and 11,400 mmscf/year.

- c. i. The COG-DS shall be operated and maintained in conformance with good air pollution control practices.
- ii. The thermal oxidizer combustion chamber for the sulfur recovery unit shall be operated at a temperature that is greater than 1,100°F.
- d. i. The H₂S content of the raw COG entering the COG-DS shall not exceed 500 grains of H₂S/100 scf of COG, daily average.
- ii. The H₂S content of desulfurized COG exiting the COG-DS shall not exceed 66 grains/100 scf of COG, annual average.
- iii. During periods of time when the COG-DS is operating, the H₂S content of COG shall not exceed the following limits: 25 grains of H₂S/100 scf of COG, monthly average, excluding outages, startup, shutdown, and upsets such as failure of fans, pumps or heat exchangers and aberrations in the composition or condition of the raw COG.
- e. i. Emissions from the thermal oxidizer on the COG-DS shall not exceed the following limits:

PM ₁₀		SO ₂	
(Lbs/Hr)	(Tons/Yr)	(Lbs/Hr)	(Tons/Yr)
5.6	24.6	67.3	294.7

- ii. Combined emissions of PM₁₀ and SO₂ from the thermal oxidizer on COG-DS and combustion of coke oven gas shall not exceed 246.8 and 1,074.1 tons/year for PM₁₀ and SO₂, respectively [T1].
- iii. Compliance with the annual limits in Conditions 7.3.7(b) and (e) shall be determined from a running total of 12 months of data, unless otherwise specified [T1].

7.3.8 Testing Requirements

- a. The Permittee, as the owner or operator of a by-products plant, subject to the provisions of 40 CFR Part 61 Subpart L, shall comply with the requirements in 40 CFR 61.245.
- b. The Permittee shall determine the total annual benzene (TAB) quantity of the facility using the test methods and procedures for determination in 40 CFR 61.355(a)(5). In particular, if the total annual benzene quantity from facility waste is less than 1 Mg/yr (1.1 ton/yr), then the owner or operator shall repeat the determination of total annual benzene quantity from facility waste whenever there

is a change in the process generating the waste that could cause the total annual benzene quantity from facility waste to increase to 1 Mg/yr (1.1 ton/yr) or more.

- c. For the COG flare and the thermal oxidizer in the COG-DS, the Permittee shall conduct observations for visible emissions and/or opacity, using USEPA Method 22 and 9, respectively. These observations shall be conducted by individual(s) certified to observe opacity by USEPA Method 9. The observer(s) may either conduct observations for opacity or conduct observations for visible emissions, immediately followed by observations for opacity if visible emissions are observed. Observations shall be conducted in at least a monthly basis for the COG flare and an annual basis for the COG-DS thermal oxidizer. In addition, for the COG flare, observations shall be coordinated with weather conditions so that at least two observations are made in each calendar year during elevated wind speed conditions, i.e., wind speed of at least 16 miles per hour.
- d. Upon the written request from the Illinois EPA, the emission tests shall be conducted by the Permittee for the COG-DS to verify compliance with emission limits in Condition 7.3.7(e) as follows [Section 39.5(7)(d) and (p) of the Act]:
 - i. The following USEPA test methods shall be used, unless another USEPA method is approved by the Illinois EPA.

Location of Sample Points	Method 1
Gas Flow and Velocity	Method 2
Flue Gas Weight	Method 3
Moisture	Method 4
PM ₁₀	Method 201 or 201A
SO ₂	Method 6
 - ii. Observations of opacity shall be conducted during these emission tests in accordance with Method 9 and the results of these observations included in the reports for emission testing.
 - iii. For this emission testing, test notifications and reporting shall be done by the Permittee in accordance with Conditions 8.6.2 and 8.6.3 of this permit.

7.3.9 Monitoring Requirements

- a. For the coke by-product recovery plant, when equipment operated in benzene service is tested for compliance with or monitored for no detectable emissions, the owner or

operator shall comply with the following requirements [40 CFR 61.245(c)]:

- i. The requirements of 40 CFR 61.245 (b) (1) through (4) shall apply.
 - ii. The background level shall be determined, as set forth in Method 21.
 - iii. The instrument probe shall be traversed around all potential leak interfaces as close to the interface as possible as described in Method 21.
 - iv. The arithmetic difference between the maximum concentration indicated by the instrument and the background level is compared with 500 ppm for determining compliance.
- b. Alternatives procedures are not established for each exhauster, as provided by 40 CFR 61.135(e) through (g) and 40 CFR 61.136(d). Therefore, pursuant to 40 CFR 61.135(d), each exhauster shall be monitored quarterly to detect leaks 10,000 ppm or greater by the methods specified in 40 CFR 61.245(b).
- c. For the coke by-product recovery plant, the owner or operator shall monitor the connections and seals on each control system to determine if it is operating with no detectable emissions, using Method 21 (40 CFR Part 60, Appendix A) and procedures specified in 40 CFR 61.245(c), and shall visually inspect each source (including sealing materials) and the ductwork of the control system for evidence of visible defects such as gaps or tears. This monitoring and inspection shall be conducted on a semiannual basis and at any other time after the control system is repressurized with blanketing gas following removal of the cover or opening of the access hatch.
- i. If an instrument reading indicates an organic chemical concentration more than 500 ppm above a background concentration, as measured by Method 21, a leak is detected.
 - ii. If visible defects such as gaps in sealing materials are observed during a visual inspection, a leak is detected.
 - iii. When a leak is detected, it shall be repaired by the Permittee as soon as practicable, but not later than 15 calendar days after it is detected.
 - iv. A first attempt at repair of any leak or visible defect shall be made by the Permittee no later than 5 calendar days after each leak is detected.

d. Pursuant to 40 CFR Part 61.132(a), the Permittee shall operate and maintain Control Systems on the coke by-product plant in accordance with the work practices in 40 CFR Part 61 Subpart L, as specified below. This Control System consists of a Positive Pressure Gas Blanketing System supplied with clean coke oven gas controlling the light oil area and a Negative Pressure or Steam Blanketing System controlling tar, ammonia and liquor tanks.

i. The following procedures shall be conducted on the control system on a semiannual basis and after each time the control system is repressurized and the Permittee shall [40 CFR 61.132(b)]:

- A. Inspect the ductwork for evidence of visible defects such as gaps or tears.
- B. Monitor the connections and seals to determine if operating with no detectable emissions.

ii. A maintenance inspection of the control system shall be conducted on an annual basis for evidence of system abnormalities such as blocked or plugged lines, sticking valves, plugged condensate traps and other maintenance defects that could result in abnormal system operation. The owner or operator shall make a first attempt at repair within 5 days, with repair within 15 days of detection [40 CFR 61.132(c)].

e. COG flare

Pursuant to Sections 39.5(7)(a) and (d) of the Act, for the COG flare:

i. The Permittee shall either:

- A. Install, operate and maintain instrumentation, with alarm, to confirm the presence of a flame at the flare tip; or
- B. Monitor for the presence of a pilot flame using a thermocouple or other equivalent device to detect the presence of a flame; or
- C. Verify, once per shift, the presence of a flame at the tip of the flare, and that the flare gas header has a positive pressure.

ii. The Permittee shall perform the following inspections of the flare:

- A. An inspection of the ignition system on an annual basis;
 - B. A detailed maintenance and repair inspection during the period when the flare is out of service and/or idled.
- f. Monitoring requirements for COG established by FESOP 94120017, Permit 06070022 and Section 39.5(7)(a) of the Act:
 - i. The Permittee shall operate systems for monitoring the hydrogen sulfide (H_2S) content of the COG exiting the affected by-product plant and exiting the COG-DS. The H_2S concentration shall be measured on a wet gas basis.
 - ii. These H_2S monitoring systems shall be equipped with a strip chart recorder or disk storage and shall be capable of recording the H_2S content in grains per standard cubic feet.
 - iii. These H_2S monitoring systems shall meet the applicable requirements of Performance Specification 7 of 40 CFR 60, Appendix B. These H_2S monitoring systems shall be operated, and data collected, reduced and maintained, in accordance with the applicable requirements of 40 CFR 60.13 and 35 IAC Part 201 Subpart L.
 - iv. The H_2S monitoring system for COG exiting the by-product plant shall comply with the following requirements for collection of data:
 - A. The system shall collect hourly average H_2S content data for at least 75% of the daily operating hours in which COG is not treated by the COG-DS (e.g., at 24 hours/day COG production, at least 18 hourly averages of H_2S content must be obtained). In the event that this minimum data requirement cannot be met by the H_2S monitoring system, the H_2S content data shall be supplemented or obtained by one of the following alternative methods.
 - I. H_2S determined by type of coal used during that period and previous recorded H_2S content when using this coal type. This method shall only be used for a maximum of 15 days per calendar year.
 - II. A manual sample of COG shall be taken daily and the H_2S content shall be

determined by 40 CFR 60, Appendix A, Method 11, as adapted to measure higher ranges of H₂S. This value, or a value based on the mean of the daily values plus two standard deviations for the previous 90 days for which a reading was obtained, whichever is higher, shall be used. Should a coal blend change occur during the period this alternative method is being used, the mean value plus two standard deviations will be adjusted to reflect any potential change in the H₂S content from that of the previous coal blend.

B. The system shall collect H₂S content data for at least 75% of the daily operating hours in which COG is treated by the COG-DS with this data being the average over at least 5 minutes in each such operating hour. In the event that this minimum data requirement cannot be met by the H₂S monitoring system or can only be met with manual cycling of the H₂S monitoring system for treated COG data shall be supplemented or obtained by one of the following alternative methods:

I. H₂S data as obtained by manual sampling and analysis at least one per day; or

II. H₂S data as obtained from the H₂S monitoring system for treated COG at least twice per day, at least 8 hours apart.

C. The alternative methods provided for in this condition shall only be used in the event of a malfunction or breakdown of the H₂S monitoring systems, i.e., not during periods when a monitoring system is functioning properly to collect valid data.

v. These H₂S monitors shall be tested at least every 12 months in accordance with 40 CFR 60, Appendix B, Performance Specification 7. The results of these tests shall be sent to the IEPA's Division of Air Pollution, Control Permit Section and Regional Office within 14 days after summarizing of results. In addition, the results shall be maintained in accordance with the recordkeeping specified in this permit. For the H₂S monitoring system for COG exiting

the by-product plant, this testing shall be conducted as follows:

- A. The H₂S content in grains per standard cubic foot of COG shall be determined using 40 CFR 60, Appendix A, Method 11 as adapted to measure higher ranges of H₂S.
- B. The following revisions shall be made to Method 11 to allow the measuring of higher ranges of H₂S:
 1. Diluent air shall mean air containing less than 0.5 ppm total sulfur compounds and less than 10 ppm each of moisture and hydrocarbons.
 2. 7.0 Procedure - Located after the sampling valve, there will be a gas mixing box with a metered supply of (heated) diluent air. This metered supply of diluent air will be introduced prior to sampling and adjusted so that the final dilution of the sample will be 1:20 (i.e., 0.05 liters/min of sample to 0.95 liters/min of dilution air).
 3. 9.4 - V_m = Volume of gas sample through the gas meter (meter conditions), liters/20.

V_{mSTD} = (Corrected) volume at standard conditions of gas sampled through the dry gas meter. (Standard Liters).

- vi. In the event of malfunction or breakdown of the H₂S monitoring systems, the Permittee shall repair and recalibrate the meter or monitoring systems as soon as practicable but no later than 10 days after the malfunction or breakdown is detected, unless prior Illinois EPA approval is obtained by submitting adequate justification to the Illinois EPA detailing the reasons for delay. Records of repair and recalibration must be maintained in accordance with the recordkeeping requirements of this permit. This condition does not relieve the Permittee of the minimum data collection requirements of this permit.
9. The Permittee shall equip the thermal oxidizer in the COG-DS with a continuous monitoring system, which shall be calibrated, maintained, and operated at all times the COG-DS thermal oxidizer is in operation, to monitor the

combustion chamber temperature of the thermal oxidizer [Sections 39.5(7)(a) and (d) of the Act].

- h. The Permittee shall sample and analyze the COG exiting the byproduct plant and treated COG from the COG-DS for PM content using appropriate ASTM methods or other comparable methodology. These measurements shall be conducted at least annually. The records for this activity shall also include data for the H₂S content of COG at the time of sampling [Sections 39.5.7(a) and (d) of the Act].

7.3.10 Recordkeeping Requirements

The Permittee shall maintain records of the following items for the affected by-product recovery plant, the COG-DS and COG flare, pursuant to Sections 39.5(7)(a) and (e) of the Act:

- a. 40 CFR Part 61 Subpart L (40 CFR 61.138):
 - i. The following information pertaining to the design of control equipment installed to comply with 40 CFR 61.132 through 61.134 shall be recorded and kept in a readily accessible location:
 - A. Detailed schematics, design specifications, and piping and instrumentation diagrams.
 - B. The dates and descriptions of any changes in the design specifications.
 - ii. The following information pertaining to sources subject to 40 CFR 61.132 and sources subject to 40 CFR 61.133 shall be recorded and maintained for 2 years following each semiannual (and other) inspection and each annual maintenance inspection:
 - A. The date of the inspection and the name of the inspector.
 - B. A brief description of each visible defect in the source or control equipment and the method and date of repair of the defect.
 - C. The presence of a leak, as measured using the method described in 40 CFR 61.245(c). The record shall include the date of attempted and actual repair and method of repair of the leak.
 - D. A brief description of any system abnormalities found during the annual maintenance inspection, the repairs made, the date of attempted repair, and the date of actual repair.

b. 40 CFR Part 61 Subpart FF (40 CFR 61.356):

- i. Each owner or operator of a facility subject to the provisions of Subpart FF shall comply with the recordkeeping requirements of 40 CFR 61.356. Each record shall be maintained in a readily accessible location at the facility site for a period not less than two years from the date the information is recorded unless otherwise specified [40 CFR 61.356(a)].
- ii. Each owner or operator shall maintain records that identify each waste stream at the facility subject to Subpart FF, and indicate whether or not the waste stream is controlled for benzene emissions in accordance with this subpart. In addition the owner or operator shall maintain the following records [40 CFR 61.356(b)]:
 - A. For each waste stream not controlled for benzene emissions in accordance with Subpart FF, the records shall include all test results, measurements, calculations, and other documentation used to determine the following information for the waste stream: waste stream identification, water content, whether or not the waste stream is a process wastewater stream, annual waste quantity, range of benzene concentrations, annual average flow-weighted benzene concentration, and annual benzene quantity.
 - B. For each waste stream exempt from 40 CFR 61.342(c)(1) in accordance with 40 CFR 61.342(c)(3), the records shall include:
 1. All measurements, calculations, and other documentation used to determine that the continuous flow of process wastewater is less than 0.02 liters (0.005 gallons) per minute or the annual waste quantity of process wastewater is less than 10 Mg/yr (11 ton/yr) in accordance with 40 CFR 61.342(c)(3)(i), or
 2. All measurements, calculations, and other documentation used to determine that the sum of the total annual benzene quantity in all exempt waste streams does not exceed 2.0 Mg/yr (2.2 ton/yr) in accordance with 40 CFR 61.342(c)(3)(ii).
 - C. For each facility where process wastewater streams are controlled for benzene emissions in

accordance with 40 CFR 61.342(d), the records shall include for each treated process wastewater stream all measurements, calculations, and other documentation used to determine the annual benzene quantity in the process wastewater stream exiting the treatment process.

- D. For each facility where waste streams are controlled for benzene emissions in accordance with 40 CFR 61.342(e), the records shall include for each waste stream all measurements, including the locations of the measurements, calculations, and other documentation used to determine that the total benzene quantity does not exceed 6.0 Mg/yr (6.6 ton/yr).
- E. For each facility where the annual waste quantity for process unit turnaround waste is determined in accordance with 40 CFR 61.355(b)(5), the records shall include all test results, measurements, calculations, and other documentation used to determine the following information: identification of each process unit at the facility that undergoes turnarounds, the date of the most recent turnaround for each process unit, identification of each process unit turnaround waste, the water content of each process unit turnaround waste, the annual waste quantity determined in accordance with 40 CFR 61.355(b)(5), the range of benzene concentrations in the waste, the annual average flow-weighted benzene concentration of the waste, and the annual benzene quantity calculated in accordance with 40 CFR 61.355(a)(1)(iii).
- F. For each facility where wastewater streams are controlled for benzene emissions in accordance with 40 CFR 61.348(b)(2), the records shall include all measurements, calculations, and other documentation used to determine the annual benzene content of the waste streams and the total annual benzene quantity contained in all waste streams managed or treated in exempt waste management units.

- iii. An owner or operator shall maintain a record for each visual inspection required by 40 CFR 61.343 through 61.347 that identifies a problem (such as a broken seal, gap or other problem) which could result in benzene emissions. The record shall include the date of the inspection, waste management unit and control

equipment location where the problem is identified, a description of the problem, a description of the corrective action taken, and the date the corrective action was completed [40 CFR 61.356(g)].

c. 40 CFR Part 61 Subpart V (40 CFR 61.246):

- i. A. Each owner or operator subject to the provisions of Subpart V shall comply with the recordkeeping requirements of 40 CFR 61.246 [40 CFR 61.246(a)(1)].
- B. An owner or operator of more than one process unit subject to the provisions of Subpart V may comply with the recordkeeping requirements for these process units in one recordkeeping system if the system identifies each record by each process unit [40 CFR 61.246(a)(2)].
- ii. When each leak is detected as specified in 40 CFR 61.242-2, 61.242-3, 61.242-7, 61.242-8, and 61.135, the following requirements apply to the Permittee [40 CFR 61.246(b)]:
 - A. A weatherproof and readily visible identification, marked with the equipment identification number, shall be attached to the leaking equipment.
 - B. The identification on a valve may be removed after it has been monitored for 2 successive months as specified in 40 CFR 61.242-7(c) and no leak has been detected during those 2 months.
 - C. The identification on equipment, except on a valve, may be removed after it has been repaired.
- iii. When each leak is detected as specified in 40 CFR 61.242-2, 61.242-3, 61.242-7, 61.242-8, and 61.135, the following information shall be recorded by the Permittee in a log and shall be kept for 2 years in a readily accessible location [40 CFR 61.246(c)]:
 - A. The instrument and operator identification numbers and the equipment identification number.
 - B. The date the leak was detected and the dates of each attempt to repair the leak.
 - C. Repair methods applied in each attempt to repair the leak.

- D. Above 10,000 if the maximum instrument reading measured by the methods specified in 40 CFR 61.245(a) after each repair attempt is equal to or greater than 10,000 ppm.
- E. Repair delayed and the reason for the delay if a leak is not repaired within 15 calendar days after discovery of the leak.
- F. The signature of the owner or operator (or designate) whose decision it was that repair could not be effected without a process shutdown.
- G. The expected date of successful repair of the leak if a leak is not repaired within 15 calendar days.
- H. Dates of process unit shutdowns that occur while the equipment is unrepaired.
- I. The date of successful repair of the leak.

iv. The following information pertaining to all equipment to which a standard applies shall be recorded in a log that is kept in a readily accessible location by the Permittee [40 CFR 61.246(e)]:

- A. A list of identification numbers for equipment (except welded fittings) subject to the requirements of Subpart V.
- B.
 - 1. A list of identification numbers for equipment that the owner or operator elects to designate for no detectable emissions as indicated by an instrument reading of less than 500 ppm above background.
 - 2. The designation of this equipment for no detectable emissions shall be signed by the owner or operator.
- C. A list of equipment identification numbers for pressure relief devices required to comply with 40 CFR 61.242-4(a).
- D.
 - 1. The dates of each compliance test required in 40 CFR 61.242-2(e), 61.242-3(i), 61.242-4, 61.242-7(f), and 61.135(g).

- 2. The background level measured during each compliance test.
 - 3. The maximum instrument reading measured at the equipment during each compliance test.
- E. A list of identification numbers for equipment in vacuum service.
- v. The following information pertaining to all valves subject to the requirements of 40 CFR 61.242-7(g) and (h) and to all pumps subject to the requirements of 40 CFR 61.242-2(g) shall be recorded by the Permittee in a log that is kept in a readily accessible location [40 CFR 61.246(f)]:
 - A. A list of identification numbers for valves and pumps that are designated as unsafe to monitor, an explanation for each valve or pump stating why the valve or pump is unsafe to monitor, and the plan for monitoring each valve or pump.
 - B. A list of identification numbers for valves that are designated as difficult to monitor, an explanation for each valve stating why the valve is difficult to monitor, and the planned schedule for monitoring each valve.
- vi. The following information shall be recorded by the Permittee for valves complying with 40 CFR 61.243-2 [40 CFR 61.246(g)]:
 - A. A schedule of monitoring.
 - B. The percent of valves found leaking during each monitoring period.
- vii. The following information shall be recorded in a log by the Permittee that is kept in a readily accessible location [40 CFR 61.246(h)]:
 - A. Design criterion required in 40 CFR 61.242-2(d)(5), 61.242-3(e)(2), and 61.135(e)(4) and an explanation of the design criterion; and
 - B. Any changes to this criterion and the reasons for the changes.
- viii. The following information shall be recorded in a log by the Permittee that is kept in a readily accessible location for use in determining exemptions as provided in the applicability section of this subpart and other specific Subparts [40 CFR 61.246(i)]:

- A. An analysis demonstrating the design capacity of the process unit, and
- B. An analysis demonstrating that equipment is not in VHAP service.
- ix. Information and data used to demonstrate that a piece of equipment is not in VHAP service shall be recorded in a log by the Permittee that is kept in a readily accessible location [40 CFR 61.246(j)].
- d. The Permittee shall keep the following records for the COG flare [Section 39.5(7)(e) of the Act]:
 - i. Records of inspections and maintenance or repair activities conducted pursuant to Condition 7.3.9(e)(ii).
 - ii. H₂S content in the COG with supporting calculations of SO₂ emissions from the flare.
- e. The following records for the COG-DS pursuant to Permit 06070022:
 - i. Temperature monitoring system for thermal oxidizer on the Claus Sulfur Recovery Unit:
 - A. Recorded data.
 - B. A log of operating time for the control system or devices, monitoring system, and the coke oven byproducts plant.
 - C. A maintenance log for the oxidizer and monitoring device detailing all routine and non-routine maintenance performed including dates and duration of any outages.
 - ii. Operating Records for the Packed Tower Amine Unit:
 - A. Amine temperature leaving the unit (°F).
 - B. Amine flow (gallons/minute).
 - C. COG flow into or out of the unit.
 - iii. Logs:
 - A. Operating logs.
 - B. Maintenance logs detailing all routine and non-routine maintenance performed including dates and duration of any outages.

iv. Production Records:

- A. COG production during periods of time when the COG-DS is operating (mmscf/month and mmscf/year).
- B. COG production during periods of time when the COG-DS is not operating (mmscf/month and mmscf/year).

v. Records of H₂S content in COG, with supporting data and calculations:

- A. H₂S content of COG exiting the by-product plant, daily average.
- B. H₂S content of COG, annual average.
- C. H₂S content of treated COG, excluding outages, startup, shutdown, and upsets, monthly average.

vi. Emission Records for the COG Desulfurization System (Claus Sulfur Recovery Unit) [Sections 39.5.7(a) and (d) of the Act]

- A. A file containing the emission factors used by the Permittee to determine emissions of PM₁₀ and SO₂ from the Claus Sulfur Recovery Unit, with supporting documentation. These records shall be reviewed and updated by the Permittee as necessary to assure that the emission factors that it uses to determine emissions of this unit do not understate actual emissions. These records shall be prepared and copies sent to the Illinois EPA in accordance with Condition 5.9.6(c).
- B. Engineering calculations for typical and maximum hourly PM₁₀ and SO₂ emissions (lbs/hour) Claus Sulfur Recovery Unit, with supporting documentation.
- C. Records for the concentration of SO₂ and H₂S (percent by volume) in the tail gas of the Claus Sulfur Recovery Unit, which is sent to the thermal oxidizer, as measured by process instrumentation.
- D. Records for any periods of operation of the Claus Sulfur Recovery Unit that are not otherwise addressed in the required records during which the established emission factor in Condition 7.3.10(e) (vi) (A) would understate

actual emissions of this unit, with description of the period of operation and an estimate of the additional emissions during such period that would not be accounted for by the established factor, with supporting explanation and calculations.

- D. Records for any periods of operation of the Claus Sulfur Recovery Unit that are not otherwise addressed in the required records during which the established emission rate in Condition 7.3.10(e)(vi)(B) would understate the actual emissions of this unit, with description of the period of operation, including date, time and duration, explanation, and an estimate of the additional emissions during such period that would not be accounted for by the established rate, with supporting explanation and calculations.
- F. Records for the annual PM_{10} and SO_2 emissions of the Claus Sulfur Recovery Unit for comparison to the limits in Conditions 7.3.7(e), with supporting calculations.

Note: Records for PM_{10} and SO_2 emissions associated with combustion of COG at the facility are contained in Condition 5.9.1(e).

- f. The following records for the H_2S monitoring system for COG exiting the by-product plant, pursuant to FESOP 94120017:
 - i. The hourly average, 3-hour average and daily average H_2S content of the COG in grains per standard cubic foot.
 - ii. The H_2S monitor strip chart or disk storage.
 - iii. Thousand standard cubic feet of COG used per 3-hours for slab reheat furnaces 1-3 and ladle drying preheaters and per day for each unit operating group.
 - iv. The calibration, maintenance and repair of the H_2S monitor used in compliance calculations.
- g. Other Records
 - i. Records of the amount of raw coke oven gas being received from the coke ovens (scf/mo and acf/yr).
 - ii. Records of the following by-products being produced:
 - A. Clean coke oven gas (scf/mo and scf/yr);

- B. Light oil (gal/mo and gal/yr); and
 - C. Tar (ton/mo and ton/yr).
 - iii. If the Permittee operates under manufacturer's specifications or manufacturer's instructions, such manufacturer's documentation shall be kept at the source as part of the required records.
 - iv. Records of annual benzene waste generated on site (tons/yr).
 - v. Annual emissions of VOM from the affected by-product recovery plant.
- h. Records for Malfunctions or Breakdowns
- Pursuant to 35 IAC 201.263, the Permittee shall maintain records of continued operation of the affected COG flare as addressed by Condition 7.3.5 during malfunctions or breakdowns, which at a minimum, shall include the following records. The preparation of these records shall be completed within 45 days of an incident, unless the Permittee conducts a root cause analysis for the incident, in which case the preparation of these records, other than the root cause analysis, shall be completed within 120 days of the incident.
- i. Date, time and duration of the incident.
 - ii. A detailed description of the incident, including:
 - A. A chronology of significant events during and leading up to the incident.
 - B. Relevant operating data for the unit, including information such as operator log entries and directives provided by management during the incident.
 - C. The measures taken to reduce the quantity of emissions and the duration of the incident including the resources utilized to address the incident.
 - D. The magnitude of emissions during the incident.
 - iii. An explanation why continued operation of an affected COG flare was necessary to prevent personnel injury or prevent equipment damage.
 - iv. A discussion of the cause(s) or probable cause(s) of the incident including the following:

- A. Whether the incident was sudden, unavoidable, or preventable, including:
 - 1. Why the equipment design did not prevent the incident;
 - 2. Why better maintenance could not have avoided the incident;
 - 3. Why better operating practices could not have avoided the incident; and
 - 4. Why there was no advance indication for the incident.
 - B. Whether the incident stemmed from any activity or event that could have been foreseen, avoided or planned for.
 - C. Whether the incident was or is part of a recurring pattern indicative of inadequate design, operation or maintenance.
- v. A description of any steps taken or to be taken to prevent similar future incidents or reduce their frequency and severity.
 - vi. As an alternative to keeping the records required by Condition 7.3.10(h)(iv), the Permittee may perform a root cause analysis. For this purpose, a root cause analysis is an analysis whose purpose is to determine, correct and eliminate the primary causes of the incident and the excess emissions resulting there from. If the Permittee performs a root cause analysis method that would define the problem, define all causal relationships, provide a causal path to the root cause, delineate the evidence, and provide solutions to prevent a recurrence. Such an analysis shall be completed within one year of the incident.

7.3.11 Reporting Requirements

The Permittee shall submit the following reports pursuant to Section 39.5(7)(a) and (c) of the Act:

- a. 40 CFR 61 Subpart L (40 CFR 61.138):
 - i. A report shall be submitted to the Illinois EPA semiannually starting 6 months after the initial reports required in 40 CFR 61.138(e) and 40 CFR 61.10, which includes the following information [40 CFR 61.138(f)]:

- A. For sources subject to 40 CFR 61.132 and sources subject to 40 CFR 61.133:
 - 1. A brief description of any visible defect in the source or ductwork;
 - 2. The number of leaks detected and repaired; and
 - 3. A brief description of any system abnormalities found during each annual maintenance inspection that occurred in the reporting period and the repairs made.
 - B. For equipment in benzene service subject to 40 CFR 61.135(a), information required by 40 CFR 61.247(b).
 - C. For each exhauster subject to 40 CFR 61.135 for each quarter during the semiannual reporting period:
 - 1. The number of exhausters for which leaks were detected as described in 40 CFR 61.135(d) and (e) (5);
 - 2. The number of exhausters for which leaks were repaired as required in 40 CFR 61.135(d) and (e) (6); and
 - 3. The results of performance tests to determine compliance with 40 CFR 61.135(g) conducted within the semiannual reporting period.
 - D. A statement signed by the owner or operator stating whether all provisions of 40 CFR part 61, subpart L, have been fulfilled during the semiannual reporting period.
- b. 40 CFR 61 Subpart V (40 CFR 61.247):
- i. An owner or operator of any piece of equipment to which Subpart V applies shall submit a statement in writing notifying the Illinois EPA that the requirements of 40 CFR 61.242, 61.245, 61.246, and 61.247 are being implemented [40 CFR 61.247(a) (1)].
 - ii. A report shall be submitted to the Illinois EPA semiannually starting 6 months after the initial report required in 40 CFR 61.247(a), that includes the following information [40 CFR 61.247(b)]:

- A. Process unit identification.
 - B. For each month during the semiannual reporting period:
 - 1. Number of valves for which leaks were detected as described in 40 CFR 61.242-7(b) of 61.243-2.
 - 2. Number of valves for which leaks were not repaired as required in 40 CFR 61.242-7(d).
 - 3. Number of pumps for which leaks were detected as described in 40 CFR 61.242-2(b) and (d) (6).
 - 4. Number of pumps for which leaks were not repaired as required in 40 CFR 61.242-2(c) and (d) (6).
 - 5. Number of compressors for which leaks were detected as described in 40 CFR 61.242-3(f).
 - 6. Number of compressors for which leaks were not repaired as required in 40 CFR 61.242-3(g).
 - 7. The facts that explain any delay of repairs and, where appropriate, why a process unit shutdown was technically infeasible.
 - C. Dates of process unit shutdowns which occurred within the semiannual reporting period.
 - D. Revisions to items reported according to 40 CFR 61.247(a) if changes have occurred since the initial report or subsequent revisions to the initial report.
 - E. The results of all performance tests and monitoring to determine compliance with no detectable emissions and with 40 CFR 61.243-1 and 61.243-2 conducted within the semiannual reporting period.
- c. 40 CFR 61 Subpart FF (40 CFR 61.357)
- i. If the total annual benzene quantity from facility waste is less than 1 Mg/yr (1.1 ton/yr), then the owner or operator shall submit to the Illinois EPA and the Administrator a report that updates the

information listed in 40 CFR 61.357(a)(1) through (a)(3) whenever there is a change in the process generating the waste stream that could cause the total annual benzene quantity from facility waste to increase to 1 Mg/yr (1.1 ton/yr) or more [40 CFR 61.357(b)].

ii. If the total annual benzene quantity from facility waste is less than 10 Mg/yr (11 ton/yr) but is equal to or greater than 1 Mg/yr (1.1 ton/yr) then the owner or operator shall submit to the Illinois EPA and the Administrator a report that updates the information listed in 40 CFR 61.357 (a)(1) through (a)(3). The report shall be submitted annually and whenever there is a change in the process generating the waste stream that could cause the total annual benzene quantity from facility waste to increase to 10 Mg/yr (11 ton/yr) or more. If the information in the annual report required by 40 CFR 61.357 (a)(1) through (a)(3) is not changed in the following year, the owner or operator may submit a statement to that effect [40 CFR 61.357(c)].

iii. If the total annual benzene quantity from facility waste is equal to or greater than 10 Mg/yr (11 ton/yr), then the owner or operator shall submit to the Illinois EPA and the Administrator reports described in 40 CFR 61.357(d) [40 CFR 61.357(d)].

d. i. Pursuant to Section 39.5(7)(f)(ii) of the Act, the Permittee shall promptly notify the Illinois EPA, Air Compliance Section, within 30 days of deviations by the affected coke by-product recovery plant, COG system and COG flare from applicable requirements, unless a NESHAP standard specifies a different timeframe, as follows:

A. Requirements in Condition 7.3.3(e), (f) and (g).

B. Requirements in Condition 7.3.6.

C. Requirements in Condition 7.3.7.

ii. All such deviations shall be summarized and reported as part of the semiannual monitoring report required by Condition 8.6.1.

iii. The Permittee shall notify the Illinois EPA, Air Compliance Section, of all other deviations as part of the semiannual monitoring reports required by Condition 8.6.1.

- iv. All required deviation reports described in Condition 7.3.11(d) above shall contain the following information:
 - A. Date, time and duration of the deviation;
 - B. Description of the deviation;
 - C. Probable cause of the deviation; and
 - D. Any corrective action or preventive measures taken.
- e. Reporting on the State malfunction and breakdown authorization shall be performed in accordance with Condition 5.10.5-2.
- f. Reporting on the Federal SSM authorization shall be performed in accordance with Condition 5.10.5-3.

7.3.12 Operational Flexibility/Anticipated Operating Scenarios

The following requirements established by Construction Permit 09030019 shall be followed during idling of the affected coke batteries and coke by-product recovery plant:

This permit authorizes operation of adsorber systems to control emissions from the equipment in the Coke By-Product Recovery Plant, as an alternative to the various blanketing systems on the by-products plant during idling or other interruptions in these blanketing systems, as addressed by Permit 09030019, subject to the following requirements:

- a. Each system will use a canister-type vessel containing activated carbon to "filter" organic material from the exhaust from the units. The adsorber vessels will not be regenerated on-site but replaced when the capacity of the vessel to adsorb organic material is approached.
- b. Various equipment or affected operations at the by-products plant, including processing vessels such as tar decanters, light oil decanters and storage tanks which are subject to NESHAP (the associated operations).
 - i. The affected adsorbers shall be designed and operated to achieve at least 98 percent control of emissions of benzene from the associated operations, as required by 40 CFR 61.139(a), with compliance determined in accordance with applicable requirements of 40 CFR 61.139(b) and (h).
 - ii. As the by-products plant is subject to 40 CFR 61, Subpart L, the Permittee will continue to be subject to applicable requirements of 40 CFR 61, Subpart A,

General Provisions for associated operations, including 40 CFR 61.12(c), which requires that the Permittee maintain and operate these operations, including associated equipment for air pollution control, in a manner consistent with good air pollution control practice for minimizing emissions.

- iii. A. The Permittee shall have access to sampling equipment and other capabilities necessary to conduct monitoring for the affected adsorbers, i.e., operational measurements for the concentration of benzene or hydrocarbons in the exhaust from the adsorbers.
 - B. While the adsorbers serve to control emissions from the associated operations, the Permittee shall conduct applicable monitoring for the affected adsorbers required by 40 CFR 61, Subparts A and L, including 40 CFR 61.139(e).
- iv. For the associated operations while controlled by the adsorbers, the Permittee shall fulfill applicable recordkeeping requirements of 40 CFR 61, Subparts A and L, including 40 CFR 61.139(i).
- v. The Permittee shall keep a file for each adsorber system that contains documentation for the adsorption capacity of the adsorption vessel and engineering calculations for the rate at which the associated operations would generate emissions and the expected operating life of an adsorption vessel in days.
- vi. The operating records that the Permittee maintains for the associated operations and adsorbers shall include the following information, in addition to other required information:
 - A. The date that an adsorber vessel is switched out, with reason and measured hydrocarbon concentration in the exhaust prior to switchout.
 - B. For periods when the adsorbers operated properly, i.e., in accordance with Condition 7.3.12(a), relevant information to generally confirm proper operation.
 - C. For periods when an adsorber did not operate properly, identification of each such period and the associated operations that were operating, with detailed information describing: 1) The operation of the adsorber, including the monitored exhaust concentration; 2) The potential consequences for additional

emissions of organic material with an estimate of the additional emissions, with explanation; 3) The actions taken to restore proper operation; and 4) Any actions taken to prevent similar events in the future.

- vii. The maintenance records that the Permittee maintains for the associated operations and adsorbers shall include the following information, in addition to other required information:
 - A. Until the operations are idled, date and time that an inspection or maintenance/repair activity on the units was performed, with description of activity and name(s) of the responsible personnel.
 - B. While the associated operations are idled, date and time that an inspection or maintenance/repair activity for the preservation measures on the operations was performed, with description of activity and name(s) of the responsible personnel.
- viii. The Permittee shall fulfill applicable reporting requirements of 40 CFR 61, Subparts A and L, for the associated operations while they are controlled by the affected adsorbers.
- ix. The Permittee shall notify the Illinois EPA of the following events for the coke by-product plant:
 - A. The date that existing control systems for the plant are shut off, within 15 days of such date. This report shall describe any difficulties that were encountered in the transition to control with the affected adsorbers, confirm the integrity of the ductwork of each affected adsorber, and include the results of initial measurements for the hydrocarbon concentrations in the exhaust from each affected adsorber, conducted in accordance with Condition 7.3.12(a).
 - B. The date that operation of all adsorbers is no longer required by 40 CFR 61, Subpart L, within 30 days of such date. This report shall indicate the date when the emptying and cleaning of each group of the associated operations was completed, the current status of each affected adsorber (i.e., physically removed from the plant, scheduled to be removed, or left in place pending further developments), and the actions that are planned

to maintain the condition and integrity of the affected associated operations while they are idle.

Note: During a period when the affected plant is idle, even if all associated operations are cleaned and emptied, the Permittee must continue to submit the routine semiannual compliance reports required by 40 CFR 61, Subpart L.

- C. The date that resumption of normal operation of the by-product plant is planned, at least 10 days prior to such date. This report shall generally describe the sequence of events that will accompany resumption of operation of the existing control systems for the plant.

7.3.13 Compliance Procedures

For the affected coke by-product recovery plant, COG system and COG flare, compliance with Conditions 7.3.3 and 7.3.7 is addressed by the work practices, testing, monitoring, recordkeeping and reporting requirements in Section 7.3 of this permit.

7.3.14 State-Only Conditions

State-only conditions are not being established.

7.4 Blast Furnaces

7.4.1 Description

Blast Furnaces and Casthouse:

Iron ore is converted to molten iron in the "A" and "B" Blast Furnaces. Iron ore, coke and a variety of fluxes (collectively called the burden) are charged into the top of the furnace, while heated air is blown up through the burden at a high velocity. Molten iron and slag accumulate in the bottom of the furnace, where a taphole is periodically drilled. The molten iron and slag pour out of the furnace into a trough, where the slag is separated from the iron. The iron moves down runners until it pours into torpedo cars. From here, the iron is taken to the Basic Oxygen Furnace (BOF) shop, where it is converted into steel. The slag travels down a separate runner and dumps into the slag pits. The molten slag is quenched with a mixture of water and potassium permanganate solution.

Charging of the Blast Furnace generates particulate matter emissions. Each furnace has a double-bell system to minimize emissions from charging.

Casthouse emissions consisting of particulate matter, sulfur dioxide, nitrogen oxides, carbon monoxide, and organic materials are generated during tapping of the furnace and the miscellaneous operations that take place within the casthouse structure. Emissions are controlled by the Casthouse Baghouse and the Iron Spout Baghouse.

Emissions may also be discharged from a blast furnace during startup, malfunctions and shutdowns for routine maintenance. Each furnace is equipped with bleeder valves which will relieve to the atmosphere if the furnace becomes over pressurized. This can occur during furnace slops when material in the furnace bridges forming a void and then collapses. Slips can cause over pressurization. In this condition, the stock in the furnace will bridge and cause a void to develop. The void will increase until the bridge collapses. Backdrafting of the blast furnaces is conducted to perform certain repairs, both routine and non-routine. Steam is utilized to draw furnace gases back through the tuyeres and out of backdraft stacks.

Blast Air Stoves:

The blast air stoves heat the blast air for the blast furnaces. Emissions from the stoves consist of particulate matter, sulfur dioxide, nitrogen oxides, and carbon monoxide generated as by-products of the combustion of Blast Furnace Gas (BFG) and Coke Oven Gas (COG). In addition, the blast furnaces can also use fuel oil in the event that other fuels are not available.

