Prevention of Significant Deterioration Construction Permit Application – Reconciliation of As-Built Changes

Volume I

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1. INTRODUCTION

Nucor Steel Brandenburg (NSBB, Nucor, or the facility), a subsidiary of Nucor Corporation (Nucor), is a plate steel manufacturing plant (SIC 3312) in Brandenburg, Kentucky (Meade County), operating under Title V Permit Number V-20-001 R1, issued October 27, 2022. Nucor submitted an initial PSD construction/Title V operating permit application to the Kentucky Division for Air Quality (DAQ) on September 9, 2019. On July 23, 2020, the Kentucky DAQ issued the initial Permit V-20-001 authorizing construction and operation of the NSBB steel mill.

The steel mill recycles scrap steel and scrap substitutes to make light plates, heavy plates, and hot-rolled steel coils. The major equipment used for this process includes a single-shell alternating current (AC) electric arc furnace (EAF), twin-station ladle metallurgy furnace (LMF), twin-tank vacuum degasser, continuous caster, reheat furnace, single-stand roughing mill, steckel mill, continuous heat treat line, heavy plate processing operations, light plate finishing operations, and protective coating application. The plant also operates several smaller process areas, storage piles, and material transfer equipment.

1.1 PERMIT APPLICATION PURPOSE

With this application, Nucor is requesting the following revisions to Permit V-20-001 R1:

- Addition of four sources: Ingot Grinding (EP 03-10), Ingot Grinding Oxy-Fuel Torch (EP 03-11), Emergency Generator Engine (EP 10-10), and Paved Road Segment 23;
- Paving unpaved road segments 20 and 21;
- Updates to cooling tower circulating water rate and total dissolved solids (TDS) content (EP 09-01 through 09-09);
- Updates to emergency generator engine horsepower (HP) (EP 10-02 and 10-03);
- Changes to stack parameters for several sources and road design and reallocation of emissions to associated release points (EU01-MSFUG, EP 03-01, EP 03-04, EP 06-01, EP 06-03, EP 06-05);
- Emissions calculations updates for Walking Beam Reheat Furnace (EP 03-01), Coil Sample Plasma Cutter (EP 03-06), Continuous Heat Treat Plasma Cutter (EP 04-04), Light Plate Burning Beds #1 and #2 (EP 17-01), Heavy Plate Burning Beds #1 - #3 (EP 05-03), and Slag Plant Oxy Fuel-Fired Torches (EP 12-04);
- Increased throughput for the Caster [Includes Melt Shop Fugitives (EU01-MSFUG), Caster Spray Vent (EP 01-05), Primary Caster Torch Cut Off (EP 01-06), Secondary Caster Torch Cut Off (EP 01-12), and Caster Quench Box (EP 01-11)];
- Updates to compliance demonstration for the Melt Shop Baghouse (C0101) lb/ton emissions limitations; and
- Increased Best Available Control Technology (BACT) limit for volatile organic compounds (VOC) for the Caster Spray Vent (EP 01-05) from 0.40 lb/hr to 4.4 lb/hr.

The potential emissions of each regulated New Source Review (NSR) pollutant emitted from the plate mill emission units have been evaluated against the Prevention of Significant Deterioration (PSD) major source threshold [401 KAR 51:001, Section 1(118) and 40 CFR 51.166(b)(1)(i)]. The plate mill is a steel mill, one of the 28 source categories, with a PSD major source threshold of 100 tons per year (ton/yr) of a regulated NSR pollutant, except greenhouse gases (GHG) which is 100,000 ton/yr of carbon dioxide equivalents (CO_2e). The potential emissions from the stationary source exceed the PSD major source threshold for nitrogen oxides (NO_X), carbon monoxide (CO), sulfur dioxide (SO_2), VOC, particulate matter (PM), PM with an aerodynamic diameter less than 10 micrometers (PM_{10}), PM with an aerodynamic diameter less than 2.5 micrometers ($PM_{2.5}$), and GHG. As such, the NSBB steel mill is a major stationary source with respect to PSD and subject to Kentucky Administrative Regulations, Title 401, Chapter 51:017 (401 KAR 51:017, Section 1), which was approved into the Kentucky State Implementation Plan (SIP).

Nucor submits this application in accordance with 401 KAR 51:017 and 401 KAR 52:020, Section 1(3), which lists information and procedures required for inclusion in a PSD construction permit application. The air quality demonstration can be divided into the following general parts:

Process description for the facility

Regulatory review of applicable air quality regulations for the proposed affected facilities, including a BACT Analysis for each pollutant subject to PSD review.

Ambient air quality impact assessment for the regulated NSR pollutants with potential emissions exceeding the PSD significant emissions rate (SER).

Analysis of the impacts on general growth, soil, vegetation, and visibility associated with the proposed project.

This application is outlined as follows:

- Section 2 presents a description of the facility operations;
- Section 3 summarizes the permit revisions requested in this application;
- Section 4 summarizes the potential to emit for the NSBB steel mill;
- Section 5 contains a Kentucky and Federal regulatory applicability analysis;
- Section 6 presents the BACT review and determinations;
- Appendix A provides a Site Plan;
- Appendix B contains required Kentucky DAQ construction application forms;
- Appendix C contains detailed emission calculations for emissions included in this application;
- Appendix D provides a markup of Permit V-20-001 R1 incorporating the proposed revisions; and
- Appendix E contains process flow diagrams.

Volume II of this application provides the ambient air quality impact assessments and the analysis of the potential impairment to visibility, soils, and vegetation resulting from the proposed project and associated general growth.

2. FACILITY DESCRIPTION

The NSBB plate mill recycles scrap steel and scrap substitutes using the EAF process. Scrap steel and scrap substitutes are delivered to the facility by barge, rail, and truck. Scrap steel, scrap substitutes, carbon, and flux are charged to the EAF and melted by applying electric current through the feed mixture. Molten metal is tapped to a ladle and transferred to the LMF, where the chemistry and temperature of the steel is adjusted to customer specifications. From the LMF, the molten metal may be transferred to a vacuum degasser prior to being cast as slabs. The slabs are heated to a consistent temperature in a reheat furnace and car bottom furnaces prior to being rolled and shaped to its final form as hot rolled plate coils, light plates, or heavy plates.

NSBB has an annual steel production rate of 1.75 million tons per year. Additional emission units are present to support the production processes. Section 3 summarizes the proposed changes being requested for inclusion in the permit revision. Appendix A provides a site layout plan detailing the locations of the proposed changes and Appendix E provides process flow diagrams for the proposed changes.

3. PROPOSED PERMIT REVISIONS

The proposed permit revisions are discussed in following section.

Appendix D provides a red line-strike out of Permit V 20-001 R1 that identifies the proposed revisions described throughout.

3.1 ADDITION OF INGOT GRINDING (EP 03-10)

The ingot grinding operations will include a traversing grinder and a stationary grinder contained within a partial enclosure. Emissions from the ingot grinding operations will include PM and Metal HAPs. A travelling capture system will collect potential emissions that are vented to the baghouse (Ingot Grinding Baghouse) for control of particle-phase pollutants to 0.005 gr/dscf. The uncaptured emissions will be emitted within the building and discharged to atmosphere through the Rolling Mill building monovent.

3.2 ADDITION OF INGOT GRINDING OXY-FUEL CUTTING TORCH (EP 03-11)

The ingot grinding oxy-fuel cutting torch will be employed for cutting ingots that are 5 to 36 inches thick. The oxy-fuel cutting torch will emit pollutants from natural gas combustion and PM and Metal HAPs from cutting. Emissions generated from the oxy-fuel torch cutting of ingots will be emitted within the building and discharged to atmosphere through the Rolling Mill building monovent.

3.3 ADDITION OF EMERGENCY GENERATOR (EP 10-10)

One diesel-fueled emergency engine with a maximum of 1,411 horsepower is planned to be installed in the Rolling Mill area. The emergency engine may be operated for a maximum of 100 hours per calendar year for the purposes of maintenance checks and readiness testing in accordance with 40 CFR 60 Subpart IIII. These regulations do not limit the number of hours the emergency generators may operate during an emergency. However, U.S. EPA guidance indicates that for purposes of the NSR and Title V programs, emergency generators should be permitted "some amount of operation sufficiently large to cover emergencies (i.e., 500 hours a year)." As such, annual emissions calculations are based on 500 hours per year of operation[1]. Emissions from the emergency engine will be calculated using a combination of emission factors from AP-42 Chapter 3.4, Tier 2 emission standards, and 40 CFR 60, Subpart IIII, "Standards of Performance for Stationary Compression Ignition Internal Combustion Engines" emissions standards.

3.4 ADDITION OF PAVED ROAD SEGMENT 23 (EP 14-01)

As-built conditions indicate that there is a paved road segment, designated 23. The new road segment has been incorporated into project modeling and is detailed in the emissions calculations included in Appendix C.

[1] February 14, 2006 letter from Steven C. Riva, Chief Permitting Section, Air Programs Branch, Region 2, U.S. Environmental Protection Agency to William O'Sullivan, Director Division of Air Quality, New Jersey Department of Environmental Protection.

3.5 PAVING UNPAVED ROAD SEGMENTS 20 AND 21 (EP 14-01 AND EP 14-02)

NSBB plans to pave the unpaved road segments 20 and 21.

3.6 COOLING TOWERS UPDATES (EP 09-01 THROUGH 09-09)

As-built conditions indicate that the currently permitted cooling towers may operate with modified potential circulation rates and TDS contents. The modified recirculation rates and TDS contents have been incorporated into project modeling and are detailed in the emissions calculations, included in Appendix C.

3.7 EMERGENCY ENGINE HP UPDATES (EP 10-02 AND EP 10-03)

As part of this update, specification sheets for the emergency generators were reviewed and it was noted that the listed HP differed from what was permitted for G100-2 Emergency Generator (EP 10-02) and G100-3 Emergency Generator (EP 10-03). NSBB requests that the maximum power output of EP 10-02 and EP 10-03 be updated from the currently permitted 2,682 HP to 2,937 HP to reflect the actual generators' designs. The updated HP has been incorporated into the air dispersion modeling.

3.8 UPDATES TO STACK PARAMETERS

Several emission point stack parameters have been updated to align with their as-built conditions. The updated stack parameters have been incorporated into air dispersion modeling. Emission points with stack parameter updates are listed as follows:

- EU01-MSFUG – Melt Shop Fugitives;
- EP 01-11 – Caster Quench Box;
- EP 03-01 – Walking Beam Reheat Furnace
- EP 05-03 – Heavy Plate Burning Beds #1, #2, #3, and #1A;
- EP 17-01 – Light Plate Burning Beds #1B, #2C, and #2D;
- EP 06-01 – EAF Flux and Carbon Handling;
- EP 06-03 – LMF Flux and Carbon Handling
- EP 06-05 – LMF Alloy Handling;
- EP 09-06 – HP Quench DCW Cooling Tower, System 600, Cells 1 – 4;
- EP 09-09 – Heat Treat Cooling Tower, System 800, Cells 1 – 8 and Air Separation Plant Cooling Tower, Cells 1 – 4;
- EP 10-08 – G300-1 Emergency Generator;
- EP 11-02 – Admin Building Emergency Generator;
- EP 18-01 – B&P Line Preheater/Dryer Combustion;
- EP 18-02 – B&P Line Shot Blaster; and
- EP 18-03 – B&P Line Painting Operations/RTO.

3.9 EMISSION CALCULATION UPDATES FOR WALKING BEAM REHEAT FURNACE (EP 03-01), COIL SAMPLE PLASMA CUTTER (EP 03-06), CONTINUOUS HEAT TREAT PLASMA CUTTER (EP 04-04), LIGHT PLATE BURNING BEDS #1 AND #2 (EP 17-01), HEAVY PLATE BURNING BEDS #1 - #3 (EP 05-03), AND SLAG PLANT OXY FUEL-FIRED TORCHES (EP 12-04)

The emission calculations for the facility were reviewed and it was noted that uncaptured emissions (i.e., not captured by appropriated baghouses) had not been included in the initial emissions estimates for the following sources: Coil Sample Plasma Cutter (EP 03-06), Continuous Heat Treat Plasma Cutter (EP 04-04), Light Plate Burning Beds #1 and #2 (EP 17-01), Heavy Plate Burning Beds #1 - #3 (EP 05-03), and Slag Plant Oxy Fuel-Fired Torches (EP 12-04). Updated emissions calculations are included in Appendix C and are incorporated into the updated air dispersion modeling.

NSBB also requests that the Walking Beam Reheat Furnace have the following updated BACT limits: 7.6 lb/MMscf $PM_{10}/PM_{2.5}$ and 1.9 lb/MMscf FPM. The previously established BACT limits are 13.26 $PM_{10}/PM_{2.5}$ and 3.57 FPM.

3.10 INCREASED THROUGHPUT FOR MELT SHOP FUGITIVES (EU01-MSFUG), CASTER SPRAY VENT (EP 01-05), PRIMARY CASTER TORCH CUT OFF (EP 01-06), SECONDARY CASTER TORCH CUT OFF (EP 01-12), AND CASTER QUENCH BOX (EP 01-11)

The maximum steel processing rate through the continuous caster will be increased from 370 to 420 tons per hour. This increase in throughput will affect the throughput through Melt Shop Fugitives (EU01-MSFUG), Caster Spray Vent (EP 01-05), Primary Caster Torch Cut Off (EP 01-06), Secondary Caster Torch Cut Off (EP 01-12), and Caster Quench Box (EP 01-11). However, note that the captured emissions from the Melt Shop Baghouse will be unaffected because 1) the PM emissions are based on the grain loading of the baghouse and the flow rate is unaffected by this throughput increase and 2) it is anticipated that the increase in steel processing rate through the continuous caster will have a negligible effect on the remaining pollutants.

3.11 UPDATES TO COMPLIANCE DEMONSTRATION FOR THE MELT SHOP BAGHOUSE (C0101) LB/TON EMISSIONS LIMITATIONS

NSBB has encountered process variability during the ongoing startup of the Melt Shop and downstream Roll Mill processes. As a result of this variability and the low production rates, NSBB has been unable to achieve normal operation of the Melt Shop Baghouse (C0101) and consequently, challenges with continuous compliance with the production-based lb/ton BACT emissions limitations. Based on prior conversations with the Kentucky Department of Air Quality (KYDAQ), Nucor is proposing that the limits become effective once consistent, representative production rates can be demonstrated. Nucor is proposing that the lb/ton BACT limits shall become effective when three (3) consecutive months of a representative production (100,000 tons steel produced per month) is achieved, not to exceed the current permit expiration, July 23, 2025.

3.12 INCREASED BACT LIMIT FOR VOC FOR CASTER SPRAY VENT (EP 01-05)

An analysis of past literature and inventory and testing data has determined that a reasonably accurate emission factor for VOC emissions from the Caster Spray Vent (EP 01-05) can be developed based on initial performance test data and similar Nucor mills. After review of the results and information, as well as the proposed increased maximum hourly steel processing rate, the current BACT limit for the Caster Spray Vent (EP 01-05) was evaluated. The initial BACT limit applied, for VOC from the Caster Spray Vent (EP 01-05) is 0.40 lb/hr, which is based on other emission limits accepted by other Divisions. Since construction, Nucor has assessed the operating conditions of the Caster Spray Vent (EP 01-05) and conducted an initial performance test for VOC emissions from Caster Spray Vent operations at NSBB.

Due to the unique operating conditions of the Nucor Brandenburg plate mill, the VOC emissions from the Caster Spray Vent (EP 01-05) are expected to be greater than previously estimated. The higher VOC emissions are a result of the additional lubricant necessary to process the increased length and weight of the Brandenburg steel casting. After review of all relevant information, Nucor proposes the BACT VOC emission rate of the Caster Spray Vent (EP 01-05) to be increased to 4.4 lb/hr, which is the BACT limit of Caster Spray Vents at Nucor Arkansas.

4. AIR EMISSIONS SUMMARY

The manufacturing process at the NSBB Mill will emit criteria and hazardous air pollutants to the atmosphere. This section summarizes the potential emissions from the facility and assesses PSD permitting applicability for the proposed permit revisions. Appendix C presents detailed emission calculations for the proposed permit revisions.

As discussed in Section 1.0, the NSBB Mill is located in Meade County, which has been classified as “attainment” for all criteria pollutants (40 CFR 81.318 and 401 KAR 51:010). As such, any new construction or modifications that result in emission increases are potentially subject to the PSD permitting regulations. PSD applicability depends on the existing status of the facility (i.e. major or minor source) and the net emissions increase associated with the project. The NSBB Mill is considered a major source under the PSD permitting program, with emissions of one or more regulated NSR pollutants greater than 100 ton/yr.

Table 4-1 provides a summary of the revised facility-wide potential emission rates compared to the originally submitted facility-wide potential emissions and to the SERs. The changes represented in this application are considered part of the original PSD project. Therefore, based on the potential emissions, NSBB is subject to PSD review for NO_X, CO, SO_2, VOC, PM, PM_{10}, $PM_{2.5}$, and GHG. It is important to note that this application addresses any as-built changes to the initial PSD construction application and the subsequent revised application and differences in potential emissions from the revised application do not exceed significant emission rates.

A stationary source is a major source of HAP if emissions of any individual HAP exceeds 10 ton/yr or the combined emissions of all HAPs exceed 25 ton/yr. Hexane is the greatest individual emitted HAP from the proposed project, with a total potential emission of 9.34 ton/yr. The total combined HAP emissions from the proposed project is 19.6 ton/yr. Therefore, the NSBB Mill will remain an area source of HAP and subject to Area Source HAP regulations, as detailed in Section 5 below.

TABLE 1 PROPOSED PROJECT EMISSIONS SUMMARY

Pollutant	2020 Revised Facility-Wide Potential Emissions (ton/year)	2023 Revised Facility-Wide Potential Emissions (ton/year)	PSD / Title V SER (ton/year)	PSD / Title V SER Exceeded? (Yes/No)
Filterable PM	303.1	302.0	25	No
PM_{10}	431.7	432.7	15	No
$PM_{2.5}$	276.4	271.9	10	No
NO_X	785.1	775.0	40	No
SO_2	313.0	313.0	40	No
VOC	149.5	161.1	40	No
CO	2,159	2,161.0	100	No
Lead	0.40	0.44	0.6	No
Fluorides	2.08	2.08	3.0	No
CO_2e	1,084,469	938,112	75,000	No

5. AIR EMISSIONS SUMMARY

The following regulatory analysis identifies potentially applicable state and federal air quality regulations and explains why each regulation is or is not considered applicable to the proposed project.

5.1 KENTUCKY AIR QUALITY REGULATIONS

NSBB is located in Meade County, which is designated as attainment/unclassifiable for all National Ambient Air Quality Standards (NAAQS) as per the Kentucky Administrative Regulations, 401 KAR 51:010.

5.1.1 401 KAR 50 – DIVISION FOR AIR QUALITY; GENERAL ADMINISTRATIVE PROCEDURES

The purpose of 401 KAR Chapter 50 is to establish general procedures and requirements relating to fees, modeling, engineering practice, monitoring, testing, and compliance. NSBB shall comply with the procedures and requirements of this chapter.

5.1.2 401 KAR 51:017 - PREVENTION OF SIGNIFICANT DETERIORATION OF AIR QUALITY

Prevention of Significant Deterioration (PSD) applies to new major stationary sources or major modifications at existing major stationary sources located in NAAQS attainment or unclassifiable areas. The NSBB Mill is located in Meade County. Meade County has been designated by the U.S. EPA as "attainment" for all criteria pollutants[2]. Therefore, the potentially applicable federal construction-permitting program to the NSBB Mill is the PSD permitting program. A facility is major stationary source under the PSD permitting program if it is:

- *One of the listed stationary source categories in 401 KAR 51:017 Section 7(1)(c) and has the potential to emit greater than 100 tons per year of one or more regulated NSR pollutants; or*
- *Any other stationary source which has the potential to emit 250 tons per year or more of a regulated NSR pollutant.*

The NSBB Mill is one of the listed stationary source categories in 401 KAR 51:001, Section 1(118) and emissions have the potential to exceed 100 tons per year for several regulated NSR pollutants; therefore, the mill is considered a major source under the PSD permitting program. Kentucky has the authority to administer the PSD program through its State Implementation Plan approval[3]. The changes represented in this application are considered part of the original PSD project. Therefore, based on the revised potential emissions, NSBB remains subject to PSD review for NO_X, CO, SO_2, VOC, PM, PM_{10}, $PM_{2.5}$, and GHG. These regulations specify that any new major stationary source within an air quality attainment area must undergo a PSD review and obtain all applicable Federal and State preconstruction permits prior to commencement of construction.

PSD review generally consists of:

1. A case-by-case BACT demonstration, taking into account energy, environmental, and economic impacts as well as technical feasibility;
2. An ambient air quality impact analysis to determine whether the allowable emissions from new major stationary source, would cause or contribute to a violation of the applicable PSD increments and NAAQS;
3. An ambient air quality monitoring program for up to one year;
4. An assessment of the direct and indirect effects of the new major stationary source on general growth, soil, vegetation, and visibility; and
5. Public comments, including an opportunity for a public hearing.

An applicant may be exempt from the ambient air quality monitoring requirement if the impact from the new major stationary source is less than the monitoring de minimis concentrations[4].

With this permit application, NSBB proposes to reconcile as-built changes. These proposed changes are considered to be associated with the original PSD project for the site; therefore, NSBB is subject to PSD review for NO_X, CO, SO_2, VOC, PM, PM_{10}, $PM_{2.5}$, and GHG. As such, PSD regulations per 40 KAR 51:017 apply to the proposed changes.

The purpose of 401 KAR Chapter 52 is to establish permitting provisions and requirements. Specifically, 401 KAR 52:020 covers Title V permits and permitting procedures for PSD permitting. NSBB shall comply with the general provisions as provided in 401 KAR 52:020, Section 3.

[2] 40 CFR 81.318 Kentucky.
[3] 79 FR 65143 and 40 CFR 52.920(c)
[4] 401 KAR 51:017, Section 7(5)

5.1.3 401 KAR 59:010 AND APPENDIX A TO 401 KAR 59:010: PARTICULATE MATTER

The purpose of 401 KAR 59:010 is to regulate emissions from new process operations that are not subject to another particulate standard within Chapter 59. Pursuant to 401 KAR 59:010, Section 3 and Appendix A to 401 KAR 59:010, NSBB shall not cause, suffer, allow, or permit, from a control device or stack associated with any affected facility, the release of emissions with opacity equal to or greater than twenty (20) percent opacity, nor shall NSBB permit the release of PM from any affected facility which is in excess of the quantity specified by Appendix A to 401 KAR 59:010, below:

"Interpolation of the data for process weight rates up to 60,000 lb/hr shall be accomplished by use of the equation:

$$E = 3.59P0.62$$

and interpolation and extrapolation of the data for process weight rates in excess of 60,000 lb/hr shall be accomplished by the use of the equation:

$$E = 17.31P0.16$$

where

E = rate of emission in lb/hr and P = process weight rate in tons/hr."

NSBB complies with these requirements by either having a potential to emit less than the limit or through the use of controls.

5.1.4 401 KAR 60:005 – 40 CFR 60 STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES

401 KAR 60:005 incorporates federal New Source Performance Standards (NSPS) regulations codified in 40 CFR Part 60. Applicability of NSPS regulations to sources at the NSBB facility is discussed in Section 5.2.2 of this application.

5.1.5 401 KAR 63:002 – 40 CFR 63 NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS

401 KAR 63:002 incorporates, by reference, National Emission Standards for Hazardous Air Pollutants (NESHAP), codified in 40 CFR Part 63. NESHAP regulations and their applicability to the NSBB facility are discussed in Section 5.2.3 of this application.

5.1.6 401 KAR 63:005 – OPEN BURNING

401 KAR 63:005 establishes requirements for the control of open burning. Open burning is prohibited, except as permitted in 401 KAR 63:005, Sections 4 and 5. NSBB will comply with the burning rules and restrictions promulgated under this subpart and shall provide Fire Training to employees in compliance with Section 6 requirements of 401 KAR 63:005.

5.1.7 401 KAR 63:010 – FUGITIVE EMISSIONS

401 KAR 63:010 establishes requirements for an apparatus, operation, or road that emits or may emit fugitive emissions, provided that the fugitive emissions from such facility are not elsewhere subject to an opacity standard. NSBB shall take reasonable precautions to prevent

PM from becoming airborne. Such precautions include, but are not limited to the approaches in 401 KAR 63:010, Section 3(1) and 4(1), listed below:

- "Use, where possible, water or suitable chemicals for control of dust in the demolition of existing buildings or structures, construction operations, the grading of roads, or the clearing of land;
- Application and maintenance of asphalt, oil, water, or suitable chemicals on roads, material stockpiles, and other surfaces which can create airborne dusts;
- Installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty materials, or the use of water sprays or other measures to suppress the dust emissions during handling. Adequate containment methods shall be employed during sandblasting or other similar operations;
- Covering, at all times when in motion, open bodied trucks transporting materials likely to become airborne;
- The maintenance of paved roadways in a clean condition;
- The prompt removal of earth or other material from a paved street to which earth or other material has been transported by trucking or earth moving equipment or erosion by water."
- Covering open bodied trucks that are operating outside company property that are transporting materials likely to become airborne.

Additionally, NSBB shall ensure there is no "discharge of visible fugitive dust emissions beyond the lot line of the property on which the emissions originate," as required by 401 KAR 63:010, Section 3(2) and shall not allow "earth or other material being transported by truck or earth moving equipment to be deposited onto a paved street or roadway" as per 401 KAR 63:010, Section 4(3). Because NSBB is such a large facility, there are several "internal" lot lines on the property. For clarity, the visible emission requirements that are applicable to the "lot line" in 401 KAR 63:010 only apply to the external lot line of the property.

5.1.8 401 KAR 63:020 – POTENTIALLY HAZARDOUS MATTER OR TOXIC SUBSTANCES

This regulation applies to emissions of potentially hazardous matter or toxic substances, which are not subject to provisions of any other regulations of the Division for Air Quality. As defined in 401 KAR 63:020, Section 2:

"Potentially hazardous matter or toxic substances means matter which may be harmful to the health and welfare of humans, animals, and plants, including, but not limited to, antimony, arsenic, bismuth, lead, silica, tin, and compounds of such materials."

NSBB shall control the emissions of potentially hazardous matter and toxic substances to ensure they are not emitted "in such quantities or duration as to be harmful to the health and welfare of humans, animals, and plants," as per 401 KAR 63:020, Section 3.

5.2 FEDERAL AIR QUALITY REGULATIONS

5.2.1 NEW SOURCE PERFORMANCE STANDARDS

New Source Performance Standards (NSPS) require new, modified, or reconstructed sources to control emissions to the level achievable by the best-demonstrated technology as specified in the applicable provisions. The NSPS regulations are codified under 40 CFR Part 60. An analysis of relevant NSPS subparts that may or may not be affected by the proposed changes is presented below.

5.2.1.1 40 CFR 60, SUBPART A – GENERAL PROVISIONS

Sources subject to source-specific NSPS are also subject to the general provisions of NSPS Subpart A. 40 CFR 60, Subpart A includes the following requirements that generally apply to facilities subject to a NSPS:

- Initial construction/reconstruction notifications;
- Initial startup notifications;
- Performance tests;
- Performance test date initial notifications;
- General monitoring requirements;
- General recordkeeping requirements; and
- Semiannual monitoring system and/or excess emissions reports.

5.2.1.2 40 CFR 60, SUBPART AAa – STANDARDS OF PERFORMANCE FOR STEEL PLANTS: ELECTRIC ARC FURNACES AND ARGON-OXYGEN DECARBURIZATION VESSELS CONSTRUCTED AFTER AUGUST 17, 1983.

40 CFR 60, Subpart AAa," Standards of Performance for Steel Plants: Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels Constructed After August 17, 1983," establishes emission standards and compliance schedules for facilities in steel plants that produce carbon, alloy, or specialty steels, including EAF, argon-oxygen decarburization vessels, and dust-handling systems, and that commenced construction, reconstruction, or modification after August 17, 1983.

NSBB is subject to the requirements of this subpart through operation of the EAF (EP 01-01) and associated dust-handling equipment (EP 01-07). This subpart establishes particulate emission limits and opacity standards for affected equipment. The EAF is currently permitted for processing 272 tons of steel per hour and 1,750,000 tons of steel per year. This permit application does not include modifications to the EAF which would result in increases to these production rates and thereby increase pollutant emissions from these sources. Therefore, applicability to this subpart is not affected by this application.

5.2.1.3 40 CFR 60, SUBPART AAb – STANDARDS OF PERFORMANCE FOR STEEL PLANTS: ELECTRIC ARC FURNACES AND ARGON-OXYGEN DECARBURIZATION VESSELS CONSTRUCTED AFTER MAY 16, 2022.

40 CFR 60, Subpart AAb," Standards of Performance for Steel Plants: Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels Constructed After May 17, 2022," establishes emission standards and compliance schedules for facilities in steel plants that produce carbon, alloy, or specialty steels, including EAF, argon-oxygen decarburization vessels, and dust-handling systems, and that commenced construction, reconstruction, or modification after May 17, 2022.

This permit application does not include construction, reconstruction, or modification of the EAF. Therefore, this subpart is not applicable.

5.2.1.4 40 PART 60, SUBPART IIII – STANDARDS OF PERFORMANCE FOR STATIONARY COMPRESSION IGNITION INTERNAL COMBUSTION ENGINES

40 CFR 60, Subpart IIII, "Standards of Performance for Stationary Compression Ignition Internal Combustion Engines," is applicable to manufacturers, owners, and operators of stationary compression ignition (CI) internal combustion engines (ICE). NSPS Subpart IIII includes requirements such as emission standards, work practices, and recordkeeping for each emission source as applicable.

The new diesel-fueled emergency engine with a maximum horsepower of 1,411 will be subject to Subpart IIII. Additionally, the currently permitted emergency generators that NSBB is requesting HP updates for (EP 10-02 and EP 10-02) will continue to comply with the requirements of Subpart IIII. Under Subpart IIII, the emergency generator will be required to operate as a stationary emergency ICE, as defined by the criteria in 40 CFR 60.4211(f)(1-3). The emergency engine may be operated for a maximum of 100 hours per calendar year for the purposes of maintenance checks and readiness testing. Additionally, emergency engines may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance.

5.2.2 NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS

National Emission Standards for Hazardous Air Pollutants (NESHAP) are emission standards that are generally applicable to major sources of HAPs, but also apply to certain area sources of HAPs. A HAP major source is defined as having potential emissions equal to or in excess of 10 tons per year for any individual HAP and/or 25 tons per year for total HAPs. The greatest individual potential HAP emissions from NSBB is 9.34 tons per year of hexane, and the total combined HAP emissions is estimated to be 19.6 tons per year. As such, NSBB is classified as an area source of HAPs.

An applicability analysis of potentially applicable NESHAP (40 CFR Part 63) subparts affected by the proposed changes is presented below.

5.2.2.1 40 CFR 63, SUBPART Q – NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS FOR INDUSTRIAL PROCESS COOLING TOWERS

40 CFR 63, Subpart Q, "National Emission Standards for Hazardous Air Pollutants for Industrial Process Cooling Towers (IPCT)," establishes the standard that no owner or operator of IPCT shall use chromium-based water treatment chemicals in any affected ICPT. An affected ICPT is established to be all new and existing ICPTs that are operated with chromium-based water treatment chemicals and are either major sources or are integral parts of facilities that are major sources. NSBB is an area source of HAP emissions and, therefore, this subpart does not apply.

5.2.2.2 40 CFR 63, SUBPART YYYY – NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS FOR AREA SOURCES: ELECTRIC ARC FURNACE STEELMAKING FACILITIES

40 CFR 63, Subpart YYYYY, "National Emission Standards for Hazardous Air Pollutants for Area Sources: Electric Arc Furnace Steelmaking Facilities," establishes HAP emission limitations and operating requirements for electric arc furnaces (EAF) at area sources of HAP emissions.

The NSBB mill is categorized as an area source of HAP emissions and operates an existing EAF (EP 01-01). Therefore, NSBB must comply with the provisions of this subpart. Specifically, NESHAP Subpart YYYYY establishes operating and emission limits, as follows.

> *"You must install, operate, and maintain a capture system that collects the emissions from each EAF…and conveys the collected emissions to a control device for the removal of particulate matter." [63.10686(a)]*
>
> *"...[Y]ou must not discharge or cause the discharge into the atmosphere from an EAF…any gases which:*
>
> > *(1) Exit from a control device and contain in excess of 0.0052 grains of PM per dry standard cubic foot (gr/dscf); and*
> >
> > *(2) Exit from a melt shop and, due solely to the operations of any affected EAF(s)…, exhibit 6 percent opacity or greater." [63.10686(b)(1)-(2)]*
>
> *"…you must conduct performance tests to demonstrate initial compliance with the applicable emissions limit for each emissions source subject to an emissions limit in paragraph (b) or (c) of this section.*
>
> > *a. You must conduct each PM performance test for an EAF or AOD vessel according to the procedures in §63.7 and 40 CFR 60.275a using the following test methods in 40 CFR part 60, appendices A–1, A–2, A–3, and A–4…" [63.10686(d)(1)]*
>
> *You must monitor the capture system and PM control device required by this subpart, maintain records, and submit reports according to the compliance assurance monitoring requirements in 40 CFR part 64. [63.10686(e)]*
>
> *"…the owner or operator of the affected source must perform such tests within 180 days of the compliance date for such source." [63.7(a)(2)]*
>
> *"If you start up a new affected source after December 28, 2007, you must achieve compliance with the applicable provisions of this subpart upon startup of your affected source." [63.10681(d)]*

Additionally, NESHAP Subpart YYYYY establishes requirements for the control of contaminants from scrap charged to the EAF.

This permit application does not include modifications to the EAF which would result in changes in operation or emissions. Therefore, applicability to this subpart is not affected by this application.

5.2.2.3 40 CFR 63, SUBPART ZZZZ – NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS FOR STATIONARY RECIPROCATING INTERNAL COMBUSTION ENGINES

40 CFR 63, Subpart ZZZZ, "National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines," establishes national emission limitations and operating limitations for hazardous air pollutants (HAP) emitted from stationary reciprocating internal combustion engines (RICE) located at major and area sources of HAP emissions. For a stationary RICE located at area sources of HAP, it is considered new if construction of the RICE began on or after June 12, 2006.

Subpart ZZZZ applies to the new emergency engine (EP 10-10) and the emergency generators that NSBB is requesting HP updates for (EP 10-02 and EP 10-03) will continue to comply with the requirements of Subpart ZZZZ. In accordance with 63.6590(c)(1), the engines will meet the requirements of this subpart by complying with 40 CFR 60 Subpart IIII.

5.2.3 COMPLIANCE ASSURANCE MONITORING

Under 40 CFR Part 64, Compliance Assurance Monitoring (CAM) regulations, facilities are required to prepare and submit monitoring plans for certain emission units with the initial or renewal Part 70 operating permit application. Under the general applicability criteria, CAM only applies to each pollutant-specific-emission-unit (PSEU) that satisfies the following criteria pursuant to 40 CFR 64.2(a)(1)-(3):

1. The unit is subject to an emission limitation or standard for the applicable regulated air pollutant;
2. The unit uses an active control device to achieve compliance with an emission limitation or standard; and
3. The unit has potential pre-control device emissions, of the applicable regulated air pollutant, equal to or greater than the amount (tons per year) required to classify the unit as a major source under Part 70.

Pursuant to 40 CFR 64.2(b), CAM does not apply to any emission unit that is subject to a NSPS or NESHAP promulgated after November 15, 1990, as these standards are designed with monitoring that provides a reasonable assurance of compliance.

For an emission unit, subject to CAM, whose post-controlled emissions are less than the major source emission thresholds [other PSEU per 40 CFR 64.5(b)], a CAM plan is required to be submitted with the first Title V permit renewal application.

As defined in 40 CFR 64.1 a "control device", for purposes of this part does not include passive control measures that act to prevent pollutants from forming, such as the use of seals, lids, or roofs to prevent the release of pollutants, use of low-polluting fuel or feedstocks, or the use of combustion or other process design features or characteristics.

NSBB will employ low-NOX burners in most of the fuel burning equipment. The objective in the application of low-NOX burners is to minimize NOX formation, while maintaining acceptable combustion of carbon and hydrogen in the fuel. As the primary purpose of the low-NOX burners is to prevent the formation of pollutants, they are defined as a passive control measure and a CAM plan is not required.

In accordance with 40 CFR 64.5(a), a CAM plan is required as part of an application for an initial Title V permit for large PSEUs, units whose post-controlled emissions are greater than the major source emission thresholds, that satisfy the CAM general applicability criteria. The Melt Shop Baghouse is the only egress point with controlled emissions (PM, PM10, and PM2.5) greater than the major source emission thresholds, subject to an emission limitation or standard, and uses an active control device to achieve compliance with the emission limitation or standard. Therefore, a CAM Plan for the Melt Shop Baghouse was submitted with the initial Title V permit application and was approved by the Kentucky DAQ as Attachment A to Permit V-20-001. NSBB is not requesting any changes to the negative pressure baghouse (C0101) that controls particulate emissions from the Melt Shop (EU 01).

NSBB evaluated the Ingot Grinding Baghouse for CAM applicability.

1. Ingot Grinding (EP 03-10) is subject to 401 KAR 59:010. The purpose of 401 KAR 59:010 is to regulate emissions from new process operations that are not subject to another particulate standard within Chapter 59. This application also establishes a BACT limitation for Ingot Grinding (01-13), which is regulated by 401 KAR 51.017.
2. 401 KAR 59:010 regulates the release of PM (filterable and condensable) from any affected facility to below the following: $E = 17.31P^{0.16}$. Ingot Grinding (EP 03-10) has a maximum steel processing rate of 225 tons/hr, and therefore emissions are regulated to 41.18 lb/hr. However, the calculated pre-control device emissions for PM is equal to 22.50 lb/hr. Therefore, Ingot Grinding (EP 03-10) does not require a control device to achieve compliance with the limitation in this standard. 401 KAR 51.017 regulates the release of PM (filterable and condensable) and PM_{10}(filterable and condensable) to 0.005 gr/dscf and $PM_{2.5}$ (filterable and condensable) to 0.0025 gr/dscf. For this limitation, Ingot Grinding (EP 03-10) requires a control device to achieve compliance.
3. Ingot Grinding (EP 03-10) has pre-control device PM emissions equal to 98.55 tons per year, which is below the amount required to classify the unit as a major source under Part 70 (100 tons per year. Therefore, Ingot Grinding (EP 03-10) does not fit the criteria of CAM.

In conclusion, a revised CAM Plan is not included with this application update.

6. BACT ANALYSIS

A case-by-case BACT analysis was performed, as required by 401 KAR 51:017, for each new emission source included in this application and is further detailed in the following subsections.

6.1 BACT ANALYSIS GUILDLINES

BACT is defined in 401 KAR 51:001, Section 1(25), as the following:

> *Best available control technology means an emissions limitation, including a visible emission standard, based on the maximum degree of reduction for each regulated NSR pollutant that will be emitted from a proposed major stationary source or major modification and:*
>
> *(a) Is determined by the cabinet pursuant to 401 KAR 51:017, Section 8, after taking into account energy, environmental, and economic impacts and other costs, to be achievable by the source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of that pollutant;*
>
> *(b) Does not result in emissions of a pollutant that would exceed the emissions allowed by an applicable standard codified in 40 C.F.R. Parts 60 and 61; and*
>
> *(c) Is satisfied by a design, equipment, work practice, or operational standard or combination of standards approved by the cabinet, if:*
>
>> *(c)1. The cabinet determines pursuant to 40 C.F.R. 51.166(b)(12) that technological or economic limitations on the application of measurement methodology to a particular emissions unit would make the imposition of an emissions standard infeasible;*
>>
>> *(c)2. The standard establishes the emissions reduction achievable by implementation of the design, equipment, work practice, or operation; and*
>>
>> *(c)3. The standard provides for compliance by means that achieve equivalent results.*

Federal guidance on BACT proposes an evaluation that follows a "top down" process. In a top-down approach, the applicant identifies the best-controlled similar source on the basis of controls required by a regulation or permit, or controls achieved in practice. The highest level of control is then evaluated for technical feasibility.

The five basic steps of a top-down BACT[5] analysis are listed below:

Step 1: Identify potential control technologies;

Step 2: Eliminate technically infeasible options;

Step 3: Rank remaining control technologies by control effectiveness;

Step 4: Evaluate the most effective controls and document results; and

Step 5: Select BACT.

[5] New Source Review Workshop Manual Prevention of Significant Deterioration and Nonattainment Area Permitting, EPA, Draft October 1990.

6.1.1 KEY STEPS IN A TOP-DOWN BACT ANALYSIS

The key steps in a top-down BACT analysis are outlined in the Draft New Source Review Workshop Manual issued by the United States Environmental Protection Agency (US EPA) in 1990. The process follows these steps:

Step 1 - Available Control Options

The first step is to identify potentially "available" control options for each emission unit and for each pollutant under review. Available options should consist of a comprehensive list of those technologies with a potentially practical application to the emissions unit in question. The list should include Reasonably Available Control Technology (RACT), BACT, Lowest Achievable Emission Rate (LAER) technologies, innovative technologies, and controls applied to similar source categories.

For this analysis, the following sources were researched:

- US EPA's New Source Review (NSR) website;
- US EPA's RACT/BACT/LAER Clearinghouse (RBLC) database;
- Federal and State Air Quality Permits;
- Technical books and articles;
- In-house experts;
- Vendor quotes and communications with control device equipment manufacturers;
- Guidance documents (referenced herein[6]); and
- Proposed and existing NSPS and NESHAP, including Maximum Achievable Control Technology (MACT).

Step 2 - Technical Feasibility

The second step is to eliminate technically infeasible options from further consideration. To be considered feasible, a technology must be both available and applicable. It is important in this step that any presentation of a technical argument for eliminating a technology from further consideration be clearly documented based on physical, chemical, engineering, and/or source-specific factors related to safe and successful use of the controls.

Step 3 - Rank Options by Control Effectiveness

The third step is to rank the technologies, not eliminated in Step 2, in order of descending control effectiveness, for each pollutant of concern. If the highest ranked technology is proposed as BACT, it is not necessary to perform any further technical or economic evaluation, except for an environmental analysis.

Step 4 - Evaluate Effectiveness of Controls and Achievability of Emission Limits

The fourth step entails an evaluation of energy, environmental, and economic impacts for determining a final level of control. The evaluation begins with the most stringent control option and continues until a technology under consideration cannot be eliminated based on adverse energy, environmental, or economic impacts. The economic or "cost-effectiveness"

[6] New Source Review Workshop Manual Prevention of Significant Deterioration and Nonattainment Area Permitting, EPA, Draft October 1990.

analysis is conducted in a manner consistent with US EPA's Office of Air Quality Planning and Standards (OAQPS) Control Cost Manual, Sixth Edition[7] and subsequent revisions.

Step 5 - Select BACT

The fifth and final step is to select, as BACT, the most effective of the remaining technologies under consideration for each pollutant of concern. BACT must be no less stringent than the level of control required by any applicable NSPS, NESHAP, or State regulatory standards applicable to the emission units included in the PSD permit application.

This BACT analysis provides background information on potential control technologies, a summary of technology determinations contained in the RBLC database for similar emission units, a discussion of other potential control options that may be applicable to the emission units, and the proposed BACT emission limits.

6.1.2 RBLC SUMMARY

The RBLC database is a U.S. EPA maintained database that contains case-specific information on the "Best Available" air pollution technologies that have been required to reduce the emissions of air pollutants from stationary sources. Summaries of applicable BACT determinations from the RBLC are included throughout this analysis. The RBLC query included the following processes:

- Process Type No. 81.290 – Other Steel Manufacturing Processes;
- Process Type No. 81.230 – Casting and Pouring Processes;
- Process Type No. 81.320 – Cupola Furnaces
- Process Type No. 81.390 – Other Steel Foundry Processes;
- Process Type No. 81.490 – Other Iron Foundry Processes;
- Process Type No. 81.230 – Steel Production Casting and Pouring Processes;
- Process Type No. 81.350 – Steel Foundry Processes Casting and Pouring Processes;
- Process Type No. 17.110 – Large Internal Combustion Engines, >500 HP, Fuel Oil;
- Process Type No. 90.021 – Metallic Mineral/Ore Processing
- Process Type No. 99.009 – Industrial Process Cooling Towers; and
- Process Type No. 99.140 – Paved Roads;

Additional RBLC queries were conducted based on process names or key words (e.g., "tunnel furnace") to fully evaluate applicable BACT limits for specific processes with limited RBLC results.

6.1.3 NEW OR REVISED EMISSION UNITS INCLUDED IN THIS BACT DETERMINATION

The following emission sources were evaluated in the BACT analysis below. These include new sources that were not included in the original application as well as modified or revised sources.

EU01 – Melt Shop

[7] EPA Air Pollution Control Cost Manual, Sixth Edition, EPA/452/B-02-001, Research Triangle Park, NC: Office of Air Quality Planning and Standards, January 2002.

- Continuous Caster (EP 01-04) (included in Melt Shop BACT analysis)
- Caster Spray Vent (EP 01-05)
- Primary Caster Torch Cut Off (EP 01-06)
- Caster Quench Box (EP 01-11)
- Secondary Caster Torch Cut Off (EP 01-12)

EU03 – Hot Rolling Mill

- Walking Beam Reheat Furnace (EP 03-01)
- Coil Sample Plasma Cutter (EP 03-06)
- Ingot Grinding (EP 03-10)
- Ingot Grinding Oxy-Fuel Cutting Torch (EP 03-11)

EU04 – Continuous Heat Treat Processing

- Continuous Heat Treat Plasma Cutting (EP 04-04)

EU05 – Heavy Plate Processing

- Heavy Plate Burning Beds #1 - #3 – Plasma Cutters (EP 05-03A)
- Heavy Plate Burning Beds #1 - #3 – Oxy-Fuel Torches (EP 05-03B)

EU09 – Cooling Towers

- Melt Shop ICW (EP 09-01)
- Melt Shop DCW (EP 09-02)
- Rolling Mill DCW (EP 09-04)
- Rolling Mill ACC ICW (EP 09-05)
- Heavy Plate Quench DCW (EP 09-06)
- Quench and ACC Laminar DCW (EP 09-07)
- Heat Treat (EP 09-08)
- Air Separation Plant (EP 09-09)

EU10 – Emergency Generator >500 HP

- G100-2 Emergency Generator (EP 10-02)
- G100-3 Emergency Generator (EP 10-03)
- G500-1 Emergency Generator (EP 10-10)

EU12 – Slag Processing

- Slag Plant Oxy Fuel-Fired Torches (EP 12-04)

EU14 – Paved and Unpaved Roads

- Paved Segment 20 (included in EP 14-01 Paved Roads BACT Analysis)
- Paved Segment 21 (included in EP 14-01 Paved Roads BACT Analysis)
- Paved Segment 23 (included in EP 14-01 Paved Roads BACT Analysis)

EU 17 – Light Plate Processing

- Light Plate Burning Beds #1 & #2 – Plasma Cutters (EP 17-01A)
- Light Plate Burning Beds #1 & #2 – Oxy-Fuel Torches (EP 17-01B)

6.1.4 ARRANGEMENT OF BACT ANALYSIS

Consistent with previous application, the BACT analysis is organized by pollutant, and then by emission unit and process unit. The pollutants are arranged in the following order:

1. $PM/PM_{10}/PM_{2.5}$
2. NO_X
3. CO, VOC
4. SO_2
5. GHG

6.2 $PM/PM_{10}/PM_{2.5}$ BACT DETERMINATIONS

6.2.1 PARTICULATE MATTER CONTROL TECHNOLOGIES

The most common types of particulate control systems used in industry as possible BACT controls are described below.

- **Fabric Filters (baghouses)[8] -** This type of particulate control technology utilizes filters to remove dry particles from gas streams. Fabric filters, also referred to as baghouses, can be categorized by several means, including type of cleaning (shaker, reverse-air, pulse-jet), direction of gas flow (from inside the bag towards the outside or vice versa), location of the system fan (negative or positive pressure), or size (low, medium, or high gas flow quantity). The type of filter material used in baghouses depends on the specific application, the associated chemical composition of the gas, operating temperature, dust loading, and the physical and chemical characteristics of the particulate. The selection of a specific material, weave, finish, or weight is based primarily on past experience. For woven fabrics, the type of yarn (filament, spun, or staple), the yarn diameter, and the twist are also factors in the selection of suitable fabrics for a specific application. Baghouse filtration involves the use of reusable filter bags. Pleated cartridges are commonly used in place of filter bags for applications with lower exhaust flow rates. Initially, dust is deposited on the surface and on the fibers within the fabric filter. Dust becomes the dominant filter medium as the dust cake layer builds on the filter. The resistance to gas flow and pressure drop increases as the thickness of the dust cake layer increases until the gas can no longer easily pass through filtration. Reusable filters can be cleaned by mechanically shaking, reversing the airflow, or pulsing the bags (i.e., fabric filter baghouses); filter bags must be replaced when they become loaded with PM to the point that the pressure drop across the filter bags reaches a specified level. With respect to cartridge filters, application is limited to low airflow capacities and temperatures less than 200°F. A bin vent filter is commonly used to control dust from storage silos. Bin vent filters are often static with the exhaust flow being created by the volume within the silo being displaced by the stored material moving into the silo.

  The design efficiency of dry filtration typically ranges between 0.001 to 0.01 gr/dscf. Baghouse technology has been used extensively to control filterable $PM/PM_{10}/PM_{2.5}$ emissions, achieving outlet concentrations below 0.005 gr/dscf or removal efficiency as high as 99.9 %.

[8] Air Pollution Control Technology Fact Sheet: Fabric Filter Pulse-Jet Cleaned Type, EPA-452/F-03-025, Washington, D.C.: Clean Air Technology Center, July 2003.

- **Cartridge Collectors -** These devices use a nonwoven filtering media, as opposed to woven or felt bags used in baghouses. The filter media (fabric) is supported by an inner and outer wire framework and is pleated to increase filtering surface area. As a gas stream passes through the filter, particulate collects on the surface of the filtering media. Cartridge collectors can be single use or continuous duty design. In single-use, the dirty cartridges are changed and collected dirt is removed while the collector is off. In the continuous duty design, the cartridges are cleaned by a pulse-jet cleaning system where a high pressure blast of air is used to remove dust from the filter media by flexing the media, discharging the dust cake gathered on the surface
- **Wet Scrubbers[9,10] -** Wet scrubbers remove particulate matter from a gas stream by capturing it in liquid droplets and can be very efficient. Wet scrubbers are efficient for removing fine and sub micrometer particles. High efficiency venturi scrubbers use a downdraft of air to push the particulates into contact with water droplets. The collection efficiency of a venturi scrubber is highly dependent on the pressure drop, the liquid-to-gas ratio, and the chemical nature of wettability of the particulate. Efficiency improves with increased liquid-to-gas ratios, at the expense of a higher-pressure drop and energy consumption. Venturi scrubbers must be followed by an entrainment collector for the liquid spray. The collectors are typically centrifugal and will have an additional pressure drop. Water scrubber systems can be less effective for controlling PM/PM_{10} emissions than baghouses. These types of wet scrubbers are capable of achieving control efficiencies up to 99%. After fabric filtration, wet scrubbing is the second most common particulate control technology, and a reasonable outlet loading for a high efficiency venturi scrubber system is in the range of 0.005 gr/dscf to 0.01 gr/dscf.
- **Electrostatic Precipitators (ESPs and WESPs)[11,12] -** ESPs use an electrostatic field to charge particles contained in the gas stream. The charged particles migrate to a grounded collection surface where they are periodically dislodged by vibrating or rapping. The dust is collected in a hopper at the bottom of the ESP. With respect to $PM_{2.5}$ emissions, dry ESPs have a lower overall efficiency than baghouses. Dry ESPs are not designed to collect wet or sticky PM, such as condensable particles. Condensable matter will clog the ESP, stay attached to the plates, and possibly short out the unit. However, wet electrostatic precipitators (WESPs) can collect sticky particles and mists, as well as highly resistive or explosive dusts. The humid atmosphere that results from the continuous or intermittent washing in a wet ESP enables these units to collect high resistivity particles, absorb gases or cause pollutants to condense, and cool and condition the gas stream. Liquid particles or aerosols present in the gas stream are collected and provide another means of rinsing the collection electrodes.
- **High Efficiency Cyclones[13] –** This type of particulate control technology is typically utilized to remove larger particles (greater than 8 to 10 microns [μm] in aerodynamic

[9] Air Pollution Control Technology Fact Sheet: Packed-Bed/Packed-Tower Wet Scrubber, EPA-452/F-03-015, Washington, D.C.: Clean Air Technology Center, July 2003.
[10] Air Pollution Control Technology Fact Sheet: Spray-Chamber/Spray-Tower Wet Scrubber, EPA-452/F-03-016, Washington, D.C.: Clean Air Technology Center, July 2003.
[11] Air Pollution Control Technology Fact Sheet: Dry Electrostatic Precipitator (ESP) Wire –Pipe Type, EPA-452/F-03-027, Washington, D.C.: Clean Air Technology Center, July 2003.
[12] Air Pollution Control Technology Fact Sheet: Wet Electrostatic Precipitator (ESP) Wire –Pipe Type, EPA-452/F-03-029, Washington, D.C.: Clean Air Technology Center, July 2003.
[13] Air Pollution Control Technology Fact Sheet: Cyclones, EPA- 452/F-03-005, Washington, D.C.: Clean Air Technology Center, July 2003

diameter) through centrifugal and inertial forces induced by mechanically accelerating the particle-laden gas stream. This type of control is not effective in removing small particles – achieving approximately 30% control efficiency for PM_{10}.

- **Mist Eliminators[14] -** Mist eliminators are designed to control aerosols and fine or condensable particulate. Fiber bed mats are often sprayed with scrubbing liquid so that particles can be collected by deposition on droplets and fiber bed mats. Waste gas streams are often cooled before entering fiber-bed filters to condense as much liquid as possible and to increase the size of the existing aerosol particles through condensation. Fiber-bed scrubbers or mist eliminators are capable of control efficiencies ranging from 70% to 99%, depending on exhaust stream characteristics and the size of the aerosols. Insoluble PM will clog the fiber-bed filter over time; therefore, fiber-bed filters have a limited commercial acceptance for dust collection. Fiber-bed scrubbers can treat exhaust streams with flow rates ranging from 1,000 scfm to 100,000 scfm and temperatures up to 140°F. For mist eliminators to be considered effective at reducing $PM/PM_{10}/PM_{2.5}$ emissions, the inlet loading must be at least 0.1 gr/dscf.
- **Wet Suppression –** Water application can be applied for cooling and control. Wetted particulate will become heavy and settle, reducing the amount of particulate that may become airborne. Fine mists of water applied to dust generating sources, such as bulk material drop points, reduce dust emissions by impacting small particulates with water. The saturated particulates becomes heavier and quickly settle out of the air, reducing airborne dust. Alternatively, material may be thoroughly saturated prior to handling, which suppresses the generation of dust when the material is disturbed.
- **Enclosures and Barriers -** Placing operations within a building or enclosure protects surfaces from air currents and prevents dust from becoming airborne. Depending on the openings, such as vents, windows and doors, and fans used, buildings can provide up to 70% efficient reduction in particulates generated within the structure. Enclosed conveyor systems prevent airflow from lifting dust from raw materials as they are moved on a conveyor belt. Similarly, enclosed transfer stations work to isolate material drop points between conveyors from the surrounding conditions. Enclosed transfer stations are typically designed with minimized material drop heights to reduce dust generated by materials being transferred. Enclosed conveyors are frequently used when conveyor systems are designed for dry materials. The use of an air curtain is one example of a barrier, which prevents dust from moving through the air current and becoming airborne.
- **Good Combustion and Operation Practices -** Fuels containing ash have the potential to produce particulate emissions. Additionally, fuels containing sulfur have the potential to produce sulfur compounds that may form condensable particulate emissions. Oxygen and carbon in the fuel combine during combustion in a complex process requiring turbulence, temperature, and time for the reactants to contact and combine to form carbon dioxide (CO_2) and heat. If the combustion and combination of necessary elements are not controlled, the combustion of the fuel is incomplete and undesirable emissions form. Although particulate from combustion is normally a small amount, poor air/fuel mixing or maintenance problems can cause extra PM to form. Particulates from combustion are usually larger hydrocarbons, in terms of molecular weight, that are not fully combusted. By

[14] Air Pollution Control Technology Fact Sheet: Fiber-Bed Scrubber, EPA-452/F-03-011, Washington, D.C.: Clean Air Technology Center, July 2003

taking measures to optimize the combustion process, including control of air mixing and temperature, and reducing the amount of fuel used, pollutants are minimized. These may include such measures as choosing good burner designs, using performance monitoring and process control techniques to improve operation, and performing regular and thorough maintenance of the combustion system.