The byproduct gases from the blast furnaces are first cleaned in a BFG Pretreatment system with mechanical separation and water wash to remove entrained dust and are then combusted in the stoves for the blast furnaces and other units at the source. BFG is primarily made up of carbon monoxide. The heat generated by the combustion of these gases is used to heat the brick inside of the stoves. The air flow is switched and this stored heat is then transferred to the blast air that is blown into the blast furnaces as part of the iron making process. There are three stoves for each furnace, which enables a continuous supply of blast air to the blast furnace. Only two of the three stoves will burn at any given time. All three stoves are exhausted to a common stack.

Excess BFG is also used in the various other fuel combustion emission units at the source. BFG that cannot be used as fuel is flared in either BFG flare #1 or #2.

Note: This narrative description is for informational purposes only and is not enforceable.

7.4.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Date Constructed	Emission Control Equipment
Blast Furnaces	• Blast Furnaces (A and B including charging and BFG pretreatment system)	Before 1972	None
	• Blast Furnace Casthouse (Tapping, Iron and Slag Runner, Slag Pits and Torpedo Car Loading Emissions From A and B Furnaces)		Casthouse Baghouse; and Iron Spout Baghouse;
	• Blast Furnace Gas Flare #1		None
	• (6) Blast Air Stoves (BFG, COG and natural Gas) (3 per each furnace)	Before 1972	None
	• Blast Furnace Gas Flare #2	2008	None
	• Slag pits	Before 1972	None

7.4.3 Applicable Provisions

- a. The "affected blast furnace processes" for the purpose of these unit-specific conditions, are the emission units and activities described in Conditions 7.4.1 and 7.4.2.

- b. Pursuant to 35 IAC 212.445, emissions of PM shall not exceed the following limits:
 - i. Uncaptured particulate matter from any opening in a blast furnace cast house shall not exceed 20 percent opacity on a six (6) minute rolling average basis beginning from initiation of the opening of the tap hole up to the point where the iron and slag stops flowing in the trough. Opacity observations shall be taken in accordance with the procedures of 40 CFR 60, Appendix A, Method 9 [35 IAC 212.445(a)].
 - ii. A. Particulate matter emissions from control equipment used to collect any of the emissions from the tap hole, trough, iron or slag runners or iron or slag spouts shall not exceed 0.023 g/dscm (0.010 gr/dscf). Compliance with this standard shall be determined in accordance with the procedures set out in 40 CFR 60, Appendix A, Methods 1 through 5, incorporated by reference in 35 IAC 212.113 and shall be based on the duration of a cast. For this purpose, a cast is defined as the initiation of the opening of the tap hole up to the point where the iron and slag stop flowing through the trough consistent with 35 IAC 212.445(a)(i) [35 IAC 212.445(b)(1)].
 - B. The opacity of emissions from control equipment used to collect any of the particulate matter emissions from the tap hole, trough, iron or slag runners or iron or slag spouts shall not exceed 10 percent on a six (6) minute rolling average basis [35 IAC 212.445(b)(2)].
- c. Pursuant to 35 IAC 214.301, the affected blast furnace processes shall comply with the following: no person shall cause or allow the emission of sulfur dioxide into the atmosphere from any process emission source to exceed 2000 ppm.
- d. The affected blast furnace processes other than the cast house are subject to 35 IAC 212.123(a), which provides that no person shall cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from any emission unit other than those emission units subject to the requirements of 35 IAC 212.122, except as allowed by 35 IAC 212.123(b) and 212.124.
- e. Pursuant to 40 CFR 63.7790(a) and Paragraph 7 of Table 1, of 40 CFR 63 Subpart FFFFF, the emissions shall not exceed

the following limits from each casthouse at an existing blast furnace:

- i. Particulate matter emissions from a control device shall not exceed 0.01 gr/dscf; and
- ii. Any secondary emissions that exit any opening in the casthouse or structure housing the blast furnace shall not exceed opacity greater than 20 percent (6 minute average).
- f. Pursuant to 40 CFR 63.7790(b)(1), the Permittee must operate each capture system applied to emissions from blast furnace casthouse at or above the lowest value or settings established for the operating limits in the Permittee's operation and maintenance plan.
- g. Pursuant to 35 IAC 212.316(f), uncaptured particulate matter emissions from blast furnace charging shall not exceed opacity of 20 percent.
- h. Pursuant to 35 IAC 212.458(b)(7) and (c), blast furnace stoves shall comply with the following: No person shall cause or allow emissions of PM₁₀ into the atmosphere to exceed 22.9 mg/scm (0.01 gr/scf) during any one hour period, provided that this limit shall not apply if there are no visible emissions, except if a stack test is performed, the absence of visible emissions is not a defense to a finding violation.

7.4.4 Non-Applicability of Regulations of Concern

- a. The emission limitations of 35 IAC 212.324 are not applicable to any affected blast furnace processes that are subject to a specific emissions standard or limitation contained in 35 IAC Part 212 Subpart R, Primary and Fabricated Metal Products and Machinery Manufacture, pursuant to 35 IAC 212.324 (a)(3).
- b. The affected blast furnace processes are not subject to 35 IAC 212.321 and 35 IAC 212.322, pursuant 35 IAC 212.441, which provides that, except where noted, 35 IAC 212.321 and 212.322 shall not apply to the steel manufacturing processes subject to 35 IAC 212.442 through 35 IAC 212.452.
- c. This permit is issued based on the affected blast furnace processes not being subject to the applicable requirements of 35 IAC 219.301 because the affected processes do not emit photochemically reactive organic material as defined in 35 IAC 211.4690.
- d. The affected blast furnace processes are not subject to 35 IAC 216.121 because the affected blast furnace processes

are not the fuel combustion emission sources, as defined 35 IAC 211.2470.

- e. Pursuant to 40 CFR 63.7491(g), the Blast Furnace Stoves are not subject to any applicable requirements in 40 CFR Part 63, Subpart DDDDD, NESHAP: Industrial, Commercial, and Institutional Boilers and Process Heaters.

7.4.5-1 Work Practices: Operation and Maintenance Plan (40 CFR 63.7800)

- a. As required by 40 CFR 63.6(e)(1)(i), the Permittee shall always operate and maintain the affected blast furnace processes that are subject 40 CFR 63 Subpart FFFFF, including air pollution control and monitoring equipment, in a manner consistent with good air pollution control practices for minimizing emissions at least to the levels required by 40 CFR 63 Subpart FFFFF.
- b. The Permittee shall prepare and operate at all times each capture system or control device according to a written operation and maintenance plan for affected blast furnace casthouse. Each written operation and maintenance plan shall address the following elements:
 - i. Monthly inspections of the equipment that is important to the performance of the total capture system (e.g., pressure sensors, dampers, and damper switches). This inspection must include observations of the physical appearance of the equipment (e.g., presence of holes in ductwork or hoods, flow constrictions caused by dents or accumulated dust in the ductwork, and fan erosion). The operation and maintenance plan also must include requirements to repair any defect or deficiency in the capture system before the next scheduled inspection.
 - ii. Preventative maintenance for each control device, including a preventative maintenance schedule that is consistent with the manufacturer's instructions for routine and long-term maintenance.
 - iii. Operating limits for each capture system applied to emissions from a blast furnace casthouse. The Permittee shall establish the operating limits according to the following requirements in 40 CFR 63.7800(b)(3)(i) through (iii):
 - A. Select operating limit parameters appropriate for the capture system design that are representative and reliable indicators of the performance of the capture system. At a minimum, the Permittee shall use appropriate

operating limit parameters that indicate the level of the ventilation draft and the damper position settings for the capture system when operating to collect emissions, including revised settings for seasonal variations. Appropriate operating limit parameters for ventilation draft include, but are not limited to, volumetric flow rate through each separately ducted hood, total volumetric flow rate at the inlet to the control device to which the capture system is vented, fan motor amperage, or static pressure.

- B. For each operating limit parameter selected as described above, the Permittee shall designate the value or setting for the parameter at which the capture system operates during the process operation. If the operation allows for more than one process to be operating simultaneously, the Permittee shall designate the value or setting for the parameter at which the capture system operates during each possible configuration that the source may operate.
- C. Include documentation in the plan to support selection of the operating limits established for the capture system. This documentation must include a description of the capture system design, a description of the capture system operating during production, a description of each selected operating limit parameter, a rationale for why the Permittee chose the parameter, a description of the method used to monitor the parameter according to the requirements of 40 CFR 63.7830(a), and the data used to set the value or setting for the parameter for each process configurations.
- iv. Pursuant to 40 CFR 63.7800(b)(4), corrective action procedures for baghouses equipped with bag leak detection systems. In the event a bag leak detection system alarm is triggered, the Permittee shall initiate corrective action to determine the cause of the alarm within 1 hour of the alarm, initiate corrective action to correct the cause of the problem within 24 hours of the alarm, and complete the corrective action. Corrective actions may include, but are not limited to:

- A. Inspecting the baghouse for air leaks, torn or broken bags or filter media, or any other condition that may cause an increase in emissions [40 CFR 63.7800(b)(4)(i)].
- B. Sealing off defective bags or filter media [40 CFR 63.7800(b)(4)(ii)].
- C. Replacing defective bags or filter media or otherwise repairing the control device [40 CFR 63.7800(b)(4)(iii)].
- D. Sealing off a defective baghouse compartment [40 CFR 63.7800(b)(4)(iv)].
- E. Cleaning the bag leak detection system probe, or otherwise repair the bag leak detection system [40 CFR 63.7800(b)(4)(v)].
- F. Shutting down the process producing the particulate emissions [40 CFR 63.7800(b)(4)(vi)].

7.4.5-2 Work Practices: Startup, Shutdown and Malfunction

a. Provisions Related to 40 CFR 63, Subpart FFFFF

- i. Pursuant to 40 CFR 63.7810, the Permittee must be in compliance with the emission limitations and operation and maintenance requirements in 40 CFR 63 Subpart FFFFF at all times, except during periods of startup, shutdown and malfunction as defined in 40 CFR 63.2
- ii. Pursuant to 40 CFR 63.7810(c), the Permittee shall develop a written startup, shutdown, and malfunction plan for the affected blast furnaces and casthouses according to the provisions established in 40 CFR 63.6(e)(3).
- iii. Pursuant to 40 CFR 63.7835, consistent with 40 CFR 63.6(e) and 63.7(e)(1), deviations that occur during a period of startup, shutdown, or malfunction are not violations if the Permittee demonstrates that it was operating in accordance with 40 CFR 63.6(e)(1).
- iv. The Permittee shall fulfill the applicable reporting requirements identified in 40 CFR 63.10(d) (Condition 5.10.5(b)) and 40 CFR 63.7841(b)(4).

- v. The Permittee shall keep records in accordance with 40 CFR 63.7842(a)(2) related to startup, shutdown and malfunction.

- b. Startup and Malfunction/Breakdown Authorizations

- i. Malfunction and Breakdown, pursuant to 201.149 and Part 201, Subpart I

- A. Subject to the following terms and conditions, the Permittee is authorized to continue operation of the affected blast furnace processes in excess of the applicable state standards in 35 IAC 212.445(b)(1) in the event of a malfunction or breakdown. This shall include blast furnace over pressurization, slips, use of auxiliary tap-holes, and back-drafting associated with periods of malfunction and breakdown.

Note: This authorization is provided because the Permittee applied for such authorization in its CAAPP application, generally explaining why such continued operation would be required to prevent injury to personnel or severe damage to equipment, and describing the measures that will be taken to minimize emissions from any malfunctions and breakdowns.

- B. This authorization only allows such continued operation as necessary to prevent injury to personnel or severe damage to equipment and does not extend to continued operation solely for the economic benefit of the Permittee.
- C. Upon occurrence of excess emissions due to malfunction or breakdown, the Permittee shall repair the affected emission/process units and/or re-establish applicable control practices.
- D. The Permittee shall fulfill the applicable recordkeeping and reporting requirements of Conditions 7.4.9(e) and 5.10.5-2, respectively. For these purposes, time shall be measured from the start of a particular incident. The absence of excess emissions for a short period shall not be considered to end the incident if excess emissions resume.
- E. Following notification to the Illinois EPA (see Condition 5.10.5-2(a)(ii)) of a malfunction or breakdown with excess emissions, the Permittee

shall comply with all reasonable directives of the Illinois EPA with respect to such incident.

- F. This authorization does not relieve the Permittee from the continuing obligation to minimize excess emissions during malfunction or breakdown. As provided by 35 IAC 201.265, an authorization in a permit for continued operation with excess emissions during malfunction and breakdown does not shield the Permittee from enforcement for any such violation and only constitutes a prima facie defense to such an enforcement action provided that the Permittee has fully complied with all terms and conditions connected with such authorization.

ii. Startup, pursuant to 35 IAC 201.149 and Part 201, Subpart I

- A. Subject to the following terms and conditions, for the affected blast furnace, the Permittee is authorized to violate the applicable standards of 35 IAC 212.445(b)(1), 212.445(b)(2) and 35 IAC 214.301 during startup.

Note: This authorization is provided because the Permittee applied for such authorization in its CAAPP application, generally describing the efforts that will be used "...to minimize startup emissions, duration of individual starts, and frequency of startups".

- B. This authorization does not relieve the Permittee from the continuing obligation to demonstrate that all reasonable efforts are made to minimize startup emissions, duration of individual startups and frequency of startups.
- C. The Permittee shall follow the written startup, shutdown, and malfunction plan for the affected blast furnace processes prepared pursuant to 40 CFR 63.6(e)(3) and Condition 7.4.5-2. In addition, the Permittee shall also review the operating condition of the affected blast furnace process prior to initiating startup.
- D. The Permittee shall fulfill applicable recordkeeping requirements of Condition 7.4.9(d).
- E. The Permittee shall fulfill applicable reporting requirements of Condition 5.10.5-1.

- F. As provided by 35 IAC 201.265, an authorization in a permit for excess emissions during startup does not shield a Permittee from enforcement for any violation of applicable emission standard(s) that occurs during startup and only constitutes a prima facie defense to such an enforcement action provided that the Permittee has fully complied with all terms and conditions connected with such authorization.

7.4.5-3 Work Practices from State Permits

- a. Except during periods of runner maintenance, the hot metal runners and the short slag runner shall be covered with permanent type runner covers [72080034, 72080036, T1].
- b. Water spraying of the slag for the purpose of cooling and minimizing slag load-out emissions will take place after completion of the slagging operation and prior to slag-loadout [85030039, T1].
- c. BFG flare #1 shall be operated with no visible emissions as determined by USEPA Method 22, except for periods not to exceed a total of 5 minutes during any 2 consecutive hours [0607023, T1].
- d. Requirements for BFG Flare #2 from Permit 06070023:
 - i. BFG flare #2 shall be operated to comply with the following equipment work practices [T1]:
 - A. BFG flare #2 shall be operated with no visible emissions as determined by the methods specified in 40 CFR 60.18(f), except for periods not to exceed a total of 5 minutes during any 2 consecutive hours.
 - B. BFG flare #2 shall be operated with a flame present at all times.
 - ii. Emissions of PM and PM₁₀ from BFG flare #2 shall be controlled by the existing BFG pretreatment system, which entails treatment by dust catchers and wet scrubbers [T1].
 - iii. BFG and natural gas shall be the only fuels combusted in BFG flare #2 [T1].

7.4.5-4 Other Work Practices

The following requirements are established pursuant to Section 39.5(7)(a) of the Act:

- a. The Permittee shall maintain the double-bell system of the blast furnaces in order to minimize emissions from furnace charging.
- b. The Permittee shall develop and implement operating practices plan for slag handling processing associated with the slag pits for minimizing emissions and keeping them below the levels established in Condition 7.4.6(e).

7.4.6 Production and Emission Limitations from Existing Permits

- a. i. Total combined production of hot metal (a.k.a., iron) from blast furnaces A and B shall not exceed 9,849 net tons per day, averaged over any calendar month [72080034, 7208036, 95010001, T1]; and
- ii. Maximum amount of pellets charged shall not exceed 4,308,581 tons/yr [95010001, T1].
- b. Casthouse Baghouse emissions shall not exceed the following limits [95010001, T1]:

<u>Pollutant</u>	<u>Emission Factors (Lbs/Ton Iron)</u>	<u>Maximum Emissions (Tons/Yr)</u>
PM	0.0703	111.19
PM ₁₀	0.0703	111.19
SO ₂	0.2006	422.00
NO _x	0.0144	22.79
VOM	0.0946	149.68

- c. Blast Furnace uncaptured fugitives emissions shall not exceed the following limits [95010001, T1]:

<u>Pollutant</u>	<u>Emission Factors (Lbs/Ton Iron)</u>	<u>Maximum Emissions (Tons/Yr)</u>
PM	0.031	49.06
PM ₁₀	0.0155	24.53
SO ₂	0.0104	21.94
NO _x	0.0007	1.14
VOM	0.0047	7.42

- d. Blast Furnace Charging emissions shall not exceed the following limits [95010001, T1]:

<u>Pollutant</u>	<u>Emission Factors (Lbs/Ton Pellets)</u>	<u>Maximum Emissions (Tons/Yr)</u>
PM	0.0024	5.17
PM ₁₀	0.0024	5.17

- e. Slag Pits emissions shall not exceed the following limits [95010001, T1]:

<u>Pollutant</u>	<u>Emission Factors (Lbs/Ton Iron)</u>	<u>Maximum Emissions (Tons/Yr)</u>
PM	0.00417	6.60
PM ₁₀	0.00417	6.60
SO ₂	0.0100	15.83

- f. Iron Spout Baghouse emissions shall not exceed the following limits [95010001, T1]:

<u>Pollutant</u>	<u>Emission Factors (Lbs/Ton Iron)</u>	<u>Maximum Emissions (Tons/Yr)</u>
PM	0.02548	40.32
PM ₁₀	0.02548	40.32
SO ₂	0.0073	13.89

- g. Total emissions from blast furnace operations shall not exceed the following limits, tons/yr [95010001, T1]:

	<u>PM*</u>	<u>PM₁₀*</u>	<u>SO₂</u>	<u>NO_x</u>	<u>VOM</u>
Blast Furnace Operations	212	188	474	24	157

* Limit does not address the iron pellet screen (See Section 7.1)

- h. Compliance with the daily limit of Condition 7.4.6(a) (i) shall be determined from a monthly total of the relevant daily data divided by the number of days in the month [95010001].
- i. Compliance with the annual limits of Condition 7.4.6(a) (2) and Conditions 7.4.6(b) through (g) shall be determined based on a calendar year [95010001].
- j. Overlapping casting of "A" and "B" Blast Furnaces shall not exceed a casting rate of 6 tons per minute per furnace [72080034 and 7208036, T1].
- k. The PM content of the BFG burned at the facility shall not exceed 0.01 grains/dscf [06070023, T1].

7.4.7 Testing Requirements

- a. Blast furnace casthouse pursuant to NESHAP.

The Permittee shall comply with the following testing requirements pursuant to 40 CFR Part 63 Subpart FFFFF:

- i. Pursuant to 40 CFR 63.7821(c), for each emissions unit equipped with a baghouse, the Permittee must conduct performance tests no less frequently than once every five years.
- ii. Test methods for compliance demonstration with the emission limits for particulate matter [40 CFR 63.7822(b)]:
 - A. Determine the concentration of particulate matter according to the following test methods in Appendix A to 40 CFR Part 60.
 1. Method 1 to select sampling port locations and the number of traverse points. Sampling sites must be located at the outlet of the control device and prior to any releases to the atmosphere.
 2. Method 2, 2F, or 2G to determine the volumetric flow rate of the stack gas.
 3. Method 3, 3A, or 3B to determine the dry molecular weight of the stack gas.
 4. Method 4 to determine the moisture content of the stack gas.
 5. Method 5, 5D, or 17, as applicable, to determine the concentration of particulate matter (front half filterable catch only).
 - B. Collect a minimum sample volume of 60 dry standard cubic feet (dscf) of gas during each particulate matter test run. Three valid test runs are needed to comprise a performance test.
- iii. Test methods for compliance demonstration with the opacity limits [40 CFR 63.7823(b) and (c)]:
 - A. The Permittee shall conduct each visible emissions performance test such that the opacity observations overlap with the performance test for particulate matter [40 CFR 63.7823(b)].
 - B. To determine compliance with the applicable opacity limit for a blast furnace casthouse, the Permittee shall:

1. Use a certified observer to determine the opacity of emissions according to Method 9 in Appendix A to 40 CFR Part 60.
2. Obtain a minimum of 30 6-minute block averages. For a blast furnace casthouse, the Permittee shall make observations during tapping of the furnace. Tapping begins when the furnace is opened, usually by creating a hole near the bottom of the furnace, and ends when the hole is plugged.

b. Blast furnace casthouse.

The Permittee shall comply with the following testing requirements pursuant to Sections 39.5(7)(d) and (p) of the Act:

- i. For uncaptured emissions (roof monitor) or secondary emissions:
 - A. The Permittee shall have the opacity (6-minute average), of the exhaust of the building housing the blast furnace casthouse determined by a qualified observer in accordance with USEPA Method 9 while the affected blast furnace(s) are being tapped, as further specified below.
 - B. The duration of opacity observations for each test shall be at least 30 minutes unless no visible emissions are observed as determined by USEPA Method 22 or the average opacities for the first 12 minutes of observations conducted for the point of release that displays the greatest opacity, 6-minute average, are both no more than 10.0 percent.
 - C.
 1. Observations of opacity shall be conducted on the following frequency unless absence of adequate daylight or weather conditions preclude scheduled observation, in which case, the next observations shall be conducted on the next day during which observations of opacity can properly be conducted in accordance with USEPA Method 9:
 - I. On a weekly basis (at least once every 7 operating days of the casthouse) except as provided below.

- II. On a daily basis (at least 5 days out of 7 operating days of the casthouse) if the maximum opacity observed during any of the five previous observations was 18 percent or more, 6-minute average, continuing on a daily basis until the maximum opacities measured in five consecutive daily observations are all less than 18 percent, 6-minute average, at which time observations on a weekly basis shall resume.
- 2. Upon written request by the Illinois EPA, additional opacity observations shall be conducted within five operating days for the casthouse from the date of the request by the Illinois EPA or on the date agreed upon by the Illinois EPA, whichever is later. For such observations conducted pursuant to a request from the Illinois EPA:
 - I. The Permittee shall notify the Illinois EPA at least 24 hours in advance of the date and time of these observations, in order to enable the Illinois EPA to witness the observations. This notification shall include the name and employer of the qualified observer(s).
 - II. The Permittee shall promptly notify the Illinois EPA of any changes in the time or date for observations.
 - III. The duration of these observations shall cover a complete heat or cycle of the affected blast furnace.
 - IV. The Permittee shall provide a copy of the current certification for the opacity observer and observer's readings to the Illinois EPA at the time of the observations, if the Illinois EPA personnel are present.
- D. The Permittee shall keep records for all opacity measurements for the casthouse made in accordance with USEPA Method 9 that the Permittee conducts or that are conducted at its

behest by individuals who are qualified to make such observations. For each occasion on which such measurements are made, these records shall include the formal report for the measurements if conducted pursuant to Condition 7.4.7(b)(i)(2), or otherwise the identity of the observer, a description of the measurements that were made, the operating condition of the casthouse, the observed opacity, and copies of the raw data sheets for the measurements.

ii. Emissions from control equipment [35 IAC 212.445(b)]:

A. Upon request from the Illinois EPA, compliance with emission limits of 35 IAC 212.445(b)(1) (see also Condition 7.4.3(b)(ii)(A)) shall be determined in accordance with the procedures set out in 40 CFR Part 60, Appendix A, Methods 1 through 5, incorporated by reference in 35 IAC 212.113, and shall be based on the arithmetic average of three runs. Calculations shall be based on the duration of a cast defined in 35 IAC 212.445(a)(1).

B. Upon request from the Illinois EPA, opacity readings, for verifying compliance with emission limit of 35 IAC 212.445(b)(2) (see also Condition 7.4.3(b)(ii)(B)), shall be taken in accordance with the observation procedures set out in 40 CFR part 60, Appendix A, Method 9, incorporated by reference in 35 IAC 212.113.

c. Additional Emission Testing for the Casthouse Baghouse and the Iron Spout Baghouse, pursuant to Sections 39.5(7)(d) and (p) of the Act:

i. As part of the emission testing required by Condition 7.4.7(a), the Permittee shall also measure the SO₂, NO_x and VOM emissions from each baghouse.

ii. The following USEPA Test Methods shall be used for testing of emissions, unless another USEPA Test Method is approved by the Illinois EPA.

Location of Sample Points	Method 1
Gas Flow and Velocity	Method 2
Flue Gas Weight	Method 3
Moisture	Method 4
SO ₂	Method 6
NO _x	Method 7
VOM	Method 25

iii. For this emission testing, test notification and reporting shall be done by the Permittee in accordance with Conditions 8.6.2 and 8.6.3 of this permit.

d. BFG Flares:

Pursuant to Sections 39.5(7)(d) and (p) of the Act, the Permittee shall conduct observations for each BFG flare for the presence of visible emissions and/or opacity, using USEPA Method 22 and 9, respectively. These observations shall be conducted on at least a monthly basis for each flare. In addition, observations shall be coordinated with weather conditions so that at least two observations are made in each calendar year during elevated wind speed conditions, i.e., wind speed of at least 16 miles per hour. These observations shall be conducted by individual(s) certified to observe opacity by USEPA Method 9. The observer(s) shall initially conduct observations for visible emissions. If any visible emissions are observed, the observations shall continue for two hours or until the cumulative duration of visible emissions exceeds ten minutes, whichever occurs first. If any visible emissions are observed, observations for opacity shall also be conducted.

7.4.8 Monitoring Requirements

a. Monitoring requirements pursuant to 40 CFR 63.7830(a)

For each capture system subject to an operating limit in 40 CFR 63.7790(b)(1) established in the Permittee's capture system operation and maintenance plan, the Permittee must install, operate, and maintain a CPMS according to the following requirements:

Dampers that are manually set and remain in the same position are exempt from the requirement to install and operate a CPMS. If dampers are not manually set and remain in the same position, the Permittee shall make a visual check at least once every 24 hours to verify that each damper for the capture system is in the same position as during the initial performance test.

b. Monitoring requirements pursuant to 40 CFR 7830(b)(1)

The casthouse baghouse and iron spout baghouse shall each be equipped with a bag leak detection system which the Permittee shall operate and maintain according to the following requirements of 40 CFR 63.7831(f):

i. The system must be certified by the manufacturer to be capable of detecting emissions of particulate

matter at concentrations of 10 milligrams per actual cubic meter (0.0044 grains per actual cubic foot) or less [40 CFR 63.7831(f)(1)].

- ii. The system must provide output of relative changes in particulate matter loadings [40 CFR 63.7831(f)(2)].
 - iii. The system must be equipped with an alarm that will sound when an increase in relative particulate loadings is detected over a preset level. The alarm must be located such that it can be heard by the appropriate plant personnel [40 CFR 63.7831(f)(3)].
 - iv. Each system that works based on the triboelectric effect must be installed, operated, and maintained in a manner consistent with the guidance document, "Fabric Filter Bag Leak Detection Guidance," EPA-454/R-98-015, September 1997 [40 CFR 63.7831(f)(4)].
 - v. Following the initial adjustment, do not adjust the sensitivity or range, averaging period, alarm set points, or alarm delay time, except as detailed in your operation and maintenance plan. Do not increase the sensitivity by more than 100 percent or decrease the sensitivity by more than 50 percent over a 365-day period unless a responsible official certifies, in writing, that the baghouse has been inspected and found to be in good operating condition [40 CFR 63.7831(f)(6)].
- c. The Permittee shall conduct inspections of each baghouse at the specified frequencies according to the following requirements [40 CFR 63.7830(b)(4)]:
- i. Monitor the pressure drop across each baghouse cell each day to ensure pressure drop is within the normal operating range identified in the operation and maintenance plan manual.
 - ii. Confirm that dust is being removed from hoppers through weekly visual inspections or other means of ensuring the proper functioning of removal mechanisms.
 - iii. Check the compressed air supply for pulse-jet baghouses each day.
 - iv. Monitor cleaning cycles to ensure proper operation using an appropriate methodology.
 - v. Check bag cleaning mechanisms for proper functioning through monthly visual inspection or equivalent means.

- vi. Make monthly visual checks of bag tension on reverse air and shaker-type baghouses to ensure that bags are not kinked (knead or bent) or laying on their sides. You do not have to make this check for shaker-type baghouses using self-tensioning (spring-loaded) devices.
 - vii. Confirm the physical integrity of the baghouse through quarterly visual inspections of the baghouse interior for air leaks.
 - viii. Inspect fans for wear, material buildup, and corrosion through quarterly visual inspections, vibration detectors, or equivalent means.
- d. Site-specific monitoring plan requirements pursuant to 40 CFR 63.7831(a)

For each CPMS required in 40 CFR 63.7830, the Permittee shall develop and make available for inspection upon request by the Illinois EPA a site-specific monitoring plan that addresses the following requirements of 40 CFR 63.7831(a) (1) through (a) (6), including:

- i. Installation of the CPMS sampling probe or other interface at a measurement location relative to each affected process unit such that the measurement is representative of control of the exhaust emissions (e.g., on or downstream of the last control device) [40 CFR 63.7831(a) (1)];
- ii. Performance and equipment specifications for the sample interface, the parametric signal analyzer, and the data collection and reduction system [40 CFR 63.7831(a) (2);
- iii. Performance evaluation procedures and acceptance criteria (e.g., calibrations) [40 CFR 63.7831(a) (3);
- iv. Ongoing operation and maintenance procedures in accordance with the general requirements of 40 CFR 63.8(c) (1), (c) (3), (c) (4) (ii), (c) (7), and (c) (8) [40 CFR 63.7831(a) (4);
- v. Ongoing data quality assurance procedures in accordance with the general requirements of 40 CFR 63.8(d) [40 CFR 63.7831(a) (5); and
- vi. Ongoing recordkeeping and reporting procedures in accordance with the general requirements of 40 CFR

63.10(c), (e)(1), and (e)(2)(i) [40 CFR
63.7831(a)(6)].

- e. Pursuant to 40 CFR 63.7831(b), unless otherwise specified by the NESHAP, each CPMS must:
 - i. Complete a minimum of one cycle of operation for each successive 15-minute period and collect a minimum of three of the required four data points to constitute a valid hour of data;
 - ii. Provide valid hourly data for at least 95 percent of every averaging period; and
 - iii. Determine and record the hourly average of all recorded readings.
- f. Pursuant to 40 CFR 63.7831(c), the Permittee shall conduct a performance evaluation of each CPMS in accordance with the site-specific monitoring plan.
- g. Pursuant to 40 CFR 63.7831(d), the Permittee shall operate and maintain the CPMS in continuous operation according to the site-specific monitoring plan.
- h. Pursuant to 40 CFR 63.7790(b)(1) and 63.7800(b)(3)(i), the Permittee shall operate each capture system applied to emissions from a blast furnace casthouse at or above the lowest value or settings as established in the Permittee's operation and maintenance plan and which are currently as follows:
 - i. Casthouse Baghouse:
 - A. Motor amperage (total), both blast furnaces casting: 245 amps
 - B. Motor amperage, one blast furnace casting: 125 amps
 - ii. Iron Spout Baghouse:
 - A. Motor amperage, both blast furnaces casting (total): 245 amps
 - B. Motor amperage, one blast furnace casting: 131 amps
 - C. Blast Furnace A iron spout damper positions (3): 2 or less open all of the time; 3 open less than 5 minutes

- D. Blast Furnace B tilting runner damper position:
open
- i. Pursuant to 40 CFR 63.7824(c), the Permittee may change the operating limits for the capture system if the Permittee meets the following requirements:
 - i. Submits a written notification to the Illinois EPA of the Permittee's request to conduct a new performance test to revise the operating limit.
 - ii. Conducts a performance test to demonstrate compliance with the applicable emission in Table 1 to 40 CFR 63 Subpart FFFFF.
 - iii. Establishes revised operating limits according to the applicable procedures in 40 CFR 63.7824(a).
- j. Monitoring and Collecting Data pursuant to 40 CFR 63.7832:
 - i. Except for monitoring malfunctions, out-of-control periods as specified in 40 CFR 63.8(c)(7), associated repairs, and required quality assurance or control activities (including as applicable, calibration checks and required zero and span adjustments), the Permittee shall monitor continuously (or collect data at all required intervals) at all times an affected source is operating.
 - ii. The Permittee may not use data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities in data averages and calculations used to report emission or operating levels or to fulfill a minimum data availability requirement, if applicable. The Permittee shall use all the data collected during all other periods in assessing compliance.
 - iii. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.
- k. Pursuant to the operation and maintenance requirements of the O/M plan required by 40 CFR 63.7800(b), the Permittee shall comply with following inspection procedures for the capture systems:

Monthly inspections of the equipment that is important to the performance of the total capture system. This inspection must include observations of the physical appearance of the equipment (e.g., presence of holes in ductwork or hoods, flow constrictions caused by dents or accumulated dust in the ductwork, and fan erosion). Repair of any defect or deficiency in the capture system shall be done before the next scheduled inspection.

1. Inspection and Monitoring for BFG Flares [Section 39.5(7)(d) of the Act]
 - i. For BFG flare #1, the Permittee shall either:
 - A. Install, operate and maintain instrumentation, with alarm, to confirm the presence of a flame at the flare tip; or
 - B. Monitor the presence of a pilot flame in accordance with Condition 7.4.8(1)(ii); or
 - C. Verify daily, the following to ensure BFG flare #1 is operating: The presence of a flame or thermal plume at the tip of the flare and that the flare gas header has a positive pressure.
 - ii. For BFG flare #2, the Permittee shall monitor the presence of a flare pilot flame using a thermocouple or other equivalent device to detect the presence of a flame.
 - iii. The Permittee shall perform detailed inspections of each BFG flare every 18 months. These inspections shall include all maintenance and repair activities performed based on the inspection results. If the flare cannot be inspected within 18 months, as required, the Permittee may request in writing from IEPA's Permit Section an extension of time to complete this inspection. The request for an extension must be supported with adequate justification for the extension and an assurance that the flare is continuing to operate without any problems. Under no circumstances shall the extension go beyond an additional 6 months.
- m. Pursuant to Permits 72080034 and 72080036 [T1]:
 - i. The Permittee shall maintain and operate a pressure drop continuous recording system on the casthouse baghouse. The recorded data shall be retained for a

period of six months shall be made available to the Illinois EPA personnel upon request.

- ii. The Permittee shall maintain and operate a continuous pressure drop recording system on the iron spout baghouse.
- n. The Permittee shall conduct observations for opacity for operations associated with the blast furnace in accordance with USEPA Method 9 for a minimum of 30 minutes for each operation unless no visible emissions are observed during the first 12 minutes of observations:
 - i. Blast furnace charging: Annually
 - ii. Blast furnace stoves stacks: Semiannually
 - iii. Slag pits: Quarterly

7.4.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items for the affected Blast Furnaces Processes, pursuant to Sections 39.5(7) (a), (e) and (p) of the Act:

- a. 40 CFR Part 63 Subpart FFFFF (40 CFR 63.7842 and 63.7843):
 - i. The Permittee shall keep the following records, as specified in 40 CFR 63.7842 (a) (1) through (a) (3):
 - A. A copy of each notification and report that the Permittee submitted to comply with 40 CFR 63 Subpart FFFFF, including all documentation supporting any initial notification or notification of compliance status that the Permittee submitted, according to the requirements in 40 CFR 63.10(b) (2) (xiv).
 - B. The records in 40 CFR 63.6(e) (3) (iii) through (v) related to startup, shutdown, and malfunction.
 - C. Records of performance tests, performance evaluations, and opacity observations as required in 40 CFR 63.10(b) (2) (viii).
 - ii. The Permittee shall keep the records in 40 CFR 63.6(h) (6) for visual observations.
 - iii. The Permittee shall keep the records required in 40 CFR 63.7833 and 63.7834 (including a current copy of the operation and maintenance plan) to show

continuous compliance with each emission limitation and operation and maintenance requirement that applies to the Permittee.

- iv. The Permittee shall keep its records in a form suitable and readily available for expeditious review, according to 40 CFR 63.10(b)(1).
- v. As specified in 40 CFR 63.10(b)(1), the Permittee shall keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.
- vi. The Permittee shall keep each record on site for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to 40 CFR 63.10(b)(1). The Permittee may keep the records offsite for the remaining 3 years.

b. 40 CFR Part 63 Subpart FFFFF [40 CFR 63.7834(b)]:

The Permittee shall maintain a current copy of the operation and maintenance plan required in 40 CFR 63.7800(b) onsite and available for inspection upon request.

c. The following records of Permits #72080034, #72080036 and #95010001:

- i. The Permittee shall maintain records for each beaching event in which iron is beached that, as a minimum, shall include:
 - A. An explanation why beaching occurred.
 - B. The date, time and duration of beaching.
 - C. The measures used to reduce the amount of beaching.
 - D. The maximum rate of beaching, tons/minute, (or information showing that the beaching rate did not exceed 20 tons/minute).

d. Records for Startups of Affected Blast Furnace Processes, pursuant to Section 39.5(7)(b) of the Act

- i. The Permittee shall maintain startup procedures for each affected blast furnace process, as required by Condition 7.4.5-2(b)(ii)(C).

- ii. The Permittee shall maintain the following records for each startup of an affected blast furnace process:
 - A. Date, time and duration of the startup.
 - B. A description of the startup and reason(s) for the startup.
 - C. Whether a violation of an applicable standard may have occurred during startup accompanied by the information in Condition 7.4.9(d)(iv) if a violation may have or did occur.
 - D. Whether the established startup procedures, maintained above, were followed accompanied by the information in Condition 7.4.9(d)(iii) if there were departure(s) from those procedures.
- iii. If the established startup procedures were not followed during a startup, the Permittee shall maintain the following records:
 - A. A description of the departure(s) from the established procedures.
 - B. The reason(s) for the departure(s) from the established procedures.
 - C. An explanation of the consequences of the departure(s) for emissions, such as whether the departure(s) prolonged the startup or resulted in additional emissions, and if so,
 - 1. The actions taken to minimize emissions and the duration of the startup; and
 - 2. An explanation whether similar incidents might be prevented in the future and if so, the corrective actions taken or to be taken to prevent similar incidents.
- iv. If a violation did or may have occurred during a startup, the Permittee shall maintain the following records:
 - A. Identification of the applicable standard(s) that were or may have been violated.
 - B. An explanation of the nature of such violation(s), including the magnitude of such excess emissions.

- C. A description of the actions taken to minimize the magnitude of emissions and duration of the startup.
- D. An explanation whether similar incidents could be prevented or ameliorated in the future and if so, a description of the actions taken or to be taken to prevent similar incidents in the future.

e. Records for Malfunctions or Breakdowns

Pursuant to 35 IAC 201.263, the Permittee shall maintain records of continued operation of the affected Blast Furnace Processes as addressed by Condition 7.4.5-2(b)(i), during malfunctions or breakdowns, which at a minimum, shall include the following records. The preparation of these records shall be completed within 45 days of an incident, unless the Permittee conducts a root cause analysis for the incident, in which case the preparation of these records, other than the root cause analysis, shall be completed within 120 days of the incident.

- i. Date, time and duration of the incident.
- ii. A detailed description of the incident, including:
 - A. A chronology of significant events during and leading up to the incident.
 - B. Relevant operating data for the unit, including information such as operator log entries and directives provided by management during the incident.
 - C. The measures taken to reduce the quantity of emissions and the duration of the incident including the resources utilized to address the incident.
 - D. The magnitude of emissions during the incident.
- iii. An explanation why continued operation of an affected blast furnace was necessary to prevent personnel injury or prevent equipment damage.
- iv. A discussion of the cause(s) or probable cause(s) of the incident including the following:
 - A. Whether the incident was sudden, unavoidable, or preventable, including:
 - 1. Why the equipment design did not prevent the incident;

2. Why better maintenance could not have avoided the incident;
 3. Why better operating practices could not have avoided the incident; and
 4. Why there was no advance indication for the incident.
- B. Whether the incident stemmed from any activity or event that could have been foreseen, avoided or planned for.
 - C. Whether the incident was or is part of a recurring pattern indicative of inadequate design, operation or maintenance.
- v. A description of any steps taken to prevent similar future incidents or reduce their frequency and severity.
 - vi. As an alternative to keeping the records required by Condition 7.4.9(e) (iv), the Permittee may perform a root cause analysis. For this purpose, a root cause analysis is an analysis whose purpose is to determine, correct and eliminate the primary causes of the incident and the excess emissions resulting there from. If the Permittee performs a root cause analysis method that would define the problem, define all causal relationships, provide a causal path to the root cause, delineate the evidence, and provide solutions to prevent a recurrence. Such an analysis shall be completed within one year of the incident.
- f. Recordkeeping for Backdrafting.