- **Clean Fuel Use -** This is a practice whereby a facility or specific equipment is designed to use natural fuels (such as natural gas, liquid petroleum gas or blends), that emit pollutants in lesser quantities than the alternatives (such as fossil fuels).
- **Good Housekeeping/Good Work Practices –** Good housekeeping/good work practices are used in areas where it is difficult to feasibly implement other control technologies. Good housekeeping/good work practices generally consist of activities such as proper equipment maintenance that can be employed to prevent particulate from becoming airborne. Good housekeeping/good work practices may include process performance tracking and careful adherence to a preventative maintenance plan. Additionally, sweeping floors or pavement, wiping off equipment, keeping doors and windows closed, and generally keeping dusts from gathering or escaping from a building is a good general way to reduce dust generation and emissions.
- **Good Design with Inherently Lower Emissions –** Unlike an add-on pollution control device, some level of emissions can be avoided through the use of good equipment designs and operation with inherently lower particulate matter emissions. As lower cost and higher operating efficiency are paramount to equipment design, often this increased efficiency will result in less demand for raw materials and run time as well.

Specialized control technologies for certain equipment such as emergency engines and cooling towers are discussed separately.

A complete review of generally available technologies and technology transfer opportunities to sources listed in Section 6.1.3 was conducted and, excluding those discussed in the following BACT analyses, none were identified.

6.2.2 PM/PM_{10}/$PM_{2.5}$ FOR MELT SHOP (EP 01-01)

Molten steel is tapped from the EAF into a preheated ladle and transported to the LMF for steel refining. The ladle is then transferred either to the vacuum degasser or directly to the caster. The proposed single-shell EAF is powered by a high-powered transformer and natural gas-fired oxygen/fuel burners. The EAF operates in a batch mode whereby the scrap steel and scrap substitutes are charged, melted, and then tapped to a ladle. The temperature of the exhaust gas from the EAFs approach 3,000 °F. The EAF is equipped with a direct-shell evacuation control (DEC) system and an overhead roof exhaust system consisting of canopy hoods. The DEC system and canopy hoods are vented to the Melt Shop Baghouse. The LMF is equipped with a direct capture system that vents emissions to the Melt Shop Baghouse. Emissions generated during the casting process are also captured and vented to the Melt Shop Baghouse via canopy hoods. Steam formed from the contact of water with the hot steel during casting vents through the Caster Spray Vent.

The bulk of the emissions from the melt shop are from the EAF; however, the exhausts from the EAF, LMF, caster, and the remaining melt shop emission units, such as Tundish Preparation, Ladle Preparation, and Furnace Refractory Cleanout, are vented through the Melt Shop

Baghouse. It should be noted that many of the RBLC determination postings for EAFs also include the LMF, the caster, and other lesser contributions from additional melt shop equipment. Therefore, this portion of the BACT analysis reviews controls and emissions for the EAF, but also includes the emissions from the modified source, the caster, and other melt shop processes.

The RBLC, recent permits, and other relevant documents were reviewed to identify the most stringent BACT limits for $PM/PM_{10}/PM_{2.5}$ established for the EAF, LMF, and caster operations. Potentially applicable control technologies include: baghouses, high-energy wet scrubbers, ESPs, and high efficiency cyclones.

BACT Floor

The requirements of 40 CFR Part 60, Subpart AAa - Standards of Performance for Steel Plants: Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels Constructed after August 17, 1983 apply to the proposed EAF, as well as associated dust-handling equipment. The EAF must, at a minimum, comply with the applicable NSPS particulate matter emission limit of 0.0052 gr/dscf. Note that this application does not propose any changes to the EAF.

The requirements of 40 CFR Part 63, Subpart YYYYY - National Emission Standards For Hazardous Air Pollutants For Area Sources: Electric Arc Furnace Steelmaking Facilities apply to facilities that own or operate an EAF steelmaking facility that is an area source of hazardous air pollutant (HAP) emissions. Under Subpart YYYYY, control of HAP emissions from EAFs is achieved by establishing scrap metal management practices. While directed primarily toward control of mercury emissions, the required scrap metal management practices also help to minimize lead, PM, and VOC emissions. Under Subpart YYYYY, EAF operators are required to either:

- Prepare, submit for approval, and implement a pollution prevention plan for scrap selection and inspection to minimize the amount of chlorinated plastics, free organic liquids, and lead; or
- Not charge scrap to the EAF that contains scrap from motor vehicle bodies, engine blocks, oil filters, oily turnings, machine shop borings, transformers or capacitors containing polychlorinated biphenyls, lead containing components, chlorinated plastics, or free organic liquids. This restriction does not apply to any post-consumer engine blocks, postconsumer oil filters, or oily turnings that are processed or cleaned to the extent practicable, such that materials do not include lead components, chlorinated plastics, or free organic liquids.

Step 1 – Identify Potential Control Technologies

Control efficiencies for potentially applicable technologies are shown in the following table.

TABLE 2 POTENTIAL CONTROL DEVICES FOR $PM/PM_{10}/PM_{2.5}$ FROM THE MELT SHOP

Control Type	Estimated $PM/PM_{10}/PM_{2.5}$ Control Efficiency
Fabric filter (baghouse)	Up to 99.9% (As low as 0.001 gr/dscf)
Wet scrubber or high efficiency Venturi scrubber	70 to 99% (~0.01 gr/dscf)
ESP	95 to 99% (0.002 to 0.004 gr/dscf)
High efficiency cyclone	80 to 99%, 30 to 90% for PM10, 0 to 40% for $PM_{2.5}$ (>0.01 gr/dscf)

Step 2 – Eliminate Technically Infeasible Options

ESPs

Although an ESP is capable of very high (99% or higher) particulate removal, several factors preclude their application to EAF control. A key parameter is the composition of the particles to be collected. Iron compounds adhere very strongly to the collection plate of the ESP (due to their electromagnetic properties). They are, therefore, very difficult to remove and thus reduce ESP efficiency. Metal compounds tend to foul ESP electrodes, also reducing effectiveness. In addition, ESPs are greatly affected by sensitivity to the variations in flow rate, solids loading, and temperature fluctuations inherent in batch EAF operation. Based on the RBLC query results, ESPs have not been used on other EAFs, and, for the additional reasons outlined, are considered technically infeasible[15].

Step 3 – Rank Remaining Technically Feasible Control Options

The $PM/PM_{10}/PM_{2.5}$ control technologies for the EAF, LMF, and Caster are ranked as follows:

1. Baghouse, 95% to 99+% (As low as 0.001 gr/dscf)
2. Wet Scrubber, 70% to 99% (~ 0.01 gr/dscf)
3. High Efficiency Cyclone 80% to 99% for PM, 30% to 90% for PM_{10}, and 0% to 40% for $PM_{2.5}$ (>0.01 gr/dscf)

Step 4 – Evaluate Remaining Control Technologies

BACT Limit Overview

The search results from a RBLC review of EAF BACT emission limits reveal that the most stringent limits for EAF $PM/PM_{10}/PM_{2.5}$ are achieved by baghouse control. The most recent BACT limits for steel production EAF emissions in the RBLC were as follows:

- Big River Steel (RBLC ID: AR-0173, 01/31/2022) established BACT to be 0.0018 gr/dscf of filterable PM and 0.0024 gr/dscf for TPM_{10} and $TPM_{2.5}$ (total particulate matter, filterable + condensable) for one EAF and one LMF with a baghouse.
- NUCOR Steel Arkansas (RBLC ID: AR-0172, 09/01/2021) established BACT to be 0.0018 gr/dscf of filterable PM and 0.0052 gr/dscf of TPM (total particulate matter, filterable + condensable) with the use of a baghouse.

[15] Note, historically, ESPs have been applied to control $PM/PM_{10}/PM_{2.5}$ emissions from basic oxygen furnaces (BOFs); specifically, to control emissions from oxygen blow.

- NUCOR Steel Gallatin (RBLC ID: KY-0115, 04/19/2021) established BACT for Melt Shop #1 to be 0.0018 gr/dscf; 31.82 lb/hr, 139.4 tpy for PM filterable; 0.0052 gr/dscf, 91.93 lb/hr and 402.7 tpy for TPM_{10} (total particulate matter, filterable + condensable); and 0.0034 gr/dscf, 60.11 lob/hr and 263.3 tpy.for $TPM_{2.5}$(total particulate matter, filterable + condensable).
- NUCOR Steel Gallatin (RBLC ID: KY-0115, 04/19/2021) established BACT for Melt Shop #2 to be 0.0018 gr/dscf; 26.20 lb/hr, 115 tpy for PM filterable; 0.0052 gr/dscf, 75.67 lb/hr and 331 tpy for TPM_{10} (total particulate matter, filterable + condensable); and 0.0034 gr/dscf, 49.48 lob/hr and 217 tpy.for $TPM_{2.5}$(total particulate matter, filterable + condensable).
- Steel Dynamics Southwest (RBLC ID: TX-0882, 01/17/2020) established BACT to be 0.0052 gr/dscf of filterable PM and 0.0052 gr/dscf of filterable PM_{10} and $PM_{2.5}$ with a baghouse.
- NUCOR Steel Decatur (RBLC ID: AL-0327, 08/14/2019) established BACT to be 0.0018 gr/dscf of filterable PM and 0.0052 gr/dscf TPM (total particulate matter, filterable + condensable) with the use of two baghouses. Note that the Decatur installation includes two EAFs and three ladle furnaces that vent to the two baghouses.

Fabric Filter (Baghouse)

A baghouse is the top ranked control technology for PM/PM_{10}/$PM_{2.5}$ control. Emissions from the EAF, LMF, and caster will be captured and controlled by the Melt Shop Baghouse.

Wet Scrubber or High Efficiency Venturi Scrubber

High-energy scrubbers have disadvantages compared to baghouses. Scrubber systems have high-pressure drops that result in high-energy demands and high operating costs. These systems also require water treatment and sludge disposal. A high-energy scrubber is eliminated from further consideration due to high-energy demands (environmental impacts) and lower PM control efficiency compared to baghouses.

High Efficiency Cyclone

There are a couple of disadvantages in using high efficiency cyclones compared to baghouses. One disadvantage is that the PM collection efficiency for PM_{10} (30% to 90%) and $PM_{2.5}$ (0% to 40%) is relatively low. Additionally, high efficiency cyclones can have high-pressure drops that result in high-energy demands and high operating costs. A high efficiency clone is eliminated from further consideration due to high-energy demands (environmental impacts) and lower PM control efficiency compared to baghouses.

Step 5 – Selection of BACT

NSBB proposes that BACT continue to be the use of a baghouse for control of PM/PM_{10}/$PM_{2.5}$ (filterable and condensable) emissions from the EAF, LMF, caster, and ancillary melt shop emission units. The proposed BACT emission limitations are 0.0052 gr/dscf for PM and PM_{10} (filterable and condensable) emissions, 0.0034 gr/dscf for $PM_{2.5}$ (filterable and condensable) emissions, 0.0018 gr/dscf for filterable PM/PM_{10}/$PM_{2.5}$ emissions. Nucor proposes to demonstrate ongoing compliance with the emission limitations in accordance with the requirements of NSPS Subpart AAa.

6.2.3 PM/PM_{10}/$PM_{2.5}$ FOR CASTER SPRAY VENT (EP 01-05)

Emissions generated during the casting process are captured by local hoods and vented to the Melt Shop Baghouse. However, steam formed from the contact of water with the hot steel vents through the Caster Spray Vent located near the roof on the outside of the melt shop. The Caster Spray Vent emits PM, PM_{10}, $PM_{2.5}$, and VOC.

Step 1 – Identify Potential Control Technologies

The RBLC, recent permits, and other relevant documents were reviewed to identify the most stringent BACT limits for PM/PM_{10}/$PM_{2.5}$ established for caster spray vents. The PM/PM_{10}/$PM_{2.5}$ emissions from the caster spray vent have characteristics similar to a cooling tower. For example, in the caster spray duct, particulate is contained within water droplets formed from the contact of water with hot steel and emitted to the atmosphere through the Caster Spray Vent. Potentially applicable controls include: baghouses, wet scrubbers, ESPs, and mist eliminators. Control efficiencies for potentially applicable technologies are shown in the table below.

TABLE 3 POTENTIAL CONTROL DEVICES FOR PM/PM_{10}/$PM_{2.5}$ FROM THE CASTER SPRAY VENTS

Control Type	Estimated PM/PM_{10}/$PM_{2.5}$ Control Efficiency
Fabric filter (baghouse)	Up to 99.9% (As low as 0.001 gr/dscf)
Wet scrubber or high efficiency Venturi scrubber	70 to 99% (~0.01 gr/dscf)
ESP	95 to 99% (0.002 to 0.004 gr/dscf)
Mist Eliminator	70 to 99% (~0.01 gr/dscf)
Good Housekeeping Practices	Varies

Step 2 – Eliminate Technically Infeasible Options

Baghouses

The uncontrolled concentration of filterable PM in the Caster Spray Vent exhausts is 7.44E-03 gr/dscf, the uncontrolled concentration of PM_{10} is 1.19E-03 gr/dscf, and the uncontrolled concentration of $PM_{2.5}$ is 1.49E-04 gr/dscf. Baghouses are technically infeasible for this application because they are not designed for wet media and the resulting moisture/particulate combination would cause blinding of the bags. Furthermore, the uncontrolled particulate emission rate from the caster spray vents is below the controlled concentration that a vendor would be able to guarantee. If a vendor is unable to guarantee a reduction in emissions, the emission rate controlled is essentially zero (0) tpy. For these reasons, fabric filters are considered technically infeasible and are not evaluated further in this analysis.

Wet Scrubbers

Wet scrubbers and water sprays are technically inappropriate and infeasible for this application. Wet scrubbers are not guaranteed to be capable of reducing PM/PM_{10}/$PM_{2.5}$ emissions below the concentration emitted from the caster spray vents. Further, the typical inlet concentrations for a wet scrubber ranges from 0.1 to 50 gr/scf, which is well above the concentration from the Caster Spray Vent. It is important to note that the particulate concentration from the Caster Spray Vent is below the controlled concentration that a vendor would be able to guarantee. If a vendor is unable to guarantee a reduction in emissions, the emission rate controlled is essentially zero (0) tpy. There were no examples of a high efficiency wet scrubber applied to a caster spray vent in the RBLC. For these reasons, wet scrubbing is determined to be technically infeasible for reducing particulate emissions from the Caster Spray Vent.

ESP/WESPs

ESPs are capable of 99% or higher particulate removal; however, several factors preclude their application to control $PM/PM_{10}/PM_{2.5}$ emissions from the Caster Spray Vent. ESPs are not guaranteed to be capable of reducing $PM/PM_{10}/PM_{2.5}$ emissions below the concentration from Caster Spray Vent. The typical inlet concentrations to an ESP or WESP are typically 0.5 gr/scf to 5 gr/scf, which is well above the $PM/PM_{10}/PM_{2.5}$ concentrations from the Caster Spray Vent. Additionally, ESPs have a high capital cost, high electricity demands, and require large amounts of maintenance, resulting in relatively long periods of down time, compared to other control technologies.

The low inlet pollutant loading would result in significant technical hindrances for control by ESP/WESP. The uncontrolled particulate emission rate from the Caster Spray Vent is well below the controlled concentration that a vendor would be able to guarantee. Since the particulate concentration from the caster spray vents is lower than an outlet concentration that can be backed by a vendor, ESP/WESP control is not technically feasible or applicable to reduce emissions from the Caster Spray Vent. Furthermore, there were no examples in the RBLC of an ESP/WESP applied to a Caster Spray Vent.

Mist Eliminators

Mist eliminators are not guaranteed to be capable of reducing $PM/PM_{10}/PM_{2.5}$ emissions below the concentrations found in the Caster Spray Vent exhaust streams. The minimum inlet pollutant loading for a mist eliminator to be technically feasible is 0.1 gr/dscf, which is well above the concentration of the Caster Spray Vent. Mist eliminators are not applicable and are technically infeasible for controlling $PM/PM_{10}/PM_{2.5}$ emissions from the Caster Spray Vent.

Step 3 – Rank Remaining Technically Feasible Control Options

Good work practices are the only remaining feasible controls option.

Step 4 – Evaluate Remaining Control Technologies

No adverse economic or environmental impacts are associated with good work practices.

Step 5 – Selection of BACT

NSBB proposes BACT to be the use of good work practices for control of $PM/PM_{10}/PM_{2.5}$ emissions from the Caster Spray Vent. The proposed BACT emission limitations for the Caster Spray Vent are 7.44E-03 gr/dscf filterable PM, 1.19E-03 gr/dscf PM_{10}, 1.49E-04 gr/dscf $PM_{2.5}$. NSBB proposes to demonstrate ongoing compliance with the emission limitations through good work practices, including periodic inspections to ensure equipment is in proper working order.

NSBB proposes to continue the following specific practices targeting PM, PM_{10}, $PM_{2.5}$ emission minimization from the Caster Spray Vent:

- Tracking material usage to ensure that equipment is operated as designed and correcting any operating or design issues as quickly as possible; and
- Employing a preventative maintenance program, including a schedule that is consistent with the manufacturer's instructions for routine and long-term maintenance.

6.2.4 $PM/PM_{10}/PM_{2.5}$ FOR CASTER TORCH CUT OFF (EP 01-06 AND EP 01-12)

Following casting, the continuous steel slab exits at the bottom of the cooling chamber and is cut to specified lengths using an oxy-fuel torch to form discrete slabs. A secondary slab cutting area is located off the processing line in the caster runoff area to cut minimal length slabs, with an oxy-fuel torch, that are too short to be cut on line.

The emissions of $PM/PM_{10}/PM_{2.5}$, are less than 1 ton per year (0.35, 0.39, and 0.39 ton/yr, respectively for the Primary Torch Cut Off and 0.38, 0.43, and 0.43, respectively for the Secondary Torch Cut Off), making the use of any add-on control devices not cost effective. Dividing the high capital, maintenance, and operating costs of an air pollution control equipment by less than 0.5 tons/yr of controlled emissions would result in an exorbitant cost effectiveness ratio. BACT for these sources will be using proper equipment design and natural gas as fuel to minimize $PM/PM_{10}/PM_{2.5}$ emissions. Emissions resulting from the fuel combustion and fume generation will be limited to the following:

- Primary Torch Cut Off PM: 43.0 lb/MMscf of natural gas fuel,
- Primary Torch Cut Off PM_{10}: 48.7 lb/MMscf,
- Primary Torch Cut Off $PM_{2.5}$: 48.7 lb/MMscf
- Secondary Torch Cut Off PM: 45.7 lb/MMscf,
- Secondary Torch Cut Off PM_{10}: 51.4 lb/MMscf, and
- Secondary Torch Cut Off $PM_{2.5}$: 51.4 lb/MMscf.

Because this process is specialized and requires little to no human adjustments, a Good Work Practice (GWP) plan is unnecessary.

6.2.5 $PM/PM_{10}/PM_{2.5}$ FOR CASTER QUENCH BOX (EP 01-11)

Steam formed during slab cooling via water spray in the Caster Quench Box is captured and vented through a stack located near the roof on the outside of the melt shop. $PM/PM_{10}/PM_{2.5}$ emissions are generated by particulates contained within water droplets formed from the contact of water with hot steel slab and emitted to the atmosphere through the caster quench box stacks.

Step 1 – Identify Potential Control Technologies

The RBLC, recent permits, and other relevant documents were reviewed to identify the most stringent BACT limits for $PM/PM_{10}/PM_{2.5}$ established for caster quench boxes and caster steam vents. The $PM/PM_{10}/PM_{2.5}$ emissions from the Caster Quench Box have characteristics similar to a cooling tower. Potentially applicable controls include: baghouses, wet scrubbers, ESPs, and mist eliminators. Control efficiencies for potentially applicable technologies are shown in the following table.

TABLE 4 POTENTIAL CONTROL DEVICES FOR PM/PM_{10}/$PM_{2.5}$ FROM THE CASTER QUENCH BOX

Control Type	Estimated PM/PM_{10}/$PM_{2.5}$ Control Efficiency
Fabric filter (baghouse)	Up to 99.9% (As low as 0.001 gr/dscf)
Wet scrubber or high efficiency Venturi scrubber	70 to 99% (~0.01 gr/dscf)
ESP	95 to 99% (0.002 to 0.004 gr/dscf)
Mist Eliminator	70 to 99% (~0.01 gr/dscf)
Good Housekeeping Practices	Varies

Step 2 – Eliminate Technically Infeasible Options

Baghouses

The uncontrolled concentration of filterable PM in the Caster Quench Box exhausts is 7.44E-03 gr/dscf, the uncontrolled concentration of PM_{10} is 1.19E-03 gr/dscf, and the uncontrolled concentration of $PM_{2.5}$ is 1.49E-04 gr/dscf. Baghouses are technically infeasible for this application because they are not designed for wet media, and the resulting moisture/particulate combination would cause blinding of the bags. Furthermore, the uncontrolled particulate emission rate from the Caster Quench Box is below the controlled concentration that a vendor would be able to guarantee. If a vendor is unable to guarantee a reduction in emissions, the emission rate controlled is essentially zero (0) tpy. For these reasons, fabric filters are considered technically infeasible and are not evaluated further in this analysis.

Wet Scrubbers

Wet scrubbers and water sprays are technically infeasible for this application. Wet scrubbers are not guaranteed to be capable of reducing PM/PM_{10}/$PM_{2.5}$ emissions below the concentration emitted from the Caster Quench Box. Further, the typical inlet concentrations for a wet scrubber range from 0.1 to 50 gr/scf, which is well above the concentration from the Caster Quench Box. It is important to note that the particulate concentration from the Caster Quench Box is below the controlled concentration that a vendor would be able to guarantee. If a vendor is unable to guarantee a reduction in emissions, the emission rate controlled is essentially zero (0) tpy. There were no examples of a high efficiency wet scrubber applied to a caster quench box or caster spray vent in the RBLC. For these reasons, wet scrubbing is determined to be technically infeasible for redwucing particulate emissions from the Caster Quench Box.

ESP/WESPs

ESPs are capable of 99% or higher particulate removal; however, several factors preclude their application to control PM/PM_{10}/$PM_{2.5}$ emissions from the Caster Quench Box. ESPs are not guaranteed to be capable of reducing PM/PM_{10}/$PM_{2.5}$ emissions below the concentration from Caster Quench Box. The typical inlet concentrations to an ESP or WESP are typically 0.5 gr/scf to 5 gr/scf; well above the PM/PM_{10}/$PM_{2.5}$ concentrations from the Caster Quench Box.

Additionally, ESPs have a high capital cost, high electricity demands, and require large amounts of maintenance, resulting in relatively long periods of down time, compared to other control technologies.

The low inlet pollutant loading would result in significant technical hindrances for control by ESP/WESP. The uncontrolled particulate emission rate from the Caster Quench Box is well below the controlled concentration that a vendor would be able to guarantee. Since the particulate concentration from the Caster Quench Box is lower than an outlet concentration that can be backed by a vendor, ESP/WESP control is not technically feasible or applicable to reduce emissions. Furthermore, there were no examples in the RBLC of an ESP/WESP applied to a caster quench box or caster spray vent.

Mist Eliminators

Mist eliminators are not guaranteed to be capable of reducing $PM/PM_{10}/PM_{2.5}$ emissions below the concentrations found in the Caster Quench Box exhaust streams. The minimum inlet pollutant loading for a mist eliminator to be technically feasible is 0.1 gr/dscf, which is well above the concentration of the Caster Quench Box. Mist eliminators are not applicable and are technically infeasible for controlling $PM/PM_{10}/PM_{2.5}$ emissions from the Caster Quench Box.

Step 3 – Rank Remaining Technically Feasible Control Options

Good work practices are the only remaining feasible controls option.

Step 4 – Evaluate Remaining Control Technologies

No adverse economic or environmental impacts are associated with good work practices.

Step 5 – Selection of BACT

NSBB proposes BACT to be the use of good work practices for control of $PM/PM_{10}/PM_{2.5}$ emissions from the Caster Quench Box. The proposed BACT emission limitations for the Caster Quench Box are 7.44E-03 gr/dscf filterable PM, 1.19E-03 gr/dscf PM_{10}, 1.49E-04 gr/dscf $PM_{2.5}$. NSBB proposes to demonstrate ongoing compliance with the emission limitations through good work practices, including periodic inspections to ensure equipment is in proper working order.

NSBB proposes to implement the following specific practices targeting PM, PM_{10}, $PM_{2.5}$ emission minimization from the Caster Quench Box:

- Tracking material usage to ensure that equipment is operated as designed and correcting any operating or design issues as quickly as possible; and
- Employing a preventative maintenance program, including a schedule that is consistent with the manufacturer's instructions for routine and long-term maintenance.

6.2.6 $PM/PM_{10}/PM_{2.5}$ FOR WALKING BEAM REHEAT FURNACE (EP 03-01)

The furnace emits products of natural gas combustion including: $PM/PM_{10}/PM_{2.5}$, NO_x, CO, SO_2, VOC, and GHGs. Note that in addition to the products of combustion, the Reheat Furnace has a greater PM emission rate due to scale being carried out of the furnace.

Step 1 – Identify Potential Control Technologies

Natural gas contains a very small amount of noncombustible trace constituents that result in PM/ PM_{10}/ $PM_{2.5}$ emissions. Particulate matter generated from natural gas combustion is estimated to be less than 1 micrometer in diameter and consists of filterable and condensable fractions, made up mostly of large weight hydrocarbons that are not fully combusted. The following technologies are potentially available control technologies for $PM/PM_{10}/PM_{2.5}$ emission controls for natural gas-fired combustion sources (furnaces).

TABLE 5 POTENTIAL CONTROL DEVICES FOR $PM/PM_{10}/PM_{2.5}$ FROM THE WALKING BEAM REHEAT FURNACE

Control Type	Estimated $PM/PM_{10}/PM_{2.5}$ Control Efficiency
Fabric filter (baghouse)	Up to 99.9% (As low as 0.001 gr/dscf)
Wet scrubber or high efficiency Venturi scrubber	70 to 99% (~0.01 gr/dscf)
ESP	95 to 99% (0.002 to 0.004 gr/dscf)
Pipeline-Quality Natural Gas Use and Good Combustion Practices	Base Case

Step 2 – Eliminate Technically Infeasible Options

Baghouses, Wet Scrubbing, ESPs/WESPs

Post-combustion controls, such as baghouses, scrubbers, and ESPs are technically infeasible and impractical due to the high-pressure drops associated with these units and the low concentrations of $PM/PM_{10}/PM_{2.5}$ present in the exhaust gas.

Step 3 – Rank Remaining Technically Feasible Control Options

Pipeline-quality natural gas use and good combustion practices are the only remaining technically feasible control options.

Step 4 – Evaluate Remaining Control Technologies

Pipeline-Quality Natural Gas Use and Good Combustion Practices

Because emissions of $PM/PM_{10}/PM_{2.5}$ are minimal, add-on controls are not necessary and would be considered cost prohibitive. During the review of available control technologies for combustion sources at similar plants, no determinations were found for the use of add-on controls to reduce $PM/PM_{10}/PM_{2.5}$ emissions from similar natural gas-fired equipment. Therefore, NSBB considers BACT for control of PM from the Walking Beam Reheat Furnace to be the use of natural gas, a clean-burning fuel with low $PM/PM_{10}/PM_{2.5}$ and good combustion practices.

Step 5 – Selection of BACT

NSBB proposes to use pipeline-quality natural gas and good combustion practices with no add-on controls and a numerical limit of 7.6 lb/MMscf for $TPM/TPM_{10}/TPM_{2.5}$ and 1.9 lb/MMscf for FPM as BACT for these emissions from the Walking Beam Reheat Furnace. The BACT TPM emission rate for the reheat furnace includes both filterable and condensable material and is based on value from Table 1.4.2 from AP-42 Chapter 1.4, Natural Gas Combustion. The furnace is direct fired, meaning the products of combustion come in contact with the material being heated. In addition, the reheat furnace is a large furnace that reheats cold and hot slabs after being formed in the continuous prior to hot rolling. During the reheating process, hot steel surfaces react with the in-furnace oxidizing atmosphere resulting in the formation of an iron oxides layer known as scale. As a result, there is the potential to entrain scale in the furnace exhaust, and therefore, NSBB believes this factor is appropriate as opposed to the use of a factor that only considers particulate generated solely from combustion of fuel. Examples of good combustion practices include good operation and maintenance practices, including good burner maintenance and operation.

6.2.7 PM/PM_{10}/$PM_{2.5}$ FOR PLASMA AND OXY-FUEL CUTTING BEDS

Within this application, NSBB is revising emissions calculations to account for uncaptured emissions that had not been included in the initial emissions estimates for Coil Sample Plasma Cutter (03-06), Continuous Heat Treat Plasma Cutter (04-04), Light Plate Burning Beds #1 and #2 (17-01), Heavy Plate Burning Beds #1 - #3 (05-03), and Slag Plant Oxy Fuel-Fired Torches (EP 12-04). Each cutting bed will be equipped with a downdraft table to capture fume generated during the cutting process that will be vented to a dedicated dust collector for PM control.

ESPs are not technically feasible for controlling particulate emissions because the iron compounds will adhere strongly to the ESP collection plates, making them very difficult to remove. This causes a reduction in efficiency as the iron compounds will deflect other particles away from the plates and back into the exhaust stream.

The control device with the highest efficiency is the baghouse/fabric filter. NSBB proposes BACT as the use of a baghouse with 99% control efficiency to minimize PM/PM_{10}/$PM_{2.5}$ emissions from each cutting bed. PM emissions from plasma cutting is a factor of the steel plate thickness and cutting speed. The oxy-fuel cutting torches generate fume emissions during cutting along with PM/PM_{10}/$PM_{2.5}$ emissions from combustion of natural gas, and will apply 99% baghouse control efficiency to only the cutting fume emissions (i.e., no control of the combustion emissions, which are predominantly condensable PM).

Good Work Practices also are selected as BACT for these emission points. Good Work Practices, such as proper operation to ensure complete combustion and that no additional fumes are generated, are both a feasible and cost effective ways to minimize particulate emissions. The proposed BACT limitation for the Plasma Cutting Beds is 0.053 lb/inch cut PM/PM_{10}/$PM_{2.5}$. The proposed BACT limitations for the Oxy-fuel Cutting Beds are 0.81 g/min PM/PM_{10}/$PM_{2.5}$ on an hourly average basis from cutting and 1.9 lb/MMscf FPM and 7.6 lb/MMscf PM_{10}/$PM_{2.5}$ from natural gas combustion. The proposed monitoring and recordkeeping for each source includes hours of operation, monthly and 12-monthly rolling process weight, and monthly and 12-month rolling natural gas combusted.

6.2.8 PM/PM_{10}/$PM_{2.5}$ FOR INGOT GRINDING (EP 03-10)

Ingot grinding operations will remove the surface defects from ingots prior to reheating and rolling and will be contained within a partial enclosure. PM/PM_{10}/$PM_{2.5}$ emissions will be controlled by a baghouse. The uncaptured emissions will be emitted within the building and discharged to atmosphere through the Rolling Mill building monovent.

Step 1 – Identify Potential Control Technologies

Control efficiencies for potentially applicable technologies are shown in the table below.

TABLE 6 POTENTIAL CONTROL DEVICES FOR $PM/PM_{10}/PM_{2.5}$ FROM INGOT GRINDING

Control Type	Estimated $PM/PM_{10}/PM_{2.5}$ Control Efficiency
Fabric filter (baghouse)	Up to 99.9% (As low as 0.001 gr/dscf)
Wet scrubber or high efficiency Venturi scrubber	70 to 99% (~0.01 gr/dscf)
ESP	95 to 99% (0.002 to 0.004 gr/dscf)
High efficiency cyclone	80 to 99%, 30 to 90% for PM_{10}, 0 to 40% for $PM_{2.5}$ (>0.01 gr/dscf)

Step 2 – Eliminate Technically Infeasible Options

ESPs

Although an ESP is capable of very high (99% or higher) particulate removal, several factors preclude their application to Ingot Grinding for control. A key parameter is the composition of the particles to be collected. Iron compounds adhere very strongly to the collection plate of the ESP (due to their electromagnetic properties). They are, therefore, very difficult to remove, and thus reduce ESP efficiency. Metal compounds tend to foul ESP electrodes, also reducing effectiveness. Based on the RBLC query results, ESPs have not been used on Ingot Grinding, and, for the additional reasons outlined, are considered technically infeasible[16].

Step 3 – Rank Remaining Technically Feasible Control Options

The $PM/PM_{10}/PM_{2.5}$ control technologies for Ingot Grinding are ranked as follows:

1. Baghouse, 95% to 99+% (As low as 0.001 gr/dscf)
2. Wet Scrubber, 70% to 99% (~ 0.01 gr/dscf)
3. High Efficiency Cyclone 80% to 99% for PM, 30% to 90% for PM_{10}, and 0% to 40% for $PM_{2.5}$ (>0.01 gr/dscf)

Step 4 – Evaluate Remaining Control Technologies

BACT Limit Overview

The RBLC, recent permits, and other relevant documents were reviewed to identify the most stringent BACT limits for $PM/PM_{10}/PM_{2.5}$ established for ingot grinding. However, no applicable entries were found in the RBLC under the search terms "ingot" or "grinding".

Fabric Filter (Baghouse)

A baghouse is the top ranked control technology for $PM/PM_{10}/PM_{2.5}$ control. Emissions from Ingot Grinding will be captured and controlled by the Ingot Grinding Baghouse.

Wet Scrubber or High Efficiency Venturi Scrubber

High-energy scrubbers have disadvantages compared to baghouses. Scrubber systems have high-pressure drops that result in high-energy demands and high operating costs. These

[16] Note, historically, ESPs have been applied to control $PM/PM_{10}/PM_{2.5}$ emissions from basic oxygen furnaces (BOFs); specifically, to control emissions from oxygen blow.

systems also require water treatment and sludge disposal. A high-energy scrubber is eliminated from further consideration due to high-energy demands (environmental impacts) and lower PM control efficiency compared to baghouses.

High Efficiency Cyclone

There are a couple of disadvantages in using high efficiency cyclones compared to baghouses. One disadvantage is that the PM collection efficiency for PM_{10} (30% to 90%) and $PM_{2.5}$ (0% to 40%) is relatively low. Additionally, high efficiency cyclones can have high-pressure drops that result in high-energy demands and high operating costs. A high efficiency clone is eliminated from further consideration due to high-energy demands (environmental impacts) and lower PM control efficiency compared to baghouses.

Step 5 – Selection of BACT

NSBB proposes BACT to be the use of a baghouse for control of PM/PM_{10}/$PM_{2.5}$ (filterable and condensable) emissions from Ingot Grinding. The proposed BACT emission limitations for the baghouse are 0.005 gr/dscf for PM (filterable and condensable) and PM_{10} (filterable and condensable) and 0.0025 gr/dscf for $PM_{2.5}$ (filterable and condensable) emissions. NSBB proposes to demonstrate ongoing compliance with the emission limitation through monitoring and recordkeeping of maintenance and operating parameters of the control equipment.

6.2.9 PM/PM_{10}/$PM_{2.5}$ BACT FOR INGOT GRINDING CUTTING TORCH

NSBB is proposing to add an ingot grinding oxy-fuel torch (EP 03-11). This torch will be used on an as needed basis to cut 5 to 36 inch ingots. Conservatively assuming this torch operates 8,760 hours per year, the potential emissions from the cutting torches (0.3 ton/year) are well below the thresholds where add-on control devices are cost effective.

ESPs are not technically feasible for controlling particulate emissions because the iron compounds will adhere strongly to the ESP collection plates, making them very difficult to remove. This causes a reduction in efficiency as the iron compounds will deflect other particles away from the plates and back into the exhaust stream.

The control device with the highest efficiency is the baghouse/fabric filter. Dividing the high capital, maintenance, and operating costs of an air pollution control equipment by less than 0.3 tons/yr of controlled emissions would result in an exorbitant cost effectiveness ratio.

As such, NSBB proposes BACT to be proper equipment design and the use of natural gas as fuel to minimize PM/PM_{10}/$PM_{2.5}$ emissions from the oxy-fuel torches. The proposed BACT limitations for the Ingot Grinding Cutting Torch are 0.81 g/min PM/PM_{10}/$PM_{2.5}$ from cutting and 1.9 lb/MMscf FPM and 7.6 lb/MMscf PM_{10}/$PM_{2.5}$ from natural gas combustion. The proposed monitoring and recordkeeping for each source includes hours of operation, monthly and 12-monthly rolling process weight, and monthly and 12-month rolling natural gas combusted.

6.2.10 PM/PM_{10}/$PM_{2.5}$ BACT FOR COOLING TOWERS (EU 09)

Increased demand for cooling water and as-built operating conditions require NSBB to increase the designed circulation rate and TDS for the following cooling towers:

- Melt Shop ICW (EP 09-01);
- Melt Shop DCW (EP 09-02);

- Rolling Mill DCW (EP 09-04);
- Rolling Mill ACC ICW (EP 09-05);
- Heavy Plate Quench DCW (EP 09-06);
- Quench and ACC Laminar DCW (EP 09-07);
- Heat Treat (EP 09-08); and
- Air Separation Plant (EP 09-09).

Cooling towers have the potential to emit a small amount of PM/PM_{10}/$PM_{2.5}$ emissions when water droplets escape. When the droplets evaporate from the cooling towers, dissolved solids in the water are emitted as particulate. All particulate emissions from the cooling towers will be filterable. The cooling water towers will have a 0.001% drift rate.

Step 1 – Identify Potential Control Technologies

Based on information obtained from US EPA's RBLC database, recently submitted permit applications, and air pollution control guidance documents, a list of potential PM/PM_{10}/$PM_{2.5}$ controls for the cooling towers was developed. Drift loss rates from wet cooling systems are affected by a variety of factors, including the type and design of the cooling system, capacity, velocity of air flow, density of the air in the cooling tower, and total dissolved solids (TDS) concentration in the circulating water.

TABLE 7   POTENTIAL CONTROL DEVICES FOR PM/PM_{10}/$PM_{2.5}$ FROM COOLING TOWERS

Control Type	Estimated PM/PM_{10}/$PM_{2.5}$ Control Efficiency
High Efficiency Drift Eliminators	Varies
Limiting TDS concentrations in the circulating water	Varies
Proper equipment design, operation, and maintenance	Base Case

Each of the potentially applicable controls is described below.

High Efficiency Drift Eliminators

High efficiency drift eliminators remove entrained water droplets from the air, thus, reducing PM, PM_{10}, and $PM_{2.5}$ emissions. Types of drift eliminators include herringbone (blade-type), wave form, and cellular (or honeycomb) designs. Drift eliminator system materials of construction may include ceramics, fiber reinforced cement, fiberglass, metal, plastic, or wood. Typically, drift eliminators are constructed of polyvinyl chloride plastic material, which effectively eliminates corrosion. Drift eliminators also incorporate ultraviolet inhibitors to resist cracking and degradation due to sunlight. Drift eliminator system designs may include other features, such as corrugations and water removal channels, to enhance the drift removal further. The drift rate as a percentage of circulating water flow rates varies with the specific project and typically ranges from 0.01% to 0.0005% of circulating water flow rates. Higher efficiency drift eliminators can achieve drift loss rates of 0.005% to 0.0005% of the circulating water flow rates.

Limiting TDS Concentrations in the Circulating Water

In general, water droplets released as drift from wet cooling towers contain TDS concentrations equivalent to the solids concentrations in the circulating water. Dissolved solids can accumulate in the cooling water due to the following:

- An increase in the concentration of dissolved solids in the make-up water as the circulating water evaporates;
- Adding anti-corrosion additives to the cooling water; and/or
- Adding anti-biocide additives to the cooling water.

Limiting the TDS concentration in the cooling water can directly reduce particulate emissions.

Proper Equipment Design, Operation, and Maintenance

Proper equipment design, operation, and maintenance can help ensure the drift eliminators work properly to maximize PM, PM_{10}, and $PM_{2.5}$ reduction. Proper operation and maintenance practices include routine inspections of the following:

- Drift eliminators and fills;
- Water basin for clarity, surface debris, and temperature;
- Bleed-off valves, strainers, drains, and float valves for proper operation;
- Internal surface conditions for rust, scale, sludge, and biofilm accumulation; and
- Water distribution pipework, including nozzles.

In addition to proper maintenance practices, particulate entrainment rates are influenced by air velocities in the system, so maintaining low (or optimum design) air velocities can reduce drift.

Step 2 – Eliminate Technically Infeasible Control Technologies

All proposed controls in Step 1 are technically feasible.

Step 3 – Ranking Remaining Control Technologies by Control Effectiveness

1. High efficiency drift eliminators
2. Limiting TDS concentrations in the circulating water
3. Proper equipment design, operation, and maintenance

Step 4 – Evaluate the Most Effective Controls and Document Results

Use of High Efficiency Drift Eliminators, Limiting TDS concentrations in the circulating Water, and Proper equipment design, operation, and maintenance

As previously discussed, there is a loss of water to the environment due to the evaporative cooling process. A drift eliminator is designed to capture the water droplets, thus controlling the total amount of liquid drift. Drift eliminators cause the droplets to change direction and lose velocity at impact on the blade walls and fall back into the cooling tower. A review of the RBLC database and several other recently permitted cooling towers throughout the U.S. indicates that a high efficiency drift eliminator, achieving a drift rate of 0.001%, is BACT for $PM/PM_{10}/PM_{2.5}$ emissions from a cooling tower.

In the RBLC, BACT for cooling towers at certain energy centers, power plants, and refineries is selected as drift eliminators with a drift rate of 0.0005% instead of the typical drift rate of 0.001%. As previously mentioned, cooling tower particulate emissions depend not only on water circulation flow, but also drift rate and TDS content. According to RBLC search results, the typical circulating water rate associated with these units at energy-related facilities is over 100,000 gallons per minute (gpm); for example, Okeechobee Clean Energy Center's Mechanical Draft Cooling Tower with a flow rate of 465,815 gpm and a maximum TDS concentration of 35,000 ppm.[17] The circulation rates and TDS contents associated with the proposed new and modified cooling towers are well below the circulating rates and TDS content of energy-related facilities.

Based on the circulating water flow rate, the TDS content, and drift rate, the proposed filterable PM emission rates, alongside the initial PM emission rates are marginal increases are detailed in the following table:

TABLE 8 PM/PM_{10}/$PM_{2.5}$ EMISSION RATES FROM PROPOSED COOLING TOWERS

Emission Point	Description	Initial PM Emission Rate (ton/yr)	Proposed PM Emission Rate (ton/yr)	Marginal Increase in PM Emission Rate (ton/yr)
09-01	Melt Shop ICW	2.07	3.02	0.95
09-02	Melt Shop DCW	0.77	1.05	0.28
09-04	Rolling Mill DCW	1.64	3.62	1.98
09-05	Rolling Mill ACC ICW	1.36	2.15	0.79
09-06	Heavy Plate Quench DCW	0.19	0.66	0.47
09-07	Quench and ACC Laminar DCW	2.25	2.89	0.64
09-08	Heat Treat	0.39	2.03	1.64
09-09	Air Separation Plant	0.38	0.79	0.41

Therefore, a drift loss of 0.001% is appropriate as BACT and is consistent with recent similar source BACT determinations in the RBLC. High efficiency drift eliminators are the top available control and do not have any adverse environmental or economic impacts. However, switching to drift eliminators achieving a drift rate of 0.0005% is not cost efficient. Therefore, additional analysis is not required.

Step 5 – Select BACT

NSBB proposes to use cooling towers equipped with high-efficiency drift eliminators that will achieve a drift rate of 0.001%, which is the most effective technique to reduce PM/PM_{10}/$PM_{2.5}$ emissions based on a review of RBLC determinations for similar sources, recent permits, and evaluation of available literature. Compliance will be demonstrated by drift eliminator vendor specifications.

[17] Prevention of Significant Deterioration permit application available online at: http://publicfiles.dep.state.fl.us/Siting/Outgoing/FPL_OCEC/Application/Appendix%2010.2.5%20-%20OCEC%20PSD%20Report.pdf

6.2.11 PM/PM_{10}/$PM_{2.5}$ BACT FOR EMERGENCY DIESEL GENERATORS ENGINES >500 HP (EP 10-02, EP 10-03, AND EP 10-10)

One new large emergency diesel-fueled generator is included in the proposed project, as well as horsepower updates to two large emergency diesel-fueled generators. Emissions from the generators include products of combustion (PM/PM_{10}/$PM_{2.5}$, NO_X, CO, VOC, SO_2, and GHG).

Step 1 – Identify Potential Control Technologies

The following technologies were identified as potential control measures for PM/PM_{10}/$PM_{2.5}$ emissions associated with the diesel fueled emergency generator engines.

TABLE 9 POTENTIAL CONTROL DEVICES FOR PM/PM_{10}/$PM_{2.5}$ FROM EMERGENCY DIESEL ENGINES

Control Type	Estimated PM/PM_{10}/$PM_{2.5}$ Control Efficiency
Efficient Engine Design	Varies
Fuel Selection (Low-Sulfur Fuel)	Varies
Diesel Particulate Filter	85% for PM
Diesel Oxidation Catalyst	20% to 40% for PM
Energy Efficiency Measures and Good Combustion Practices	Base Case

The potentially applicable types of controls for products of combustion from emergency equipment are described below.

- ***Efficient Engine Design*** – The diesel-fueled emergency generator engines will be certified to meet the required US EPA emission standards based on each engine's model year and size. In order to achieve this certification, the engines are optimized to perform at their best design capacity and maximum efficiency.

  The efficiency of any machine or process is a ratio of the amount of useful output energy against the required amount of input energy, usually expressed as a percentage. The need to increase the fuel efficiency of engines is driven by a number of factors including lowering operating costs and reducing fossil fuel consumption. A reduction in fuel consumption is directly related to a reduction in pollutants generated as the products of combustion.

  Criteria pollutants from engines can be controlled by particulate filtration, selective catalytic reduction (SCR), and oxidation catalyst in certain scenarios.

- ***Fuel Selection*** – Criteria pollutant emissions can be minimized through combustion of fuels with minimal amounts of impurities. Limiting the amount of sulfur in the fuel, such as ultra-low sulfur diesel, has the potential to reduce the formation of SO_2; thus the potential to reduce the formation of condensable particulate.
- ***Diesel Particulate Filter*** – Diesel particulate filters are exhaust aftertreatment devices that physically remove PM from the exhaust streams of diesel-fueled vehicles and equipment. Diesel particulate filters typically use a porous ceramic or cordierite substrate or metallic filter, to trap PM. Periodic cleaning of the filter must be conducted to remove

captured noncombustible materials and ash. Diesel particulate filters are verified for use with specific engines and/or with specific configurations. In addition to equipment and engine specifications, the intended application must be evaluated for exhaust temperature, duty cycle, fuel sulfur levels, and lubrication oil consumption.

- ***Diesel Oxidation Catalyst*** – Diesel oxidation catalyst generally consists of a precious metal coated flow-through honeycomb structure contained in a stainless steel housing. As hot diesel exhaust flows through the honeycomb structure, the precious metal coating causes a catalytic reaction that breaks down pollutants into less harmful components. Diesel oxidation catalyst is effective at reducing PM emissions by 20% to 40%. The PM removed by diesel oxidation catalysts are largely the soluble organic fraction that comes from unburned fuel and oil.
- ***Energy Efficiency Measures and Good Combustion, Operating, and Maintenance Practices*** - Energy efficiency measures, such as good combustion, operating, and maintenance practices for CI engines include appropriate maintenance of equipment and operating within the recommended air-to-fuel ratio recommended by the manufacturer. Using good combustion practices, in conjunction with proper maintenance, results in longer life of the equipment and more efficient operation. Therefore, such practices indirectly reduce emissions generated from combustion, by supporting operation as designed and with consideration of other energy optimization practices.

Step 2 - Eliminate Technically Infeasible Options

Diesel Oxidation Catalyst

No control technologies were found to be technically infeasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

1. Efficient Engine Design
2. Diesel Particulate Filters (PM control)
3. Diesel Oxidation Catalyst
4. Fuel Selection (ultra-low sulfur diesel)
5. Energy Efficiency Measures; Good Combustion Practices

Step 4 - Evaluate Remaining Control Technologies

Compliance with NSPS Subpart IIII is proposed as BACT for $PM/PM_{10}/PM_{2.5}$. Diesel particulate filters are the only PM add-on control technology that is technically feasible for the routine operation of an emergency engine (i.e., during maintenance and testing). Due to the limited operating timeframe during the maintenance and testing operating scenario, control technologies that must reach a minimum temperature prior to achieving design effectiveness are not a feasible control for this unit.

Efficient Engine Design

An engine for the new emergency generator with high fuel combustion efficiency will be selected. The estimate of emissions from this proposed engines is based on the corresponding NSPS IIII standards for PM_{10} for non-road engines. The engine will be certified by the manufacturer to meet the standards in NSPS for Stationary CI ICE (40 CFR 60 Subpart IIII). The facility will use ultra-low sulfur diesel with a maximum sulfur content of 15 ppm.

Diesel Particulate Filter

While diesel particulate filters are a technically feasible control option for emergency generator engines, the added benefit of the aftertreatment device is not cost effective. For the largest emergency engine included in this application (approximately 2,937 HP), the maximum annual PM emissions, based on 500 hours, are only 0.14 tons. Employing diesel particulate filters, with 85% control, would result in a total annual PM reduction of only 0.2 tons. Using a reasonable cost of $10,000[18] for the installation of a diesel particulate filter, a 5-year device life (typical warranty period, which indicates when the filter may need to be repurchased), ignoring any maintenance costs, and an interest rate of 4.5% yields an unfavorable cost-effectiveness of approximately $11,400/ton of PM controlled on an annual basis. For the smaller proposed engines with lower annual PM emissions, the cost per ton of PM controlled would be even higher. Based on these costs and the negligible air quality benefit, diesel particulate filters are, therefore, not practical as BACT control alternatives.

Diesel Oxidation Catalyst

These emergency generators are limited to emergency use, therefore the emissions of criteria pollutants are minimal. Due to the minimal emissions and limited periods of operation, oxidation catalysts are not cost effective for reducing emissions.

Energy Efficiency Measures; Good Combustion Practices

Energy efficiency measures that reduce emissions at the source, such as good combustion, operating, and maintenance practices for CI engines, include appropriate maintenance of equipment and operating within the air-to-fuel ratio recommended by the manufacturer. Using good combustion practices, in conjunction with proper operation and maintenance, results in longer life of the equipment and more efficient operation. Good combustion, operating, and maintenance practices, as recommended by the generator engine manufacturer, will be incorporated to minimize emissions and maximize energy efficiency. Such practices are identified and regulated by NSPS Subpart IIII. Thus, compliance with the applicable provisions of NSPS Subpart IIII is proposed as BACT for PM/PM_{10}/$PM_{2.5}$ from the diesel-fueled emergency generators.

Step 5 - Select BACT

For emissions of PM/PM_{10}/$PM_{2.5}$ generated by combustion, BACT is selected to be efficient engine design; implementation of good combustion practices; and energy efficiency measures, such as good operating and maintenance practices. Furthermore, the emergency diesel engines are or will be subject to 40 CFR 60, Subpart IIII, the NSPS for Stationary CI ICE. Additionally, the emergency diesel engine will combust only ultra-low sulfur diesel fuel (15-ppm sulfur) to limit emissions of SO_2, a $PM_{2.5}$ precursor. BACT is proposed to be the installation of new equipment with Subpart IIII compliant engines. The proposed BACT limit for PM is 0.12 g/kw-hr for EP 10-02 and EP 10-03 and 0.08 g/kw-hr for EP 10-10.

Compliance will be demonstrated through purchase of Subpart IIII compliant engines, adhering to manufacturer recommended operating and maintenance practices, annual hourly usage recordkeeping, maintaining copies of the engine certification, and maintenance recordkeeping.

[18] US EPA, Technical Bulletin – Diesel Particulate Filter General Information. EPA-420-F-10-029, May 2010

6.2.12 PM/PM_{10}/$PM_{2.5}$ BACT FOR PAVED ROADS (EP 14-01)

A BACT analysis is presented below for fugitive PM/PM_{10}/$PM_{2.5}$ emissions generated from the proposed paved road segments.

BACT Floor

Per 401 KAR 63:010, Section 3(1), the facility must limit fugitive emissions by applying and maintaining asphalt, oil, water, or suitable chemicals on roads, material stockpiles, and other surfaces, which can create airborne dusts. The facility must maintain paved roadways in a clean condition and promptly remove earth or other material from a paved street to minimize fugitive PM emissions, when earth or other material has been transported thereto by trucking, earth moving equipment, or erosion by water.

Step 1 – Identify Potential Control Technologies

The feasibility of controls to reduce fugitive emissions are evaluated in this BACT analysis. Control efficiencies for potentially applicable technologies are shown in the table below.

TABLE 10 POTENTIAL CONTROL DEVICES FOR PM/PM_{10}/$PM_{2.5}$ FROM PAVED ROADS

Control Type	Estimated PM/PM_{10}/$PM_{2.5}$ Control Efficiency
Permanent Surface Improvements	95%
Wet Suppression	Varies (approximately 80%)
Good Work Practices	Base Case

Particulate controls for fugitive emissions from roadways are described below.

- ***Permanent Surface Improvements*** - Surface improvements are used to permanently alter the road surface of unpaved roads in order to reduce particulate emissions. Surface improvements include paving an unpaved road or covering the road with a material that possesses a lower silt content. The lower silt content will reduce the amount of airborne dust produced when the road surface is disturbed.
- ***Wet Suppression*** - Surface treatments for roads include wet suppression, which is the application of water or chemicals to roads to reduce dust emissions.
- ***Good Work Practices*** – Good work practices, such as vacuum sweeping paved roads, can remove loose silt from high-traffic areas. Good work practices can also be implemented to maintain roadways in a clean condition and promptly remove material that may become airborne.

Step 2 – Eliminate Technically Infeasible Options

Each of these controls are technically feasible.

Step 3 – Rank Remaining Technically Feasible Control Options

1. Permanent Surface Improvements
2. Good Work Practices
3. Wet Suppression

Step 4 – Evaluate Remaining Control Technologies

Permanent Surface Improvements

Permanent surface improvements (pavement) is the top control for $PM/PM_{10}/PM_{2.5}$ emissions for sections of road designated for lighter vehicle loads.

Wet Suppression

Wet suppression is the application of water or chemicals to unpaved roads to reduce dust emissions. The wetted particulate becomes heavier and quickly settles out of the air, reducing airborne dust as vehicles pass over the road surface.

Good Work Practices

Good work practices will be applied to the paved roads. Paved roadways and other surfaced areas will be periodically vacuumed to remove dust and loose materials. The removal of dust from paved roadways is superior to wet suppression on a long-term basis and is more environmentally friendly.

The most efficient and effective controls for $PM/PM_{10}/PM_{2.5}$ emissions from the roads are permanent surface improvements, wet suppression, and good work practices.

Step 5 – Selection of BACT

A combination of wet suppression and surface improvements (pavement), along with good work practices, including a dust management plan, will represent BACT for controlling fugitive $PM/PM_{10}/PM_{2.5}$ emissions from the paved road segments. Compliance will be demonstrated through recordkeeping.