The Permittee shall maintain records for each period when an affected blast furnace is backdrafted. These records shall include, at a minimum for each occurrence, the blast furnace identification, date and timeframe of backdraft, reason for backdrafting (e.g., planned shutdowns and/or routine maintenance), and steps taken to minimize emissions during the backdraft period.
 - g. Records for BFG Flares

The Permittee shall maintain the following records for BFG flares:
 - i. Records of opacity observations performed as required by Condition 7.4.7(d).

- ii. Records of inspections and maintenance activities conducted pursuant to Condition 7.4.8(1).
 - iii. For BFG flare #2, date and duration of any time when the pilot flame monitoring equipment of the affected unit was not in operation, with explanation.
 - iv. Date and duration of any time when there was no pilot flame present at the flare, with explanation.
 - v. Date, duration and description of any other deviations.
- h. The Permittee shall maintain the following operating records for the affected blast furnaces:
- i. Monthly and annual usage of natural gas, blast furnace gas and coke oven gas (million ft³) used by the affected blast furnace stoves.
 - ii. Blast Furnace hot metal production (total combined daily, monthly and annual in tons), including documentation on iron and slag losses.
 - iii. Records of iron pellets charged (tons/month and tons/year).
 - iv. Records of slag processed (tons/month and tons/year).
 - v. For overlapping tapping of both furnaces, records to demonstrate that the tapping rate of each furnace does not exceed 6 tons per minute.
 - vi. If the Permittee operates under manufacturer's specifications or manufacturer's instructions, the Permittee shall maintain such manufacturer's documentation, which shall be kept at the facility as part of the required records.
 - vii. Records identifying process upsets in the operations at the casthouse that result in the generation of additional opacity or PM emissions, such as refractory clay falling into the trough during a missed stop. For these upsets, these records shall include the time of the upset, a description of the upset and a discussion of the consequences for opacity and PM emissions from the casthouse.
- i. The Permittee shall keep the following records related to the emissions of the affected blast furnace processes to verify compliance with the applicable limits in Condition 7.4.6(b) through (g):

- i. A file containing the emission factors used by the Permittee to determine emissions of different pollutants from the various processes, with supporting documentation. These records shall be reviewed and updated by the Permittee as necessary to assure that the emission factors that it uses to determine emissions of the processes do not understate actual emissions, including review when emission testing is conducted for such processes. These records shall be prepared and copies sent to the Illinois EPA in accordance with Condition 5.9.6(c).
- ii. Records for any periods of operation of such processes that are not otherwise addressed in the required records during which the established emission factor in Condition 7.4.9(i)(i) would understate actual emissions of the process, with description of the period of operation and an estimate of the additional emissions during such period that would not be accounted for by the established factor, with supporting explanation and calculations.
- iii. Records for the annual emissions of such processes for comparison to the limits in Conditions 7.4.6(b) through (f), with supporting calculations.
- iv. Records for combined annual emissions of the affected processes, based on the summation of the above data, for comparison to the limits in Condition 7.4.6(g).

7.4.10 Reporting Requirements

- a. 40 CFR 63 Subpart FFFFF (40 CFR 63.7841):
 - i. Compliance report due dates. The Permittee shall submit the semiannual compliance reports to the Illinois EPA according to the following requirements:
 - A. Semi-annual compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.
 - B. Each compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date comes first after the end of the semiannual reporting period.
 - ii. Compliance report contents. Each compliance report must include the following information:

- A. Company name and address.
- B. Statement by a responsible official, with that official's name, title, and signature, certifying the truth, accuracy, and completeness of the content of the report.
- C. Date of report and beginning and ending dates of the reporting period.
- D. If the Permittee had a startup, shutdown, or malfunction during the reporting period and the Permittee took actions consistent with the source's startup, shutdown, and malfunction plan, the compliance report must include the information in 40 CFR 63.10(d)(5)(i).
- E. If there were no deviations from the continuous compliance requirements in 40 CFR 63.7833 and 63.7834 that apply to the Permittee, a statement that there were no deviations from the emission limitations or operation and maintenance requirements during the reporting period.
- F. If there were no periods during which a continuous monitoring system (including a CPMS, COMS, or continuous emission monitoring system (CEMS)) was out-of-control as specified in 40 CFR 63.8(c)(7), a statement that there were no periods during which the CPMS was out-of-control during the reporting period.
- G. For each deviation from an emission limitation in 40 CFR 63.7790 that occurs at an affected source where the Permittee is not using a continuous monitoring system (including a CPMS, COMS, or CEMS) to comply with an emission limitation in Subpart FFFFFF, the compliance report must contain the information described in Condition 7.4.10(a)(ii) and the following information (this includes periods of startup, shutdown, and malfunction):
 - 1. The total operating time of each affected source during the reporting period.
 - 2. Information on the number, duration, and cause of deviations (including unknown cause, if applicable) as applicable and the corrective action taken.

H. For each deviation from an emission limitation occurring at an affected source where the Permittee is using a continuous monitoring system (including a CPMS or COMS) to comply with the emission limitation in Subpart FFFFF, the Permittee must include the information described in Condition 7.4.10(a)(ii) and the following information (this includes periods of startup, shutdown, and malfunction):

1. The date and time that each malfunction started and stopped.
2. The date and time that each continuous monitoring was inoperative, except for zero (low-level) and high-level checks.
3. The date, time, and duration that each continuous monitoring system was out-of-control as specified in 40 CFR 63.8(c)(7), including the information in 40 CFR 63.8(c)(8).
4. The date and time that each deviation started and stopped, and whether each deviation occurred during a period of startup, shutdown, or malfunction or during another period.
5. A summary of the total duration of the deviation during the reporting period and the total duration as a percent of the total source operating time during that reporting period.
6. A breakdown of the total duration of the deviations during the reporting period including those that are due to startup, shutdown, control equipment problems, process problems, other known causes, and other unknown causes.
7. A summary of the total duration of continuous monitoring system downtime during the reporting period and the total duration of continuous monitoring system downtime as a percent of the total source operating time during the reporting period.

8. A brief description of the Blast Furnace processes.
 9. A brief description of the continuous monitoring system.
 10. The date of the latest continuous monitoring system certification or audit.
 11. A description of any changes in continuous monitoring systems, processes, or controls since the last reporting period.
- iii. Immediate startup, shutdown, and malfunction report. If the Permittee had a startup, shutdown, or malfunction during the semiannual reporting period that was not consistent with the source's startup, shutdown, and malfunction plan, the Permittee shall submit an immediate startup, shutdown, and malfunction report according to the requirements in 40 CFR 63.10(d)(5)(ii).
- b. Reporting requirements for malfunctions and breakdowns (Permits #72080034, #72080036 and #95010001):
- The Permittee shall notify the Illinois EPA's regional office by telephone as soon as possible during normal working hours, but no later than the next Agency business day, upon the occurrence of excess emissions due to malfunctions or breakdowns. The Permittee shall submit a quarterly report to the Illinois EPA's regional office in Collinsville providing an explanation of the occurrence of such events.
- c. i. Pursuant to Section 39.5(7)(f)(ii) of the Act, the Permittee shall promptly notify the Illinois EPA, Air Compliance Section, within 30 days of deviations by the affected blast furnace processes from applicable requirements unless a NESHAP standard specifies a different timeframe, as follows:
- A. Requirements in Condition 7.4.3(b) through (f).
 - B. Requirements in Condition 7.4.5-1.
 - C. Requirements in Condition 7.4.5-3.
 - D. Requirements in Condition 7.4.5-4.
 - E. Requirements in Condition 7.4.6(a) through (j).

- ii. All such deviations shall be summarized and reported as part of the semiannual monitoring report required by Condition 8.6.1.
- iii. The Permittee shall notify the Illinois EPA, Air Compliance Section, of all other deviations as part of the semiannual monitoring reports required by Condition 8.6.1.
- iv. All required deviation reports described in Condition 7.4.10(c) above shall contain the following information:
 - A. Date, time and duration of the deviation;
 - B. Description of deviation;
 - C. Probable cause of the deviation;
 - D. Any corrective action or preventative measures taken;
- d. Reporting on the State startup authorization shall be performed in accordance with Condition 5.10.5-1.
- e. Reporting on the Federal SSM authorization shall be performed in accordance with Condition 5.10.5-3.

7.4.11 Operational Flexibility

Backdrafting the blast furnaces in order to conduct planned/routine maintenance (not associated with malfunction and breakdowns) shall follow procedures designed to minimize the release of emissions during such activities.

7.4.12 Compliance Procedures

- a. For affected blast furnace processes, compliance with the applicable standards of Condition 7.4.3 is addressed by the work practices, testing, monitoring, recordkeeping and reporting requirements in Section 7.4 of this permit.
- b. Compliance with the production/emission limits of Conditions 7.4.6 and 5.6.2 is addressed by the work practices, testing, monitoring, recordkeeping, and reporting requirements in Sections 7.4 and 5 of this permit.

7.4.13 Compliance Schedule and Current Enforcement Status

- a. The Permittee shall comply with the following schedule of compliance related to SO₂ emissions from combustion of Blast Furnace Gas in various emission units at the source, as

established in accordance with Consent Order No. 05-CH-750 (December 18, 2007 as amended on December 23, 2009):

Commitment	Timing
Use the correct emission factor for the Blast Furnace Gas SO ₂ emissions when calculating, recording and reporting SO ₂ emissions and for any other purpose under the Act.	Immediately and at all times going forward.
Work with the Illinois EPA, including providing additional information to the Agency when requested.	Within 30 days of the request.
Obtain a revised PSD Construction Permit.	Subject to Agency final issuance.

b. Submittal of Progress Reports

Quarterly Progress Reports shall be submitted beginning with the fourth quarter of 2009 and ending upon the achievement of compliance. Each quarterly report shall be submitted no later than 30 days after the end of the corresponding calendar quarter. The Progress Report shall contain at least the following:

- i. The required date for achieving commitments, and actual dates when such commitments were achieved.
- ii. Any commitments accepted by the Permittee or otherwise established for the affected BOF as part of the resolution of the above referenced Consent Order, with the associated timing for each commitment.
- iii. A discussion of progress in complying with commitments that is subject to future deadlines.
- iv. If any commitment was not met, an explanation of why the required timeframe or commitment was not met, and any preventive or corrective measures adopted to achieve required commitment.

- c. After completion of all required commitments and certification of compliance, as identified in Condition 7.4.13(a) no further Quarterly Progress Reports are required to be submitted.

Note: US Steel informed the Illinois EPA during deliberations on Consent Order 05-CH-750 of possible violations involving SO₂ emissions from use of Blast Furnace Gas. The violations involved exceedances of the SO₂ limit in Construction Permit 95010001 issued on July 23, 1996. The violations were addressed, working with the Office of the Illinois Attorney General, in Consent Order 05-CH-750, which was entered on

December 18, 2007 in the Circuit Court for the Third Judicial Circuit, Madison County, Illinois. This Consent Order required US Steel to submit a complete and accurate application including required SO2 modeling to modify Construction Permit 95010001 by January 31, 2008. That application has been submitted by US Steel.

7.4.14 State-Only Conditions

State-only conditions are not being established.

7.5 Basic Oxygen Processes

7.5.1 Description

Reladling and Desulfurization Stations:

Molten iron from the blast furnaces is transported to the BOF by torpedo cars. The iron is then transferred to the charging ladles at the reladling station. In the desulfurization stations a combination of lime and magnesium is injected into the molten iron to remove the sulfur. The sulfur reacts with the lime and magnesium and forms a layer of slag on the surface of the iron. A collection system with a positive pressure baghouse is used to control emissions of particulate matter from these stations.

Slag Skimming:

After the molten iron is desulfurized, the ladle it is moved to this station where a mechanical arm is used to scrape slag from the surface of the iron. This slag is scraped from the iron ladles and into slag pots. A collection system with a baghouse is used to control emissions from this process.

Basic Oxygen Furnaces (BOF):

A fresh BOF charge usually begins with scrap metal. The scrap is charged into the BOF vessel. Molten iron is then charged into the vessel. A secondary hood is utilized to capture emissions during the charge. During periods of reduced molten iron availability scrap may be preheated with a natural gas fired lance to increase the temperature and reduce the amount of molten iron needed for a heat of steel. The BOF is then closed off and an oxygen lance is inserted to begin the melting and refining process. The oxygen lance openings on each BOF is equipped with steam rings. The steam rings are control measures for emissions of particulate matter from the BOF during the "oxygen blow" or refining phase when oxygen is being fed into the furnaces. The steam rings would inject steam in the area between the oxygen lance and the "lance hole" in the lid of the furnaces, acting to suppress the emissions of particulate through this area during the refining phase. In the BOF, the injected oxygen reacts exothermically with the carbon in the iron generating heat which melts the scrap and reducing the amount of carbon in the bath thus converting the iron to steel. When the refining process is completed, the molten steel is poured into a steel transfer ladle. Materials such as aluminum, silica, and manganese are added, as required, depending upon the particular steel alloy being produced. After the molten steel is tapped, the remaining slag is then dumped into a slag ladle. Emissions from these operations are captured and controlled with an electrostatic precipitator (ESP).

Ladle Preheating and Drying:

In this unit, lances combust either natural gas or coke oven gas to produce the heat needed to dry and preheat iron and steel handling ladles. The refractory linings of freshly re-bricked or repaired ladles must be completely dried and preheated before use. The drying process is necessary because any moisture left in the refractory would immediately vaporize and expand when the ladles are filled with molten iron or steel. This sudden expansion could cause the refractory lining to split which would allow the molten iron and steel to come into contact with, and damage the shell of the ladle. Emissions from this unit consist of particulate matter, sulfur dioxide, nitrogen oxides, carbon monoxide and organic materials generated by fuel combustion.

Ladle Metallurgy Furnaces (LMF) and Argon Stirring Stations:

At the LMF station and the argon stirring stations, final adjustments are made to the composition of a ladle of steel and the steel is held pending casting. At the LMF station, electricity can also be used to heat a ladle of steel if it has cooled below the range at which steel can be cast.

If the steel does not need to be reheated and at most minor adjustments are needed to its composition, the ladle of steel goes to one of the two argon stirring stations. At these stations, stirring lances are inserted into the steel and argon is pumped into the steel to maintain uniform composition and temperature. A baghouse is also used to control emissions from the operations.

Note: This narrative description is for informational purposes only and is not enforceable.

7.5.2 List of Emission Units and Air Pollution Control Equipment

Location	Basic Oxygen Process Descriptions	Date Constructed	Emission Control Equipment
Basic Oxygen Process Furnace Shop (BOPF)	Hot Metal Transfer Station	Prior to 05/1983	Reladle/Desulfurization Baghouse
	(2) Hot Metal Desulfurization Stations		
	Slag Skimming Station	1985	Skimmer Baghouse
	Basic Oxygen Furnaces (BOF) #1 and #2 with Steam Rings	Prior to 08/1972	Electrostatic Precipitator
	Ladle Drying/Preheating (coke oven gas and natural gas modes)	Prior to 08/1972	None

Location	Basic Oxygen Process Descriptions	Date Constructed	Emission Control Equipment
	Ladle Metallurgy Furnace (LMF) Station	Prior to 1986	Baghouse #2
	Argon Stirring Stations	Around 1988	

7.5.3 Applicable Provisions

- a. Pursuant to 35 IAC 212.446, emissions of particulate matter from basic oxygen processes shall be controlled as follows:
 - i. Charging, Refining and Tapping (BOF Operations). Particulate matter emissions from all basic oxygen furnaces (BOF) shall be collected and ducted to pollution control equipment. Emissions from basic oxygen furnace operations during the entire cycle (operations from the beginning of the charging process through the end of the tapping process) shall not exceed the allowable emission rate specified by 35 IAC 212.322. For purposes of computing the process weight rate, nongaseous material charged to the furnace and process oxygen shall be included. No material shall be included more than once [35 IAC 212.446(a)].
 - ii. Hot Metal Transfer, Hot Metal Desulfurization and Ladle Lancing.

Particulate matter emissions from hot metal transfers to a mixer or ladle, hot metal desulfurization operations and ladle lancing shall be collected and ducted to pollution control equipment, and emissions from the pollution control equipment shall not exceed 69 mg/dscm (0.03 gr/dscf) [35 IAC 212.446(b)(1)].
 - iii. For openings in the building housing the BOF, no person shall cause or allow emissions to exceed an opacity of 20 percent, as determined by averaging any 12 consecutive observations taken at 15 second intervals [35 IAC 212.446(c)].
- b. Pursuant to 35 IAC 212.458, no person shall cause or allow emissions of PM₁₀, other than that of fugitive particulate matter, into the atmosphere to exceed the following limits during any one hour period:
 - i. 32.25 ng/J (0.075 lbs/mmBtu) of heat input from the burning of coke oven gas (at ladle dryers/preheaters) [35 IAC 212.458(b)(9)].

- ii. 27.24 kg/hr (60 lbs/hr) and 0.1125 kg/Mg (0.225 lbs/T) of total steel in process whichever limit is more stringent for the total of all basic oxygen furnace operations (charging, refining and tapping, as described in 35 IAC 212.446(a)) and measured at the BOF stack [35 IAC 212.458(b)(23)].
 - iii. 22.9 mg/scm (0.01 gr/scf) from any process emissions unit, except as otherwise provided in 35 IAC 212.458 or in 212.443 and 212.446 [35 IAC 212.458(b)(7)].
- c. Pursuant to 35 IAC 212.123(a), no person shall cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from any emission unit other than those emission units subject to the requirements of 35 IAC 212.122, except as allowed by 35 IAC 212.123(b) and 212.124.
- d. The Basic Oxygen Processes are subject to 40 CFR Part 63, Subpart FFFFF, Integrated Iron and Steel Manufacturing Facilities. Applicable provisions of this NESHAP are addressed below and in other conditions of this section of the permit.
- e. Pursuant to 40 CFR 63.7790(a) and Table 1 to 40 CFR Part 63 Subpart FFFFF, the emissions from the Basic Oxygen Processes shall not exceed the following limits applicable to operation at existing basic oxygen process furnace (BOPF) identified in paragraphs 9 through 12 of Table 1 to Subpart FFFFF:
 - i. The Permittee must not cause to be discharged to the atmosphere any gases that exit from a primary emission control system for a BOPF with an open hood system at an existing BOPF shop that contain, on a flow-weighted basis, particulate matter in excess of 0.02 gr/dscf during the steel production cycle.
 - ii. For each hot metal transfer, slag skimming, and hot metal desulfurization operation, the Permittee must not cause to be discharged to the atmosphere any gases that exit from a control device that contain particulate matter in excess of 0.01 gr/dscf.
 - iii. For each ladle metallurgy furnace operation, the Permittee must not cause to be discharged to the atmosphere any gases that exit from a control device that contain particulate matter in excess of 0.01 gr/dscf.
 - iv. For each roof monitor on the BOPF Shop, the Permittee must not cause to be discharged to the atmosphere any secondary emissions that exit any opening in the BOPF

shop or any other building housing the BOF or basic oxygen process that exhibit opacity greater than 20 percent (3-minute average).

- f. Pursuant to 40 CFR 63.7790(b)(3), for the electrostatic precipitator applied to control emissions from a BOF, the Permittee must maintain the hourly average opacity of emissions exiting the control device at or below 10 percent.
- g. The basic oxygen furnaces are subject to 35 IAC 214.301, which provides that no person shall cause or allow the emission of sulfur dioxide into the atmosphere from any process emission source to exceed 2000 ppm.

7.5.4 Non-Applicability of Regulations of Concern

- a. Pursuant to 35 IAC 212.324(a)(3) and 212.316(f), the emission limitations of 35 IAC 212.324 and 212.316 are not applicable to the basic oxygen processes because these operations are subject to specific emission standards and limitations contained in 35 IAC Part 212 Subpart R, as addressed in Condition 7.5.3(a).
- b. Except where noted, 35 IAC 212.321 and 35 IAC 212.322 shall not apply to the steel manufacturing processes subject to 35 IAC 212.442 through 35 IAC 212.452 [35 IAC 212.441].
- c. This permit is issued based on the affected basic oxygen processes not being subject to the applicable requirements of 35 IAC 219.301 because these processes do not emit photochemically reactive organic material as defined in 35 IAC 211.4690.
- d. The basic oxygen processes are not subject to 35 IAC 216.121 because they are not fuel combustion emission units as defined in 35 IAC 211.2470.

7.5.5-1 Work Practices Provisions for Operation and Maintenance Plan (40 CFR 63.7800)

- a. Pursuant to 40 CFR 63.6(e)(1)(i), the Permittee must always operate and maintain the basic oxygen processes, including air pollution control and monitoring equipment, in a manner consistent with good air pollution control practices for minimizing emissions at least to the levels required by 40 CFR 63 Subpart FFFFF.
- b. The Permittee shall prepare and operate at all times according to a written operation and maintenance plan for each capture system or control device subject to an

operating limit in 40 CFR 63.7790(b). Each plan shall address the following elements:

- i. Monthly inspections of the equipment that is important to the performance of the total capture system (e.g., pressure sensors, dampers, and damper switches). This inspection shall include observations of the physical appearance of the equipment (e.g., presence of holes in ductwork or hoods, flow constrictions caused by dents or accumulated dust in the ductwork, and fan erosion). The operation and maintenance plan also must include requirements to repair any defect or deficiency in the capture system before the next scheduled inspection.
- ii. Preventative maintenance for each control device, including a preventative maintenance schedule that is consistent with the manufacturer's instructions for routine and long-term maintenance.
- iii. Corrective action procedures for baghouses equipped with bag leak detection systems. In the event a bag leak detection system alarm is triggered, the Permittee shall initiate corrective action to determine the cause of the alarm within 1 hour of the alarm, initiate corrective action to correct the cause of the problem within 24 hours of the alarm, and complete the corrective action as soon as practicable. Corrective actions may include, but are not limited to:
 - A. Inspecting the baghouse for air leaks, torn or broken bags or filter media, or any other condition that may cause an increase in emissions.
 - B. Sealing off defective bags or filter media.
 - C. Replacing defective bags or filter media or otherwise repairing the control device.
 - D. Sealing off a defective baghouse compartment.
 - E. Cleaning the bag leak detection system probe, or otherwise repair the bag leak detection system.
 - F. Shutting down the process producing the particulate emissions.

- iv. Corrective action procedures for electrostatic precipitator (ESP) equipped with COMS. In the event an ESP exceeds the operating limit in 40 CFR 63.7790(b)(3), the Permittee shall take corrective actions consistent with the site-specific monitoring plan in accordance with 40 CFR 63.7831(a).

7.5.5-2 Work Practices Provisions for Startup, Shutdown and Malfunction Plans and associated procedures

a. NESHAP Provisions

- i. Pursuant to 40 CFR 63.7810, the Permittee must be in compliance with the emission limitations and operation and maintenance requirements in 40 CFR 63 Subpart FFFFFF at all times, except during periods of startup, shutdown and malfunction as defined in 40 CFR 63.2
- ii. Pursuant to 40 CFR 63.7810(c), the Permittee shall develop a written startup, shutdown, and malfunction plan for BOF according to the provisions of 40 CFR 63.6(e)(3).
- iii. Pursuant to 40 CFR 63.7835:
 - A. Consistent with 40 CFR 63.6(e) and 63.7(e)(1), deviations from NESHAP requirements that occur during a period of startup, shutdown, or malfunction are not violations if the Permittee demonstrates to the Illinois EPA that the Permittee was operating in accordance with 40 CFR 63.6(e)(1).
 - B. The Illinois EPA will determine whether deviations that occur during a period of startup, shutdown, or malfunction are violations, according to the provisions in 40 CFR 63.6(e).
- iv. The Permittee shall fulfill the applicable reporting requirements identified in Condition 5.10.5(b) and 40 CFR 63.7841(b)(4) and (c).
- v. The Permittee shall keep records in accordance with 40 CFR 63.7842(a)(2) related to startup, shutdown and malfunction.

b. Provisions of State Emission Standards, pursuant to 35 IAC 201.149 and Part 201 Subpart I

- i. Subject to the following terms and conditions, the Permittee is authorized to continue to operate in violation of the applicable standards as specified below in the event of a malfunction or breakdown.
 - A. For the basic oxygen furnace, the applicable state standards in Condition 7.5.3(a)(iii), (b)(ii) and (c)), and
 - B. For the LMF, the applicable state standards in Conditions 7.5.3(b)(iii) and (c).

Note: This authorization is provided because the Permittee applied for such authorization in its CAAPP application, generally explaining why such continued operation would be required to prevent injury to personnel or severe damage to equipment, and describing the measures that will be taken to minimize emissions from any malfunctions and breakdowns.

- ii. This authorization only allows such continued operation as necessary to prevent injury to personnel or severe damage to equipment and does not extend to continued operation solely for the economic benefit of the Permittee.
- iv. Upon occurrence of excess emissions due to malfunction or breakdown, the Permittee shall, as soon as practicable, repair the units and/or re-establish applicable control practices.
- v. The Permittee shall fulfill the applicable recordkeeping requirements of Condition 7.5.9(g) and reporting requirements of Condition 5.10.5-2.
- vi. Following notification to the Illinois EPA (see Condition 5.10.5-2(a)(i)) of a malfunction or breakdown with excess emissions, the Permittee shall comply with all reasonable directives of the Illinois EPA with respect to such incident.
- vii. This authorization does not relieve the Permittee from the continuing obligation to minimize excess emissions during malfunction or breakdown. As provided by 35 IAC 201.265, an authorization in a permit for continued operation with excess emissions during malfunction and breakdown does not shield the Permittee from enforcement for any such violation and only constitutes a prima facie defense to such an enforcement action provided that the Permittee has fully complied with all terms and conditions connected with such authorization.

7.5.5-3 Work Practices from Permits 72080043, 95010001 and 10080021

a. Pursuant to Permit 72080043 [T1]:

- i. Overlapping operations of the BOF vessels is allowed under the following conditions:
 - A. The hot metal charge of the second vessel shall be initiated and completed during the time between completion of the blow and start of tap on the first vessel while sufficient draft at the ESP capture system is established and maintained for both vessels.
 - B. The charge and/or blow on one vessel shall not begin until sufficient draft has been established at the associated ESP capture system (a.k.a., doghouse) and the alloy addition at the vessel tapping has been completed for at least 1 minute.
 - C. Sufficient draft at the ESP capture system of the vessel being tapped shall be maintained for at least 1 minute after alloy addition has been completed. After such period, the capture system draft may be transferred over to the other vessel in order to satisfy Condition (A) above.
 - D. Only overlapping of the hot metal charge of the second vessel after the end of blow and prior to onset of tap of the first vessel and overlapping of tapping of the first vessel, after alloy addition, and the hot metal charge and/or blow on the second vessel are allowed.
 - E. Condition (B) and (C) above shall be part of the Standard Operating Procedure (SOP) of the BOF vessels.
- ii. Each BOF vessel shall be equipped with a Fume Suppression System which shall be in use at all times that tapping is occurring during overlapping operations.

b. Pursuant to Permit 95010001 [T1]:

- i. The BOF capture system shall be operated at the above minimum set points (see Condition 7.5.6(h)) until and unless the Illinois EPA approves a lower minimum set point based on a demonstration that a better level of particulate matter control will occur, except for

purposes of emissions testing as related to the set point [T1].

- ii. The Permittee shall operate, maintain, and repair the BOF ESP in a manner that assures compliance with the conditions of Permit 95010001 [T1].
 - iii. The Permittee shall maintain an adequate inventory of spare parts for the BOF ESP at all times [T1].
- c. Pursuant to Permit 10080021 [T1]:
- i. Beginning October 31, 2012, during the refining phase of operation, the steam rings on the BOFs shall be operated in accordance with written procedures developed by the Permittee that set forth the timing and rate of steam injection as related to furnace operation and reflect good air pollution control practice to minimize emissions of particulate matter.
 - ii. Prior to October 31, 2012, during the refining phase of operation, the steam rings on the BOFs shall be operated in accordance with good air pollution control practice to minimize emissions of particulate matter.

7.5.6 Production and Emission Limitations from Permit 95010001

- a. Total combined production of liquid steel from the affected BOFs shall not exceed 11,000 net tons per day, averaged over any calendar month [T1].
- b. BOF Shop Emissions (tons/yr total) shall not exceed the following limits [T1]:

<u>PM</u>	<u>PM₁₀</u>	<u>NO_x</u>	<u>VOM</u>	<u>CO</u>	<u>Lead</u>
510	451	70	12	16,097	1.43

- c. BOF ESP Stack (charge, refine, tap) emissions shall not exceed the following limits [T1]:

<u>Pollutant</u>	<u>Emission Factor (Lbs/Ton)</u>	<u>Maximum Emissions (Tons/Yr)</u>
PM	0.16	262.80
PM ₁₀	0.16	262.80
NO _x	0.0389	69.63
VOM	0.0060	10.74
CO	8.993	16,097.47
Lead	0.1934 lbs/hr	1.26

- d. BOF Roof Monitor emissions shall not exceed the following limits [T1]:

<u>Pollutant</u>	<u>Emission Factor (Lbs/Ton)</u>	<u>Maximum Emissions (Tons/Yr)</u>
PM	0.0987	176.71
PM ₁₀	0.06614	118.40
Lead	0.0129 lbs/hr	0.08

- e. Hot Metal Desulfurization and Hot Metal Transfer emissions shall not exceed the following limits [T1]:

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

- f. Hot metal charging and ladle slag skimming emissions shall not exceed the following limits [T1]:

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

- g. Emissions from Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy Baghouse #2) shall not exceed the following limits (see Section 7.1):

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

- h. The stack gas pulpit set point of the BOF ESP control system shall be set in accordance with the following, so as to establish sufficient particulate matter capture efficiency of the charging and primary hoods [T1]:

- i. Set point requirements while only a single BOF vessel is in operation:

- A. Minimum set point during charging operation:
550,000 cfm;
- B. Minimum set point during refining operation:
650,000 cfm; and

C. Minimum set point during tapping operation:
200,000 cfm (until one minute after completing alloy addition).

ii. During dual operation of BOF vessels (a.k.a., overlapping BOF operation) the minimum set point shall be 700,000 cfm.

i. Compliance with the annual limits shall be determined on a calendar year basis [T1].

Note: These provisions (Conditions 7.5.6(a) through (i)) were originally established in Construction Permit 95010001.

j. Emissions of particulate matter from the Ladle metallurgy station and the existing argon stirring station shall not exceed 16.20 TPY [T1].

k. The maximum process weight for 1) argon stirring, 2) ladle reheat, 3) alloy addition, 4) ladle slag skimming, and 5) hot metal desulfurization shall not exceed 356.7 t/hr for 8,760 hours per year [T1].

Note: These provisions (Conditions 7.5.6(j) and (k)) were originally established in Permit 83050042.

7.5.7 Testing Requirements

a. Testing requirements in 40 CFR Part 63 Subpart FFFFF:

i. Pursuant to 40 CFR 63.7821(b), for the Basic Oxygen Furnaces (which are equipped with a control device other than a baghouse), the Permittee shall conduct subsequent performance tests no less frequently than twice (at mid-term and renewal) during each term of the title V operating permit (i.e., this CAAPP permit).

ii. Pursuant to 40 CFR 63.7821(c), for each Basic Oxygen Furnace Process equipped with a baghouse, the Permittee shall conduct subsequent performance tests no less frequently than once during each term of the Title V operating permit (every 60 months).

iii. The Permittee shall use the following test methods for compliance demonstration with the emission limits for particulate matter [40 CFR 63.7822(b)]:

A. The Permittee shall determine the concentration of particulate matter according to the following test methods in Appendix A to 40 CFR Part 60.

1. Method 1 to select sampling port locations and the number of traverse points. Sampling ports must be located at the outlet of the control device and prior to any releases to the atmosphere.
 2. Method 2, 2F, or 2G to determine the volumetric flow rate of the stack gas.
 3. Method 3, 3A, or 3B to determine the dry molecular weight of the stack gas.
 4. Method 4 to determine the moisture content of the stack gas.
 5. Method 5, 5D, or 17, as applicable, to determine the concentration of particulate matter (front half filterable catch only).
- B. The Permittee shall collect a minimum sample volume of 60 dry standard cubic feet (dscf) of gas during each particulate matter test run. Three valid test runs are needed to comprise a performance test.
- iv. Pursuant to 40 CFR 63.7822(g), for the BOF ESP (which is a primary emission control system applied to emissions from a BOF with an open hood system), the Permittee shall complete the following requirements:
- A. Sample only during the steel production cycle. The Permittee shall conduct sampling under conditions that are representative of normal operation. The Permittee shall record the start and end time of each steel production cycle and each period of abnormal operation; and
 - B. Sample for an integral number of steel production cycles. The steel production cycle begins when the scrap is charged to the BOF and ends 3 minutes after the slag is emptied from the vessel into the slag pot.
- v. Pursuant to 40 CFR 63.7822(h), for a control device applied to emissions from BOPF shop ancillary operations (hot metal transfer, slag skimming, hot metal desulfurization, or ladle metallurgy), the Permittee shall sample only when the operation(s) is being conducted.

- vi. The Permittee shall conduct each visible emissions performance test such that the opacity observations overlap with the performance test for particulate matter [40 CFR 63.7823(b)].
- vii. The following test methods shall be used for opacity observations pursuant to 40 CFR 63.7823(d):

Using a certified observer, the Permittee shall determine the opacity of emissions according to Method 9 in Appendix A to Part 60 as specified below:

- A. Instead of procedures in section 2.4 of Method 9 in Appendix A to 40 CFR Part 60, the Permittee shall record observations to the nearest 5 percent at 15-second intervals for at least three steel production cycles.
 - B. Instead of procedures in section 2.5 of Method 9 in Appendix A to 40 CFR Part 60, the Permittee shall determine the 3-minute block average opacity from the average of 12 consecutive observations recorded at 15-second intervals.
- b. Pursuant to Sections 39.5(7)(d) and (p) of the Act, in conjunction with the testing of emissions required for an emission unit in the BOF shop by the NESHAP (Condition 7.5.7(a) which requires testing at the midterm and renewal of this CAAPP permit), the Permittee shall also have testing conducted to measure emissions of other pollutants as follows.
 - i. Testing shall be conducted for PM/PM₁₀^{*}, lead and other pollutants as follow: BOF Furnaces (ESP) - NO_x, VOM and CO; and Hot Metal Desulfurization and Slag Skimming (Baghouses) - VOM.
 - * As an alternative to measurements for PM₁₀ emissions, the measured results for PM, as determined in accordance with the NESHAP, shall be considered PM₁₀, as provided for by 35 IAC 212.108.
 - ii. The relevant test method specified by the NESHAP or the following USEPA test methods shall be used for this testing, unless another USEPA test method is approved by the Illinois EPA during the review of a Test Plan submitted by the Permittee prior to testing.

Location of Sample Points	Method 1
Gas Flow and Velocity	Method 2

Flue Gas Weight	Method 3
Moisture	Method 4
VOM	Method 18 or 25A
NO _x	Method 7E or 19
CO	Method 10 or 10B
Lead	Method 29

iii. For this emission testing, test notifications and reporting shall be done by the Permittee in accordance with Condition 8.6.2 and 8.6.3 of this permit.

c. As provided by 35 IAC 212.446(c), observations to determine compliance with the opacity standard in 35 IAC 212.446(c) (see Condition 7.5.3(a)(iii)) shall be performed in accordance with 40 CFR Part 60, Appendix A, Method 9, incorporated by reference in 35 IAC 212.113, except that compliance shall be determined by averaging any 12 consecutive observations taken at 15 second intervals.

7.5.8 Monitoring and Inspection Requirements

a. Monitoring (40 CFR 63.7830)

- i. For the capture system for secondary emissions from the Basic Oxygen Furnaces (which are subject to an operating limit in 40 CFR 63.7790(b)(1) established in Permittee's capture system operation and maintenance plan), the Permittee shall install, operate, and maintain a continuous parameter monitoring system (CPMS) according to the requirements in 40 CFR 63.7831(e) and the requirements in 40 CFR 63.7830(a)(1) through (3).
- ii. The Permittee shall operate and maintain a bag leak detection system on Baghouse #2 and the slag skimmer baghouse according to 40 CFR 63.7831(f) and monitor the relative change in particulate matter loadings according to the requirements in 40 CFR 63.7832.
- iii. The Permittee shall conduct inspections of each baghouse at the specified frequencies according to the following requirements [40 CFR 63.7830(b)(4)]:
 - A. Monitor the pressure drop across each baghouse cell each day to ensure pressure drop is within the normal operating range identified in the operation and maintenance manual.
 - B. Confirm that dust is being removed from hoppers through weekly visual inspections or other

means of ensuring the proper functioning of removal mechanisms.

- C. Check the compressed air supply for pulse-jet baghouses each day.
- D. Monitor cleaning cycles to ensure proper operation using an appropriate methodology.
- E. Check bag cleaning mechanisms for proper functioning through monthly visual inspections or equivalent means.
- F. Make monthly visual checks of bag tension on reverse air and shaker-type baghouses to ensure that bags are not kinked (knead or bent) or laying on their sides. The Permittee does not have to make this check for shaker-type baghouses using self-tensioning (spring-loaded) devices.
- G. Confirm the physical integrity of the baghouse through quarterly visual inspections of the baghouse interior for air leaks.
- H. Inspect fans for wear, material buildup, and corrosion through quarterly visual inspections, vibration detectors, or equivalent means.

- iv. For the ESP controlling the BOF furnaces (which are subject to an opacity limit of 10 percent, hourly average, pursuant to 40 CFR 63.7790(b)(3)), the Permittee shall operate and maintain a continuous opacity monitoring system (COMS) according to the requirements in 40 CFR 63.7831(h) and monitor the hourly average opacity of emissions exiting the stack according to the requirements in 40 CFR 63.7832 [40 CFR 63.7830(d)].

If the hourly average opacity for the ESP exceeds the operating limit, the Permittee shall follow the following procedures [40 CFR 63.7833(g)]:

- A. The Permittee shall initiate corrective action to determine the cause of the exceedance within 1 hour. During any period of corrective action, the Permittee must continue to monitor and record all required operating parameters for equipment that remains in operation. Within 24 hours of the exceedance, the Permittee shall measure and record the hourly

average operating parameter value for the emission unit on which corrective action was taken. If the hourly average parameter value meets the applicable operating limit, then the corrective action was successful and the emission unit is in compliance with the applicable operating limit.

- B. If the required initial corrective action was not successful, the Permittee shall complete additional corrective action within the next 24 hours (48 hours from the time of the exceedance). During any period of corrective action, the Permittee shall continue to monitor and record all required operating parameters for equipment that remains in operation. After this second 24-hour period, the Permittee shall again measure and record the hourly average operating parameter value for the emission unit on which corrective action was taken. If the hourly average parameter value meets the applicable operating limit, then the corrective action was successful and the emission unit is in compliance with the applicable operating limit.
 - C. For purposes of 40 CFR 63.7833(g)(1) and (2), in the case of an exceedance of the hourly average opacity operating limit for an ESP, measurements of the hourly average opacity based on visible emission observations in accordance with Method 9 may be taken to evaluate the effectiveness of corrective action.
 - D. If the second attempt at corrective action required in paragraph 40 CFR 63.7833 (g)(2) was not successful, the Permittee shall report the exceedance as a deviation in the next semiannual compliance report according to 40 CFR 63.7841(b).
- b. Installation, operation, and maintenance requirements for monitors [40 CFR 63.7831]
 - i. For the slag skimmer baghouse and Baghouse #2 (which are subject to 40 CFR 63.7830(b)(1)), the Permittee shall operate and maintain the bag leak detection system according to the following requirements [40 CFR 63.7831(f)]:

- A. The system must be certified by the manufacturer to be capable of detecting emissions of particulate matter at concentrations of 10 milligrams per actual cubic meter (0.0044 grains per actual cubic foot) or less.
- B. The system must provide output of relative changes in particulate matter loadings.
- C. The system must be equipped with an alarm that will sound when an increase in relative particulate loadings is detected over a preset level. The alarm must be located such that it can be heard by the appropriate plant personnel.
- D. Each system that works based on the triboelectric effect must be installed, operated, and maintained in a manner consistent with the guidance document, "Fabric Filter Bag Leak Detection Guidance," EPA-454/R-98-015, September 1997. The Permittee may install, operate, and maintain other types of bag leak detection systems in a manner consistent with the manufacturer's written specifications and recommendations.
- E. To make the initial adjustment of the system, the Permittee shall establish the baseline output by adjusting the sensitivity (range) and the averaging period of the device. Then, the Permittee shall establish the alarm set points and the alarm delay time.
- F. Following the initial adjustment, the Permittee may not adjust the sensitivity or range, averaging period, alarm set points, or alarm delay time, except as detailed in the Permittee's operation and maintenance plan. The Permittee may not increase the sensitivity by more than 100 percent or decrease the sensitivity by more than 50 percent over a 365-day period unless a responsible official certifies, in writing, that the baghouse has been inspected and found to be in good operating condition.
- G. Where multiple detectors are required, the system's instrumentation and alarm may be shared among detectors.