6.3 NO_X BACT DETERMINATIONS

6.3.1 NO_X CONTROL TECHNOLOGIES

NO_x controls can be classified into two types: post-combustion methods and combustion control techniques. Post-combustion control methods include SCR, non-selective catalytic reduction (NSCR), and selective non-catalytic reduction (SNCR). Combustion control techniques include burner modifications, flue gas recirculation (FGR), low excess air firing (LEA), off-stoichiometric (or staged) combustion (OSC), or low nitrogen fuel (if applicable and available). The most commonly encountered control technologies of NO_X systems used in industry are described below.

- ***SCR*[19] -** SCR units use a nitrogen-based reagent, such as ammonia (NH_3) or urea, to chemically reduce NO_x to molecular nitrogen and water vapor. The reagent is injected through a grid system into the flue gas stream, upstream of a catalyst bed. The waste gas mixes with the reagent and enters a reactor module containing catalyst. The hot flue gas and reagent diffuse through the catalyst, where the reagent reacts selectively with NO_x within a specific temperature range.

  Operating temperatures between 480°F (250°C) and 800°F (427°C) are required of the gas stream at the catalyst bed, in order to carry out the catalytic reduction process. The reaction of NH_3 and NO_x is favored by the presence of excess oxygen (greater than 1%).

[19] Air Pollution Control Technology Fact Sheet: Selective Catalytic Reduction (SCR), EPA-452/F-03-032, Washington, D.C.: Clean Air Technology Center, July 2003.

Depending on system design, NO_x removal rates of 70 to 90% are achievable under optimum conditions[20]. Technical factors related to this technology include the catalyst reactor design, optimum operating temperature, sulfur and particulate content of the charge, catalyst deactivation due to aging, emissions of unreacted ammonia (slip), and design of the ammonia injection system.

Below the optimum temperature range, the catalyst activity is greatly reduced, potentially allowing unreacted ammonia (referred to as "ammonia slip") to be emitted directly to the atmosphere. SCR systems may also be subject to catalyst deactivation over time, due to physical deactivation and/or chemical poisoning. Catalyst suppliers typically guarantee a 3-year catalyst lifetime for a sustainable emission limit.

- ***NSCR[21] –*** NSCR is a post-combustion add-on exhaust gas treatment system for exhaust streams with a low O_2 content. It is often referred to as a "three-way conversion" catalyst since it reduces NO_x, unburned hydrocarbons (UBH), and CO simultaneously. In order to operate properly, the combustion process must be stoichiometric or near stoichiometric. NSCR is effective only in stoichiometric or fuel-rich environments where combustion gas is nearly depleted of oxygen (approximately 0.5% excess oxygen or less). Under stoichiometric conditions, in the presence of the catalyst, NO_x is reduced by CO, resulting in nitrogen and carbon dioxide. Operating temperatures between approximately 700°F (371°C) and 1500°F (815°C) are required of the gas stream in order to carry out the catalytic reduction process. Depending on the temperature and oxygen concentration of the exhaust, NO_x removal rates of 80% to 90% are achievable. NSCR has typically been used to control emissions from internal combustion engines and nitric acid plants.
- ***SNCR[22]-*** SNCR is a post-combustion technique that involves injecting ammonia or urea into specific temperature zones in the upper furnace or connective pass of a boiler or process heater to reduce NO_x emissions. A temperature between 1,600°F and 2,100°F is required at the injection site for the process reaction to take place. The ammonia or urea reacts with NO_x in the gas to produce molecular nitrogen and water vapor. The NO_x reduction reaction is favored over other chemical reaction processes for a specific temperature range and in the presence of oxygen; therefore, it is considered a selective chemical process. SNCR is effective, only in a stoichiometric or fuel-rich environment where combustion gas is nearly depleted of oxygen. Use of SNCR requires uniform mixing of the reagent and exhaust gas within a narrow temperature range. Operations outside of these operating conditions will significantly reduce removal efficiencies and may result in ammonia emissions and increased NO_x emissions. The three commercially available SNCR systems are Exxon's Thermal DeNO$_x$® system, Nalco Fuel Tech's NO$_x$OUT® system, and Low Temperature Oxidation (LTO).

  SCONO$_x$ is a catalytic oxidation/absorption technology that removes NO_x, CO, and VOCs from an assortment of combustion applications that mostly include small turbines, boilers, and lean burn engines. SCONO$_x$ employs a proprietary technology using a single potassium nitrate-impregnated catalyst. The flue gas temperature should be in the range of 300°F to 700°F for optimal performance without deleterious effects on the catalyst assembly. SCONO$_x$ technology demands stable gas flows, lack of thermal cycling, steady pollutant

[20] US EPA ACT Document - NO_x Emissions from Iron and Steel Mills, Sept. 1994.
[21] Draft CAM Technical Guidance Document: Nonselective Catalytic Reduction, EPA, April 2002. Available online at: https://www3.epa.gov/ttnchie1/mkb/documents/B_16a.pdf
[22] Air Pollution Control Technology Fact Sheet: Selective Non-Catalytic Reduction (SNCR), EPA-452/F-03-031, Washington, D.C.: Clean Air Technology Center, July 2003.

concentrations and residence times on the order of 1 to 1.5 seconds for optimal performance.

The Shell DeNO$_x$ system is a variant of traditional SCR technology, which utilizes a high activity dedicated ammonia oxidation catalyst based on a combination of metal oxides. The system is comprised of a catalyst contained in modular reactor housing where, in the presence of ammonia, NO$_x$ in the exhaust gas is converted to nitrogen and water. The catalyst is contained in a low-pressure drop lateral flow reactor (LFR), which makes best use of the plot space available. Due to the intrinsically high activity of the catalyst, the technology is suited for NO$_x$ conversions at lower temperatures with a typical operating range of 250°F to 660°F. The Shell DeNO$_x$ technology can not only operate at a lower temperature, but also have a lower pressure drop penalty than traditional SCR technology of around 2 inches water gauge.

LTO is a variant of SNCR, in which ozone is injected into the gas stream. NO$_x$ in the gas stream is oxidized to nitrogen pentoxide (N_2O_5) vapor, which is absorbed in a scrubber as dilute nitric acid (HNO_3). The nitric acid is then neutralized with caustic (NaOH) in the scrubber water forming sodium nitrate ($NaNO_3$). NO$_x$ reductions in the range of 40% to 70% are commonly quoted for SNCR, although figures above 80% have been reported in some industries. In a well-controlled process where optimum conditions can be achieved, reductions of 50% to 75% are possible.

- ***Low-NO$_X$ Burners (LNB)/Combustion Controls***[23] – Low-NO$_X$ burners relying on staged air typically achieve NO$_X$ reductions of 40% to 85% by using modified air and fuel entry to slow the mixing rate, reduce the oxygen available for NO$_X$ formation in critical NO$_X$ formation zones, and/or reduce the amount of fuel burned at peak flame temperatures. Low-NOx burners have been used since the early 1970s for thermal NO$_X$ control. Low-NOx burners have been defined as burners that control NO$_X$ formation by carrying out the combustion in stages (OSC) and, further, by controlling the staging at and within the burner rather than in a firebox. Consistent with this definition, there are two distinct types of designs for low-NOx burners: staged air burners and staged fuel burners. In general, low-NOx burners implement low excess air (LEA), off-stoichiometric combustion (OSC), and flue gas recirculation (FGR), or often, a combination of these techniques.

  LEA is a combustion technique in which NO$_x$ formation is inhibited by reducing the excess air to less than normal ratios. LEA reduces the local flame concentration of oxygen, thus reducing both thermal and fuel NO$_x$ formation. OSC reduces NO$_x$ generation by carrying out initial combustion in a primary, fuel-rich combustion zone and subsequently completing combustion at lower temperatures in a second, fuel-lean zone. OSC is implemented through biased burner firing (BBF), burners out of service (BOOS) or overfire air (OFA). With OFA, the burners are fired more fuel-rich than normal, and the additional air needed to complete combustion is admitted through overfire air ports. FGR is implemented by recycling a portion of the flue gas to the primary combustion zone. FGR reduces NOx formation by reducing the peak flame temperature by introducing inert combustion products and by lowing the oxygen concentration in the primary flame zone.

[23] EPA Technical Bulletin: Nitrogen Oxides (NO$_X$), Why and How They are Controlled, EPA-456/F-99-006R, Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina, November 1999.

- ***Nitrogen Reduction*** – As explained earlier, NO_X emissions commonly form from either nitrogen in the combustion air (thermal NO_X) or nitrogen in the fuel (fuel NO_X). The reduction of nitrogen in either the combustion air or the fuel both result in NO_X reduction. Natural gas is an attractive fuel from a NO_x reduction perspective because of the absence of fuel-bond nitrogen that would otherwise result in fuel NO_x. One example is Oxy-fuel burners and the use of natural gas.
- ***Oxy-fuel Burner[24] –*** Another approach to increasing combustion efficiency is to fire specially designed burners with oxygen instead of air. The conversion to oxygen firing instead of air firing reduces NO_x emissions by eliminating some of the nitrogen in combustion air. In addition, when small amounts of combustion air are replaced with oxygen, a significant increase in flame temperature can be realized and an intense flame is produced. Excess fuel air or steam, injected just after the combustion chamber, is sufficient to rapidly quench the flue gas to temperatures below the NO_x formation temperature range. Combustion can then be completed in over fire air. (This technique also is used with low-NO_x burners to prevent the formation of prompt NO_x from atmospheric nitrogen and hydrocarbons).

6.3.2 NO_X BACT FOR MELT SHOP (EP 01-01)

Other than combustion control techniques, add-on control technologies for NO_x abatement have not been successfully implemented for EAFs and related Melt Shop emissions. However, NO_x control technologies are currently available for fossil-fueled boilers, stationary combustion engines, and turbines. Thus, these control alternatives are potentially available to control NO_x from a Melt Shop with an EAF, LMF, and associated activities. The RBLC, recent permits, and other relevant documents were reviewed to identify the most stringent BACT limits for NO_x established for melting furnaces.

Step 1 – Identify Potential Control Technologies

NO_x is formed from the chemical reaction between nitrogen and oxygen at high temperatures. NO_x formation occurs by different mechanisms. In the case of an EAF, NO_x predominantly forms from thermal dissociation and the subsequent reaction of nitrogen and oxygen molecules in the combustion air, referred to as thermal NO_x. The other mechanisms of NO_x formation such as fuel NO_x (due to the evolution and reaction of fuel-bound nitrogen compounds with oxygen) and prompt NO_x (due to the formation of hydrogen cyanide [HCN] followed by oxidation to NO_x) represent lesser contributions to NO_x emissions from an EAF.

A review of the RBLC indicates that no add-on control device for NO_x has ever been required for EAF. A summary of potentially applicable control technologies and corresponding control efficiencies are shown in the table below.

[24] *Technical Bulletin: Nitrogen Oxides (NO_x) Why and How They Are Controlled,* EPA-456/F-99-006R, Research Triangle Park, NC: Office of Air Quality Planning and Standards, November 1999.

TABLE 11 POTENTIAL CONTROL DEVICES FOR NO_x FROM MELT SHOP

Control Type	Estimated NO_x Control Efficiency
SCR	70 to 90%
NSCF	80 to 90%
SNCR	40 to 75%
Oxy-Fuel Fired Burners	70 to 85%

Step 2 – Eliminate Technically Infeasible Options

SCR

In order for an SCR system to effectively reduce NO_x emissions, the exhaust gas stream should have relatively stable gas flow rates, NO_x concentrations, and temperature. The temperatures of the EAF exhaust will vary widely over the melt cycle, and the gas flow rates and NO_x concentrations will exhibit a wide amplitude. The SCR system cannot be installed after particulate removal as temperatures are below the effective operating range (100°F to 200°F). In addition, certain elements such as iron, nickel, chromium, and zinc can react with platinum catalysts to form compounds or alloys, which are not catalytically active. These reactions are termed “catalytic poisoning,” and can result in premature replacement of the catalyst. In an EAF flue gas often contains a number of these catalytic poisons. In addition, any solid material in the gas stream can form deposits and result in fouling or masking of the catalytic surface. Fouling occurs when solids obstruct the cell openings within the catalyst. Masking occurs when a film forms on the surface of the catalyst over time. The film prevents contact between the catalytic surface and the flue gas. Both of these conditions can result in frequent cleaning and/or replacement requirements.

In addition to the above technical issues regarding the effective application of SCR systems to EAFs, the technology is also associated with the following environmental impacts:

- Unreacted ammonia (around 5 ppmv to 10 ppmv) would be emitted to the environment as ammonia slip. Based on conservative estimates of a 7 ppmv ammonia slip and 1,652,094 cfm exhaust at 180°F, approximately 111 tons per year of ammonia could be potentially emitted from the EAF;
- Formation of ammonium salts can readily foul the catalyst section, resulting in reduced efficiency and increased back pressure;
- Small amounts of ammonium salts would be emitted as $PM_{10}/PM_{2.5}$;
- Safety issues associated with the transportation, handling, and storage of aqueous ammonia; and
- Potentially hazardous waste handling and disposal of spent catalyst.

There are currently no known successful applications of SCR technology to control NO_x emissions from EAFs. SCR is considered technically infeasible with unresolved technical issues and potentially significant environmental impacts and will not be considered any further in this BACT analysis.

NSCR

Currently, NSCR systems are limited to rich-burn internal combustion (IC) engines with fuel rich ignition system applications with low oxygen levels and have strict stoichiometric combustion requirements. Moreover, potential problems with NSCR systems include catalyst poisoning by phosphorus and zinc (present in the galvanized scrap steel charged in the EAF). NSCR is considered technically infeasible for this application and will not be considered any further in this BACT analysis.

SNCR

Exxon's Thermal DeNO$_x$® system involves the injection of gas-phase ammonia into the exhaust gas stream to react with NO$_x$. The temperature of the exhaust gas stream is the primary criterion controlling the above selective reaction. The optimum temperature window for the Thermal DeNO$_x$® process is approximately 1,600°F to 1,900°F. In addition, the process also requires a minimum of 1.0 second residence time in the desired temperature range for any significant NO$_x$ reduction. In order for the Thermal DeNO$_x$® system to effectively reduce NO$_x$ emissions, the exhaust gas stream should have relatively stable gas flow rates (to ensure the required residence time), be within the prescribed temperature range, and have a steady NO$_x$ concentration. The temperature of the EAF exhaust will vary widely over the melt cycles, and will not remain in the desired temperature window during all phases of operation. Similarly, the gas flow rates will not remain stable during furnace operation, precluding the possibility of adequate residence time. The nature of EAF operations does not afford any of these desired conditions, which will significantly impair the effective control efficiency of the Thermal DeNO$_x$® system.

Furthermore, the system would have to be located upstream of the EAF baghouse; however, the temperature range at this location would be approximately 300 °F to 400 °F. The EAF baghouse inlet will be approximately 180 °F. The Thermal DeNO$_x$® system cannot be placed further upstream due to operational hazards. Any injection mechanism upstream of the baghouse would be susceptible to prompt particulate fouling. The use of relatively large amounts of ammonia will have accidental release and hazardous impact implications. It should be noted that if the required residence time or other optimum operation parameters are not available, unreacted ammonia will be released directly to the atmosphere. A 7 ppmv ammonia slip will result in emissions of approximately 111 tons per year of ammonia based on 1,652,094 cfm exhaust at 180°F.

Nalco Fuel Tech's NO$_X$OUT® process is very similar in principle to the Thermal DeNO$_x$® process, except that it involves the injection of a liquid urea (NH_2CONH_2) compound (as opposed to NH_3) into the high temperature combustion zone to promote NO$_x$ reduction. The reaction involves the decomposition of urea at temperatures ranging approximately 1,400°F to 3,000°F. The limitations are dictated by the reaction-controlling variables such as stable gas flow rates for a minimum residence time of 1.0 second in the desired temperature window to ensure proper mixing.

As with the Thermal DeNO$_x$® system, the NO$_x$OUT® system suffers from similar limitations to effectively reduce NO$_x$ emissions from EAF operations. Moreover, applications of the NO$_x$OUT® technology to control NO$_x$ emissions from steel mill EAF operations are not known.

The temperature of the EAF exhaust gas will vary widely over the melt cycles, and will not remain in the desired temperature window during all phases of operation. The gas flow rates will not remain stable during furnace operation, precluding the possibility of adequate residence time. For these reasons, both Thermal DeNO$_x$® and NO$_x$OUT® are technically infeasible for this application and will not be considered any further in this BACT analysis.

SCONO$_x$ technology has never been applied to steel mill EAFs. The technology is not readily adaptable to high-temperature applications outside the 300°F to 700°F range and is susceptible to the thermal cycling. Optimum SCONO$_x$ operation is predicated by stable gas flow rates, NO$_x$ concentrations, and temperature. As discussed earlier, the nature of EAF operations does not afford any of these conditions, which will significantly impair the effective control efficiency of the SCONO$_x$ system. Furthermore, the catalyst is susceptible to moisture interference, and the potassium carbonate (K_2CO_3) coating on the catalyst surface is an active chemical reaction and reformulation site, which makes it particularly vulnerable to fouling.

This technology presents potential safety issues in addition to the above technical issues regarding effective application of SCR systems to EAFs. For example, the addition of the flammable reducing gas (natural gas, which contains 85% methane) into the hot flue gas during the regeneration step generates significant safety concerns within the hot environment of a steel mill. In the event that catalyst isolation is not hermetic or there is a failure in the carrier steam flow, the possibility of lower explosive limit (LEL) exceedances and subsequent catastrophic ignition of the regeneration gas poses a serious risk. Based on the identified issues, SCONO$_x$ is considered technically infeasible and will not be considered any further in this BACT analysis.

Shell DeNO$_x$ operation is optimized by stable gas flow rates, NO$_x$ concentrations, and temperature. The nature of EAF operations does not afford any of these conditions, which will significantly impair the effective control efficiency of the Shell DeNO$_x$ system. The catalyst is particularly susceptible to thermal fluctuations, and temperatures above 680°F will lead to catalyst degradation.

Even if the Shell DeNO$_x$ system was located downstream of the EAF baghouse system, the catalyst would still be exposed to particulates, which can inflict a masking effect, impairing the effective control efficiency of the system. Additionally, the exhaust stream will contain catalytic poisons, due to the scrap steel charge. These issues would require frequent replacement of the catalyst and would significantly reduce the system's control efficiency.

In addition to the above technical issues regarding effective application of Shell DeNO$_x$ systems to EAFs, there are safety issues associated with the transportation, handling, and storage of ammonia, a regulated toxic chemical. For these reasons, Shell DeNO$_x$ is technically infeasible and will not be considered any further in this BACT analysis.

LTO has never been utilized for any steel mill EAF application. The vendor has mostly listed applications for industrial boilers and cogeneration gas turbines, which have a more favorable energy balance. The technology is a variant of SNCR technology using ozone. The ozone is injected into the gas stream and the NO$_x$ in the gas stream is oxidized to N_2O_5 vapor, which is absorbed in the scrubber as dilute HNO_3. The nitric acid is then neutralized with caustic (NaOH) in the scrubber water, forming $NaNO_3$.

For optimal performance, the technology requires stable gas flows, lack of thermal cycling, invariant pollutant concentrations and residence times of at least one second. In addition, LTO technology requires frequent calibration of analytical instruments that sense the NO_x concentrations for the proper adjustment of ozone injection. Since LTO uses ozone injection, it has a potential for ozone slip, which can vary between 5 ppmv to 10 ppmv. Also, the technology requires a cooler flue gas of less than 300°F at the point of ozone injection; otherwise, the reactive gas is rendered redundant. The technology also suffers from low NO_x conversion rates (40% to 60%), potential nitric acid vapor release (in the event of a scrubber malfunction) with subsequent regional haze impacts and handling, treatment and disposal issues for the spent scrubber effluent.

The technology is neither applicable nor proven for steel mill EAF applications. Based on the exhaust stream parameters, the RTO control option is considered technically infeasible for this application and will not be considered any further in this BACT analysis.

Furthermore, the Technical Support Document (TSD) published by the EPA for non-EGU type units, details that data is insufficient to support a generalized conclusion that the application of NOx controls, including SCR is technically feasible on a fleetwide basis for Melt Shop sources in the steel industry[25].

Step 3 – Rank Remaining Technically Feasible Control Options

1. Oxy-Fuel Fired Burners

Step 4 – Evaluate Remaining Control Technologies

BACT Limit Overview

RBLC search results for NO_x BACT emission limits for EAFs indicate that the concentration established as BACT ranges from 0.2 lb NO_x/ton to 0.9 lb NO_x/ton for similar emission sources. The most stringent limits are achieved by using natural gas-fired oxy-fuel burners. For determinations from February 2010, after removing the highest limit of 0.9 lb/ton, the range of NO_x limits include 0.2 lb/ton to 0.6 lb/ton, with an average of 0.37 lb/ton. NSBB proposes a NO_x limit of 0.42 lb/ton, which is within the range of identified BACT limits. Note that many of the mills listed in the RBLC do not produce comparable products. Other sheet mills may produce comparable products, although variability in raw material mix, raw material supplier, and melting processes will ultimately determine the amount of NO_x emitted from the EAF. NSBB does not have access to the specific nature of comparable mills' market driven activities or proprietary melting processes. Note that the 2018 determination for Gerdau MacSteel in Monroe Michigan of 0.27 lb/ton is an entry for LAER in an Ozone non-attainment area, and, therefore, is not directly comparable. Therefore, it is not practical to directly compare NSBB, which competes in various markets, to the other sheet mills listed in the RBLC.

In addition, AP-42 Chapter 12.5.1, Steel Minimills includes an emission factor for "electric arc furnace, ladle metallurgy, and melt shop" of 0.22 lb/ton, with an emission factor rating of B. However, as noted in Chapter 12.5.1:

> *"The amount, type, age, and operation of equipment used in minimills varies widely. Some facilities operate one or more small EAFs and have relatively low production volume of finished goods. Other facilities operate multiple EAFs, Argon Oxygen Decarburization (AOD)*

[25] Technical Support Document (TSD) for the Final Rule: Docket ID No. EPA-HQ-OAR-2021-0668, Final Non-EGU Sectors TSD, U.S. Environmental Protection Agency, Office of Air and Radiation, March 2023, page 36.

and other refining processes, casters and product finishing lines. Some facilities produce steel in a narrow composition range; other facilities produce a wide variety of types and metallurgies of steel products. Some facilities can recycle only certain types of ferrous scrap, other facilities produce products that can be made utilizing scrap metal from a variety of sources. All of these factors affect the quantity and characteristics of emissions."

Based on stack testing and recent CEMs data for the melt shop baghouses at Nucor Steel Gallatin (NSG), a facility with similar EAF steel production capacity; as the proposed EAF, NSG's actual NOx emissions are greater than the AP-42 emission factor, but less than their recently permitted BACT emission limit of 0.42 lb/ton, for the reasons stated above. Therefore, it is not reasonable to consider the AP-42 NOx emission factor as a reasonable BACT emission limit for the Melt Shop.

Oxy-fuel fired burners are the most efficient and effective control of NO_x emissions for the EAF. NSBB will install six (6) oxy-fuel fired burners, including four (4) sidewall burners each with a heat capacity of 20 million British thermal units per hour (MMBtu/hr) and one (1) door burner and one (1) sump burner each with a heat capacity of 15 MMBtu/hr mounted at strategic locations around the furnace shell.

Step 5 – Selection of BACT

NSBB proposes BACT to be the use of natural gas-fired oxy-fuel burners to control NO_x emissions. The proposed BACT emission limit is 0.42 lb/ton of liquid steel on a 30-day rolling average basis. NSBB proposes to demonstrate ongoing compliance with the emission limitations through the use of Continuous Emissions Monitoring Systems (CEMS).

NSBB proposes that the lb/ton BACT limit shall be effective within three (3) consecutive months of a representative production (100,000 tons steel produced per month), not to exceed the current permit expiration, July 23, 2025.

6.3.3 NO_X BACT CASTER TORCH CUT OFF (EP 01-06 AND EP 01-12)

Following casting, the continuous steel slab exits at the bottom of the cooling chamber and is cut to specified lengths using an oxy-fuel torch to form discrete slabs. A secondary slab cutting area is located off the processing line in the caster runoff area to cut minimal length slabs with an oxy-fuel torch that are too short to be cut on line.

The emissions of NO_x from the Primary Torch Cut Off and Secondary Caster Torch Cut Off are less than 1 ton per year (0.81 ton/yr and 0.84 ton/yr, respectively), making the use of any add-on control devices not cost effective. Dividing the high capital, maintenance, and operating costs of an air pollution control equipment by 0.84 ton/yr and 0.81 tons/yr of controlled emissions would result in an exorbitant cost effectiveness ratio. Furthermore, low-NOx burner technology is not available for these oxy-fuel torches. Therefore, BACT for control of NO_x will be proper operation to ensure emissions are minimized wherever possible. Because this process is specialized and requires little to no human adjustments, a GWP plan is unnecessary. Emissions resulting from the fuel combustion are very small and will be limited to 100 lb/MMscf of natural gas through the use of good work practices.

6.3.4 NO_X BACT FOR WALKING BEAM REHEAT FURNACE (EP 03-01)

The burner capacity of the Walking Beam Reheat Furnace is 400 MMBtu, with a steady state rated heat capacity of 365 MMBtu/hr. The furnace emits products of combustion, including NO_x.

Step 1 – Identify Potential Control Technologies

The following technologies are potentially available controls for NO_x emissions from natural gas combustion sources.

TABLE 12 POTENTIAL CONTROL DEVICES FOR NO_X FROM WALKING BEAM REHEAT FURNACE

Control Type	Estimated NO_x Control Efficiency
SCR	70 to 90%
NSCF	80 to 90%
SNCR	40 to 75%
Low-NO_X Burners	70 to 85%

Step 2 – Eliminate Technically Infeasible Options

SCR

NSBB is aware of the adoption of SCR for the control of NO_x emissions from reheat furnaces at two facilities. The first was Beta Steel (now NLMK Indiana) in Portage, Indiana whose reheat furnace was originally limited to 0.014 lb NO_x/MMBtu. Subsequent compliance emission testing showed that the facility could not meet this limit. In 2003, Beta Steel applied for a new limit of 0.077 lb NO_x/MMBtu. In the Indiana Department of Environmental Management's (IDEM) notice of approval, it stated that Beta Steel had demonstrated that due to the non-steady state nature of the reheat furnace, it is not possible to maintain a consistent level of performance and granted an increased BACT limit of 0.077 lb NO_x/MMBtu. To the best of NSBB's knowledge, the SCR system at NLMK is still in use. However, the limit of 0.077 lb/MMBtu is comparable to the most recent RBLC entries for reheat furnaces equipped with low-NO_x burners, making the use of SCR as the primary control technology unnecessary and casting doubt on its use as a proven technology.

The second use of SCR for control of NO_x emissions from a reheat furnace is for the California Steel Industries (CSI) facility in Fontana, California. The use of the SCR system was adopted to allow the facility to comply with the South Coast Air Quality Management District (SCAQMD) New Source Review for RECLAIM (Rule 2005) that requires the application of SCAQMD's version of BACT, which essentially equates to the federal EPA's requirements for lowest achievable emission rate (LAER). According to CSI's operating permit, emissions of NO_x from the 529.4 MMBtu/hr Slab Furnace #5 are limited to 50 ppmv. Based on an exhaust flow rate of 89,880 dcfm at 3% O_2, this limit equates to 0.06 lb NO_x/MMBtu, or approximately 31.7 lb/hr. In order to meet this limit, CSI relied upon a furnace design that incorporates the use of a cascading control system over several furnace zones with both recuperative and regenerative type burners. According to the manufacturer of the furnace, the total burner heat input is 529.4 MMBtu/hr, with an emissions rate of 48.84 lb NOx/hr, or approximately 0.09 lb NO_x/MMBtu, and a calculated SCR reduction efficiency of approximately 22%.

The proposed Reheat Furnace at NSBB includes a regenerative burner system; therefore, the outlet gas temperatures will be below the optimal temperature range for SCR. Further, the heat input will vary dependent upon the temperature of the incoming steel and the furnace will not operate with the steady state conditions necessary to allow for efficient operation of an SCR.

NSCR

The typical oxygen content of the reheat furnace exhaust (approximately 3% to 4%) makes NSCR ineffective for this source. In addition, a review of the RBLC database identified no similar sources for which NSCR was determined to be BACT for NO_x control for a reheat furnace. Therefore, due to the lack of demonstrated applications for NSCR to this type of furnace, and operation outside of the optimal temperature range, this technology does not have the practical potential for application that would make it an available or technically feasible control technology.

SNCR

Use of this technology requires uniform mixing of the reagent and exhaust gas within a narrow temperature range. Operation outside of these temperature specifications will significantly reduce removal efficiencies and may result in ammonia emissions, increased NO_x emissions. The operation of the reheat furnace will not meet this criteria. A review of the RBLC database identified no similar sources for which SNCR was determined to be BACT for NO_x control for a reheat furnace. Therefore, SNCR is not technically feasible for the Walking Beam Reheat Furnace.

Step 3 – Rank Remaining Technically Feasible Control Options

1. Low-NO_x Burners
2. SCR

Step 4 – Evaluate Remaining Control Technologies

BACT Limit Overview

Low-NO_x burner technology is the predominant control option identified in the RBLC for reducing NO_X emissions from furnaces at steel mills.

Low-NOx Burner

Low-NOx burners are applicable, economical, and will be employed for the Walking Beam Reheat Furnace. Low-NOx burners reduce NO_x formation through careful control of the fuel-air mixture during combustion. This is accomplished through one or more NOx reduction techniques including staged air, staged fuel, and flue gas recirculation with the goal of lowering the peak flame temperature. Based on the type of low-NOx burner and its application, one or more of these techniques may be employed. These techniques are typically more effective with indirect-fired burners where the conditions of the combustion zones are easier to maintain in comparison to that of direct-fired burners. As a result, the BACT limit proposed for direct-fired low-NOx burners where combustion air cannot be controlled is 70 lb/MMscf. Low-NO_x burners will be installed to meet 70 lb/MMscf based on manufacturer specification.

SCR

While NSBB does not believe SCR is an effective primary control technology with control efficiencies matched or surpassed by low-NO_x burners. Further, due to the variability of the exhaust temperature, SCR is not well suited as a control technology. None the less, an economic feasibility analysis was conducted to evaluate the use of SCR in conjunction with the use of low-NO_x burners. Several providers of SCR systems were approached, but all either declined to provide a budgetary cost for an SCR system for a reheat furnace or could provide only a portion of the system. In the absence of a design specifically targeted to a reheat furnace, the U.S. EPA's Air Pollution Cost Estimation Spreadsheet for SCR for a natural gas-fired industrial boiler was used to develop an approximate cost.

As stated above, the use of low-NO_x burners is the technology of choice for reheat furnaces in the steel industry with several RBLC determinations in the range of 0.07 to 0.075 lb NO_x/MMBtu. For this analysis, the 0.07 lb NO_x/MMBtu was selected as the emission rate for use of low-NO_x burners, with 0.06 lb NO_x as the lowest demonstrated level of control achieved by CSI through the use of SCR in combination with low-NO_X burners.

According to the EPA's SCR cost estimation tool, the annual cost of the SCR operating with a 19% aqueous ammonia for a 365 MMBtu/hr application with an input NO_X rate of 0.07 lb/MMBtu and an outlet concentration of 0.06 lb/MMBtu would be $599,262 per year (2014 dollars). The annual NO_X removal rate for the SCR would be an additional 17 tons per year over the use of low-NO_X burners, resulting in a cost effectiveness of over $35,000 per ton of NO_X removed. Therefore, the cost of an SCR system in addition to low-NO_X burners is not economically feasible and the use of SCR was eliminated from further consideration.

Step 5 – Selection of BACT

NSBB proposes to continue utilizing low-NO_x burners and good combustion and operations practices to meet BACT for NO_x emissions from the Walking Beam Reheat Furnace. NSBB proposes to comply with a numerical BACT emission limit of 70 lb/MMscf excluding startup.

6.3.5 NO_X BACT FOR PLASMA AND OXY-FUEL CUTTING BEDS

Within this application, NSBB is revising emissions calculations to account for uncaptured emissions that had not been included in the initial emissions estimates for Coil Sample Plasma Cutter (03-06), Continuous Heat Treat Plasma Cutter (04-04), Light Plate Burning Beds #1 and #2 (17-01), Heavy Plate Burning Beds #1 - #3 (05-03), and Slag Plant Oxy Fuel-Fired Torches (EP 12-04). Plasma cutters generate NO_x emissions via thermal NO_x, the high-temperature reaction (approximately 2,000°F) of nitrogen and oxygen to form NO_x. The maximum NO_x emissions for any of the plasma cutters, assuming continuous operation, is estimated to be 1.4 lb/hr, based on EPA guidance referencing the Swedish Institute of Production Engineering Research. Oxy-fuel torches generate NO_x emissions primarily through fuel NO_x, the direct oxidation of organo-nitrogen compounds contained in the fuel. NO_x emissions for oxy-fuel torches is calculated using the AP-42 emission factor (100 lb/MMscf) for natural gas combustion.

The largest source of emissions of NO_x from the Plasma and Oxy-fuel Cutting Beds is 6.22 tons per year, making the use of any add-on control devices not cost effective. Dividing the high capital, maintenance, and operating costs of an air pollution control equipment by a maximum of 6.22 tons/yr of controlled emissions would result in an exorbitant cost effectiveness ratio. Equipping the emission points listed above with SCR, NSCR, or SNCR to control the low amount of NO_x would be expensive and not cost effective. As a result, the use of SCR, NSCR, and SNCR are eliminated from consideration.

Low NO_x burners are a common control technology to minimize the generation of NO_x emissions from combustion yielding NO_x control in the range of 40% to 80%. However, low-NOx burner solutions are not available for these types of oxy-fuel cutters. As a result, low NO_x burners were rejected in favor of more feasible controls.

Good Work Practices, such as proper operation to ensure complete combustion and that no additional fumes are generated, is a feasible and cost effective way to minimize NO_x emissions.

Therefore, BACT for these sources, for control of NO_x, will be proper operation to ensure emissions are minimized wherever possible. NO_x emissions will be limited to 100 lb/MMscf for the oxy-fuel torches and 1.4 lb/hr for each plasma cutter.

6.3.6 NO_X BACT FOR INGOT GRINDING OXY-FUEL CUTTING TORCH (EP 03-11)

With this application NSBB is proposing to install an ingot grinding oxy-fuel cutting torch.

The torch generates NO_x emissions from natural gas combustion. NO_x emissions for the oxy-fuel torch are calculated using AP-42 emission factor (100 lb/MMscf) for natural gas combustion.

Dividing the high capital, maintenance, and operating costs of an air pollution control equipment by less than 0.3 tons/yr of controlled emissions would result in an exorbitant cost effectiveness ratio. Therefore, equipping the ingot grinding oxy-fuel cutting torch with SCR, NSCR, or SNCR to control the low amount of NO_x emitted would be expensive and not cost effective. As a result, the use of SCR, NSCR, and SNCR are eliminated from consideration.

Low NO_x burners are a common control technology to minimize the generation of NO_x emissions from combustion yielding NO_x control in the range of 40% to 80%. However, low-NO_x burner solutions are not available for this type of oxy-fuel cutter. As a result, low NO_x burners were rejected in favor of more feasible controls.

Good Work Practices, such as proper operation to ensure complete combustion and that no additional fumes are generated, is both a feasible and cost effective way to minimize NO_x emissions.

Therefore, BACT for this source for control of NO_x will be Good Work Practices to ensure emissions are minimized wherever possible. NO_x emissions will be limited to 100 lb/MMscf for the oxy-fuel torch.

6.3.7 NO_X BACT FOR EMERGENCY DIESEL ENGINES >500 HP (EP 10-02, EP 10-03, AND EP 10-10)

One new, large emergency diesel-fueled generator is included in the proposed project, as well as horsepower updates to two large emergency diesel-fueled generators. The new engine (EP 10-10) will be 1,411 HP and the two existing engines are 2,937 HP, as updated in this application. Emissions from the generators include products of combustion (PM/PM_{10} /$PM_{2.5}$, NO_x, CO, VOC, SO_2, and GHG).

Diesel engines typically operate at high air to fuel ratios, i.e., with excess oxygen. The oxygen-rich combustion environment in combination with high combustion temperatures results in the formation of NO_x in the combustion process.

Step 1 – Identify Potential Control Technologies

The following technologies were identified as potential control measures for products of combustion associated with the diesel-fueled emergency generator engines.

TABLE 13 POTENTIAL CONTROL DEVICES FOR NO_X FROM EMERGENCY DIESEL ENGINES

Control Type	Estimated NO_x Control Efficiency
Efficient Engine Design	Varies
Fuel Selection (Low-Sulfur Fuel)	Varies
Exhaust Gas Recirculation	40%
Lean NO_X Catalyst	10% to 30%
Lean NO_X Trap	50% to 75%
SCR	75%
Energy Efficiency Measures and Good Combustion Practices	Base Case

The potentially applicable types of controls for products of combustion from emergency equipment are described below.

- ***Efficient Engine Design –*** The diesel-fueled emergency generator engines will be certified to meet the required US EPA emission standards based on each engine's model year and size. In order to achieve this certification, the engines are optimized to perform at their best design capacity and maximum efficiency.

  The efficiency of any machine or process is a ratio of the amount of useful output energy against the required amount of input energy, usually expressed as a percentage. The need to increase the fuel efficiency of engines is driven by a number of factors including: lowering operating costs and reducing fossil fuel consumption. A reduction in fuel consumption is directly related to a reduction in pollutants generated as the products of combustion.
- ***Exhaust Gas Recirculation (EGR) –*** EGR is based on recirculating a portion of the engine's exhaust back to the charge inlet. The cooled recirculated gases, which have a higher heat capacity and lower oxygen content than air, lower the combustion temperature in the engine, inhibiting NO_x formation.
- ***Lean NO_x Catalyst –*** In the oxygen-rich environment of diesel exhaust, it is difficult to reduce NO_x to molecular nitrogen. Direct NO_x decomposition is thermodynamically attractive, but the activation energy is very high and no catalysts have been developed for wide-spread use. Lean NO_x catalysts have been developed that use a reductant like hydrocarbons, carbon monoxide, or hydrogen to assist in the conversion of NO_x to molecular nitrogen. Because sufficient quantities of reductant are not present to facilitate NO_x reduction in normal diesel exhaust, most lean NO_x catalyst systems inject a small amount of diesel fuel, or other reductant upstream of the catalyst.
- ***Lean NO_x Trap –*** NO_x adsorber catalysts, also referred to as lean NO_x traps (LNT) offer another catalytic pathway for NO_x using a three step process:
  1. Catalytically oxidize NO to NO_2 over a precious metal catalyst;

2. Store NO_2 in an alkaline earth oxide trapping site as a nitrate; and
3. Remove the stored NO_x by temporarily inducing a rich exhaust condition followed by reduction to nitrogen in a three-way catalyst.

In order to reduce the trapped NO_x to nitrogen the engine must be operated rich periodically, for a short period.

- ***SCR –*** An SCR system uses a metallic or ceramic wash-coated catalyzed substrate, or homogeneously extruded catalyst, and a chemical reductant, typically urea, to convert nitrogen oxides to molecular nitrogen and oxygen.
- ***Fuel Selection –*** Criteria pollutant emissions can be minimized through combustion of fuels with minimal amounts of impurities. Limiting the amount of sulfur in the fuel, such as ultra-low sulfur diesel, has the potential to reduce the formation of SO_2 and thus the potential to reduce the formation of condensable particulate.
- ***Energy Efficiency Measures; Good Combustion Practices -*** Energy efficiency measures, such as good combustion, operating, and maintenance practices for CI engines include appropriate maintenance of equipment and operating within the recommended air-to-fuel ratio recommended by the manufacturer. Using good combustion practices, in conjunction with proper operation and maintenance, results in longer life of the equipment and more efficient operation. Therefore, such practices indirectly reduce emissions generated from combustion by supporting operation as designed and with consideration of other energy optimization practices.

Step 2 - Eliminate Technically Infeasible Options

No control technologies were found to be technically infeasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

1. Efficient Engine Design
2. Fuel Selection (low sulfur diesel)
3. Exhaust Gas Recirculation
4. Lean NO_x Catalyst
5. Lean NO_x Trap
6. SCR
7. Energy Efficiency Measures; Good Combustion Practices

Step 4 - Evaluate Remaining Control Technologies

Compliance with NSPS Subpart IIII is proposed as BACT for NO_x. Note that while EGR is often a method of NO_x reduction designed into the engine by the manufacturer, EGR is not an add-on control for new engines of the sizes indicated, and because the engines purchased will meet the NO_x + HC NSPS emission standard regardless of design, EGR should not be considered a design requirement. Due to the limited operating timeframe during the maintenance and testing operating scenario, control technologies that must reach a minimum temperature prior to achieving design effectiveness are not a feasible control for this unit.

Exhaust Gas Recirculation, Lean NO_x Catalyst, Lean NO_x Trap, and SCR

These emergency generators are limited to emergency use, therefore the emissions of criteria pollutants are minimal. Due to the minimal emissions and limited periods of operation, exhaust gas recirculation, lean NO_x Catalyst, Lean NO_x Trap, and SCR are not cost effective for reducing emissions.

Efficient Engine Design and Fuel Selection

An engines with high fuel combustion efficiency will be selected for use for the new emergency generator. The estimate of emissions from this proposed engines is based on the corresponding NSPS IIII standards for NO_x + HC (hydrocarbons), CO, and PM_{10} for non-road engines. The engine will be certified by the manufacturer to meet the standards in NSPS for Stationary CI ICE (40 CFR 60 Subpart IIII). The facility will use ultra-low sulfur diesel with a maximum sulfur content of 15 ppm. Note that while EGR is often a method of NO_x reduction designed into the engines by the manufacturer, EGR is not an add-on control.

Energy Efficiency Measures; Good Combustion Practices

Energy efficiency measures that reduce emissions at the source, such as good combustion, operating, and maintenance practices for CI engines, include appropriate maintenance of equipment and operating within the recommended air to fuel ratio recommended by the manufacturer. Use of good combustion practices in conjunction with proper operation and maintenance results in longer life of the equipment and more efficient operation. Good combustion practices and good operating and maintenance practices as recommended by the generator engine manufacturer will be incorporated to minimize emissions and maximize energy efficiency. Such practices are identified and regulated by NSPS Subpart IIII. Thus, compliance with the applicable provisions of NSPS Subpart IIII is proposed as BACT for NO_x from the diesel-fueled emergency generators.

Step 5 - Select BACT

For emissions of NO_x that are generated by combustion, BACT is selected to be efficient engine design; implementation of good combustion practices; and energy efficiency measures, such as good operating and maintenance practices. Furthermore, the new emergency generator engine are or will be subject to 40 CFR 60 Subpart IIII, the NSPS for Stationary CI ICE. BACT will be the installation of new equipment with Subpart IIII compliant engines. The proposed BACT limit for NO_x is 5.07 g/kw-hr for EP 10-02 and EP 10-03 and 5.63 g/kw-hr for EP 10-10.

Compliance will be demonstrated through purchase of Subpart IIII compliant engines, annual hourly usage records, maintaining copies of the engine certification, and maintenance recordkeeping.

6.4 CO AND VOC BACT DETERMINATIONS

6.4.1 CO AND VOC CONTROL TECHNOLOGIES

Potentially applicable, conventional CO and VOC controls include afterburners, regenerative thermal oxidation, and recuperative thermal oxidation. Although not known to have been used at other steel facilities, adsorption, absorption, condensation, membrane separation, vapor concentrators, biodegradation, and ultra violet (UV) oxidation were also reviewed as potential controls for VOC.

The destruction of organic compounds usually requires temperatures ranging from 1,200°F to 2,200°F for direct thermal oxidizers or 600°F to 1,250°F for catalytic systems. Combustion temperature depends on the chemical composition and the desired destruction efficiency. CO_2

and water vapor are the typical products of complete combustion. Turbulent mixing and combustion chamber retention times of 0.75 seconds or greater are needed to obtain high destruction efficiencies. However, high control efficiencies may not be achievable in gas flows with low CO and VOC concentrations. As a result, the cost of combustion may be limiting for high gas flows with low CO and VOC concentrations. Combustion control technologies include thermal oxidation, recuperative thermal oxidation, regenerative thermal oxidation, catalytic oxidation, and good combustion practices.

The potentially applicable types of CO and VOC controls are described below.

- ***CO Oxidation Catalysts -*** Catalytic oxidation systems promote the oxidation of CO (and VOC) compounds to form CO_2 and water. For a catalytic oxidation system to operate correctly, the exhaust gas must contain excess O_2 and must be within a particular temperature range depending on the type of catalyst material used. Exhaust gas temperatures that are too high may cause permanent damage to the catalyst, while operating temperatures that are too low may result in lower pollutant conversion efficiency. Catalysts are typically made from a precious metal such as platinum, palladium, or rhodium. The typical CO removal efficiency of a catalytic oxidation system is 90% or greater.
- ***Post Combustion Reaction Chamber (with burners and combustion air) –*** In this technique, exhaust gases are raised to a sufficiently high temperature for a minimum amount of time to facilitate oxidation. The combustion chamber configuration must provide effective mixing within the chamber with an acceptable residence time. Recuperative heat exchangers can be used with these systems to recover a portion of the exiting exhaust gas heat and reduce the auxiliary fuel consumption.

  The amount of CO and VOC that could be oxidized with post combustion systems is uncertain, and precise performance guarantees are difficult to obtain from equipment manufacturers because of the lack of operating experience. In addition, there is the potential for additional emissions of NO_x from auxiliary fuel combustion. Furthermore, due to the heat and particulate loading, the burners would have a short life expectancy, and may sustain severe maintenance and reliability problems.
- ***Thermal Oxidation***[26] ***-*** A thermal oxidizer is a large vessel with a burner where fuel, gaseous waste, and air are introduced and combined to achieve the required destruction removal efficiency (DRE). The mixture must be exposed to a sufficiently high temperature for an adequate time period in a relatively turbulent environment to enable the chemical reactions to reach the degree of completion needed to achieve the DRE.
- ***Recuperative or Regenerative Thermal Oxidation***[27,28] ***-*** Recuperative and regenerative thermal oxidizers (RTOs) are two types of oxidizers that are widely applied to the control of VOCs. Both include some form of internal heat recovery, designed to reduce the operating cost of the system, related to the consumption of a fuel source (typically natural gas), to raise the incoming gas temperature up to a combustion temperature within the burner

[26] Air Pollution Control Technology Fact Sheet: Thermal Incinerator, EPA-452/F-03-022, Washington, D.C.: Clean Air Technology Center, July 2003.
[27] Air Pollution Control Technology Fact Sheet: Incinerator – Recuperative Type, EPA-452/F-03-020, Washington, D.C.: Clean Air Technology Center, July 2003.
[28] Air Pollution Control Technology Fact Sheet: Regenerative Incinerator, EPA-452/F-03-021, Washington, D.C.: Clean Air Technology Center, July 2003.

zone, as necessary, to achieve the desired DRE. Heat recovery may either be recuperative or regenerative. In recuperative heat recovery, heat is recovered by passing the hot exhaust gases through a non-contact air-to-air heat exchanger, to heat the incoming air to the oxidizer. In regenerative heat recovery, hot exhaust gases and cool inlet gases are alternatively passed through a fixed bed, typically employing ceramics. RTOs have the ability to achieve an efficiency of 95% to 99%, depending on the VOC inlet concentration.

- ***Catalytic Oxidation –*** Catalytic oxidizers use a bed of catalyst that facilitates the overall combustion of combustible gases. The catalyst increases the reaction rate and allows the conversion of CO and VOC to CO_2 at lower temperatures than a thermal oxidizer. The catalyst is typically a porous noble metal material, which is supported in individual compartments within the unit. An auxiliary fuel-fired burner ahead of the bed heats the entering exhaust gases to 500°F to 600°F to maintain proper bed temperature. Recuperative heat exchangers are used to recover the exiting exhaust gas heat and reduce the auxiliary fuel consumption. Exhaust gas temperatures that are too high may cause permanent damage to the catalyst, while operating temperatures that are too low result in a lower CO and VOC conversion efficiency. The typical CO and VOC removal efficiency of a catalytic oxidation system is 90% or greater.
- ***Oxygen Injection -*** A theoretical means of destructing CO and VOC would be oxygen injection at the entrance of the ductwork to increase oxidation of the available CO and VOC to CO_2. The increase in CO and VOC oxidation, which could be achieved, however, is unknown.
- ***Absorption (Wet Scrubbing) –*** Absorption is an emission control technique that is more commonly employed for controlling inorganic gases than for VOC. When using absorption as the primary control technique for organic vapors, the spent solvent must be easily regenerated or disposed in an environmentally acceptable manner. Typical gas flow rates for packed-bed wet scrubbers are 500 scfm to 75,000 scfm. Typical gas flow rates for spray tower wet scrubbers are 1,500 scfm to 100,000 scfm.

  Removal efficiencies for gas absorbers vary for each pollutant-solvent system and with the type of absorber used. Most absorbers have removal efficiencies in excess of 90%. Packed-tower absorbers may achieve efficiencies greater than 99% for some pollutant-solvent systems; the typical collection efficiency ranges from 70% to greater than 99%. Spray tower absorbers may achieve efficiencies greater than 99% for some pollutant-solvent systems; the typical collection efficiency range is from 50% to 95%. Lower control efficiencies represent flows containing relatively insoluble compounds at low concentrations, while the higher efficiencies are for flows that contain readily soluble compounds at high concentrations. Typical gaseous pollutant concentrations range from 250 to 10,000 ppmv.
- ***Adsorption –*** Adsorption is a surface phenomenon where attraction between an adsorbent, such as activated carbon, and the adsorbate, such as VOC molecules, binds the pollutants to the carbon surface. Both the carbon and VOC are chemically intact after adsorption. The VOCs may be removed, or desorbed, from the carbon and reclaimed or destroyed.

  Adsorbers have been used principally to control the emissions of VOC. The control of VOC emissions typically reduces the concentrations from between 400 and 2,000 ppm to less than 50 ppm. At the lower end of this range, such small concentrations, it may be difficult or uneconomical to control by another technology or even by all adsorbents. A well-designed adsorber system is capable of achieving 95% to 98% control efficiency at concentrations between 500 to 2,000 ppm in the air. The actual concentration of VOC is key to when and how an adsorber would be used. An adsorber becomes ineffective when the inlet concentration gets so low that the VOC will not be effectively adsorbed.

- ***Condensation –*** A refrigerated condenser is a control device that is used to cool an emission stream containing VOCs in order to change the vapors to a liquid. Condensed organic vapors can then be recovered, refined, and might be reused, preventing their release to the ambient air. Condensers are less effective on dilute streams (where there is more airflow than organic vapor flow). Condensers are typically used for controlling VOC streams of greater than 5,000 ppmv with flow rates of less than 2,000 scfm.

  Control efficiencies in the range of 50% to 90% can be expected when VOC emissions are controlled by mechanical compression refrigeration with the condenser chilled by a brine heat exchanger. Use of refrigerants in mechanical compression refrigeration systems can increase condenser control efficiency to 90% or more. Cryogenic refrigeration can raise the upper limit of a condenser to 99+% by having a cold side temperature as low as -352 °F. Notably, streams with high moisture content are disposed to freezing and plugging the unit. In situations with large amounts of air mixed with organic vapors, the use of refrigerated condensers is prohibitively expensive.

- ***Membrane Separation*** –Membranes are used to separate materials of different molecular size and are most commonly used in water treatment to remove impurities. Membrane separation has been utilized in limited capacity to separate pollutants from air streams. The largest industrial application of membrane separation is for the recovery of hydrocarbon vapors from off-gases emitted from gasoline tank farms. In practice, these air streams have been small and limited to handling air streams with relatively constant VOC concentrations. There are no known applications of membranes in industrial settings to control VOCs in large air volumes. Therefore, the use of membranes is not technically feasible for VOC sources with large air volumes and/or very low VOC concentrations.

- ***Vapor Concentrators*** – Vapor concentrators are used in applications consisting of large volumes of exhaust gas with lower concentrations of VOC. These systems use an adsorption system to convert the stream to a smaller volume of highly concentrated gas that is optimized for further treatment, such as by an oxidizer. Such optimization of treatment may lead to a smaller sized, and thus less costly, oxidizer. Typical concentrators use carbon or zeolite as the adsorbent. The waste gas entering the concentrator passes through a cartridge where VOCs in the air stream are adsorbed on the substrate. A small volume of heated air is passed over the substrate to desorb the VOC. The heated air with its high concentration of VOC can then be recovered or destroyed by subsequent treatment. Industrial applications that can be controlled by vapor concentrators include dry cleaning, degreasing, paint spraying, solvent extracting, coating operations, and printing operations that generate VOC concentrations above 20 ppm and air flows greater than 5,000 acfm. These applications are feasible due to the constant levels of known VOCs in the waste gas stream.

- ***Biodegradation*** - Biodegradation is an air pollution control technology in which exhaust gases containing biodegradable organic compounds are vented, under controlled temperature and humidity, through a biologically active material. The microorganisms contained in the bed of compost-like material digest or biodegrade the organics to CO_2 and water. This technology has been successfully applied in full-scale applications to control odors, VOC, and air toxic emissions from a range of industrial and public-sector sources. However, biodegradation is limited to organic concentrations of approximately 1,000 ppm or less. Biodegradation can provide significant economic advantages over other air pollution control technologies if applied to exhaust streams that contain readily biodegradable pollutants in low concentrations. Biodegradation systems require a relatively large land area to house viable microbes (the size of the biofiltration unit increases with increasing volumes of gas to be treated). Particulate matter or grease in exhaust gases will clog the biofilter. This results in excessive media replacement and maintenance. A limiting parameter of a biofilter is its operating temperature. The maximum operating temperature of biofilters is approximately 100°F due to the requirements of the microorganisms that comprise the biofilter.

- ***Ultra Violet (UV) Oxidation*** - Ultrox International (Santa Ana, CA) developed a catalytic oxidation system called the D-TOX Process for destroying organic vapor in humid air. To date, the D-TOX Process has been installed at three locations although none are demonstrated for low concentration, high flow VOC streams in the U.S. There are no known applications of UV oxidation in industrial settings to control VOCs in large air volumes.

  In addition to the add-on control technology identified above, pollution prevention techniques can be used to reduce emissions from surface coating operations. Pollution prevention techniques that can reduce VOC emissions from painting operation include process or material changes. Special requirements for product performance may limit the use of pollution prevention measures in some cases. Process changes involve using techniques that improve the transfer efficiency of the paint solids to the painted substrate. Typical techniques used to improve transfer efficiency and reduce emissions in surface coating operations include dip coating, flow coating, electrostatic spraying, and airless spraying. Material changes involve reducing or replacing the organic solvent in the paint through the use of alternative coatings such as powder coatings, radiation cured coatings, waterborne coatings and high-solids coatings. The ability to use pollution prevention techniques is limited by the ability of alternative coatings or coating methods to meet product quality standards. The availability of acceptable alternative coatings and methods varies between the different types of surface coating operations.

CO and VOC emission control beyond inherent control achieved by efficient design can be achieved by:

- ***Clean Fuel and Good Combustion Practices*** - The use of natural gas as a combustion fuel, in preference over other fossil fuels such as oil or coal, results in fewer VOC and CO emissions per unit of energy output. Natural gas also has benefits over other fossil fuels from the perspective of potentially generating other criteria pollutant emissions, such as SO_X. The use of good combustion practices can minimize the potential CO and VOC emissions associated with incomplete combustion. Good combustion practices typically entail introducing the proper ratio of combustion air to the fuel, maintaining a minimum temperature in the firebox of the combustor, or a minimum residence time of fuel and air in the combustion zone. By employing good combustion practices, CO and VOC emissions may be greatly reduced. Good combustion practices, include maintaining relevant records and operating logs, training, maintenance knowledge, routine and preventive maintenance, burner and control adjustments, monitoring fuel quality, etc., to maintain proper operating conditions.