- ii. For the ESP (which is subject to the opacity limit in 40 CFR 63.7790(b)(3)), the Permittee shall install, operate, and maintain a COMS according to the following requirements in 40 CFR 63.7831 (h)(1) through (4):
 - A. The Permittee shall install, operate, and maintain each COMS according to Performance Specification 1 in 40 CFR Part 60, Appendix B.
 - B. The Permittee shall conduct a performance evaluation of each COMS according to 40 CFR 63.8 and Performance Specification 1 in Appendix B to 40 CFR Part 60.
 - C. Each COMS must complete a minimum of one cycle of sampling and analyzing for each successive 10-second period and one cycle of data recording for each successive 6-minute period.
 - D. COMS data must be reduced to 6-minute averages as specified in 40 CFR 63.8(g)(2) and to hourly averages where required by 40 CFR 63 Subpart FFFFF.
- c. Pursuant to the operation and maintenance requirements of the O/M plan required by 40 CFR 63.7800(b), the Permittee shall comply with following inspection procedures for the capture systems and controls:

Monthly inspections of the equipment that is important to the performance of the total capture system. This inspection must include observations of the physical appearance of the equipment (e.g., presence of holes in ductwork or hoods, flow constrictions caused by dents or accumulated dust in the ductwork, and fan erosion). Repair of any defect or deficiency in the capture system shall be done before the next scheduled inspection.
- d. Monitoring of capture and control systems for Basic Oxygen Furnaces (from Permit 95010001):
 - i. The Permittee shall operate and maintain the waste gas suction monitor system for the capture system for the Basic Oxygen Furnace that continually measures and records each operation (i.e., for each charge, each refine, each tap) of each steel production cycle the static pressure in the main downcommer duct of the ESP emissions capture and transport system.

- A. The Permittee shall use the waste gas suction monitoring system as a mechanism to ensure sufficient draft is maintained in the emissions capture hoods and transport ducts so as to maximize emissions capture and transport and minimize uncaptured emissions and emission leaks.
- B. The Permittee shall operate and maintain the system to ensure that accurate and useful data is collected.
- C. The Permittee shall continuously record the static pressure in the main down comer duct of the ESP emissions capture and transport system.
- ii. The Permittee shall calibrate, operate, and maintain a continuous strip chart recorder or disk storage of the ESP stack gas flow rate as measured by the stack gas flow meter during ESP use.
- iii. The stack gas flow meter shall be calibrated on at least a quarterly basis.
- iv. A. The Permittee shall visually inspect at least monthly all visible BOF vessel enclosures, hooding and ducts used to capture and transport emissions for the BOF ESP control system.
- B. A log shall be maintained of these inspections which includes observations of the physical appearance of the capture system and any noted deficiencies (e.g., the presence of any holes in ductwork or hoods, flow constrictions caused by dents or accumulated dust in ductwork, and fan erosion).
- C. Any leaks or areas otherwise noted to be in need of repair, shall be repaired expeditiously.
- e. Opacity observations for 35 IAC 212.446(c);

The following opacity observations shall be performed pursuant to Section 39.5(7)(a) and (p) of the Act:

- i. The Permittee shall have the opacity of the exhaust of the building housing the BOF determined by a qualified observer in accordance with USEPA Method 9 while the affected BOF(s) is operating, as further specified below.

- A. Observations of opacity shall be conducted on the following frequency unless absence of adequate daylight or weather conditions preclude scheduled observation, in which case, the next observations shall be conducted on the next operating day of the BOF during which observations of opacity can reasonably be conducted in accordance with USEPA Method 9, except that reading shall be taken as a 3-minute average (12 consecutive observations taken 15 seconds intervals).
- B. If a baghouse is not installed for control of tapping emissions from the BOF, these readings shall be performed for at least five days out of every seven. A day is defined as any day when a BOF is in operation for a minimum of four hours during conditions that are acceptable for Method 9 readings. A minimum of 60 consecutive minutes of opacity readings must be obtained and must encompass at least one steel production cycle. A production cycle is defined as the beginning of scrap charging to the completion of deslagging of the steelmaking vessel. Results of these readings shall be reduced to three minute rolling averages.
- C. Beginning 30 days after initial startup of a baghouse for control of tapping emissions from the BOFs, the Permittee shall have the opacity of the exhaust of the building housing the BOF determined by a qualified observer in accordance with USEPA Method 9 while the affected BOF(s) are operating, as further specified below.
1. The duration of opacity observations for each test shall be one complete steel making cycle.
 2. Observations of opacity shall be conducted on the following frequency unless absence of adequate daylight or weather conditions preclude scheduled observation, in which case, the next observations shall be conducted on the next operating day of the BOF during which observations of opacity can reasonably be conducted in accordance with USEPA Method 9.
 3. On a weekly basis (at least once every seven operating days of BOF) except as provided below.

4. On a daily basis (at least 5 days out of seven operating days of BOF) if any of the five previous 3-minute average observations measured opacity of 18 percent or more, continuing on a daily basis until the maximum opacities measured in five consecutive daily observations are all less than 18 percent, at which time observations on a weekly basis shall resume.
- ii. Upon written request by the Illinois EPA, additional opacity observations shall be conducted within 5 operating days for the BOF from the date of the request by the Illinois EPA or on the date agreed upon by the Illinois EPA, whichever is later. For such observations conducted pursuant to a request from the Illinois EPA:
 - A. The Permittee shall notify the Illinois EPA at least 24 hours in advance of the date and time of these observations, in order to enable the Illinois EPA to witness the observations. This notification shall include the name and employer of the qualified observer(s).
 - B. The Permittee shall promptly notify the Illinois EPA of any changes in the time or date for observations.
 - C. The duration of these observations shall cover a complete heat or cycle of the affected BOF.
 - D. The Permittee shall provide a copy of the current certification for the opacity observer and observer's readings to the Illinois EPA at the time of the observations, if the Illinois EPA personnel are present.
 - E. The Permittee shall keep records for all opacity measurements for the BOF made in accordance with USEPA Method 9 for the affected operations that the Permittee conducts or that are conducted at its behest by individuals who are qualified to make such observations. For each occasion on which such measurements are made, these records shall include the formal report for the measurements, a description of the measurements that were made, the operating condition of the affected operations, the observed opacity, and copies of the raw data sheets for the measurements.

- iii. A. The Permittee shall determine the opacity from the BOF ESP stack for at least one hour on any normal work day that the continuous opacity monitor on the BOF ESP stack has an outage that exceeds two consecutive hours and is still down. The readings shall commence as soon as possible after the opacity monitor has been down for two consecutive hours. If meteorological conditions or lack of visibility preclude these observations from being conducted, then this shall be noted in the log book.
- B. The opacity shall be determined in accordance with the observation procedures set out in 40 CFR Part 60, Appendix A, Method 9.

f. Monitoring and Collecting Data [40 CFR 63.7832]:

- i. For purposes of the NESHAP, 40 CFR 63 Subpart FFFFF, except for monitoring malfunctions, out-of-control periods as specified in 40 CFR 63.8(c)(7), associated repairs, and required quality assurance or control activities (including as applicable, calibration checks and required zero and span adjustments), the Permittee shall monitor continuously (or collect data at all required intervals) at all times a subject control/capture system is operating.
- ii. The Permittee may not use data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities in data averages and calculations used to report emission or operating levels or to fulfill a minimum data availability requirement, if applicable. The Permittee shall use all the data collected during all other periods in assessing compliance.
- iii. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.

g. Operational Monitoring for Steam Rings from Construction Permit 10080021:

The Permittee shall install, maintain and operate a continuous monitoring system on each steam ring for the steam valve position (open or closed) and the rate at which steam is being injected.

7.5.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items pursuant to Sections 39.5(7)(a) and (e) of the Act:

- a. 40 CFR 63 Subpart FFFFF (40 CFR 63.7842 and 63.7843)
 - i. The Permittee shall keep the following records specified in 40 CFR 63.7842 (a)(1) through (a)(3):
 - A. A copy of each notification and report that the Permittee submitted to comply with 40 CFR 63 Subpart FFFFF, including all documentation supporting any initial notification or notification of compliance status that the Permittee submitted, according to the requirements in 40 CFR 63.10(b)(2)(xiv).
 - B. The records in 40 CFR 63.6(e)(3)(iii) through (v) related to startup, shutdown, and malfunction.
 - C. Records of performance tests, performance evaluations, and opacity observations as required in 40 CFR 63.10(b)(2)(viii).
 - ii. For each COMS, the Permittee shall keep the following records specified in 40 CFR 63.7842 (b)(1) through (4):
 - A. Records described in 40 CFR 63.10(b)(2)(vi) through (xi).
 - B. Monitoring data for a performance evaluation as required in 40 CFR 63.6(h)(7)(i) and (ii).
 - C. Previous (that is, superseded) versions of the performance evaluation plan as required in 40 CFR 63.8(d)(3).
 - D. Records of the date and time that each deviation started and stopped, and whether the deviation occurred during a period of startup, shutdown, or malfunction or during another period.
 - iii. The Permittee shall keep the records specified in 40 CFR 63.6(h)(6) for visual observations.
 - iv. The Permittee shall keep the records required in 40 CFR 63.7833 and 63.7834 to show continuous compliance

with each emission limitation and operation and maintenance requirement that applies to the Permittee.

- v. The Permittee shall keep the records in a form suitable and readily available for expeditious review, according to 40 CFR 63.10(b)(1).
- vi. As specified in 40 CFR 63.10(b)(1), the Permittee shall keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.
- vii. The Permittee shall keep each record on site for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to 40 CFR 63.10(b)(1). The Permittee may keep the records offsite for the remaining 3 years.
- viii. The Permittee shall maintain a current copy of the operation and maintenance plan required in 40 CFR 63.7800(b) onsite and available for inspection upon request.
- ix. A. The Permittee shall maintain a copy of the site-specific monitoring plan for each CPMS required by 40 CFR 63.7830, pursuant to 40 CFR 63.7831(a).
- B. If the Permittee operates under manufacturer's specifications or manufacturer's instructions, such manufacturer's documentation shall be kept at the source as part of the required records.
- b. Recordkeeping from Permits 72080043 and 95010001:
 - i. Operating time of the BOFs;
 - ii. Operating time of the capture systems and performance parameters, including air flow and fan amperage through the fan motors, gas temperature at inlet to ESP, damper settings, and steam injection rate;
 - iii. Operating time of the ESP and performance parameters, including voltage and amperage of each transformer/rectifier set, number of sections in use;
 - iv. All routine and nonroutine maintenance performed, including dates and duration of outages, inspection schedule and findings, leaks detected, repair actions, and replacements;

- v. Total production of molten steel at the BOFs (daily, monthly, and annual production in tons);
 - vi. The Permittee shall keep a continuous strip chart recorder or disk storage of the stack gas flow rate during ESP use.
 - vii. The Permittee shall records for each steel production cycle the various stack gas flow rates for each process (i.e., for each charge, each refine, each tap) of each steel production cycle. That is, the Permittee shall be able to distinguish the measured flow rate of stack gas during each production cycle.
 - ix. Records of all opacity observations.
- c. Recordkeeping carried over from Permit 08110016:
- The operating and maintenance records that the Permittee maintains for the ESP shall include the following information for the induced draft fans on the ESP, in addition to other required information:
- i. The periods of time when the BOFs operated with less than three properly functioning fans, with description and explanation.
 - ii. The periods of time when the BOFs are operating and a spare fan is not available, with the identity of the fan(s) that were not available and explanation, e.g., spare fan not available due to regularly scheduled maintenance or spare fan not available due to unplanned breakdown of the main bearings.
- d. Recordkeeping for the steam rings on the BOF furnaces from Construction Permit 10080021:
- i. A. The Permittee shall maintain a record of the steam valve position (open or closed) and the rate at which steam is being injected, as determined by the continuous monitoring systems required by Condition 7.5.8(g).
 - B. In addition to keeping records of the data measured by these monitoring systems, the Permittee shall keep records of the operation, calibration and maintenance of these systems.
 - ii. The Permittee shall maintain an operating log or other records for the BOF and steam rings that contain information generally documenting the steam rings are being operated in accordance with Condition 7.5.5-

3(c), including information for the timing of the refining phase of each heat of a BOF furnace.

iii. The Permittee shall maintain detailed records of the following information for each heat in a BOF furnace in which the steam ring was not operated during the refining phase:

- A. Identification of the heat and the duration of the incident, i.e., start time and time normal operation was achieved or the refining phase was completed.
- B. Description of the incident, impact on effectiveness of the steam ring, probable cause, and corrective actions.
- C. Verification that the established procedures were followed or a description and explanation why procedures were not followed.

Note: These records may be kept with other logs or records that the Permittee keeps for the BOF furnaces and their instrumentation and need not be kept as a separate record.

- e. The Permittee shall keep annual records (tons/year) of steel processed at the slag skimming station, the argon stirring station and ladle metallurgy furnace station.
- f. Emission Records

The Permittee shall keep the following records related to the emissions of the affected basic oxygen processes to verify compliance with the applicable limits in Conditions 7.5.6(b) through (g):

- i. A file containing the emission factors used by the Permittee to determine emissions of different pollutants from such processes, with supporting documentation. These records shall be reviewed and updated by the Permittee as necessary to assure that the emission factors that it uses to determine emissions of the affected processes do not understate actual emissions, including review when emission testing is conducted for an affected process. These records shall be prepared and copies sent to the Illinois EPA in accordance with Condition 5.9.6(c), except that copies of the initial records shall be submitted to the Illinois EPA no later than August 3, 2012.
- ii. Records for any periods of operation of an affected processes that are not otherwise addressed in the

required records during which the established emission factor in Condition 7.5.9(f)(i) would understate actual emissions of the process, with description of the period of operation and an estimate of the additional emissions during such established factor, with supporting explanation and calculations.

- iii. Records for the annual emissions of such processes for comparison to the limits in Conditions 7.5.6(c) through (g), with supporting calculations.
- iv. Records for combined annual emissions of such affected processes, based on the summation of the above data, for comparison to the limits in Condition 7.5.6(b).
- g. In the operational logs or other records for the operation of the affected basic oxygen processes, the Permittee shall keep records identifying process upsets that result in the generation of additional opacity or PM emissions, such as loss of the slag cover on the molten metal in a vessel or a spill of molten metal. For these upsets, these records shall include the time of the upset, a description of the upset, and a discussion of the consequences for PM emissions from the affected basic oxygen processes.

h. Records for Malfunctions or Breakdowns

Pursuant to 35 IAC 201.263, the Permittee shall maintain records of continued operation of the affected Basic Oxygen Furnace and Ladle Metallurgy Furnace as addressed by Condition 7.5.5-2(b), during malfunctions or breakdowns, which at a minimum, shall include the following records. The preparation of these records shall be completed within 45 days of an incident, unless the Permittee conducts a root cause analysis for the incident, in which case the preparation of these records, other than the root cause analysis, shall be completed within 120 days of the incident.

- i. Date, time and duration of the incident.
- ii. A detailed description of the incident, including:
 - A. A chronology of significant events during and leading up to the incident.
 - B. Relevant operating data for the unit, including information such as operator log entries and directives provided by management during the incident.

- C. The measures taken to reduce the quantity of emissions and the duration of the incident including the resources utilized to address the incident.
- D. The magnitude of emissions during the incident.
- iii. An explanation why continued operation of an affected basic oxygen furnace was necessary to prevent personnel injury or prevent equipment damage.
- iv. A discussion of the cause(s) or probable cause(s) of the incident including the following:
 - A. Whether the incident was sudden, unavoidable, or preventable, including:
 - 1. Why the equipment design did not prevent the incident;
 - 2. Why better maintenance could not have avoided the incident;
 - 3. Why better operating practices could not have avoided the incident; and
 - 4. Why there was no advance indication for the incident.
 - B. Whether the incident stemmed from any activity or event that could have been foreseen, avoided or planned for.
 - C. Whether the incident was or is part of a recurring pattern indicative of inadequate design, operation or maintenance.
- v. A description of any steps taken or to be taken to prevent similar future incidents or reduce their frequency and severity.
- vi. As an alternative to keeping the records required by Condition 7.5.9(g)(iv), the Permittee may perform a root cause analysis. For this purpose, a root cause analysis is an analysis whose purpose is to determine, correct and eliminate the primary causes of the incident and the excess emissions resulting there from. If the Permittee performs a root cause analysis method that would define the problem, define all causal relationships, provide a causal path to the root cause, delineate the evidence, and provide solutions to prevent a recurrence. Such an analysis shall be completed within one year of the incident.

7.5.10 Reporting Requirements

- a. 40 CFR Part 63, Subpart FFFFF (40 CFR 63.7841)
 - i. Compliance report due dates. Unless the Administrator has approved a different schedule, the Permittee shall submit a semiannual compliance report to the permitting authority according to the following requirements:
 - A. Semi-annual compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.
 - B. Each compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date comes first after the end of the semiannual reporting period.
 - ii. Compliance report contents. Each compliance report shall include the following information:
 - A. Company name and address.
 - B. Statement by a responsible official, with that official's name, title, and signature, certifying the truth, accuracy, and completeness of the content of the report.
 - C. Date of report and beginning and ending dates of the reporting period.
 - D. If the Permittee had a startup, shutdown, or malfunction during the reporting period and the Permittee took actions consistent with the source's startup, shutdown, and malfunction plan, the compliance report must include the information in 40 CFR 63.10(d)(5)(i).
 - E. If there were no deviations from the continuous compliance requirements in 40 CFR 63.7833 and 63.7834 that apply to the Permittee, a statement that there were no deviations from the emission limitations or operation and maintenance requirements during the reporting period.
 - F. If there were no periods during which a continuous monitoring system (including a CPMS, COMS, or continuous emission monitoring system

(CEMS)) was out-of-control as specified in 40 CFR 63.8(c)(7), a statement that there were no periods during which the CPMS was out-of-control during the reporting period.

G. For each deviation from an emission limitation in 40 CFR 63.7790 that occurs at each Basic Oxygen Process where the Permittee is not using a continuous monitoring system (including a CPMS, COMS, or CEMS) to comply with an emission limitation in 40 CFR Subpart FFFFFF, the compliance report must contain the information described in Condition 7.5.10(a)(ii)(A) through (F) and the following information (this includes periods of startup, shutdown, and malfunction):

1. The total operating time of each Basic Oxygen Process during the reporting period.
2. Information on the number, duration, and cause of deviations (including unknown cause, if applicable) as applicable and the corrective action taken.

H. For each deviation from an emission limitation occurring at each Basic Oxygen Furnace Process where the Permittee is using a continuous monitoring system (including a CPMS or COMS) to comply with the emission limitation in 40 CFR 63 Subpart FFFFFF, the Permittee shall include the following information (this includes periods of startup, shutdown, and malfunction):

1. The date and time that each malfunction started and stopped.
2. The date and time that each continuous monitoring was inoperative, except for zero (low-level) and high-level checks.
3. The date, time, and duration that each continuous monitoring system was out-of-control as specified in 40 CFR 63.8(c)(7), including the information in 40 CFR 63.8(c)(8).
4. The date and time that each deviation started and stopped, and whether each deviation occurred during a period of

startup, shutdown, or malfunction or during another period.

5. A summary of the total duration of the deviation during the reporting period and the total duration as a percent of the total source operating time during that reporting period.
 6. A breakdown of the total duration of the deviations during the reporting period including those that are due to startup, shutdown, control equipment problems, process problems, other known causes, and other unknown causes.
 7. A summary of the total duration of continuous monitoring system downtime during the reporting period and the total duration of continuous monitoring system downtime as a percent of the total source operating time during the reporting period.
 8. A brief description of the Basic Oxygen Processes.
 9. A brief description of the continuous monitoring system.
 10. The date of the latest continuous monitoring system certification or audit.
 11. A description of any changes in continuous monitoring systems, processes, or controls since the last reporting period.
- iii. Immediate startup, shutdown, and malfunction report. If the Permittee had a startup, shutdown, or malfunction during the semiannual reporting period that was not consistent with the source's startup, shutdown, and malfunction plan, the Permittee shall submit an immediate startup, shutdown, and malfunction report according to the requirements in 40 CFR 63.10(d)(5)(ii).

b. Monthly Opacity Exceedance Report.

Monthly opacity exceedance reports for the BOF ESP shall be sent to the Illinois EPA Regional Office. These reports

shall contain all opacity measurements which exceed 30 percent, averaged over a six minute period. These "excess opacity" reports shall provide, for each such incident, the percent opacity measured as well as the date and span of such incident. These reports shall state the reasons for the excess opacity. The reports shall also specify the dates of those periods during which the continuous monitoring system was not in operation [Section 39.5(7)(f)(ii) of the Act].

c. Reporting Requirements from Permit 08110016:

After the initial year of operation (12 calendar months) of the BOF with an ESP with four fans, the Permittee shall submit a report to the Illinois EPA that evaluates the impacts of the addition of a fourth fan to the ESP on the particulate matter emissions of the BOF. This report shall, at a minimum, include the following information and address impacts on both stack emissions of particulate matter (i.e., emissions from the ESP stack) and uncaptured emissions of particulate matter (e.g., emissions from the roof monitor of the BOPF Shop). This report shall be submitted by the end of the third month following the initial year of operation with an ESP with four fans.

- i. A description of typical operating scenarios in which the availability of a spare fan resulted in a decrease in short-term emissions, with an assessment of the changes in the hourly emission rates, with supporting documentation and calculations.
- ii. A description of typical operating scenarios, if any, in which the availability of a spare fan resulted in an increase in short-term emissions, with an assessment of the changes in the hourly emission rates, with supporting documentation and calculations.
- iii. An assessment of the overall effect of the addition of a fourth fan on actual annual emissions of the BOF, with supporting operating data and calculations.

d. i. Pursuant to Section 39.5(7)(f)(ii) of the Act, the Permittee shall promptly notify the Illinois EPA, Air Compliance Section, within 30 days of deviations by the Basic Oxygen Furnace Processes from applicable requirements, unless a NESHAP standard specifies a different timeframe, as follows:

- A. Requirements in Condition 7.5.3.
- B. Requirements in Condition 7.5.5-1.
- C. Requirements in Condition 7.5.5-3.

- D. Requirements in Condition 7.5.6(a) through (k).
- ii. All such deviations shall be summarized and reported as part of the semiannual monitoring report required by Condition 8.6.1.
- iii. The Permittee shall notify the Illinois EPA, Air Compliance Section, of all other deviations as part of the semiannual monitoring reports required by Condition 8.6.1.
- iv. All required deviation reports described in Condition 7.5.10(d) above shall contain the following information:
 - A. Date, time and duration of the deviation;
 - B. Description of the deviation;
 - C. Probable cause of the deviation; and
 - D. Any corrective action or preventative measures taken.
- e. Reporting on malfunction and breakdown shall be performed in accordance with Condition 5.10.5-2
- f. Reporting Requirements from Permit 10080021:
 - i. Within six months of initial startup of the steam rings on the affected BOFs, the Permittee shall submit to the Illinois EPA: 1) A Project Report; and 2) A draft of the Permittee's written operating procedures for the steam rings, as required by Condition 7.5.5-3(c), for review and comment by the Illinois EPA. This Project Report shall include the following:
 - A. An assessment, with supporting documentation, of the effect of the steam rings on the opacity and, as feasible, particulate loading of the exhaust from the roof monitor of the BOPF Shop during refining, correlated with the rate of steam injection and other operating parameters of the BOF's and their control system; and
 - B. An identification of circumstances, if any, in which the steam rings must be operated to maintain compliance with applicable emission standards.
 - ii. The Permittee shall submit reports to the Illinois EPA on a semi-annual basis that include the following

information for the operation of the steam rings on the affected BOFs:

- A. Total number of heats during the reporting period.
 - B. Number of heats during the reporting period without steam rings operating properly, by type of incident, e.g., breakdown of the steam ring interrupting operation, malfunction of the steam ring with insufficient steam flow, or breakdown of support system.
- g. Reporting on the Federal SSM authorization shall be performed in accordance with Condition 5.10.5-3.

7.5.11 Operational Flexibility/Anticipated Operating Scenarios

The Basic Oxygen Furnaces shall only be operated as top oxygen injected vessels, except that, for purposes of checkout and emission testing only, the furnaces may be operated as peripheral and bottom oxygen injected furnaces for a maximum of 120 days. Any further operation of the furnaces as other than top oxygen injected vessels shall be pursuant to a permit granted for such additional operation [72080043].

7.5.12 Compliance Procedures

- a. Compliance with the applicable standards of Condition 7.5.3 is addressed by the work practices, testing, monitoring, recordkeeping and reporting requirements in Section 7.5 of this permit.
- b. Compliance with the production/emission limits of Conditions 7.5.6 and 5.6.2 is addressed by the work practices, testing monitoring, recordkeeping and reporting requirements in Sections 7.5 and 5 of this permit.

7.5.13 Compliance Schedule and Current Enforcement Status

- a. The Permittee shall comply with the following schedule of compliance applicable to BOF shop emissions and established in accordance with modified Consent Order 05-CH-750 (December 23, 2009):

Commitment	Timing
Certify compliance	March 31, 2011

- b. Submittal of Progress Reports

Quarterly Progress Reports shall be submitted beginning with September 2011 and ending upon the achievement of compliance. Each quarterly report shall be submitted no later than 5 days after the end of the corresponding

calendar month. The Progress Report shall contain at least the following:

- i. The required date for achieving commitments, and actual dates when such commitments were achieved.
 - ii. Any commitments accepted by the Permittee or otherwise established for the affected BOF as part of the resolution of the above referenced Consent Order, with the associated timing for each commitment.
 - iii. A discussion of progress in complying with commitments that are subject to future deadlines.
 - iv. If any commitment was not met, an explanation of why the required timeframe or commitment was not met, and any preventive or corrective measures adopted to achieve required commitment.
- c. After completion of all required commitments and certification of compliance, as identified in Condition 7.5.13(a) no further Quarterly Progress Reports are required to be submitted.

7.5.14 State-Only Conditions

State-only conditions are not being established.

7.6 Continuous Casting

7.6.1 Description

There are two continuous casting lines in operation in the caster building. Ladles of molten steel are hoisted by crane and placed in revolving turrets located at the top of the casters. Each turret holds two ladles at a time. When one ladle of steel has been cast the turret is rotated and the second ladle is tapped. The empty ladle is then replaced with a full one. The tapping process involves opening the taphole located on the bottom of the ladle and allowing the molten steel to flow into an intermediate chamber called a "Tundish". The Tundish has a taphole in the bottom through which the molten steel flows directly into the casters. The Tundish maintains a steady stream of molten steel flowing into the caster while ladles are being changed.

The molten steel from the casters continuously passes through a system of rollers and straighteners. Water is sprayed onto the slab throughout this process to complete the solidification of the slab.

Note: This narrative description is for informational purposes only and is not enforceable.

7.6.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Date Constructed	Emission Control Equipment
Continuous Casting	Steel Deslagging Station	Pre-1986	None
	Caster Molds 1 and 2	Pre-1990	None
	Casters #1 and #2; Spray Chambers	Pre-1981 (#1) Around 1988 (#2)	None
	Slab Cut-off	N/A	None
	Slab Ripping	N/A	None

7.6.3 Applicable Provisions and Regulations

- a. The "affected continuous casting operations" for the purpose of these unit-specific conditions are the operations and emission units described in Conditions 7.6.1 and 7.6.2.
- b. Pursuant to 35 IAC 212.458(b) and (c), the affected continuous casting operations shall comply with the following:

No person shall cause or allow emissions of PM₁₀, other than that of fugitive particulate matter, into the atmosphere to exceed the following limits during any one hour period:

- i. 22.9 mg/scm (0.01 gr/scf) from any process emissions unit provided however that this limit shall not apply if there are no visible emissions, except if a stack test is performed, the absence of visible emissions is not a defense to a finding of violation [35 IAC 212.458(b)(7) and (c)]; and
- ii. 5 percent opacity for continuous caster spray chambers or continuous casting operations [35 IAC 212.458(b)(8)].

Note: These standards currently do not apply to slab cut-off and slab ripping processes which are not vented through stacks.

- c. Pursuant to 35 IAC 212.316(f), the affected continuous casting operations shall comply with the following:

No person shall cause or allow fugitive particulate matter emissions from any emission unit to exceed an opacity of 20 percent.

7.6.4 Non-Applicability of Regulations of Concern

- a. The emission limitations of 35 IAC 212.324 are not applicable to any emission unit subject to a specific emissions standard or limitation contained in 35 IAC Part 212 Subpart R, Primary and Fabricated Metal Products and Machinery Manufacture, pursuant to 35 IAC 212.324(a)(3).
- b. The affected continuous casting operations are not subject to 40 CFR Part 63 Subpart FFFFF, Integrated Iron and Steel Manufacturing, because continuous casting is not defined as part of BOPF and shop ancillary operations in 40 CFR 63.7782(c).
- c. The affected continuous casting operations are not subject to 35 IAC 212.309 and 212.310 because those operations are not identified in 35 IAC 212.304 through 212.308.

7.6.5 Control Requirements and Work Practices

Pursuant to 35 IAC 212.450, particulate matter emissions from liquid steel charging in continuous casting operations shall be controlled by chemical or mechanical shrouds.

7.6.6 Production and Emission Limits from Permit 95010001 [T1]:

- a. Emissions from Deslagging Station and associated Material Handling System (see Section 7.1) shall not exceed the following limits:

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

- b. Emissions from Caster Molds - Casting shall not exceed the following limits:

<u>Pollutant</u>	<u>Emission Factor (Lbs/Ton)</u>	<u>Maximum Emissions (Tons/Yr)</u>
PM	0.006	10.74
PM ₁₀	0.006	10.74
NO _x	0.050	89.50

- c. Emissions from Casters Spray Chambers shall not exceed the following limits:

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

- d. Emissions from Slab Cut-off shall not exceed the following limits:

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

- e. Emissions from Slab Ripping shall not exceed the following limits:

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

- f. Total Emissions from Continuous Casting operations shall not exceed the following limits:

	PM (Tons/Yr)	PM ₁₀ (Tons/Yr)	NO _x (Tons/Yr)
Continuous Casting Operations	71	71	90.0

- g. Compliance with annual limits shall be determined on a calendar year basis [T1].

7.6.7 Testing Requirements

- a. The Permittee shall conduct opacity observations for the affected continuous casting operations as specified below [Sections 39.5(7)(d) and (p) of the Act]:
- i. Semi-annual observations shall be performed by a qualified observer in accordance with USEPA Method 9 for each spray chamber stack and continuous caster building openings while the casters are operating. The duration of opacity observations for each stack and the building shall be at least 30 minutes unless no visible emissions are observed from a stack or the building during the first 12 minutes of observations.
 - ii. Upon written request by the Illinois EPA, additional opacity observations shall be conducted within 5 operating days from the date of the request or by the date agreed upon by the Illinois EPA, whichever is later. For these observations:
 - A. The Permittee shall notify the Illinois EPA at least 24 hours in advance of the date and time of these observations, in order to enable the Illinois EPA to witness the observations. This notification shall include the name and employer of the qualified observer(s).
 - B. The Permittee shall promptly notify the Illinois EPA of any changes in the time or date for observations.
 - C. The duration of these observations shall be three hours for each spray chamber stack.
 - D. The Permittee shall provide a copy of the current certification for the opacity observer and observer's readings to the Illinois EPA at the time of the observations, if the Illinois EPA personnel are present.
- b. The Permittee shall have emission tests conducted for the PM/PM₁₀ emissions of the spray chambers of the affected

continuous casting operations as specified below to verify compliance with emission limits in Condition 7.6.6(c) [Sections 39.5(7)(d) and (p) of the Act]:

- i. A. Emission testing shall be conducted within 30 months of the effective date of this permit condition. This testing shall be conducted for one caster as selected by the Illinois EPA.
- B. Upon written request from the Illinois EPA, additional emission testing shall be conducted within 90 operating days from the date of the request or by the date agreed upon by the Illinois EPA, whichever is later.
- ii. The following USEPA test methods shall be used for this testing, unless another USEPA method is approved by the Illinois EPA:
 - A. Location of Sample Points Method 1
 - B. Gas Flow and Velocity Method 2
 - C. Flue Gas Weight Method 3
 - D. Moisture Method 4
 - E. PM/PM₁₀ Methods 5, 201 or 201A
- iii. Observations for visible emissions and opacity shall be conducted during all emission tests in accordance with USEPA Methods 22 and 9, respectively, and the results of these observations included in the reports for emission testing.
- iv. For this emission testing, test notifications and reporting shall be done by the Permittee in accordance with Conditions 8.6.2 and 8.6.3 of this permit.

7.6.8 Monitoring Requirements

The Permittee shall perform monthly inspections of the continuous casting operations. These inspections shall include [Sections 39.5(7)(a) and (d) of the Act]:

- a. Inspection of the mechanical shrouds on the continuous casting operations to ensure their physical presence and integrity.
- b. Observations for visible emissions from stacks conducted in accordance with Method 22. If visible emissions are

observed, opacity observations by Method 9 shall be conducted within one week.

7.6.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items for the affected continuous casting operations, pursuant to Sections 39.5(7)(a) and (e) of the Act:

- a. Amount of steel cast (ton/mo and ton/yr).
- b. The Permittee shall maintain records of the inspections required by Condition 7.6.8.
- c. The Permittee shall keep the following records related to the emissions of the affected continuous casting operations:
 - i. A file containing the emission factors used by the Permittee to determine emissions of different pollutants from the various affected operations, with supporting documentation. These records shall be reviewed and updated by the Permittee as necessary to assure that the emission factors that it uses to determine emissions of the affected operations do not understate actual emissions. These records shall be prepared and copies sent to the Illinois EPA in accordance with Condition 5.9.6(c).
 - ii. Records for any periods of operation of an affected operations that are not otherwise addressed in the required records during which the established emission factor in Condition 7.6.9(c)(i) would understate actual emissions, with description of the period of operation and an estimate of the additional emissions during such period that would not be accounted for by the established factor, with supporting explanation and calculations.
 - iii. Records for the annual emissions of the various affected operations for comparison to the limits in Conditions 7.6.6(a) through (e), with supporting calculations.
 - iv. Records for combined annual emissions of the affected continuous casting operations, based on the summation of the above data, for comparison to the limits in Condition 7.6.6(f).
- d. The Permittee shall keep records for all opacity readings for the affected continuous casting operations conducted in accordance with Condition 7.6.7.

7.6.10 Reporting Requirements

- a. i. Pursuant to Section 39.5(7)(f)(ii) of the Act, the Permittee shall promptly notify the Illinois EPA, Air Compliance Section, within 30 days of deviations by the affected continuous casting operations from applicable requirements, as follows:
 - A. Requirements in Condition 7.6.3(b) and (c).
 - B. Requirements in Condition 7.6.6.
- ii. All such deviations shall be summarized and reported as part of the semiannual monitoring report required by Condition 8.6.1.
- b. The Permittee shall notify the Illinois EPA, Air Compliance Section, of all other deviations as part of the semiannual monitoring reports required by Condition 8.6.1.
- c. All deviation reports described in Condition 7.6.10 above shall contain the following:
 - i. Date, time and duration of the deviation;
 - ii. Description of the deviation;
 - iii. Probable cause of the deviation; and
 - iv. Any corrective action or preventive measures taken.

7.6.11 Operational Flexibility/Anticipated Operating Scenarios

Operational flexibility is not set for the affected continuous casting operations.

7.6.12 Compliance Procedures

For affected continuous casting, compliance with the applicable standards of Conditions 7.6.3(b) and (c) and with the limitations of Condition 7.6.6 is addressed by the work practices, testing, monitoring, recordkeeping and reporting requirements in Section 7.6 of this permit.

7.6.13 State-Only Conditions

State-only conditions are not being established.

7.7 Hot Strip Mill Reheat Furnaces

7.7.1 Description

Steel slabs are heated in the slab reheat furnaces, so they can be formed further in the facility's hot strip mill. Some of the slabs are shipped to the facility from outside suppliers.

The following fuels or combination of these fuels are fired by all the four furnaces: natural gas and coke oven gas (COG). In the past, the reheat furnaces also fired oil, but they no longer have that capability.

Note: This narrative description is for informational purposes only and is not enforceable.

7.7.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Date Constructed	Emission Control Equipment
Reheat Furnaces	Slab Reheat Furnaces #1, #2 & #3 equipped with low-NO _x burners Nominal firing rate: 322 mmBtu/hr each	Pre-1972	None
	Slab Reheat Furnace #4 equipped with low-NO _x burners Nominal firing rate: 495 mmBtu/hr	Pre-1977	None

7.7.3 Applicable Provisions and Regulations

- a. The "affected slab reheat furnaces" for the purpose of these unit-specific conditions, are the emission/production units as described in Conditions 7.7.1 and 7.7.2 above.
- b. The affected slab reheat furnaces are subject to 35 IAC 212.458(b)(10) and (c), which provide that no person shall cause or allow emissions of PM₁₀, other than that of fugitive particulate matter, into the atmosphere to exceed 38.7 ng/J (0.09 lbs/mmBtu) of heat input from the slab furnaces at steel plants in the vicinity of Granite City during any one hour period, provided however that this limit shall not apply if there are no visible emissions, except if a stack test is performed, the absence of visible emissions is not a defense to a finding of violation.
- c. The affected slab reheat furnace #4 is subject to 35 IAC 212.321(a), which provides that:

No person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any new process emission unit, which either alone or in combination with the emission of particulate matter from all other similar process emission units for which construction or modification commenced on or after April 14, 1972, at a source or premises, exceeds the allowable emission rates specified in 35 IAC 212.321(c) (See also Attachment 2) [35 IAC 212.321(a)].

- d. The affected slab reheat furnaces #1, #2 and #3 are subject to 35 IAC 212.322(a), which provides that:

No person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any process emission unit for which construction or modification commenced prior to April 14, 1972, which, either alone or in combination with the emission of particulate matter from all other similar existing process emission units at a source or premises, exceeds the allowable emission rates specified in 35 IAC 212.322(c) (See also Attachment 2) [35 IAC 212.322(a)].

- e. Pursuant to 35 IAC 214.301, the affected slab reheat furnaces shall comply with the following: no person shall cause or allow the emission of sulfur dioxide into the atmosphere from any process emission source to exceed 2000 ppm.
- f. Pursuant to 35 IAC 212.123(a), the affected slab reheat furnaces shall comply with the following: no person shall cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from any emission unit other than those emission units subject to the requirements of 35 IAC 212.122, except as allowed by 35 IAC 212.123(b) and 212.124.
- g. Pursuant to 35 IAC 212.458(b) (7) and (c), the affected slab reheat furnaces shall comply with the following:

No person shall cause or allow emissions of PM₁₀, other than that of fugitive particulate matter, into the atmosphere to exceed the following limits during any one hour period:

22.9 mg/scm (0.01 gr/scf) from any process emissions unit provided however that this limit shall not apply if there are no visible emissions, except if a stack test is performed, the absence of visible emissions is not a defense to a finding of violation [35 IAC 212.458(b) (7) and (c)].

7.7.4 Non-Applicability of Regulations of Concern

- a. The emission limitations of 35 IAC 212.324 are not applicable to the affected slab reheat furnaces, because they are subject to a specific emissions standard or limitation contained in 35 IAC Part 212 Subpart R, pursuant to 35 IAC 212.324 (a)(3).
- b. The affected slab reheat furnaces are not subject to 40 CFR Part 63 Subpart FFFFF, Integrated Iron and Steel Manufacturing, because reheat furnaces are not covered by this NESHAP [see 40 CFR 63.7782(c)].
- c. This permit is issued based on the Permittee not being subject to the work practice and recordkeeping requirements of 35 IAC 212.324(f) because the affected slab reheat furnaces do not use air pollution control equipment for particulate matter.

7.7.5 Startup Provisions

- b. Pursuant to 35 IAC 201.149 and Part 201 Subpart I, subject to the following terms and conditions for affected slab reheat furnaces, the Permittee is authorized to violate the applicable opacity standards in 35 IAC 212.123(a) of Condition 7.7.3(f) during startup.

Note: This authorization is provided because the Permittee applied for such authorization in its CAAPP application, generally describing the efforts that will be used "...to minimize startup emissions, duration of individual starts, and frequency of startups".

- i. This authorization does not relieve the Permittee from the continuing obligation to demonstrate that all reasonable efforts are made to minimize startup emissions, duration of individual startups and frequency of startups.
- ii. The Permittee shall conduct startup of the affected slab reheat furnaces in accordance with written procedures prepared by the Permittee and maintained at the source (see Condition 7.7.10(d)(i)) for the affected slab reheat furnaces, that are specifically developed to minimize emissions from startups and that include, at a minimum:
 - A. A review of the operational condition of the affected reheat furnaces prior to initiating startup of the furnaces;
 - B. Initiation of startups to provide adequate time to implement the established startup procedures;

- C. Sequential startup of the burners in the different zones of each furnace; and
 - D. Temperature levels achieved during startup.
- iii. The Permittee shall fulfill applicable recordkeeping of Condition 7.7.10(d).
 - iv. The Permittee shall fulfill applicable reporting of Condition 5.10.5-1.
- b. As provided by 35 IAC 201.265, an authorization in a permit for excess emissions during startup does not shield a Permittee from enforcement for any violation of applicable emission standard(s) that occurs during startup and only constitutes a prima facie defense to such an enforcement action provided that the Permittee has fully complied with all terms and conditions connected with such authorization.

7.7.6 Control Requirements and Work Practices

- a. Pursuant to Permit 06070022, the affected slab reheat furnaces shall be equipped, operated, and maintained with low NO_x burners. The low NO_x burners shall be operated and maintained in conformance with good air pollution control practices. These low-NO_x burners shall be operated in the following zones of the affected slab reheat furnace [T1R]:
 - i. Slab reheat furnaces #1 through #3: heat and intermediate zones; and
 - ii. Slab reheat furnace #4: heat zone.
- b. The affected slab reheat furnaces are allowed to burn natural gas and coke oven gas only as a fuel [Section 39.5(7)(a) of the Act].

7.7.7 Operating and Emission Limits

The following operating and emission limits are established for the affected slab reheat furnaces [06070022, T1]:

- a. Operation of the affected slab reheat furnaces shall not exceed the following limits:

Emission Unit	Total Gas Usage (mmBtu/year)	COG Usage (mmBtu/year)
Slab Reheat Furnace #3	1,654,304	1,187,790
Slab Reheat Furnace #4	2,206,238	1,544,367
Total (Furnaces 1-4)	7,169,150	2,421,388

- b. Emissions of NO_x from the affected slab reheat furnaces shall not exceed the following limits:

Furnace	Limit (Lbs/mmBtu)
Slab Reheat Furnace #1	0.150
Slab Reheat Furnace #2	0.150
Slab Reheat Furnace #3	0.264
Slab Reheat Furnace #4	0.283

- c. Emissions of NO_x from the affected slab reheat furnaces (combined) shall not exceed 73 tons/month and 724.09 tons/year.
- d. Compliance with above annual limits shall be determined from a running total of 12 months of data.

7.7.8 Testing Requirements

- a. Pursuant to Section 39.5(7)(d) and (p) of the Act, the Permittee shall conduct a performance test on each affected slab reheat furnace within 18 months of the effective date of this permit condition and furnish the Illinois EPA a written report of the results of such test(s).
- i. These tests shall be conducted while the reheat furnace is firing COG at the maximum level in the normal mix of fuel for the furnace.
- ii. The following methods and procedures shall be used for testing of emissions, unless another method is approved by the Illinois EPA: Refer to 40 CFR 60, Appendix A, for USEPA test methods.
- | | |
|---------------------------|-----------------------|
| Location of Sample Points | USEPA Method 1 |
| Gas Flow and Velocity | USEPA Method 2 |
| Flue Gas Weight | USEPA Method 3 |
| Moisture | USEPA Method 4 |
| NO _x | USEPA Method 7E or 19 |
- b. The Permittee shall conduct tests for PM/PM₁₀ and NO_x emissions of the affected reheat furnaces upon written request from the Illinois EPA, for furnace(s) and fuel mix, as specified in the request. This testing shall be completed within 90 days of the request of by such later date agreed to by the Illinois EPA. For NO_x, this testing shall be conducted in accordance with Condition 7.7.8(a)(i). For PM/PM₁₀, testing shall be conducted using USEPA Test Methods as specified in 35 IAC 212.108(a).
- c. For all required emission tests, the Permittee shall conduct opacity observations in accordance with USEPA Method 9 during each run and report the results in the test report. The duration of observations for each run shall be

30-minutes unless visible emissions are not observed during the first 12 minutes. Notwithstanding the above, if weather conditions during the period of testing are not suitable for conducting opacity observations, observations may be conducted within 48 hours of the time of testing, in which case, the duration of observations shall be 3 hours unless visible emissions are not observed during the first 36 minutes of observations.

- d. With the reports for all emission testing, the Permittee shall also provide the sulfur content of the COG being combusted during the period of testing, as measured by the monitoring system for COG, and sulfur content of the mixed fuel combusted during the period of testing, with supporting calculations.
- e. For this emission testing, test notifications and reporting shall be done by the Permittee in accordance with Conditions 8.6.2 and 8.6.3 of this permit.

7.7.9 Monitoring Requirements

The affected slab reheat furnaces are subject to the following monitoring requirements, pursuant to Sections 39.5(7)(a) and (d) of the Act:

- a. The Permittee shall conduct opacity observations for each affected slab reheat furnace on a semi-annual basis, in accordance with USEPA Method 9, for a minimum of 30 minutes per furnace, unless no visible emissions are observed during the first 12 minutes of observations. The results of these observations shall be reported to the Illinois EPA within 45 days after each observation is conducted.
- b. Unless annual performance tests or continuous monitoring for emissions of NO_x is being conducted for an affected slab reheat furnace pursuant to 35 IAC Part 217, Subpart D, the Permittee shall perform combustion evaluations/inspections of the burners on each affected slab reheat furnace on a regular basis, including inspections of the various components of the burner for their condition and proper functioning, and diagnostic measures of the NO_x concentration in the exhaust of the furnace before and after performance evaluation. These inspections/evaluations shall be conducted on a semi-annual basis if accommodated by the schedule for maintenance outages on an affected furnace, and otherwise on at least an annual basis.

7.7.10 Recordkeeping Requirements

The Permittee shall maintain records of the following items for the affected slab reheat furnaces, pursuant to Sections 39.5(7)(a) and (e) of the Act:

- a. i. Records for heat input:
 - A. For COG (mmBtu/month and mmBtu/year) for all affected slab reheat furnaces (combined) and for furnaces #3 and #4 (individually).
 - B. For natural gas (mmBtu/month and mmBtu/year) for all affected slab reheat furnaces (combined) and for furnaces #3 and #4 (individually).
- ii. Records for the amount for each type of fuel used (mmscf/mo).
- b. A log or other records that will serve to identify the fuel or fuels being fired during each hour in each affected reheat furnace:
 - i. For furnaces # 1, 2 and 3, whether natural gas or COG is being fired.
 - ii. For furnace #4, the setting for the mix of natural gas and COG that is being fired.
- c. Records for all emission tests and opacity observations for the affected slab reheat furnaces.
- d. Records for Startups of Affected Slab reheat furnaces, pursuant to Section 39.5(7) (b) of the Act
 - i. The Permittee shall maintain startup procedures for each affected slab reheat furnace, as required by Condition 7.7.5(a) (ii).
 - ii. The Permittee shall maintain the following records for each startup of an affected furnace:
 - A. Date, time and duration of the startup.
 - B. A description of the startup and reason(s) for the startup.
 - C. Whether a violation of an applicable standard may have occurred during startup accompanied by the information in Condition 7.7.9(d) (iv) if a violation may have or did occur.
 - D. Whether the established startup procedures, maintained above, were followed accompanied by the information in Condition 7.7.9(d) (iii) if there were departure(s) from those procedures.

- iii. If the established startup procedures were not followed during a startup, the Permittee shall maintain the following records:
 - A. A description of the departure(s) from the established procedures.
 - B. The reason(s) for the departure(s) from the established procedures.
 - C. An explanation of the consequences of the departure(s) for emissions, such as whether the departure(s) prolonged the startup or resulted in additional emissions, and if so,
 - 1. The actions taken to minimize emissions and the duration of the startup; and
 - 2. An explanation whether similar incidents might be prevented in the future and if so, the corrective actions taken or to be taken to prevent similar incidents.
 - iv. If a violation did or may have occurred during a startup, the Permittee shall maintain the following records:
 - A. Identification of the applicable standard(s) that were or may have been violated.
 - B. An explanation of the nature of such violation(s), including the magnitude of such excess emissions.
 - C. A description of the actions taken to minimize the magnitude of emissions and duration of the startup.
 - D. An explanation whether similar incidents could be prevented or ameliorated in the future and if so, a description of the actions taken or to be taken to prevent similar incidents in the future.
- e. A maintenance and repair log for each affected slab reheat furnace, listing each activity performed with date.
- f. The following records related to the emissions of PM/PM₁₀, SO₂, and NO_x from the affected slab reheat furnaces:
 - i. A file containing the emission factors used by the Permittee to determine emissions of pollutants other than SO₂ from the affected slab reheat furnaces, with supporting documentation. These records shall be

reviewed and updated by the Permittee as necessary to assure that the emission factors that it uses to determine emissions of the affected furnace do not understate actual emissions. These records shall be prepared and copies sent to the Illinois EPA in accordance with Condition 5.9.6(c).

- ii. If different emission factors are used for furnaces #1 and #2, records for the individual usage of fuels by these furnaces (scf/month and scf/year).
- iii. Records of emissions of PM/PM₁₀, SO₂, NO_x from the affected slab reheat furnaces (tons/month and tons/year), with supporting calculations.

7.7.11 Reporting Requirements

- a. i. Pursuant to Section 39.5(7)(f)(ii) of the Act, the Permittee shall promptly notify the Illinois EPA, Air Compliance Section, within 30 days of deviations by the affected slab reheat furnaces from applicable requirements, as follows:
 - A. Requirements in Condition 7.7.3(b) through (f).
 - B. Requirements in Condition 7.7.6.
 - C. Requirements in Condition 7.7.7.
- ii. All such deviations shall be summarized and reported as part of the semiannual monitoring report required by Condition 8.6.1.
- b. The Permittee shall notify the Illinois EPA, Air Compliance Section, of all other deviations as part of the semiannual monitoring reports required by Condition 8.6.1.
- c. All deviation reports described in Condition 7.7.11 above shall contain the following:
 - i. Date, time and duration of the deviation;
 - ii. Description of the deviation;
 - iii. Probable cause of the deviation; and
 - v. Any corrective action or preventive measures taken.
- d. Reporting on the State startup authorization shall be performed in accordance with Condition 5.10.5-1.

7.7.12 Operational Flexibility/Anticipated Operating Scenarios

No operational flexibility has been established for the affected slab reheat furnaces.

7.7.13 Compliance Procedures

For affected slab reheat furnaces, compliance with the applicable standards of Condition 7.7.3 and with the operating and emission limits of Condition 7.7.7 is addressed by the work practices, testing, monitoring, recordkeeping and reporting requirements in Section 7.7 of this permit.

7.7.14 State-Only Conditions

Pursuant to 35 IAC 217.150, 217.152, and 217.160, by the applicable compliance date for 35 IAC Part 217 Subparts D and I, the Permittee shall comply with applicable requirements of these rules for the affected slab reheat furnaces, including:

- a. Certifying to the Illinois EPA that the affected slab reheat furnaces will be in compliance with the applicable emission limitation(s) of 35 IAC 217.244(a) by the applicable compliance date.
- b. Operation of each affected slab reheat furnaces in a manner consistent with good air pollution control practices to minimize NO_x emissions.
- c. Compliance with the applicable NO_x emission limitation(s) in accordance with 35 IAC 217.154 or 217.157.
- d. Compliance with the applicable monitoring, recordkeeping and reporting requirements in accordance with 35 IAC 217.157(b) and 217.156.

7.8 Finishing Operations

7.8.1 Description

Pickling Line:

Coils are processed in this unit to clean the steel and prepare it for other treatments such as cold rolling or galvanizing. At the start of the pickling line, the coils are unwound and the leading edge of each coil is trimmed off square. The leading edge of each coil is then spot (resistance) welded to the trailing edge of the previous coil. By joining the coils in this manner the pickling line runs a continuous ribbon of steel and does not need to be taken out of production to reload. After the steel coils are joined the steel is passed through an acid bath. This acid bath consists of four dip tanks arranged in series and uses a solution of hydrochloric acid and water to clean the surfaces of the steel sheet. A scrubbing system with mist eliminator is used to control hydrogen chloride emissions from this process. When the steel comes out of the fourth acid dip tank it is passed through a cold rinse tank in which cool water is used to rinse the acid off of the steel. The next step is to pass the steel through a hot rinse tank. In this tank hot water is used to rinse any remaining acid away from the steel and to raise the temperature of the steel to speed the drying process. The steel is then passed through a hot air dryer to complete the drying process. The steel that is to be shipped is coated with oil immediately prior to recoiling to inhibit corrosion. In the final step of the pickling process, the steel is recoiled.

Galvanizing Line Steel Preparation:

Steel coils that are to be galvanized in this unit are first joined end to end by spot (resistance) welding the leading edge of one coil to the trailing edge of another coil. The steel is then passed through a rinse station where it is rinsed with either a weak alkaline solution or a weak acid solution. The purpose of this rinse is to clean the steel and break down any oils that may be on the surfaces. The emissions from this unit are exhausted to a packed column wet scrubber. After cleaning and rinsing the steel is dried by a steam dryer.

Galvanizing Line Finishing Processes:

After the steel is coated with zinc, it is cooled and then dipped into a "Chem-treat" bath. This non-organic chemical puts a layer of rust-preventative on the steel. The steel is coated with oil to protect the surfaces, recoiled, and sprayed with edge sealer (oil) to protect the edges of the steel. The oil applied to the steel is a light petroleum based oil used to inhibit corrosion. Edge sealers are oils used to protect the edges of the steel and inhibit corrosion.

Note: This narrative description is for informational purposes only and is not enforceable.

7.8.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Date Constructed	Emission Control Equipment
Finishing Operations	HCL Pickling Line	Pre-1973	Two Fume Scrubbers
	Galvanizing Line #7A; the line is comprised of the following significant components: • Cleaner section • Natural Gas furnace • Galvanizing pot • Miscellaneous heaters	Pre-1973	Fume Scrubber
	Galvanizing Line #8; the line is comprised of the following significant components: • Cleaner Section (with fume scrubber) • Natural gas fired Furnace (with NO_x catalytic converter) • 2 Galvanizing Pots • Space Heaters • Miscellaneous Heaters • Melting Kettle Building and Storage Areas Heaters	1995	Fume Scrubber; NO _x catalytic converter
	Coating Operations	Pre-1973	None

7.8.3 Applicable Provisions and Regulations

- a. The "affected finishing operations" for the purpose of these unit-specific conditions, are the emission units described in Conditions 7.8.1 and 7.8.2.
- b. Pursuant to 35 IAC 212.458(b) (7) and (c), the affected finishing operations shall comply with the following:

No person shall cause or allow emissions of PM₁₀, other than that of fugitive particulate matter, into the atmosphere to exceed the following limits during any one hour period:

22.9 mg/scm (0.01 gr/scf) from any process emissions unit provided however that this limit shall not apply if there are no visible emissions, except if a stack test is performed. The absence of visible emissions is not a defense to a finding of violation [35 IAC 212.458(b)(7) and (c)]

- c. The following process emission units in the affected finishing operation constructed or modified prior to April 14, 1972 are subject to IAC 212.322(a): cleaner section and galvanizing pot of Galvanizing Line #7A and coating operations. No person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any process emission unit for which construction or modification commenced prior to April 14, 1972, which, either alone or in combination with the emission of particulate matter from all other similar process emission units at a source or premises, exceeds the allowable emission rates specified in subsection (c) of 35 IAC 212.322 (see also Attachment 2) [35 IAC 212.322(a)].
- d. The following process emission units in the affected finishing operation constructed or modified on or after April 14, 1972 are subject to IAC 212.321(a): cleaner section, two galvanizing pots and the melting kettle of Galvanizing Line #8. No person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any process emission unit for which construction or modification commenced on or after April 14, 1972, which, either alone or in combination with the emission of particulate matter from all other similar process emission units at a source or premises, exceeds the allowable emission rates specified in subsection (c) of 35 IAC 212.321 (see also Attachment 2) [35 IAC 212.321(a)].
- e. Coating operations performed as part of the affected finishing operations are subject to 35 IAC 219.204, with which the Permittee must comply by application of compliant coating as established by 35 IAC 219.204(d) for coil coating:
 - i. No owner or operator of an affected coil coating operation shall apply at any time any coating in which the VOM content exceeds the following emission limitations. The following emission limitation is expressed in units of VOM per volume of coating (minus water and any compounds which are specifically

exempted from the definition of VOM) as applied at each coating applicator:

<u>kg/l</u>	<u>lb/gal</u>
0.20	1.7

- ii. Compounds which are specifically exempted from the definition of VOM should be treated as water for the purpose of calculating the "less water" part of the coating composites.
- f. The HCL pickling line operates as a part of the affected finishing operations and is subject to 40 CFR Part 63 Subpart CCC "National Emission Standards for Hazardous Air Pollutants for Steel Pickling-HCl Process Facilities and Hydrochloric Acid Regeneration Plants". Specific requirements of Subpart CCC are set forth later in this subsection.
- g. Pursuant to 35 IAC 212.123(a), no person shall cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from any emission unit other than those emission units subject to the requirements of 35 IAC 212.122, except as allowed by 35 IAC 212.123(b) and 212.124.

7.8.4 Non-Applicability of Regulations of Concern

- a. The emission limitations of 35 IAC 212.324 are not applicable to any emission unit subject to a specific emissions standard or limitation contained in 35 IAC Part 212 Subpart R, pursuant to 35 IAC 212.324 (a) (3).
- b. This permit is issued based on the coating operations operated as a part of the affected finishing operations not being subject to 40 CFR 63 Subpart SSSS "National Emission Standards for Hazardous Air Pollutants: Surface Coating of Metal Coil" pursuant to the definition of coating used by Subpart SSSS (Decorative, protective, or functional materials that consist only of solvents, protective oils, acids, bases, or any combination of these substances are not considered coatings for the purposes of Subpart SSSS).
- c. This permit is issued based on the coating operations operated as a part of the affected finishing operations not being subject to 40 CFR 63 Subpart MMMM "National Emission Standards for Hazardous Air Pollutants for Surface Coating of Miscellaneous Metal Parts and Products" pursuant to definition of coating used by Subpart MMMM (Decorative, protective, or functional materials that consist only of solvents, protective oils, acids, bases, or any combination

of these substances are not considered coatings for the purposes of Subpart MMMM).

- d. The pickling operations are not subject to 35 IAC 212.321 or 212.322 pursuant to 35 IAC 266.190.

7.8.5-1 NESHAP Emission Standards

- a. The affected pickling line is subject to 40 CFR 63.1157(a), which provides that no owner or operator of an existing affected continuous or batch pickling line at a steel pickling facility shall cause or allow to be discharged into the atmosphere from such line:
 - i. Any gases that contain HCl in a concentration in excess of 18 parts per million by volume (ppmv); or
 - ii. HCl at a mass emission rate that corresponds to a collection efficiency of less than 97 percent.
- b. This standard shall apply at all times, including startup, shutdown and malfunction/breakdown, as 40 CFR 63.6(f) has been vacated.

7.8.5-2 NESHAP Work Practices (Galvanizing Lines)

Affected Galvanizing Furnaces #7A and #8 as well as miscellaneous heaters on Galvanizing Line #8 are subject to the NESHAP, 40 CFR Part 63, Subpart DDDDD. Pursuant to 40 CFR 63.7499, these affected units are in the Gas 1 Subcategory for purposes of this NESHAP, as they only burn natural gas.

- a. Beginning on of the compliance date of this NESHAP, the Permittee must conduct a tune-up on each affected unit as follows:
 - i. For Galvanizing Furnaces #7A and #8, the Permittee must conduct a tune-up of each furnace annually [40 CFR 63.7540(a)(10)].
 - ii. For miscellaneous heaters on galvanizing line #8, the Permittee must conduct a biennial tune-up of each heater [40 CFR 63.7540(a)(11)].
 - iii. If a unit is not operating on the required date for a tune-up, the tune-up must be conducted within one week of startup [40 CFR 63.7540(a)(12)].
- b. Pursuant to 40 CFR 63.7540(a)(10), each required tune-up shall consist of the following:
 - i. As applicable, inspect the burner, and clean or replace any components of the burner as necessary (the burner inspection may be delayed until the next

scheduled unit shutdown, but each burner must be inspected at least once every 36 months) [40 CFR 63.7640(a)(10)(i)];

- ii. Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern. The adjustment should be consistent with the manufacturer's specifications, if available [40 CFR 63.7640(a)(10)(ii)];
 - iii. Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly [40 CFR 63.7640(a)(10)(iii)];
 - iv. Optimize total emissions of CO. This optimization should be consistent with the manufacturer's specifications, if available [40 CFR 63.7640(a)(10)(iv)];
 - v. Measure the concentrations in the effluent stream of CO in parts per million, by volume (ppmv), and oxygen in volume percent, before and after the adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made) [40 CFR 63.7640(a)(10)(v)].
- c. Pursuant to 40 CFR 63.7640(a)(10)(vi), the Permittee shall maintain on-site and submit, if requested by the Illinois EPA, an annual report containing the following for the required tune-ups:
- i. The concentrations of CO in the effluent stream in ppmv, and oxygen in volume percent, measured before and after the adjustments of the furnace;
 - ii. A description of any corrective actions taken as a part of the combustion adjustment; and
 - iii. The type and amount of fuel used over the 12 months prior to the annual adjustment, but only if the unit was physically and legally capable of using more than one type of fuel during that period. Units sharing a fuel meter may estimate the fuel use by each unit.

7.8.6 Control Requirements and Work Practices

- a. Hydrochloric acid storage vessels. The owner or operator of an affected vessel shall provide and operate, except during loading and unloading of acid, a closed-vent system for each vessel. Loading and unloading shall be conducted either through enclosed lines or each point where the acid is exposed to the atmosphere shall be equipped with a local

fume capture system, ventilated through an air pollution control device [40 CFR 63.1159(b)].

Note: HCL storage tanks associated with the affected pickling line are insignificant activities addressed in Section 3.0 of this permit. Loading and unloading is currently conducted through enclosed lines.

b. Maintenance requirements [40 CFR 63.1160(b)]

- i. The Permittee shall comply with the operation and maintenance requirements prescribed under 40 CFR 63.6(e) for the HCL pickling line.
- ii. In addition to the requirements specified in 40 CFR 63.6(e), the Permittee shall operate in accordance with an operation and maintenance plan that it prepares for each emission control device. Such plan shall be consistent with good maintenance practices and, for a scrubber emission control device, shall at a minimum address the following:
 - A. Require monitoring and recording the pressure drop across the scrubber once per shift while the scrubber is operating in order to identify changes that may indicate a need for maintenance;
 - B. Require the manufacturer's recommended maintenance at the recommended intervals on fresh solvent pumps, re-circulating pumps, discharge pumps, and other liquid pumps, in addition to exhaust system and scrubber fans and motors associated with those pumps and fans;
 - C. Require cleaning of the scrubber internals and mist eliminators at intervals sufficient to prevent buildup of solids or other fouling;
 - D. Require an inspection of each scrubber at intervals of no less than 3 months with:
 1. Cleaning or replacement of any plugged spray nozzles or other liquid delivery devices;
 2. Repair or replacement of missing, misaligned, or damaged baffles, trays, or other internal components;
 3. Repair or replacement of droplet eliminator elements as needed;

4. Repair or replacement of heat exchanger elements used to control the temperature of fluids entering or leaving the scrubber; and
 5. Adjustment of damper settings for consistency with the required air flow.
- E. If the scrubber is not equipped with a viewport or access hatch allowing visual inspection, alternate means of inspection approved by the Administrator may be used.
 - F. The owner or operator shall initiate procedures for corrective action within 1 working day of detection of an operating problem and complete all corrective actions as soon as practicable. Procedures to be initiated are the applicable actions that are specified in the maintenance plan. Failure to initiate or provide appropriate repair, replacement, or other corrective action is a violation of the maintenance requirement of 40 CFR 63, Subpart CCC.
 - G. The owner or operator shall maintain a record of each inspection, including each item identified in 40 CFR 63.1160(b)(2)(iv), that is signed by the responsible maintenance official and that shows the date of each inspection, the problem identified, a description of the repair, replacement, or other corrective action taken, and the date of the repair, replacement, or other corrective action taken.

7.8.7 Production and Emission Limits from Permit 95010005 [T1].

- a. The operation of Galvanizing Line #8 shall not exceed the following [T1]:
 - i. The maximum firing rate of the furnace shall not exceed 54.6 million British thermal units (mmBtu) per hour.
 - ii. The maximum firing rate of each of the five space heaters shall not exceed 3.44 mmBtu/hour.
 - iii. The total combined maximum firing rate of the building and storage area heaters shall not exceed 9.84 mmBtu/hour.
 - iv. The total combined natural gas usage of the 11 miscellaneous heaters shall not exceed 21,895 ft³/hour and 191.8 million ft³/year.

- v. The operation of the melting kettle shall not exceed 32,000 tons of product/month and 384,000 tons of product/year.
- b. The emissions of Galvanizing Line #8 shall not exceed the following [T1]:
 - i. Furnace
 - A. The NO_x emissions of the furnace shall not exceed 2.07 lbs/hour and 9.04 tons/year.
 - B. Emissions of other pollutants from the furnace shall not exceed the following limits:

Carbon Monoxide:	8.37 tons/year
Particulate Matter:	0.72 tons/year
PM ₁₀ :	0.72 tons/year
VOM:	0.67 tons/year
SO ₂ :	0.14 tons/year
 - ii. Five Space Heaters (total)
 - A. The total combined NO_x emissions of the 5 space heaters shall not exceed 1.69 lbs/hour and 7.39 tons/year.
 - B. Total emissions of other pollutants from the 5 space heaters shall not exceed the following limits:

Carbon Monoxide:	1.48 tons/year
Particulate Matter:	0.22 tons/year
PM ₁₀ :	0.22 tons/year
VOM:	0.39 tons/year
SO ₂ :	0.04 tons/year
 - iii. Drying Oven and the Building and Storage Area Heaters (total)
 - A. The total combined NO_x emissions of the drying oven and the building and storage area heaters shall not exceed 0.97 lbs/hour and 4.29 tons/year.
 - B. Total emissions of other pollutants from the drying oven and the building and storage area heaters shall not exceed the following limits:

Carbon Monoxide:	0.85 tons/year
Particulate Matter:	0.13 tons/year
PM ₁₀ :	0.13 tons/year
VOM:	0.22 tons/year

SO₂: 0.03 tons/year

iv. Miscellaneous Heaters (total)

- A. Total combined NO_x emissions of the 11 miscellaneous heaters shall not exceed 2.19 lbs/hour and 9.60 tons/year.
- B. Total combined emissions of other pollutants from the 11 miscellaneous heaters shall not exceed the following limits:

Carbon Monoxide:	1.92 tons/year
Particulate Matter:	0.29 tons/year
PM ₁₀ :	0.29 tons/year
VOM:	0.51 tons/year
SO ₂ :	0.06 tons/year

v. Cleaner Section

Emissions of particulate matter from the cleaner section, which is controlled with a fume scrubber, shall not exceed 0.24 lbs/hour and 1.06 tons/year.

vi. Melting Kettle

Particulate matter emissions from the melting kettle shall not exceed 0.16 tons/month and 1.92 tons/year.

vii. Other emission units

Emissions of NO_x, CO, PM, VOM and SO₂ from the welder, two galvanizing pots and chemical treatment tank shall not exceed negligible rates of 0.1 lb/hour and 0.44 tons/year for each pollutant from each such emission unit.

- c. Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total) [T1].

7.8.8 Testing Requirements

- a. For testing emissions of the HCl Pickling Line pursuant to 40 CFR 63, Subpart CCC:
 - i. The Permittee shall use the following test methods in Appendix A of 40 CFR Part 60 pursuant to 40 CFR 63.1161(d), unless an equivalent alternative measurement method is approved by the Administrator, to determine compliance under 40 CFR 63.1157(a):

- A. Method 1, to determine the number and location of sampling points, with the exception that no traverse point shall be within one inch of the stack or duct wall;
- B. Method 2, to determine gas velocity and volumetric flow rate;
- C. Method 3, to determine the molecular weight of the stack gas;
- D. Method 4, to determine the moisture content of the stack gas; and
- E. Method 26A, "Determination of Hydrogen Halide and Halogen Emissions from Stationary Sources--Isokinetic Method," to determine the HCl mass flows at the inlet and outlet of a control device or the concentration of HCl discharged to the atmosphere, and also to determine the concentration of Cl₂ discharged to the atmosphere from acid regeneration plants. If compliance with a collection efficiency standard is being demonstrated, inlet and outlet measurements shall be performed simultaneously. The minimum sampling time for each run shall be 60 minutes and the minimum sample volume 0.85 dry standard cubic meters (30 dry standard cubic feet). The concentrations of HCl and Cl₂ shall be calculated for each run as follows:

$$C_{HCl} \text{ (ppmv)} = 0.659 C_{HCl} \text{ (mg/dscm)},$$

$$\text{and } C_{Cl_2} \text{ (ppmv)} = 0.339 C_{Cl_2} \text{ (mg/dscm)},$$

where C(ppmv) is concentration in ppmv and C(mg/dscm) is concentration in milligrams per dry standard cubic meter as calculated by the procedure given in Method 26A.

- ii. Pursuant to 40 CFR 63.1162(a)(1), the Permittee shall conduct performance tests a minimum of once every 2 years to measure the HCl mass flows at the control device inlet and outlet or the concentration of HCL exiting the control.
 - iii. If any performance test shows that the HCL emission limitation is being exceeded, then the owner or operator is in violation of the emission limit.
- b. Upon written request from the Illinois EPA, emission tests shall be conducted by the Permittee for the furnace, melting kettle and cleaner section (all of galvanizing line #8) to verify compliance with emission limits in Condition

7.8.7, as follows [Section 39.5(7)(d) and (p) of the Act].

i. The following USEPA test methods shall be used, unless another USEPA method is approved by the Illinois EPA.

A.	Location of Sample Points	Method 1
B.	Gas Flow and Velocity	Method 2
C.	Flue Gas Weight	Method 3
D.	Moisture	Method 4
E.	PM/PM ₁₀ (furnace, kettle, and cleaner section)	Methods 5, 201 or 201A

vi. NO_x (furnace) Method 7E or 19

ii. Observations of opacity shall be conducted during these emission tests in accordance with Method 9 and the results of these observations included in the reports for emission testing.

c. Upon written request by the Illinois EPA, the Permittee shall conduct opacity observations from any finishing operation, as specified in the request, as follows [Sections 39.5(7)(d) and (p) of the Act]:

i. These observations shall be conducted within 45 calendar days of the requires or by the date agreed upon by the Illinois EPA, whichever is later.

ii. The readings shall be performed by a qualified observer in accordance with USEPA Method 9 while the affected finishing operation is operating.

d. For this testing, test notifications and reporting shall be done by the Permittee in accordance with Conditions 8.6.2 and 8.6.3 of this permit.

7.8.9 Monitoring Requirements

a. For the affected pickling line, the Permittee shall comply with the following requirements of 40 CFR 63.1160(b)(2) and 63.1162(a)(2) Section 39.5(7)(a):

i. The Permittee shall operate, and maintain systems for the measurement and recording of the scrubber makeup water flow rate and, if required, recirculation water flow rate. These flow rates shall be monitored continuously and recorded at least once per shift while the scrubber is operating.* If operation of

the wet scrubber results in excursions of scrubber makeup water flow rate and recirculation water flow rate less than the minimum values established, the Permittee shall initiate corrective action within 1 working day as specified by the maintenance requirements in 40 CFR 63.1160(b)(2). Failure to initiate or provide appropriate repair, replacement, or other corrective action is a violation of the maintenance requirement of 40 CFR 63.1160(b)(2).

- ii. The Permittee shall monitor and record the pressure drop across the scrubber once per shift* while the scrubber is operating in order to identify changes that may indicate a need for maintenance. The Permittee shall initiate procedures for corrective action within 1 working day of detection of an operating problem and complete all corrective actions as soon as practicable. Procedures to be initiated are the applicable actions that are specified in the maintenance plan. Failure to initiate or provide appropriate repair, replacement, or other corrective action is a violation of the maintenance requirement of 40 CFR 63.1160(b)(2).

* See also Condition 7.8.9(g)

- iii. Corrective action as referenced in Condition 7.8.9(a)(i) and (ii) and as prescribed by "the Operation and Maintenance Plan" required by Condition 7.8.6(b)(ii), shall consist of the following:
 - A. Notify the pickle line shift manager or cold mill shift manager as soon as practicable but not later than the end of the shift of the operating problem detected.
 - B. The pickle line shift manager or cold mill shift manager shall notify the mechanical or electrical shift manager no later than the end of the shift.
 - C. Any of the above shift managers shall investigate the nature of the operating problem and implement corrective actions, such as manufacturer's recommended maintenance on:
 - 1. Pumps;
 - 2. Exhaust systems;
 - 3. Fans and motors;

4. Clean scrubber internals and mist eliminators to remove buildup of solids or other fouling.
- D. The pickle line or cold mill shift manager shall complete an upset conditions report upon completion of corrected action.
- b. Pursuant 40 CFR 63.1162(a)(4), failure to record each of the operating parameters (scrubber makeup water flow rate and recirculated water flow rate) is a violation of the monitoring requirements of 40 CFR 63 Subpart CCC.
- c. Pursuant to 40 CFR 63.1162(a)(5), each monitoring device shall be certified by the manufacturer to be accurate to within 5 percent and shall be calibrated in accordance with the manufacturer's instructions but not less frequently than once per year.
- d. Pursuant to 40 CFR 63.1161(b), the Permittee may reestablish compliant operating parameter values as part of any performance test that is conducted subsequent to the initial test or tests.
- e. Pursuant to 40 CFR 63.1160(b)(2)(ii) through (iv), the Permittee shall conduct the following maintenance requirements:
 - i. Cleaning of the scrubber internals and mist eliminators at intervals sufficient to prevent buildup of solids or other fouling;
 - ii. Inspect each scrubber at intervals of no less than 3 months with:
 - A. Cleaning or replacement of any plugged spray nozzles or other liquid delivery devices;
 - B. Repair or replacement of missing, misaligned, or damaged baffles, trays, or other internal components;
 - C. Repair or replacement of droplet eliminator elements as needed;
 - D. Repair or replacement of heat exchanger elements used to control the temperature of fluids entering or leaving the scrubber; and
 - E. Adjustment of damper settings for consistency with the required air flow.
- f. The owner or operator of an affected hydrochloric acid* storage vessel shall inspect each vessel semiannually to

determine that the closed-vent system and either the air pollution control device or the enclosed loading and unloading line, whichever is applicable, are installed and operating when required [40 CFR 63.1162(c)].

* See also Condition 7.8.9(g)

g. Notwithstanding the requirements of 40 CFR 63, Subpart CCC, the Permittee shall:

- i. Record monitored operating data for each scrubber at least twice per shift and initiate corrective action for the scrubber if any recorded data indicates an operating problem with a scrubber;
- ii. Inspect the affected HCL storage vessels on at least a quarterly basis to confirm compliance.

h. Testing for VOM content of coatings shall be performed as follows [35 IAC 219.105(a) and 219.211(a) and Section 39.5(7)(b) of the Act]:

- i. Upon written request by the Illinois EPA, the VOM content of specific coatings used by the coating operations shall be determined according to USEPA Reference Method 24 of 40 CFR 60 Appendix A and the procedures of 35 IAC 219.105(a) and 219.211(a); or
- ii. This testing may be performed by the supplier of a material provided that the supplier provides appropriate documentation for such testing to the Permittee and the Permittee's records directly reflect the application of such materials.

i. Pursuant to Sections 39.5(7)(a) and (d) of the Act, the Permittee shall measure or monitor the pressure differential and scrubbant flow rate on the fume scrubbers controlling the cleaner sections on Galvanizing Lines #7A and #8, as follows:

- i. The pressure differential shall be determined in inches of water column.
- ii. Scrubbant flow rate shall be determined in gallons per minute (gpm).
- iii. Pressure differential and scrubbant flow rate shall be recorded at least once per shift if data is not automatically recorded.

j. Pursuant to Sections 39.5(7)(a) and (d) of the Act, the Permittee shall operate instrumentation for the #8 Galvanizing Furnace for the NO_x concentration (ppm) in the

flue gas exhaust stream and the inlet temperature (°C or °F) of the associated NO_x catalytic converter, as follows:

- i. NO_x concentration (ppm) and inlet temperature shall be recorded at least once per shift if hourly average data is not automatically recorded.
- ii. The Permittee shall follow manufacturer's procedures for the operation and maintenance of the NO_x instrumentation.

7.8.10 Recordkeeping Requirements

The Permittee shall maintain records of the following items for the affected finishing operations, pursuant to Sections 39.5(7)(a) and (e) of the Act:

- a. Recordkeeping required for the pickling line by the NESHAP:
 - i. The "general records" required by the NESHAP, as required by 40 CFR 63.10(b)(2) and 63.1165.
 - ii. Records of the following, as required by 40 CFR 63.1165(b), which records shall be retained for 5 years from the date of each record:
 - A. Scrubber makeup water flow rate and recirculation water flow rate if a wet scrubber is used;
 - B. Calibration and manufacturer certification that monitoring devices are accurate to within 5 percent; and
 - C. Each maintenance inspection and repair, replacement, or other corrective action.
 - iii. The Permittee shall keep the written operation and maintenance plan on record after it is developed to be made available for inspection, upon request, by the Illinois EPA for the life of the affected source or until the source is no longer subject to the provisions of 40 CFR 63 Subpart CCC. In addition, if the operation and maintenance plan is revised, the Permittee shall keep the previous (i.e., superseded) versions of the plan on record to be made available for inspection by the Illinois EPA for a period of 5 years after each revision to the plan.
 - iv. If the Permittee operates under manufacturer's specifications or manufacturer's instructions, such manufacturer's documentation shall be kept at the source as part of the required records.

b. Recordkeeping requirements for galvanizing lines:

Pursuant to Sections 39.5(7)(a) and (f) of the Act, the Permittee shall keep the following records for the various emission units on the galvanizing lines:

- i. The following records related to the tune-ups conducted on furnaces and process heaters on the lines pursuant to 40 CFR 63.7540(a)(10):
 - A. Records for each tune-up that include the following: Date and time tune-up was conducted and responsible person; Identification of the unit; Summary of inspections performed and required maintenance; Results of all calibrations performed; and CO concentrations in ppmv in the effluent stream and oxygen in volume percent, before and after the adjustments are made.
 - B. A copy of the manufacturers specifications for burners used for optimization of emissions and flame pattern during tune-ups.
- ii. Records for emission tests, opacity observations, engineering calculations and other compliance determinations conducted for units to verify compliance with applicable standards, limitations and other requirements in Conditions 7.8.3, 7.8.6 and 7.8.7.
- iii. Pursuant to 40 CFR 63.7555(h), if the Permittee uses an alternative fuel other than natural gas during a period of natural gas curtailment or supply interruption, the Permittee must keep records of the total hours per calendar year that alternative fuel is burned.

c. Recordkeeping for Galvanizing Line #8:

- i. The following design and operating records for Galvanizing Line #8:
 - A. A file containing the rated heat input capacity of the furnace and each other fuel burning unit (mmBtu/hour), with supporting documentation.
 - B. Records of monthly and annual natural gas usage (mmscf/mo and mmscf/yr) for the furnace and other fuel burning units on the line.

- ii. For the melting kettle, the following records:
 - A. Records of production (tons of product per month and year).
 - B. A file containing the emission factor used by the Permittee to calculate PM emissions from the kettle, with supporting documentation, which file shall be reviewed and updated if needed when new emission data become available to assure that the factor does not understate actual PM emissions.
 - C. Records for actual PM emissions (lbs/month and tons/year), with supporting calculations.
- iii. For the furnace and associated catalytic converter, the following records:
 - A. Engineering calculations for typical and maximum hourly NO_x emissions before and after control by catalytic converter (lbs/hour), with supporting documentation for the controlled emission rate from the furnace.
 - B. The normal range of operating parameters (inlet temperature and NO_x concentration in the exhaust stream) for the catalytic converter.
 - C. An operating log or other records for the catalytic converter that include information confirming proper operation on a daily basis and provide detailed information for any upset of the catalytic converter.
 - D. An inspection and maintenance log or other records for the catalytic converter that identify activities performed, with date, description and the responsible individual(s).
 - E. Usage or purchases of reagent for the catalytic converter (pounds/year).
 - F. Records for actual NO_x emissions of the furnace (tons/year), with supporting calculations.
 - G. A file containing the emission factors used by the Permittee to calculate emissions of PM/PM₁₀, CO, VOM and SO₂ from the furnace, with supporting documentation, and either engineering calculations for the maximum annual emissions of these pollutants (tons/year) or records of actual emissions of these pollutants

(tons/year) to verify compliance with applicable limits.