- ***Scrap Management to Minimize Oil -*** Scrap management reduces the amount of material with excess oils from entering the processes, which can directly reduce VOC emissions.
- ***Good Work Practices -*** Good work practices, such as preventative maintenance, can be used to ensure that VOC emissions are minimized.

  Transfer efficiency improvements for limiting VOC emissions from the painting operation are discussed below. Transfer efficiency is the ratio of the amount of coating solids deposited on the surface to the amount of coating solids used. If the transfer efficiency for a particular surface coating operation can be increased, the amount of coating (and the resultant VOC emissions) will be reduced.
- ***Dip Coating[29] –*** Dip coating can be used for some surface coating operations to improve transfer efficiency. The mixed coating is applied in a large main tank. After emerging from the tank, the coated items are moved into an area where excess paint drips off. The excess paint is collected and returned to the main tank. Fresh, properly mixed paint and water or organic solvent is added to the main tank to compensate for usage and evaporation and to maintain a constant solids concentration. Transfer efficiencies for dip-coating can be as high as 85%.
- ***Flow Coating[30] -*** Flow-coating can be used for coating some articles. In this technique, articles on a conveyor line are coated from overhead nozzles from which the coating is fed in a steady stream. The excess coating dripping from the coated articles collects in a holding tank for reuse. The transfer efficiency of flow-coating can also be as high as 85%.
- ***Airless Spraying –*** Airless spraying can be used to reduce paint consumption and increase the amount of solids applied to a coated item. An airless painting system does not use atomizing air, and therefore, less paint overspray occurs, thereby reducing the amount of VOC in used in the paint system. Airless spraying can achieve a transfer efficiency of up to 60%, which is 10% greater coverage of paint solids when compared to a convention air atomized sprayer system.
- ***Electrostatic Spraying[31] -*** Electrostatic spraying uses an electrical transformer capable of delivering up to 60,000+ volts to produce an electric potential between paint particles and the surface to be coated. Transfer efficiency is increased because the paint particles are electrically attracted to the surface. Electrostatic spraying can be applied to both air atomized and airless spray guns. The actual transfer efficiency would vary depending upon the type of surface sprayed and the operator's skills. However, these guns can achieve transfer efficiencies of 65% to 80%.

Alternative coating systems for reducing VOC emission are discussed below.

[29] State Of The Art (SOTA) Manual for Surface Coating Operations, State of New Jersey, Department of Environmental Protection, Air Quality Permitting Program, July 1997.
[30] State Of The Art (SOTA) Manual for Surface Coating Operations, State of New Jersey, Department of Environmental Protection, Air Quality Permitting Program, July 1997.
[31] State Of The Art (SOTA) Manual for Surface Coating Operations, State of New Jersey, Department of Environmental Protection, Air Quality Permitting Program, July 1997.

- ***Powder Coating*[32] -** Powder coatings are thermoplastic or thermosetting powders. They contain no organic solvents. Thermoplastic powder coatings melt and flow when heated. They continue to have the same chemical composition upon cooling and solidifying. Thermosetting powder coatings flow into a uniform thin layer and cross-link chemically within themselves or with other reactive components to form a higher molecular weight reaction product. Electrostatic application techniques or the fluidized bed process can be used to apply powder coatings.
- ***Radiation-Cured Coatings*[33] -** Radiation-cured coatings typically contain no organic solvent carriers. These coatings consist of mixtures of low molecular weight polymers or oligomers dissolved into low molecular weight acrylic monomers. Electron beam or ultraviolet light sources are used to cure these coatings.
- ***Waterborne Coatings*[34] -** Waterborne coatings use water as the carrier solvent. Organic solvents are reduced, but typically not eliminated. In most cases, a small amount of organic solvent is required to aid in wetting the pigments, to produce solubility (in the case of partially water-soluble, film-forming components) and to promote good flow and viscosity characteristics in the coating system. The amount of organic solvent in a waterborne coating varies between 2% and 15% of the total volume of the coating formulation.
- ***High Solids Coatings*[35] -** High solids coatings are those with solids content of 62% or higher by volume. VOC emissions are reduced because of the lower solvent content. Although other technologies often provide a greater reduction in VOC emissions, using high solids coatings may constitute the best choice for a VOC of control option for some surface coating operations if other technologies are unavailable.

6.4.2 CO AND VOC BACT FOR MELT SHOP (EP 01-01)

RBLC, recent permits, and other relevant documents were reviewed to identify the most stringent BACT limits for CO and VOC emissions established for Melt Shop operations with an EAF, LMF, and Caster.

Step 1 – Identify Potential Control Technologies

CO and VOCs are formed through the incomplete oxidation of organic material to carbon dioxide (CO_2). CO will be emitted as a byproduct of incomplete combustion from the following potential sources -- charged and injected carbon, scrap steel, and scrap substitute inherent carbon content, electrodes, and "foaming slag" operating practice. EAFs generate CO as a result of the oxidation of carbon introduced into the furnace charge to refine the steel, and as a result of the sublimation/oxidation of the carbon electrode. VOCs arise from the combustion of fuel and from the volatilization of organic compounds during the melting process, primarily when organic compounds such as oil or paint present in the scrap are volatilized. Factors that

32 State Of The Art (SOTA) Manual for Surface Coating Operations, State of New Jersey, Department of Environmental Protection, Air Quality Permitting Program, July 1997.
33 State Of The Art (SOTA) Manual for Surface Coating Operations, State of New Jersey, Department of Environmental Protection, Air Quality Permitting Program, July 1997.
34 State Of The Art (SOTA) Manual for Surface Coating Operations, State of New Jersey, Department of Environmental Protection, Air Quality Permitting Program, July 1997.
35 State Of The Art (SOTA) Manual for Surface Coating Operations, State of New Jersey, Department of Environmental Protection, Air Quality Permitting Program, July 1997.

may lead to the formation of CO and VOCs include inadequate airflow rates, inadequate mixing of air and fuel, and improper temperatures in combustion zones.

Potentially applicable conventional controls include afterburners, regenerative thermal oxidation, and recuperative thermal oxidation. Although not known to have been used at other steel facilities, membrane separation, vapor concentrators, biodegradation, and UV oxidation were also reviewed.

- ***Membrane Separation*** – There is no known demonstrated use of membranes for VOC control in a melt shop. In addition, there are no known applications of membranes in industrial settings to control VOCs in large air volumes. Therefore, the use of membranes is not technically feasible for the proposed VOC sources, which have large air volumes and/or very low VOC concentrations.
- ***Vapor Concentrators*** – Vapor concentrators are used in applications consisting of large volumes of exhaust gas with lower concentrations of VOC. There is no known demonstrated use of a VOC concentrator in the steel industry. Given the unknown mixture of VOCs, fluctuating VOC concentrations across the heat cycle in the melt shop exhaust stream, and the size of the absorber required to handle the large airflow rate, a concentrator is not considered technically feasible. In addition, the concentrator would have to be located downstream of the baghouses so that the particulate loading would not blind the adsorbent. Additionally, the addition of this system would impact the air balance across the melt shop capture system, such that pollutant capture within the melt shop would be negatively impacted. Therefore, the use of vapor concentrators is not technically feasible for the proposed VOC sources.
- ***Biodegradation*** - There is no known demonstrated use of biodegradation, also known as biofiltration, of VOC emissions in the steel industry. A limiting parameter of a biofilter is its operating temperature. The maximum operating temperature of biofilters is approximately 100°F due to the requirements of the microorganisms that comprise the biofilter. The temperature of the exhaust stream from the EAF and LMF is significantly greater than 100°F, especially during the melting and refining mode of the heat cycle, when the VOC emissions are the greatest. As such, biodegradation is considered technically infeasible for the control of VOC emissions from the EAF and LMF.
- ***Ultra Violet (UV) Oxidation*** - There is no known demonstrated use of UV oxidation of VOC emissions in the steel industry. The D-TOX Process, previously described above, has been installed at three locations; however, none are demonstrated for low concentration, high flow VOC streams in the U.S. There are no known applications of UV oxidation in industrial settings to control VOCs in large air volumes. As such, the UV oxidation is not technically feasible for the Melt Shop emissions.

CO and VOC emission control beyond inherent control achieved by the EAF DEC design can be achieved by:

- ***Good Combustion Practices*** – Implement good combustion practices, including maintaining relevant records and operating logs, training, maintenance knowledge, routine and preventive maintenance, burner and control adjustments, monitoring fuel quality, etc., to maintain proper operating conditions;
- ***Scrap Management to Minimize Oil -*** Scrap management reduces the amount of material with excess oils from entering the EAF, which can directly reduce VOC emissions;

- ***Oxygen Injection -*** A theoretical means of destructing CO and VOC would be oxygen injection at the entrance of the ductwork to increase oxidation of the available CO and VOC to CO_2. The increase in CO and VOC oxidation, which could be achieved, however, is unknown. This approach would be purely experimental and is a procedure that is currently not conducted in EAF operations in steel mills in the U.S. Oxygen injection into the furnace is an operating practice in use to increase the heat input to the melt, not to reduce CO and VOC emissions.
- ***Direct Evacuation Control -*** In the steel industry, there are two principal systems employed during EAF operation to control the process emissions generated during melting and refining. These two systems are DSE and side draft hood systems. DSE only works when the furnace is upright, with the roof in place, and consists of ductwork attached to a separate or fourth hole, in the furnace roof, which draws emissions to a gas cleaner. Side draft hoods collect furnace off gases from around the electrode holes and the work doors after the gases leave the furnace. Side draft hood systems require higher airflow rates than DSE systems and are not widely used.

Control efficiencies for potentially applicable technologies are shown in the table below.

TABLE 14 POTENTIAL CONTROL DEVICES FOR CO AND VOC FROM MELT SHOP

Control Type	Estimated CO and VOC Control Efficiency
CO Oxidation Catalysts	>90%
Post Combustion Reaction Chamber	95% to 99+%
Thermal Oxidation (Afterburner)	98% to 99+%
Recuperative Thermal Oxidizer	98% to 99+%
Regenerative Thermal Oxidizer	95% to 99%
Catalytic Oxidizer	90% to 99%
Oxygen Injection	Varies
Direct Evacuation Control	Varies
Scrap Management to Minimize Oil	Varies

Step 2 – Eliminate Technically Infeasible Options

CO Oxidation Catalysts

Based upon a review of available information, there is no known application of CO oxidation catalysts to control CO emissions from an EAF. The optimal working temperature range for CO oxidation catalysts is approximately 850°F to 1,100°F with a minimum exhaust gas stream temperature of 500 °F for minimally acceptable CO control. Exhaust gases from the EAF will undergo rapid cooling as they are ducted from the furnace. Thus, the temperature will be well below the optimal range for effective operation of CO oxidation catalysts during much of the EAF operation, especially considering temperature variations throughout the various heat stages. This is true regardless of placing a CO Oxidation Catalyst before or after the baghouse. Placement before the baghouse would result in temperature masking and variation and placement after the baghouse would also result in temperature variation and require reheating air back to optimal working temperature for CO oxidation catalysts. Masking effects such as plugging and coating of the catalyst surface would result in impractical maintenance requirements and would significantly degrade the performance of the catalyst. Reheating the exhaust to optimal working temperature for the CO oxidation catalyst would not be cost or environmentally effective. Additionally, the particulate loading in the exhaust gas stream is anticipated to be too high for efficient operation of a CO oxidation catalyst. Consequently, this control alternative is considered technically infeasible for this application and will not be considered any further in this BACT analysis.

Post Combustion Reaction Chambers (with burners and combustion air)

There are two potential locations where post combustion chambers can be installed, i.e., upstream or downstream of an EAF baghouse.

In order to locate a post combustion chamber after the baghouse, the baghouse exhaust gases would require reheating to bring the temperature from less than 200°F to 1,350°F [36]. Exhaust reheat would require significant natural gas fuel combustion and would cause secondary NO_x emissions. Therefore, the logical placement for a post-combustion reaction chamber would be prior to the baghouse. However, based upon a review of available information, there is no known successful application of post-combustion reaction chambers with duct burners to control VOC or CO emissions from an EAF*.* The examples below document technical difficulties encountered with post-combustion reaction chambers.

- IPSCO Steel in Iowa was issued a PSD permit in April 1996 that required installation of a post-combustion reaction chamber to limit CO emissions to 0.91 lb/ton of steel. In 2002, the IPSCO Steel permit limit was increased to 1.93 lb/ton of steel, only slightly below the generally accepted BACT limit achieved with DEC systems. It is reasonable to assume that the post-combustion reaction chamber could not achieve the destruction efficiency beyond typical DEC systems.
- Tuscaloosa Steel in Alabama installed a post-combustion reaction chamber with oxy-fuel burners on a trial basis for meeting their CO BACT limit of 2.0 lb/ton of steel. This installation was not required by BACT and the chamber burners were removed due to demanding maintenance because of particulate plugging, rendering the control unreliable and possibly ineffective.
- Chapparral (Virginia) Inc. (CVI) was issued a permit in 1998 that required the installation of post-combustion chamber burners. During a May 2000 source test, it was discovered that CVI had not been operating the burners. CVI later submitted a revised permit application to control CO emissions through the "intermittent" use of post-EAF burners (shaft and/or post-combustion chamber burners) to maintain compliance with CO emission limits. According to the Minor NSR Coordinator at Virginia Department of Environmental Quality (VDEQ), the post-EAF burners are located in the "shaft" as opposed to a dedicated "combustion chamber." According to VDEQ, the EAF emits about 7.6 lb CO/ton and VDEQ cannot ascertain how frequently the shaft burners are actually firing. The EAF at CVI has a different design (i.e., single shaft EAF) than the proposed EAF and emits CO at a

[36] The auto-ignition temperature of CO is approximately 1,130°F. This is the point at which CO will spontaneously ignite in a normal atmosphere without an external ignition source and is the temperature required to supply the activation energy for combustion. Hence, a temperature of 1,350°F is the typically the minimum temperature required for oxidation systems.

significantly higher rate than the proposed CO BACT limit of 2.0 lb/ton for the proposed EAF.

It is clear that the post-combustion reaction chamber (with burners and combustion air) is not a “demonstrated” technology for this application and has proven technical challenges that prohibit successful implementation for CO and VOC reduction. Therefore, post-combustion reaction chambers with burners and additional combustion air are considered technically infeasible and are eliminated from further consideration.

Thermal Oxidation, Regenerative Oxidation, and Recuperative Oxidation

Based upon a review of the previously listed information resources, there is no known successful application of thermal oxidizers to control CO or VOC emissions from an EAF of this size. The amount of CO and VOC that could be oxidized with a thermal oxidizer system is uncertain, and precise performance guarantees are expected to be difficult to obtain from equipment manufacturers because of the lack of operating experience. Due to the particulate loading in EAF exhaust gas, thermal oxidizer burners would have a short life expectancy, and may sustain severe maintenance and reliability problems. Issues related to thermal oxidation systems are similar to those identified for post-combustion reaction chambers with duct burners. The use of a thermal oxidation system is considered technically infeasible for the proposed EAF and will not be considered any further in this BACT analysis.

Catalytic Oxidation

Based upon a review of available information, there is no known application of catalytic oxidation to control CO or VOC emissions from EAFs. Catalytic oxidation systems are limited in application due to potential poisoning, deactivation, and/or blinding of the catalyst. Lead, arsenic, vanadium, and phosphorus are generally considered poisons to catalysts and deactivate the available reaction sites on the catalyst surface. Particulate can also build up on the catalyst, effectively blocking the porous catalyst matrix and rendering the catalyst inactive. In cases of significant levels of poisoning compounds and particulate loading, catalyst replacement costs are significant.

Installation of oxidation thermal or catalytic oxidation systems after EAF baghouse control would require significant reheating of large air streams and would result in significant energy demands, which further render these technologies technically infeasible. For these reasons, potential fouling due to particulate matter and other poisons, and lack of application of catalytic or thermal oxidation in the steel industry, these control alternatives are considered technically infeasible and will not be considered any further in this BACT analysis.

Oxygen Injection

Based upon a review of the previously listed information resources, there is no known application of oxygen injection for controlling CO or VOC emissions from an EAF.

Typically, the DSE system will draw air into the duct, creating an oxygen-rich mixture of EAF exhaust gases where CO and VOC are oxidized. The addition of oxygen is expected to provide little, if any, additional conversion of CO or VOC. Due to the cyclic operating schedule, exhaust gas temperatures will fluctuate during each melt and at times, drop below 1,350 °F. It is estimated that this will occur for 5 to 10 minutes during each melt and the minimum temperature will be approximately 300 °F. During these periods, thermal destruction efficiency will be minimal. Consequently, this control alternative is considered technically infeasible for this application and will not be considered any further in this BACT analysis.

Step 3 – Rank Remaining Technically Feasible Control Options

The VOC and CO control technologies for the EAF are ranked as follows:

1. Direct Evacuation Control (CO)
2. Scrap Management to Minimize Oil (VOC)

Step 4 – Evaluate Remaining Control Technologies

BACT Limit Overview

A review of the RBLC database revealed that other steel mills have an emission limit ranging from 1.7 lb CO/ton of steel to 12 lb CO/ton of steel and 0.09 lb VOC/ton of steel to 0.43 lb VOC/ton of steel.

Based upon a review of available information, DEC systems continue to be the primary control technology for controlling CO emissions from an EAF. During melting and refining, a slight negative pressure will be maintained within the furnace to withdraw exhaust gases through the DEC duct. The DEC allows for a high process emissions capture efficiency and high CO destruction efficiency. There is an inverse relationship between CO and NO_x concentrations. When CO concentration is peaking, the NO_x concentration is low, and NO_x appears to peak with a drop in CO concentration. This indicates that CO combustion in the DEC is influenced by oxygen availability. Therefore, the DEC must be properly designed for optimal combustion of CO without causing unnecessary drafting of the furnace, which could adversely affect NO_x emissions. A properly designed DEC will have minimal environmental impacts.

Based upon a review of available information, scrap management is the primary control technique for controlling VOC emissions from an EAF and is selected as BACT. The mill will utilize a scrap management program to eliminate the purchase of scrap steel that is heavily oiled or that contains organic liquids. The scrap management plan will include oil minimization practices such as:

- General scrap specifications;
- Verification of compliance with specifications (e.g., inspections); and
- Corrective actions for nonconforming scrap.

Step 5 – Selection of BACT

NSBB proposes BACT to be DEC for control of CO emissions and a scrap management plan to minimize oil for control of VOC emissions. The proposed BACT emission limitations are 2.0 lb CO/ton of liquid steel produced and 0.09 lb VOC/ton of liquid steel. NSBB proposes to demonstrate ongoing compliance with the CO BACT emission limitation through the use of a CEMS. NSBB proposes to demonstrate ongoing compliance with the VOC BACT emission limitation through recordkeeping, certification of compliance with the scrap management plan to minimize oil, and periodic performance testing.

NSBB proposes that the lb/ton BACT limits shall be effective within three (3) consecutive months of a representative production (100,000 tons steel produced per month), not to exceed the current permit expiration, July 23, 2025.

6.4.3 CO AND VOC BACT FOR CASTER SPRAY VENT (EP 01-05)

VOCs have the potential to be emitted from caster operations due to the volatilization of oils and greases used in the high-temperature caster equipment and may become entrained in the Caster Spray Vent steam as cooling water is sprayed onto the casting area equipment and hot steel slabs. In response to the increased maximum hourly steel processing rate of the Caster Spray Vent and analyses and engineering evaluations performed at Nucor, in order to address previously unaccounted for VOC emissions from Caster Spray Vent operations, the currently permitted VOC emission limit was reevaluated and compared to similar operations at other steel mills.

Step 1 – Identify Potential Control Technologies

The following technologies are potentially available control technologies for CO and VOC emission controls for the Caster Spray Vent (EP 01-05)

TABLE 15 POTENTIAL CONTROL DEVICES FOR CO AND VOC FROM CASTER SPRAY VENT

Control Type	Estimated CO and VOC Control Efficiency
Thermal Oxidation (Afterburner)	98% to 99+%
Recuperative Thermal Oxidizer	98% to 99+%
Regenerative Thermal Oxidizer	95% to 99%
Catalytic Oxidizer	90% to 99%
Adsorption (Wet Scrubbing)	70% to 99+% (Packed-tower) 50% to 95% (Spray tower)
Adsorption	95% to 98%
Condensation	50% to 90%
Good Work Practices	Varies

Step 2 – Eliminate Technically Infeasible Options

Thermal Oxidizer (Afterburner), Recuperative Thermal Oxidizer, Regenerative Thermal Oxidizer, Catalytic Oxidizer, Wet Scrubbers, Adsorptions, and Condensation

The VOC concentrations are dilute in the Caster Spray Vent exhaust streams and are less than the threshold concentration for any of the add-on control devices, identified in Step 1 to be effective and to be considered technically applicable (less than 50 ppmv as carbon). Therefore, add-on controls are not technically feasible or applicable to reduce VOC emissions. Based on a review of comparable sources, detailed in Appendix D, no steel manufacturing facility operates an add-on control device to reduce VOC emissions from the caster spray vents.

Step 3 – Rank Remaining Technically Feasible Control Options

Good work practices are the only remaining technically feasible control technology.

Step 4 – Evaluate Remaining Control Technologies

Good work practices for the Caster Spray Vent are the only remaining technically feasible control option. BACT will be based upon these practices in order to minimize VOC emissions.

Step 5 – Selection of BACT

The search results from a RBLC review of Caster Vent BACT emission limits reveal that the most stringent limits for Caster Spray Vent VOC are achieved by good work practices, proper maintenance, and/or a VOC minimization plan. BACT limits for steel production Caster Spray Vent emissions in the RBLC were as follows

- Nucor Gallatin, LLC (RBLC ID: KY-0015, 04/19/2021) established BACT to 0.40 lb/hr for the A-Line Caster Spray Vent (EP 03-11);
- Nucor Gallatin, LLC (RBLC ID: KY-0015, 04/19/2021) established BACT to 0.80 lb/hr for the B-Line Caster Spray Vent (EP 20-11);
- Nucor Steel Darlington (RBLC ID: SC-0196, 04/29/2019) established BACT to 0.35 lb/hr for the Melt Shop Equipment (Caster Spray Vents 1);
- Nucor Steel Darlington (RBLC ID: SC-0196, 04/29/2019) established BACT to 0.15 lb/hr for the Melt Shop Equipment (Caster Spray Vents 2);
- Nucor Steel Arkansas (RBLC ID: AR-0171, 02/14/2019) established BACT to 4.4 lb/hr, each for the SN-131 and 145 Caster Spray Vents;
- Nucor Steel Berkeley (RBLC ID: SC-0183, 05/04/2018) established BACT to 0.53 lb/hr for the Melt Shop Equipment (caster spray vent 1)
- Nucor Steel Berkeley (RBLC ID: SC-0183, 05/04/2018) established BACT to 0.53 lb/hr for the Melt Shop Equipment (caster spray vent 2)

All of the search results from the RBLC review are Nucor mills. Nucor determined that the operating conditions of the SN-131 and 145 Caster Spray Vents at Nucor Steel Arkansas are the most representative of the Caster Spray Vent at NSBB .

The maximum potential to emit VOC emission rate of the Caster Spray Vent exhaust is expected to be a maximum of 19.27 ton/yr, based on a proposed BACT limit of 4.4 lb/hr of VOC for the Caster Spray Vent.

6.4.4 CO AND VOC BACT FOR CASTER TORCH CUT OFF (EP 01-06 AND EP 01-12)

Following casting, the continuous steel slab exits at the bottom of the cooling chamber and is cut to specified lengths using an oxy-fuel torch to form discrete slabs. A secondary slab cutting area is located off the processing line in the caster runoff area to cut minimal length slabs with an oxy-fuel torch that are too short to be cut online.

The emissions of CO and VOC from the Primary Caster Torch Cut Off and Secondary Caster Torch Cut Off are less than 1 ton per year (0.68 and 0.04 ton/yr and 0.70 and 0.05 ton/yr, respectively), making the use of any add-on control devices not cost effective. Dividing the high capital, maintenance, and operating costs of an air pollution control equipment by less than 1 ton per yr of controlled emissions would result in an exorbitant cost effectiveness ratio. BACT for this source will be proper equipment design and the use of natural gas as fuel to minimize CO and VOC emissions. Emissions resulting from fuel combustion are very small and will be limited to 84 lb CO/MMscf of natural gas and 5.5 lb VOC/scf.

6.4.5 CO AND VOC BACT FOR WALKING BEAM REHEAT FURNACE (EP 03-01)

Step 1 – Identify Potential Control Technologies

The following technologies are potentially available control technologies for CO and VOC emission controls for natural gas combustion sources.

TABLE 16 POTENTIAL CONTROL DEVICES FOR CO AND VOC FROM WALKING BEAM REHEAT FURNACE

Control Type	Estimated CO and VOC Control Efficiency
Thermal Oxidation (Afterburner)	98% to 99+%
Recuperative Thermal Oxidizer	98% to 99+%
Regenerative Thermal Oxidizer	95% to 99%
Catalytic Oxidizer	90% to 99%
Pipeline-Quality Natural Gas Use and Good Combustion Practices	Varies

Step 2 – Eliminate Technically Infeasible Options

Thermal Oxidizer (Afterburner), Recuperative Thermal Oxidizer, Regenerative Thermal Oxidizer, and Catalytic Oxidizer

Thermal oxidation would increase combustion emissions and require additional fuel use (wasted energy). Additionally, or relatively small natural gas-fired sources, post-combustion controls, such as thermal oxidizers, recuperative incinerators, regenerative incinerators, and catalytic oxidizers are not cost effective and impractical due to the relatively small quantities of CO and VOC present in the exhaust gas.

Step 3 – Rank Remaining Technically Feasible Control Options

Pipeline-quality natural gas use and good combustion practices is the only remaining technically feasible control option.

Step 4 – Evaluate Remaining Control Technologies

Pipeline-Quality Natural Gas Use and Good Combustion Practices

Add-on controls, even if feasible, are not typically required for combustion sources fired with natural gas. During the review of available control technologies for combustion sources at similar plants, no determinations were found for the use of add-on controls to reduce CO and VOC emissions from similar natural gas-fired equipment. Therefore, NSBB proposes that BACT for CO and VOC emissions from the Walking Beam Reheat Furnace, Ingot Car Bottom Furnaces, and the Steckel Mill Coiling Furnaces be limited to the use of natural gas (a clean-burning fuel with low CO and VOC emissions), good combustion practices, and numerical emissions limits of 84 lb CO/MMscf and 5.5 lb VOC/MMscf natural gas.

Step 5 – Selection of BACT

NSBB will utilize pipeline-quality natural gas and good combustion practices with no add-on controls, and numerical emissions limits of 84 lb CO/MMscf and 5.5 lb VOC/MMscf natural gas as BACT for CO and VOC emissions from the Walking Beam Reheat Furnace, Ingot Car Bottom

Furnaces and Steckel Mill Coiling Furnaces. Examples of good combustion practices include implementing good operation and maintenance practices.

6.4.6 CO AND VOC BACT FOR PLASMA AND OXY-FUEL CUTTING BEDS

Within this application, NSBB is revising emissions calculations to account for uncaptured emissions that had not been included in the initial emissions estimates for Coil Sample Plasma Cutter (03-06), Continuous Heat Treat Plasma Cutter (04-04), Light Plate Burning Beds #1 and #2 (17-01), Heavy Plate Burning Beds #1 - #3 (05-03), and Slag Plant Oxy Fuel-Fired Torches (EP 12-04). The concentrations of CO and VOC emissions are well below the threshold where add-on controls are applicable, and the addition of control devices cannot be cost effective for BACT. Dividing the high capital, maintenance, and operating costs of an air pollution control equipment by 0.08 tons/yr of controlled CO and 0.005 ton/yr of controlled VOC (highest potential emission rates of the Plasma and Oxy-Fuel Cutting Beds sources) would result in an exorbitant cost effectiveness ratio. Therefore, BACT for these sources for control of CO will be proper operation to ensure emissions are minimized wherever possible. CO and VOC emissions will be limited to 84 lb/MMscf and 5.5 lb/MMscf, respectively for the oxy-fuel torches. Emissions of CO and VOC from plasma cutters are believed to be negligible.

6.4.7 CO AND VOC BACT FOR INGOT GRINDING OXY-FUEL CUTTING TORCH (EP 03-11)

The emissions of CO and VOC from the ingot grinding oxy-fuel cutting torch are less than 1 ton per year (0.17 and 0.01 tpy, respectively), making the use of any add-on control devices not cost effective. Dividing the high capital, maintenance, and operating costs of an air pollution control equipment by less than 0.2 tons/yr of controlled emissions would result in an exorbitant cost effectiveness ratio. BACT for this source will be proper equipment design and use of natural gas as fuel to minimize CO and VOC emissions. Emissions resulting from fuel combustion are very small and will be limited to 84 lb CO/MMscf of natural gas and 5.5 lb VOC/scf.

6.4.8 CO AND VOC BACT FOR EMERGENCY DIESEL ENGINES >500 HP (EP 10-02, EP 10-03, AND EP 10-10)

One large emergency diesel-fueled generator is included in this proposed project, as well as horsepower updates to two large emergency diesel-fueled generators. The new engine (EP 10-10) will be 1,411 horsepower and the two existing engines are 2,937 HP, as updated in this application. Emissions from the generator include products of combustion (PM/PM_{10} /$PM_{2.5}$, NO_x, CO, VOC, SO_2, and GHG).

Step 1 – Identify Potential Control Technologies

The following technologies were identified as potential control measures for products of combustion associated with the diesel-fueled emergency generator engines.

TABLE 17 POTENTIAL CONTROL DEVICES FOR CO AND VOC EMERGENCY DIESEL ENGINES

Control Type	Estimated CO and VOC Control Efficiency
Efficient Engine Design	Varies
Diesel Oxidation Catalyst	10% to 60% CO Control
Energy Efficiency Measures and Good Combustion Practices	Base Case

The potentially applicable types of controls for products of combustion from emergency equipment are described below.

- ***Efficient Engine Design –*** The diesel-fueled emergency generator engines will be certified to meet the required US EPA emission standards based on each engine's model year and size. In order to achieve this certification, the engines are optimized to perform at their best design capacity and maximum efficiency.

  The efficiency of any machine or process is a ratio of the amount of useful output energy against the required amount of input energy, usually expressed as a percentage. The need to increase the fuel efficiency of engines is driven by a number of factors including: lowering operating costs and reducing fossil fuel consumption. A reduction in fuel consumption is directly related to a reduction in pollutants generated as the products of combustion.

  CO from engines can be controlled by oxidation catalyst in certain scenarios.
- ***Diesel Oxidation Catalyst –*** Diesel oxidation catalyst generally consists of a precious metal coated flow-through honeycomb structure contained in a stainless steel housing. As hot diesel exhaust flows through the honeycomb structure, the precious metal coating causes a catalytic reaction that breaks down pollutants into less harmful components. A diesel oxidation catalyst is effective at reducing PM emissions by 20% to 40%, hydrocarbon emissions by 40% to 75%, and CO emissions by 10% to 60%. The PM removed by diesel oxidation catalysts are largely the soluble organic fraction that comes from unburned fuel and oil.
- ***Energy Efficiency Measures; Good Combustion Practices -*** Energy efficiency measures, such as good combustion, operating, and maintenance practices for CI engines include appropriate maintenance of equipment and operating within the air to fuel ratio recommended by the manufacturer. Using good combustion practices, in conjunction with proper operation and maintenance, results in longer life of the equipment and more efficient operation. Therefore, such practices indirectly reduce emissions generated from combustion by supporting operation as designed and with consideration of other energy optimization practices.

Step 2 - Eliminate Technically Infeasible Options

No control technologies were found to be technically infeasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

1. Efficient Engine Design
2. Diesel Oxidation Catalyst

3. Energy Efficiency Measures and Good Combustion Practices

Step 4 - Evaluate Remaining Control Technologies

Compliance with NSPS Subpart IIII is proposed as BACT for CO and VOC. Due to the limited operating timeframe during the maintenance and testing operating scenario, control technologies that must reach a minimum temperature prior to achieving design effectiveness are not a feasible control for this unit.

Efficient Engine Design

An engine for the new emergency generator with high fuel combustion efficiency will be selected. The estimate of emissions from this proposed engine is based on the corresponding NSPS IIII standards for CO for non-road engines. The engines are or will be certified by the manufacturer to meet the standards in NSPS for Stationary Compression Ignition Internal Combustion Engines (40 CFR 60 Subpart IIII).

Diesel Oxidation Catalyst

These emergency generators are limited to emergency use, therefore the emissions of criteria pollutants are minimal. Due to the minimal emissions and limited periods of operation, oxidation catalysts are not cost effective for reducing emissions.

Energy Efficiency Measures; Good Combustion Practices

Energy efficiency measures that reduce emissions at the source, such as good combustion, operating, and maintenance practices for compression ignition engines, include appropriate maintenance of equipment and operating within the air to fuel ratio recommended by the manufacturer. Using good combustion practices, in conjunction with proper maintenance, results in longer life of the equipment and more efficient operation. Good combustion practices and good operating and maintenance practices, as recommended by the generator engine manufacturer will be incorporated to minimize emissions and maximize energy efficiency. Such practices are identified and regulated by NSPS Subpart IIII. Thus, compliance with the applicable provisions of NSPS Subpart IIII is proposed as BACT for CO from the diesel-fueled emergency generators.

Step 5 - Select BACT

For emissions of CO and VOC that are generated by combustion, BACT is selected to be efficient engine design; implementation of good combustion practices; and energy efficiency measures, such as good operating and maintenance practices. Furthermore, the emergency generator engines are or will be subject to 40 CFR 60 Subpart IIII, the NSPS for Stationary Compression Ignition Internal Combustion Engines. BACT will be the installation of new equipment with Subpart IIII compliant engines. The proposed BACT limit for CO is 0.9 g/kw-hr for EP 10-02 and EP 10-03 and 1.3 g/kw-hr for EP 10-10 and the proposed BACT limit for VOC is 0.26 g/kw-hr for EP 10-02 and EP 10-03 and 0.14 g/kw-hr for EP 10-10.

Compliance will be demonstrated through purchase of Subpart IIII compliant engines, annual hourly usage records, maintaining copies of the engine certification, and maintenance recordkeeping.

6.5 SO_2 BACT DETERMINATIONS

6.5.1 SO_2 CONTROL TECHNOLOGIES

Emissions of sulfur dioxide in secondary steel manufacturing result primarily from burning or heating sulfur containing raw material or fuel. As a result, there are two distinct avenues available for control of emissions: substitution of materials and fuels with lower sulfur content or the use of add-on control devices.

Material substitution/management includes the following options:

- ***Lower-Sulfur Charge Substitution –*** SO_2 emissions are directly related to the amount of sulfur used in steel making. Low-sulfur bearing raw materials include low-sulfur injection carbon and charge carbon. Reducing the amount of materials with excess sulfur-containing oils from entering the EAF can directly reduce SO_2 emissions.

In general, flue gas desulfurization (FGD) systems remove SO_2 from exhaust streams by using an alkaline reagent to form sulfite and sulfate salts by either a wet or dry contact system. Control technologies for SO_2 and acid gases include the following types of FGD controls:

- ***Wet Scrubber***[37] ***–*** In a wet scrubber, the gas stream is brought into contact with a scrubbing liquid, typically by spraying the liquid in a contacting tower. Depending upon the removal efficiency and scrubbing reagent, the contacting device can be a Venturi, spray tower, packed tower, or other device that provides excellent gas-liquid contact. FGD wet scrubbers typically employ sodium, calcium, or dual-alkali reagents using packed or spray towers. The required excess of reactant in the solution to achieve high acid gas dissolution rates is small. The reaction rate is mainly determined by the absorption of gas by the liquid. Wet FGD systems generate wastewater and wet sludge streams requiring treatment and disposal. Wet scrubber system disadvantages include waste treatment and higher energy consumption.
- ***Dry Scrubber –*** Dry scrubbing systems pump an absorbing solution to rotary atomizers, which create a spray of fine droplets. Droplets mix with the incoming SO_2-laden exhaust gas in a large chamber and subsequent absorption leads to the formation of sulfites and sulfates within the droplets. Simultaneously, the sensible heat of the exhaust gas evaporates the water in the droplets, forming a dry powder mixture before the gas leaves the chamber. The temperature of the desulfurized gas is 30°F to 50°F above its dew point. Typically, baghouses are utilized to collect reacted byproducts from the gas stream. The advantage of fabric filters is that the efficiency is largely insensitive to the physical characteristics of the gas stream and changes in the dust loading. In order to reduce the sorbent requirements, these systems typically recycle most of the baghouse collection into the feed system to promote better sorbent utilization. Furthermore, filter cake on the fabric, due to deposited absorption reagent, can improve the absorption of acid gases.
- ***Sorbent Injection System –*** Dry or semi-dry sorbent can be injected directly into the exhaust gas stream. This process was developed as a lower cost option to conventional FGD technology. Since the sorbent is injected directly into the gas stream, the mixing offered by the dry scrubber tower is not realized. If sufficient amounts of reactants are

[37] Air Pollution Control Technology Fact Sheet: Flue Gas Desulfurization (FGD) – Wet, Spray Dry, and Dry Scrubbers, EPA- 452/F-03-034, Washington, D.C.: Clean Air Technology Center, July 2003.

introduced into the flue gas, there is a possibility of some degree of mixing and reaction. The science is inexact and the coupling of reactant dosage and in-flue mixing which impacts the SO_2 control efficiency is susceptible to variability in SO_2 concentrations. Similar to dry scrubber systems, baghouses are utilized to collect reacted byproducts from the gas stream and these systems typically recycle most of the baghouse collection into the feed system to promote better sorbent utilization.

6.5.2 SO_2 BACT FOR MELT SHOP (EP 01-01)

The level of SO_2 emissions from the Melt Shop is attributable to the sulfur content of the raw materials charged to the EAF and to the materials that are used in the foamy slag process. The majority of the sulfur reacts in the molten metal and slag to form sulfides in the slag and some of the sulfur may oxidize at the slag surface or in the furnace headspace to form SO_2 and be exhausted from the furnace.

Carbon is a main charge component and has three different uses at the EAF: inherent carbon content in scrap and scrap substitutes, charge carbon (bucket fed and top fed), and injection carbon. Sulfur is also contained in each of the sources of carbon and generates sulfur dioxide in the Melt Shop, however most of the sulfur is captured in the slag.

- Scrap/Scrap Substitute **–** This carbon is inherent in the scrap/scrap substitute charge fed to the furnace and is consumed in the liquid phase of the steel. As such, it has a high heating efficiency and the majority of the sulfur remains dissolved in the steel***.***
- Charge Carbon **–** This carbon is used to increase the amount of carbon in the liquid steel bath. Approximately 35% to 50% of the fixed carbon can be picked up in the bath. The balance of the fixed carbon acts on the slag (reducing iron (II) oxide [FeO], similar to injection carbon, but without the foaming effect) or burns in the top space. Due to slag and metal mixing during charging, about half of the sulfur leaves as sulfur oxides (SO_x), while the remainder stays in the steel and slag.
- Injection Carbon **–** This is a carbon media that is injected into the slag layer where it reduces FeO and generates CO gas. The injection carbon foams the slag and improves electrical efficiency. Approximately 65% to 85% of the fixed carbon reduces FeO. Reaction in the middle of the slag layer results in approximately one-half of the sulfur leaving as SO_x, while the remainder stays in the steel and slag.

The RBLC, recent permits, and other relevant documents were reviewed to identify the most stringent BACT limits for SO_2 established for EAF operations.

Step 1 – Identify Potential Control Technologies

Potential controls include wet scrubbers or Venturi scrubbers and sorbent injection systems with upstream filtration. These types of controls are effective for reducing SO_2 emissions, as well as for reducing emissions of acid gases (such as sulfuric, hydrochloric, and hydrofluoric acid). Control efficiencies for potentially applicable technologies are shown in the table below.

TABLE 18 POTENTIAL CONTROL DEVICES FOR SO_2 FROM MELT SHOP

Control Type	Estimated SO_2 Control Efficiency
Low-Sulfur Charge Substitution	Varies
Wet Scrubber	90% to 98%
Sorbent Injection System	50% to 95%
Dry Scrubber	50% to 90%
Scrap Management to Minimize Oil	Varies

A review of the RBLC indicates that no add-on control device has ever been required for EAF SO_2 control, with the exception of Gerdau MACSteel in Michigan, which shows the use of a lime injected baghouse. It should be noted that this limit is based on a monthly average as opposed to the normal 3-hour average.

Step 2 – Eliminate Technically Infeasible Options

Lower-Sulfur Charge Substitution

SO_2 emissions are directly related to the amount of sulfur charged into the EAF. Low-sulfur bearing raw materials include low sulfur injection carbon and charge carbon. Based on discussions with plant personnel, charge substitution with lower sulfur-bearing raw materials is not practical due to inconsistent availability. Both low-sulfur injection carbon and charge carbon materials have uncertain future availability. NSBB is seeking to ensure that the BACT determination does not "lock in" a reliance upon low-sulfur materials, including carbon/coke that may not be available in the longer term. A summary of the charge materials, sulfur content of the materials, cost and supply trends are set forth below.
NSBB deals with the chemically active "fixed" carbon, not the total carbon or BTU value. The fixed carbon content is the carbon found in the material that remains after volatile materials (VM) are driven off. Thus:

$$FC=100-(\%H_2O+\%VM+\%Ash)$$

The value for the fixed carbon content of a material differs from the ultimate carbon content because some carbon is lost in hydrocarbons, in the volatile matter. Typical carbon sources can take many forms and include: coal, metallurgical coke, petroleum coke, and tires.

Petroleum coke is high in fixed carbon, relatively low in sulfur (approximately 1%), less abrasive, low in ash, and inexpensive. Due to its small size (less than 1/4 inch), it is not useable as charge carbon. Due to high demand in recent years, costs have increased and availability has decreased. Substitution blends of low and high (2% to 3%) sulfur petroleum cokes are available. As the supply tightens, more anthracite coal and metallurgical coal are blended to compensate for reduced petroleum coke availability.

Metallurgical coke has been used as charge and injection carbon and works well as charge carbon. The material has a high fixed carbon content and large piece size. The material tends to retain water, which can be an explosion hazard. Precautions to drain water and avoid ice are vital for safety. Metallurgical coke has an ash content of 10% to 20% and is abrasive in nature. It quickly erodes pneumatic pipes and hoses at an unacceptable rate.

Anthracite coal is the primary coal used in EAF steelmaking. Bituminous coal can be used as charge carbon, but it contains a higher volatile content and has lower ignition and flash point than anthracite coal. Bituminous coal can ignite and explode under certain conditions.

Petroleum coke has been rising in sulfur content over the past several years. Most domestic petroleum coke supplies are projected to be between 3% and 3.5% sulfur. The majority of petroleum coke supply with a 2% to 2.5% sulfur content is currently imported from Venezuela. Due to the political instability of Venezuela, low-sulfur petroleum coke is unavailable at this time and cannot substitute for the available domestic petroleum coke.

Metallurgical coke is currently manufactured in the U.S. and imported from overseas. Metallurgical coke producers in the U.S. are heavily dependent on very few coking coal deposits in the Northeast and are at least partially dependent on foreign coal. Metallurgical coke is limited in supply and not suitable for injection carbon. Further, metallurgical coke is used for other critical industrial operations, making it difficult to reliably source and subject to periodic price spikes.

Coal options are limited to anthracite and bituminous. Anthracite coal is the mainstay of the low-sulfur EAF carbon supply, and domestic production is confined almost exclusively to eastern Pennsylvania. Specifically, this region is approximately 4,200 square miles. According to NSBB’s carbon supplier, there are differences in quality and physical properties in various parts of the region. Specifically, coal from the southern and western regions of Pennsylvania contains a higher sulfur content (approximately 1% sulfur) and also may have higher volatile and ash contents, which reduces the carbon content of the material. Coal from other parts of the region may also have increased friability, which causes more breakdown in sizing with handling. Price and availability varies seasonally, and weather conditions can drastically affect market conditions of anthracite coal. High ocean freights and market disruptions caused by expansion in China have made this imported material prohibitively expensive. Export restrictions and increasing tariffs are expected to make anthracite coal from certain foreign markets unavailable in the foreseeable future. Overall, anthracite sulfur concentrations are increasing and the supply of low-sulfur coals is diminishing. Continued availability of low-sulfur sources of carbon cannot be reasonably assured.

The supply of low-volatile sulfur bituminous coal is not much better than low sulfur anthracite. Furthermore, bituminous coals are largely unsuited to steelmaking. Low fixed carbon levels mean that larger quantities are required to meet carbon requirements of the EAF, and this coal poses a safety hazard in many existing storage and handling systems.

As the percent of fixed carbon diminishes, more of the carbon source must be used to achieve the same result. BACT must be determined to be at a level that will be attainable and achievable in the future. Due to decreasing availability, increasing costs, and consequent difficulty relying upon sulfur feedstocks for demonstrating compliance, lower sulfur feedstocks, including carbon sources, are not technically feasible and would certainly not be economically feasible.

Wet Scrubber

Exhaust streams laden with particulates are problematic for wet scrubber systems because particulates plug spray nozzles, packing, plates, and trays. For this reason, a wet scrubber would have to be located downstream of the EAF baghouse. Add-on flue gas SO_2 controls are typically applied to exhaust streams with an uncontrolled SO_2 concentration of 500 ppmv to 2,000 ppmv. The SO_2 concentration of the EAF exhaust stream will be less than 20 ppmv and varies widely over the EAF cycle, which greatly reduces the potential removal effectiveness. Due to the variability of SO_2 emissions and low SO_2 concentrations, along with variable gas flow and temperature due to thermal cycling, a wet scrubber is not technically feasible for controlling SO_2 emissions from the proposed EAF. Vendors are unable to provide SO_2 removal guarantees for this application. NSBB is not aware of any wet scrubbing system used on an EAF due to technical issues with this type of installation. For these reasons, wet scrubbing is not technically feasible and will not be evaluated further.

Dry Scrubber

The SO_2 concentration of the EAF exhaust stream will be less than 20 ppmv and varies widely over the EAF cycle, which greatly reduces the potential removal effectiveness. Due to the low SO_2 concentration in the influent, coupled with a high exhaust rate (approximately 1,650,000 dscfm) adequate contact with the reagent and SO_2 will be limited. The SO_2 concentration rate will vary widely over the EAF cycle, which will impair the system's capability to respond adequately because these systems are not designed to adjust for load flexibility. This control alternative has other significant limitations. The temperature of the EAF exhausts will be around 140 to 180°F, which is too low for effective operation of a dry scrubber system. Thermal cycling during the regular batch operation of the EAF could result in temperature approaches to saturation, thereby raising the prospect of wet fouling. Vendors are unable to provide SO_2 removal guarantees for this application. NSBB is not aware of any dry scrubbing system used on an EAF due to technical issues with this type of installation. For these reasons, dry scrubbing is not technically feasible and will not be evaluated further.

Sorbent Injection Systems

The SO_2 concentration of the EAF exhaust streams will be less than 20 ppmv and varies widely over the EAF cycles, which greatly reduces the potential removal effectiveness. Variations in the SO_2 concentration would impair the control system's ability to respond with adequate sorbent injection because these systems are not designed to adjust for load flexibility and variable dose control with fast response times. For these reasons, sorbent injection is not technically feasible and will not be evaluated further.

Step 3 – Rank Remaining Technically Feasible Control Options

Scrap management to minimize oil is the only remaining feasible control option.

Step 4 – Evaluate Remaining Control Technologies

BACT Limit Overview

A review of the RBLC database revealed that other steel mills have emission limits ranging from 0.073 lb SO_2/ton of steel to 1.76 lb SO_2/ton of steel. BACT determinations posted to the RBLC within the last five years range from 0.2 lb SO_2/ton steel to 0.6 lb SO_2/ton steel. Note that many of the mills listed in the RBLC do not produce comparable products. Other steel mills may produce comparable products, although variability in raw material mix, raw material supplier, and melting processes will ultimately determine the amount of SO_2 emitted from the EAF. SO_2 control methods include scrap management, use of natural gas and low-sulfur feedstock, along with good management practices. Note that the use of a lime-injected baghouse (dry scrubber) for control of SO_2 at Gerdau MACSteel in Michigan (MI-0438) was selected as BACT for that facility, however, this plant produces a high sulfur content steel and is unable to charge lower sulfur-containing materials into the charge. Additionally, Gerdau is limited in the amount of lime they can add to the melt based on their range of high sulfur content steel. Therefore the sulfur compounds are not trapped in the slag, but instead are controlled at MACSteel in a gaseous form, hence the use of a dry scrubber.

To address the increasingly high cost of lower sulfur content injection carbon and the uncertain availability (decreasing supply), NSBB is proposing to demonstrate compliance with the SO_2 emission limitation through installation, maintenance, and operation of a SO_2 CEMS in lieu of proposing a sulfur content limit of the injection carbon. However, NSBB will implore carbon suppliers to purchase injection carbon with sulfur content at levels needed to meet client specifications for maximum sulfur content while minimizing emissions. Additionally, NSBB will add lime to the EAF as a fluxing agent and to the melt at the LMF as a means of controlling the sulfur content during the ladle refining process. This is accomplished by transferring the sulfur from the steel to the LMF slag by adjusting the slag-lime content and stirring with argon gas.

BACT must be achievable for long-term applications; although lower limits might be attainable, due to the uncertain future availability of low sulfur materials, NSBB proposes BACT to be 0.35 lb SO_2/ton of liquid metal, which is at the lower range of BACT limits found in the RBLC.

Scrap management to minimize oil is the only remaining control for SO_2 reduction and does not have any adverse environmental or economic impacts. NSBB will implement a scrap management plan to reduce SO_2-containing contaminants (excess oil) entering the EAF. The plan includes the following elements:

- General scrap specifications;
- Verification of compliance with specifications (e.g., inspections); and
- Corrective actions for nonconforming scrap.

Step 5 – Selection of BACT

NSBB proposes to utilize scrap management to minimize oil and no add-on control as BACT for SO_2 reduction from the proposed EAF. NSBB will meet an emission limit of 0.35 lb SO_2/ton of liquid steel based on a 30-day average. NSBB proposes to demonstrate ongoing compliance with the emission limitations through the use of a CEMS, as well as recordkeeping and certification of compliance with scrap management plan.

Nucor proposes that the lb/ton BACT limit shall be effective within three (3) consecutive months of a representative production (100,000 tons steel produced per month), not to exceed the current permit expiration, July 23, 2025.

6.5.3 SO_2 BACT FOR CASTER TORCH CUT OFF (EP 01-06 AND EP 01-12)

Following casting, the continuous steel slab exits at the bottom of the cooling chamber and is cut to specified lengths using an oxy-fuel torch to form discrete slabs. A secondary slab cutting area is located off the processing line in the caster runoff area to cut minimal length slabs with an oxy-fuel torch that are too short to be cut on line.

The SO_2 emissions from both the Primary Torch Cut Off and Secondary Caster Torch Cutoff are less than 1 ton per year, making the use of any add-on control devices not cost effective. Dividing the high capital, maintenance, and operating costs of an air pollution control equipment by less than 1 ton per yr of controlled emissions would result in an exorbitant cost effectiveness ratio. BACT for this source will be proper equipment design and use of natural gas as fuel to minimize SO_2 emissions. Emissions resulting from fuel combustion are very small and will be limited to 0.6 lb/MMscf of natural gas.

6.5.4 SO_2 BACT FOR WALKING BEAM REHEAT FURNACE (EP 03-01)

The Walking Beam Reheat Furnace (EP 03-01) oxidize sulfur compounds present in natural gas into SO_2. The control of SO_2 emissions is most directly associated with using a low-sulfur fuel, such as natural gas. Potential SO_2 emissions are directly related to the sulfur content of fuels. Minimizing fuel sulfur content through the use of low-sulfur fuels, such as pipeline quality natural gas, has been determined to be BACT for many combustion processes. Therefore, NSBB proposes use of natural gas (a low-sulfur fuel, as supplied) as BACT for SO_2 emissions from the Walking Beam Reheat Furnace with a proposed BACT limit of 0.6 lb/MMscf.

6.5.5 SO_2 BACT FOR PLASMA AND OXY-FUEL CUTTING BEDS

Within this application, NSBB is revising emissions calculations to account for uncaptured emissions that had not been included in the initial emissions estimates for Coil Sample Plasma Cutter (03-06), Continuous Heat Treat Plasma Cutter (04-04), Light Plate Burning Beds #1 and #2 (17-01), Heavy Plate Burning Beds #1 - #3 (05-03), and Slag Plant Oxy Fuel-Fired Torches (EP 12-04). The concentrations of SO_2 emissions are well below the threshold where add-on controls are applicable, and the addition of control devices cannot be cost effective for BACT. Dividing the high capital, maintenance, and operating costs of an air pollution control equipment by 0.0006 ton per year (highest potential emission rate of the Plasma and Oxy-Fuel Cutting Beds sources) of controlled emissions would result in an exorbitant cost effectiveness ratio. Therefore, BACT for these sources for control of SO_2 will be proper operation to ensure emissions are minimized wherever possible. SO_2 emissions will be limited to 0.6 lb/MMscf for the oxy-fuel torches through the use of low-sulfur gaseous fuel. Emissions of SO_2 from plasma cutters are believed to be negligible.

6.5.6 SO_2 BACT FOR INGOT GRINDING OXY-FUEL CUTTING TORCH (EP 03-11)

The SO_2 emissions from the ingot grinding oxy-fuel cutting torch are less than 1 ton per year, making the use of any add-on control devices not cost effective. Dividing the high capital, maintenance, and operating costs of an air pollution control equipment by less than 1 ton per year of controlled emissions would result in an exorbitant cost effectiveness ratio. BACT for this source will be proper equipment design and the use of natural gas as fuel to minimize SO_2 emissions. Emissions resulting from fuel combustion are very small and will be limited to 0.6 lb/MMscf of natural gas.

6.5.7 SO_2 BACT FOR EMERGENCY DIESEL ENGINES >500 HP (EP 10-02, EP 10-03, AND EP 10-10)

One large emergency diesel-fueled generator is included in the proposed project, as well as horsepower updates to two large emergency diesel-fueled generators. The new engine (EP 10-10) will be 1,411 horsepower and the two existing engines are 2,937 HP, as updated in this application. Emissions from the generators include products of combustion ($PM/PM_{10}/PM_{2.5}$, NO_x, CO, VOC, SO_2, and GHG).

Step 1 – Identify Potential Control Technologies

The following technologies were identified as potential control measures for the products of combustion associated with the diesel-fueled emergency generator engines.

TABLE 19 POTENTIAL CONTROL DEVICES FOR SO_2 FROM EMERGENCY DIESEL ENGINES

Control Type	Estimated SO_2 Control Efficiency
Efficient Engine Design	Varies
Fuel Selection (Low-Sulfur Fuel)	Varies
Energy Efficiency Measures and Good Combustion Practices	Base Case

The potentially applicable types of controls for products of combustion from emergency equipment are described below.

- ***Efficient Engine Design –*** The diesel-fueled emergency generator engines will be certified to meet the required US EPA emission standards based on each engine's model year and size. In order to achieve this certification, the engines are optimized to perform at their best design capacity and maximum efficiency. The need to increase the fuel efficiency of engines is driven by a number of factors including: lowering operating costs and reducing fossil fuel consumption. A reduction in fuel consumption is directly related to a reduction in pollutants generated as the products of combustion.
- ***Fuel Selection –*** Criteria pollutant emissions can be minimized through combustion of fuels with minimal amounts of impurities. Limiting the amount of sulfur in the fuel, such as ultra-low sulfur diesel, has the potential to reduce the formation of SO_2; thus the potential to reduce the formation of condensable particulate.
- ***Energy Efficiency Measures; Good Combustion Practices -*** Energy efficiency measures, such as good combustion, operating, and maintenance practices for CI engines include appropriate maintenance of equipment and operating within the recommended air to fuel ratio recommended by the manufacturer. Using good combustion practices, in conjunction with proper operation and maintenance, results in longer life of the equipment and more efficient operation. Therefore, such practices indirectly reduce emissions generated from combustion by supporting operation as designed and with consideration of other energy optimization practices.