- iv. For the various emission units that combust fuel on the line, the following records:
 - A. A file containing engineering calculations for the maximum hourly emissions of NO_x (lbs/hour) from each unit or group of units, with supporting documentation.
 - B. A file containing the emission factors used by the Permittee to calculate emissions from these units, with supporting documentation, and either engineering calculations for the maximum annual emissions of NO_x and other pollutants (tons/year) from each unit or group of units or records of actual emissions (tons/year) to verify compliance with applicable limits.
- v. For the cleaner section, the following records:
 - A. Engineering calculations for typical and maximum hourly PM emissions before and after control by the scrubber (lbs/hour), with supporting documentation for the controlled emission rate from the unit.
 - B. The normal range of operating parameters of the scrubber.
 - C. An operating log or other records for the scrubber that include information confirming proper operation on a daily basis and provide detailed information for any upset of the scrubber.
 - D. An inspection and maintenance log or other records for the scrubber that identify activities performed, with date, description and the responsible individual(s).
 - E. Records for actual PM emissions (tons/year), with supporting calculations.
- vi.
 - A. The records required by Conditions 7.8.10(c)(ii)(B), (c)(iii)(G) and (c)(iv)(B) shall be prepared and copies sent to the Illinois EPA in accordance with Condition 5.9.6(c).
 - B. Copies of the initial records required by Conditions 7.8.10(c)(iii)(A), (c)(iv)(A) and (c)(v)(A) shall be sent to the Illinois EPA

within 45 days of the effective date of these conditions. Copies of revisions to these conditions shall be sent to the Illinois EPA in accordance with Condition 5.9.6(c)(ii).

d. Recordkeeping for the coating operations:

- i. Records for coating usage (gal/mo and gal/yr, by coating or category of coating).
- ii. Records of the VOM content of each coating or category of coating as applied (pounds/gallon, less exempt compounds), with supporting documentation.
- iii. Records for testing or analysis conducted for the VOM content of coatings (pounds/gallon, less exempt compounds) that include identification of the tested coating(s), the results of the analysis, documentation for the analysis methodology, and identification of the person or party that performed the analysis.

7.8.11 Reporting Requirements

- a. i. Pursuant to Section 39.5(7)(f)(ii) of the Act, the Permittee shall promptly notify the Illinois EPA, Air Compliance Section, within 30 days of deviations by the affected finishing operations from applicable requirements unless a NESHAP standard specifies a different time frame, as follows:
 - A. Requirements in Condition 7.8.3(b) through (e).
 - B. Requirements in Condition 7.8.5-1.
 - C. Requirements in Condition 7.8.6.
 - D. Requirements in Condition 7.8.7.
- ii. All such deviations shall be summarized and reported as part of the semiannual monitoring report required by Condition 8.6.1.
- iii. The Permittee shall notify the Illinois EPA of all other deviations as part of the semiannual monitoring reports required by Condition 8.6.1.
- iv. All deviation reports required by Condition 7.8.11(a) above shall contain the following:
 - A. Date, time and duration of the deviation;
 - B. Description of the deviation;

- C. Probable cause of the deviation; and
 - D. Any corrective action or preventive measures taken.
- b. The Permittee shall comply with the reporting requirements of 40 CFR 63.1164, including the following:
- i. Reporting results of performance tests. As required by 40 CFR 63.10(d)(2), the owner or operator of an affected source shall report the results of any performance test as part of the notification of compliance status required in 40 CFR 63.1163.
 - ii. Progress reports. The owner or operator of an affected source who is required to submit progress reports under 40 CFR 63.6(i) shall submit such reports to the Administrator (or the State with an approved permit program) by the dates specified in the written extension of compliance.
 - iii. Periodic startup, shutdown, and malfunction reports. Pursuant to 40 CFR 63.6(e), the owner or operator of an affected source shall operate and maintain each affected emission source, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions at least to the level required by the standard at all times, including during any period of startup, shutdown, or malfunction. Malfunctions must be corrected as soon as practicable after their occurrence.
- A. Plan. As required by 40 CFR 63.6(e)(3), the owner or operator shall develop a written startup, shutdown, and malfunction plan that describes, in detail, procedures for operating and maintaining the source during periods of startup, shutdown, or malfunction, and a program of corrective action for malfunctioning process and air pollution control equipment used to comply with the relevant standards.
 - B. Reports. As required by 40 CFR 63.10(d)(5)(i), if actions taken by an owner or operator during a startup, shutdown, or malfunction of an affected source (including actions taken to correct a malfunction) are consistent with the procedures specified in the startup, shutdown, and malfunction plan, the owner or operator shall state such information in a semiannual report. The report, to be certified by the owner or operator or other responsible official, shall be submitted semiannually and

delivered or postmarked by the 30th day following the end of each calendar half.

- C. Immediate Reports. Any time an action taken by an owner or operator during a startup, shutdown, or malfunction (including actions taken to correct a malfunction) is not consistent with the procedures in the startup, shutdown, and malfunction plan, the owner or operator shall comply with all requirements of 40 CFR 63.10(d)(5)(ii).
- c. Pursuant to 35 IAC 219.211(c)(3), for the affected coating operations, the Permittee shall notify the Illinois EPA in the following instances:
 - i. Any record showing violation of 35 IAC 219.204 shall be reported by sending a copy of such record to the Illinois EPA within 30 days following the occurrence of the violation.
 - ii. At least 30 calendar days before changing the method of compliance from 35 IAC 219.204 to 35 IAC 219.205 or 219.207, the Permittee shall comply with all requirements of 35 IAC 219.211(d)(1) or (e)(1), respectively. Upon changing the method of compliance from 35 IAC 219.204 to 35 IAC 219.205 or 219.207, the Permittee shall comply with all requirements of 35 IAC 219.204(d) or (e), respectively.
- d. i. If the Permittee operates a unit using a fuel other than natural gas, to fire the affected unit during a period of natural gas curtailment or supply interruption, as defined in 40 CFR 63.7575, the Permittee must submit a notification of alternative fuel use within 48 hours of the declaration of each period of natural gas curtailment or supply interruption. The notification must include the information specified in 40 CFR 63.7545(f)(1) through (f)(5) [40 CFR 63.7545(f)].
- ii. If the Permittee intends to use fuel other than natural gas and other than during a period of natural gas curtailment or supply interruption as addressed by 40 CFR 63.7545(f), the Permittee must provide 30 days prior notice of the date upon which the fuels will be switched [40 CFR 63.7545(h)].

7.8.12 Operational Flexibility/Anticipated Operating Scenarios

Operational flexibility is not set for the affected finishing operations.

7.8.13 Compliance Procedures

For affected finishing operations, compliance with the applicable standards, limitations and requirements of Conditions 7.8.3, 7.8.5 and 7.8.7 is addressed by the work practices, testing, monitoring, recordkeeping and reporting requirements in Section 7.8 of this permit.

7.8.14 State-Only Conditions

Pursuant to 35 IAC 217.150, 217.152, and 217.160, by the applicable compliance date for 35 IAC Part 217 Subparts D and I, the Permittee shall comply with applicable requirements of these rules for the affected galvanizing furnaces, including:

- a. Certifying to the Illinois EPA that each affected galvanizing furnaces will be in compliance with the applicable emission limitation(s) of 35 IAC 217.244(a) by the applicable compliance date.
- b. Operation of each affected galvanizing furnaces in a manner consistent with good air pollution control practices to minimize NO_x emissions.
- c. Compliance with the applicable NO_x emission limitation(s) in accordance with 35 IAC 217.154 or 217.157.
- d. Compliance with the applicable monitoring, recordkeeping and reporting requirements in accordance with 35 IAC 217.157(b) and 217.156.

7.9 Wastewater Treatment Plant

7.9.1 Description

Primary Wastewater Treatment System:

The system is used to treat waste process water generated in both the iron and steelworks manufacturing areas in the facility. Emissions from this system are attributed to the blast furnace (BF) clarifiers, dust ponds, BF ditch, BF lagoon, steelworks ditch, steel works lagoon, and the wastewater treatment plant, itself. The ditches are used to transfer the BF and steelworks wastewater streams to the lagoons. The wastewater treatment plant is a simple system used to remove suspended solids and breakdown organic prior to discharge.

By-Products Wastewater Treatment System:

The system is used to treat waste process water generated in the coke oven by-product plant. Waste process water from the by-products plant is piped to the by-products wastewater treatment plant. The water treated in this system is primarily made up of process wastewater used to cool the processes and equipment used in the by-products plant. The treatment process carried out consists of the use of biological activity to breakdown the organic materials contained in the waste stream.

Note: This narrative description is for informational purposes only and is not enforceable.

7.9.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Date Constructed	Emission Control Equipment
Wastewater Treatment	Equalization Tanks	N/R	None
	BFG Clarifiers		
	Aeration Basin Clarifiers		
	Lagoons		
	Sand Filters		

7.9.3 Applicable Provisions and Regulations

The "affected wastewater treatment system" for the purpose of these unit-specific conditions is the treatment systems described in Conditions 7.9.1 and 7.9.2.

7.9.4 Non-Applicability of Regulations of Concern

- a. The affected wastewater treatment systems are not subject to the operating and control requirements of 40 CFR 61 Subpart FF in general and 40 CFR 61.344 or 40 CFR 61.343 in particular, as provided by 40 CFR 61.342(a). This determination is based on the amount of benzene waste

generated on site being less than 10 Mg/yr (11 ton/yr). If conditions at the facility change and the total annual benzene calculation increases to 10 Mg/yr or more, the facility will become subject to operating and control requirements of 40 CFR 61 Subpart FF and the Permittee must apply for a revision to this permit, which could affect applicable requirements for the affected wastewater treatment plant.

- b. The affected wastewater treatment system is not subject to 40 CFR Part 63, Subpart QQ, National Emission Standards for Surface Impoundments. This determination is based on the applicability criteria of 40 CFR 63.940, which provides that 40 CFR 63 Subpart QQ applies to impoundments when an applicable Subpart of Parts 40 CFR 60, 61 or 63 references the use of Subpart QQ for air emission control. However, applicable Subpart FF does not reference to 40 CFR 63 Subpart QQ.
- c. This permit is issued based on the affected wastewater treatment system not being subject to the applicable requirements of 35 IAC 219.301 because the affected plant does not emit photochemically reactive organic material as defined in 35 IAC 211.4690.

7.9.5 Control Requirements and Work Practices

Control requirements and work practices are not set for the affected wastewater treatment systems.

7.9.6 Production and Emission Limitations

The production and emission limits are not set for the affected wastewater treatment systems.

7.9.7 Testing Requirements

Testing requirements are not set for the affected wastewater treatment systems.

7.9.8 Monitoring Requirements

If operation(s) at the facility change, the Permittee shall evaluate whether the change affects the wastewater treatment systems such that it become subject to the requirements of 35 IAC 219.301 and must apply for a revision of this permit.

7.9.9 Recordkeeping Requirements

No recordkeeping requirements are established at this time.

7.9.10 Reporting Requirements

- a. Pursuant to Section 39.5(7)(f)(ii) of the Act, the Permittee shall promptly notify the Illinois EPA, Air Compliance Section, within 30 days if the following occurs:
 - i. The affected wastewater treatment systems become subject to the control requirements of 40 CFR 61 Subpart FF;
 - ii. The affected wastewater treatment system become subject to 35 IAC 219.301.
- b. The notifications described in Condition 7.9.10 above shall contain the following:
 - i. Date of applicability;
 - ii. Emission units(s)/operation involved; and
 - iii. Method by which compliance would be demonstrated.

7.9.11 Operational Flexibility/Anticipated Operating Scenarios

Operational flexibility is not set for the affected wastewater treatment systems.

7.9.12 Compliance Procedures

Compliance procedures are not set for the affected wastewater treatment systems.

7.9.13 State-Only Conditions

State-only conditions are not established.

7.10 Boilers

7.10.1 Description

Boilers 11 and 12 are located in Boiler House 2 and are rated at 225 mmBtu/hour each. Each of these boilers are physically capable of combusting various combinations of natural gas, coke oven gas (COG) and blast furnace gas (BFG). The Permittee has a construction permit to install Flue Gas Recirculation on these boilers for control of NO_x emissions (Construction Permit 10080022).

The Permittee completed construction of a new boiler pursuant to Construction Permit 06070023. The new boiler (Power Boiler #1) is used for cogeneration, producing both electricity and process steam as it supplies high pressure steam which is sent to a steam turbine that generates electricity for use at the source. Low-pressure steam from this turbine is used for manufacturing operations at the source.

BFG is a primary fuel for this boiler. Natural gas would be used for the pilot flame and also for combustion control.

A cooling tower operates in conjunction with the new boiler and associated steam turbine.

Portable boilers not yet constructed.

Note: This narrative description is for informational purposes only and is not enforceable.

7.10.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Date Constructed	Emission Control Equipment
Boilers	<u>Boiler House 2</u> Boiler 11 & 12 - 225 mmBtu/Hr each	Pre-1973	Flue Gas Recirculation (planned)
	Power Boiler #1 (nominal capacity 505 mmBtu/hour)	2009	None
Portable Boilers	Portable Boilers #1 through #4 (planned)	Planned	Low NO _x burners and Flue Gas Recirculation (planned)
Cooling Tower	Cooling Tower associated with Power Boiler #1	2009	None

7.10.3 Applicable Provisions and Regulations

- a. i. The "affected boilers" for the purpose of these unit-specific conditions, are Boiler #11 and #12 and Power Boiler #1 as described in Conditions 7.10.1 and 7.10.2.
- ii. The "affected cooling tower" for the purpose of these unit-specific conditions is the unit described in Conditions 7.10.1 and 7.10.2.
- b. i. Affected Boilers #11 and #12 may be subject to 40 CFR Part 63, Subpart DDDDD, NESHAP for Industrial, Commercial, and Institutional Boilers and Process Heaters. For these boilers, pursuant to 40 CFE 63.7540(a), unless an affected boiler is operating as a blast furnace gas fuel-fired boiler, as defined in 40 CFR 63.7575, or is otherwise not subject to this NESHAP, beginning on the compliance date of this NESHAP for existing sources, the Permittee shall comply with each applicable emission limit, operating limit, and work practice standard in Table 2 of this NESHAP according to the methods specified in Table 8 to this NESHAP and relevant provisions in 40 CFR 63.7540(a)(1) through (11), as applicable.
- ii. In particular, if affected Boiler #11 or #12 is in the Gas 2 subcategory (other gaseous fuel) pursuant to 40 CFR 63.7499, the Permittee shall comply with the following emission limits beginning on the applicable compliance date of 40 CFR 63 Subpart DDDDD, pursuant to 40 CFR 63.7500(a)(1) and Table 2 of this NESHAP:
 - A. Particulate Matter (PM) emissions shall not exceed 0.043 lb per mmBtu of heat input or 0.026 lb per mmBtu of steam output (3-run average).
 - B. Hydrogen Chloride (HCl) emissions shall not exceed 0.0017 lb per mmBtu of heat input or 0.001 lb per mmBtu of steam output.
 - C. Mercury (Hg) emissions shall not exceed 1.3E-05 lb per mmBtu of heat input or 7.8E-06 lb per mmBtu of steam output.*
 - D. CO emissions shall not exceed 9 ppm by volume on a dry basis corrected to 3 % oxygen or 0.005 lb per mmBtu of steam output.
 - E. Dioxin/Furans (D/F) emissions shall not exceed 0.08 ng/dscm (TEQ) corrected to 7% oxygen or 3.9E-11 (TEQ) lb per mmBtu of steam output.*

$$\begin{aligned}
 * \quad 1.3E-05 &= 0.00013 \\
 7.8E-06 &= 0.0000078 \\
 3.9E-11 &= 0.000000000039
 \end{aligned}$$

- c. Affected Boilers #11 and #12 shall not exceed the PM_{10} limitation of 35 IAC 212.458(b)(9):

32.25 ng/J (0.075 lbs/mmBtu) of heat input from the burning of COG.

- d. The affected Power Boiler #1 is subject to the NSPS for Industrial-Commercial-Institutional Steam Generating Units, 40 CFR 60 Subpart Db. (See relevant recordkeeping requirements in Condition 7.10.9.)

- e. For affected boilers #11 and #12, pursuant to 35 IAC 214.421, no person shall cause or allow the emission of sulfur dioxide into the atmosphere in any one hour period from any existing fuel combustion emission source at a steel mill located in the Chicago or St. Louis (Illinois) major metropolitan area burning any solid, liquid or gaseous fuel, or any combination thereof, to exceed the allowable emission rate determined by the following equation:

$$E = S_S H_S + S_d H_d + S_R H_R + S_G H_G$$

- i. Symbols in the equation mean the following:

E = allowable sulfur dioxide emission rate;

S_S = solid fuel sulfur dioxide emission standard which is applicable;

S_d = distillate oil sulfur dioxide emission standard determined from the table in 35 IAC 214.421(d) and equal to 0.46 kg/MW-hr (0.03 lb/mmBtu);

S_R = residual oil sulfur dioxide emission standard which is applicable;

S_G = maximum by-product gas sulfur dioxide emissions which would result if the applicable by-product gas which was burned had been burned alone at any time during the 12 months preceding the latest operation, on or before March 28, 1983, of an emission source using any by-product gas;

H_S = actual heat input from solid fuel;

H_d = actual heat input from distillate fuel oil;

H_R = actual heat input from residual fuel oil;

H_G = actual heat input from by-product gases, such as those produced from a blast furnace.

- ii. Metric or English units may be used in the equation as follows:

Parameter	Metric	English
E	kg/hr	lbs/hr
S_S , S_R , S_G	kg/MW-hr	lbs/mmBtu
S_d	0.46 kg/MW-hr	0.3 lbs/mmBtu
H_S , H_d , H_R , H_G	MW	mmBtu/hr

- f. The affected boilers are subject to 35 IAC 216.121 which provides that no person shall cause or allow the emission of carbon monoxide into the atmosphere from a fuel combustion emission unit to exceed 200 ppm, corrected to 50 percent excess air [35 IAC 216.121].
- g. The affected power boiler #1 is subject to 35 IAC 212.122(a), which provides that no person shall cause or allow the emission of smoke or other particulate matter into the atmosphere from any fuel combustion emission unit for which construction or modification commenced on or after April 14, 1972, with actual heat input greater than 73.2 MW (250 mmBtu/hr), having an opacity greater than 20 percent.
- h. The affected boilers #11 and #12 are subject to 35 IAC 212.123(a), which provides that no person shall cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from any emission unit other than those emission units subject to 35 IAC 212.122.
- i. Startup Provisions (All affected Boilers)

Pursuant to 35 IAC 201.149 and Part 201, Subpart I, subject to the following terms and conditions for affected Boilers #11, #12 and Power Boiler #1, the Permittee is authorized to violate the applicable opacity and carbon monoxide standards in 35 IAC 212.122(a), 212.123(a) and 216.121 (Conditions 7.10.3(g), (h) and (f)) during startup.

Note: This authorization is provided because the Permittee applied for such authorization in its CAAPP application, generally describing the efforts that will be used "...to minimize startup emissions, duration of individual starts, and frequency of startups."

- i. This authorization does not relieve the Permittee from the continuing obligation to demonstrate that all reasonable efforts are made to minimize startup

emissions, duration of individual startups and frequency of startups.

- ii. The Permittee shall conduct startup of the affected boilers in accordance with the manufacturer's written instructions or other written procedures prepared by the Permittee and maintained at the source (see Condition 7.10.9(d)(i)) for the affected boilers, that are specifically developed to minimize emissions from startups and that include, at a minimum a review of the operational condition of the affected boilers prior to initiating startup of the boiler.
- iii. The Permittee shall fulfill applicable recordkeeping requirements of Condition 7.10.9(d).
- iv. The Permittee shall fulfill applicable notification and reporting requirements of Condition 5.10.5-1.
- v. As provided by 35 IAC 201.265, an authorization in a permit for excess emissions during startup does not shield a Permittee from enforcement for any violation of applicable emission standard(s) that occurs during startup and only constitutes a prima facie defense to such an enforcement action provided that the Permittee has fully complied with all terms and conditions connected with such authorization.

j. Malfunction or Breakdown Provisions (All affected Boilers)

Pursuant to 35 IAC 201.149 and Part 201, Subpart I, subject to the following terms and conditions, the Permittee is authorized to continue to operate affected boilers #11, #12 and Power Boiler #1 in excess of the applicable opacity and carbon monoxide standards in 35 IAC 212.122(a), 212.123(a) and 216.121 (Conditions 7.10.3(g), (h) and (f)) in the event of a malfunction or breakdown.

Note: This authorization is provided because the Permittee has applied for such authorization in its CAAPP application, generally explaining why such continued operation would be required to prevent injury to persons or severe damage to equipment, and describing the measures that will be taken to minimize emissions from any malfunctions and breakdowns.

- i. This authorization only allows such continued operation as necessary to prevent injury to persons or severe damage to equipment and does not extend to continued operation solely for the economic benefit of the Permittee.
- ii. Upon occurrence of excess emissions due to malfunction or breakdown, the Permittee shall as soon

as practicable reduce boiler load, repair the affected boiler, remove the affected boiler from service or undertake other action so that excess emissions cease.

- iii. The Permittee shall fulfill the applicable recordkeeping and reporting requirements of Condition 7.10.9(e) and Condition 5.10.5-2. For these purposes, time shall be measured from the start of a particular incident. The absence of excess emissions for a short period shall not be considered to end the incident if excess emissions resume.
- iv. Following notification to the Illinois EPA (see Condition 5.10.5-2(a)(i)) of a malfunction or breakdown with excess emissions, the Permittee shall comply with all reasonable directives of the Illinois EPA with respect to such incident.
- v. This authorization does not relieve the Permittee from the continuing obligation to minimize excess emissions during malfunction or breakdown. As provided by 35 IAC 201.265, an authorization in a permit for continued operation with excess emissions during malfunction and breakdown does not shield the Permittee from enforcement for any such violation and only constitutes a prima facie defense to such an enforcement action provided that the Permittee has fully complied with all terms and conditions connected with such authorization.

7.10.4 Non-Applicability of Regulations of Concern

- a. The emission limitations of 35 IAC 212.324 are not applicable to any emission unit subject to a specific emissions standard or limitation contained in 35 IAC Part 212 Subpart R, pursuant to 35 IAC 212.324 (a)(3).
- b. Affected Boilers #11 and #12 are not subject to 35 IAC 217.141 because the heat input capacity of each of these boilers is below the applicability threshold of this rule (250 mmBtu/hr).
- c. Power Boiler #1
 - i. Affected power boiler #1 is not subject to the NSPS for Electric Utility Steam Generating Units (40 CFR 60, Subpart Da) because it is not an electric utility steam generating unit as the term is defined in 40 CFR 60.41Da.
 - ii. Affected power boiler #1 is not subject to 40 CFR 60, Subpart D because it is subject to the NSPS in 40 CFR 60 Subpart Db as it meets the applicability

requirements under 40 CFR 60.40b(a) [40 CFR 60.40b(j)].

- iii. Affected Power Boiler #1 is not subject to the SO₂ standards of 40 CFR 60, Subpart Db because it meets the exemption provided at 40 CFR 60.42b(k)(2) [See also Condition 7.10.5(b)].
- iv. Affected Power Boiler #1 is not subject to the NO_x standards of 40 CFR 60, Subpart Db pursuant to 40 CFR 60.44b(c), because it has an annual capacity factor for natural gas of 10 percent or less and is subject to a federally enforceable requirement that limits operation to an annual capacity factor of 10 percent or less for natural gas [See Condition 7.10.6(a)(iii)].
- v. Affected Power Boiler #1 is not subject to particulate matter standards under 40 CFR 60, Subpart Db because it does not fire solid or liquid fuels.
- d. Affected Power Boiler #1 is not subject to 35 IAC 217.121 because it is not "fossil fuel-fired" as defined by 35 IAC 211.2425, i.e., a unit for which fossil fuels provide more than 50 percent of the annual heat input to the unit.
- e. Pursuant to 40 CFR 63.7491(k), Power Boiler #1 is not subject to 40 CFR Part 63 Subpart DDDDD because this boiler is a blast furnace gas fuel-fired boiler as defined in 40 CFR 63.7575.
- f. Cooling Tower:
 - i. The affected cooling tower is not subject to 35 IAC 219.986(d), because the cooling tower does not cool process water.
 - ii. The affected cooling tower is not subject to 40 CFR Part 63 Subpart Q because no chromium-based water treatment chemicals are used.

7.10.5 Control Requirements

- a. Requirements for affected Power Boiler #1 from Permit 06070023
 - i. Emissions of PM and PM₁₀ from the affected Power Boiler #1 shall be controlled by the existing BFG pretreatment system, which entails treatment by dust catchers and wet scrubbers [T1].
 - ii. BFG and natural gas shall be the only fuels fired in the affected Power Boiler #1 [T1].

- iii. Affected Power Boiler #1 shall be operated for the primary purpose of supplying steam and electricity to the source with no more than 219,000 MW-hour of excess electricity sent to any utility power distribution system for sale in any calendar year from the electrical generator associated with the unit [T1].
- b. Pursuant to 40 CFR 60.42b(k) (2), the sulfur content of the fuel fired in Power Boiler #1 shall not exceed 0.16 lb/mmBtu.
- c. Requirements for affected Boilers #11 and #12

Only natural gas, coke oven gas and blast furnace gases are allowed to use as the fuels.
- d. Requirements for affected Cooling Tower

Pursuant to 40 CFR 63.402, the Permittee shall not use chromium-based water treatment chemicals in the water cooling tower.

7.10.5-1 Work Practice Requirements

- a. Pursuant to Sections 39.5(7) (a) and (d) of the Act, unless the Permittee conducts continuous emission monitoring for CO for an affected boiler, the Permittee shall conduct an annual tune-up for the boiler, as follows, to maintain compliance with 35 IAC 216.121. If annual tune-ups or combustion adjustments are required for an affected boiler pursuant to 40 CFR 63, Subpart DDDDD, these tune-ups shall also be conducted in accordance of applicable provisions of this NESHAP.
 - i. Each annual tune-up must be no more than 13 months after the previous tune-up. If the boiler is not operating on the required date for a tune-up, the tune-up must be conducted within one week of startup.
 - ii. Each tune-up shall consist of the following:
 - A. As applicable, inspect the burner, and clean or replace any components of the burner as necessary (the burner inspection may be delayed until the next scheduled unit shutdown, but each burner must be inspected at least once every 36 months);
 - B. Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern. The adjustment should be

consistent with the manufacturer's specifications, if available;

- C. Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly; and
 - D. Optimize total emissions of CO. This optimization should be consistent with the manufacturer's specifications, if available.
- iii. Measure the concentrations in the effluent stream of CO in parts per million by volume (ppmv), and oxygen in volume percent, before and after the adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made); and
- iv. Submit a report to the Illinois EPA within 30 days of each tune-up that contains the following information:
- A. The identity of the boiler, the date of the tune-up and the individual(s) who performed the tune-up and a summary of their experience with combustion tune-ups of boilers.
 - B. The concentrations of CO in the effluent stream in ppmv and oxygen in volume percent, measured before and after the adjustments of the boiler;
 - C. A description of any corrective actions taken as a part of the combustion adjustment; and
 - D. The type and amount of fuel used over the 12 months prior to the annual adjustment.
- b. Pursuant to 40 CFR 63.7530(h), for an affected boiler that is subject to emission limits in 40 CFR 63 Subpart DDDDD, the Permittee must minimize the boiler's startup and shutdown periods following the manufacturer's recommended procedures, if available. If manufacturer's recommended procedures are not available, the Permittee must follow recommended procedures for a boiler of similar design for which manufacturer's recommended procedures are available.

7.10.6 Operational, Production and Emission Limitations

- a. Limitations for affected Power Boiler #1 from Permit 06070023:

Note: Permit 06070023 includes certain limitations that apply to the combination of affected power boiler #1 and BFG flare #2, which is a new flare that was also

constructed with the boiler. BFG flare #2 is generally addressed in Section 7.4 of this CAAPP permit.

- i. The maximum design firing rate of affected Power Boiler #1 shall not exceed 505 mmBtu/hour [T1].
- ii. The maximum design BFG input of affected Power Boiler #1 shall not exceed 476 mmBtu/hour [T1].
- iii. Fuel usage for affected Power Boiler #1 and BFG flare #2 (see Section 7.4) shall not exceed the following limits (rolling 12-month basis) [T1]:
 - A. Natural gas: 341,666 mmBtu/year.
 - B. BFG and natural gas fuel usage combined: 4,511,426 mmBtu/year.
- iv. Emissions of PM from affective Power Boiler #1, as measured by USEPA Method 5, shall not exceed 0.03 lb/mmBtu of exhaust [T1].
- v. A. Emissions from affective Power Boiler #1 shall not exceed the following limits [T1]:

Pollutant	Mode	
	BFG* (Lbs/mmBtu)	Natural Gas (Lbs/mmBtu)
NO _x	0.05	0.12
CO	0.15	0.0824
VOM	---	0.0054
PM/PM ₁₀	0.101	0.0075
SO ₂	0.20	0.0006
Indiv. Metal HAP	0.00066	0.00066
Total HAPs	0.0053	0.0053

* BFG mode entails firing a mix of BFG with up to 10 percent natural gas.

- B. Compliance with these limits shall be determined as a 3-hour average unless continuous emissions monitoring is conducted, in which compliance shall be determined as a daily average (24 operating hours).
- C. Combined emissions from affected Power Boiler #1 and BFG flare #2 (see Section 7.4) shall not exceed the following limits [T1]:

Pollutant	Emissions	
	Tons/Month	Tons/Year
NO _x	12.5	124.74
CO	33.9	338.36

Pollutant	Emissions	
	Tons/Month	Tons/Year
VOM	0.1	0.92
PM/PM ₁₀	22.9	228.39
SO ₂	45.2	451.14
Indiv. Metal HAP	0.2	1.5
Total HAPs	1.2	12.0

D. Compliance with annual limits in Condition 7.10.6(a) shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total), unless otherwise specified in a particular condition.

b. Limits for the affected Cooling Tower from Permit 06070023 [T1]:

- i. The total dissolved solids content of water circulating in the affected cooling tower shall not exceed 4,190 ppm on a monthly basis.
- ii. Emissions of PM/PM₁₀ from the affected cooling tower shall not exceed 0.39 tons/month and 3.86 tons/year. Compliance with the annual limit shall be determined from a running total of 12 months of data.

7.10.7-1 Current Testing Requirements

The Permittee shall conduct emission testing for the affected boilers as provided below pursuant to Sections 39.5(7)(c), (d) and (p) of the Act.

a. Requirements for affected Boilers #11 and #12:

- i. PM and CO emissions shall be measured to determine compliance with 35 IAC 212.458(b)(9) (Condition 7.10.3(c)) and 35 IAC 216.121 (Condition 7.10.3(f)) in accordance with procedures in USEPA Methods 1 through 4 and Method 5 (or Method 201A), as provided in 35 IAC 212.108, and Method 10 or 10B.
- ii. The testing shall be completed within 30 months of the effective date of this permit condition and may be done on either affected Boiler #11 or #12, as selected by the Illinois EPA.
- iii. In addition to other required information, the test report shall include data for the sulfur and PM content of BFG and COG during the period of testing, with supporting data.

b. Requirements for affected Power Boiler #1:

- i. Permittee shall conduct emission tests at least every five years on the affected Power Boiler #1.
- ii. CO, NO_x, SO₂, PM₁₀, PM and VOM emissions shall be determined in accordance with the test methods identified below.
- iii. These tests shall also include measurements of emissions of metals if the Permittee elects to conduct emissions testing to verify compliance with the limits for metal HAPs, as an alternative to applying data for the metal HAP content of material collected during pretreatment of the BFG.
- iv. The following USEPA test methods shall be used for testing of emissions, unless another USEPA method is approved by the Illinois EPA.

Location of Sample Points	Method 1
Gas Flow and Velocity	Method 2
Flue Gas Weight	Method 3
Moisture	Method 4
SO ₂	Method 6
PM/PM ₁₀ (filterable	Methods 201 or 201A*
PM (condensable)	Method 202
VOM	Method 18 or 25A
NO _x	Method 7E or 19
CO	Method 10 or 10B
Metals	Method 29

* The Permittee may also use Method 5 as an alternative to Method 201A, provided that the measured results shall be considered PM₁₀.

- v. In addition to other required information, the test report shall include data for the sulfur and PM content of BFG and the metals content of the material removed from raw BFG by the pretreatment system during the period of testing, with supporting calculations.
- c. For this emission testing, test notifications and reporting shall be done by the Permittee in accordance with Conditions 8.6.2 and 8.6.3 of this permit.
- d. Observation of opacity shall be conducted during all emission tests of affected boilers in accordance with Method 9 and the results of these observations included in the reports for emission testing.

7.10.7-2 Additional Performance Testing Requirements (40 CFR Part 63,
Subpart DDDDD)

- a. Pursuant to 40 CFR 63.7505(c) and 63.7510, if affected Boiler #11 or #12 is subject to emission limits in 40 CFR 63 Subpart DDDDD, the Permittee must demonstrate compliance with all limits that are applicable using performance testing according to 40 CFR 63.7(a)(2) and 63.7520 and fuel analysis according to 40 CFR 63.7521, including a continuous emissions monitoring system (CEMS) where applicable, in a timely manner. The Permittee may demonstrate compliance with the applicable emission limit for hydrogen chloride or mercury using fuel analysis if the emission rate calculated according to 40 CFR 63.7530(c) is less than the applicable emission limit. Otherwise, the Permittee must demonstrate compliance for hydrogen chloride or mercury using performance testing.
 - i. Pursuant to 40 CFR 63.7545(d), the Permittee must submit a Notification of Intent to conduct a performance test at least 60 days before the performance test is scheduled to begin.
 - ii. Pursuant to 40 CFR 63.7510(a), performance tests shall be conducted according to 40 CFR 63.7520(a), (c), (d) and (e) and Table 5 to 40 CFR 63, Subpart DDDDD fuel analysis for each type of fuel burned in the boiler shall be conducted according to 40 CFR 63.7521(a), (b) and (e) and Table 6 to 40 CFR 63, Subpart DDDDD, and performance evaluations for the oxygen monitor shall be conducted according to 40 CFR 63.7525.
- b. Pursuant to 40 CFR 63.7530(g), if the Permittee elects to demonstrate that the gaseous fuel fired in affected Boiler #11 or #12 meets the specifications of an "other gas 1 fuel" as defined in 40 CFR 63.7575, an initial fuel specification analyses according to 40 CFR 63.7521(f) through (i) must be conducted.
 - i. If the mercury and hydrogen sulfide constituents in the gaseous fuels will never exceed the specifications included in the definition, the Permittee shall include a signed certification with the Notification of Compliance Status that the initial fuel specification test meets the gas specifications outlined in the definition of other gas 1 fuels.
 - ii. Pursuant to 40 CFR 63.7540(c), if the Permittee elects to demonstrate that the unit meets the specifications for hydrogen sulfide and mercury for the other gas 1 subcategory and cannot submit a signed certification under 40 CFR 63.7545(g) because

the constituents could exceed or vary above the specifications, the Permittee must conduct monthly fuel specification testing of the gaseous fuels, according to the procedures in 40 CFR 63.7521(f) through (i) and 40 CFR 63.7540(c) and maintain records of the results of the testing as outlined in 40 CFR 63.7555(g).

7.10.8-1 Current Monitoring Requirements

Pursuant to 39.5(7)(a) and (d) of the Act, all affected boilers and the cooling tower are subject to the following monitoring requirements:

a. Opacity Observations

The Permittee shall conduct opacity observations for each affected boiler semi-annually in accordance with 40 CFR Part 60, Appendix A, Method 9. The duration of these observations shall be a minimum of 30 minutes for each boiler.

b. Cooling Tower

- i. The Permittee shall sample and analyze the water being circulated in the affected cooling tower on at least a monthly basis for the total dissolved solids content.
- ii. Upon written request by the Illinois EPA, the Permittee shall have the water circulating in the affected cooling tower sampled and analyzed for the presence of hexavalent chromium in accordance with the procedures of 40 CFR 63.404(a) and (b).

c. Analysis of BFG

- i. The Permittee shall sample and analyze cleaned BFG after the pretreatment system for sulfur content (lb/scf and lb/mmBtu), using appropriate ASTM methods or other comparable methodology. These measurements shall be conducted on at least a quarterly basis. The records for this activity shall also include operating data for the blast furnaces and the BFG pretreatment system at the time of sampling.
- ii. The Permittee shall sample and analyze the cleaned BFG after the pretreatment system for PM content (gr/scf and lbs/mmBtu) and the material collected by the BFG pretreatment system for HAP metal content (by weight, dry basis, for individual metals as addressed by Method 29) using appropriate ASTM methods or other comparable methodology. These measurements shall be conducted at least every two years. The records for

this activity shall also include operating data for the blast furnaces and the BFG pretreatment system at the time of sampling.

7.10.8-2 Additional Monitoring Requirements (40 CFR Part 63 Subpart DDDDD)

Unless an affected boiler is operating as a blast furnace gas fuel-fired boiler, as defined in 40 CFR 63.7575, or is otherwise exempt, beginning on the compliance date of this NESHAP for existing sources, the Permittee must:

- a. Install, operate, and maintain a continuous oxygen monitor according to the procedures in 40 CFR 63.7525 (a) (1) through (6) and 63.7535. The oxygen level shall be monitored at the outlet of the boilers [40 CFR 63.7525(a)].
- b. Monitor the operating parameters identified in Items 7, 8 and 9 of Table 8 of 40 CFR 63 Subpart DDDDD [40 CFR 63.7540(a)].
- c. Operation above the established maximum or below the established minimum operating limits shall constitute a deviation of established operating limits listed in Table 4 of 40 CFR 63 Subpart DDDDD except during performance tests conducted to determine compliance with the emission limits or to establish new operating limits. Operating limits must be confirmed or reestablished during performance tests [40 CFR 63.7540(a) (1)].

7.10.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items, pursuant to Sections 39.5(7) (a) and (e) of the Act:

- a. Affected Power Boiler #1:
 - i. A file which contains supporting documentation which demonstrates the maximum design firing rate of the affected boiler (mmBtu/hour), the maximum design BFG input, and the manufacturer's guarantees for the emission rates of the natural gas burners in the affected boiler.
 - ii. NSPS Data
 - A. The applicable recordkeeping required by the NSPS for startup, shutdown and malfunction, pursuant to 40 CFR 60.7(b).
 - B. Daily records of the fuel consumption, pursuant to 40 CFR 60.49b(d) (1).

iii. Fuel usage

- A. Records for the amounts of fuel burned by type (mmBtu/month and mmBtu/year) for the affected boiler.
- B. Records for the amounts of fuel burned for the affected boiler and the new BFG flare, combined, by type (mmBtu/month and mmBtu/year).

iv. Emissions

The Permittee shall keep the following records related to the emissions of affected Power Boiler #1 to verify compliance with the applicable limits in Condition 7.10.6(a):

- A. A file containing the emission factors used by the Permittee to determine emissions of pollutants other than SO₂ from the affected boiler and BFG Flare #2, with supporting documentation. These records shall be reviewed and updated by the Permittee as necessary to assure that the emission factors that it uses to determine emissions of the affected boiler do not understate actual emissions. These records shall be prepared and copies sent to the Illinois EPA in accordance with Condition 5.9.6(c).
- B. Records of emissions of NO_x, CO, VOM, PM/PM₁₀, SO₂ and HAPs (tons/month and tons/year) from this boiler, with supporting calculations.
- C. Records of summation of emissions of NO_x, CO, VOM, PM/PM₁₀, SO₂ and HAPs from this boiler and BFG Flare #2 (tons/month and tons/year), with supporting calculations.

- v. Records of the electricity from the generator associated with Power Boiler #1 sent to the grid for sale per calendar year (MW-hours).

b. Affected Cooling Tower:

- i. The Permittee shall keep records of the water circulation capacity of the cooling tower (gallons/minute, hourly average), with supporting calculations.
- ii. The Permittee shall keep records of emissions of PM/PM₁₀ (tons/month and tons/year), with supporting calculations.

c. Affected Boilers #11 and #12:

i. The following operating information for each boiler:

Usage of each type of fuel (natural gas, COG and BFG gas), in million ft³ per month and million ft³ per year.

ii. The Permittee shall keep inspection, maintenance, and repair logs with dates and the nature of such activities for each boiler.

iii. A file containing the emission factors used by the Permittee to determine emissions of NO_x and CO from affected Boilers #11 and #12, with supporting documentation. These records shall be reviewed and updated by the Permittee as necessary to assure that the emission factors that it uses to determine NO_x and CO emissions of these boilers do not understate actual emissions.

d. Records for Startups of Affected Boilers, pursuant to Section 39.5(7)(b) of the Act

i. The Permittee shall maintain startup procedures for each affected boiler, as required by Condition 7.10.3(i)(ii).

ii. The Permittee shall maintain the following records for each startup of an affected boiler:

A. Date, time and duration of the startup.

B. A description of the startup and reason(s) for the startup.

C. Whether a violation of an applicable standard may have occurred during startup accompanied by the information in Condition 7.10.9(d)(iv) if a violation may have or did occur.

D. Whether the established startup procedures, maintained above, were followed accompanied by the information in Condition 7.10.9(d)(iii) if there were departure(s) from those procedures.

iii. If the established startup procedures were not followed during a startup, the Permittee shall maintain the following records:

A. A description of the departure(s) from the established procedures.

- B. The reason(s) for the departure(s) from the established procedures.
- C. An explanation of the consequences of the departure(s) for emissions, such as whether the departure(s) prolonged the startup or resulted in additional emissions, and if so:
 - 1. The actions taken to minimize emissions and the duration of the startup; and
 - 2. An explanation whether similar incidents might be prevented in the future and if so, the corrective actions taken or to be taken to prevent similar incidents.
- iv. If a violation did or may have occurred during a startup, the Permittee shall maintain the following records:
 - A. Identification of the applicable standard(s) that were or may have been violated.
 - B. An explanation of the nature of such violation(s), including the magnitude of such excess emissions.
 - C. A description of the actions taken or to be taken to minimize the magnitude of emissions and duration of the startup.
 - D. An explanation whether similar incidents could be prevented or ameliorated in the future and if so, a description of the actions taken or to be taken to prevent similar incidents in the future.
- e. Records for Malfunctions or Breakdowns

Pursuant to 35 IAC 201.263, the Permittee shall maintain records of continued operation of the affected boilers as addressed by Condition 7.10.3(j), during malfunctions or breakdowns, which at a minimum, shall include the following records. The preparation of these records shall be completed within 45 days of an incident, unless the Permittee conducts a root cause analysis for the incident, in which case the preparation of these records, other than the root cause analysis, shall be completed within 120 days of the incident.

 - i. Date, time and duration of the incident.
 - ii. A detailed description of the incident, including:

- A. A chronology of significant events during and leading up to the incident.
 - B. Relevant operating data for the unit, including information such as operator log entries and directives provided by management during the incident.
 - C. The measures taken to reduce the quantity of emissions and the duration of the incident including the resources utilized to address the incident.
 - D. The magnitude of emissions during the incident.
- iii. An explanation why continued operation of an affected boiler was necessary to prevent personnel injury or prevent equipment damage.
- iv. A discussion of the cause(s) or probable cause(s) of the incident including the following:
- A. Whether the incident was sudden, unavoidable, or preventable, including:
 - 1. Why the equipment design did not prevent the incident;
 - 2. Why better maintenance could not have avoided the incident;
 - 3. Why better operating practices could not have avoided the incident; and
 - 4. Why there was no advance indication for the incident.
 - B. Whether the incident stemmed from any activity or event that could have been foreseen, avoided or planned for.
 - C. Whether the incident was or is part of a recurring pattern indicative of inadequate design, operation or maintenance.
- v. A description of any steps taken or to be taken to prevent similar future incidents or reduce their frequency and severity.
- vi. As an alternative to keeping the records required by Condition 7.10.9(e)(iv), the Permittee may perform a root cause analysis. For this purpose, a root cause analysis is an analysis whose purpose is to determine, correct and eliminate the primary causes

of the incident and the excess emissions resulting there from. If the Permittee performs a root cause analysis method that would define the problem, define all causal relationships, provide a causal path to the root cause, delineate the evidence, and provide solutions to prevent a recurrence. Such an analysis shall be completed within one year of the incident.

- f. Records for the emission testing conducted on the affected boilers.
- g. If the Permittee operates under manufacturer's specifications or manufacturer's instructions, such manufacturer's documentation shall be kept at the source as part of the required records.
- h. Unless an affected boiler is operating as a blast furnace gas fuel-fired boiler, as defined in 40 CFR 63.7575, or is otherwise exempt, beginning on the compliance date of this NESHAP for existing sources, the Permittee must keep records in accordance with 40 CFR 63.7555(a) through (h) as applicable.

7.10.10 Reporting Requirements

- a. i. The Permittee shall promptly notify the Illinois EPA, Air Compliance Section, within 30 days of deviations of the affected boilers and affected cooling tower from the following applicable requirements unless a NESHAP standard specifies a different time frame, pursuant to Section 39.5(7)(f)(ii) of the Act:
 - A. Requirements in Condition 7.10.3(b), (d) and (e) through (h).
 - B. Requirements in Condition 7.10.5.
 - C. Requirements in Condition 7.10.6.
- ii. All such deviations shall be summarized and reported as part of the semiannual monitoring report required by Condition 8.6.1.
- b. The Permittee shall notify the Illinois EPA, Air Compliance Section, of all other deviations as part of the semiannual monitoring reports required by Condition 8.6.1.
- c. All deviation reports described in Condition 7.10.10(a) and (b) above shall contain the following:
 - i. Date, time and duration of the deviation;
 - ii. Description of the deviation;

- iii. Probable cause of the deviation; and
- iv. Any corrective actions or preventive measures taken.
- d. Reporting on the State malfunction and breakdown authorization shall be performed in accordance with Condition 5.10.5-2.
- e. For affected Power Boiler #1, the Permittee shall comply with the applicable reporting requirements of the NSPS, as specified in 40 CFR 60.7 and 60.49b.
- f. Unless an affected boiler is operating as a blast furnace gas fuel-fired boiler, as defined in 40 CFR 63.7575, or is otherwise exempt, beginning on the compliance date of this NESHAP for existing sources, the Permittee must report each instance in which it did not meet each emission limit and operating limit in Tables 1 through 4 to 40 CFR 63 Subpart DDDDD that are applicable. These instances are deviations from the established emission limits. These deviations must be reported according to the requirements in 40 CFR 63.7550.
- g. Reporting on the State startup authorization shall be performed in accordance with Condition 5.10.5-1.
- h. Reporting on the Federal SSM authorization shall be performed in accordance with Condition 5.10.5-3.

7.10.11 Compliance Procedures

For affected boilers, compliance with the applicable standards of Condition 7.10.3, the work practice requirements of Condition 7.10.5-1, and the production/operating and the emission limits of Condition 7.10.6 is addressed by the work practices, testing, monitoring, recordkeeping and reporting requirements in Section 7.10 of this permit.

7.10.12 State-Only Conditions

- a. Applicable requirements for affected Boilers #11 and #12 from Permit 10080022:
 - i. Pursuant to 35 IAC 217.150, 217.152, and 217.160, by the applicable compliance date for 35 IAC Part 217 Subparts D and E, the Permittee shall comply with applicable requirements of these rules for the affected boilers, including:
 - A. Compliance with the applicable NO_x emissions limitation in lb/mmBtu, calculated in accordance with 35 IAC 217.164(b), on an ozone season (May 1 through September 30) and annual basis [35 IAC 217.164(b)].

- B. Operation of each affected boiler in a manner consistent with good air pollution control practices to minimize NO_x emissions [35 IAC 217.150(e)].
- C. Certifying to the Illinois EPA that the affected boilers will be in compliance with the applicable emissions limitation of 35 IAC 217.164 by the applicable compliance date [35 IAC 217.152 and 217.155(b)].
- D. Installation, operation and maintenance of a Continuous Emissions Monitoring System (CEMS) on each affected boiler to measure emissions of NO_x, with accompanying recordkeeping and reporting for the operation and maintenance of each CEMS [35 IAC 217.157(a)(2) and 217.156(b)(9), (b)(10) and (j)].

ii. Recordkeeping Requirements [39.5(7)(e) of the Act]

Beginning on the compliance date of 35 IAC 217 Subparts D and E, the Permittee shall keep the following records for each Boiler #11 and #12:

- A. Usage of each type of fuel (natural gas, coke oven gas and blast furnace gas), in million ft³ per month and million ft³ per year.
- B. The actual heat input in mmBtu per ozone season and mmBtu per year, for each fuel, with supporting documentation for the heat content of each fuel.
- C. The applicable NO_x emission limitation in lb/mmBtu for each ozone season and each calendar year, calculated in accordance with 35 IAC 217.164(b).
- D. The average hourly NO_x emission data.
- E. The ozone season and annual NO_x emissions (pounds).
- F. The ozone season average and annual average NO_x emission rates (lbs/mmBtu heat input) calculated within 30 days of the end of the averaging periods (i.e. calculated by October 30 for ozone season averaging period and by January 30 for annual averaging period).

- G. Inspection, maintenance, and repair logs with dates and the nature of such activities for each affected boiler.

iii. Reporting Requirements [39.5(7)(f) of the Act]

If there is any deviation of the requirements of Condition 7.10.12, the Permittee shall promptly report to the Illinois EPA as specified below and report shall include a description of the deviation, the probable cause of the deviation, corrective actions taken, and any preventive measures taken:

- A. Deviations from the NO_x emission limitation in 35 IAC 217.164(b) shall be reported within 30 days of such occurrence.
- B. Other deviations shall be reported in a semi-annual report.

7.10.13 Construction Permit Conditions for Equipment that is not yet built

Applicable requirements for portable Boilers #1 through #4 from Permit 10100042:

- a. Pursuant to the NSPS, 40 CFR 60.11(d), at all times the Permittee shall, to the extent practicable, maintain and operate each portable boiler in a manner consistent with good air pollution control practices for minimizing emissions.
- b. Pursuant to 35 IAC 216.121, the emission of carbon monoxide (CO) from each portable boiler shall not exceed 200 ppm, corrected to 50 percent excess air.
- c. Pursuant to 35 IAC 212.123(a), the opacity of the exhaust from each portable boiler shall not exceed 30 percent, except as provided in 35 IAC 212.123(b).
- d. This permit is issued based on the emissions of HAPs as listed in Section 112(b) of the Clean Air Act from the affected boilers being less than 10 tons per year of a single HAP and 25 tons per year of any combinations of such HAPs, so that these boilers are considered a minor source for HAPs.
- e. This permit is issued based on the portable boilers not being subject to the control requirements of 35 IAC 217, Subparts D and E, which establish requirements that reflect Reasonably Available Control Technology (RACT) for boilers related to emission of nitrogen oxide (NO_x). This is because the NO_x emissions from each portable boiler are restricted to less than 15 tons per year and to less than 5

tons per ozone season, pursuant to 35 IAC 217.150(a), as addressed further.

- f. Natural gas shall be the only fuel fired in the portable boilers.
- g. The maximum design heat input capacity of each portable boiler, as defined by the NSPS, 40 CFR 60.41c, shall not exceed 100 mmBtu/hour.

Note: If a portable boiler were to have a heat input capacity of greater than 100 mmBtu/hr, it would be subject to the NSPS, 40 CFR 60 Subpart Db, rather than Subpart Dc.

- h.
 - i. The total consumption of natural gas by the portable boilers shall not exceed 1,738 million scf per year, combined.
 - ii. Beginning Calendar year 2012 or such later date, the natural gas usage by each portable boiler shall not exceed 812 million scf per year and 267 million scf during each ozone season (May 1 through September 30).
- i. The portable boilers shall only be used to address interruptions in the normal steam supply to the Granite City Works. For this purpose, the portable boilers and existing boilers may operate simultaneously, as may be needed to ensure availability of the portable boilers and facilitate transitions between existing boilers and the portable boilers.
- j.
 - i. Short-term emissions from each portable boiler shall not exceed 0.036 lb of NO_x/mmBtu and 3.6 and 3.8 lbs/hour, for NO_x and CO, respectively.
 - ii. Annual emissions from the portable boilers, combined shall not exceed the following limits. These limits are established based on total fuel usage of 1,738 million scf per year. Compliance with these limitations and the annual fuel consumption limit shall be determined from a running total of 12 months of data.

Pollutant	Emission Limit (ton/year)
NO _x	31.9
CO	33.2
VOM	3.5
PM/PM ₁₀ /PM _{2.5}	1.1
SO ₂	1.3
Individual HAP ¹	1.8
Total HAP	3.5

Individual HAP refers to individual pollutants, such as Formaldehyde, Benzene, Toluene, Hexane, etc.

- k. Beginning Calendar Year 2012, the NO_x emissions of each portable boiler shall be less than the applicability thresholds of 35 IAC 217, Subparts D and E, i.e., less than 15 tons per year and less than 5 tons during each ozone season.
- l. The Permittee shall operate and maintain the portable boilers in accordance with good air pollution control practices to assure proper functioning of equipment and minimize malfunctions, including maintaining the boiler in accordance with written procedures developed for this purpose.
- m. Within 90 days after a written request from the Illinois EPA or such later date agreed to by the Illinois EPA, the Permittee shall have NO_x and CO emissions of portable boiler(s), as specified in the request, measured by an independent testing service approved by the Illinois EPA.
- n. The Permittee shall maintain the following records for the portable boilers:
 - i. A file containing the following information:
 - A. The maximum design heat input capacity of each portable boiler, mmBtu/hour, with supporting documentation.
 - B. The maximum fuel flow rate to each portable boiler, in scf/hour and mmBtu/hour, with supporting documentation.
 - C. The guarantee or other information for the NO_x and CO emission rates of each portable boiler, in lb/hour and in lb/mmBtu (NO_x only), with supporting documentation.
 - ii. An operating log or other records for the portable boilers that, at a minimum, shall include the following information:
 - A. Information identifying each period when portable boiler(s) are operated, with the explanation why the boiler(s) need to be operated to maintain the normal steam supply for the source.
 - B. If the maximum design heat input capacity of the portable boiler is more than 95 mmBtu/hour, operating records to demonstrate that the

boiler is not fired at more than 100 mmBtu/hour.

- C. Information for each startup and shutdown, including date, time and duration, as required by 40 CFR 60.7(b).
 - D. Information for any incident in which the operation of each portable boiler continued during malfunction or breakdown, as required by 40 CFR 60.7(b). These records shall include date, time, and duration; a description of the incident; whether emissions exceeded or may have exceeded any applicable standard; a description of the corrective actions taken to reduce emissions and the duration of the incident; and a description of the preventative actions taken.
- iii. An inspection, maintenance, and repair log with dates and the nature of such activities for the portable boilers.
 - iv. The following records for the natural gas usage of the portable boilers:
 - A. Natural gas usage of each boiler, pursuant to 40 CFR 60.48c(g) (scf/month).
 - B. Total natural gas usage of the boilers (scf/year).
 - v. Records of the monthly and annual emissions of NO_x, CO, PM/PM₁₀/PM_{2.5}, VOM, SO₂, and HAPs from the boilers (tons/month and tons/year), with supporting data and calculations.
 - vi. Beginning Calendar year 2012, records of NO_x emissions for each portable boiler for the calendar year (ton/year) and for the ozone season (ton/season).
- o. Pursuant to 40 CFR 60.7(a)(3) and 60.48c(a), the Permittee shall furnish the Illinois EPA with written notification of initial startup of each portable boiler. This notification shall be submitted within 15 days after the initial startup of the portable boiler, postmarked by such date, and include the following information. For this purpose, a separate notification shall be provided each time that portable boiler(s) are installed at the Granite City Works.
 - i. The design heat input capacity of the boiler and identification of the fuels to be combusted in the boiler, pursuant to 40 CFR 60.48c(a)(1).

- ii. The annual capacity factor at which the Permittee anticipates operating the boiler based on fuel fired, pursuant to 40 CFR 60.48c(a)(3).
- iii. With the notification required from above, the Permittee shall also provide the manufacturer and serial number of portable boiler(s).
- p. The Permittee shall notify the Illinois EPA of deviations of the portable boilers with the requirements of Condition 7.10.13 within 30 days of an occurrence. Reports shall describe the deviation, the probable cause of such deviations, the corrective actions taken, and any preventive measures taken.

7.11 Internal Combustion Engine

7.11.1 Description

A diesel fuel fired emergency engine-generator is used for power outages at the facility.

Note: This narrative description is for informational purposes only and is not enforceable.

7.11.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Date Constructed	Emission Control Equipment
Engine	Emergency Engine-Generator (maximum power output 3,500 HP)	2001	None

7.11.3 Applicable Provisions and Regulations

- a. The "affected engine" for the purpose of these unit-specific conditions, is the emission unit described in Conditions 7.11.1 and 7.11.2.
- b. The affected engine is subject to 35 IAC 212.458(b) (7) and (c), which provides that its PM₁₀ emissions shall not exceed 22.9 mg/scm (0.01 gr/scf), provided however that this limit shall not apply if there are no visible emissions, except if a stack test is performed. The absence of visible emissions is not a defense to a finding violation.
- c. The affected engine is subject to 35 IAC 212.123(a), which provides that no person shall cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from any emission unit other than those emission units subject to the requirements of 35 IAC 212.122, except as allowed by 35 IAC 212.123(b) and 212.124.
- d. The affected engine is subject to 35 IAC 214.301 and 35 IAC 214.304/214.122, which provides that no person shall cause or allow the emission of sulfur dioxide into the atmosphere from any process emission source to exceed 2000 ppm and from any fuel burning process emission unit burning distillate oil to exceed 0.3 lbs/mmBtu.

7.11.4 Non-Applicability of Regulations of Concern

- a. The affected engine is not subject to 40 CFR Part 63 Subpart ZZZZ because it is not a spark ignition engine.
- b. The affected engine is not subject to 40 CFR Part 60 Subpart IIII, because the affected engine was manufactured

before 2006 and was not modified or reconstructed thereafter, so does not meet applicable criteria in 40 CFR 60.4200(a).

- c. The affected engine is not subject to 35 IAC Part 217, because the affected engine is not a type of process emission unit addressed by Part 217.
- d. The affected engine is not subject to the requirements of 35 IAC 212.321 because it does not have a process weight rate as defined in 35 IAC 211.5250.
- e. The affected engine is not subject to 35 IAC 216.121, because the affected engine is not by definition a fuel combustion emission unit.
- f. 35 IAC 212.324 is not applicable to the affected engine pursuant to 35 IAC 212.324(a)(3), because the affected engine is subject to 35 IAC 212.458(b)(7), an emission limitation in 35 IAC Part 212, Subpart R.

7.11.5 Control Requirements and Work Practices

The operation of the emergency generator is limited to 500 hours per year [00060003, T1].

7.11.6 Production and Emission Limitations from Permit 00060003 [T1]

- a. Emissions of the affected engine shall not exceed the following limits:

Pollutant	Emissions (lbs/hr)	Emissions (T/yr)
PM	2.48*	0.62
CO	21.11*	5.3
NO _x	79.49*	19.9
SO ₂	12.54	3.1

- * Operation at a level of 10 percent higher than the applicable hourly emissions limits above is allowed during startup.

- b. Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total) [T1].

7.11.7 Testing Requirements

Upon the written request from the Illinois EPA, the emission tests shall be conducted by the Permittee for the affected engine to verify compliance with emission limits in Condition 7.11.6 as follows [Sections 39.5(7)(c), (d) and (p) of the Act].

- a. The following USEPA test methods shall be used, unless another USEPA method is approved by the Illinois EPA.

Location of Sample Points	Method 1
Gas Flow and Velocity	Method 2
Flue Gas Weight	Method 3
Moisture	Method 4
PM	Method 5
NO _x	Method 7E or 19
CO	Method 10 or 10B

- b. Observations of opacity shall be conducted during these emission tests in accordance with Method 9 and the results of these observations included in the reports for emission testing.
- c. For this emission testing, test notifications and reporting shall be done by the Permittee in accordance with Conditions 8.6.2 and 8.6.3 of this permit.

7.11.8 Monitoring Requirements

- a. The Permittee shall perform annual sampling and analysis for sulfur content (lbs/mmBtu) in the fuel for the affected engine or obtain a certification for each fuel supplied delivery for the affected engine [Section 39.5(7)(d) of the Act].
- b. The Permittee shall conduct opacity observations for the affected engine in accordance with Method 9 on an annual basis if the affected engine starts for purposes of reliability testing. The duration of Method 9 test shall be equal to 30 minutes or the duration of the reliability test, whichever is less [Section 39.5(7)(p) of the Act].

7.11.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items for the affected engine, pursuant to Sections 39.5(7)(a) and (e) of the Act:

- a. A file for the affected engine containing:
- The manufacturer's emission guarantees or emission data for the engine, for PM, CO and NO_x, both during normal operation and startup (lbs/hour and lbs/gallon) and manufacturer's data for fuel consumption and exhaust flow rate from the engine, with supporting documentation.
 - Engineering calculations to demonstrate that PM emissions comply with 35 IAC 212.458(b)(7) and to determine the greatest sulfur content (lbs/mmBtu) in

fuel with which compliance with 35 IAC 214.301 and 35 IAC 214.304/214.122 would be shown.

- iii. The emission rate(s) used by the Permittee to determine emissions of the affected engine when these rates are different from the manufacturer's rates, accompanied by supporting documentation. Copies of these records shall be submitted to the Illinois EPA, with initial records submitted within 15 days of the date that the records are prepared or 30 days after the effective date of this permit, whichever is later and subsequent revisions to these records submitted within 15 days of the date that the Permittee completes preparation of revised records.
- b. Records of fuel consumption (gal/month and gal/year).
- c. Records of hours of operation (hrs/yr).
- d. Records for number of startups.
- e. Records for the sulfur content (lbs/mmBtu) of fuel as determined by sampling and analyses of fuel or copies of supplier certifications for sulfur content of fuel and identification of any use of oil whose sulfur content exceeded the level for compliance, as determined pursuant to Condition 7.11.9(a)(ii).
- f. Records of emissions of PM, CO, NO_x and SO₂ (tons/month and tons/year) from the engine with supporting calculations. For this purpose, PM, CO and NO_x emissions shall be calculated from fuel usage and number of startups and the manufacturer's emission guarantees for emission rates or such higher emission rate(s) that accurately reflect actual operation of the engine. SO₂ emissions shall be calculated from the sulfur content of the fuel and fuel usage, assuming complete conversion of sulfur to SO₂.
- g. Records for stack tests and opacity observations.

7.11.10 Reporting Requirements

- a. i. Pursuant to Section 39.5(7)(f)(ii) of the Act, the Permittee shall promptly notify the Illinois EPA, Air Compliance Section, within 30 days of deviations by the affected engine as follows:
 - A. Requirements in Condition 7.11.3(b), (c) and (d).
 - B. Requirements in Condition 7.11.5.
 - C. Requirements in Condition 7.11.6.

- ii. All such deviations shall be summarized and reported as part of the semiannual monitoring report required by Condition 8.6.1.
- b. The Permittee shall notify the Illinois EPA, Air Compliance Section, of all other deviations as part of the semiannual monitoring reports required by Condition 8.6.1.
- c. All deviation reports described in Condition 7.11.10 above shall contain the following:
 - i. Date, time and duration of the deviation;
 - ii. Description of the deviation;
 - iii. Probable cause of the deviation; and
 - iv. Any corrective action or preventive measures taken.

7.11.11 Operational Flexibility/Anticipated Operating Scenarios

Operational flexibility is not set for the affected engine.

7.11.12 Compliance Procedures

For the affected engine, compliance with the applicable standards of Condition 7.11.3, the control/work practice requirements of Condition 7.11.5, and the production/emission limits of Condition 7.11.6 is addressed by testing, monitoring, recordkeeping and reporting requirements in Section 7.11 of this permit.

7.11.13 State-Only Conditions

State-only conditions are not being established.

7.12 Gasoline Storage and Dispensing

7.12.1 Description

Gasoline storage and dispensing is conducted for the Permittee's fleet of gasoline fueled vehicles. There are several such stations at the facility, so that fleet vehicles do not have to travel on public roads to reach the fueling stations.

Note: This narrative description is for informational purposes only and is not enforceable.

7.12.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Date Constructed	Emission Control Equipment
Gasoline Storage	Four storage tanks located at: Storeroom (1,000 gallons capacity); Machine Shop (1,000 gallons capacity); Wastewater Facility (250 gallons capacity); Blast Furnace Facility (1,000 gallons capacity)	N/A	Control Practices: Submerged loading pipe (all tanks) and Stage I system (tanks with 1,000 gallons capacity)

7.12.3 Applicable Provisions and Regulations

- a. The "affected gasoline storage tanks", for the purpose of these unit-specific conditions are the tanks described in Conditions 7.12.1 and 7.12.2 above.
- b. The affected gasoline storage tank at the wastewater facility is subject to the following:

No person shall cause or allow the loading of any organic material into any stationary tank having a storage capacity of greater than 946 l (250 gal), unless such tank is equipped with a permanent submerged loading pipe [35 IAC 219.122(b)].

- c. Pursuant to 35 IAC 219.583(c)(1), the affected gasoline storage tanks at the storeroom, machine shop and blast furnace facility are subject to the following requirements of 35 IAC 219.583(a): No person shall cause or allow the transfer of gasoline from any delivery vessel into any stationary storage tank at a gasoline dispensing facility unless:

- i. The tank is equipped with a submerged loading pipe [35 IAC 219.583(a)(1)].
 - ii. The vapors displaced from the storage tank during filling are processed by a vapor control system [35 IAC 219.583(a)(2)].
 - iii. All tank vent pipes are equipped with pressure/vacuum relief valves that are designed and shall be set to resist a pressure of at least 3.5 inches water column and to resist a vacuum of no less than 6.0 inches water column [35 IAC 219.583(a)(3)].
- d. Pursuant to 35 IAC 219.585(a), all the affected gasoline storage tanks are subject to the following: No person shall sell, offer for sale, dispense, supply, offer for supply, or transport for use in Illinois gasoline whose Reid vapor pressure exceeds the applicable limitations set forth below during the regulatory control periods, which shall be June 1 to September 15.
- i. The Reid vapor pressure of gasoline, a measure of its volatility, shall not exceed 7.2 psi (9.68 kPa) during the regulatory control period [35 IAC 219.585(b)].
 - ii. The Reid vapor pressure of ethanol blend gasolines having at least nine percent (9%) but not more than ten percent (10%) ethyl alcohol by volume of the blended mixture, shall not exceed the limitations for gasoline set forth in Condition 7.12.2(d)(i) above by more than 1.0 psi (6.9 kPa) [35 IAC 219.585(c)].

7.12.4 Non-Applicability of Regulations of Concern

- a. This permit is issued based on the affected gasoline storage tank not being subject to the NSPS for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels), 40 CFR Part 60, Subpart Kb, because each tank is less than 40 cubic meters (10,566 gallons).
- b. This permit is issued based on the affected gasoline storage tanks not being subject to 35 IAC 219.121, because each affected tank is less than 40,000 gallons [35 IAC 219.121].
- c. This permit is issued based on the affected gasoline storage tanks not being subject to 35 IAC 219.122(a), because each affected tank is less than 40,000 gallons [35 IAC 219.122].
- d. The affected gasoline storage tanks are not subject to 35 IAC 219.301 because the affected gasoline storage tanks do not use organic material. In addition, the storage tanks

are regulated by 35 IAC 219.122(b) and 35 IAC 219.583(c) (1).

- e. The affected gasoline storage and dispensing operations are not part of a bulk gasoline plant (35 IAC 219.581) or bulk gasoline terminals (35 IAC 219.582) pursuant to relevant definitions in 35 IAC Part 211.
- f. This permit is issued based on the gasoline storage and dispensing operations performed at wastewater facility not being subject to 35 IAC 219.583(a) (2) and (a) (3) pursuant to 35 IAC 219.583(b) (3), because the tank capacity is less than 575 gallons.
- g. The affected gasoline storage tanks are not eligible for the exemption from the permitting in 35 IAC 219.583(e) because they are not located at retail dispensing operations, as defined at 35 IAC 211.5630.

7.12.5 Control Requirements and Work Practices

The affected gasoline storage tanks (other than the affected gasoline storage tank at the wastewater facility) are subject to the following control requirements and work practices:

- a. Pursuant to 35 IAC 219.583(c), each owner of a gasoline dispensing operation shall:
 - i. Install all control systems and make all process modifications required by Condition 7.12.3(c) (see also 35 IAC 219.583(a)) [35 IAC 219.583(c) (1)];
 - ii. Provide instructions to the operator of the gasoline dispensing operation describing necessary maintenance operations and procedures for prompt notification of the owner in case of any malfunction of a vapor control system [35 IAC 219.583(c) (2)]; and
 - iii. Repair, replace or modify any worn out or malfunctioning component or element of design [35 IAC 219.583(c) (3)].
- b. Pursuant to 35 IAC 219.583(d), each operator of a gasoline dispensing operation shall:
 - i. Maintain and operate each vapor control system in accordance with the owner's instructions [35 IAC 219.583(d) (1)];
 - ii. Promptly notify the owner of any scheduled maintenance or malfunction requiring replacement or repair of a major component of a vapor control system [35 IAC 219.583(d) (2)];

- iii. Maintain gauges, meters or other specified testing devices in proper working order [35 IAC 219.583(d)(3)]; and
 - iv. Pursuant to 35 IAC 219.583(d)(4), operate the vapor collection system and delivery vessel unloading points in a manner that prevents:
 - A. A reading equal to or greater than 100 percent of the lower explosive limit (LEL measured as propane) when tested in accordance with the procedure described in EPA 450/2-78-051 Appendix B [35 IAC 219.583(d)(4)(A)]; and
 - B. Avoidable leaks of liquid during the filling of storage tanks [35 IAC 214.583(d)(4)(B)].
 - v. Within 15 business days after discovery of the leak by the owner, operator, or the Agency, repair and retest a vapor collection system which exceeds the limits of Condition 7.12.5(iv) above [35 IAC 219.583(d)(5)].
- c. Pursuant to 35 IAC 219.584(a), the Permittee shall ensure that each gasoline delivery vessel that comes on to the property to fill the affected gasoline storage tanks at the storeroom, machine shop, or blast furnace facility are complying with the following:
- i. Shall have a vapor space connection that is equipped with fittings which are vapor tight;
 - ii. Shall have its hatches closed at all times during unloading operations, unless a top loading vapor recovery system is used;
 - iii. Shall not internally exceed a gauge pressure of 18 inches of water or a vacuum of 6 inches of water;
 - iv. Shall be designed and maintained to be vapor tight at all times during normal operations;
 - v. Shall not be refilled in Illinois at other than a bulk gasoline terminal that complies with the requirements of 35 IAC 219.582 or a bulk gasoline plant that complies with the requirements of 35 IAC 219.581(b).
 - vi. Shall have a sticker affixed to the tank adjacent to the tank manufacturer's data plate which contains the tester's name, the tank identification number and the date of the test. The sticker shall be in a form prescribed by the Illinois EPA.

7.12.6 Production and Emission Limitations

Production and emission limitations are not set for the affected gasoline storage tanks.

7.12.7 Testing Requirements

- a. Pursuant to 35 219.583(a)(4), the Permittee shall demonstrate compliance with the pressure/vacuum relief valves specifications of Condition 7.12.3(c)(iii) at a gasoline dispensing operation by measuring and recording the pressure indicated by a pressure/vacuum gauge at each tank vent pipe 30 days after installation of each pressure/vacuum relief valve, and at least annually thereafter. The test shall be performed on each tank vent pipe within two hours after product delivery into the respective storage tank. For manifold tank vent systems, observations at any point within the system shall be adequate.
- b. The Permittee shall test the relief valves whenever there is a modification of an existing vapor control system [39.5(7)(d) and (p) of the Act].

7.12.8 Monitoring Requirements

The Permittee shall perform the following monitoring pursuant to Sections 39.5(7)(a) and (d) of the Act.

- a. The Permittee shall perform semi-annual inspections of the gasoline storage and dispensing operations at the storeroom, machine shop and blast furnace while the tank is being filled.
 - i. Retractors, hoses, breakaways, swivels
 - ii. Adapters, vapor caps, rubber gaskets, and spill containment buckets
- b. The Permittee shall perform an annual inspection of the gasoline storage tank at wastewater facility and dispensing operation to ensure that a submerged loading pipe is physically present and the condition of the pipe for integrity.

7.12.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items for the affected gasoline storage tanks, pursuant to Sections 39.5(7)(a) and (e) of the Act:

- a. Records of the testing and repair of the vapor collection system and pressure/vacuum relief valves, pursuant to Condition 7.12.7.

- b. Records of gasoline throughput (gallons per month and gallons per year).
- c. For the affected gasoline storage tanks during the regulatory control period, the Permittee shall keep the following records:
 - i. Retain a copy of an invoice, bill of lading, or other documentation used in normal business practice stating that the Reid vapor pressure of the gasoline complies with the Reid vapor pressure standard as provided in 35 IAC 219.585(h) (1) (A);
 - ii. Maintain records on the Reid vapor pressure, quantity received and date of delivery of any gasoline or ethanol blends arriving at the gasoline operation [35 IAC 219.585(h) (2)].
- d. Copies of the annual certification(s) from the supplier of gasoline that all the delivery vessels have been tested and are in compliance with the requirements of Condition 7.12.5(c).
- e. A copy of operating and maintenance procedures and instructions for the tanks and vapor control systems.
- f. Records for all inspections.

7.12.10 Reporting Requirements

- a. i. Pursuant to Section 39.5(7)(f)(ii) of the Act, the Permittee shall promptly notify the Illinois EPA, Air Compliance Section, within 30 days of deviations by the affected gasoline storage tanks from applicable requirements, as follows:
 - A. Requirements in Condition 7.12.3(b) through (d).
 - B. Requirements in Condition 7.12.5(a) and (b).
- ii. All such deviations shall be summarized and reported as part of the semiannual monitoring report required by Condition 8.6.1.
- b. The Permittee shall notify the Illinois EPA, Air Compliance Section, of all other deviations as part of the semiannual monitoring reports required by Condition 8.6.1.
- c. All deviation reports described in Condition 7.12.10 above shall contain the following:
 - i. Date, time and duration of the deviation;

- ii. Description of the deviation;
- iii. Probable cause of the deviation; and
- iv. Any corrective action or preventive measures taken.

7.12.11 Operational Flexibility/Anticipated Operating Scenarios

Operational flexibility is not set for the affected gasoline storage tanks.

7.12.12 Compliance Procedures

For the affected gasoline storage tanks, compliance with the applicable standards of Condition 7.12.3 is addressed by the work practices, testing, monitoring, recordkeeping and reporting requirements described in Section 7.12 of this permit.

7.12.13 State-Only Conditions

State-only conditions are not being established.

7.13 Fugitive Dust

7.13.1 Description

Fugitive dust is emitted from vehicle traffic, unloading operations, wind erosion of piles, roadways, parking lots and other open areas at the facility. The source also emits fugitive dust from an on-site landfill for furnace dusts and other industrial wastes.

Note: This narrative description is for informational purposes only and is not enforceable.

7.13.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Date Constructed	Emission Control Equipment
Fugitive Emissions	Landfill Vehicular Traffic on Roadways, Parking Lots and Other Open Areas Unloading Operations Storage Piles and associated activities Beaching Areas	N/A	N/A

7.13.3 Applicable Provisions and Regulations

- a. The "affected activities" for the purpose of these unit-specific conditions, are the activities described in Conditions 7.13.1 and 7.13.2 above.
- b. The affected activities are subject to 35 IAC 212.306 which provides that all normal traffic pattern roads and parking facilities which are located on mining or manufacturing property shall be paved or treated with water, oils or chemical dust suppressants. All paved areas shall be cleaned on a regular basis. All areas treated with water, oils or chemical dust suppressants shall have the treatment applied on a regular basis, as needed, in accordance with the operating program required by 35 IAC 212.309, 212.310 and 212.312.
- c. All storage piles of materials with uncontrolled emissions of fugitive particulate matter in excess of 45.4 Mg per year (50 T/yr) which are located within a source whose potential particulate emissions from all emission units exceed 90.8 Mg/yr (100 T/yr) shall be protected by a cover or sprayed with a surfactant solution or water on a regular

basis, as needed, or treated by an equivalent method, in accordance with the operating program required by 35 IAC 212.309, 212.310 and 212.312 of 35 IAC Part 212 Subpart K [35 IAC 212.304(a)].

d. Applicable emission limitations established by 35 IAC 212.316:

- i. Emission Limitations for Storage Piles. No person shall cause or allow fugitive particulate matter emissions from any storage pile to exceed an opacity of 10 percent, to be measured four ft from the pile surface.
- ii. Additional Emissions Limitations for the Granite City Vicinity as defined in 35 IAC 212.316(e) (1):

Emissions Limitations for Roadways or Parking Areas Located at Integrated Iron and Steel Manufacturing Plants. No person shall cause or allow fugitive particulate matter emissions from any roadway or parking area located at a slag processing facility or integrated iron and steel manufacturing plant to exceed an opacity of 5 percent.

- iii. Pursuant to 35 IAC 212.316(f), emission limitation for all other activities (see the definition for emission unit in 35 IAC 211.1950). Unless an activity has been assigned a particulate matter, PM₁₀, or fugitive particulate matter emissions limitation elsewhere in 35 IAC 212.316 or in Subparts R or S of 35 IAC Part 212, no person shall cause or allow fugitive particulate matter emissions from any such activity to exceed an opacity of 20 percent.

- e. All conveyor loading operations to storage piles specified in 35 IAC 212.304 shall utilize spray systems, telescopic chutes, stone ladders or other equivalent methods in accordance with the operating program required by 35 IAC 212.309, 212.310 and 212.312 [35 IAC 212.305].

7.13.4 Non-Applicability of Regulations of Concern

The landfill operated on the site is not subject to 35 IAC Part 220 for municipal waste landfills. The landfill serves only the needs for Permittee's operations in accepting industrial waste generated on-site and no municipal or any off-site waste is accepted by this landfill.

7.13.5 Control Requirements and Work Practices

- a. Pursuant to permit #95010001 [T1], the Permittee shall comply with the following on-site and off-site fugitive dust control requirements:

i. On-site fugitive dust control

- A. The Permittee shall sweep or flush at least every day the paved access area below the BOF ESP where ESP dust collection bags (i.e., super-sacks, storage bags or other containers for ESP dust) are used, stored and transported.
- B. The Permittee shall implement a housekeeping program for the non-roadway areas below and around the BOF ESP. This program shall, at a minimum, contain the following:
 - 1. The ground and other accessible areas where dust may gather shall be swept or cleaned at least every day;
 - 2. Cleaning shall be performed in such a manner as to minimize the escape of dust into the atmosphere;
 - 3. Dust collection bags shall be inspected at least daily for rips, tears, or insecure connection to the discharge of the ESP hoppers;
 - 4. Dust collection bags shall be inspected after removal from, and connection to, the discharge of the ESP hoppers;
 - 5. Ripped or torn bags shall be taken out of service and transported in a covered truck.
- C. Unpaved Roads. For unpaved roads that are part of normal traffic patterns (including roads B, C, E, N, F-F, and CS(2)) the Permittee shall apply a chemical dust suppressant at least three times a month, with the following exceptions:
 - 1. Road segment G-G, which shall be sprayed at least quarterly;
 - 2. Road segment L, which shall be sprayed at least 4 times per month.
 - 3. All other unpaved roads shall be treated as necessary.
 - 4. Applications of suppressant may be less frequent than specified above if weather conditions, i.e., precipitation or

temperature, interfere with the schedule for spraying, provided each such instance shall be recorded in accordance with the daily records for on-site fugitive dust control required by Condition 7.13.9(b).

- D. Paved roadways and areas. Paved roadways and areas shall be maintained in good condition by the Permittee.

On paved roadways and other areas, the Permittee shall sweep or flush as follows:

1. Road segments D, K, M, F, G, J, R, and O shall be swept or flushed at least daily;
 2. Road segments P, V, W, X, Z, D-D, E-E, and CS(1) shall be swept or flushed at least five days per week;
 3. Road segments S and T shall be swept or flushed at least every other day;
 4. Road segments A and H shall be swept or flushed at least once per month;
 5. All gate areas leading from the steelworks area shall be swept or flushed at least daily;
 6. All gate areas leading from the iron making area shall be swept or flushed at least five times per week.
 7. The above on-site dust control measures shall be conducted to maximize their effectiveness by performing said measures when the roads or areas are not obstructed by parked vehicles and by preferentially using filter sweeping (e.g., Enviro-Whirl sweeper) for the gate areas, the roads and areas surrounding the BOPF shop and BOF ESP.
- b. The fugitive dust control measures outlined above do not relieve the Permittee from complying with additional control measures identified in the PM_{10} contingency plan as required by Condition 5.3.3 of this permit [95010001, T1R].
- c. The landfill operated by the Permittee shall not accept any off-site wastes, including municipal, hospital/medical or hazardous wastes [Section 39.5(7)(1) of the Act].