Step 2 - Eliminate Technically Infeasible Options

Since these emergency generators are limited to emergency use, the emissions of criteria pollutants are minimal. Due to the minimal emissions and limited periods of operation, add-on control devices are not feasible for reducing emissions.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

1. Efficient Engine Design
2. Fuel Selection (ultra-low sulfur diesel)
3. Energy Efficiency Measures; Good Combustion Practices

Step 4 - Evaluate Remaining Control Technologies

Compliance with NSPS Subpart IIII is proposed as BACT for SO_2. The use of ultra-low sulfur (15 ppm) diesel fuel is required by Subpart IIII.

Efficient Engine Design

An engine for the new emergency generator with high fuel combustion efficiency will be selected. The estimate of emissions from this proposed engine is based on a mass balance calculation, maximum fuel consumption and fuel sulfur content. The engine are or will be certified by the manufacturer to meet the standards in NSPS for Stationary CI ICE (40 CFR 60 Subpart IIII). The facility will use ultra-low sulfur diesel with a maximum sulfur content of 15 ppm.

Energy Efficiency Measures; Good Combustion Practices

Energy efficiency measures that reduce emissions at the source, such as good combustion, operating, and maintenance practices for compression ignition engines, include appropriate maintenance of equipment and operating within the air-to-fuel ratio recommended by the manufacturer. Using good combustion practices, in conjunction with proper maintenance, results in longer life of the equipment and more efficient operation. Good combustion practices and good operation and maintenance practices, as recommended by the generator engine manufacturer will be incorporated to minimize emissions and maximize energy efficiency. Such practices are identified and regulated by NSPS Subpart IIII. Thus, compliance with the applicable provisions of NSPS Subpart IIII is proposed as BACT for SO_2 from the diesel-fueled emergency generators.

Step 5 - Select BACT

For emissions of SO_2 generated by combustion, BACT is selected to be efficient engine design; implementation of good combustion practices; and energy efficiency measures, such as good operating and maintenance practices. Furthermore, the emergency generator engines are or will be subject to 40 CFR 60 Subpart IIII, the NSPS for Stationary Compression Ignition Internal Combustion Engines which requires that the emergency generator engines will combust only ultra-low sulfur diesel fuel (15 ppm sulfur) to limit emissions of SO_2. The proposed BACT limit for SO_2 is 1.2E-05 lb/hp-hr for EP 10-02, EP 10-03, and EP 10-10.

Compliance will be demonstrated through purchase of Subpart IIII compliant engines, annual hourly usage records, maintaining copies of the engine certification, and maintenance recordkeeping, and certifications from the fuel vendor of sulfur content.

6.6 GHG BACT DETERMINATIONS

Although GHGs are an aggregate group of multiple gases, including CO_2, N_2O, CH_4, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride, they are treated as a single air pollutant for PSD and BACT purposes. This GHG BACT determination evaluates the methods and technologies for reduction and/or destruction of CO_2, the major GHG pollutant component from steel mills, as applicable for all emitted GHGs for this proposed project.

6.6.1 GHG CONTROL TECHNOLOGIES

Two broad categories of possible CO_2 technologies are: Carbon Capture and Sequestration (CCS) and Energy Efficiency Measures. The CCS is based on the separation and capture of CO_2 from process gases and injecting the CO_2 into a suitable geologic formation for long-term storage. For an energy efficiency strategy, the focus is on thermal efficiency to reduce the site-wide consumption of fuels and also reduce electricity use to reduce GHGs emitted by the power utilities that supply energy to the site.

6.6.2 GHG BACT FOR MELT SHOP (EP 01-01)

CO_2 emissions from EAFs are generated primarily during the melting and refining processes, which remove carbon as CO and CO_2 from the charge materials and electrodes. As the hot waste gases leave the EAF, combustion air is introduced to the ductwork to convert the CO to CO_2. Emissions of CO_2 are also generated as products of combustion from the use of oxy-fuel burners. Since CO_2 is the primary greenhouse gas (GHG) emitted, the following control analysis focuses on CO_2 emissions.

Step 1 – Identify Potential Control Technologies

- Carbon Capture and Sequestration
- Energy Efficiency Measures

Step 2 – Eliminate Technically Infeasible Options

Carbon Capture and Sequestration

To reduce CO_2 emissions, CCS is one of the considerations for control. In summary, post-combustion capture through amine absorption is available for CO_2 separation processes. Amine absorption has been applied to processes in the petroleum refining and natural gas processing industries and is applicable to certain iron and steel industrial processes.

According to the Global CCS Institute, there is one large-scale commercial CCS facility for the Iron and Steel Production Industry currently in operation. A detailed description of the project is available in the Global CCS Facilities Database. The Abu Dhabi CCS CO_2 Compression Facility launched in November 2016. The CO_2 Compression Facility (CCF) captures 0.8 tonnes per year of CO_2 from direct reduced iron (DRI), which produces a pure stream of CO_2 (greater than 98 percent). CO_2 transfers at low pressure to the CCF. At the CCF, CO_2 is dehydrated, compressed, metered, and exported to a CO_2 pipeline. CO_2 is transported through an eight inch pipeline to the Abu Dhabi National Oil Company oil reservoirs for enhanced oil recovery. Although this facility is associated with the Iron and Steel Production Industry, the permitted facility emission source at Nucor does not have similar exhaust characteristics, nor does the exhaust stream consist of pure CO_2.

Other potential CO_2 capture technologies are currently only commercially available for combustion of other fuels (e.g., coal gasification CO_2 pre-combustion) or are developmental and are therefore commercially unavailable at this time. Furthermore, as shown on the NatCarb Atlas (USDOE, 2014), a majority of the CCS projects across the Southeast are subsidized by federal funding made available by the Department of Energy. Theoretical, experimental, or developing technologies are not "available" under BACT. A control technology is neither demonstrated nor available if government subsidies are required to fund evaluations of the technology. As such, there are no demonstrated or commercially available technologies applicable to the natural gas-fired source contained in this permit application. Therefore, CCS remains technically infeasible.

The economic feasibility of transporting CO_2 for sequestration at a distant storage site depends on whether a long-distance pipeline exists within a reasonable distance of the facility to make a connection to the system. A CO_2 pipeline is not available in Kentucky or nearby adjacent states. For the Nucor Brandenburg facility, the closest CO_2 pipeline is Choctaw Pipeline (aka NEJD) for enhanced oil recovery (EOR) in southern Mississippi and Louisiana (183 miles long), in conjunction with Jackson Dome Reserves. The Jackson dome is located approximately 600 miles away from Brandenburg, Kentucky. Due to the absence of an accessible CO_2 pipeline and infrastructure issues, CCS with Transport and Sequestration becomes technically infeasible.

As described above, dedicated geological sequestration of CO_2 requires close proximity to a favorable geologic formation. A recent report from the US Geological Survey (USGS), National Assessment of Geologic Carbon Dioxide Storage Resources, indicates that within the area of the Eastern Mesozoic Rift Basin, there is potential for subsurface CO_2 storage capacity that is technically accessible (only buoyant trapping storage resources). The Eastern Mesozoic Rift Basin only accounts for less than 1% of the potential buoyant and residual trapping storage capacity within the United States.

Based on the carbon storage atlas, there are no CO_2 storage projects within the same region as Brandenburg, Kentucky. There are no known favorable geologic formations near NSBB. CO_2 cannot be injected locally because there is no bedrock nearby, and the lithology found near the Nucor facility is not consolidated enough to trap CO_2. Without a nearby storage location, CCS with Dedicated Sequestration becomes technically infeasible.

Step 3 – Rank Remaining Technically Feasible Control Options

Energy efficiency measures are the only remaining feasible controls.

Step 4 – Evaluate Remaining Control Technologies

NSBB has selected state-of-the-art, energy efficient equipment. The facility has also opted to implement additional energy efficiency measures, which are discussed in more detail below.

Energy Efficiency Measures

- Adjustable Speed Drives – As flue gas flow varies over time, adjustable speed drives offer opportunities to operate dust collection fans in a more energy efficient manner. The electricity savings are estimated to be 15 kWh/ton steel, with a 67% decrease in total energy usage.
- Oxy-Fuel Burners - Oxy-Fuel Burners are used on most EAFs in the U.S. These burners increase the effective capacity of the furnace by increasing the speed of the melt and reducing the consumption of electricity and electrode material, which reduces GHG emissions. Electricity savings range from 88 to 155 kWh/ft^3 oxygen injected. The use of oxy-fuel burners can lead to CO_2 emissions reductions of 23.5 kg CO_2/metric ton (47 lb/ton) of steel produced.
- Foamy Slag Practice – Foamy slag covers the arc and melt surface to reduce radiation heat losses. Foamy slag can be obtained by injecting carbon and oxygen or by lancing of oxygen only. Slag foaming increases the electric power efficiency by at least 20% in spite of higher arc voltage. The net energy savings are estimated at 5 to 7 kWh/ton steel. Foamy slag use can lead to CO_2 emissions reductions of 10.6 kg CO_2/metric ton (12.2 lb/ton) of steel produced.

Although the LMF and Continuous Casting operations are not a significant source of GHG emissions, the following efficiency measures will be implemented.

- Efficient Caster Ladle Heating – Heat losses can occur through lack of lids and through radiation. NSBB will reduce losses from casting through temperature controls and hoods and by efficient ladle management (reducing the need for preheating). Efficient caster ladle heating can result in CO_2 emissions reductions of 0.55 lb/ton of steel product.

NSBB proposes a numerical BACT limit of 332,500 ton per year (tpy). A rolling 12-month basis is appropriate, because there is no ambient air quality driver for reducing the averaging period for GHGs. Furthermore, due to the variability of the raw material properties, a lb/ton factor is not appropriate.

Step 5 – Selection of BACT

NSBB proposes the following measures to be considered as BACT for the control of GHG from the melt shop:

- Adjustable Speed Drives
- Oxy-Fuel Burners
- Foamy Slag Practice
- Efficient Caster Ladle Heating

NSBB proposes an annual average Melt Shop emission rate of 380 lb CO_2e per ton steel produced. This compares very favorably with the estimated international average of 800 lb CO_2 per ton[38] for EAF steelmaking facilities.

Fluctuations in natural gas usage in addition to variations in the product mix require at least a 12-month period for determining compliance with the GHG BACT emission limit. EAF steelmaking is a batch process, and NSBB's variability in product demand results in significant batch-to-batch variation in energy usage. In addition, EPA states in the March 2011 *PSD and Title V Permitting Guidance for Greenhouse Gases*, "...since the environmental concern with GHGs is with their cumulative impact in the environment, metrics should focus on longer-term averages…." It is appropriate to utilize a longer averaging time for GHGs than is typically used for criteria pollutants due to their long-term effects in the atmosphere (e.g., global warming potential of greenhouse gases is based on the 100-year impact of each gas). In addition, the timing of more energy intensive batches depends upon customer demand, which varies over the course of a year. As such, the proposed 1-year averaging time provides an appropriate manner by which NSBB will demonstrate compliance with the GHG BACT limit.

NSBB proposes the following design and operational requirements as GHG BACT for EAF and Melt Shop (EP 01-01):

1. Install and maintain seals and modern insulation media to minimize heat losses from EAF doors, roof, and any openings around the burners or other equipment traversing through the furnace shell.
2. Install, operate, and maintain oxy-fuel burners in accordance with manufacturer's specifications to maximize heat transfer, reduce heat losses, and reduce electrode consumption resulting in high thermal efficiency and reduced electrical energy consumption.

[38] *Profiles: CO2 Abatement in the Iron and Steel Industry*, IEA Clean Coal Center, February 2012.

3. Employ foamy slag practices to reduce radiation heat losses and increases the electric power efficiency of the EAFs.
4. Optimize process control operations to reduce electricity consumption through monitoring integration of real-time monitoring of process variables along with real-time control systems for carbon injection and lance oxygen practices.
5. Implement a preventative maintenance program that is consistent with the manufacturer's instructions for routine and long-term maintenance of equipment important to the operation, including EAF doors, burners, etc.
6. Conduct periodic preventive maintenance of gas supply valves in accordance with the manufacturer's recommended procedures and schedule.
7. Conduct periodic calibration of gas supply meter in accordance with the manufacturer's recommended procedures and schedule.
8. Employ a program for efficient ladle and tundish management to minimize the level of preheating required and maintaining the performance of the ladles and tundishes through proper refractory.
9. Implement a maintenance and repair program for furnaces, ladles, and tundishes to minimize convective and radiant heat losses through proper installation and maintenance of refractory/insulation lining.

6.6.3 GHG BACT FOR CASTER TORCH CUT OFF (EP 01-06 AND EP 01-12)

The emissions of GHG from the Primary Caster Torch Cut Off and the Secondary Caster Torch Cutoff are approximately 974 ton/yr and 1,010 ton/yr, respectively, based on the maximum heat capacity of each torch and assuming 8,760 hours of operation per year, making the use of CCS infeasible. The selection of fuel is an available measure for control of CO_2 emissions. Natural gas has the lowest emission rate of CO_2 per unit of energy. The oxy-fuel torches used at the Primary and Secondary Caster Torch Cutoff will combust natural gas to minimize emissions of GHG.

Step 1 – Identify Potential Control Technologies

- Carbon Capture and Sequestration
- Energy Efficient Design/Energy Efficiency Measures.

Step 2 – Eliminate Technically Infeasible Options

Carbon Capture and Sequestration

Carbon Capture and Sequestration for Caster Torch Cut Off is deemed to be technically infeasible for the same reasons discussed in Step 2 of the Melt Shop GHG BACT.

Step 3 – Rank Remaining Technically Feasible Control Options

Energy efficient design is the only remaining technically feasible control option.

Step 4 – Evaluate Remaining Control Technologies

Energy Efficient Design/Energy Efficiency Measures

For the reasons described previously, direct-fired burners are the most efficient burner type.

Step 5 – Selection of BACT

For CO_2e emissions generated from the direct-fired Walking Beam Reheat Furnace, Ingot Car Bottom Furnaces, and Steckel Mill Coiling Furnaces, BACT is selected to be energy efficient design. No adverse energy, environmental, or economic impacts are associated with this control option. Compliance will be demonstrated through natural gas usage records. CO_2e from the Walking Beam Furnace, Ingot Car Bottom Furnace will be limited to 120,713 lb/MMscf and 187,744 tons/yr.

NSBB proposes the following design and operational requirements as GHG BACT for Hot Rolling Mill Furnaces in EU 02:

1. The facility design shall include low-NOx recuperative burners to preheat the combustion air with heat from the exhaust gas.
2. Calculate and track natural gas usage on a Btu/lb of steel output basis as a parametric indicator of furnace efficiency. Establish acceptable parametric ranges for this efficiency metric and initiate corrective actions if actual readings for this metric fall outside of the acceptable range.
3. Conduct periodic calibration of gas supply system in accordance with manufacturer's recommended procedures and schedule.
4. Conduct periodic thermography readings of furnace shell in areas recommended by the manufacturer and according to the schedule recommended by the manufacturer (at least annually).
5. Install and maintain seals and modern insulation media to minimize heat losses from the furnace hearth, upper and lower sidewalls, doors, roof, and any openings around the burners or other equipment traversing through the furnace shell.
6. Maintain gas supply valves in accordance with the manufacturer's recommended procedures and schedule.
7. Install, operate, and maintain a combustion system that includes air-to-fuel ratio control for improved fuel efficiency.
8. Implement burner temperature control to achieve optimum temperature uniformity.

6.6.4 GHG BACT FOR PLASMA AND OXY-FUEL CUTTING BEDS

CCS is not available for capturing CO_2 emissions from cutting torches, and the emissions from cutting is believed to be negligible. BACT for GHG for oxy-fuel and plasma cutting is no control.

6.6.5 GHG BACT FOR INGOT GRINDING OXY-FUEL CUTTING TORCH (EP 03-11)

The emissions of GHG from the ingot grinding oxy-fuel cutting torch are approximately 246 tons/yr based on the maximum heat capacity the torch and assuming 8,760 hours of operation per year, making the use of CCS infeasible. The selection of fuel is an available measure for control of CO_2 emissions. Natural gas has the lowest emission rate of CO_2 per unit of energy. The oxy-fuel torch used at ingot grinding will combust natural gas to minimize emissions of GHG BACT Emissions resulting from natural gas fuel combustion are very small and will be limited to 246 ton/yr of CO_2e.

6.6.6 GHG BACT FOR EMERGENCY DIESEL ENGINES >500 HP (EP 10-10)

One large emergency diesel-fueled generator is included in the proposed project, as well as horsepower updates to two large emergency diesel-fueled generators. The new engine (EP 10-10) will be 1,411 horsepower and the two existing engines are 2,937 HP, as updated in this application. Emissions from the generators include products of combustion (PM/PM_{10} /$PM_{2.5}$, NO_x, CO, VOC, SO_2, and GHG).

Step 1 – Identify Potential Control Technologies

The following technologies were identified as potential control measures for products of combustion associated with the diesel-fueled emergency generator engines.

TABLE 20 POTENTIAL CONTROL DEVICES FOR GHG FROM EMERGENCY DIESEL ENGINES

Control Type	Estimated GHG Control Efficiency
Efficient Engine Design	Varies
Energy Efficiency Measures and Good Combustion Practices	Base Case

The potentially applicable types of controls for products of combustion from emergency equipment are described below.

- ***Efficient Engine Design –*** The diesel-fueled emergency generator engines will be certified to meet the required US EPA emission standards based on each engine's model year and size. In order to achieve this certification, the engines are optimized to perform at their best design capacity and maximum efficiency.

  The efficiency of any machine or process is a ratio of the amount of useful output energy against the required amount of input energy, usually expressed as a percentage. The need to increase the fuel efficiency of engines is driven by a number of factors including: lowering operating costs and reducing fossil fuel consumption. A reduction in fuel consumption is directly related to a reduction in pollutants generated as the products of combustion.

- ***Energy Efficiency Measures; Good Combustion Practices -*** Energy efficiency measures, such as good combustion, operating, and maintenance practices for CI engines include appropriate maintenance of equipment and operating within the air-to-fuel ratio recommended by the manufacturer. Using good combustion practices, in conjunction with proper operation and maintenance, results in longer life of the equipment and more efficient operation. Therefore, such practices indirectly reduce emissions generated from combustion by supporting operation as designed and with consideration of other energy optimization practices.

Step 2 - Eliminate Technically Infeasible Options

Since these emergency generators are limited to emergency use, the emissions of criteria pollutants are minimal. Due to the minimal emissions and limited periods of operation, add-on control devices, such as particulate filters, oxidation catalysts, and selective catalytic reduction are not feasible for reducing emissions. For the same reasons previously discussed for natural gas combustion, CCS does not represent a viable alternative.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

1. Efficient Engine Design
2. Energy Efficiency Measures; Good Combustion Practices

Step 4 - Evaluate Remaining Control Technologies

Due to the limited operating timeframe during the maintenance and testing operating scenario, control technologies that must reach a minimum temperature prior to achieving design effectiveness are not a feasible control for these units.

Efficient Engine Design

An engines for the new emergency generator with high fuel combustion efficiency will be selected. The estimate of emissions from this proposed engines is based on the use of AP-42 emission factors. The engines are or will be certified by the manufacturer to meet the standards in NSPS for Stationary CI ICE (40 CFR 60 Subpart IIII). The facility will use ultra-low sulfur diesel with a maximum sulfur content of 15 ppm.

Energy Efficiency Measures; Good Combustion Practices

Energy efficiency measures that reduce emissions at the source, such as good combustion, operating, and maintenance practices for CI engines, include appropriate maintenance of equipment and operating within the air-to-fuel ratio recommended by the manufacturer. Using good combustion practices, in conjunction with proper operation and maintenance, results in longer life of the equipment and more efficient operation. Good combustion practices and good operating and maintenance practices as recommended by the generator engine manufacturer will be incorporated to minimize emissions and maximize energy efficiency. Such practices are identified and regulated by NSPS Subpart IIII. Thus, compliance with the applicable provisions of NSPS Subpart IIII is proposed as BACT for CO_2e from the diesel-fueled emergency generators.

Step 5 - Select BACT

For emissions of CO_2e that are generated by combustion, BACT is selected to be efficient engine design; implementation of good combustion practices; and energy efficiency measures, such as good operating and maintenance practices.

Large Diesel Engine

CO_2e will be limited to 163 lb/mmBtu

Compliance will be demonstrated through annual hourly usage records, maintaining copies of the engine certification, and maintenance recordkeeping.

6.7 BACT DETERMINATION SUMMARY

Table 20 includes a summary of the BACT determinations discussed in this application.

TABLE 21 BACT DETERMINATION SUMMARY

Emission Point No.	Pollutant/ Parameter	Proposed BACT Limit/Standard	Proposed BACT Control Type	Proposed Compliance Demonstration
EAF Melt Shop – EU 01				
Melt Shop (EP 01-01)	$PM/PM_{10}/PM_{2.5}$	Total PM and PM_{10} (filterable and condensable) - 0.0052 gr/dscf, Total $PM_{2.5}$ (filterable and condensable) - 0.0034 gr/dscf, $PM/PM_{10}/PM_{2.5}$ (filterable) - 0.0018 gr/dscf	Baghouse	Compliance with NSPS AAa (e.g., monitoring and recordkeeping of maintenance and operating parameters of the control equipment). Performance testing.
	NO_x	0.42 lb NO_x/ton of liquid steel produced on a 30-day average basis.	Oxy-fuel burners (EAF)	Operation of CEMS
	CO	2.0 lb CO/ton of liquid steel produced on a 30-day average basis.	Direct Evacuation Control	Operation of CEMS
	VOC	0.09 lb VOC/ton of liquid steel produced.	Scrap management, Comply with Subpart YYYYY	Scrap management plan recordkeeping and certification of compliance; periodic performance testing.

TABLE 21 BACT DETERMINATION SUMMARY

Emission Point No.	Pollutant/ Parameter	Proposed BACT Limit/Standard	Proposed BACT Control Type	Proposed Compliance Demonstration
	SO_2	0.35 lb SO_2/ton of liquid steel produced on a 30-day average basis	Scrap management; limit the sulfur content of EAF feedstock; add lime to the EAF as a fluxing agent and to the LMF to maintain the slag-lime content.	Operation of CEMS. Recordkeeping of sulfur content analyses for charged and injection carbons.
	GHG	535 lb/ton	Energy Efficiency Measures (Adjustable Speed Drives, Oxy-Fuel Burners; Foamy Slag Practice; Efficient Caster Ladle Heating)	Recordkeeping

TABLE 21 BACT DETERMINATION SUMMARY

Emission Point No.	Pollutant/ Parameter	Proposed BACT Limit/Standard	Proposed BACT Control Type	Proposed Compliance Demonstration
Caster Spray Vent (EP 01-05)	$PM/PM_{10}/PM_{2.5}$	7.44E-03 gr/dscf PM (filterable) 1.19E-03 gr/dscf PM_{10} (total) 1.49E-04 gr/dscf tpy $PM_{2.5}$ (total)	Good work practices	Good work practices; periodic inspections.
	VOC	0.40 lb/hr	Good work practices	Certification of good work practices and recordkeeping.
Primary Caster Torch Cutoff (EP 01-06) and Secondary Caster Torch Cutoff (EP 01-12)	$PM/PM_{10}/PM_{2.5}$	EP 01-06: 49 lb/MMscf of natural gas EP 01-12: 51 lb/MMscf of natural gas (filterable and condensable)	Good work practices	Monitoring and recordkeeping of maintenance
	NO_x	100 lb/MMscf	Good work practices	
	CO	84 lb/MMscf		

TABLE 21 BACT DETERMINATION SUMMARY

Emission Point No.	Pollutant/ Parameter	Proposed BACT Limit/Standard	Proposed BACT Control Type	Proposed Compliance Demonstration
	VOC	5.5 lb/MMscf		
	SO_2	0.6 lb/MMscf		
	GHG	-		
Caster Quench Box (EP 01-11)	$PM/PM_{10}/PM_{2.5}$	7.44E-03 gr/dscf PM (filterable) 1.19E-03 gr/dscf PM_{10} (total) 1.49E-04 gr/dscf $PM_{2.5}$ (total)	Good work practices	Good work practices; periodic inspections
Rolling Mill – EU 03				
Walking Beam Reheat Furnace (EP 03-01)	$TPM/TPM_{10}/TPM_{2.5}$	7.6 lb/MMscf	Good combustion practices and the use of natural gas	Recordkeeping
	FPM	1.9 lb/MMscf		
	NO_x	100 lb/MMscf	Good combustion practices and low NOx burners	Recordkeeping (manufacturer's guarantee)
	CO	84 lb/MMscf	Good combustion practices and the use of natural gas	Recordkeeping
	VOC	5.5 lb/MMscf		
	SO_2	0.6 lb/MMscf		

TABLE 21 BACT DETERMINATION SUMMARY

Emission Point No.	Pollutant/ Parameter	Proposed BACT Limit/Standard	Proposed BACT Control Type	Proposed Compliance Demonstration
	GHG	120,000 lb/MMscf 187,744 ton/yr	Energy efficient design	
	NO_x	100 lb/MMscf		
	CO	84 lb/MMscf		
	VOC	5.5 lb/MMscf		
	SO_2	0.6 lb/MMscf		
	GHG	-		
Coil Sample Plasma Cutter (EP 03-06)	$PM/PM_{10}/PM_{2.5}$	0.0029 lb/inches cut	Baghouse	Recordkeeping
	NO_x	0.57 lb/hr 2.51 ton/yr	Good work practices	Recordkeeping
Ingot Grinding (EP 03-10)	PM/PM_{10}	0.005 gr/dscf (filterable and condensable)	Baghouse	Monitoring and recordkeeping of maintenance and operating parameters of the control equipment.
	$PM_{2.5}$	0.0025 (filterable and condensable)		

TABLE 21 BACT DETERMINATION SUMMARY

Emission Point No.	Pollutant/ Parameter	Proposed BACT Limit/Standard	Proposed BACT Control Type	Proposed Compliance Demonstration
Ingot Grinding Oxy-fuel Cutting Torch (EP 03-11)	$PM/PM_{10}/PM_{2.5}$	0.075 lb/hr fume generation (filterable), 7.6 lb/MMscf of natural gas (filterable and condensable)	Good work practices, proper equipment design, and the use of natural gas	Monitoring and recordkeeping of maintenance
	NO_x	100 lb/MMscf		
	CO	84 lb/MMscf		
	VOC	5.5 lb/MMscf		
	SO_2	0.6 lb/MMscf		
	GHG	-		
Continuous Heat Treat Processing – EU 04				
Continuous Heat Treat Plasma Cutter (EP 04-04)	$PM/PM_{10}/PM_{2.5}$	0.0053 lb/inches cut 0.35 ton/yr	Baghouse (exhausts indoors)	Recordkeeping
	NO_x	0.93 lb/hr 4.1 ton/yr	Good work practices	Recordkeeping
Light Plate Processing – EU 17				

TABLE 21 BACT DETERMINATION SUMMARY

Emission Point No.	Pollutant/ Parameter	Proposed BACT Limit/Standard	Proposed BACT Control Type	Proposed Compliance Demonstration
Light Plate Burning Beds #1 & #2 (EP 17-01)	$PM/PM_{10}/PM_{2.5}$	0.0053 lb/inches cut (plasma) 0.0081 lb/hr (oxy-fuel torch fume) 7.6 lb/MMscf (fuel combustion)	Baghouse	Recordkeeping
	NO_x	1.1 lb/hr (plasma) 100 lb/MMscf (oxy-fuel combustion)	Good Work Practices	
	CO	84 lb/MMscf (oxy-fuel)		
	VOC	5.5 lb/MMscf (oxy-fuel)		
	SO_2	0.6 lb/MMscf (oxy-fuel)		
	GHG	-		
Heavy Plate Processing – EU 05				

TABLE 21 BACT DETERMINATION SUMMARY

Emission Point No.	Pollutant/ Parameter	Proposed BACT Limit/Standard	Proposed BACT Control Type	Proposed Compliance Demonstration
Heavy Plate Burning Beds #1 & #3 (EP 05-03)	$PM/PM_{10}/PM_{2.5}$	0.0053 lb/inches cut (plasma) 0.012 lb/hr (oxy-fuel torch fume) 7.6 lb/MMscf (fuel combustion)	Baghouse	Recordkeeping
	NO_x	1.4 lb/hr (plasma) 100 lb/MMscf (oxy-fuel combustion)	Good Work Practices	
	CO	84 lb/MMscf (oxy-fuel)		
	VOC	5.5 lb/MMscf (oxy-fuel)		
	SO_2	0.6 lb/MMscf (oxy-fuel)		
	GHG	-		
Cooling Towers – EU 09				

TABLE 21 BACT DETERMINATION SUMMARY

Emission Point No.	Pollutant/ Parameter	Proposed BACT Limit/Standard	Proposed BACT Control Type	Proposed Compliance Demonstration
Melt Shop ICW (EP 09-01)	PM/PM_{10}/$PM_{2.5}$	0.001% Drift Loss	High-efficiency drift eliminators	Recordkeeping of design specification
Melt Shop DCW (EP 09-02)				
Rolling Mill DCW (EP 09-04)				
Rolling Mill ACC ICW (EP 09-05)				
Heavy Plate Quench DCW (EP 09-06)				
Quench and ACC Laminar DCW (EP 09-07)				

TABLE 21 BACT DETERMINATION SUMMARY

Emission Point No.	Pollutant/ Parameter	Proposed BACT Limit/Standard	Proposed BACT Control Type	Proposed Compliance Demonstration
Heat Treat (EP 09-08)				
Air Separation Plant (EP 09-09)				
Emergency Engine – EU 10				
G100-2 Emergency Generator, 2,937 HP (EP 10-02)	$PM/PM_{10}/PM_{2.5}$	Comply with Subpart IIII	Purchase of EPA Certified Engine	Compliance with NSPS Subpart IIII. Recordkeeping of engine certification.
	NO_x			
	CO			
	VOC			
	SO_2	Use of ultra-low sulfur diesel fuel (max. fuel sulfur content: 15 ppm)		
	GHG	163 lb/mmBtu		
	NO_x			
	CO			

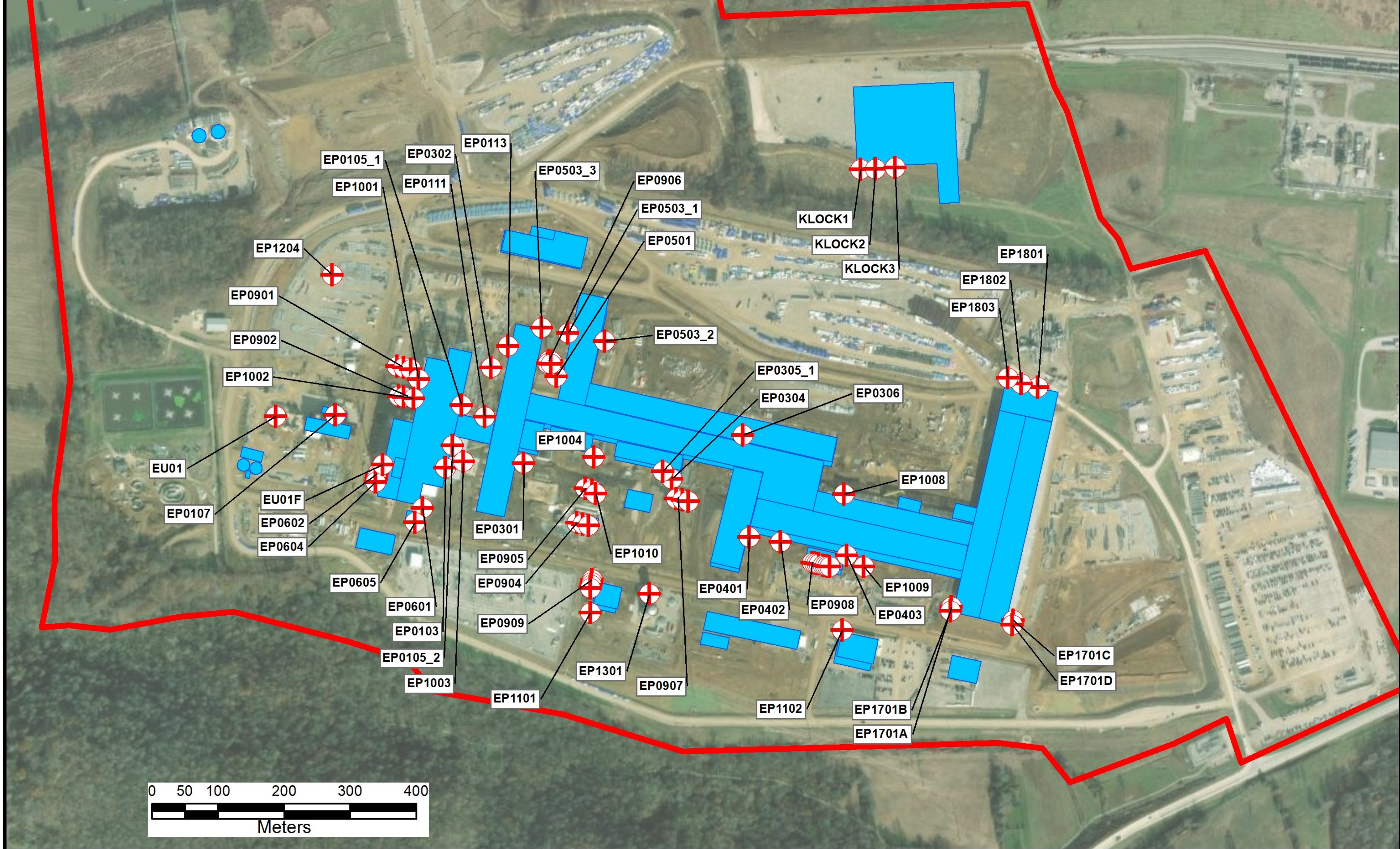
TABLE 21 BACT DETERMINATION SUMMARY

Emission Point No.	Pollutant/ Parameter	Proposed BACT Limit/Standard	Proposed BACT Control Type	Proposed Compliance Demonstration
	VOC			
	SO_2	Use of ultra-low sulfur diesel fuel (max. fuel sulfur content: 15 ppm)		
	GHG	163 lb/mmBtu		
G500-1 Emergency Generator, 1,411 HP (EP 10-10)	$PM/PM_{10}/PM_{2.5}$	Comply with Subpart IIII	Purchase of EPA Certified Engine	Compliance with NSPS Subpart IIII. Recordkeeping of engine certification.
	NO_x			
	CO			
	VOC			
	SO_2	Use of ultra-low sulfur diesel fuel (max. fuel sulfur content: 15 ppm)		
	GHG	163 lb/mmBtu		
Slag Processing – EU 12				

TABLE 21 BACT DETERMINATION SUMMARY

Emission Point No.	Pollutant/ Parameter	Proposed BACT Limit/Standard	Proposed BACT Control Type	Proposed Compliance Demonstration
Slag Plant Oxy-fuel-Fired Torches (EP 12-04)	$PM/PM_{10}/PM_{2.5}$	0.10 lb/hr (oxy-fuel torch fume) 7.6 lb/MMscf (fuel combustion)	Baghouse	Recordkeeping
	NO_x	100 lb/MMscf (oxy-fuel)	Good Work Practices	
	CO	84 lb/MMscf (oxy-fuel)		
	VOC	5.5 lb/MMscf (oxy-fuel)		
	SO_2	0.6 lb/MMscf (oxy-fuel)		
	GHG	-		
Roads – EU 14				
Paved Roads (EP 14-01)	$PM/PM_{10}/PM_{2.5}$	-	Permanent Surface Improvements (Pavement); Water Sprays/Vacuuming	Recordkeeping

APPENDIX A SITE PLAN



Legend

Point Sources

Buildings

Aerial Imagery: ESRI World Imagery. Reproduced under license in ArcGIS 10.1

Figure 4-5: Nucor Brandenburg Point Sources Used in GEP Analysis

Nucor Steel Brandenburg
Brandenburg, KY

ERM

Sustainability is our business

C:\Projects\Nucor\Brandenburg\2021\10.Arcmap\NSB GEP Analysis Point Sources and Buildings.mxd - Andrew.Desrosiers - 2/19/2024

APPENDIX B KENTUCKY DIVISION OF AIR QUALITY APPLICATION FORMS

Division for Air Quality

300 Sower Boulevard

Frankfort, KY 40601

(502) 564-3999

DEP7007AI

Administrative Information

___ Section AI.1: Source Information

___ Section AI.2: Applicant Information

___ Section AI.3: Owner Information

___ Section AI.4: Type of Application

___ Section AI.5: Other Required Information

___ Section AI.6: Signature Block

___ Section AI.7: Notes, Comments, and Explanations

Additional Documentation

___ Additional Documentation attached

Source Name: **Nucor Steel Brandenburg**

KY EIS (AFS) #: **21- 163-00044**

Permit #: **V-20-001 R1**

Agency Interest (AI) ID: **162861**

Date: **March 01, 2024**

Section AI.1: Source Information

Physical Location Address:	**Street:**	100 Ronnie Greenwell Road				
	City:	Brandenburg	**County:**	Meade	**Zip Code:**	40108
Mailing Address:	**Street or P.O. Box:**	100 Ronnie Greenwell Road				
	City:	Brandenburg	**State:**	KY	**Zip Code:**	40108

Standard Coordinates for Source Physical Location

Longitude: 38.00404 (decimal degrees) **Latitude:** -86.1368 (decimal degrees)

Primary (NAICS) Category: Iron and Steel Mill and Ferroalloy Manufacturing **Primary NAICS #:** 331110

#

Classification (SIC) Category: 33-Primary Metal Industries **Primary SIC #:** 3316

Briefly discuss the type of business conducted at this site: Steel manufacturing

Description of Area Surrounding Source:

- ☐ Rural Area
- ☐ Industrial Park
- ☐ Residential Area
- ☐ Urban Area
- ☑ Industrial Area
- ☐ Commercial Area

Is any part of the source located on federal land? ☐ Yes ☑ No

Number of Employees: 400

Approximate distance to nearest residence or commercial property: 1000 ft

Property Area: 770 acres

Is this source portable? ☐ Yes X No

What other environmental permits or registrations does this source currently hold or need to obtain in Kentucky?

NPDES/KPDES:	☑ Currently Hold	☐ Need	☐ N/A
Solid Waste:	☐ Currently Hold	☐ Need	☑ N/A
RCRA:	☑ Currently Hold	☐ Need	☐ N/A
UST:	☐ Currently Hold	☐ Need	☑ N/A

Type of Regulated Waste Activity:

- ☐ Mixed Waste Generator
- ☑ Generator
- ☐ Recycler
- ☐ Other: ______________
- ☐ U.S. Importer of Hazardous Waste
- ☐ Transporter
- ☐ Treatment/Storage/Disposal Facility
- ☐ N/A

Section AI.2: Applicant Information

Applicant Name: Nucor Steel Brandenburg

Title: (if individual)

Mailing Address:
Street or P.O. Box: 100 Ronnie Greenwell Road
City: Brandenburg **State:** KY **Zip Code:** 40108

Email: (if individual)

Phone:

Technical Contact

Name: Zachary Straney

Title: Environmental Engineer

Mailing Address:
Street or P.O. Box: 100 Ronnie Greenwell Road
City: Brandenburg **State:** KY **Zip Code:** 40108

Email: zachary.straney@nucor.com

Phone: 270-422-8245

Air Permit Contact for Source

Name: Zachary Straney

Title: Environmental Engineer

Mailing Address:
Street or P.O. Box: 100 Ronnie Greenwell Road
City: Brandenburg **State:** KY **Zip Code:** 40108

Email: zachary.straney@nucor.com

Phone: 270-422-8245

Section AI.3: Owner Information

☑ **Owner same as applicant**

Name: ____________________

Title: ____________________

Mailing Address: **Street or P.O. Box:** ____________________

City: ____________ **State:** ____________ **Zip Code:** ____________

Email: ____________________

Phone: ____________________

List names of owners and officers of the company who have an interest in the company of 5% or more.

Name	Position

Section AI.4: Type of Application

Current Status: ☑ Title V ☐ Conditional Major ☐ State-Origin ☐ General Permit ☐ Registration ☐ None

Requested Action: *(check all that apply)*

☐ Name Change	☐ Initial Registration	☒ Significant Revision	☐ Administrative Permit Amendment
☐ Renewal Permit	☐ Revised Registration	☐ Minor Revision	☐ Initial Source-wide OperatingPermit
☐ 502(b)(10)Change	☐ Extension Request	☐ Addition of New Facility	☐ Portable Plant Relocation Notice
☐ Revision	☐ Off Permit Change	☐ Landfill Alternate Compliance Submittal	☐ Modification of Existing Facilities
☐ Ownership Change	☐ Closure		

Requested Status: ☑ Title V ☐ Conditional Major ☐ State-Origin ☐ PSD ☐ NSR ☐ Other: ____________

Is the source requesting a limitation of potential emissions? ☐ Yes ☑ No

Pollutant:	Requested Limit:	Pollutant:	Requested Limit:
☐ Particulate Matter	____________	☐ Single HAP	____________
☐ Volatile Organic Compounds (VOC)	____________	☐ Combined HAPs	____________
☐ Carbon Monoxide	____________	☐ Air Toxics (40 CFR 68, Subpart F)	____________
☐ Nitrogen Oxides	____________	☐ Carbon Dioxide	____________
☐ Sulfur Dioxide	____________	☐ Greenhouse Gases (GHG)	____________
☐ Lead		☐ Other	____________

For New Construction:

Proposed Start Date of Construction: *(MM/YYYY)* ____________ **Proposed Operation Start-Up Date:** *(MM/YYYY)* ____________

For Modifications:

Proposed Start Date of Modification: *(MM/YYYY)* ____________ **Proposed Operation Start-Up Date:** *(MM/YYYY)* ____________

Applicant is seeking coverage under a permit shield. ☐ **Yes** ☑ **No** **Identify any non-applicable requirements for which permit shield is sought on a separate attachment to the application.**

Section AI.5 Other Required Information

Indicate the documents attached as part of this application:

- ☐ DEP7007A Indirect Heat Exchangers and Turbines
- ☑ DEP7007B Manufacturing or Processing Operations
- ☐ DEP7007C Incinerators and Waste Burners
- ☐ DEP7007F Episode Standby Plan
- ☐ DEP7007J Volatile Liquid Storage
- ☐ DEP7007K Surface Coating or Printing Operations
- ☐ DEP7007L Mineral Processes
- ☐ DEP7007M Metal Cleaning Degreasers
- ☑ DEP7007N Source Emissions Profile
- ☐ DEP7007P Perchloroethylene Dry Cleaning Systems
- ☐ DEP7007R Emission Offset Credit
- ☐ DEP7007S Service Stations
- ☐ DEP7007T Metal Plating and Surface Treatment Operations
- ☑ DEP7007V Applicable Requirements and Compliance Activities
- ☐ DEP7007Y Good Engineering Practice and Stack Height Determination
- ☐ DEP7007AA Compliance Schedule for Non-complying Emission Units
- ☐ DEP7007BB Certified Progress Report
- ☐ DEP7007CC Compliance Certification
- ☐ DEP7007DD Insignificant Activities
- ☑ DEP7007EE Internal Combustion Engines
- ☐ DEP7007FF Secondary Aluminum Processing
- ☐ DEP7007GG Control Equipment
- ☑ DEP7007HH Haul Roads
- ☐ Confidentiality Claim
- ☐ Ownership Change Form
- ☐ Secretary of State Certificate
- ☑ Flowcharts or diagrams depicting process
- ☐ Digital Line Graphs (DLG) files of buldings, roads, etc.
- ☑ Site Map
- ☐ Map or drawing depicting location of facility
- ☐ Safety Data Sheet (SDS)
- ☐ Emergency Response Plan
- ☐ Other: ____________________

Section AI.6: Signature Block

I, the undersigned, hereby certify under penalty of law, that I am a responsible official*, and that I have personally examined, and am familiar with, the information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the information is on knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false or incomplete information, including the possibility of fine or imprisonment.

[signature] ____________________
Authorized Signature

3-4-24 ____________________
Date

Christopher Rice ____________________
Type or Printed Name of Signatory

VP + GM ____________________
Title of Signatory

*Responsible official as defined by 401 KAR 52:001.

Division for Air Quality 300 Sower Boulevard Frankfort, KY 40601 (502) 564-3999

DEP7007N

Source Emissions Profile

__ Section N.1: Emission Summary
__ Section N.2: Stack Information
__ Section N.3: Fugitive Information
__ Section N.4: Notes, Comments, and Explanations

Additional Documentation
___ Complete DEP7007AI

Source Name: **Nucor Steel Brandenburg**
KY EIS (AFS) #: 21- **1163-00044**
Permit #: **V-20-001 R1**
Agency Interest (AI) ID: **162861**
Date: **March 01, 2024**

N.1: Emission Summary

Emission Unit #	Emission Unit Name	Process ID	Process Name	Control Device Name	Control Device ID	Stack ID	Maximum Design Capacity *(SCC Units/hour)*	Pollutant	Uncontrolled Emission Factor *(lb/SCC Units)*	Emission Factor Source (e.g. AP-42, Stack Test, Mass Balance)	Capture Efficiency *(%)*	Control Efficiency *(%)*	Hourly Emissions		Annual Emissions	
													Uncontrolled Potential	Controlled Potential	Uncontrolled Potential	Controlled Potential
EU01	Melt Shop	01	Melt Shop	Melt Shop Baghouse	C0101	S0101	272	Filterable PM	9.37E+00	BACT Limit	99%	99%	2,549	25.49	11,164	111.6
		(see Note 1 of Section N.4 for EP's included in Melt Shop emissions)						PM10	2.71E+01	BACT Limit	99%	99%	7,364	73.64	32,253	322.5
		SCC:	30300908	tons of steel produced				PM2.5	1.77E+01	BACT Limit	99%	99%	4,815	48.15	21,088	210.9
							250	NOx	4.16E-01	BACT Limit	N/A	N/A	103.95	N/A	363.83	N/A
							250	CO	1.98E+00	BACT Limit	N/A	N/A	495.0	N/A	1,733	N/A
							250	SO2	3.47E-01	BACT Limit	N/A	N/A	86.63	N/A	303.19	N/A
								Lead	4.46E-04	Test Data	N/A	N/A	0.12	N/A	0.39	N/A
								Fluoride	1.76E-03	Test Data	N/A	N/A	0.47	N/A	1.53	N/A
								VOC	8.91E-02	BACT Limit	N/A	N/A	24.24	N/A	77.96	N/A
								CO2e	3.76E+02	BACT Limit	N/A	N/A	102,326	N/A	329,175	N/A
								Total HAPs	2.24E-03	Test Data	N/A	N/A	0.61	N/A	1.96	N/A
EU01	Melt Shop	01	Melt Shop Uncaptured	N/A	N/A	EU01F	272	Filterable PM	1.75E-03	AP-42	N/A	N/A	0.48	N/A	1.47	N/A
		(see Note 1 of Section N.4 for EP's included in Melt Shop emissions)						PM10	2.93E-03	AP-42	N/A	N/A	0.80	N/A	2.46	N/A
		SCC:	30300908	tons of steel produced				PM2.5	2.18E-03	AP-42	N/A	N/A	0.59	N/A	1.82	N/A
								NOx	4.20E-03	AP-42	N/A	N/A	1.14	N/A	3.68	N/A
								CO	2.00E-02	AP-42	N/A	N/A	5.44	N/A	17.50	N/A
								SO2	3.50E-03	AP-42	N/A	N/A	0.95	N/A	3.06	N/A
								VOC	9.00E-04	AP-42	N/A	N/A	0.24	N/A	0.79	N/A
								Lead	4.50E-06	AP-42	N/A	N/A	0.0012	N/A	0.00	N/A
								Fluoride	1.76E-05	AP-42	N/A	N/A	0.0048	N/A	0.02	N/A
								CO2e	3.80E+00	AP-42	N/A	N/A	1,033.60	N/A	3,325.00	N/A
								Total HAPs	2.26E-05	AP-42	N/A	N/A	0.01	N/A	0.02	N/A

Emission Unit #	Emission Unit Name	Process ID	Process Name	Control Device Name	Control Device ID	Stack ID	Maximum Design Capacity (SCC Units/hour)	Pollutant	Uncontrolled Emission Factor (lb/SCC Units)	Emission Factor Source (e.g. AP-42, Stack Test, Mass Balance)	Capture Efficiency (%)	Control Efficiency (%)	Hourly Emissions		Annual Emissions	
													Uncontrolled Potential	Controlled Potential	Uncontrolled Potential	Controlled Potential
EU01	Melt Shop	EP 01-01	EAF Oxy-fuel Burners	N/A	N/A	S0101	0.12	CO2e	8.28E-06	AP-42	N/A	N/A	14,166	N/A	62,047	N/A
		(All other pollutant emissions are included in Melt Shop baghouse and fugit						Total HAPs	5.31E-01	AP-42	N/A	N/A	0.22	N/A	0.97	N/A
EU01	Melt Shop	EP 01-03	Vacuum Degasser	N/A	N/A	S0103	272	Filterable PM	2.28E-04	BACT Limit	N/A	N/A	0.06	N/A	0.27	N/A
		SCC:	30300999	tons of steel produced				PM10	2.28E-04	BACT Limit	N/A	N/A	0.06	N/A	0.27	N/A
								PM2.5	2.28E-04	BACT Limit	N/A	N/A	0.06	N/A	0.27	N/A
								NOx	5.00E-03	BACT Limit	N/A	N/A	1.36	N/A	4.38	N/A
								CO	7.50E-02	BACT Limit	N/A	N/A	20.40	N/A	65.63	N/A
								SO2	5.00E-03	BACT Limit	N/A	N/A	1.36	N/A	4.38	N/A
								Lead	8.63E-07	BACT Limit	N/A	N/A	2.35E-04	N/A	1.03E-03	N/A
								VOC	5.00E-03	BACT Limit	N/A	N/A	1.36	N/A	4.38	N/A
								CO2e	2.87E+00	BACT Limit	N/A	N/A	780.64	N/A	2,511.25	N/A
EU01	Melt Shop	EP 01-05	Caster Spray Vent	N/A	N/A	S0105	420	Filterable PM	0.03	BACT Limit	N/A	N/A	12.50	N/A	54.75	N/A
		SCC:	30300922	tons of steel produced				PM10	4.76E-03	BACT Limit	N/A	N/A	2.00	N/A	8.76	N/A
								PM2.5	5.95E-04	BACT Limit	N/A	N/A	0.25	N/A	1.10	N/A
								VOC	0.01	BACT Limit	N/A	N/A	4.40	N/A	19.27	N/A
								Total HAPs	7.09E-04	Test Data	N/A	N/A	0.30	N/A	1.30	N/A
EU01	Melt Shop	EP 01-06	Primary Caster Torch Cut Off	N/A	N/A	RMMV	420	Filterable PM	1.88E-04	BACT Limit	N/A	N/A	0.08	N/A	0.35	N/A
		SCC:	30300929	tons of steel produced				PM10	2.13E-04	BACT Limit	N/A	N/A	0.09	N/A	0.39	N/A
								PM2.5	2.13E-04	BACT Limit	N/A	N/A	0.09	N/A	0.39	N/A
								NOx	4.39E-04	BACT Limit	N/A	N/A	0.18	N/A	0.81	N/A
								CO	3.68E-04	AP-42	N/A	N/A	0.15	N/A	0.68	N/A
								SO2	2.63E-06	AP-42	N/A	N/A	0.001	N/A	0.005	N/A
								Lead	2.11E-08	AP-42	N/A	N/A	8.86E-06	N/A	3.88E-05	N/A
								VOC	2.41E-05	AP-42	N/A	N/A	0.01	N/A	0.04	N/A
								CO2e	5.29E-01	AP-42	N/A	N/A	222.35	N/A	973.90	N/A
EU01	Melt Shop	EP 01-07	Melt Shop Baghouse Dust Silo and Loadout	Melt Shop Baghouse Dust Silo Bin Ventt	C0107	S0107	6.8	Filterable PM	1.13E+00	BACT Limit	N/A	99%	7.71	0.08	0.37	0.34
		SCC:	30300999	tons of steel produced				PM10	1.13E+00	BACT Limit	N/A	99%	7.71	0.08	0.37	0.34
								PM2.5	1.13E+00	BACT Limit	N/A	99%	7.71	0.08	0.37	0.34

Emission Unit #	Emission Unit Name	Process ID	Process Name	Control Device Name	Control Device ID	Stack ID	Maximum Design Capacity *(SCC Units/hour)*	Pollutant	Uncontrolled Emission Factor *(lb/SCC Units)*	Emission Factor Source (e.g. AP-42, Stack Test, Mass Balance)	Capture Efficiency *(%)*	Control Efficiency *(%)*	Hourly Emissions		Annual Emissions	
													Uncontrolled Potential	Controlled Potential	Uncontrolled Potential	Controlled Potential
EU01	Melt Shop	EP 01-08A	Tundish Preparation - Tundish Dump Station	N/A	N/A	N/A	2.7	Filterable PM	8.80E-03	AP-42	N/A	N/A	0.02	N/A	0.10	N/A
		SCC:	30,300,999	tons of refractor				PM10	4.30E-03	AP-42	N/A	N/A	0.01	N/A	0.05	N/A
								PM2.5	1.60E-03	AP-42	N/A	N/A	0.00	N/A	0.02	N/A
EU01	Melt Shop	EP 01-08B	Tundish Preparation - Tundish Relining Station	N/A	N/A	S0101	1.35		Emissions are included in the Melt Shop Baghouse and Fugitive Totals							
EU01	Melt Shop	EP 01-09	Ladle Preparation	N/A	N/A	S0101	36.00	ncluded in the Melt Shop Baghouse and Fugitive Totals								
EU01	Melt Shop	EP 01-10	Furnace Refractory Cleanout	N/A	N/A	S0101	3.13	ncluded in the Melt Shop Baghouse and Fugitive Totals								
EU01	Melt Shop	EP 01-11	Caster Quench Box	N/A	N/A	S0111	420.00	Filterable PM	4.93E-01	BACT Limit	N/A	N/A	3.35	N/A	14.68	N/A
		SCC:	30,300,922	tons of steel produced				PM10	7.89E-02	BACT Limit	N/A	N/A	0.54	N/A	2.35	N/A
								PM2.5	9.86E-03	BACT Limit	N/A	N/A	0.07	N/A	0.29	N/A
EU01	Melt Shop	EP 01-12	Secondary Caster Torch Cut Off	N/A	N/A	RMMV	420.00	Filterable PM	2.08E-04	BACT Limit	N/A	N/A	0.09	N/A	0.38	N/A
		SCC:	30300929	tons of steel processed				PM10	2.34E-04	BACT Limit	N/A	N/A	0.10	N/A	0.43	N/A
								PM2.5	2.34E-04	BACT Limit	N/A	N/A	0.10	N/A	0.43	N/A
								NOX	4.55E-04	BACT Limit	N/A	N/A	0.19	N/A	0.84	N/A
								CO	3.82E-04	AP-42	N/A	N/A	0.16	N/A	0.70	N/A
								SO2	2.73E-06	AP-42	N/A	N/A	0.00	N/A	0.01	N/A
								Lead	2.27E-09	AP-42	N/A	N/A	0.00	N/A	0.00	N/A
								VOC	2.50E-05	AP-42	N/A	N/A	0.01	N/A	0.05	N/A
								CO2e	5.49E-01	AP-42	N/A	N/A	230.49	N/A	1009.56	N/A
								Total HAP	1.29E-05	AP-42	N/A	N/A	0.01	N/A	0.02	N/A
EU03	Hot Roling Mill	EP 03-10A	Ingot Grinding - Baghouse	Ingot Grinding Baghouse	C0310	S0310	225.00	Filterable PM	1.00E-01	Emission Inventory Improvement Program (EIIP), Volume II, Chapter 14 for Steel Manufacturing scarfing (3-03-009-32)	95%	99%	22.50	2.07	98.55	9.07

Emission Unit #	Emission Unit Name	Process ID	Process Name	Control Device Name	Control Device ID	Stack ID	Maximum Design Capacity (SCC Units/hour)	Pollutant	Uncontrolled Emission Factor (lb/SCC Units)	Emission Factor Source (e.g. AP-42, Stack Test, Mass Balance)	Capture Efficiency (%)	Control Efficiency (%)	Hourly Emissions		Annual Emissions	
													Uncontrolled Potential	Controlled Potential	Uncontrolled Potential	Controlled Potential
		SCC:	30,400,732	tons of steel processed				PM10	1.00E-01	Emission Inventory Improvement Program (EIIP), Volume II, Chapter 14 for Steel Manufacturing scarfing (3-03-009-32)	95%	99%	22.50	2.07	98.55	9.07
								PM2.5	5.00E-02	Emission Inventory Improvement Program (EIIP), Volume II, Chapter 14 for Steel Manufacturing scarfing (3-03-009-32)	95%	99%	11.25	1.04	49.28	4.54
								Lead	4.64E-03	Stack testing at similar Nucor facilities	95%	99%	1.04	0.01	4.57	0.05
								Total HAP	3.16E-02	Stack testing at similar Nucor facilities	95%	99%	7.10	0.07	31.11	0.31
EU03	Hot Rolling Mill	EP 03-10B	Ingot Grinding - Uncaptured	N/A	N/A	RMMV	225.00	Filterable PM	3.50E-03	BACT Limit	N/A	N/A	0.79	N/A	0.33	N/A
		SCC:	30,488,801	tons of steel processed				PM10	3.50E-03	BACT Limit	N/A	N/A	0.79	N/A	0.33	N/A
								PM2.5	1.75E-03	BACT Limit	N/A	N/A	0.39	N/A	0.16	N/A
								Lead	1.76E-05	Stack testing at similar Nucor facilities	N/A	N/A	0.00	N/A	0.00	N/A
								Total HAP	1.20E-04	Stack testing at similar Nucor facilities	N/A	N/A	0.03	N/A	0.01	N/A
EU03	Hot Rolling Mill	EP 03-11	Ingot Grinding Oxy-Fuel Cutting Torch	N/A	N/A	RMMV	225.00	Filterable PM	3.37E-04	Filterable PM/PM10/PM2.5 emission factor based on Fumes and Gases in the Welding Environment, the American Welding Society, dated 01/90.	N/A	N/A	0.08	N/A	0.33	N/A

Emission Unit #	Emission Unit Name	Process ID	Process Name	Control Device Name	Control Device ID	Stack ID	Maximum Design Capacity (SCC Units/hour)	Pollutant	Uncontrolled Emission Factor (lb/SCC Units)	Emission Factor Source (e.g. AP-42, Stack Test, Mass Balance)	Capture Efficiency (%)	Control Efficiency (%)	Hourly Emissions		Annual Emissions	
													Uncontrolled Potential	Controlled Potential	Uncontrolled Potential	Controlled Potential
		SCC:	30,904,600	tons of steel processed				PM10	3.49E-04		N/A	N/A	0.08	N/A	0.34	N/A
								PM2.5	3.49E-04		N/A	N/A	0.08	N/A	0.34	N/A
								NOX	2.07E-04	AP-42	N/A	N/A	0.05	N/A	0.20	N/A
								CO	1.74E-04	AP-42	N/A	N/A	0.04	N/A	0.17	N/A
								SO2	1.24E-06	AP-42	N/A	N/A	2.79E-04	N/A	0.001	N/A
								Lead	3.60E-08	Welding Environment, the American Welding Society, dated 01/90 & AP-42	N/A	N/A	0.00	N/A	0.00	N/A
								VOC	1.14E-05	AP-42	N/A	N/A	0.00	N/A	0.01	N/A
								CO2e	2.49E-01	AP-42	N/A	N/A	56.13	N/A	245.86	N/A
								Total HAP	1.45E-05	Welding Environment, the American Welding Society, dated 01/90 & AP-42	N/A	N/A	0.00	N/A	0.01	N/A
EU02	Melt Shop Appurtenant Natural Gas Combustion Sources	EP 02-01	Ladle Preheaters	N/A	N/A	S0101	0.09	CO2e	1.21E+05	AP-42	N/A	N/A	11,242.89	N/A	49,243.84	N/A
		(All other pollutant emissions are included in Melt Shop baghouse and fugitive emissions)						Total HAPs	1.88E+00	AP-42	N/A	N/A	0.18	N/A	0.77	N/A
EU02	Melt Shop Appurtenant Natural Gas Combustion Sources	EP 02-02	Ladle Dryer													
~~EU02~~	~~Melt Shop Appurtenant Natural Gas Combustion Sources~~	~~EP 02-03~~	~~Tundish Preheater~~	N/A	N/A	S0101	0.02	CO2e	1.21E+05	AP-42	N/A	N/A	2,586.81	N/A	11,330.23	N/A

Emission Unit #	Emission Unit Name	Process ID	Process Name	Control Device Name	Control Device ID	Stack ID	Maximum Design Capacity (SCC Units/hour)	Pollutant	Uncontrolled Emission Factor (lb/SCC Units)	Emission Factor Source (e.g. AP-42, Stack Test, Mass Balance)	Capture Efficiency (%)	Control Efficiency (%)	Hourly Emissions		Annual Emissions	
													Uncontrolled Potential	Controlled Potential	Uncontrolled Potential	Controlled Potential
		(All other pollutant emissions are included in Melt Shop baghouse and fugitive emissions)							1.88E+00	AP-42	N/A	N/A	0.04	N/A	0.18	N/A
EU02	Melt Shop Appurtenant Natural Gas Combustion Sources	EP 02-04	Tundish Drye	N/A	N/A	S0101	0.01	CO2e	1.21E+05	AP-42	N/A	N/A	1,293.05	N/A	5,663.56	N/A
		(All other pollutant emissions are included in Melt Shop baghouse and fugitive emissions)							1.88E+00	AP-42	N/A	N/A	0.02	N/A	0.09	N/A
EU02	Melt Shop Appurtenant Natural Gas Combustion Sources	EP 02-05	Tundish Mar	N/A	N/A	S0101	0.01	CO2e	1.21E+05	AP-42	N/A	N/A	1,183.46	N/A	5,183.56	N/A
		(All other pollutant emissions are included in Melt Shop baghouse and fugitive emissions)							1.88E+00	AP-42	N/A	N/A	0.02	N/A	0.08	N/A

Emission Unit #	Emission Unit Name	Process ID	Process Name	Control Device Name	Control Device ID	Stack ID	Maximum Design Capacity (SCC Units/hour)	Pollutant	Uncontrolled Emission Factor (lb/SCC Units)	Emission Factor Source (e.g. AP-42, Stack Test, Mass Balance)	Capture Efficiency (%)	Control Efficiency (%)	Hourly Emissions		Annual Emissions	
													Uncontrolled Potential	Controlled Potential	Uncontrolled Potential	Controlled Potential
EU02	Melt Shop Appurtenant Natural Gas Combustion Sources	EP 02-06	Tundish SEN	N/A	N/A	S0101	0.00	CO2e	1.21E+05	AP-42	N/A	N/A	336.10	N/A	1,472.13	N/A
		(All other pollutant emissions are included in Melt Shop baghouse and fugitive emissions)							1.88E+00	AP-42	N/A	N/A	0.01	N/A	0.02	N/A
EU03	Hot Rolling Mill	EP 03-01	Walking Bea	N/A	N/A	S0301	0.35	Total PM	7.60E+00	BACT Limit	N/A	N/A	2.68	N/A	11.82	N/A
		SCC:	30390003	Million cubic feet burned				Filterable PM	1.90E+00	BACT Limit	N/A	N/A	0.67	N/A	2.96	N/A
								PM10	7.60E+00	BACT Limit	N/A	N/A	2.68	N/A	11.82	N/A
								PM2.5	7.60E+00	BACT Limit	N/A	N/A	2.68	N/A	11.82	N/A
								NOx	7.14E+01	BACT Limit	N/A	N/A	25.20	N/A	111.05	N/A
								CO	8.40E+01	BACT Limit	N/A	N/A	29.65	N/A	130.64	N/A
								SO2	6.00E-01	AP-42	N/A	N/A	0.21	N/A	0.93	N/A
								Lead	5.00E-04	AP-42	N/A	N/A	1.76E-04	N/A	7.78E-04	N/A
								VOC	5.50E+00	BACT Limit	N/A	N/A	1.94	N/A	8.55	N/A
								CO2e	1.21E+05	AP-42	N/A	N/A	42,604.62	N/A	187,744.37	N/A
EU03	Hot Rolling Mill	EP 03-02	Ingot Bogie Hearth Furnaces	N/A	N/A	S0302	0.12	Total PM	7.60E+00	BACT Limit	N/A	N/A	0.92	N/A	4.01	N/A
		SCC:	30390003	Million cubic feet burned				Filterable PM	1.90E+00	BACT Limit	N/A	N/A	0.23	N/A	1.00	N/A
								PM10	7.60E+00	BACT Limit	N/A	N/A	0.92	N/A	4.01	N/A
								PM2.5	7.60E+00	BACT Limit	N/A	N/A	0.92	N/A	4.01	N/A
								NOx	1.22E+02	BACT Limit	N/A	N/A	14.76	N/A	64.65	N/A
								CO	8.40E+01	BACT Limit	N/A	N/A	10.13	N/A	44.37	N/A
								SO2	6.00E-01	AP-42	N/A	N/A	0.07	N/A	0.32	N/A
								Lead	5.00E-04	AP-42	N/A	N/A	6.03E-05	N/A	2.64E-04	N/A
								VOC	5.50E+00	BACT Limit	N/A	N/A	0.66	N/A	2.90	N/A
								CO2e	1.21E+05	AP-42	N/A	N/A	14,556.58	N/A	63,757.82	N/A
EU03	Hot Rolling Mill	EP 03-03	Roughing Mill Stand	N/A	N/A	RMMV	333	Total PM	2.91E-03	Engineering eval. at similar Nucor facilities	N/A	N/A	0.97	N/A	4.25	N/A
		SCC:	30300931	tons of steel produced				Filterable PM	2.43E-03		N/A	N/A	0.81	N/A	3.54	N/A
								PM10	2.77E-03		N/A	N/A	0.92	N/A	4.04	N/A

Emission Unit #	Emission Unit Name	Process ID	Process Name	Control Device Name	Control Device ID	Stack ID	Maximum Design Capacity (SCC Units/hour)	Pollutant	Uncontrolled Emission Factor (lb/SCC Units)	Emission Factor Source (e.g. AP-42, Stack Test, Mass Balance)	Capture Efficiency (%)	Control Efficiency (%)	Hourly Emissions Uncontrolled Potential	Hourly Emissions Controlled Potential	Annual Emissions Uncontrolled Potential	Annual Emissions Controlled Potential
								PM2.5	1.08E-03		N/A	N/A	0.36	N/A	1.57	N/A
								VOC	4.52E-03		N/A	N/A	1.50	N/A	3.95	N/A
								CO2e	1.72E-01	Engineering eval. At similar Nucor facilities & EPA paper	N/A	N/A	57.36	N/A	150.72	N/A
EU03	Hot Rolling Mill	EP 03-04A	Steckel Mill Finishing Stand - Scrubber	Steckel Mill Wet Scrubber	C0304	S0304	250	Filterable PM	6.88E-01	Scrubber design specification	95%	99%	171.88	1.72	752.85	7.53
		SCC:	#########	tons of steel produced				PM10	6.88E-01		95%	99%	171.88	1.72	752.85	7.53
								PM2.5	3.44E-01		95%	99%	85.94	0.86	376.42	3.76
								VOC	6.46E-03	Engineering eval. at similar Nucor facilities	N/A	N/A	1.62	N/A	5.66	N/A
								CO2e	2.46E-01		N/A	N/A	61.60	N/A	215.59	N/A
								Total HAP	1.22E-03		N/A	N/A	0.30	N/A	1.07	N/A
EU03	Hot Rolling Mill	EP 03-04B	Steckel Mill Finishing Stand - RMMV	N/A	N/A	RMMV	250	Filterable PM	8.00E-03	Scrubber design specification	N/A	N/A	2.00	N/A	8.76	N/A
		SCC:	#########	tons of steel produced				PM10	6.27E-03		N/A	N/A	1.57	N/A	6.87	N/A
								PM2.5	2.18E-03		N/A	N/A	0.55	N/A	2.39	N/A
								VOC	3.40E-04	Engineering eval. at similar Nucor facilities	N/A	N/A	0.09	N/A	0.30	N/A
								CO2e	1.30E-02		N/A	N/A	3.24	N/A	11.35	N/A
								Total HAP	6.41E-05		N/A	N/A	0.02	N/A	0.06	N/A
EU03	Hot Rolling Mill	EP 03-05	Steckel Mill Coiling Furnaces	N/A	N/A	S0305	0.022	Total PM	7.60E+00	AP-42	N/A	N/A	0.17	N/A	0.73	N/A
		SCC:	30390003	Million cubic feet burned				Filterable PM	1.90E+00	AP-42	N/A	N/A	0.04	N/A	0.18	N/A
								PM10	7.60E+00	AP-42	N/A	N/A	0.17	N/A	0.73	N/A
								PM2.5	7.60E+00	AP-42	N/A	N/A	0.17	N/A	0.73	N/A
								NOx	8.16E+01	AP-42	N/A	N/A	1.79	N/A	7.84	N/A
								CO	8.40E+01	AP-42	N/A	N/A	1.84	N/A	8.07	N/A
								SO2	6.00E-01	AP-42	N/A	N/A	0.01	N/A	0.06	N/A
								Lead	5.00E-04	AP-42	N/A	N/A	0.00	N/A	0.00	N/A
								VOC	5.50E+00	AP-42	N/A	N/A	0.12	N/A	0.53	N/A
								CO2e	1.21E+05	AP-42	N/A	N/A	2,648.71	N/A	11,601.33	N/A
								Total HAPs	1.89E+00	AP-42	N/A	N/A	0.04	N/A	0.18	N/A

Emission Unit #	Emission Unit Name	Process ID	Process Name	Control Device Name	Control Device ID	Stack ID	Maximum Design Capacity (SCC Units/hour)	Pollutant	Uncontrolled Emission Factor (lb/SCC Units)	Emission Factor Source (e.g. AP-42, Stack Test, Mass Balance)	Capture Efficiency (%)	Control Efficiency (%)	Hourly Emissions Uncontrolled Potential	Hourly Emissions Controlled Potential	Annual Emissions Uncontrolled Potential	Annual Emissions Controlled Potential
EU03	Hot Rolling Mill	EP 03-06A	Coil Sample Plasma Cutter - Baghouse	Coil Sample Plasma Cutter - Baghouse Dust Collector	C0306	S0306	250	Filterable PM	1.76E-02	Specific gravity and fume generation rate based on data provided by the Swedish Institute of Production Engineering Research (https://www3.epa.gov/ttnchie1/efdocs/welding.pdf)	95%	99%	4.41	0.04	2.20	0.02
		SCC:	30,903,008	tons of steel processed				PM10	1.76E-02		95%	99%	4.41	0.04	2.20	0.02
								PM2.5	1.76E-02		95%	99%	4.41	0.04	2.20	0.02
								NOx	2.18E-03		N/A	N/A	0.55	N/A	2.39	N/A
								Total HAP	5.51E-04		95%	99%	0.14	0.0014	0.07	0.0007
EU03	Hot Rolling Mill	EP 03-06B	Coil Sample Plasma Cutter - Uncaptured	N/A	N/A	RMMV	250	Filterable PM	2.78E-04	Specific gravity and fume generation rate based on data provided by the Swedish Institute of Production Engineering Research (https://www3.epa.gov/ttnchie1/efdocs/welding.pdf)	N/A	N/A	0.07	N/A	0.03	N/A
		SCC:	30,903,008	tons of steel processed				PM10	2.78E-04		N/A	N/A	0.07	N/A	0.03	N/A
								PM2.5	2.78E-04		N/A	N/A	0.07	N/A	0.03	N/A
								NOx	1.15E-04		N/A	N/A	0.03	N/A	0.13	N/A
								Total HAP	8.70E-06		N/A	N/A	0.00	N/A	0.00	N/A
EU03	Hot Rolling Mill	EP 03-07	Coil Tagger	N/A	N/A	RMMV	250	Filterable PM	5.46E-05	SDS	N/A	N/A	0.01	N/A	0.01	N/A
		SCC:	30,300,936	tons of steel produced				PM10	5.46E-05	SDS	N/A	N/A	0.01	N/A	0.01	N/A
								PM2.5	5.46E-05	SDS	N/A	N/A	0.01	N/A	0.01	N/A
								VOC	7.67E-04	SDS	N/A	N/A	0.19	N/A	0.10	N/A

Emission Unit #	Emission Unit Name	Process ID	Process Name	Control Device Name	Control Device ID	Stack ID	Maximum Design Capacity (SCC Units/hour)	Pollutant	Uncontrolled Emission Factor (lb/SCC Units)	Emission Factor Source (e.g. AP-42, Stack Test, Mass Balance)	Capture Efficiency (%)	Control Efficiency (%)	Hourly Emissions		Annual Emissions	
													Uncontrolled Potential	Controlled Potential	Uncontrolled Potential	Controlled Potential
EU03	Hot Rolling Mill	EP 03-08	Rolling Mill Oxy-Fuel Plate Cutting Torch	Rolling Mill Oxy-Fuel Plate Cutting Torch Dust Collector	N/A	RMMV	750	Filterable PM	1.00E-04	Filterable PM/PM10/PM2.5 emission factor based on Fumes and Gases in the Welding Environment, the American Welding Society, dated 01/90.	N/A	N/A	0.08	N/A	0.33	N/A
		SCC:	30300929	tons of steel processed				PM10	1.00E-04		N/A	N/A	0.08	N/A	0.33	N/A
								PM2.5	1.00E-04		N/A	N/A	0.075	N/A	0.329	N/A
								NOX	1.33E-06	AP-42	N/A	N/A	0.001	N/A	0.004	N/A
								CO	1.12E-06	AP-42	N/A	N/A	0.001	N/A	0.004	N/A
								SO2	8.00E-09	AP-42	N/A	N/A	6.00E-06	N/A	2.63E-05	N/A
								Lead	1.05E-08	AP-42	N/A	N/A	7.88E-06	N/A	3.45E-05	N/A
								VOC	7.33E-08	AP-42	N/A	N/A	5.50E-05	N/A	2.41E-04	N/A
								CO2e	1.61E-03	AP-42	N/A	N/A	1.207	N/A	5.287	N/A
								Total HAP	2.17E-06	SDS & AP-42	N/A	N/A	0.002	N/A	0.007	N/A
EU03	Hot Rolling Mill	EP 03-09	Rolling Mill Oxy-Fuel Coil Cutting Torch	Rolling Mill Oxy-Fuel Coil Cutting Torch Dust Collector	N/A	RMMV	750	Filterable PM	1.00E-04	Filterable PM/PM10/PM2.5 emission factor based on Fumes and Gases in the Welding Environment, the American Welding Society, dated 01/90.	N/A	N/A	0.08	N/A	0.33	N/A
		SCC:	30300929	tons of steel processed				PM10	1.00E-04		N/A	N/A	0.08	N/A	0.33	N/A
								PM2.5	1.00E-04		N/A	N/A	0.075	N/A	0.329	N/A
								NOX	1.33E-06	AP-42	N/A	N/A	0.001	N/A	0.004	N/A
								CO	1.12E-06	AP-42	N/A	N/A	0.001	N/A	0.004	N/A
								SO2	8.00E-09	AP-42	N/A	N/A	0.000	N/A	0.000	N/A
								Lead	1.05E-08	AP-42	N/A	N/A	0.000	N/A	0.000	N/A
								VOC	7.33E-08	AP-42	N/A	N/A	0.000	N/A	0.000	N/A
								CO2e	1.61E-03	AP-42	N/A	N/A	1.207	N/A	5.287	N/A
								Total HAP	2.17E-06	SDS & AP-42	N/A	N/A	0.002	N/A	0.007	N/A
EU04	Continuous Heat Treat Line	EP 04-01	Shot Blaster	Shot Blaster Dust Collector	C0401	S0401	50	Filterable PM	1.71E+00	SDS & AP-42	100%	99%	85.28	0.85	373.54	3.72

Emission Unit #	Emission Unit Name	Process ID	Process Name	Control Device Name	Control Device ID	Stack ID	Maximum Design Capacity (SCC Units/hour)	Pollutant	Uncontrolled Emission Factor (lb/SCC Units)	Emission Factor Source (e.g. AP-42, Stack Test, Mass Balance)	Capture Efficiency (%)	Control Efficiency (%)	Hourly Emissions Uncontrolled Potential	Hourly Emissions Controlled Potential	Annual Emissions Uncontrolled Potential	Annual Emissions Controlled Potential
		SCC:	30300999	tons of steel processed				PM10	1.71E+00	Design Grain Loading	100%	99%	85.28	0.85	373.5	3.72
								PM2.5	1.71E+00	Design Grain Loading	100%	99%	85.28	0.85	373.5	3.72
EU04	Continuous Heat Treat Line	EP 04-02	Austenitizing Furnace	N/A	N/A	S0402	0.073	Total PM	7.60E+00	AP-42	N/A	N/A	0.55	N/A	2.42	N/A
		SCC:	30390003	Million cubic feet burned				Filterable PM	1.90E+00	AP-42	N/A	N/A	0.14	N/A	0.61	N/A
								PM10	7.60E+00	AP-42	N/A	N/A	0.55	N/A	2.42	N/A
								PM2.5	7.60E+00	AP-42	N/A	N/A	0.55	N/A	2.42	N/A
								NOx	1.60E+02	Vendor specs	N/A	N/A	11.64	N/A	51.00	N/A
								CO	8.86E+01	Vendor specs	N/A	N/A	6.45	N/A	28.24	N/A
								SO2	6.00E-01	AP-42	N/A	N/A	0.04	N/A	0.19	N/A
								Lead	5.00E-04	AP-42	N/A	N/A	0.00	N/A	0.00	N/A
								VOC	5.50E+00	AP-42	N/A	N/A	0.40	N/A	1.75	N/A
								CO2e	1.21E+05	AP-42	N/A	N/A	8,784.84	N/A	38,477.58	N/A
								Total HAPs	1.89E+00	Vendor specs & AP-42	N/A	N/A	0.14	N/A	0.60	N/A
EU04	Continuous Heat Treat Line	EP 04-03	Tempering Furnace	N/A	N/A	S0403	0.043	Total PM	7.60E+00	AP-42	N/A	N/A	0.32	N/A	1.42	N/A
		SCC:	30390003	Million cubic feet burned				Filterable PM	1.90E+00	AP-42	N/A	N/A	0.08	N/A	0.35	N/A
								PM10	7.60E+00	AP-42	N/A	N/A	0.32	N/A	1.42	N/A
								PM2.5	7.60E+00	AP-42	N/A	N/A	0.32	N/A	1.42	N/A
								NOx	1.60E+02	Vendor specs	N/A	N/A	6.82	N/A	29.87	N/A
								CO	1.54E+02	Vendor specs	N/A	N/A	6.56	N/A	28.75	N/A
								SO2	6.00E-01	AP-42	N/A	N/A	0.03	N/A	0.11	N/A
								Lead	5.00E-04	AP-42	N/A	N/A	0.00	N/A	0.00	N/A
								VOC	5.50E+00	AP-42	N/A	N/A	0.23	N/A	1.03	N/A
								CO2e	1.21E+05	AP-42	N/A	N/A	5,145.69	N/A	22,538.13	N/A
								Total HAPs	1.89E+00	AP-42	N/A	N/A	0.08	N/A	0.35	N/A
EU04	Continuous Heat Treat Line	EP 04-04	Continuous Heat Treat Plasma Cutting	Continuous Heat Treat Plasma Cutting Dust Collector	C0404	FBRV	50	Filterable PM	4.39E-01	Specific gravity and fume generation rate based on data provided by the Swedish Institute of Production Engineering Research (https://www3.epa.gov/ttnchie1/efdocs/welding.pdf)	95%	99%	21.96	0.209	96.18	0.914

Emission Unit #	Emission Unit Name	Process ID	Process Name	Control Device Name	Control Device ID	Stack ID	Maximum Design Capacity (SCC Units/hour)	Pollutant	Uncontrolled Emission Factor (lb/SCC Units)	Emission Factor Source (e.g. AP-42, Stack Test, Mass Balance)	Capture Efficiency (%)	Control Efficiency (%)	Hourly Emissions Uncontrolled Potential	Hourly Emissions Controlled Potential	Annual Emissions Uncontrolled Potential	Annual Emissions Controlled Potential
		SCC:	30,903,008	tons of steel processed				PM10	4.39E-01		95%	99%	21.96	0.209	96.18	0.91
								PM2.5	4.39E-01		95%	99%	21.96	0.209	96.18	0.91
								NOx	1.87E-02		N/A	N/A	0.93	N/A	4.09	N/A
								Total HAP	1.30E-04		95%	99%	0.69	0.01	21.65	0.21
EU04	Continuous Heat Treat Line	EP 04-05	Continuous Heat Treat Entry Tagger	N/A	N/A	FBRV	125	Filterable PM	7.52E-07	SDS	N/A	N/A	9.40E-05	N/A	1.27E-04	N/A
		SCC:	30,300,936	tons of steel produced				PM10	7.52E-07	SDS	N/A	N/A	0.0001	N/A	0.0001	N/A
								PM2.5	7.52E-07	SDS	N/A	N/A	0.0001	N/A	0.0001	N/A
								VOC	2.46E-04	SDS	N/A	N/A	0.0308	N/A	0.0417	N/A
EU04	Continuous Heat Treat Line	EP 04-06	Continuous Heat Treat Exit Tagger	N/A	N/A	FBRV	125	Filterable PM	1.06E-05	SDS	N/A	N/A	0.001	N/A	0.002	N/A
		SCC:	30,300,936	tons of steel produced				PM10	1.06E-05	SDS	N/A	N/A	0.0013	N/A	0.0018	N/A
								PM2.5	1.06E-05	SDS	N/A	N/A	0.0013	N/A	0.0018	N/A
								VOC	3.47E-03	SDS	N/A	N/A	0.4336	N/A	0.5880	N/A
EU17	Light Plate Finishing Line	EP 17-01AA	Light Plate Burning Beds #1 & #2 Plasma Cutters - Baghouse	Light Plate Burning Beds #1 & #2 Dust Collectors	C1701A, B, C, D	S1701 A, B, C, D	500	Filterable PM	2.43E-02	Specific gravity and fume generation rate based on data provided by the Swedish Institute of Production Engineering Research (https://www3.epa.gov/ttnchie1/efdocs/welding.pdf)	95%	99%	12.14	0.12	53.17	0.53
		SCC:	30300929	tons of steel processed				PM10	2.43E-02		95%	99%	12.14	0.12	53.17	0.53
								PM2.5	2.43E-02		95%	99%	12.14	0.12	53.17	0.53
								NOx	1.99E-03		N/A	N/A	1.00	N/A	4.37	N/A
								Total HAP	7.21E-06		95%	99%	0.004	3.6027E-05	0.016	0.0001578

Emission Unit #	Emission Unit Name	Process ID	Process Name	Control Device Name	Control Device ID	Stack ID	Maximum Design Capacity (SCC Units/hour)	Pollutant	Uncontrolled Emission Factor (lb/SCC Units)	Emission Factor Source (e.g. AP-42, Stack Test, Mass Balance)	Capture Efficiency (%)	Control Efficiency (%)	Hourly Emissions		Annual Emissions	
													Uncontrolled Potential	Controlled Potential	Uncontrolled Potential	Controlled Potential
EU17	Light Plate Finishing Line	EP 17-01AB	Light Plate Burning Beds #1 & #2 Plasma Cutters - Uncaptured	N/A	N/A	PSVENT	500	Filterable PM	3.83E-04	Specific gravity and fume generation rate based on data provided by the Swedish Institute of Production Engineering Research (https://www3.epa.gov/ttnchie1/efdocs/welding.pdf)	N/A	N/A	0.19	N/A	0.84	N/A
		SCC:	30300929	tons of steel processed				PM10	3.83E-04		N/A	N/A	0.19	N/A	0.84	N/A
								PM2.5	3.83E-04		N/A	N/A	0.19	N/A	0.84	N/A
								NOx	1.05E-04		N/A	N/A	0.05	N/A	0.23	N/A
								Total HAP	1.14E-07		N/A	N/A	0.000	N/A	0.000	N/A
EU17	Light Plate Finishing Line	EP 17-01BA	Light Plate Burning Beds #1 & #2 Oxy Fuel Torches - Baghouse	Light Plate Burning Beds #1 & #2 Dust Collectors	C1701A, B, C, D	S1701 A, B, C, D	300	Filterable PM	2.71E-03	Filterable PM/PM10/PM2.5 emission factor based on Fumes and Gases in the Welding Environment, the American Welding Society, dated 01/90.	95%	99%	0.81	0.01	3.57	0.04
		SCC:	30300929	tons of steel processed				PM10	2.72E-03		95%	99%	0.81	0.01	3.57	0.04
								PM2.5	2.72E-03		95%	99%	0.81	0.01	3.57	0.04
								NOX	2.53E-05	AP-42	N/A	N/A	0.01	N/A	0.03	N/A
								CO	2.13E-05	AP-42	N/A	N/A	0.01	N/A	0.03	N/A
								SO2	1.52E-07	AP-42	N/A	N/A	4.56E-05	N/A	2.00E-04	N/A
								Lead	2.85E-07	AP-42	95%	99%	8.55E-05	8.5538E-07	3.75E-04	3.7466E-06
								VOC	1.39E-06	AP-42	N/A	N/A	4.18E-04	N/A	1.83E-03	N/A
								CO2e	3.06E-02	AP-42	N/A	N/A	9.17E+00	N/A	4.02E+01	N/A
								Total HAP	5.87E-05	SDS & AP-42	95%	99%	1.76E-02	0.0003	7.72E-02	0.0014

Emission Unit #	Emission Unit Name	Process ID	Process Name	Control Device Name	Control Device ID	Stack ID	Maximum Design Capacity (SCC Units/hour)	Pollutant	Uncontrolled Emission Factor (lb/SCC Units)	Emission Factor Source (e.g. AP-42, Stack Test, Mass Balance)	Capture Efficiency (%)	Control Efficiency (%)	Hourly Emissions		Annual Emissions	
													Uncontrolled Potential	Controlled Potential	Uncontrolled Potential	Controlled Potential
EU17	Light Plate Finishing Line	EP 17-01BB	Light Plate Burning Beds #1 & #2 Oxy Fuel Torches - Uncaptured	N/A	N/A	PSVENT	300	Filterable PM	4.29E-05	Filterable PM/PM10/PM2.5 emission factor based on Fumes and Gases in the Welding Environment, the American Welding Society, dated 01/90.	N/A	N/A	0.01	N/A	0.06	N/A
		SCC:	30300929	tons of steel processed				PM10	4.29E-05		N/A	N/A	0.01	N/A	0.06	N/A
								PM2.5	4.29E-05		N/A	N/A	0.013	N/A	0.056	N/A
								NOX	1.33E-06	AP-42	N/A	N/A	0.000	N/A	0.002	N/A
								CO	1.12E-06	AP-42	N/A	N/A	0.000	N/A	0.001	N/A
								SO2	8.00E-09	AP-42	N/A	N/A	0.000	N/A	0.000	N/A
								Lead	4.50E-09	AP-42	N/A	N/A	0.000	N/A	0.000	N/A
								VOC	7.33E-08	AP-42	N/A	N/A	0.000	N/A	0.000	N/A
								CO2e	1.61E-03	AP-42	N/A	N/A	0.483	N/A	2.115	N/A
								Total HAP	9.45E-07	SDS & AP-42	N/A	N/A	0.000	N/A	0.001	N/A
EU17	Light Plate Finishing Line	EP 17-02	Light Plate Finishing Line Tagger	N/A	N/A	FBRV	250	Filterable PM	1.27E-05	SDS	N/A	N/A	3.18E-03	N/A	4.52E-03	N/A
		SCC:	30,300,936	tons of steel produced				PM10	1.27E-05	SDS	N/A	N/A	0.003	N/A	0.005	N/A
								PM2.5	1.27E-05	SDS	N/A	N/A	0.003	N/A	0.005	N/A
								VOC	3.47E-03	SDS	N/A	N/A	0.867	N/A	1.233	N/A
EU05	Heavy Plate Processing	EP 05-01	Heavy Plate Car Bottom Furnaces #1-#4	N/A	N/A	S0501	0.180	Total PM	7.60E+00	BACT Limit	N/A	N/A	1.37	N/A	6.00	N/A
		SCC:	30390003	Million cubic feet burned				Filterable PM	1.90E+00	BACT Limit	N/A	N/A	0.34	N/A	1.50	N/A
								PM10	7.60E+00	BACT Limit	N/A	N/A	1.37	N/A	6.00	N/A
								PM2.5	7.60E+00	BACT Limit	N/A	N/A	1.37	N/A	6.00	N/A
								NOx	8.16E+01	BACT Limit	N/A	N/A	14.72	N/A	64.47	N/A
								CO	8.40E+01	BACT Limit	N/A	N/A	15.15	N/A	66.37	N/A
								SO2	6.00E-01	AP-42	N/A	N/A	0.11	N/A	0.47	N/A
								Lead	5.00E-04	AP-42	N/A	N/A	9.02E-05	N/A	3.95E-04	N/A
								VOC	5.50E+00	BACT Limit	N/A	N/A	0.99	N/A	4.35	N/A
								CO2e	1.21E+05	AP-42	N/A	N/A	21,775.70	N/A	95,377.55	N/A
								Total HAPs	1.89E+00	AP-42	N/A	N/A	0.34	N/A	1.49	N/A

Emission Unit #	Emission Unit Name	Process ID	Process Name	Control Device Name	Control Device ID	Stack ID	Maximum Design Capacity (SCC Units/hour)	Pollutant	Uncontrolled Emission Factor (lb/SCC Units)	Emission Factor Source (e.g. AP-42, Stack Test, Mass Balance)	Capture Efficiency (%)	Control Efficiency (%)	Hourly Emissions		Annual Emissions	
													Uncontrolled Potential	Controlled Potential	Uncontrolled Potential	Controlled Potential
EU05	Heavy Plate Processing	EP 05-02	Group 2 Heavy Plate Car Bottom Furnaces	N/A	N/A	S0502	0.059			BACT Limit	N/A	N/A	0.00	N/A	1.96	0.00
		~~SCC:~~	~~30390003~~	~~Million cubic feet burned~~												
EU05	Heavy Plate Processing	~~EP 05-03AA~~	~~Heavy Plate Burning Beds #1 - #3 - Baghouse~~	~~Burning Be~~	C0503A, B, C	S0503 A, B, C	440	Filterable PM	8.68E-03	Specific gravity and fume generation rate based on data provided by the Swedish Institute of Production Engineering Research (https://www3.epa.gov/ttnchie1/efdocs/welding.pdf)	95%	99%	3.82	0.038	16.74	0.17
		SCC:	30300929	tons of steel processed				PM10	8.68E-03		95%	99%	3.82	0.04	16.74	0.17
								PM2.5	8.68E-03		95%	99%	3.82	0.038	16.74	0.17
								NOx	3.02E-03		N/A	N/A	1.33	N/A	5.82	N/A
								Total HAP	2.71E-04		95%	99%	0.119	0.001	0.523	0.005
EU05	Heavy Plate Processing	EP 05-03AB	Heavy Plate Burning Beds #1 - #3 - Uncaptured	N/A	N/A	HPVENT	440	Filterable PM	1.37E-04	Specific gravity and fume generation rate based on data provided by the Swedish Institute of Production Engineering Research (https://www3.epa.gov/ttnchie1/efdocs/welding.pdf)	N/A	N/A	0.06	N/A	0.26	N/A
		SCC:	30300929	tons of steel processed				PM10	1.37E-04		N/A	N/A	0.06	N/A	0.26	N/A
								PM2.5	1.37E-04		N/A	N/A	0.06	N/A	0.26	N/A
								NOx	1.59E-04		N/A	N/A	0.07	N/A	0.31	N/A
								Total HAP	4.28E-06		N/A	N/A	0.002	N/A	0.008	N/A

Emission Unit #	Emission Unit Name	Process ID	Process Name	Control Device Name	Control Device ID	Stack ID	Maximum Design Capacity (SCC Units/hour)	Pollutant	Uncontrolled Emission Factor (lb/SCC Units)	Emission Factor Source (e.g. AP-42, Stack Test, Mass Balance)	Capture Efficiency (%)	Control Efficiency (%)	Hourly Emissions		Annual Emissions	
													Uncontrolled Potential	Controlled Potential	Uncontrolled Potential	Controlled Potential
EU05	Heavy Plate Processing	EP 05-03BA	Heavy Plate Burning Beds - Baghouse	Burning Bed Dust Collectors	C0503A, B, C	S0503 A, B, C	275	Filterable PM	4.44E-03	Filterable PM/PM10/PM2.5 emission factor based on Fumes and Gases in the Welding Environment, the American Welding Society, dated 01/90.	95%	99%	1.22	0.012	5.35	0.054
		SCC:	30300929	tons of steel processed				PM10	4.45E-03		95%	99%	1.22	0.01	5.36	0.054
								PM2.5	4.45E-03		95%	99%	1.22	0.01	5.36	0.05
								NOX	7.25E-05	AP-42	N/A	N/A	0.02	N/A	0.09	N/A
								CO	6.09E-05	AP-42	N/A	N/A	0.02	N/A	0.07	N/A
								SO2	4.35E-07	AP-42	N/A	N/A	1.20E-04	N/A	5.24E-04	N/A
								Lead	4.67E-07	AP-42	95%	99%	1.28E-04	1.2835E-06	5.62E-04	5.6217E-06
								VOC	3.99E-06	AP-42	N/A	N/A	1.10E-03	N/A	4.81E-03	N/A
								CO2e	8.76E-02	AP-42	N/A	N/A	24.0823	N/A	105.48	N/A
								Total HAP	9.67E-05	SDS & AP-42	95%	99%	0.03	0.001	0.12	0
EU05	Heavy Plate Processing	EP 05-03BB	Heavy Plate Burning Beds - Uncaptured	N/A	N/A	HPVENT	275	Filterable PM	7.02E-05	Filterable PM/PM10/PM2.5 emission factor based on Fumes and Gases in the Welding Environment, the American Welding Society, dated 01/90.	N/A	N/A	0.02	N/A	0.08	N/A
		SCC:	30300929	tons of steel processed				PM10	7.02E-05		N/A	N/A	0.02	N/A	0.08	N/A
								PM2.5	7.02E-05		N/A	N/A	0.019	N/A	0.085	N/A
								NOX	3.82E-06	AP-42	N/A	N/A	0.001	N/A	0.005	N/A
								CO	3.21E-06	AP-42	N/A	N/A	0.001	N/A	0.004	N/A
								SO2	2.29E-08	AP-42	N/A	N/A	0.000	N/A	0.000	N/A
								Lead	7.37E-09	AP-42	N/A	N/A	2.03E-06	N/A	8.88E-06	N/A
								VOC	2.10E-07	AP-42	N/A	N/A	5.78E-05	N/A	2.53E-04	N/A
								CO2e	4.61E-03	AP-42	N/A	N/A	1.27	N/A	5.55	N/A
								Total HAP	1.58E-06	SDS & AP-42	N/A	N/A	4.34E-04	N/A	1.90E-03	N/A
EU05	Heavy Plate Processing	EP 05-04	Heavy Plate Hand-Held Tagger	N/A	N/A	HPMV	440	Filterable PM	6.17E-08	SDS	N/A	N/A	2.71E-05	N/A	1.82E-05	N/A

Emission Unit #	Emission Unit Name	Process ID	Process Name	Control Device Name	Control Device ID	Stack ID	Maximum Design Capacity (SCC Units/hour)	Pollutant	Uncontrolled Emission Factor (lb/SCC Units)	Emission Factor Source (e.g. AP-42, Stack Test, Mass Balance)	Capture Efficiency (%)	Control Efficiency (%)	Hourly Emissions Uncontrolled Potential	Hourly Emissions Controlled Potential	Annual Emissions Uncontrolled Potential	Annual Emissions Controlled Potential
		SCC:	30300936	tons of steel produced				PM10	6.17E-08	SDS	N/A	N/A	2.71E-05	N/A	1.82E-05	N/A
								PM2.5	6.17E-08	SDS	N/A	N/A	0.00003	N/A	0.00002	N/A
								VOC	3.24E-05	SDS	N/A	N/A	0.01425	N/A	0.00728	N/A
EU06	Lime, Carbon, Alloy Handling Systems	EP 06-01A	EAF Flux & Carbon Handling - Baghouse	EAF Flux & Carbon Handling Baghouse	C0601	S0601	120	Filterable PM	5.37E-01	AP-42	98%	100%	64.42	0.06	29.53	0.03
		SCC:	30,300,999	tons of lime processed				PM10	2.54E-01	AP-42	98%	100%	30.47	0.03	13.97	0.01
								PM2.5	3.84E-02	AP-42	98%	100%	4.61	0.00	2.11	0.00
EU06	Lime, Carbon, Alloy Handling Systems	EP 06-01B	EAF Flux & Carbon Handling - Uncaptured	N/A	N/A	EP0601F	120	Filterable PM	1.80E-03	AP-42	N/A	N/A	0.22	N/A	0.10	N/A
		SCC:	30,300,999	tons of lime processed				PM10	8.49E-04	AP-42	N/A	N/A	0.10	N/A	0.05	N/A
								PM2.5	1.29E-04	AP-42	N/A	N/A	0.02	N/A	0.01	N/A
EU06	Lime, Carbon, Alloy Handling Systems	EP 06-02	EAF Lime Silos	Lime Silo Bin Vents	C0602A, B, C	S0602	20	Filterable PM	5.87E-01	Design Grain Loading	N/A	99%	11.74	0.12	51.43	0.51
		SCC:	30400737	tons of lime stored				PM10	5.91E-01	Design Grain Loading	N/A	99%	11.83	0.12	51.81	0.52
								PM2.5	5.91E-01	Design Grain Loading	N/A	99%	11.83	0.12	51.81	0.52
EU06	Lime, Carbon, Alloy Handling Systems	EP 06-03A	LMF Flux & Carbon Handling - Baghouse	LMF Flux & Carbon Handling and Alloy Dump Station Baghouse	C0605	S0605	120	Filterable PM	5.37E-01	AP-42	98%	100%	64.42	0.06	7.52	0.01
		SCC:	30,300,999	tons of carbon processed				PM10	2.54E-01	AP-42	98%	100%	30.47	0.03	3.55	0.00
								PM2.5	3.84E-02	AP-42	98%	100%	4.61	4.61E-03	0.54	5.38E-04
EU06	Lime, Carbon, Alloy Handling Systems	EP 06-03B	LMF Flux & Carbon Handling - Uncaptured	N/A	N/A	EP0603F	120	Filterable PM	1.80E-03	AP-42	N/A	N/A	0.22	N/A	0.03	N/A
		SCC:	30,300,999	tons of carbon processed				PM10	8.49E-04	AP-42	N/A	N/A	0.10	N/A	0.01	N/A

Emission Unit #	Emission Unit Name	Process ID	Process Name	Control Device Name	Control Device ID	Stack ID	Maximum Design Capacity (SCC Units/hour)	Pollutant	Uncontrolled Emission Factor (lb/SCC Units)	Emission Factor Source (e.g. AP-42, Stack Test, Mass Balance)	Capture Efficiency (%)	Control Efficiency (%)	Hourly Emissions		Annual Emissions	
													Uncontrolled Potential	Controlled Potential	Uncontrolled Potential	Controlled Potential
								PM2.5	1.29E-04	AP-42	N/A	N/A	0.02	N/A	1.80E-03	N/A
EU06	Lime, Carbon, Alloy Handling Systems	EP 06-04	EAF Carbon Silo	Carbon Silo Bin Vent	C0604	S0604	20	Filterable PM	1.97E-01	Design Grain Loading	N/A	99%	3.94	0.04	17.27	0.17
		SCC:	30400737	tons of carbon stored				PM10	1.97E-01	Design Grain Loading	N/A	99%	3.94	0.04	17.27	0.17
								PM2.5	1.97E-01	Design Grain Loading	N/A	99%	3.94	0.04	17.27	0.17
EU06	Lime, Carbon, Alloy Handling Systems	EP 06-05A	LMF Alloy Handling - Baghouse	LMF Flux & Carbon Handling and Alloy Dump Station Baghouse	C0605	S0605	120	Filterable PM	4.47E-01	AP-42	98%	100%	53.65	0.05	13.86	0.01
		SCC:	30,300,999	tons of alloy processed				PM10	2.11E-01	AP-42	98%	100%	25.37	0.03	6.56	0.01
								PM2.5	3.20E-02	AP-42	98%	100%	3.84	3.84E-03	0.99	9.93E-04
EU06	Lime, Carbon, Alloy Handling Systems	EP 06-05B	LMF Alloy Handling - Uncaptured	N/A	N/A	EP0605F	120	Filterable PM	1.80E-03	AP-42	N/A	N/A	0.22	N/A	0.06	N/A
		SCC:	30,300,999	tons of alloy processed				PM10	8.49E-04	AP-42	N/A	N/A	0.10	N/A	0.03	N/A
								PM2.5	1.29E-04	AP-42	N/A	N/A	0.02	N/A	3.99E-03	N/A
EU07	DRI Handling System	EP 07-01	DRI Unloading Dock	DRI Unloading Dock West & East Bin Vents	C0701	S0701	500	Filterable PM	1.53E-03	Design Grain Loading	75%	99%	0.76	0.23	0.44	0.26
		SCC:	30,300,999	tons of DRI processed				PM10	7.22E-04	Design Grain Loading	75%	99%	0.36	0.12	0.21	0.20
								PM2.5	1.09E-04	Design Grain Loading	75%	99%	0.05	0.03	0.03	0.08
EU07	DRI Handling System	EP 07-02	DRI Storage Silo #1	DRI Storage Silo #1 Powered Bin Vent & Passive Bin Vent	C0702-1 C0702-2	S0702	500	Filterable PM	2.31E-03	Design Grain Loading	N/A	99%	1.16	0.01	5.06	0.05
		SCC:	30400737	tons of DRI stored				PM10	2.31E-03	Design Grain Loading	N/A	99%	1.16	0.01	5.06	0.05

Emission Unit #	Emission Unit Name	Process ID	Process Name	Control Device Name	Control Device ID	Stack ID	Maximum Design Capacity (SCC Units/hour)	Pollutant	Uncontrolled Emission Factor (lb/SCC Units)	Emission Factor Source (e.g. AP-42, Stack Test, Mass Balance)	Capture Efficiency (%)	Control Efficiency (%)	Hourly Emissions		Annual Emissions	
													Uncontrolled Potential	Controlled Potential	Uncontrolled Potential	Controlled Potential
								PM2.5	1.14E-03	Design Grain Loading	N/A	99%	0.57	0.01	2.50	0.03
EU07	DRI Handling System	EP 07-03	DRI Storage Silo #2	DRI Storage Silo #2 Powered Bin Vent & Passive Bin Vent	C0703-1 C0703-2	S0703	500	Filterable PM	2.31E-03	Design Grain Loading	N/A	99%	1.16	0.01	5.06	0.05
		SCC:	30400737	tons of DRI stored				PM10	2.31E-03	Design Grain Loading	N/A	99%	1.16	0.01	5.06	0.05
								PM2.5	1.14E-03	Design Grain Loading	N/A	99%	0.57	0.01	2.50	0.03
EU07	DRI Handling System	EP 07-04	DRI Silo Loadout	N/A	N/A	N/A	500	Filterable PM	9.72E-05	AP-42	N/A	N/A	0.05	N/A	0.21	N/A
		SCC:	30300999	tons of DRI processed				PM10	4.60E-05	AP-42	N/A	N/A	0.02	N/A	0.10	N/A
								PM2.5	6.96E-06	AP-42	N/A	N/A	3.48E-03	N/A	0.02	N/A
EU07	DRI Handling System	EP 07-05	DRI Day Bins	DRI Day Bin Bin Vent	C0705	S0705	500	Filterable PM	2.06E-03	Design Grain Loading	N/A	99%	1.03	0.01	4.51	0.045
		SCC:	30400737	tons of DRI stored				PM10	2.06E-03	Design Grain Loading	N/A	99%	1.03	0.01	4.51	0.045
								PM2.5	1.02E-03	Design Grain Loading	N/A	99%	0.51	0.01	2.23	0.022
EU07	DRI Handling System	EP 07-06	DRI Transfer Conveyors	DRI Conveyor Transfer Station Bin Vents A & B	C0706	S0706	500	Filterable PM	4.11E-03	Design Grain Loading	N/A	99%	2.06	0.02	9.01	0.090
		SCC:	30400736	tons of DRI handled				PM10	4.11E-03	Design Grain Loading	N/A	99%	2.06	0.02	9.01	0.090
								PM2.5	2.03E-03	Design Grain Loading	N/A	99%	1.02	0.01	4.45	0.045
EU08	Scrap Handling	EP 08-01	Barge Scrap Unloading	N/A	N/A	N/A	600	Filterable PM	3.00E-04	AP-42	N/A	N/A	0.18	N/A	0.14	N/A
		SCC:	39999999	tons of material processed				PM10	1.50E-04	AP-42	N/A	N/A	0.09	N/A	0.07	N/A
								PM2.5	4.30E-05	AP-42	N/A	N/A	0.03	N/A	0.02	N/A
EU08	Scrap Handling	EP 08-02	Rail Scrap Unloading	N/A	N/A	N/A	200	Filterable PM	3.00E-04	AP-42	N/A	N/A	0.06	N/A	0.09	N/A
		SCC:	39999999	tons of material processed				PM10	1.50E-04	AP-42	N/A	N/A	0.03	N/A	0.04	N/A
								PM2.5	4.30E-05	AP-42	N/A	N/A	0.01	N/A	0.01	N/A

Emission Unit #	Emission Unit Name	Process ID	Process Name	Control Device Name	Control Device ID	Stack ID	Maximum Design Capacity (SCC Units/hour)	Pollutant	Uncontrolled Emission Factor (lb/SCC Units)	Emission Factor Source (e.g. AP-42, Stack Test, Mass Balance)	Capture Efficiency (%)	Control Efficiency (%)	Hourly Emissions		Annual Emissions	
													Uncontrolled Potential	Controlled Potential	Uncontrolled Potential	Controlled Potential
EU08	Scrap Handling	EP 08-03	Scrap Pile Loading	N/A	N/A	N/A	600	Filterable PM	1.48E-03	AP-42	N/A	N/A	0.89	N/A	0.86	N/A
		SCC:	39999999	tons of material processed				PM10	7.01E-04	AP-42	N/A	N/A	0.42	N/A	0.41	N/A
								PM2.5	1.06E-04	AP-42	N/A	N/A	0.06	N/A	0.06	N/A
EU08	Scrap Handling	EP 08-04	Scrap Charging	N/A	N/A	S0101	219.75	Filterable PM	1.21E-03	AP-42	N/A	N/A	0.27	N/A	0.86	N/A
		SCC:	30300999	ton of scrap processed				PM10	5.73E-04	AP-42	N/A	N/A	0.13	N/A	0.41	N/A
								PM2.5	8.68E-05	AP-42	N/A	N/A	0.02	N/A	0.06	N/A
EU09	Cooling Towers	EP 09-01	Melt Shop ICW Cooling Tower, System 100	N/A	N/A	S0901	2.952	Filterable PM	2.34E-01	Cooling water throughput, TDS, and BACT % drift	N/A	N/A	0.69	N/A	3.02	N/A
		SCC:	38500110	million gallons cooling water				PM10	1.74E-01		N/A	N/A	0.51	N/A	2.25	N/A
								PM2.5	5.23E-04		N/A	N/A	0.00	N/A	0.01	N/A
EU09	Cooling Towers	EP 09-02	Melt Shop DCW Cooling Tower, System 200	N/A	N/A	S0902	0.96	Filterable PM	2.50E-01	Cooling water throughput, TDS, and BACT % drift	N/A	N/A	0.24	N/A	1.05	N/A
		SCC:	38500110	million gallons cooling water				PM10	1.82E-01		N/A	N/A	0.17	N/A	0.76	N/A
								PM2.5	5.53E-04		N/A	N/A	5.31E-04	N/A	2.33E-03	N/A
EU09	Cooling Towers	EP 09-03	Rolling Mill ICW Cooling Tower	N/A	N/A	S0903										
~~EU09~~	~~Cooling Towers~~	~~EP 09-04~~	~~Rolling Mill DCW Cooling Tower, System 400~~	~~N/A~~	~~N/A~~	~~S0904~~	3.30	Filterable PM	2.50E-01	Cooling water throughput, TDS, and BACT % drift	N/A	N/A	0.83	N/A	3.62	N/A
		SCC:	38500110	million gallons cooling water				PM10	1.72E-01		N/A	N/A	0.57	N/A	2.49	N/A
								PM2.5	5.43E-04		N/A	N/A	1.79E-03	N/A	0.01	N/A
EU09	Cooling Towers	EP 09-05	Rolling Mill ACC ICW Cooling Tower, System 500	N/A	N/A	S0905	2.1	Filterable PM	2.34E-01	Cooling water throughput, TDS, and BACT % drift	N/A	N/A	0.49	N/A	2.15	N/A

Emission Unit #	Emission Unit Name	Process ID	Process Name	Control Device Name	Control Device ID	Stack ID	Maximum Design Capacity (SCC Units/hour)	Pollutant	Uncontrolled Emission Factor (lb/SCC Units)	Emission Factor Source (e.g. AP-42, Stack Test, Mass Balance)	Capture Efficiency (%)	Control Efficiency (%)	Hourly Emissions Uncontrolled Potential	Hourly Emissions Controlled Potential	Annual Emissions Uncontrolled Potential	Annual Emissions Controlled Potential
		SCC:	38500110	million gallons cooling water				PM10	1.61E-01		N/A	N/A	0.34	N/A	1.48	N/A
								PM2.5	5.07E-04		N/A	N/A	1.06E-03	N/A	0.00	N/A
EU09	Cooling Towers	EP 09-06	Heavy Plate Quench DCW Cooling Tower, System 600	N/A	N/A	S0906	0.606	Filterable PM	2.50E-01	Cooling water throughput, TDS, and BACT % drift	N/A	N/A	0.15	N/A	0.66	N/A
		SCC:	38500110	million gallons cooling water				PM10	1.82E-01		N/A	N/A	0.11	N/A	0.48	N/A
								PM2.5	5.53E-04		N/A	N/A	3.35E-04	N/A	1.47E-03	N/A
EU09	Cooling Towers	EP 09-07	Quench & ACC Laminar DCW Cooling Tower, System 700	N/A	N/A	S0907	2.64	Filterable PM	2.50E-01	Cooling water throughput, TDS, and BACT % drift	N/A	N/A	0.66	N/A	2.89	N/A
		SCC:	38500110	million gallons cooling water				PM10	1.82E-01		N/A	N/A	0.48	N/A	2.10	N/A
								PM2.5	5.53E-04		N/A	N/A	1.46E-03	N/A	6.39E-03	N/A
EU09	Cooling Towers	EP 09-08	Heat Treat Cooling Tower, System 800	N/A	N/A	S0908	1.854	Filterable PM	2.50E-01	Cooling water throughput, TDS, and BACT % drift	N/A	N/A	0.46	N/A	2.03	N/A
		SCC:	38500110	million gallons cooling water				PM10	1.82E-01		N/A	N/A	0.34	N/A	1.48	N/A
								PM2.5	5.53E-04		N/A	N/A	1.03E-03	N/A	4.49E-03	N/A
EU09	Cooling Towers	EP 09-09	Air Seperation Plant Cooling Tower, System 900	N/A	N/A	S0909	0.768	Filterable PM	2.34E-01	Cooling water throughput, TDS, and BACT % drift	N/A	N/A	0.18	N/A	0.79	N/A
		SCC:	38500110	million gallons cooling water				PM10	1.74E-01		N/A	N/A	0.13	N/A	0.59	N/A
								PM2.5	5.23E-04		N/A	N/A	4.02E-04	N/A	1.76E-03	N/A