- d. Pursuant to the Road Cleaning Program required by Permit #06070088, the Permittee shall comply with the following control requirements (for purposes of this condition affected road segments are those identified in Condition 7.13.5(d) (iii)):

- i. Good air pollution control practices shall be implemented to minimize and reduce nuisance dust from the affected road segments.
- ii. Cleaning of affected road segments shall be performed using vacuum cleaning equipment (such as Enviro-Whirl). Any dust laden air shall be vented through a filtering system on the vacuum cleaning equipment before discharge to atmosphere.

The handling of material collected by vacuum cleaning equipment during road cleaning shall be enclosed or shall utilize spraying, pelletizing, screw conveying or other equivalent methods to control PM emissions from transfer of material for disposal.

- iii. Affected road segments shall be cleaned on the following frequency except during extended periods of inclement weather that act to prevent emissions of fugitive dust from the affected road segments:

- A. Cleaning on a twice weekly basis:

Road Segment	Segment Boundaries
Madison Ave	16th & 20th Streets
Central 20th Street	Madison St. & USS Gate
East 20th Street	USS Gate & Rte 203
21st Street	Rte 203 and Monroe St.
North Edwardsville Rd	20th & Nameoki (Rte 203)

- B. Cleaning on a twice monthly basis:

Road Segment	Segment Boundaries
Rock Road	Rte 3 & W. 20th St. (Overpass Approach)
West 20th St.	Rte 3 & Rock Road
Rock Road	W. 20th & Benton St. (Railroad Overpass)
Niedringhaus	Benton St. and 16th St.
16th Street	Niedringhaus & Madison St.
South Edwardsville Rd	20th & McCambridge Ave (Rte 203)
McCambridge Ave	Edwardsville Rd (Rte 203) & 2nd St.
Route 162	Nameoki Rd (Rte 203) & Railroad Tracks
Benton Street	Rock Rd. and Niedringhaus

7.13.6 Production and Emission Limitations

Total fugitive emission of PM/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 pursuant to Permit 95010001 [T1].

7.13.7 Testing Requirements

- a. Opacity observations shall be conducted by a qualified observer in accordance with procedures published in 40 CFR Part 60, Appendix A, Method 9, except as specified below.
 - i. Opacity readings on each roadway or parking area shall be conducted at least annually. On unpaved roadways or parking areas, the reading shall not be conducted within three days of the application of any dust suppressants.
 - ii. The Permittee shall observe, one day per calendar month, the opacity of emissions from each active coal storage pile and areas travelled by equipment hauling coal from these coal storage piles to coal processing operations unless prolonged weather conditions preclude scheduled observations. In addition, the observer shall remain in the area for at least 3 hours to perform opacity readings on other coal piles which become active during this 3 hour period.
 - iii. All opacity readings conducted on visible emissions generated by vehicular traffic on roadways, parking areas and heavy equipment traffic associated with storage piles, shall be in accordance with the procedures specified in 35 IAC 212.109.
 - iv. All opacity readings on storage piles shall be measured four feet above the pile surface. The duration of opacity observations for each test shall be at least 30 minutes (five 6-minute averages) or 12 minutes without visible emissions.
- b. Upon written request by the Illinois EPA, such testing shall be conducted for specific affected operations(s) within 45 calendar days of the request or on the date agreed upon by the Illinois EPA, whichever is later. As least 30 days prior to the scheduled test date, the Permittee shall submit a detailed test plan to the Illinois EPA, describing the manner of operations of the affected activity and all control measures that will be implemented during the testing. The results of the testing will be submitted within thirty calendar days of the completion of the tests.

- c. The testing conditions from above are established in accordance with requirements of 39.5(7)(p) of the Act.
- d. Pursuant to Permit 06070088, the Permittee shall conduct silt loading measurements as follows [T1] (for purposes of this condition affected road segments are those identified in Condition 7.13.5(d)(iii)):
 - i. The Permittee shall conduct measurements of the silt loading on the affected road segments, with sampling and analysis conducted using the "Procedures for Sampling Surface/Bulk Dust Loading," Appendix C.1 in Compilation of Air Pollutant Emission Factors, USEPA, AP-42. A series of samples shall be taken to determine the average silt loading on each affected road segment and address the change in silt loadings as related to the amount and nature of vehicle traffic.
 - ii. Measurements for "controlled" silt loading shall be repeated at least every three years pursuant to the Road Cleaning Program of Condition 7.13.5(d).
 - iii. Measurements for "controlled" silt loadings shall be conducted upon written request by the Illinois EPA, as specified in the request, which shall be completed within 75 days of the Illinois EPA's request.

7.13.8 Monitoring Requirements

- a. Except as provided in Condition 7.13.8(b), the Permittee shall perform inspections of the affected activities on at least a quarterly basis, including associated control measures, while the affected activities are in use, to confirm compliance with the requirements of Condition 7.13.3. Control measures may include material characteristics. These quarterly inspections may be scheduled so that only a number of affected activities are reviewed during each inspection, provided however, that all affected activities shall be inspected at least once during each calendar year. For the purpose of this condition, all affected activities means each type of material handled. (Sections 39.5(7)(a) and (d) of the Act).
- b. The Permittee shall perform inspections, on a once per calendar month basis, during receipt of the truck unloading each contracted supply of coal.
- c. As part of the inspections required by 7.13.8(a), the Permittee shall perform observations for visible emissions by Method 22. These observations shall be conducted during the operation of each activity for a minimum of 18 minutes, or for activities that operate on a batch basis, for a minimum of six consecutive batches. If visible emissions

are observed, the Permittee shall take corrective action within 2 hours to return the status of the operation to no visible emissions or observations of opacity by Method 9 shall be conducted. For the purpose of this condition, returning the status of operations to no visible emissions does not include, for any activity, temporary idling or lack of operation between batches.

- d. The requirements from above are established pursuant to Sections 39.5(7)(a) and (d) of the Act.

7.13.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items for the affected areas of fugitive emissions, pursuant to Sections 39.5(7)(a) and (e) of the Act:

- a. Records required by 35 IAC 212.316(g):
 - i. The owner or operator of any fugitive particulate matter emission unit subject to 35 IAC 212.316 shall keep written records of the application of control measures for compliance with the opacity limitations of 212.316 and shall submit to the Illinois EPA an annual report containing a summary of such information.
 - ii. The records shall include at least the following:
 - A. The name and address of the source;
 - B. The name and address of the owner and/or operator of the source;
 - C. A map or diagram showing the location of all emission units controlled, including the location, identification, length, and width of roadways;
 - D. For each application of water or chemical solution to roadways by truck: the name and location of the roadway controlled, application rate of each truck, frequency of each application, width of each application, identification of each truck used, total quantity of water or chemical used for each application and, for each application of chemical solution, the concentration and identity of the chemical;
 - E. For application of physical or chemical control agents: the name of the agent, application rate and frequency, and total quantity of agent,

and, if diluted, percent of concentration, used each day; and

- F. A log recording incidents when control measures were not used and a statement of explanation.
- iii. Copies of all records required by 35 IAC 212.316 shall be submitted to the Illinois EPA within ten (10) working days after a written request by the Illinois EPA and shall be transmitted to the Illinois EPA by a company-designated person with authority to release such records.
- iv. The records required under 35 IAC 212.316 shall be kept and maintained for at least five (5) years at the source and be available for inspection and copying by Illinois EPA representatives during working hours.
- b. i. The Permittee shall maintain daily records relative to the on-site fugitive dust control program which includes the following information at a minimum, pursuant to the Permit 95010001:
 - A. The date (and time for the gate areas) each road or area was treated;
 - B. The manner in which the road or area was treated (i.e., filter sweep, conventional sweep, suppressant spray or flush);
 - C. Detailed information for use of dust suppressant, including but not limited to the application rate, dilution ratio, type of suppressant used, and the number of gallons of suppressant applied;
 - D. Observations, if any, concerning the condition of the roadway, e.g., presence of parked vehicles, detection of potholes;
 - E. The amount of precipitation and temperature recorded for each day, and if determination was made to suspend application of suppressant, include name and title of person who made determination to suspend application and explanation; and
 - F. Any and all suspensions or deviations from the work practices and control procedures of Condition 7.13.5, with a date, description, and explanation for suspension of application.

- ii. The Permittee shall keep a record containing calculations and analysis for the emissions from roadways at the source with emissions calculation performed in accordance with the methodology set forth in Section 13.2.1 of AP-42, to verify compliance with Condition 7.13.6. A copy of this record shall be submitted to the Illinois EPA each time it is prepared, with submittal made within 15 days of the date that the Permittee completes the preparation of new or revised calculations and analysis.
- c. The Permittee shall maintain the most current versions of the PM₁₀ contingency plan and the fugitive particulate matter control program.
- d. The Permittee shall keep records of the silt measurements conducted pursuant to Condition 7.13.7(d), including records for the sampling and analysis activities and results.
- e. Recordkeeping requirements for the Road Cleaning Program (for purposes of this condition affected road segments are those identified in Condition 7.13.5(d)(iii):
 - i. A. The Permittee shall keep a record describing the Road Cleaning Program that at a minimum: identify any contractors implementing the program for the Permittee and their duties for implementing the Program under the contract; the equipment used by the Permittee or its contractor for cleaning roads, including for each item of equipment, a description of and the manufacturer's specifications for collection of silt from roadways and control of dust emissions from the cleaning process; and the standards practices that are used to clean roads under the Program, such as type of equipment, and speed of travel.
 - B. The Permittee shall keep records for implementation of the Road Cleaning Program that at a minimum: Identify each time that an affected road segment was cleaned, with a description of any circumstances that may have affected the extent or nature of cleaning; and identify each time that scheduled cleaning was not performed, with detailed explanation.
 - C. The Permittee shall keep records documenting maintenance and repair of road cleaning equipment.

- ii. The Permittee shall keep a record containing calculations and analysis for the annual reduction in emissions that is achieved by the Road Cleaning Program, with emissions calculation performed in accordance with the methodology set forth in Section 13.2.1 of AP-42, to verify that the Road Cleaning Program is achieving 236.03 tons/yr reduction, total, of particulate matter determined as PM₁₀ from baseline emission levels of 656.87 tons/year from the affected road segments. This record shall be prepared in conjunction with the measurements of "controlled" silt loadings required by Condition 7.13.7(d). A copy of this record shall be submitted to the Illinois EPA each time it is prepared, with submittal made to the Illinois EPA within 15 days of the date that the Permittee completes the preparation of new or revised calculations and analysis.

7.13.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Air Compliance Section, of deviations of the affected area of fugitive emissions with the permit requirements, pursuant to Section 39.5(7)(f)(ii) of the Act. Reports submitted by the Permittee shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken.

- a. i. Pursuant 35 IAC 212.316(g) (5), the Permittee shall submit a quarterly report to the Illinois EPA stating the following: the dates any necessary control measures were not implemented, a listing of those control measures, the reasons that the control measures were not implemented, and any corrective actions taken. This information includes, but is not limited to, those dates when controls were not applied based on a belief that application of such control measures would have been unreasonable given prevailing atmospheric conditions, which shall constitute a defense to the requirements of 35 IAC 212.316. This report shall be submitted to the Agency thirty (30) calendar days from the end of a quarter. Quarters end March 31, June 30, September 30, and December 31.
- ii. Pursuant to permit 06070088, the Permittee shall submit a quarterly report to the Illinois EPA describing the implementation of the Road Cleaning Program during the previous quarter. This report shall at a minimum provide: the number of times each road segment was cleaned; the number of times that cleaning was not performed, with explanation; a description of any significant changes in road cleaning equipment or cleaning practices, with explanation; and a description of other changes to

the Road Cleaning Program, including changes in contractors.

- b. i. Pursuant to Section 39.5(7)(f)(ii) of the Act, the Permittee shall promptly notify the Illinois EPA, Air Compliance Section, within 30 days of deviations in the affected areas of fugitive emissions, as follows:
 - A. Requirements in Condition 7.13.3(b) through (e).
 - B. Requirements in Condition 7.13.5.
 - C. Requirements in Condition 7.13.6.
- ii. All such deviations shall be summarized and reported as part of the semiannual monitoring report required by Condition 8.6.1.
- c. The Permittee shall notify the Illinois EPA, Air Compliance Section, of all other deviations as part of the semiannual monitoring reports required by Condition 8.6.1.
- d. Deviation reports described in Condition 7.13.10(b) and (c) above shall contain the following:
 - i. Date, time and duration of the deviation;
 - ii. Description of the deviation;
 - iii. Probable cause of the deviation; and
 - iv. Any corrective action or preventive measures taken.

7.13.11 Operational Flexibility/Anticipated Operating Scenarios

a. Beaching

The following requirements established by Permits 72080034 and 72080036 shall be implemented:

- i. Under the following circumstances beaching of iron may occur:
 - A. In the event that Blast Furnace A or Blast Furnace B must be shut down in order to cast the furnace dry.
 - B. In the event that an interruption in the BOF steelmaking and/or casting operations will result in a temporary surplus of iron, beyond the capacity of the system to hold, necessitating beaching in order to cast the

furnace dry and provide the ability to safely shut down.

- C. In the event that the blast furnace produces unusable iron such as high silica or low temperature iron. High silica iron shall be blended and used to the extent possible at the BOF in order to reduce beaching. Low temperature iron shall be used at the BOF to the extent possible until solidification in the car becomes imminent. In other cases of unusable iron, such iron shall be used when possible to minimize the quantity beached.
- ii. In the event that the beaching of iron occurs the Permittee shall beach the iron as follows:
 - A. Beaching shall be allowed only in the event that alternate receptacles are not available;
 - B. Beaching shall be allowed only if all reasonable measures are taken to minimize the quantity of liquid metal beached, the frequency of a malfunction or breakdown that necessitates beaching, the duration beaching occurs, and the emissions resulting from beaching; and
 - C. Beaching shall be allowed at a controlled pour rate not to exceed 20 tons per minute.
- b. Prior to material in the beaching pit being dug and transferred to vehicles for recycling to the blast furnaces, it shall be watered or treated with other equivalent techniques to minimize particulate matter emissions during such material handling, unless such measures would cause a hazard or safety issue to employees.

7.13.12 Compliance Procedures

- a. Compliance with Condition 7.13.3(b) is addressed by the monitoring requirements in Condition 7.13.8(b) and the records in Condition 7.13.9.
- b. Compliance with Condition 7.13.3(c), (d), 7.13.5(a), (d), and 7.13.6 is addressed by the testing in Condition 7.13.7, monitoring requirements in Condition 7.13.8(a) and the records in Condition 7.13.9.
- c. Compliance with Condition 7.13.3(e) is addressed by the testing requirements Condition 7.13.7, monitoring in Condition 7.13.8(c) and the records in Condition 7.13.9.

- d. Compliance with Condition 7.13.5(c) is addressed by the records in Condition 7.13.9.

7.13.13 State-Only Conditions

State-only conditions are not being established.

8.0 GENERAL PERMIT CONDITIONS

8.1 Permit Shield

Pursuant to Section 39.5(7)(j) of the Act, the Permittee has requested and has been granted a permit shield. This permit shield provides that compliance with the conditions of this permit shall be deemed compliance with applicable requirements which were applicable as of the date the proposed permit for this source was issued, provided that either the applicable requirements are specifically identified within this permit, or the Illinois EPA, in acting on this permit application, has determined that other requirements specifically identified are not applicable to this source and this determination (or a concise summary thereof) is included in this permit.

This permit shield does not extend to applicable requirements which are promulgated after May 2, 2011, unless this permit has been modified to reflect such new requirements.

8.2 Applicability of Title IV Requirements (Acid Deposition Control)

This source is not an affected source under Title IV of the CAA and is not subject to requirements pursuant to Title IV of the CAA.

8.3 Emissions Trading Programs

No permit revision shall be required for increases in emissions allowed under any USEPA approved economic incentives, marketable permits, emissions trading, and other similar programs or processes for changes that are provided for elsewhere in this permit and that are authorized by the applicable requirement [Section 39.5(7)(o)(vii) of the Act].

8.4 Operational Flexibility/Anticipated Operating Scenarios

8.4.1 Changes Specifically Addressed by Permit

Physical or operational changes specifically addressed by the conditions of this permit that have been identified as not requiring Illinois EPA notification may be implemented without prior notice to the Illinois EPA.

8.4.2 Changes Requiring Prior Notification

The Permittee is authorized to make physical or operational changes that contravene express permit terms without applying for or obtaining an amendment to this permit, provided that [Section 39.5(12)(a)(i) of the Act]:

- a. The changes do not violate applicable requirements;
- b. The changes do not contravene federally enforceable permit terms or conditions that are monitoring (including test methods), recordkeeping, reporting, or compliance certification requirements;

- c. The changes do not constitute a modification under Title I of the CAA;
- d. Emissions will not exceed the emissions allowed under this permit following implementation of the physical or operational change; and
- e. The Permittee provides written notice to the Illinois EPA, Division of Air Pollution Control, Permit Section, at least 7 days before commencement of the change. This notice shall:
 - i. Describe the physical or operational change;
 - ii. Identify the schedule for implementing the physical or operational change;
 - iii. Provide a statement of whether or not any New Source Performance Standard (NSPS) is applicable to the physical or operational change and the reason why the NSPS does or does not apply;
 - iv. Provide emission calculations which demonstrate that the physical or operational change will not result in a modification; and
 - v. Provide a certification that the physical or operational change will not result in emissions greater than authorized under the conditions of this permit.

8.5 Testing Procedures

Tests conducted to measure composition of materials, efficiency of pollution control devices, emissions from process or control equipment, or other parameters shall be conducted using standard test methods if applicable test methods are not specified by the applicable regulations or otherwise identified in the conditions of this permit.

Documentation of the test date, conditions, methodologies, calculations, and test results shall be retained pursuant to the recordkeeping procedures of this permit. Reports of any tests conducted as required by this permit or as the result of a request by the Illinois EPA shall be submitted as specified in Conditions 8.6.3 and 8.6.4.

8.6 Reporting Requirements

8.6.1 Monitoring Reports

Semiannual reports, including monitoring reports summarizing required monitoring as specified in the conditions of this permit shall be submitted to the Illinois EPA, unless more

frequent submittal of such reports is required in Sections 5 or 7 of this permit [Section 39.5(7)(f) of the Act]:

<u>Monitoring Period</u>	<u>Report Due Date</u>
January - June	July 31
July - December	January 31

All instances of deviations from permit requirements must be clearly identified in such reports. All such reports shall be certified in accordance with Condition 9.9.

8.6.2 Test Notifications

Unless otherwise specified elsewhere in this permit, a written test plan for any test required by this permit shall be submitted to the Illinois EPA for review at least 60 days prior to the testing pursuant to Section 39.5(7)(a) of the Act. The notification shall include at a minimum:

- a. The name and identification of the affected unit(s);
- b. The person(s) who will be performing sampling and analysis and their experience with similar tests;
- c. The specific conditions under which testing will be performed, including a discussion of why these conditions will be representative of maximum emissions and the means by which the specified operating parameters, as defined in Section 7 for each emission unit and any control equipment, will be determined;
- d. The specific determinations of emissions and operation that are intended to be made, including sampling and monitoring locations;
- e. The test method(s) that will be used, with the specific analysis method, if the method can be used with different analysis methods;
- f. Any minor changes in standard methodology proposed to accommodate the specific circumstances of testing, with justification; and
- g. Any proposed use of an alternative test method, with detailed justification.

8.6.3 Test Reports

Unless otherwise specified elsewhere in this permit, the results of any test required by this permit shall be submitted to the Illinois EPA within 60 days of completion of the testing. The test report shall include at a minimum [Section 39.5(7)(e)(i) of the Act]:

- a. The name and identification of the affected unit(s);
- b. The date and time of the sampling or measurements;
- c. The date any analyses were performed;
- d. The name of the company that performed the tests and/or analyses;
- e. The test and analytical methodologies used;
- f. The results of the tests including raw data, and/or analyses including sample calculations;
- g. The operating conditions at the time of the sampling or measurements; and
- h. The name of any relevant observers present including the testing company's representatives, any Illinois EPA or USEPA representatives, and the representatives of the source.

8.6.4 Reporting Addresses

- a. Unless otherwise specified in the particular provision of this permit or in the written instructions distributed by the Illinois EPA for particular reports, reports and notifications shall be sent to the Illinois EPA - Air Compliance Unit with a copy sent to the Illinois EPA - Air Regional Field Office.
- b. All test protocols, test notifications and test reports shall be sent to the Illinois EPA - Air Compliance Unit with a copy sent to the Illinois EPA - Air Regional Field Office and to the Illinois EPA - Stack Test Specialist.
- c. As of the date of issuance of this permit, the addresses of the offices that should generally be utilized for the submittal of reports and notifications are as follows:

- i. Illinois EPA - Air Compliance Unit

Illinois Environmental Protection Agency
Bureau of Air
Compliance & Enforcement Section (MC 40)
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276

- ii. Illinois EPA - Stack Test Specialist

Illinois Environmental Protection Agency
Division of Air Pollution Control
9511 West Harrison
Des Plaines, Illinois 60016

iii. Illinois EPA - Air Quality Planning Section

Illinois Environmental Protection Agency
Bureau of Air
Air Quality Planning Section (MC 39)
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276

iv. Illinois EPA - Air Regional Field Office

Illinois Environmental Protection Agency
Division of Air Pollution Control
2009 Mall Street
Collinsville, Illinois 62234

v. USEPA Region 5 - Air Branch

USEPA (AR - 17J)
Air & Radiation Division
77 West Jackson Boulevard
Chicago, Illinois 60604

- d. Permit applications should be addressed to the Air Permit Section. As of the date of issuance of this permit, the address of the Air Permit Section is as follows:

Illinois Environmental Protection Agency
Division of Air Pollution Control
Permit Section (MC 11)
1021 North Grand Avenue East
P.O. Box 19506
Springfield, Illinois 62794-9506

8.7 Title I Conditions

Notwithstanding the expiration date on the first page of this CAAPP permit, Title I conditions in this permit, which are identified by a T1, T1N, or T1R designation, remain in effect until such time as the Illinois EPA takes action to revise or terminate them in accordance with applicable procedures for action on Title I conditions. This is because these conditions either: (a) incorporate conditions of earlier permits that were issued by the Illinois EPA pursuant to authority that includes authority found in Title I of the CAA (T1 conditions), (b) were newly established in this CAAPP permit pursuant to authority that includes such Title I authority (T1N conditions), or (c) reflect a revision or combination of conditions established in this CAAPP permit (T1R conditions). (See also Condition 1.5.)

9.0 STANDARD PERMIT CONDITIONS

9.1 Effect of Permit

- 9.1.1 The issuance of this permit does not release the Permittee from compliance with State and Federal regulations which are part of the Illinois State Implementation Plan, as well as with other applicable statutes and regulations of the United States or the State of Illinois or applicable ordinances, except as specifically stated in this permit and as allowed by law and rule.
- 9.1.2 In particular, this permit does not alter or affect the following {Section 39.5(7)(j)(iv) of the Act}:
- a. The provisions of Section 303 (emergency powers) of the CAA, including USEPA's authority under that Section;
 - b. The liability of an owner or operator of a source for any violation of applicable requirements prior to or at the time of permit issuance;
 - c. The applicable requirements of the acid rain program consistent with Section 408(a) of the CAA; and
 - d. The ability of USEPA to obtain information from a source pursuant to Section 114 (inspections, monitoring, and entry) of the CAA.
- 9.1.3 This permit and the terms and conditions herein do not affect the Permittee's past and/or continuing obligation with respect to statutory or regulatory requirements governing major source construction or modification under Title I of the CAA. Further, neither the issuance of this permit nor any of the terms or conditions of the permit shall alter or affect the liability of the Permittee for any violation of applicable requirements prior to or at the time of permit issuance.
- 9.1.4 Except as provided by applicable law, the issuance of this permit by the Illinois EPA does not and shall not be construed as barring, diminishing, adjudicating or in any way affecting any currently pending or future legal, administrative or equitable rights or claims, actions, suits, causes of action or demands whatsoever that the Illinois EPA or the USEPA may have against the applicant including, but not limited to, any enforcement action authorized pursuant to the provision of applicable federal and state law.
- 9.1.5 Notwithstanding the conditions of this permit specifying compliance practices for applicable requirements, pursuant to Section 39.5(7)(j) and (p) of the Act, any person (including the Permittee) may also use other credible evidence to establish compliance or noncompliance with applicable requirements.

- 9.1.6 In the event of an action to enforce the terms or conditions of this permit, this permit does not prohibit a Permittee from invoking any affirmative defense that is provided by the applicable law or rule.

9.2 General Obligations of Permittee

9.2.1 Duty to Comply

The Permittee must comply with all terms and conditions of this permit. Any permit noncompliance constitutes a violation of the CAA and the Act, and is grounds for any or all of the following: enforcement action; permit termination, revocation and reissuance, or modification; or denial of a permit renewal application [Section 39.5(7)(o)(i) of the Act].

The Permittee shall meet applicable requirements that become effective during the permit term in a timely manner unless an alternate schedule for compliance with the applicable requirement is established.

9.2.2 Duty to Maintain Equipment

The Permittee shall maintain all equipment covered under this permit in such a manner that the performance or operation of such equipment shall not cause a violation of applicable requirements.

9.2.3 Duty to Cease Operation

No person shall cause, threaten or allow the continued operation of any emission unit during malfunction or breakdown of the emission unit or related air pollution control equipment if such operation would cause a violation of an applicable emission standard, regulatory requirement, ambient air quality standard or permit limitation unless this permit provides for such continued operation consistent with the Act and applicable Illinois Pollution Control Board regulations [Section 39.5(6)(c) of the Act].

9.2.4 Disposal Operations

The source shall be operated in such a manner that the disposal of air contaminants collected by the equipment operations, or activities shall not cause a violation of the Act or regulations promulgated there under.

9.2.5 Duty to Pay Fees

The Permittee must pay fees to the Illinois EPA consistent with the fee schedule approved pursuant to Section 39.5(18) of the Act, and submit any information relevant thereto [Section 39.5(7)(o)(vi) of the Act]. The check should be payable to "Treasurer, State of Illinois" and sent to: Fiscal Services

Section, Illinois Environmental Protection Agency, P.O. Box 19276, Springfield, Illinois, 62794-9276.

9.3 Obligation to Allow Illinois EPA Surveillance

Upon presentation of proper credentials and other documents as may be required by law and in accordance with constitutional limitations, the Permittee shall allow the Illinois EPA, or an authorized representative to perform the following [Sections 4 and 39.5(7)(a) and (p)(ii) of the Act]:

- a. Enter upon the Permittee's premises where an actual or potential emission unit is located; where any regulated equipment, operation, or activity is located or where records must be kept under the conditions of this permit;
- b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
- c. Inspect during hours of operation any sources, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit;
- d. Sample or monitor any substances or parameters at any location:
 - i. At reasonable times, for the purposes of assuring permit compliance or applicable requirements; or
 - ii. As otherwise authorized by the CAA, or the Act.
- e. Obtain and remove samples of any discharge or emission of pollutants authorized by this permit; and
- f. Enter and utilize any photographic, recording, testing, monitoring, or other equipment for the purposes of preserving, testing, monitoring, or recording any activity, discharge or emission at the source authorized by this permit.

9.4 Obligation to Comply with Other Requirements

The issuance of this permit does not release the Permittee from applicable State and Federal laws and regulations, and applicable local ordinances addressing subjects other than air pollution control.

9.5 Liability

9.5.1 Title

This permit shall not be considered as in any manner affecting the title of the premises upon which the permitted source is located.

9.5.2 Liability of Permittee

This permit does not release the Permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the sources.

9.5.3 Structural Stability

This permit does not take into consideration or attest to the structural stability of any unit or part of the source.

9.5.4 Illinois EPA Liability

This permit in no manner implies or suggests that the Illinois EPA (or its officers, agents or employees) assumes any liability, directly or indirectly, for any loss due to damage, installation, maintenance, or operation of the source.

9.5.5 Property Rights

This permit does not convey any property rights of any sort, or any exclusive privilege [Section 39.5(7)(o)(iv) of the Act].

9.6 Recordkeeping

9.6.1 Control Equipment Maintenance Records

A maintenance record shall be kept on the premises for each item of air pollution control equipment. At a minimum, this record shall show the dates of performance and nature of preventative maintenance activities.

9.6.2 Records of Changes in Operation

A record shall be kept describing changes made at the source that result in emissions of a regulated air pollutant subject to an applicable Clean Air Act requirement, but not otherwise regulated under this permit, and the emissions resulting from those changes [Section 39.5(12)(b)(iv) of the Act].

9.6.3 Retention of Records

- a. Records of all monitoring data and support information shall be retained for a period of at least 5 years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records, original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit [Section 39.5(7)(e)(ii) of the Act].
- b. Other records required by this permit including any logs, plans, procedures, or instructions required to be kept by this permit shall be retained for a period of at least 5

years from the date of entry unless a longer period is specified by a particular permit provision.

9.7 Annual Emissions Report

The Permittee shall submit an annual emissions report to the Illinois EPA, Air Quality Planning Section no later than May 1 of the following year, as required by 35 IAC Part 254.

9.8 Requirements for Compliance Certification

Pursuant to Section 39.5(7)(p)(v) of the Act, the Permittee shall submit annual compliance certifications. The compliance certifications shall be submitted no later than May 1 or more frequently as specified in the applicable requirements or by permit condition. The compliance certifications shall be submitted to the Air Compliance Unit, Air Regional Field Office, and USEPA Region 5 - Air Branch. The addresses for the submittal of the compliance certifications are provided in Condition 8.6.4 of this permit.

- a. The certification shall include the identification of each term or condition of this permit that is the basis of the certification; the compliance status; whether compliance was continuous or intermittent; the method(s) used for determining the compliance status of the source, both currently and over the reporting period consistent with the conditions of this permit.
- b. All compliance certifications shall be submitted to USEPA Region 5 in Chicago as well as to the Illinois EPA.
- c. All compliance reports required to be submitted shall include a certification in accordance with Condition 9.9.

9.9 Certification

Any document (including reports) required to be submitted by this permit shall contain a certification by a responsible official of the Permittee that meets the requirements of Section 39.5(5) of the Act and applicable regulations [Section 39.5(7)(p)(i) of the Act]. An example Certification by a Responsible Official is included as Attachment 1 to this permit.

9.10 Defense to Enforcement Actions

9.10.1 Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit [Section 39.5(7)(o)(ii) of the Act].

9.10.2 Emergency Provision

a. An emergency shall be an affirmative defense to an action brought for noncompliance with the technology-based emission limitations under this permit if the following conditions are met through properly signed, contemporaneous operating logs, or other relevant evidence [Section 39.5(7)(k) of the Act]:

i. An emergency occurred as provided in Section 39.5(7)(k) of the Act and the Permittee can identify the cause(s) of the emergency.

Note: For this purpose, emergency means a situation arising from sudden and reasonably unforeseeable events beyond the control of the source, as further defined by Section 39.5(7)(k)(iv) of the Act.

ii. The permitted source was at the time being properly operated;

iii. The Permittee submitted notice of the emergency to the Illinois EPA within two working days of the time when emission limitations were exceeded due to the emergency. This notice must contain a detailed description of the emergency, any steps taken to mitigate emissions, and corrective actions taken; and

iv. During the period of the emergency the Permittee took all reasonable steps to minimize levels of emissions that exceeded the emission limitations, standards, or regulations in this permit.

b. This provision is in addition to any emergency or upset provision contained in any applicable requirement. This provision does not relieve a Permittee of any reporting obligations under existing federal or state laws or regulations [Section 39.5(7)(k)(iv) of the Act].

9.11 Permanent Shutdown

This permit only covers emission units and control equipment while physically present at the indicated source location(s). Unless this permit specifically provides for equipment relocation, this permit is void for the operation or activity of any item of equipment on the date it is removed from the permitted location(s) or permanently shut down. This permit expires if all equipment is removed from the permitted location(s), notwithstanding the expiration date specified on this permit.

9.12 Reopening and Reissuing Permit for Cause

9.12.1 Permit Actions

This permit may be modified, revoked, reopened and reissued, or terminated for cause in accordance with applicable provisions of Section 39.5 of the Act. The filing of a request by the Permittee for a permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition [Section 39.5(7)(o)(iii) of the Act].

9.12.2 Reopening and Revision

This permit must be reopened and revised if any of the following occur [Section 39.5(15)(a) of the Act]:

- a. Additional requirements become applicable to the equipment covered by this permit and three or more years remain before expiration of this permit.
- b. Additional requirements become applicable to an affected source for acid deposition under the acid rain program.
- c. The Illinois EPA or USEPA determines that this permit contains a material mistake or that inaccurate statement were made in establishing the emission standards or limitations, or other terms or conditions of this permit.
- d. The Illinois EPA or USEPA determines that this permit must be revised or revoked to ensure compliance with the applicable requirements.

9.12.3 Inaccurate Application

The Illinois EPA has issued this permit based upon the information submitted by the Permittee in the permit application. Any misinformation, false statement or misrepresentation in the application shall be grounds for revocation and reissuance under Section 39.5(15) of the Act, pursuant to Sections 39.5(5)(e) and (i) of the Act.

9.12.4 Duty to Provide Information

The Permittee shall furnish to the Illinois EPA, within a reasonable time specified by the Illinois EPA any information that the Illinois EPA may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. Upon request, the Permittee shall also furnish to the Illinois EPA copies of records required to be kept by this permit, or for information claimed to be confidential, the Permittee may furnish such records directly to USEPA along with a claim of confidentiality [Section 39.5(7)(o)(v) of the Act].

9.13 Severability Clause

The provisions of this permit are severable. In the event of a challenge to any portion of the permit, other portions of the permit may continue to be in effect. Should any portion of this permit be determined to be illegal or unenforceable, the validity of the other provisions shall not be affected and the rights and obligations of the Permittee shall be construed and enforced as if this permit did not contain the particular provisions held to be invalid and the applicable requirements underlying these provisions shall remain in force [Section 39.5(7)(i) of the Act].

9.14 Permit Expiration and Renewal

Upon the expiration of this permit, if the source is operated, it shall be deemed to be operating without a permit unless a timely and complete CAAPP application has been submitted for renewal of this permit. However, if a timely and complete application to renew this CAAPP permit has been submitted, the terms and all conditions of this CAAPP permit will remain in effect until the issuance of a renewal permit [Section 39.5(5)(l) and (o) of the Act].

Note: Pursuant to Sections 39.5(5)(h) and (n) of the Act, upon submittal of a timely and complete renewal application, the permitted source may continue to operate until final action is taken by the Illinois EPA on the renewal application, provided, however, that this protection shall cease if the applicant fails to submit any additional information necessary to evaluate or take final action on the renewal application as requested by the Illinois EPA in writing. For a renewal application to be timely, it must be submitted no later than 9 months prior to the date of permit expiration.

9.15 General Authority for the Terms and Conditions of this Permit

The authority for terms and conditions of this permit that do not include a citation for their authority is Section 39.5(7)(a) of the Act, which provides that the Illinois EPA shall include such provisions in a CAAPP permit as are necessary to accomplish the purposes of the Act and to assure compliance with all applicable requirements. Section 39.5(7)(a) of the Act is also another basis of authority for terms and conditions of this permit that do include a specific citation for their authority.

Note: This condition is included in this permit pursuant to Section 39.5(7)(n) of the Act.

10.0 ATTACHMENTSAttachment 1 Example Certification by a Responsible Official

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: _____

Name: _____

Official Title: _____

Telephone No.: _____

Date Signed: _____

Attachment 2 Emissions of Particulate Matter from Process Emission Units

10.2.1. Process Emission Units for Which Construction or Modification Commenced On or After April 14, 1972

- a. New Process Emission Units for Which Construction or Modification Commenced On or After April 14, 1972 [35 IAC 212.321].
- b. No person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any new process emission unit, either alone or in combination with the emission of particulate matter from all other similar process emission units for which construction or modification commenced on or after April 14, 1972, at a source or premises, exceeds the allowable emission rates specified in subsection (c) of 35 IAC 212.321 [35 IAC 212.321(a)].
 - i. The emissions of particulate matter into the atmosphere in any one hour period from the affected coating lines shall not exceed the allowable emission rates specified in the following equation:

$$E = A (P)^B$$

Where:

P = Process weight rate

E = Allowable emission rate

- ii. For process weight rates of 408 Mg/hr (450 T/hr):

	<u>Metric</u>	<u>English</u>
P	Mg/hr	T/hr
E	kg/hr	lbs/hr
A	1.214	2.54
B	0.534	0.534

- iii. For process weight rates in excess of 408 Mg/hr (450 T/hr):

	<u>Metric</u>	<u>English</u>
P	Mg/hr	T/hr
E	kg/hr	lbs/hr
A	11.42	24.8
B	0.16	0.16

- c. Limits for Process Emission Units for which Construction or Modification Commenced On or After April 14, 1972 [35 IAC 212.321(c)]:

Metric		English	
P	E	P	E
Mg/hr	kg/hr	T/hr	lb/hr
0.05	0.25	0.05	0.55
0.1	0.29	0.10	0.77
0.2	0.42	0.2	1.10
0.3	0.64	0.30	1.35
0.4	0.74	0.40	1.58
0.5	0.84	0.50	1.75
0.7	1.00	0.75	2.40
0.9	1.15	1.00	2.60
1.8	1.66	2.00	3.70
2.7	2.1	3.00	4.60
3.6	2.4	4.00	5.35
4.5	2.7	5.00	6.00
9.0	3.9	10.00	8.70
13.0	4.8	15.00	10.80
18.0	5.7	20.00	12.50
23.0	6.5	25.00	14.00
27.0	7.1	30.00	15.60
32.0	7.7	35.00	17.00
36.0	8.2	40.00	18.20
41.0	8.8	45.00	19.20
45.0	9.3	50.00	20.50
90.0	13.4	100.00	29.50
140.0	17.0	150.00	37.00
180.0	19.4	200.00	43.00
230.0	22.0	250.00	48.50
270.0	24.0	300.00	53.00
320.0	26.0	350.00	58.00
360.0	28.0	400.00	62.00
408.0	30.1	450.00	66.00
454.0	30.4	500.00	67.00

10.2.2 Process Emission Units for Which Construction or Modification Commenced Prior to April 14, 1972

- a. No person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any new process emission unit, either alone or in combination with the emission of particulate matter from all other similar process emission units for which construction or modification commenced prior to April 14, 1972, at a source or premises, exceeds the allowable emission rates specified in subsection (c) of 35 IAC 212.322 [35 IAC 212.322(a)].
- b. The emissions of particulate matter into the atmosphere in any one hour period from the affected unit shall not exceed the allowable emission rates specified in the following equation:

$$E = C + A (P)^B$$

Where:

P = Process weight rate

E = Allowable emission rate

- i. For process weight rates up to 27.2 Mg/hr (30 T/hr):

	<u>Metric</u>	<u>English</u>
P	Mg/hr	T/hr
E	kg/hr	lbs/hr
A	1.985	4.10
B	0.67	0.67
C	0	0

- ii. For process weight rates in excess of 27.2 Mg/hr (30 T/hr):

	<u>Metric</u>	<u>English</u>
P	Mg/hr	T/hr
E	kg/hr	lbs/hr
A	25.21	55.0
B	0.11	0.11
C	-18.4	-40.0

- c. Limits for Process Emission Units for which Construction or Modification Commenced Prior to April 14, 1972 [35 IAC 212.322(c)]:

<u>Metric</u>		<u>English</u>	
P	E	P	E
Mg/hr	kg/hr	T/hr	lb/hr
0.05	0.27	0.05	0.55
0.1	0.42	0.10	0.87
0.2	0.68	0.20	1.40
0.3	0.89	0.30	1.83
0.4	1.07	0.40	2.22
0.5	1.25	0.50	2.58
0.7	1.56	0.75	3.38
0.9	1.85	1.00	4.10
1.8	2.9	2.00	6.52
2.7	3.9	3.00	8.56
3.6	4.7	4.00	10.40
4.5	5.4	5.00	12.00
9.0	8.7	10.00	19.20
13.0	11.1	15.00	25.20
18.0	13.8	20.00	30.50
23.0	16.2	25.00	35.40
27.2	18.15	30.00	40.00
32.0	18.8	35.00	41.30
36.0	19.3	40.00	42.50
41.0	19.8	45.00	43.60
45.0	20.2	50.00	44.60
90.0	23.2	100.00	51.20
140.0	25.3	150.00	55.40
180.0	26.5	200.00	58.60
230.0	27.7	250.00	61.00
270.0	28.5	300.00	63.10
320.0	29.4	350.00	64.90
360.0	30.0	400.00	66.20
400.0	30.6	450.00	67.70
454.0	31.3	500.00	69.00