Emission Unit #	Emission Unit Name	Process ID	Process Name	Control Device Name	Control Device ID	Stack ID	Maximum Design Capacity (SCC Units/hour)	Pollutant	Uncontrolled Emission Factor (lb/SCC Units)	Emission Factor Source (e.g. AP-42, Stack Test, Mass Balance)	Capture Efficiency (%)	Control Efficiency (%)	Hourly Emissions		Annual Emissions	
													Uncontrolled Potential	Controlled Potential	Uncontrolled Potential	Controlled Potential
EU10	Emergency Generators > 500 hp	EP 10-01	G100-1 Emergency Generator	N/A	N/A	S1001	0.0719	Filterable PM	2.02E+00	EPA Tier 2	N/A	N/A	0.15	N/A	0.04	N/A
		SCC:	20100102	1000 Gallons Diesel Burned				PM10	2.02E+00	EPA Tier 2	N/A	N/A	0.15	N/A	0.04	N/A
								PM2.5	2.02E+00	EPA Tier 2	N/A	N/A	0.15	N/A	0.04	N/A
								NOx	1.88E+02	EPA Tier 2	N/A	N/A	13.52	N/A	3.38	N/A
								CO	3.03E+01	EPA Tier 2	N/A	N/A	2.18	N/A	0.55	N/A
								SO2	2.49E-01	AP-42	N/A	N/A	0.02	N/A	0.00	N/A
								VOC	2.70E+00	EPA Tier 2	N/A	N/A	0.19	N/A	0.05	N/A
								CO2e	2.24E+04	AP-42	N/A	N/A	1608.61	N/A	402.15	N/A
EU10	Emergency Generators > 500 hp	EP 10-02	G100-2 Emergency Generator	N/A	N/A	S1002	0.138	Filterable PM	4.20E+00	EPA Tier 2	N/A	N/A	0.58	N/A	0.14	N/A
		SCC:	20100102	1000 Gallons Diesel Burned				PM10	4.20E+00	EPA Tier 2	N/A	N/A	0.58	N/A	0.14	N/A
								PM2.5	4.20E+00	EPA Tier 2	N/A	N/A	0.58	N/A	0.14	N/A
								NOx	1.77E+02	EPA Tier 2	N/A	N/A	24.48	N/A	6.12	N/A
								CO	3.15E+01	EPA Tier 2	N/A	N/A	4.35	N/A	1.09	N/A
								SO2	2.58E-01	AP-42	N/A	N/A	0.04	N/A	0.01	N/A
								VOC	9.10E+00	EPA Tier 2	N/A	N/A	1.26	N/A	0.31	N/A
								CO2e	2.24E+04	AP-42	N/A	N/A	3087.47	N/A	771.87	N/A
EU10	Emergency Generators > 500 hp	EP 10-03	G100-3 Emergency Generator	N/A	N/A	S1003	0.138	Filterable PM	4.20E+00	EPA Tier 2	N/A	N/A	0.58	N/A	0.14	N/A
		SCC:	20100102	1000 Gallons Diesel Burned				PM10	4.20E+00	EPA Tier 2	N/A	N/A	0.58	N/A	0.14	N/A
								PM2.5	4.20E+00	EPA Tier 2	N/A	N/A	0.58	N/A	0.14	N/A
								NOx	1.77E+02	EPA Tier 2	N/A	N/A	24.48	N/A	6.12	N/A
								CO	3.15E+01	EPA Tier 2	N/A	N/A	4.35	N/A	1.09	N/A
								SO2	2.58E-01	AP-42	N/A	N/A	0.04	N/A	0.01	N/A
								VOC	9.10E+00	EPA Tier 2	N/A	N/A	1.26	N/A	0.31	N/A
								CO2e	2.24E+04	AP-42	N/A	N/A	3,087.47	N/A	771.87	N/A
EU10	Emergency Generators > 500 hp	EP 10-04	G200-1 Emergency Generator	N/A	N/A	S1004	0.0719	Filterable PM	2.02E+00	EPA Tier 2	N/A	N/A	0.15	N/A	0.04	N/A
		SCC:	20100102	1000 Gallons Diesel Burned				PM10	2.02E+00	EPA Tier 2	N/A	N/A	0.15	N/A	0.036	N/A
								PM2.5	2.02E+00	EPA Tier 2	N/A	N/A	0.15	N/A	0.036	N/A
								NOx	1.88E+02	EPA Tier 2	N/A	N/A	13.52	N/A	3.380	N/A

Emission Unit #	Emission Unit Name	Process ID	Process Name	Control Device Name	Control Device ID	Stack ID	Maximum Design Capacity (SCC Units/hour)	Pollutant	Uncontrolled Emission Factor (lb/SCC Units)	Emission Factor Source (e.g. AP-42, Stack Test, Mass Balance)	Capture Efficiency (%)	Control Efficiency (%)	Hourly Emissions		Annual Emissions	
													Uncontrolled Potential	Controlled Potential	Uncontrolled Potential	Controlled Potential
								CO	3.03E+01	EPA Tier 2	N/A	N/A	2.18	N/A	0.55	N/A
								SO2	2.49E-01	AP-42	N/A	N/A	0.02	N/A	0.00	N/A
								VOC	2.70E+00	EPA Tier 2	N/A	N/A	0.19	N/A	0.05	N/A
								CO2e	2.24E+04	AP-42	N/A	N/A	1,608.61	N/A	402.15	N/A
EU10	Emergency Generators > 500 hp	EP 10-08	G300-1 Emergency Generator	N/A	N/A	S1005	0.0719	Filterable PM	2.02E+00	EPA Tier 2	N/A	N/A	0.15	N/A	0.04	N/A
		SCC:	20100102	1000 Gallons Diesel Burned				PM10	2.02E+00	EPA Tier 2	N/A	N/A	0.15	N/A	0.04	N/A
								PM2.5	2.02E+00	EPA Tier 2	N/A	N/A	0.15	N/A	0.04	N/A
								NOx	1.88E+02	EPA Tier 2	N/A	N/A	13.52	N/A	3.38	N/A
								CO	3.03E+01	EPA Tier 2	N/A	N/A	2.18	N/A	0.55	N/A
								SO2	2.49E-01	AP-42	N/A	N/A	0.02	N/A	0.00	N/A
								VOC	2.70E+00	EPA Tier 2	N/A	N/A	0.19	N/A	0.05	N/A
								CO2e	2.24E+04	AP-42	N/A	N/A	1,608.61	N/A	402.15	N/A
EU10	Emergency Generators > 500 hp	EP 10-09	G400-1 Emergency Generator	N/A	N/A	S1006	0.0719	Filterable PM	2.02E+00	EPA Tier 2	N/A	N/A	0.15	N/A	0.04	N/A
		SCC:	20100102	1000 Gallons Diesel Burned				PM10	2.02E+00	EPA Tier 2	N/A	N/A	0.15	N/A	0.04	N/A
								PM2.5	2.02E+00	EPA Tier 2	N/A	N/A	0.15	N/A	0.04	N/A
								NOx	1.88E+02	EPA Tier 2	N/A	N/A	13.52	N/A	3.38	N/A
								CO	3.03E+01	EPA Tier 2	N/A	N/A	2.18	N/A	0.55	N/A
								SO2	2.49E-01	AP-42	N/A	N/A	0.02	N/A	0.00	N/A
								VOC	2.70E+00	EPA Tier 2	N/A	N/A	0.19		0.05	
								CO2e	2.24E+04	AP-42	N/A	N/A	1608.61	N/A	402.15	N/A
EU10	Emergency Generators > 500 hp	EP 10-10	G500-1 Emergency Generator	N/A	N/A	S1010	0.065	Filterable PM	2.58E+00	EPA Tier 2	N/A	N/A	0.19	N/A	0.05	N/A
		SCC:	20,100,102	1000 Gallons Diesel Burned				PM10	2.58E+00	EPA Tier 2	N/A	N/A	0.19	N/A	0.05	N/A
								PM2.5	2.58E+00	EPA Tier 2	N/A	N/A	0.19	N/A	0.05	N/A
								NOx	1.82E+02	EPA Tier 2	N/A	N/A	13.06	N/A	3.26	N/A
								CO	4.19E+01	EPA Tier 2	N/A	N/A	3.02	N/A	0.75	N/A
								SO2	2.38E-01	AP-42	N/A	N/A	0.02	N/A	0.00	N/A
								VOC	4.52E+00	EPA Tier 2	N/A	N/A	0.32		0.08	
								CO2e	2.02E+04	AP-42	N/A	N/A	1453.35	N/A	363.34	N/A
EU11	Emergency Generators < 500 hp	EP 11-01	ASU Emergency Generator	N/A	N/A	S1101	3.43	Filterable PM	9.69E-03	AP-42	N/A	N/A	0.03	N/A	0.01	N/A

Emission Unit #	Emission Unit Name	Process ID	Process Name	Control Device Name	Control Device ID	Stack ID	Maximum Design Capacity (SCC Units/hour)	Pollutant	Uncontrolled Emission Factor (lb/SCC Units)	Emission Factor Source (e.g. AP-42, Stack Test, Mass Balance)	Capture Efficiency (%)	Control Efficiency (%)	Hourly Emissions Uncontrolled Potential	Hourly Emissions Controlled Potential	Annual Emissions Uncontrolled Potential	Annual Emissions Controlled Potential
		SCC:	20100202	MMSCF natural gas burned				PM10	1.98E-02	AP-42	N/A	N/A	0.07	N/A	0.02	N/A
								PM2.5	1.98E-02	AP-42	N/A	N/A	0.07	N/A	0.02	N/A
								NOx	5.92E-01	EPA Tier 3	N/A	N/A	2.03	N/A	0.51	N/A
								CO	1.18E+00	EPA Tier 3	N/A	N/A	4.06	N/A	1.01	N/A
								SO2	6.00E-04	AP-42	N/A	N/A	0.00	N/A	0.00	N/A
								VOC	2.96E-01	EPA Tier 3	N/A	N/A	1.01	N/A	0.25	N/A
								CO2e	1.19E+02	AP-42	N/A	N/A	408.38	N/A	102.09	N/A
EU11	Emergency Generators < 500 hp	EP 11-02	Admin Building Emergency Generator	N/A	N/A	S1102	0.975	Filterable PM	9.69E-03	AP-42	N/A	N/A	0.01	N/A	0.00	N/A
		SCC:	20100202	MMSCF natural gas burned				PM10	1.98E-02	AP-42	N/A	N/A	0.02	N/A	0.00	N/A
								PM2.5	1.98E-02	AP-42	N/A	N/A	0.02	N/A	0.00	N/A
								NOx	1.18E+00	EPA Tier 3	N/A	N/A	1.15	N/A	0.29	N/A
								CO	3.47E+00	EPA Tier 3	N/A	N/A	3.39	N/A	0.85	N/A
								SO2	6.00E-04	AP-42	N/A	N/A	0.00	N/A	0.00	N/A
								VOC	3.02E-02	EPA Tier 3	N/A	N/A	0.03	N/A	0.01	N/A
								CO2e	1.19E+02	AP-42	N/A	N/A	116.21	N/A	29.05	N/A
EU12	Slag Processing	EP 12-01	Slag Processing Equipment	N/A	N/A	N/A	400	Filterable PM	5.15E-02	AP-42	N/A	90%	20.61	2.06	17.72	1.77
		SCC:	30300924	tons of slag processed				PM10	1.90E-02	AP-42	N/A	90%	7.60	0.76	7.84	0.78
								PM2.5	3.94E-03	AP-42	N/A	90%	1.58	0.16	2.57	0.26
								Total HAP	1.23E-05	Nucor MSDS concentration data	N/A	90%	0.00	0.00	0.01	0.00
EU12	Slag Processing	EP 12-02	Slag Processing Storage Piles	N/A	N/A	N/A	400	Filterable PM	3.03E-04	AP-42	N/A	N/A	0.121	N/A	0.44	N/A
		SCC:	30300924	tons of slag processed				PM10	1.50E-04	AP-42	N/A	N/A	0.06	N/A	0.22	N/A
								PM2.5	2.26E-05	AP-42	N/A	N/A	0.01	N/A	0.03	N/A
								Total HAP	1.81E-04	Nucor MSDS concentration data	N/A	N/A	0.07	N/A	0.01	N/A
EU12	Slag Processing	EP 12-03	Slag Plant Pot Slagger	N/A	N/A	N/A	13.5	Filterable PM	7.01E-04	AP-42	N/A	N/A	0.01	N/A	0.04	N/A
		SCC:	30300924	tons of slag processed				PM10	2.31E-04	AP-42	N/A	N/A	0.00	N/A	0.01	N/A
								PM2.5	6.53E-05	AP-42	N/A	N/A	8.81E-04	N/A	3.86E-03	N/A

Emission Unit #	Emission Unit Name	Process ID	Process Name	Control Device Name	Control Device ID	Stack ID	Maximum Design Capacity (SCC Units/hour)	Pollutant	Uncontrolled Emission Factor (lb/SCC Units)	Emission Factor Source (e.g. AP-42, Stack Test, Mass Balance)	Capture Efficiency (%)	Control Efficiency (%)	Hourly Emissions		Annual Emissions	
													Uncontrolled Potential	Controlled Potential	Uncontrolled Potential	Controlled Potential
								Total HAP	1.67E-07	Nucor MSDS concentration data	N/A	N/A	2.25E-06	N/A	9.86E-06	N/A
EU12	Slag Processing	EP 12-04A	Slag Plant Oxy Fuel-Fired Torches	Slag Plant Torch - Baghouse	C1204	S1204	12	Filterable PM	4.19E-02	Filterable PM/PM10/PM2.5 emission factor based on Fumes and Gases in the Welding Environment, the American Welding Society, dated 01/90.	95%	100%	0.50	0.02	2.20	0.08
		SCC:	30300929	tons of steel processed				PM10	4.66E-02		95%	100%	0.56	0.08	2.45	0.33
								PM2.5	4.66E-02		95%	100%	0.56	0.08	2.45	0.33
								NOX	8.25E-02	AP-42	N/A	N/A	0.99	N/A	4.34	N/A
								CO	6.93E-02	AP-42	N/A	N/A	0.83	N/A	3.64	N/A
								SO2	4.95E-04	AP-42	N/A	N/A	0.01	N/A	0.03	N/A
								Lead	4.17E-07	AP-42	N/A	N/A	0.00	N/A	0.00	N/A
								VOC	4.54E-03	AP-42	N/A	N/A	0.05	N/A	0.24	N/A
								CO2e	9.96E+01	AP-42	N/A	N/A	1195.06	N/A	5234.36	N/A
								Total HAP	1.56E-03	SDS & AP-42	N/A	N/A	0.02	N/A	0.08	N/A
EU12	Slag Processing	EP 12-04B	Slag Plant Oxy Fuel-Fired Torches	Slag Plant Torch - Uncaptured	N/A	EP 12-04F	12	Filterable PM	2.23E-03	Filterable PM/PM10/PM2.5 emission factor based on Fumes and Gases in the Welding Environment, the American Welding Society, dated 01/90.	N/A	N/A	0.03	N/A	0.12	N/A
		SCC:	30300929	tons of steel processed				PM10	2.23E-03		N/A	N/A	0.03	N/A	0.12	N/A
								PM2.5	2.23E-03		N/A	N/A	0.03	N/A	0.12	N/A
EU13	Air Separation Plant	EP 13-01	Water Bath Vaporizer	N/A	N/A	S1301	0.028	Filterable PM	1.90E+00	AP-42	N/A	N/A	0.05	N/A	0.24	N/A
		SCC:	10200602	MMscf of natural gas burned				PM10	7.60E+00	AP-42	N/A	N/A	0.22	N/A	0.95	N/A
								PM2.5	7.60E+00	AP-42	N/A	N/A	0.22	N/A	0.95	N/A
								NOx	5.00E+01	AP-42	N/A	N/A	1.42	N/A	6.23	N/A
								CO	8.40E+01	AP-42	N/A	N/A	2.39	N/A	10.46	N/A

Emission Unit #	Emission Unit Name	Process ID	Process Name	Control Device Name	Control Device ID	Stack ID	Maximum Design Capacity *(SCC Units/hour)*	Pollutant	Uncontrolled Emission Factor *(lb/SCC Units)*	Emission Factor Source (e.g. AP-42, Stack Test, Mass Balance)	Capture Efficiency *(%)*	Control Efficiency *(%)*	Hourly Emissions		Annual Emissions	
													Uncontrolled Potential	Controlled Potential	Uncontrolled Potential	Controlled Potential
								SO2	6.00E-01	AP-42	N/A	N/A	0.02	N/A	0.07	N/A
								Lead	5.00E-04	AP-42	N/A	N/A	0.00	N/A	0.00	N/A
								VOC	5.50E+00	AP-42	N/A	N/A	0.16	N/A	0.68	N/A
								CO2e	1.21E+05	AP-42	N/A	N/A	3,432.04	N/A	15,032.33	N/A
								Total HAP	1.89E+00	AP-42	N/A	N/A	0.05	N/A	0.24	N/A
EU14	Roads	EP 14-01	Paved Roads	Asphaltic Emulsion	N/A	N/A	35.38	Filterable PM	9.58E-01	AP-42	N/A	90%	33.90	3.39	136.27	13.63
		SCC:	30300834	miles vehicle travelled				PM10	1.92E-01	AP-42	N/A	90%	6.78	0.68	27.25	2.73
								PM2.5	4.86E-02	AP-42	N/A	90%	2.00	0.20	8.04	0.80
EU14	Roads	EP 14-02	Unpaved Roads	Asphaltic Emulsion	N/A	N/A	3.44	Filterable PM	2.50E+01	AP-42	N/A	90%	86.14	8.61	346.27	34.63
		SCC:	30300834	miles vehicle travelled				PM10	6.66E+00	AP-42	N/A	90%	22.95	2.30	92.28	9.23
								PM2.5	6.66E-01	AP-42	N/A	90%	2.30	0.23	9.23	0.92
EU15	Miscellaneous Equipment	EP 15-01	Miscellaneous Heaters	N/A	N/A	RMMV	0.039	Filterable PM	1.90E+00	BACT Limit	N/A	N/A	0.07	N/A	0.33	N/A
		SCC:	30390003	Million cubic feet burned				PM10	7.60E+00	BACT Limit	N/A	N/A	0.30	N/A	1.31	N/A
								PM2.5	7.60E+00	BACT Limit	N/A	N/A	0.30	N/A	1.31	N/A
								NOx	7.00E+01	BACT Limit	N/A	N/A	2.75	N/A	12.02	N/A
								CO	8.40E+01	BACT Limit	N/A	N/A	3.29	N/A	14.43	N/A
								SO2	6.00E-01	AP-42	N/A	N/A	0.02	N/A	0.10	N/A
								Lead	5.00E-04	AP-42	N/A	N/A	1.96E-05	N/A	8.59E-05	N/A
								VOC	5.50E+00	BACT Limit	N/A	N/A	0.22	N/A	0.94	N/A
								CO2e	1.21E+05	AP-42	N/A	N/A	4733.85	N/A	20734.25	N/A
								Total HAPs	1.89E+00	AP-42	N/A	N/A	0.07	N/A	0.32	N/A
EU16	Cleaning Tanks	EP 16-01	Cleaning Tanks	N/A	N/A	RMMV	0.001	VOC	1.08E+02	Material Balance	N/A	N/A	0.12	N/A	0.52	N/A
		SCC:	39999995	gallons material processed												
EU18	Blast & Paint LIne	EP 18-01	Paint System Preheater	N/A	N/A	S1801	0.000	Filterable PM	1.90E+00	AP-42	N/A	N/A	1.23E-06	N/A	5.38E-06	N/A
		SCC:	30390003	Million cubic feet burned				PM10	7.60E+00	AP-42	N/A	N/A	4.92E-06	N/A	2.15E-05	N/A
								PM2.5	7.60E+00	AP-42	N/A	N/A	4.92E-06	N/A	2.15E-05	N/A
								NOx	1.00E+02	AP-42	N/A	N/A	6.47E-05	N/A	2.83E-04	N/A
								CO	8.40E+01	AP-42	N/A	N/A	5.44E-05	N/A	2.38E-04	N/A
								SO2	6.00E-01	AP-42	N/A	N/A	3.88E-07	N/A	1.70E-06	N/A
								VOC	5.50E+00	AP-42	N/A	N/A	3.56E-06	N/A	1.56E-05	N/A
								CO2e	1.21E+05	AP-42	N/A	N/A	7.81E-02	N/A	3.42E-01	N/A
								Total HAPs	1.89E+00	AP-42	N/A	N/A	1.22E-06	N/A	5.35E-06	N/A

Emission Unit #	Emission Unit Name	Process ID	Process Name	Control Device Name	Control Device ID	Stack ID	Maximum Design Capacity (SCC Units/hour)	Pollutant	Uncontrolled Emission Factor (lb/SCC Units)	Emission Factor Source (e.g. AP-42, Stack Test, Mass Balance)	Capture Efficiency (%)	Control Efficiency (%)	Hourly Emissions		Annual Emissions	
													Uncontrolled Potential	Controlled Potential	Uncontrolled Potential	Controlled Potential
EU18	Blast & Paint LIne	EP 18-02	Shot Blaster	Shot Blaste	C1802	S1802	429.119	Filterable PM	7.23E-02	Design Grain Loading	100%	99%	3.10E+01	0.31	1.36E+02	1.35154286
		SCC:	30300999	tons of steel processed				PM10	7.23E-02	Design Grain Loading	100%	99%	31.01	0.31	135.83	1.35
								PM2.5	7.23E-02	Design Grain Loading	100%	99%	31.01	0.31	135.83	1.35
EU18	Blast & Paint LIne	EP 18-03	Plate Painting Operations	Plate Painti	C1803A C1803B	S1803	50.732	Filterable PM	1.00E+00	SDS	100%	99%	50.76	0.51	222.31	2.22
		SCC:	30300936	tons of material coated				PM10	1.00E+00	SDS	100%	99%	50.76	0.51	222.31	2.22
								PM2.5	1.00E+00	SDS	100%	99%	50.76	0.51	222.31	2.22
								VOC	5.41E+00	SDS	100%	98%	274.46	5.49	1202	24.04
								Total HAPs	1.15E+00	SDS	100%	98%	58.10	1.16	254.48	5.09
EU18	Blast & Paint LIne	EP 18-04	RTO Combustion	N/A	N/A	S1803	0.002	Filterable PM	1.90E+00	AP-42	N/A	N/A	4.47E-03	N/A	1.96E-02	N/A
		SCC:	30390003	Million cubic feet burned				PM10	7.60E+00	AP-42	N/A	N/A	0.02	N/A	0.08	N/A
								PM2.5	7.60E+00	AP-42	N/A	N/A	0.02	N/A	0.08	N/A
								NOx	2.48E+02	AP-42	N/A	N/A	0.58	N/A	2.56	N/A
								CO	1.68E+02	AP-42	N/A	N/A	0.40	N/A	1.73	N/A
								SO2	6.00E-01	AP-42	N/A	N/A	1.41E-03	N/A	6.18E-03	N/A
								VOC	5.50E+00	AP-42	N/A	N/A	0.01	N/A	0.06	N/A
								CO2e	1.21E+05	AP-42	N/A	N/A	284.03	N/A	1244.06	N/A
								Total HAPs	1.89E+00	AP-42	N/A	N/A	4.44E-03	N/A	1.95E-02	N/A
EU18	Blast & Paint LIne	EP 18-05	Paint System Dryer	N/A	N/A	S1801	9.31E-08	Filterable PM	1.90E+00	AP-42	N/A	N/A	1.77E-07	N/A	7.75E-07	N/A
		SCC:	30390003	Million cubic feet burned				PM10	7.60E+00	AP-42	N/A	N/A	7.08E-07	N/A	3.10E-06	N/A
								PM2.5	7.60E+00	AP-42	N/A	N/A	7.08E-07	N/A	3.10E-06	N/A
								NOx	1.00E+02	AP-42	N/A	N/A	9.31E-06	N/A	4.08E-05	N/A
								CO	8.40E+01	AP-42	N/A	N/A	7.82E-06	N/A	3.43E-05	N/A
								SO2	6.00E-01	AP-42	N/A	N/A	5.59E-08	N/A	2.45E-07	N/A
								VOC	5.50E+00	AP-42	N/A	N/A	5.12E-07	N/A	2.24E-06	N/A
								CO2e	1.21E+05	AP-42	N/A	N/A	1.12E-02	N/A	4.92E-02	N/A
								Total HAPs	1.89E+00	AP-42	N/A	N/A	1.76E-07	N/A	7.70E-07	N/A

Section N.2: Stack Information

UTM Zone:

Stack ID	Identify all Emission Units (with Process ID) and Control Devices that Feed to Stack	Stack Physical Data			Stack UTM Coordinates		Stack Gas Stream Data		
		Equivalent Diameter *(ft)*	Height *(ft)*	Base Elevation *(ft)*	Northing *(m)*	Easting *(m)*	Flowrate *(acfm)*	Temperature *(° F)*	Exit Velocity *(ft/sec)*
S0101	(See Note 1 of Section N.4)	26	180.00	462.0	575000.37	4206615.90	2,000,000	180.00	62.78
EU01F	(See Note 1 of Section N.4)	36	20.00	462.0	575162.59	4206543.07	44,115	100.00	0.74
S0103	EP 01-03 - Vacuum Degasser	1.3	154.20	462.0	575257.36	4206538.19	1,331	219.00	16.72
S0105A	EP 01-05 - Caster Spray Vent (split equally between S0105A and A0105B)	6.67	164.00	462.0	575281.32	4206633.51	109,628	131.00	52.34
S0105B		6.67	164.00	462.0	575267.68	4206572.00	109,628	131.00	52.34
S0107	EP 01-07 - Melt Shop Baghouse Dust Silo and Loadout	0.750	85.00	462.0	575090.73	4206618.03	1,800	120.00	67.91
S0111	EP 01-11 - Caster Quench Box	4.5	73.00	462.0	575316.52	4206615.40	58,856	131.00	61.68
S0310A	EP 03-13A - Ingot Grinding (Baghouse)	3.9	20.00	462.0	575352.10	4206722.36	50,000	Ambient	69.44
S0301	EP 03-01 - Walking Beam Reheat Furnace	9.2	237.20	462.0	575375.97	4206545.27	127,781	520.00	32.11

Stack ID	Identify all Emission Units (with Process ID) and Control Devices that Feed to Stack	Stack Physical Data			Stack UTM Coordinates		Stack Gas Stream Data		
		Equivalent Diameter *(ft)*	Height *(ft)*	Base Elevation *(ft)*	Northing *(m)*	Easting *(m)*	Flowrate *(acfm)*	Temperature *(°F)*	Exit Velocity *(ft/sec)*
S0302	EP 03-02 - Ingot Bogie Hearth Furnaces	5.25	98.40	462.0	575326.00	4206690.22	86,713	590.00	66.76
S0304A	EP 03-04A - Steckel Mill Finishing Stand - Scrubber	4	85.00	462.0	575599.56	4206521.19	44,000	120.00	58.36
S0305	EP 03-05 - Steckel Mill Coiling Furnaces	3.3	65.62	462.0	575586.45	4206532.98	15,507	752	30.57
S0306A	EP 03-06A - Coil Sample Plasma Cutter - Baghouse	3.5	20.00	462.0	575707.63	4206587.75	30,000	120	52.33
S0401	EP 04-01 - Shot Blaster	3.5	100.00	462.0	575717.08	4206433.40	34,375	90	59.55
S0402	EP 04-02 - Austenitizing Furnace	5.2	100.00	462.0	575764.29	4206425.57	77,877	662	61.12
S0403	EP 04-03 - Tempering Furnace	3.0	100.00	462.0	575864.68	4206405.75	24,169	662.00	58.83
S0501	EP 05-01 - Heavy Plate Car Bottom Furnaces #1-#4	9.5	98.40	462.0	575425.08	4206676.75	105,030	1200.00	24.70
S0503A	EP 05-03 - Heavy Plate Burning Beds #1	1.5	35.00	462.0	575442.49	4206742.01	6,742	140.00	63.59
S0503B	EP 05-03 - Heavy Plate Burning Beds #2	1.5	35.00	462.0	575498.26	4206730.26	6,742	140.00	63.59

Stack ID	Identify all Emission Units (with Process ID) and Control Devices that Feed to Stack	Stack Physical Data			Stack UTM Coordinates		Stack Gas Stream Data		
		Equivalent Diameter *(ft)*	Height *(ft)*	Base Elevation *(ft)*	Northing *(m)*	Easting *(m)*	Flowrate *(acfm)*	Temperature *(°F)*	Exit Velocity *(ft/sec)*
S0503C	EP 05-03 - Heavy Plate Burning Beds #3	1.5	35.00	462.0	575403.03	4206750.48	6,742	140.00	63.59
S1701A	EP 17-01 - Light Plate Burning Beds #1A	1.5	35.00	462.0	576023.41	4206327.37	6,742	140.00	63.59
S1701B	EP 17-01 - Light Plate Burning Beds #1B	1.5	35.00	462.0	576022.06	4206321.65	6,742	140.00	63.59
S1701C	EP 17-01 - Light Plate Burning Beds #2C	1.5	35.00	462.0	576116.66	4206307.34	6,742	140.00	63.59
S1701D	EP 17-01 - Light Plate Burning Beds #2D	1.5	35.00	462.0	576115.31	4206300.27	6,742	140.00	63.59
S0601A	EP 06-01A - EAF Flux & Carbon Handling - Baghouse	0.7	50.00	462.0	575222.63	4206477.52	1,200	ambient	57.30
S0602A	EP 06-02 - Lime Silo 1	0.7	87.00	462.0	575154.44	4206529.51	900	ambient	42.97
S0602B	EP 06-02 - Lime Silo 2	0.7	87.00	462.0	575153.58	4206525.60	900	ambient	42.97
S0602C	EP 06-02 - Lime Silo 3	0.7	87.00	462.0	575152.66	4206521.45	900	ambient	42.97
S0604	EP 06-04 - Carbon Silo 1	1.0	87.00	462.0	575151.58	4206516.57	1,500	ambient	31.83

Stack ID	Identify all Emission Units (with Process ID) and Control Devices that Feed to Stack	Stack Physical Data			Stack UTM Coordinates		Stack Gas Stream Data		
		Equivalent Diameter *(ft)*	Height *(ft)*	Base Elevation *(ft)*	Northing *(m)*	Easting *(m)*	Flowrate *(acfm)*	Temperature *(°F)*	Exit Velocity *(ft/sec)*
S0605A	EP 06-05A - LMF Alloy Handling - Baghouse	3.3	144.35	462.0	575210.89	4206455.99	1,033	ambient	2.02
S0901A	EP 09-01 – Melt Shop ICW Cooling Tower, System 100 (3 Cell)	26.0	38.50	462.0	575183.73	4206692.40	883,779	120.00	27.74
S0901B		26.0	38.50	462.0	575194.44	4206690.02	883,779	120.00	27.74
S0901C		26.0	38.50	462.0	575205.15	4206687.65	883,779	120.00	27.74
S0902A	EP 09-02 – Melt Shop DCW Cooling Tower, System 200 (2 Cell)	18.0	38.50	462.0	575186.76	4206646.72	447,641	120.00	29.32
S0902B		18.0	38.50	462.0	575193.90	4206645.13	447,641	120.00	29.32
S0904A	EP 09-04 – Rolling Mill DCW Cooling Tower, System 400 (3 Cell)	26.0	45.50	462.0	575456.29	4206455.26	717,915	120.00	22.54
S0904B		26.0	45.50	462.0	575465.22	4206453.28	717,915	120.00	22.54
S0904C		26.0	45.50	462.0	575474.15	4206451.30	717,915	120.00	22.54
S0905A	EP 09-05 – Rolling Mill ACC ICW Cooling Tower, System 500 (2 Cell)	26.0	37.50	462.0	575468.78	4206507.03	874,202	120.00	27.44

Stack ID	Identify all Emission Units (with Process ID) and Control Devices that Feed to Stack	Stack Physical Data			Stack UTM Coordinates		Stack Gas Stream Data		
		Equivalent Diameter *(ft)*	Height *(ft)*	Base Elevation *(ft)*	Northing *(m)*	Easting *(m)*	Flowrate *(acfm)*	Temperature *(°F)*	Exit Velocity *(ft/sec)*
S0905B		26.0	37.50	462.0	575479.50	4206504.65	874,202	120.00	27.44
S0906A	EP 09-06 – Heavy Plate Quench DCW Cooling Tower, System 600 (4 Cells)	6.0	24.56	462.0	575413.37	4206700.46	72,041	120.00	42.47
S0906B		6.0	24.56	462.0	575417.57	4206699.53	72,041	120.00	42.47
S0906C		6.0	24.56	462.0	575412.46	4206696.36	72,041	120.00	42.47
S0906D		6.0	24.56	462.0	575416.66	4206695.43	72,041	120.00	42.47
S0907A	EP 09-07 – Quench & ACC Laminar DCW Cooling Tower, System 700 (3 Cells)	26.0	45.50	462.0	575606.93	4206491.47	799,439	120.00	25.10
S0907B		26.0	45.50	462.0	575615.90	4206489.48	799,439	120.00	25.10
S0907C		26.0	45.50	462.0	575624.79	4206487.51	799,439	120.00	25.10
S0908A	EP 09-08 – Heat Treat Cooling Tower, System 800 (8 Cells)	6.5	29.70	462.0	575812.44	4206394.65	166,630	120.00	83.69
S0908B		6.5	29.70	462.0	575815.66	4206393.93	166,630	120.00	83.69

Stack ID	Identify all Emission Units (with Process ID) and Control Devices that Feed to Stack	Stack Physical Data			Stack UTM Coordinates		Stack Gas Stream Data		
		Equivalent Diameter *(ft)*	Height *(ft)*	Base Elevation *(ft)*	Northing *(m)*	Easting *(m)*	Flowrate *(acfm)*	Temperature *(°F)*	Exit Velocity *(ft/sec)*
S0908C		6.5	29.70	462.0	575819.13	4206393.16	166,630	120.00	83.69
S0908D		6.5	29.70	462.0	575822.35	4206392.45	166,630	120.00	83.69
S0908E		6.5	29.70	462.0	575829.04	4206390.97	166,630	120.00	83.69
S0908F		6.5	29.70	462.0	575832.26	4206390.25	166,630	120.00	83.69
S0908G		6.5	29.70	462.0	575835.72	4206389.48	166,630	120.00	83.69
S0908H		6.5	29.70	462.0	575838.95	4206388.77	166,630	120.00	83.69
S0909A	EP 09-09 – Air Separation Plant Cooling Tower, System 900 (4 Cells)	6.0	25.33	462.0	575479.48	4206369.07	59,328	120.00	34.97
S0909B		6.0	25.33	462.0	575478.54	4206364.86	59,328	120.00	34.97
S0909C		6.0	25.33	462.0	575477.61	4206360.66	59,328	120.00	34.97
S0909D		6.0	25.33	462.0	575476.68	4206356.45	59,328	120.00	34.97

Stack ID	Identify all Emission Units (with Process ID) and Control Devices that Feed to Stack	Stack Physical Data			Stack UTM Coordinates		Stack Gas Stream Data		
		Equivalent Diameter *(ft)*	Height *(ft)*	Base Elevation *(ft)*	Northing *(m)*	Easting *(m)*	Flowrate *(acfm)*	Temperature *(° F)*	Exit Velocity *(ft/sec)*
S1001	EP 10-01 - G100-1 Emergency Generator	1.3	7.12	462.0	575216.16	4206672.65	8,065	889.50	109.54
S1002	EP 10-02 - G100-2 Emergency Generator	1.5	9.83	462.0	575209.22	4206643.09	15,293	752.00	144.23
S1003	EP 10-03 - G100-3 Emergency Generator	1.5	9.83	462.0	575284.33	4206547.86	15,293	752.00	144.23
S1004	EP 10-04 - G200-1 Emergency Generator	1.3	7.12	462.0	575481.85	4206554.89	8,065	889.50	109.54
S1008	EP 10-08 - G300-1 Emergency Generator	1.3	7.12	462.0	575860.56	4206498.59	8,065	889.50	109.54
S1009	EP 10-09 - G400-1 Emergency Generator	1.3	7.12	462.0	575890.25	4206388.81	8,065	889.50	109.54
S1010	EP 10-10 - G500-1 Emergency Generator	0.9	12.33	462.0	575484.43	4206498.92	7,437	975.20	201.13
S1101	EP 11-01 - ASU Emergency Generator	0.7	6.48	462.0	575476.28	4206319.21	2,677	1350.00	127.69
S1102	EP 11-02 - Admin Building Emergency Generator	0.3	5.00	462.0	575858.21	4206292.67	478	1274.00	91.29
S1204	EP 12-04 - Slag Plant Oxy Fuel-Fired Torches - Baghouse	4.7	40.00	459.0	575085.49	4206830.23	60,000	140.00	58.47

Stack ID	Identify all Emission Units (with Process ID) and Control Devices that Feed to Stack	Stack Physical Data			Stack UTM Coordinates		Stack Gas Stream Data		
		Equivalent Diameter *(ft)*	Height *(ft)*	Base Elevation *(ft)*	Northing *(m)*	Easting *(m)*	Flowrate *(acfm)*	Temperature *(°F)*	Exit Velocity *(ft/sec)*
S1301	EP 13-01 - Water Bath Vaporizer	1.0	20.00	462.0	575565.81	4206347.66	2,726	400.00	57.85
S1801	EP 18-01 and EP 18-05 Combustion Emissions	1.0	70.00	462.0	576154.10	4206660.54	2,592	250.00	55.00
S1802	EP 18-02 - B&P Line Shot Blaster	2.0	70.00	462.0	576128.99	4206665.39	12,500	90.00	66.31
S1803	EP 18-03 - B&P Line Painting Operations/RTO	2.5	70.00	462.0	576108.24	4206674.22	13,621	120.00	46.25

Section N.3: Fugitive Information

UTM Zone:

Emission Unit #	Emission Unit Name	Process ID	Area Physical Data		Area UTM Coordinates		Area Release Data	
			Length of the X Side (ft)	Length of the Y Side (ft)	Northing (m)	Easting (m)	Release Temperature (°F)	Release Height (ft)
EU04 EU17 EU18	Continuous Heat Treat Plasma Cutting Continuous Heat Treat Entry Tagger Light Plate Burning Beds #1 & #2 Light Plate Finishing Tagger Paint System Preheater Paint System Dryer	EP 04-04 EP 04-05 EP 04-06 EP 17-01 EP 17-02 EP 18-01 EP 18-05	4.65	29.57	576069.45	4206417.79	ambient	71.08
EU04 EU17 EU18	Continuous Heat Treat Plasma Cutting Continuous Heat Treat Entry Tagger Light Plate Burning Beds #1 & #2 Light Plate Finishing Tagger Paint System Preheater Paint System Dryer	EP 04-04 EP 04-05 EP 04-06 EP 17-01 EP 17-02 EP 18-01 EP 18-05	4.65	29.57	576060.66	4206378.18	ambient	71.08
EU05	Light Plate Plasma Cutting Heavy Plate Hand-Held Tagger	EP 05-03 EP 05-04	2.33	41.90	575394.62	4206701.63	ambient	97.59
EU06	EAF Flux & Carbon Dump Fugitive Emissions	EP 06-01	3.49	6.98	575217.65	4206466.21	ambient	15.00
EU06	LMF Flux & Carbon Dump Fugitive Emissions	EP 06-03	3.49	6.98	575216.33	4206460.25	ambient	15.00
EU06	LMF Alloy Dump Fugitive Emissions	EP 06-05	3.49	6.98	575232.64	4206497.83	ambient	15.00

EU08	Barge Scrap Unloading	EP 08-01	11.44	22.89	575089.69	4207287.79	ambient	32.81
EU12	Slag Feed	EP 12-01	4.65	9.30	575098.73	4206777.98	ambient	16.40
EU12	Slag Magnet	EP 12-01	4.65	6.98	575066.14	4206788.27	ambient	9.84
EU12	Slag Screener	EP 12-01	4.65	6.98	575054.34	4206772.88	ambient	9.84
EU12	Slag Crushing	EP 12-01	4.65	6.98	575078.74	4206766.37	ambient	9.84
EU12	Pot Slagging	EP 12-03	4.65	9.30	575119.27	4206799.63	ambient	16.40
EU12	Scrap Cutting	EP 12-04	2.33	7.00	575095.50	4206830.23	ambient	9.84
EU14	Paved Roads	EP 14-01	See Note 2 of Section N.4	See Note 2 of Section N.4	See Note 2 of Section N.4	See Note 2 of Section N.4	See Note 2 of Section N.4	See Note 2 of Section N.4
EU14	Unpaved Roads	EP 14-02	See Note 2 of Section N.4	See Note 2 of Section N.4	See Note 2 of Section N.4	See Note 2 of Section N.4	See Note 2 of Section N.4	See Note 2 of Section N.4
EU12	Slag Dump/Ball Drop/Tundish Dump	EP 12-01	93.34	93.34	575106.77	4206757.63	ambient	8.00
EU12	1.25 Minus Slag Storage Pile	EP 12-02	93.34	93.34	575041.62	4206740.83	ambient	30.00
EU12	2.75 Minus Slag Storage Pile	EP 12-02	80.83	80.83	575008.00	4206753.00	ambient	30.00
EU12	Overflow Storage Pile	EP 12-02	161.66	161.66	575017.76	4206691.63	ambient	10.00

EU12	In-Process Slag Storage Pile	EP 12-02	69.22	69.22	575078.33	4206742.09	ambient	10.00
EU08	Scrap Pile North	EP 08-02 EP 08-03 EP 08-04	7.3 acres	8 Vertices	575477.28	4206926	ambient	16.40
EU08	Scrap Pile South	EP 08-02 EP 08-03 EP 08-04	6.6 acres	13 Vertices	575670.54	4206815.1	ambient	16.40
EU01 EU03 EU15	Primary Caster Torch Cut Off Secondary Caster Torch Cut Off Roughing Mill Stand Steckel Mill Finishing Stand Coil Sample Plasma Cutter Coil Tagger Rolling Mill Oxy-Fuel Plate Cutting Torch Rolling Mill Oxy-Fuel Coil Cutting Torch Ingot Grinding Ingot Grinding Oxy-Fuel Cutting Torch	EP 01-06 EP 03-03 EP 03-04 EP 03-06 EP 15-01 EP 03-10 EP 03-11	BOUYLINE	BOUYLINE	575399.889 575736.639	4206605.666 4206530.866	ambient	113.00

Section N.4: Notes, Comments, and Explanations
1. Melt Shop emissions include: EP 01-01 Electric Arc Furnace; EP 01-02 Ladle Metallurgical Furnace; EP 01-04 Continuous Caster; EP 01-08B Tundish Preparation - Relining; EP 01-09 Ladle Preparation; EP 01-10 Furnace Refractory Cleanout; EP 02-01 Seven (7) Ladle Preheaters; EP 02-03 Three (3) Tundish Preheaters; EP 02-04 Two (2) Tundish Dryers; EP 02-05 One (1) Mandrel Preheater; EP 02-06 Two (2) Tundish SEN Preheaters; and EP 08-04 Scrap Charging
2. Road volume source parameters are detailed in Appendix C - Emissions Calculations and Volume II Application

Division for Air Quality 300 Sower Boulevard Frankfort, KY 40601 (502) 564-3999	**DEP7007B** Manufacturing or Processing Operations ___ Section B.1: Process Information ___ Section B.2: Materials and Fuel Information ___ Section B.3: Notes, Comments, and Explanations	**Additional Documentation** ___ Complete DEP7007AI, DEP7007N, DEP7007V, and DEP7007GG. ___ Attach a flow diagram ___ Attach SDS

Source Name:	**Nucor Steel Brandenburg**
KY EIS (AFS) #:	**21-1163-00044**
Permit #:	**V-20-001 R1**
Agency Interest (AI) ID:	**162861**
Date:	**March 01, 2024**

Section B.1: Process Information

Emission Unit #	Emission Unit Name	Describe Emission Unit	Process ID	Process Name	Manufacturer	Model No.	Proposed/Actual Date of Construction Commencement *(MM/YYYY)*	Is the Process Continuous or Batch?	Number of Batches per 24 Hours *(if applicable)*	Hours per Batch *(if applicable)*
01-01	Single-Shell AC Electric Arc Furnace (EAF)	One Single-Shell AC Electric Arc Furnace equipped with a DEC system and roof canopy hood	01	Melt Shop	DANIELLI	N/A	01/2020	Batch	16	0.67
01-02	Ladle Metallurgical Furnace (LMF)	One twin-station LMF, ability to add flux and alloys to one ladle while another ladle is under heat using the shared set of electrodes with ability to heat only one ladle at a time.	01	Melt Shop	DANIELLI	N/A	01/2020	Batch	16	0.67
01-03	Vacuum Degasser	One twin-tank vacuum degasser	01	Melt Shop	DANIELLI	N/A	01/2020	Batch	16	0.67
01-04	Continuous Caster	One water-cooled continuous steel slab caster equipped with a canopy hood	01	Melt Shop	SMS	N/A	01/2020	Continuous	N/A	N/A
01-05	Caster Spray Vent	Two (2) fans for venting of steam formed from contact of water with hot steel	01	Melt Shop	SMS	N/A	01/2020	Continuous	N/A	N/A
01-06	Primary Caster Torch Cut-Off	Oxy-fuel-fired torch for cutting slabs to desired width length.	01	Melt Shop	ALBA	N/A	01/2020	Continuous	N/A	N/A
01-07	Melt Shop Baghouse Dust Handling System	Melt shop dust silo equipped with 1,200-scfm bin vent	01	Melt Shop	IAC	N/A	01/2020	Continuous	N/A	N/A
01-08A	Tundish Dump	Tundish refractory dump	01	Melt Shop	SMS	N/A	01/2020	Batch	As Needed	As Needed
01-08B	Tundish Repair	Tundish refractory relining	01	Melt Shop	SMS	N/A	01/2020	Batch	As Needed	As Needed
01-09A	Ladle Dump	Ladle refractory dump	01	Melt Shop	REICHARD	N/A	01/2020	Batch	As Needed	As Needed
01-09B	Ladle Repair	Ladle refractory relining	01	Melt Shop	REICHARD	N/A	01/2020	Batch	As Needed	As Needed
01-10	Furnace Refractory Cleanout	Removal of refractory, including relining	01	Melt Shop	N/A	N/A	01/2020	Batch	As Needed	As Needed
01-11	Caster Quench Box	Two (2) fans for venting of steam from contact of water with hot steel	01	Melt Shop	SMS	N/A	04/2020	Continuous	N/A	N/A
01-12	Secondary Caster Torch Cut-Off	Oxy-fuel-fired torch for cutting slabs to desired width length.	01	Melt Shop	ALBA	N/A	01/2020	Batch	As Needed	As Needed

Section B.2: Materials and Fuel Information

**Maximum yearly fuel usage rate only applies if applicant request operating restrictions through federally enforceable limitations.*

Emission Unit #	Emission Unit Name	Name of Raw Materials Input	Maximum Quantity of Each Raw Material Input		Total Process Weight Rate for Emission Unit *(tons/hr)*	Name of Finished Materials	Maximum Quantity of Each Finished Material Output		Fuel Type	Maximum Hourly Fuel Usage Rate		Maximum Yearly Fuel Usage Rate		Sulfur Content *(%)*	Ash Content *(%)*
				(Specify Units/hr)				*(Specify Units/hr)*			*(Specify Units)*		*(Specify Units)*		
01-01	Single-Shell AC Electric Arc Furnace (EAF)	Steel scrap Lime (burnt and dolomite) Carbon Alloys DRI Magnesium Oxide Lime/Fluorspar/Alumina Materials generated onsite	275 17 11 Variable 20 0-3.5 1-3.5 Variable	ton	272	Liquid Steel	272	ton	N/A	N/A	N/A	N/A	N/A	N/A	N/A
01-02	Ladle Metallurgical Furnace (LMF)	Liquid Steel Manganese Carbon Aluminum Calcium Wire Alloys	N/A 0-1,835 0-1,225 0-185 Variable Variable	ton	272	Liquid Steel	272	ton	N/A	N/A	N/A	N/A	N/A	N/A	N/A
01-03	Vacuum Degasser	Liquid Steel	272	ton	272	Liquid Steel	272	ton	N/A	N/A	N/A	N/A	N/A	N/A	N/A
01-04	Continuous Caster	Liquid Steel	420	ton	420	Steel Slab	420	ton	N/A	N/A	N/A	N/A	N/A	N/A	N/A
01-05	Caster Spray Vent	Cast Steel	420	ton	420	Steel Slab	420	ton	N/A	N/A	N/A	N/A	N/A	N/A	N/A
01-06	Primary Caster Torch Cut-Off	Cast Steel	420	ton	420	Steel Slab	420	ton	Oxy-fuel	0.0006	MMscf/hr	N/A	N/A	N/A	N/A
01-07	Melt Shop Baghouse Dust Handling System	Dust	6.8	ton	6.8	Dust	6.8	ton	N/A	N/A	N/A	N/A	N/A	N/A	N/A
01-08A	Tundish Dump	Refractory	2.7	ton	2.7	Refractory	2.7	ton	N/A	N/A	N/A	N/A	N/A	N/A	N/A
01-08B	Tundish Repair	Refractory	1.35	ton	12.35	Refractory	1.35	ton	N/A	N/A	N/A	N/A	N/A	N/A	N/A
01-09A	Ladle Dump	Refractory	36	ton	36	Refractory	36	ton	N/A	N/A	N/A	N/A	N/A	N/A	N/A
01-09B	Ladle Repair	Refractory	6	ton	6	Refractory	6	ton	N/A	N/A	N/A	N/A	N/A	N/A	N/A
01-10	Furnace Refractory Cleanout	Refractory	3.13	ton	3.13	Refractory	3.13	ton	N/A	N/A	N/A	N/A	N/A	N/A	N/A
01-11	Caster Quench Box	Cast Steel	420	ton	420	Steel Slab	420	ton	N/A	N/A	N/A	N/A	N/A	N/A	N/A
01-12	Secondary Caster Torch Cut-Off	Refractory	420	ton	420	Steel Slab	420	ton	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Division for Air Quality

300 Sower Boulevard
Frankfort, KY 40601
(502) 564-3999

DEP7007V

Applicable Requirements and Compliance Activities

___ Section V.1: Emission and Operating Limitation(s)
___ Section V.2: Monitoring Requirements
___ Section V.3: Recordkeeping Requirements
___ Section V.4: Reporting Requirements
___ Section V.5: Testing Requirements
___ Section V.6: Notes, Comments, and Explanations

Additional Documentation

___ Complete DEP7007AI

Source Name: Nucor Steel Brandenburg
KY EIS (AFS) #: 21-163-00044
Permit #: V-20-001-R1
Agency Interest (AI) ID: 162861
Date: March 01, 2024

Section V.1: Emission and Operating Limitation(s)

Emission Unit #	Emission Unit Description	Applicable Regulation or Requirement	Pollutant	Emission Limit (if applicable)	Voluntary Emission Limit or Exemption (if applicable)	Operating Requirement or Limitation (if applicable)	Method of Determining Compliance with the Emission and Operating Requirement(s)
EU01	Melt Shop Bahouse	40 CFR 60.272a(a)(2)	Opacity	≤ 3%	N/A	N/A	Monitoring (see V.2) Recordkeeping (see V.3) Reporting (see V.4) Testing (see V.5)
EU01	Melt Shop-Fugitives	40 CFR 60.272a(a)(3)	Opacity	≤ 6%	N/A	N/A	Monitoring (see V.2) Recordkeeping (see V.3) Reporting (see V.4) Testing (see V.5)
01-08	Melt Shop Baghouse Dust Handling System	40 CFR 60.272a(b)	Opacity	≤ 10%	N/A	N/A	Monitoring (see V.2) Recordkeeping (see V.3)
EU01	Melt Shop-Fugitives	401 KAR 59:010 Section 3	Opacity	≤ 20%	N/A	N/A	Monitoring (see V.2) Recordkeeping (see V.3)
EU01	Melt Shop Baghouse	40 CFR 60.272a(a)(1)	PM (filterable)	0.0018 gr/dscf	N/A	N/A	Monitoring (see V.2) Recordkeeping (see V.3) Reporting (see V.4) Testing (see V.5) Notes (see V.6)
EU01	Melt Shop Baghouse	401 KAR 51:017	PM10	0.0052 gr/dscf	N/A	N/A	Monitoring (see V.2) Recordkeeping (see V.3) Reporting (see V.4) Testing (see V.5) Notes (see V.6)
EU01	Melt Shop Baghouse	401 KAR 51:017	PM2.5	0.0034 gr/dscf	N/A	N/A	Monitoring (see V.2) Recordkeeping (see V.3) Reporting (see V.4) Testing (see V.5) Notes (see V.6)
EU01	Melt Shop Baghouse	401 KAR 51:017	CO	2 lb/ton of liquid steel produced on a 30-day average basis	N/A	N/A	Monitoring (see V.2) Recordkeeping (see V.3) Reporting (see V.4) Testing (see V.5) Notes (see V.6)
EU01	Melt Shop Baghouse	401 KAR 51:017	NO_x	0.42 lb/ton of liquid steel produced on a 30-day average basis	N/A	N/A	Monitoring (see V.2) Recordkeeping (see V.3) Reporting (see V.4) Testing (see V.5) Notes (see V.6)
EU01	Melt Shop Baghouse	401 KAR 51:017	SO_2	0.35 lb/ton of liquid steel produced on a 30-day average basis	N/A	N/A	Monitoring (see V.2) Recordkeeping (see V.3) Reporting (see V.4) Testing (see V.5) Notes (see V.6)
EU01	Melt Shop Baghouse	401 KAR 51:017	VOC	0.09 lb/ton of liquid steel produced on a 30-day average basis	N/A	N/A	Recordkeeping (see V.3) Testing (see V.5) Notes (see V.6)
EU01	Melt Shop Baghouse	401 KAR 51:017	CO_2e	535 lb/ton	N/A	N/A	Recordkeeping (see V.3) Notes (see V.6)

EU01	Melt Shop Baghouse	40 CFR 63.10686(a)	PM	N/A	N/A	The permittee shall install, operate, and maintain a capture system that collects the emissions from the EAF (including charging, melting, and tapping operations) and conveys the collected emissions to a control device for the removal of	Method 9 visible emission observations performed by a certified visible emission observer. Monitoring (see V.2) Recordkeeping (see V.3) Reporting (see V.4)
01-01	Electric Arc Furnace	40 CFR 63.10685(a)(1)	HAP	N/A	N/A	Operate according to the approved Pollution Prevention Plan (PPP) implemented for metallic scrap selection and inspection to minimize the amount of chlorinated plastics, lead, and free organic liquids that are charged to the furnace. The permittee shall provide training on the PPP's requirements to all	Recordkeeping (see V.3) Reporting (see V.4)
01-01	Electric Arc Furnace	40 CFR 63.10685(b)	HAP	N/A	N/A	For scrap containing motor vehicle scrap, the permittee must procure the scrap pursuant to one of the compliance options referenced in 40 CFR 63.10685(b)(1), (2), or (3), for each scrap provider	Recordkeeping (see V.3) Reporting (see V.4)
01-01	Electric Arc Furnace	40 CFR 63.6(e)(3)	HAP	N/A	N/A	Develop a written startup, shutdown, and malfunction (SSM) plan that describes in detail the procedures for operating and maintaining the collection and control system and the continuous monitoring system	Recordkeeping (see V.3) Reporting (see V.4)
01-01	Electric Arc Furnace	40 CFR 63.6(e)(3) and 40 CFR 64	HAP	N/A	N/A	A Compliance Assurance Monitoring (CAM) Plan shall be implemented with opacity and performance test results used as indicators of particulate matter emissions. The CAM Plan was submitted as part of the Title V renewal process. The permittee shall	Compliance is determined with the particulate matter standard as referenced in 40 CFR 60.275 Monitoring (see V.2) Recordkeeping (see V.3) Reporting (see V.4)
01-01	Electric Arc Furnace	401 KAR 51:017	N/A	N/A	N/A	Steel production rate shall not exceed 1,750,000 tons of liquid steel per year on a rolling 12-month basis	Monitoring (see V.2) Recordkeeping (see V.3) Reporting (see V.4)
01-03	Vacuum Degasser	401 KAR 51:017	PM (filterable)	0.008 gr/dscf	N/A	N/A	Monitoring (see V.2) Recordkeeping (see V.3)
01-03	Vacuum Degasser	401 KAR 51:017	NO_x	0.005 lb/ton	N/A	N/A	Monitoring (see V.2) Recordkeeping (see V.3)
01-03	Vacuum Degasser	401 KAR 51:017	CO	0.075 lb/ton	N/A	N/A	Monitoring (see V.2) Recordkeeping (see V.3)
01-03	Vacuum Degasser	401 KAR 51:017	VOC	0.005 lb/ton	N/A	N/A	Monitoring (see V.2) Recordkeeping (see V.3)
01-03	Vacuum Degasser	401 KAR 51:017	SO_2	0.005 lb/ton	N/A	N/A	Monitoring (see V.2) Recordkeeping (see V.3)

01-05	Caster Spray Vent	401 KAR 51:017	PM (filterable)	7.44E-03 gr/dscf	N/A	N/A	Monitoring (see V.2)
01-05	Caster Spray Vent	401 KAR 51:017	PM10	1.19E-03 gr/dscf	N/A	N/A	Monitoring (see V.2)
01-05	Caster Spray Vent	401 KAR 51:017	PM2.5	1.49E-04 gr/dscf	N/A	N/A	Monitoring (see V.2)
01-05	Caster Spray Vent	401 KAR 51:017	VOC	4.4 lb/hr	N/A	N/A	Monitoring (see V.2)
01-06	Primary Caster Torch Cutof	401 KAR 51:017	PM	49 lb/MMscf of natural gas	N/A	N/A	Monitoring (see V.2) Recordkeeping (see V.3)
01-06	Primary Caster Torch Cutof	401 KAR 51:017	NO_x	100 lb/MMscf	N/A	N/A	Monitoring (see V.2) Recordkeeping (see V.3)
01-06	Primary Caster Torch Cutof	401 KAR 51:017	CO	84 lb/MMscf	N/A	N/A	Monitoring (see V.2) Recordkeeping (see V.3)
01-06	Primary Caster Torch Cutof	401 KAR 51:017	VOC	5.5 lb/MMscf	N/A	N/A	Monitoring (see V.2) Recordkeeping (see V.3)
01-06	Primary Caster Torch Cutof	401 KAR 51:017	SO_2	0.6 lb/MMscf	N/A	N/A	Monitoring (see V.2) Recordkeeping (see V.3)
01-06	Primary Caster Torch Cutof	401 KAR 51:017	CO_2e	N/A	N/A	N/A	Monitoring (see V.2) Recordkeeping (see V.3)
01-07	Melt Shop Baghouse Dust Silo and Loadout	401 KAR 51:017	PM (filterable)	0.005 gr/dscf	N/A	N/A	Monitoring (see V.2) Recordkeeping (see V.3)
EU01	Melt Shop-Fugitives	403 KAR 63:010 Section 3	N/A	N/A	N/A	Do not cause or permit the discharge of visible fugitive dust emissions beyond the lot line of the property on which	N/A
EU01	Melt Shop-Fugitives	403 KAR 63:010 Section 3	N/A	N/A	N/A	Take reasonable precautions to prevent particulate matter from becoming airborne.	N/A
01-08A	Tundish Dump	401 KAR 51:017	PM (filterable)	0.024 lb/hr	N/A	N/A	Monitoring (see V.2)
01-08A	Tundish Dump	401 KAR 51:017	PM10	0.012 lb/hr	N/A	N/A	Monitoring (see V.2)
01-08A	Tundish Dump	401 KAR 51:017	PM2.5	0.004 lb/hr	N/A	N/A	Monitoring (see V.2)
01-11	Caster Quench Box	401 KAR 51:017	PM (filterable)	7.44E-03 gr/dscf	N/A	N/A	Monitoring (see V.2)
01-11	Caster Quench Box	401 KAR 51:017	PM10	1.19E-03 gr/dscf	N/A	N/A	Monitoring (see V.2)
01-11	Caster Quench Box	401 KAR 51:017	PM2.5	1.49E-04 gr/dscf	N/A	N/A	Monitoring (see V.2)
01-12	Secondary Caster Torch Cutoff	401 KAR 51:017	PM	51 lb/MMscf of Natural Gas	N/A	N/A	Monitoring (see V.2) Recordkeeping (see V.3)
01-12	Secondary Caster Torch Cutoff	401 KAR 51:017	NO_x	100 lb/MMscf	N/A	N/A	Monitoring (see V.2) Recordkeeping (see V.3)
01-12	Secondary Caster Torch Cutoff	401 KAR 51:017	CO	84 lb/MMscf	N/A	N/A	Monitoring (see V.2) Recordkeeping (see V.3)
01-12	Secondary Caster Torch Cutoff	401 KAR 51:017	VOC	5.5 lb/MMscf	N/A	N/A	Monitoring (see V.2) Recordkeeping (see V.3)
01-12	Secondary Caster Torch Cutoff	401 KAR 51:017	SO_2	0.6 lb/MMscf	N/A	N/A	Monitoring (see V.2) Recordkeeping (see V.3)
01-12	Secondary Caster Torch Cutoff	401 KAR 51:017	CO_2e	N/A	N/A	N/A	Monitoring (see V.2) Recordkeeping (see V.3)

Section V.2: Monitoring Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Monitored	Description of Monitoring
EU01	Melt Shop Bahouse	Opacity	40 CFR 60.272a(a)(2)	Opacity	Visible emission observations shall be conducted at least once per day for at least three 6-minute periods when the furnace is operating in the melting and refining period.
EU01	Melt Shop-Fugitives	Opacity	40 CFR 60.272a(a)(3)	Opacity	Visible emission observations from the Melt Shop opening, expected to have the highest opacity, shall be conducted at least once per day when the EAF (EP 01-01) is operating in the melting and refining period.
01-08	Melt Shop Baghouse Dust Handling System	Opacity	40 CFR 60.272a(b)	Opacity	At least once per week, a qualitative observation shall be conducted during operation of the baghouse dust handling equipment.
EU01	Melt Shop-Fugitives	Opacity	401 KAR 59:010 Section 3	Opacity	Visible emission observations from the Melt Shop opening, expected to have the highest opacity, shall be conducted at least once per week when the EAF (EP 01-01) is offline.
EU01	Melt Shop Baghouse	PM (filterable)	40 CFR 60.272a(a)(1)	Bag Leak	Install and operate a continuous opacity monitoring system or install and continuously operate a bag leak detection system on all single-stack fabric filters.
EU01	Melt Shop Baghouse	PM10	401 KAR 51:017	Bag Leak	Install and operate a continuous opacity monitoring system or install and continuously operate a bag leak detection system on all single-stack fabric filters.
EU01	Melt Shop Baghouse	PM2.5	401 KAR 51:017	Bag Leak	Install and operate a continuous opacity monitoring system or install and continuously operate a bag leak detection system on all single-stack fabric filters.
EU01	Melt Shop Baghouse	CO	401 KAR 51:017	CO	If the CEM data (set of 24 hour block averages) recorded in a calendar quarter show excursions from the hourly emission limit that occur in the aggregate for more than 5% of the total number of 24 hour sets generated during the quarter, the permittee shall contact the Division within thirty (30) days of aggregation of said excursions to schedule a performance test to demonstrate compliance with the carbon monoxide emission rate.

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Monitored	Description of Monitoring
EU01	Melt Shop Baghouse	NO_x	401 KAR 51:017	NO_x	If the CEM data (set of 24 hour block averages) recorded in a calendar quarter show excursions from the hourly emission limit that occur in the aggregate for more than 5% of the total number of 24 hour sets generated during the quarter, the permittee shall contact the Division within thirty (30) days of aggregation of said excursions to schedule a performance test to demonstrate compliance with the nitrogen oxide emission rate.
EU01	Melt Shop Baghouse	SO_2	401 KAR 51:017	SO_2	If the CEM data (set of 24 hour block averages) recorded in a calendar quarter show excursions from the hourly emission limit that occur in the aggregate for more than 5% of the total number of 24 hour sets generated during the quarter, the permittee shall contact the Division within thirty (30) days of aggregation of said excursions to schedule a performance test to demonstrate compliance with the sulfur dioxide emission rate.
EU01	Melt Shop Baghouse	VOC	401 KAR 51:017	N/A	General Monitoring Requirements
EU01	Melt Shop Baghouse	CO_2e	401 KAR 51:017	N/A	General Monitoring Requirements
EU01	Melt Shop Baghouse	PM	40 CFR 63.10686(a)	Opacity	Observations of visible emissions from the Melt Shop opening expected to have the highest opacity shall be conducted at least once per day when the EAF (EP 01-01) is operating in the meltdown and refining period.
01-01	Electric Arc Furnace	HAP	40 CFR 63.10685(a)(1)	N/A	General Monitoring Requirements
01-01	Electric Arc Furnace	HAP	40 CFR 63.10685(b)	N/A	General Monitoring Requirements
01-01	Electric Arc Furnace	HAP	40 CFR 63.6(e)(3)	N/A	General Monitoring Requirements
01-01	Electric Arc Furnace	HAP	40 CFR 63.6(e)(3) and 40 CFR 64	N/A	Monitoring conducted in accordance with the approved CAM plan.

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Monitored	Description of Monitoring
01-01	Electric Arc Furnace	N/A	401 KAR 51:017	N/A	The daily, monthly, and 12-month rolling steel production rate.
01-03	Vacuum Degasser	PM (filterable)	401 KAR 51:017	N/A	Routine Maintenance
01-03	Vacuum Degasser	NO_x	401 KAR 51:017	N/A	Routine Maintenance
01-03	Vacuum Degasser	CO	401 KAR 51:017	N/A	Routine Maintenance
01-03	Vacuum Degasser	VOC	401 KAR 51:017	N/A	Routine Maintenance
01-03	Vacuum Degasser	SO_2	401 KAR 51:017	N/A	Routine Maintenance
01-05	Caster Spray Vent	PM (filterable)	401 KAR 51:017	N/A	Periodic Inspections
01-05	Caster Spray Vent	PM10	401 KAR 51:017	N/A	Periodic Inspections
01-05	Caster Spray Vent	PM2.5	401 KAR 51:017	N/A	Periodic Inspections
01-05	Caster Spray Vent	VOC	401 KAR 51:017	N/A	Routine Maintenance

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Monitored	Description of Monitoring
01-06	Primary Caster Torch Cutoff	PM	401 KAR 51:017	N/A	Routine Maintenance
01-06	Primary Caster Torch Cutoff	NO_x	401 KAR 51:017	N/A	Routine Maintenance
01-06	Primary Caster Torch Cutoff	CO	401 KAR 51:017	N/A	Routine Maintenance
01-06	Primary Caster Torch Cutoff	VOC	401 KAR 51:017	N/A	Routine Maintenance
01-06	Primary Caster Torch Cutoff	SO_2	401 KAR 51:017	N/A	Routine Maintenance
01-06	Primary Caster Torch Cutoff	CO_2e	401 KAR 51:017	N/A	Routine Maintenance
01-07	Melt Shop Baghouse Dust Silo and Loadout	PM (filterable)	401 KAR 51:017	N/A	Routine maintenance on the control equipment
EU01	Melt Shop-Fugitives	N/A	403 KAR 63:010 Section 3	N/A	Routine maintenance on the control equipment
EU01	Melt Shop-Fugitives	N/A	403 KAR 63:010 Section 3	N/A	Routine maintenance on the control equipment
01-08A	Tundish Dump	PM (filterable)	401 KAR 51:017	N/A	Routine maintenance on the control equipment

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Monitored	Description of Monitoring
01-08A	Tundish Dump	PM10	401 KAR 51:017	N/A	Periodic Inspections
01-08A	Tundish Dump	PM2.5	401 KAR 51:017	N/A	Periodic Inspections
01-11	Caster Quench Box	PM (filterable)	401 KAR 51:017	N/A	Periodic Inspections
01-11	Caster Quench Box	PM10	401 KAR 51:017	N/A	Periodic Inspections
01-11	Caster Quench Box	PM2.5	401 KAR 51:017	N/A	Periodic Inspections
01-12	Secondary Caster Torch Cutoff	PM	401 KAR 51:017	N/A	Routine Maintenance
01-12	Secondary Caster Torch Cutoff	NO_x	401 KAR 51:017	N/A	Routine Maintenance
01-12	Secondary Caster Torch Cutoff	CO	401 KAR 51:017	N/A	Routine Maintenance
01-12	Secondary Caster Torch Cutoff	VOC	401 KAR 51:017	N/A	Routine Maintenance
01-12	Secondary Caster Torch Cutoff	SO_2	401 KAR 51:017	N/A	Routine Maintenance

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Monitored	Description of Monitoring
01-12	Secondary Caster Torch Cutoff	CO_2e	401 KAR 51:017	N/A	Routine Maintenance

Section V.3: Recordkeeping Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Recorded	Description of Recordkeeping
EU01	Melt Shop Bahouse	Opacity	40 CFR 60.272a(a)(2)	Opacity	Parameters monitored to demonstrate compliance with visible emission standards must be retained for at least 2 years following the date of the measurement.
EU01	Melt Shop-Fugitives	Opacity	40 CFR 60.272a(a)(2)	Opacity	The permittee shall maintain records of any Melt Shop (EU 01) opacity observations that exceed the six (6) percent opacity from any Melt Shop (EU 01) opening.
01-08	Melt Shop Baghouse Dust Handling System	Opacity	40 CFR 60.272a(b)	Opacity	Parameters monitored to demonstrate compliance with visible emission standards must be retained for at least 2 years following the date of the measurement.
EU01	Melt Shop-Fugitives	Opacity	401 KAR 59:010 Section 3	Opacity	Parameters monitored to demonstrate compliance with visible emission standards.
EU01	Melt Shop Baghouse	PM (filterable)	40 CFR 60.272a(a)(1)	Bag Leak	Maintain the following records for each bag leak detection system required under §60.273a(e): Records of the bag leak detection system output; records of bag leak detection system adjustments, including the date and time of the adjustment, the initial bag leak detection system settings, and the final bag leak detection system settings; and an identification of the date and time of all bag leak detection system alarms, the time that procedures to determine the cause of the alarm were initiated, if procedures were initiated within 1 hour of the alarm, the cause of the alarm, an explanation of the actions taken, the date and time the cause of the alarm was alleviated, and if the alarm was alleviated within 3 hours of the alarm.
EU01	Melt Shop Baghouse	PM10	401 KAR 51:017	Bag Leak	Maintain the following records for each bag leak detection system required under §60.273a(e): Records of the bag leak detection system output; records of bag leak detection system adjustments, including the date and time of the adjustment, the initial bag leak detection system settings, and the final bag leak detection system settings; and an identification of the date and time of all bag leak detection system alarms, the time that procedures to determine the cause of the alarm were initiated, if procedures were initiated within 1 hour of the alarm, the cause of the alarm, an explanation of the actions taken, the date and time the cause of the alarm was alleviated, and if the alarm was alleviated within 3 hours of the alarm.

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Recorded	Description of Recordkeeping
EU01	Melt Shop Baghouse	PM2.5	401 KAR 51:017	Bag Leak	Maintain the following records for each bag leak detection system required under §60.273a(e): Records of the bag leak detection system output; records of bag leak detection system adjustments, including the date and time of the adjustment, the initial bag leak detection system settings, and the final bag leak detection system settings; and an identification of the date and time of all bag leak detection system alarms, the time that procedures to determine the cause of the alarm were initiated, if procedures were initiated within 1 hour of the alarm, the cause of the alarm, an explanation of the actions taken, the date and time the cause of the alarm was alleviated, and if the alarm was alleviated within 3 hours of the alarm.
EU01	Melt Shop Baghouse	CO	401 KAR 51:017	CO concentration and steel production	CO concentrations recorded from the CEMs showing the corresponding steel production data and other data used to provide reasonable assurance of compliance with CO emission limitations.
EU01	Melt Shop Baghouse	NO_x	401 KAR 51:017	NO_x concentration and steel production	NO_x (expressed as NO_2) concentrations recorded from the CEMs showing the corresponding steel production data and other data used to provide reasonable assurance of compliance with NOX emission limitations.
EU01	Melt Shop Baghouse	SO_2	401 KAR 51:017	SO_2 concentration and steel production	SO_2 concentrations recorded from the CEMs showing the corresponding steel production data and other data used to provide reasonable assurance of compliance with SO_2 emission limitations.
EU01	Melt Shop Baghouse	VOC	401 KAR 51:017	Steel Production	Steel production data to provide reasonable assurance of compliance with proceess rate based VOC emission limit.
EU01	Melt Shop Baghouse	CO_2e	401 KAR 51:017	Energy Efficiency Measures	Maintain records of any time that an emission point was not operated according to Good Work Practices
EU01	Melt Shop Baghouse	PM	40 CFR 63.10686(a)	Opacity	Parameters monitored to demonstrate compliance with visible emission standards.

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Recorded	Description of Recordkeeping
01-01	Electric Arc Furnace	HAP	40 CFR 63.10685(a)(1)	N/A	The permittee shall comply with the requirements of 40 CFR 63.10685(c), Recordkeeping and reporting requirements. The permittee must keep records to demonstrate compliance with the requirements for the PPP identified in 40 CFR 63.10685(a)(1) and/or for the use of only restricted scrap as provided for in 40 CFR 63.10685(a)(2) and for mercury in 40 CFR 63.10867(b)(1) through (3) as applicable. The permittee must keep records documenting compliance with 40 CFR 63.10685(b)(4) for scrap that does not contain motor vehicle scrap. [40 CFR 63.10685(c)] The permitte shall maintain records of the training conducted in accordance with the PPP.
01-01	Electric Arc Furnace	HAP	40 CFR 63.10685(b)	Scrap or Scrap Substitutes	The permittee shall keep records of the amounts and types, as well as a general description of, the scrap or scrap substitutes charged to the furnace. If the permittee is subject to the requirements for a site-specific plan for mercury under 40 CFR 63.10685(b)(1), the permittee must maintain records of the number of mercury switches removed or the weight of mercury recovered from the switches and properly managed, the estimated number of vehicles processed, and an estimate of the percent of mercury switches recovered. [40 CFR 63.10685(c)(1)(i)] If the permittee is subject to the option for approved mercury programs under 40 CFR 63.10685(b)(2), the permittee must maintain records identifying each scrap provider and documenting the scrap provider's participation in an approved mercury switch removal program. If the permittee purchases motor vehicle scrap from a broker, the permittee must maintain records identifying each broker and documentation that all scrap provided by the broker was obtained from other scrap providers who participate in an approved mercury switch removal program. [40 CFR 63.10685(c)(2)]
01-01	Electric Arc Furnace	HAP	40 CFR 63.6(e)(3)	SSM Event	When actions taken during a SSM event are consistent with the procedures specified in the affected source's SSM plan, the permittee shall keep records for that event, which demonstrate that the procedures specified in the plan were followed. The records may take the form of a checklist and shall include the requirements of 40 CFR 60.10(b).
01-01	Electric Arc Furnace	HAP	40 CFR 63.6(e)(3) and 40 CFR 64	N/A	Keep records of opacity readings, inspection/maintenance, and performance test results as required by the approved CAM Plan.
01-01	Electric Arc Furnace	N/A	401 KAR 51:017	N/A	Maintain records of the daily, monthly, and 12-month rolling steel production rate.

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Recorded	Description of Recordkeeping
01-03	Vacuum Degasser	PM (filterable)	401 KAR 51:017	N/A	General Recordkeeping Requirements
01-03	Vacuum Degasser	NO_x	401 KAR 51:017	N/A	General Recordkeeping Requirements
01-03	Vacuum Degasser	CO	401 KAR 51:017	N/A	General Recordkeeping Requirements
01-03	Vacuum Degasser	VOC	401 KAR 51:017	N/A	General Recordkeeping Requirements
01-03	Vacuum Degasser	SO_2	401 KAR 51:017	N/A	General Recordkeeping Requirements
01-05	Caster Spray Vent	PM (filterable)	401 KAR 51:017	N/A	General Recordkeeping Requirements
01-05	Caster Spray Vent	PM10	401 KAR 51:017	N/A	General Recordkeeping Requirements
01-05	Caster Spray Vent	PM2.5	401 KAR 51:017	N/A	General Recordkeeping Requirements
01-05	Caster Spray Vent	VOC	401 KAR 51:017	N/A	General Recordkeeping Requirements
01-06	Primary Caster Torch Cutoff	PM	401 KAR 51:017	N/A	General Recordkeeping Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Recorded	Description of Recordkeeping
01-06	Primary Caster Torch Cutoff	NO_x	401 KAR 51:017	N/A	General Recordkeeping Requirements
01-06	Primary Caster Torch Cutoff	CO	401 KAR 51:017	N/A	General Recordkeeping Requirements
01-06	Primary Caster Torch Cutoff	VOC	401 KAR 51:017	N/A	General Recordkeeping Requirements
01-06	Primary Caster Torch Cutoff	SO_2	401 KAR 51:017	N/A	General Recordkeeping Requirements
01-06	Primary Caster Torch Cutoff	CO_2e	401 KAR 51:017	N/A	General Recordkeeping Requirements
01-07	Melt Shop Baghouse Dust Silo and Loadout	PM (filterable)	401 KAR 51:017	N/A	Keep record of maintenance performed on control equipment
EU01	Melt Shop-Fugitives	N/A	403 KAR 63:010 Section 3	N/A	General Recordkeeping Requirements
EU01	Melt Shop-Fugitives	N/A	403 KAR 63:010 Section 3	N/A	General Recordkeeping Requirements
01-08A	Tundish Dump	PM (filterable)	401 KAR 51:017	N/A	General Recordkeeping Requirements
01-08A	Tundish Dump	PM10	401 KAR 51:017	N/A	General Recordkeeping Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Recorded	Description of Recordkeeping
01-08A	Tundish Dump	PM2.5	401 KAR 51:017	N/A	General Recordkeeping Requirements
01-11	Caster Quench Box	PM (filterable)	401 KAR 51:017	N/A	General Recordkeeping Requirements
01-11	Caster Quench Box	PM10	401 KAR 51:017	N/A	General Recordkeeping Requirements
01-11	Caster Quench Box	PM2.5	401 KAR 51:017	N/A	General Recordkeeping Requirements
01-12	Secondary Caster Torch Cutoff	PM	401 KAR 51:017	N/A	General Recordkeeping Requirements
01-12	Secondary Caster Torch Cutoff	NO_x	401 KAR 51:017	N/A	General Recordkeeping Requirements
01-12	Secondary Caster Torch Cutoff	CO	401 KAR 51:017	N/A	General Recordkeeping Requirements
01-12	Secondary Caster Torch Cutoff	VOC	401 KAR 51:017	N/A	General Recordkeeping Requirements
01-12	Secondary Caster Torch Cutoff	SO_2	401 KAR 51:017	N/A	General Recordkeeping Requirements
01-12	Secondary Caster Torch Cutoff	CO_2e	401 KAR 51:017	N/A	General Recordkeeping Requirements

Section V.4: Reporting Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Reported	Description of Reporting
EU01	Melt Shop Bahouse	Opacity	40 CFR 60.272a(a)(2)	Opacity	Submit a written report of exceedances of the control device opacity to the Administrator semi-annually. For the purposes of these reports, exceedances are defined as all 6-minute periods during which the average opacity is 3 percent or greater.
EU01	Melt Shop-Fugitives	Opacity	40 CFR 60.272a(a)(2)	Opacity	Submit semi-annual written reports in accordance with 40 CFR 60.7(c) of records of any Melt Shop (EU01) opacity observations that exceed the six (6) percent opacity from any Melt Shop (EU01) opening.
01-08	Melt Shop Baghouse Dust Handling System	Opacity	40 CFR 60.272a(b)	Opacity	The permittee shall comply with the reporting requirements of 40 CFR 60.276a.
EU01	Melt Shop-Fugitives	Opacity	401 KAR 59:010 Section 3	N/A	General Reporting Requirements
EU01	Melt Shop Baghouse	PM (filterable)	40 CFR 60.272a(a)(1)	PM	The permittee shall comply with the reporting requirements of 40 CFR 60.276a.
EU01	Melt Shop Baghouse	CO	401 KAR 51:017	CO	Within 30 days of the end of each calendar quarter, the permittee shall submit to the Division a report containing the number of excursions above the SO2, CO and NOX emission limitations. The report shall include the date and time of the excursions, the indicated values of the excursions, and the percentage of EAF (EP 01-01) operating time during which excursions occurred in the calendar quarter. The permittee shall provide quarterly written and electronically formatted reports containing the data provided by the continuous emission devices. All reports shall be post marked by the thirtieth (30th) day following the end of each calendar quarter and shall be submitted in the format specified by the Division.

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Reported	Description of Reporting
EU01	Melt Shop Baghouse	NO_x	401 KAR 51:017	NO_x	Within 30 days of the end of each calendar quarter, the permittee shall submit to the Division a report containing the number of excursions above the SO2, CO and NOX emission limitations. The report shall include the date and time of the excursions, the indicated values of the excursions, and the percentage of EAF (EP 01-01) operating time during which excursions occurred in the calendar quarter. The permittee shall provide quarterly written and electronically formatted reports containing the data provided by the continuous emission devices. All reports shall be post marked by the thirtieth (30th) day following the end of each calendar quarter and shall be submitted in the format specified by the Division.
EU01	Melt Shop Baghouse	SO_2	401 KAR 51:017	SO_2	Within 30 days of the end of each calendar quarter, the permittee shall submit to the Division a report containing the number of excursions above the SO2, CO and NOX emission limitations. The report shall include the date and time of the excursions, the indicated values of the excursions, and the percentage of EAF (EP 01-01) operating time during which excursions occurred in the calendar quarter. The permittee shall provide quarterly written and electronically formatted reports containing the data provided by the continuous emission devices. All reports shall be post marked by the thirtieth (30th) day following the end of each calendar quarter and shall be submitted in the format specified by the Division.
EU01	Melt Shop Baghouse	VOC	401 KAR 51:017	N/A	General Reporting Requirements
EU01	Melt Shop Baghouse	CO_2e	401 KAR 51:017	N/A	General Reporting Requirements
EU01	Melt Shop Baghouse	PM	40 CFR 63.10686(a)	N/A	General Reporting Requirements
01-01	Electric Arc Furnace	HAP	40 CFR 63.10685(a)(1)	N/A	The permittee shall submit semiannual compliance reports to the Division for the control of contaminants from scrap according to the requirements in 40 CFR 63.10(e). The report must clearly identify any deviation from the requirements in 40 CFR 63.10685(a) and (b) and the corrective action taken. The permittee shall identify which compliance option in 40 CFR 63.10685(b) applies to each scrap provider, contract, or shipment. [40 CFR 63.10685(c)(3)]

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Reported	Description of Reporting
01-01	Electric Arc Furnace	HAP	40 CFR 63.10685(b)	N/A	If the permittee is subject to the requirements for a site-specific plan for mercury under 40 CFR 63.10685(b)(1), the permittee shall submit semiannual reports of the number of mercury switches removed or the weight of mercury recovered from the switches and properly managed, the estimated number of vehicles processed, an estimate of the percent of mercury switches recovered, and a certification that the recovered mercury switches were recycled at RCRA-permitted facilities. The semiannual reports must include a certification that the permittee has conducted inspections or taken other means of corroboration as required under 40 CFR 63.10685(b)(1)(ii)(C).
01-01	Electric Arc Furnace	HAP	40 CFR 63.6(e)(3)	N/A	Submit a semi-annual startup, shutdown, and malfunction report according to the requirements in 40 CFR 63.10(d)(5)(i) and immediate startup, shutdown, and malfunction reports 40 CFR 63.10(d)(5)(ii).
01-01	Electric Arc Furnace	HAP	40 CFR 63.6(e)(3) and 40 CFR 64	N/A	Semi-annual reporting summarizing the number, duration and cause of excursions or exceedances, as applicable, and the corrective actions taken; the number, duration and cause for monitor downtime incidents (other than downtime associated with zero and span or other daily calibration checks, if applicable); and the actions taken to implement a QIP during the reporting period as specified in §64.8.
01-01	Electric Arc Furnace	N/A	401 KAR 51:017	Steel Production Rate	Submit semi-annual written reports of the daily, monthly, and 12-month rolling steel production rate.
01-03	Vacuum Degasser	PM (filterable)	401 KAR 51:017	N/A	General Reporting Requirements
01-03	Vacuum Degasser	NO_x	401 KAR 51:017	N/A	General Reporting Requirements
01-03	Vacuum Degasser	CO	401 KAR 51:017	N/A	General Reporting Requirements
01-03	Vacuum Degasser	VOC	401 KAR 51:017	N/A	General Reporting Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Reported	Description of Reporting
01-03	Vacuum Degasser	SO_2	401 KAR 51:017	N/A	General Reporting Requirements
01-05	Caster Spray Vent	PM (filterable)	401 KAR 51:017	N/A	General Reporting Requirements
01-05	Caster Spray Vent	PM10	401 KAR 51:017	N/A	General Reporting Requirements
01-05	Caster Spray Vent	PM2.5	401 KAR 51:017	N/A	General Reporting Requirements
01-05	Caster Spray Vent	VOC	401 KAR 51:017	N/A	General Reporting Requirements
01-06	Primary Caster Torch Cutoff	PM	401 KAR 51:017	N/A	General Reporting Requirements
01-06	Primary Caster Torch Cutoff	NO_x	401 KAR 51:017	N/A	General Reporting Requirements
01-06	Primary Caster Torch Cutoff	CO	401 KAR 51:017	N/A	General Reporting Requirements
01-06	Primary Caster Torch Cutoff	VOC	401 KAR 51:017	N/A	General Reporting Requirements
01-06	Primary Caster Torch Cutoff	SO_2	401 KAR 51:017	N/A	General Reporting Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Reported	Description of Reporting
01-06	Primary Caster Torch Cutoff	CO_2e	401 KAR 51:017	N/A	General Reporting Requirements
01-07	Melt Shop Baghouse Dust Silo and Loadout	PM (filterable)	401 KAR 51:017	N/A	General Reporting Requirements
EU01	Melt Shop-Fugitives	N/A	403 KAR 63:010 Section 3	N/A	General Reporting Requirements
EU01	Melt Shop-Fugitives	N/A	403 KAR 63:010 Section 3	N/A	General Reporting Requirements
01-08A	Tundish Dump	PM (filterable)	401 KAR 51:017	N/A	General Reporting Requirements
01-08A	Tundish Dump	PM10	401 KAR 51:017	N/A	General Reporting Requirements
01-08A	Tundish Dump	PM2.5	401 KAR 51:017	N/A	General Reporting Requirements
01-11	Caster Quench Box	PM (filterable)	401 KAR 51:017	N/A	General Reporting Requirements
01-11	Caster Quench Box	PM10	401 KAR 51:017	N/A	General Reporting Requirements
01-11	Caster Quench Box	PM2.5	401 KAR 51:017	N/A	General Reporting Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Reported	Description of Reporting
01-12	Secondary Caster Torch Cutoff	PM	401 KAR 51:017	N/A	General Reporting Requirements
01-12	Secondary Caster Torch Cutoff	NO_x	401 KAR 51:017	N/A	General Reporting Requirements
01-12	Secondary Caster Torch Cutoff	CO	401 KAR 51:017	N/A	General Reporting Requirements
01-12	Secondary Caster Torch Cutoff	VOC	401 KAR 51:017	N/A	General Reporting Requirements
01-12	Secondary Caster Torch Cutoff	SO_2	401 KAR 51:017	N/A	General Reporting Requirements
01-12	Secondary Caster Torch Cutoff	CO_2e	401 KAR 51:017	N/A	General Reporting Requirements

Section V.5: Testing Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Tested	Description of Testing
EU01	Melt Shop Bahouse	Opacity	40 CFR 60.272a(a)(2)	Opacity	Method 9 test runs shall be conducted concurrently with the particulate matter test runs , unless inclement weather interferes.
EU01	Melt Shop-Fugitives	Opacity	40 CFR 60.272a(a)(2)	Opacity	Method 9 test runs shall be conducted concurrently with the particulate matter test runs, unless inclement weather interferes.
01-08	Melt Shop Baghouse Dust Handling System	Opacity	40 CFR 60.272a(b)	Opacity	Method 9 test runs shall be conducted concurrently with the particulate matter test runs, unless inclement weather interferes.
EU01	Melt Shop-Fugitives	Opacity	401 KAR 59:010 Section 3	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
EU01	Melt Shop Baghouse	PM (filterable)	40 CFR 60.272a(a)(1)	PM	Method 5 shall be used for negative-pressure fabric filters and other types of control devices and Method 5D shall be used for positive-pressure fabric filters to determine the particulate matter concentration and volumetric flow rate of the effluent gas. The sampling time and sample volume for each run shall be at least 4 hours and 4.50 dscm (160 dscf) and, when a single EAF or AOD vessel is sampled, the sampling time shall include an integral number of heats. [40 CFR 60.275a(e)(1)]

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Tested	Description of Testing
EU01	Melt Shop Baghouse	PM	401 KAR 51:017	PM	Conduct annual performance tests for Melt Shop Baghouse stack within 60 days after achieving the maximum production rate at which the EAF (EP 01-01) will be operated, but not later than 180 days after initial startup and every year thereafter for PM, PM10, PM2.5, and VOC. If two consecutive annual tests result in PM, PM10, PM2.5, or VOC emissions being less than or equal to 75% of the standards for the associated pollutant specified herein, then no additional annual testing shall be required for that pollutant during the term of this permit provided that the source is operated according to the operating scenario that was in use when compliance was demonstrated and the CEMs systems continue to be properly operated, calibrated, and maintained.
EU01	Melt Shop Baghouse	PM10	401 KAR 51:017	PM10	Conduct annual performance tests for Melt Shop Baghouse stack within 60 days after achieving the maximum production rate at which the EAF (EP 01-01) will be operated, but not later than 180 days after initial startup and every year thereafter for PM, PM10, PM2.5, and VOC. If two consecutive annual tests result in PM, PM10, PM2.5, or VOC emissions being less than or equal to 75% of the standards for the associated pollutant specified herein, then no additional annual testing shall be required for that pollutant during the term of this permit provided that the source is operated according to the operating scenario that was in use when compliance was demonstrated and the CEMs systems continue to be properly operated, calibrated, and maintained.

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Tested	Description of Testing
EU01	Melt Shop Baghouse	PM2.5	401 KAR 51:017	PM2.5	Conduct annual performance tests for Melt Shop Baghouse stack within 60 days after achieving the maximum production rate at which the EAF (EP 01-01) will be operated, but not later than 180 days after initial startup and every year thereafter for PM, PM10, PM2.5, and VOC. If two consecutive annual tests result in PM, PM10, PM2.5, or VOC emissions being less than or equal to 75% of the standards for the associated pollutant specified herein, then no additional annual testing shall be required for that pollutant during the term of this permit provided that the source is operated according to the operating scenario that was in use when compliance was demonstrated and the CEMs systems continue to be properly operated, calibrated, and maintained.
EU01	Melt Shop Baghouse	CO	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
EU01	Melt Shop Baghouse	NO_x	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
EU01	Melt Shop Baghouse	SO_2	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
EU01	Melt Shop Baghouse	VOC	401 KAR 51:017	VOC	Conduct annual performance tests for Melt Shop Baghouse stack within 60 days after achieving the maximum production rate at which the EAF (EP 01-01) will be operated, but not later than 180 days after initial startup and every year thereafter for PM, PM10, PM2.5, and VOC. If two consecutive annual tests result in PM, PM10, PM2.5, or VOC emissions being less than or equal to 75% of the standards for the associated pollutant specified herein, then no additional annual testing shall be required for that pollutant during the term of this permit provided that the source is operated according to the operating scenario that was in use when compliance was demonstrated and the CEMs systems continue to be properly operated, calibrated, and maintained.

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Tested	Description of Testing
EU01	Melt Shop Baghouse	CO_2e	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
EU01	Melt Shop Baghouse	PM	40 CFR 63.10686(a)	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
01-01	Electric Arc Furnace	HAP	40 CFR 63.10685(a)(1)	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
01-01	Electric Arc Furnace	HAP	40 CFR 63.10685(b)	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
01-01	Electric Arc Furnace	HAP	40 CFR 63.6(e)(3)	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
01-01	Electric Arc Furnace	HAP	40 CFR 63.6(e)(3) and 40 CFR 64	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
01-01	Electric Arc Furnace	N/A	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
01-03	Vacuum Degasser	PM (filterable)	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
01-03	Vacuum Degasser	NO_x	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
01-03	Vacuum Degasser	CO	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Tested	Description of Testing
01-03	Vacuum Degasser	VOC	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
01-03	Vacuum Degasser	SO_2	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
01-05	Caster Spray Vent	PM (filterable)	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
01-05	Caster Spray Vent	PM10	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
01-05	Caster Spray Vent	PM2.5	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
01-05	Caster Spray Vent	VOC	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
01-06	Primary Caster Torch Cutoff	PM	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
01-06	Primary Caster Torch Cutoff	NO_x	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
01-06	Primary Caster Torch Cutoff	CO	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
01-06	Primary Caster Torch Cutoff	VOC	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Tested	Description of Testing
01-06	Primary Caster Torch Cutoff	SO_2	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
01-06	Primary Caster Torch Cutoff	CO_2e	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
01-07	Melt Shop Baghouse Dust Silo and Loadout	PM (filterable)	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
EU01	Melt Shop-Fugitives	N/A	403 KAR 63:010 Section 3	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
EU01	Melt Shop-Fugitives	N/A	403 KAR 63:010 Section 3	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
01-08A	Tundish Dump	PM (filterable)	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
01-08A	Tundish Dump	PM10	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
01-08A	Tundish Dump	PM2.5	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
01-11	Caster Quench Box	PM (filterable)	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
01-11	Caster Quench Box	PM10	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Tested	Description of Testing
01-11	Caster Quench Box	PM2.5	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
01-12	Secondary Caster Torch Cutoff	PM	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
01-12	Secondary Caster Torch Cutoff	NO_x	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
01-12	Secondary Caster Torch Cutoff	CO	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
01-12	Secondary Caster Torch Cutoff	VOC	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
01-12	Secondary Caster Torch Cutoff	SO_2	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
01-12	Secondary Caster Torch Cutoff	CO_2e	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.

Section V.6: Notes, Comments, and Explanations
1. Electric Arc Furnace (EAF) with Oxy Burners (EP 01-01), Ladle Metallurgical Furnace (LMF) (EP 01-02), Continuous Caster (EP 01-04)-All exhaust to Melt Shop Baghouse

Division for Air Quality 300 Sower Boulevard Frankfort, KY 40601 (502) 564-3999	**DEP7007B** Manufacturing or Processing Operations ___ Section B.1: Process Information ___ Section B.2: Materials and Fuel Information ___ Section B.3: Notes, Comments, and Explanations	**Additional Documentation** ___ Complete DEP7007AI, DEP7007N, DEP7007V, and DEP7007GG. ___ Attach a flow diagram ___ Attach SDS

Source Name: **Nucor Steel Brandenburg**

KY EIS (AFS) #: **21- 163-00044**

Permit #: **V-20-001 R1**

Agency Interest (AI) ID: **162861**

Date: **March 01, 2024**

Section B.1: Process Information

Emission Unit #	Emission Unit Name	Describe Emission Unit	Process ID	Process Name	Manufacturer	Model No.	Proposed/Actual Date of Construction Commencement *(MM/YYYY)*	Is the Process Continuous or Batch?	Number of Batches per 24 Hours *(if applicable)*	Hours per Batch *(if applicable)*
03-01	Walking Beam Reheat Furnace	Walking beam slab reheat furnace with a maximum physical heat input capacity of 460 MMBtu/hr for cold start and 360 MMBtu/hr during continuous operation; furnace equipped with direct-fired, low-Nox burners	03	Hot Rolling Mill	SMS	TBD	04/2022	Continuous	N/A	N/A
03-02	Ingot Bogie Hearth Furnaces	Three (3) ingot bogie hearth furnaces with a maximum heat input capacity of 41 MMBtu/hr and equipped with low-NOx regenerative burners	03	Hot Rolling Mill	SMS	TBD	04/2022	Continuous	N/A	N/A
03-03	Roughing Mill Stand	Reducing of slab/ingot thickness for processing as heavy plate or for further processing to light plate or coil	03	Hot Rolling Mill	Danieli	TBD	04/2022	Continuous	N/A	N/A
03-04	Steckel Mill Finishing Stand	Reducing of steel to produce light plates or coils	03	Hot Rolling Mill	Danieli	TBD	04/2022	Continuous	N/A	N/A
03-05	Two (2) Steckel Mill Coiling Furnaces	Two (2) natural gas, direct-fired mandrel furnaces, each have of maximum design heat input rate of 11.2 MMBtu/hr	03	Hot Rolling Mill	Danieli	TBD	04/2022	Continuous	N/A	N/A
03-06	Coil Sample Plasma Cutter	Plasma cutter housed within downcoiler used to cut and collect samples for quality assurance.	03	Hot Rolling Mill	Danieli	TBD	04/2022	Continuous	N/A	N/A
03-07	Coil Tagger	Tagger used to mark coils	03	Hot Rolling Mill	Alpine Metal Tech	TBD	04/2022	Continuous	N/A	N/A
03-08	Hot Rolling Mill Oxy-fuel Plate Cutting Torch	Oxy-fuel torch used to cut plates to specified lengths	03	Hot Rolling Mill	TBD	TBD	04/2022	Continuous	N/A	N/A
03-09	Hot Rolling Mill Oxy-fuel Coil Cutting Torch	Oxy-fuel torch used to cut coils to specified lengths	03	Hot Rolling Mill	TBD	TBD	04/2022	Continuous	N/A	N/A
03-10	Ingot Grinding	Includes a traversing grinder and a stationary grinder	03	Hot Rolling Mill	Mid-West Machine	45hts	TBD	Continuous	N/A	N/A
03-11	Ingot Grinding Oxy-Fuel Cutting Torch	Oxy-fuel-fired torch for cutting ingots to desired length	03	Hot Rolling Mill	Oxyweld	PM-300	TBD	Continuous	N/A	N/A

Section B.2: Materials and Fuel Information

**Maximum yearly fuel usage rate only applies if applicant request operating restrictions through federally enforceable limitations.*

Emission Unit #	Emission Unit Name	Name of Raw Materials Input	Maximum Quantity of Each Raw Material Input		Total Process Weight Rate for Emission Unit	Name of Finished Materials	Maximum Quantity of Each Finished Material Output		Fuel Type	Maximum Hourly Fuel Usage Rate		Maximum Yearly Fuel Usage Rate		Sulfur Content	Ash Content
				(Specify Units/hr)	*(tons/hr)*			*(Specify Units/hr)*			*(Specify Units)*		*(Specify Units)*	*(%)*	*(%)*
03-01	Walking Beam Reheat Furnace	N/A	N/A	N/A	N/A	Reheated Steel Slabs	N/A	N/A	Natural Gas	0.35	MMscf/hr	3,111	MMscf/yr	N/A	N/A
03-02	Bogie Hearth Furnaces	N/A	N/A	N/A	N/A	Reheated Steel Ingots	N/A	N/A	Natural Gas	0.12	MMscf/hr	1,051	MMscf/yr	N/A	N/A
03-03	Roughing Mill Stand	Lubricating Oils & Greases	N/A	N/A	333	Steel Strip	333	ton	N/A	N/A	N/A	N/A	N/A	N/A	N/A
03-04	Mill Finishing Stand	Lubricating Oils & Greases	N/A	N/A	250	Steel Strip	250	ton	N/A	N/A	N/A	N/A	N/A	N/A	N/A
03-05	Two (2) Steckel Mill Coiling Furnaces	N/A	N/A	N/A	N/A	Steel Strip	N/A	N/A	Natural Gas	2.20E-02	MMscf/hr	192	MMscf/yr	N/A	N/A
03-06	Sample Plasma Cutter	Plasma Gas	N/A	N/A	N/A	Steel Plates	250	ton	Oxygen Plasma Gas	N/A	MMscf/hr	N/A	MMscf/yr	N/A	N/A
03-07	Coil Tagger	Steel Coils Paint	10	coils	250	Tagged Steel Coils	250	ton	N/A	N/A	N/A	N/A	N/A	N/A	N/A
03-08	Hot Rolling Mill Oxy-fuel Plate Cutting Torch	Steel Plates	15	plates	250	Steel Plates	750	ton	Natural Gas	1.06E-05	MMscf/hr	8.76E-02	MMscf/yr	N/A	N/A
03-09	Hot Rolling Mill Oxy-fuel Coil Cutting Torch	Steel Plates	15	coils	750	Steel Coils	750	ton	Natural Gas	1.00E-05	MMscf/hr	8.76E-02	MMscf/yr	N/A	N/A
03-10	Ingot Grinding	Ingot	225	tons	225	Ingot	225	ton	N/A	N/A	N/A	N/A	N/A	N/A	N/A
03-11	Ingot Grinding Oxy-Fuel Cutting Torch	Ingot	225	tons	225	Ingot	225	ton	Oxy-fuel	5.00E-04	MMscf/hr	4.07E+00	MMscf/yr	N/A	N/A

Division for Air Quality 300 Sower Boulevard Frankfort, KY 40601 (502) 564-3999

DEP7007V

Applicable Requirements and Compliance Activities

___ Section V.1: Emission and Operating Limitation(s)
___ Section V.2: Monitoring Requirements
___ Section V.3: Recordkeeping Requirements
___ Section V.4: Reporting Requirements
___ Section V.5: Testing Requirements
___ Section V.6: Notes, Comments, and Explanations

Additional Documentation
___ Complete DEP7007AI

Source Name: **Nucor Steel Brandenburg**
KY EIS (AFS) #: **21-163-00044**
Permit #: **V-20-001 R1**
Agency Interest (AI) ID: **162861**
Date: **March 01, 2024**

Section V.1: Emission and Operating Limitation(s)

Emission Unit #	Emission Unit Description	Applicable Regulation or Requirement	Pollutant	Emission Limit (if applicable)	Voluntary Emission Limit or Exemption (if applicable)	Operating Requirement or Limitation (if applicable)	Method of Determining Compliance with the Emission and Operating Requirement(s)
EP 03-01	Walking Beam Reheat Furnace	401 KAR 51:017	SO_2	0.6 lb/MMscf	N/A	Only natural gas shall be combusted in the Walking Beam Reheat Furnace	Monitoring (See V.2) Recordkeeping (see V.3)
EP 03-01	Walking Beam Reheat Furnace	401 KAR 51:017	NO_x	71.4 lb/MMscf	N/A	The Walking Beam Reheat Furnace shall be equipped with low NO_x burners (burners designed to maintain 0.07 lb/MMBtu).	Monitoring (See V.2) Recordkeeping (see V.3)
EP 03-01	Walking Beam Reheat Furnace	401 KAR 51:017	Filterable PM $PM_{10}/PM_{2.5}$	1.9 lb/MMscf 7.6 lb/MMscf	N/A	Only natural gas shall be combusted in the Walking Beam Reheat Furnace	Monitoring (See V.2) Recordkeeping (see V.3)
EP 03-01	Walking Beam Reheat Furnace	401 KAR 51:017	CO	84 lb/MMscf	N/A	Only natural gas shall be combusted in the Walking Beam Reheat Furnace	Monitoring (See V.2) Recordkeeping (see V.3)
EP 03-01	Walking Beam Reheat Furnace	401 KAR 51:017	VOC	5.5 lb/MMscf	N/A	Only natural gas shall be combusted in the Walking Beam Reheat Furnace	Monitoring (See V.2) Recordkeeping (see V.3)
EP 03-01	Walking Beam Reheat Furnace	401 KAR 51:017	CO_2e	120,713 lb/MMscf	N/A	Energy efficient design	N/A
EP 03-01	Walking Beam Reheat Furnace	401 KAR 51:017	N/A	N/A	3,111 MMscf/yr gas burned	The total annual natural gas use shall not exceed 3,111 MMscf/yr on a 12-month rolling basis.	Monitoring (See V.2) Recordkeeping (see V.3)
EP-03-02	Ingot Bogie Hearth Furnaces	401 KAR 51:017	SO_2	0.6 lb/MMscf	N/A	Only natural gas shall be combusted in the three (3) Ingot bogie Hearth Furnaces	Monitoring (See V.2) Recordkeeping (see V.3)
EP-03-02	Ingot Bogie Hearth Furnaces	401 KAR 51:017	NO_x	122.4 lb/MMscf	N/A	The Ingot Bogie Hearth Furnaces shall be equipped with low NO_x burners	N/A
EP 03-02	Ingot Bogie Hearth Furnaces	401 KAR 51:017	$PM_{10}/PM_{2.5}$	7.6 lb/MMscf	N/A	N/A	N/A

EP 03-02	Ingot Bogie Hearth Furnaces	401 KAR 51:017	Filterable PM	1.9 lb/MMscf	N/A	N/A	N/A
EP 03-02	Ingot Bogie Hearth Furnaces	401 KAR 51:017	CO	84 lb/MMscf	N/A	N/A	N/A
EP 03-02	Ingot Bogie Hearth Furnaces	401 KAR 51:017	VOC	5.5 lb/MMscf	N/A	N/A	N/A
EP 03-02	Ingot Bogie Hearth Furnaces	401 KAR 51:017	CO_2e	120,713 lb/MMscf	N/A	Energy efficient design	N/A
EP 03-03	Roughing Mill Stand	401 KAR 51:017	Filterable PM	1.98E-04 gr/dscf	N/A	Wet suppresion via cooling water application	Monitoring (See V.2) Recordkeeping (see V.3)
EP 03-03	Roughing Mill Stand	401 KAR 51:017	PM_{10}	2.26E-04 gr/dscf	N/A	Wet suppresion via cooling water application	Monitoring (See V.2) Recordkeeping (see V.3)
EP 03-03	Roughing Mill Stand	401 KAR 51:017	$PM_{2.5}$	8.80E-05 gr/dscf	N/A	Wet suppresion via cooling water application	Monitoring (See V.2) Recordkeeping (see V.3)
EP 03-03	Roughing Mill Stand	401 KAR 51:017	VOC	3.95 ton/yr	N/A	Annual oil and grease consumption, on a 12-month rolling basis, shall not exceed 85.4 tons/yr	Monitoring (See V.2) Recordkeeping (see V.3)
EP 03-03	Roughing Mill Stand	401 KAR 51:017	CO_2e	151 ton/yr	N/A	Energy efficient design	N/A
EP 03-03	Roughing Mill Stand	401 KAR 59:010, Section 3(1)	Opacity	≤ 20%	N/A	N/A	Monitoring (See V.2) Recordkeeping (see V.3)
EP 03-03	Roughing Mill Stand	401 KAR 59:010, Section 3(1)	PM	PM Process Weight Rate Emission Limit	N/A	N/A	Monitoring (See V.2) Recordkeeping (see V.3)
EP 03-04	Steckel Mill Finishing Stand	401 KAR 51:017	$PM/PM_{10}/PM_{2.5}$	0.005 gr/dscf PM 0.005 gr/dscf PM_{10} 0.0025 gr/dscf $PM_{2.5}$	N/A	Install, operate, and maintain a high efficiency venturi scrubber designed with a 99% control efficiency of $PM/PM_{10}/PM_{2.5}$	Monitoring (See V.2) Recordkeeping (see V.3)
EP 03-04	Steckel Mill Finishing Stand	401 KAR 51:017	VOC	5.95 ton/yr	N/A	Annual oil and grease consumption, on a 12-month rolling basis, shall not exceed 128.5 tons/yr	Monitoring (See V.2) Recordkeeping (see V.3)
EP 03-04	Steckel Mill Finishing Stand	401 KAR 51:017	CO_2e	227 ton/yr	N/A	Energy efficient design	N/A
EP 03-04	Steckel Mill Finishing Stand	401 KAR 59:010, Section 3(1)	Opacity	≤ 20%	N/A	N/A	Monitoring (See V.2) Recordkeeping (see V.3)
EP 03-04	Steckel Mill Finishing Stand	401 KAR 59:010, Section 3(1)	PM	PM Process Weight Rate Emission Limit	N/A	N/A	Monitoring (See V.2) Recordkeeping (see V.3)
EP 03-05	Steckel Mill Coiling Furnaces	401 KAR 51:017	SO_2	0.6 lb/MMscf	N/A	Only natural gas shall be combusted in the two (2) Steckel Mill Coiling Furnaces	Monitoring (See V.2) Recordkeeping (see V.3)
EP 03-05	Steckel Mill Coiling Furnaces	401 KAR 51:017	NO_x	81.6 lb/MMscf	N/A	The two (2) Steckel Mill Coiling Furnaces shall be equipped with low NO_x burners (burners designed to maintain 0.08 lb/MMBtu).	Monitoring (See V.2) Recordkeeping (see V.3)
EP 03-05	Steckel Mill Coiling Furnaces	401 KAR 51:017	PM	7.6 lb/MMscf	N/A	N/A	N/A
EP 03-05	Steckel Mill Coiling Furnaces	401 KAR 51:017	Filterable PM	1.9 lb/MMscf	N/A	N/A	N/A

EP 03-05	Steckel Mill Coiling Furnaces	401 KAR 51:017	CO	84 lb/MMscf	N/A	N/A	N/A
EP 03-05	Steckel Mill Coiling Furnaces	401 KAR 51:017	VOC	5.5 lb/MMscf	N/A	N/A	N/A
EP 03-05	Steckel Mill Coiling Furnaces	401 KAR 51:017	CO_2e	120,713 lb/MMscf	N/A	Energy efficient design	N/A
EP 03-06	Coil Sample Plasma Cutter	401 KAR 51:017	PM	0.0029 lb/in. cut 0.06 ton/yr	N/A	Use of Baghouse	Monitoring (See V.2) Recordkeeping (see V.3)
EP 03-06	Coil Sample Plasma Cutter	401 KAR 51:017	NO_x	0.57 lb/hr 2.51 ton/yr	N/A	N/A	Monitoring (See V.2) Recordkeeping (see V.3)
EP 03-06	Coil Sample Plasma Cutter	401 KAR 51:017	Total HAPs	25 ton/yr (plantwide)	N/A	N/A	Monitoring (See V.2) Recordkeeping (see V.3)
EP 03-07	Coil Tagger	401 KAR 51:017	$PM/PM_{10}/PM_{2.5}$	0.014 lb/hr 0.007 ton/yr	N/A	N/A	Monitoring (See V.2) Recordkeeping (see V.3)
EP 03-07	Coil Tagger	401 KAR 51:017	VOC	0.19 lb/hr 0.096 ton/yr	N/A	N/A	Monitoring (See V.2) Recordkeeping (see V.3)
EP 03-08	Hot Rolling Mill Oxy-Fuel Plate Cutting Torch	401 KAR 51:017	$PM/PM_{10}/PM_{2.5}$	0.075 lb/hr 0.33 ton/yr	N/A	N/A	Monitoring (See V.2) Recordkeeping (see V.3)
EP 03-08	Hot Rolling Mill Oxy-Fuel Plate Cutting Torch	401 KAR 51:017	NO_x	100 lb/MMscf	N/A	N/A	Use of natural gas
EP 03-08	Hot Rolling Mill Oxy-Fuel Plate Cutting Torch	401 KAR 51:017	CO	84 lb/MMscf	N/A	N/A	Use of natural gas
EP 03-08	Hot Rolling Mill Oxy-Fuel Plate Cutting Torch	401 KAR 51:017	VOC	5.5 lb/MMscf	N/A	N/A	Use of natural gas
EP 03-08	Hot Rolling Mill Oxy-Fuel Plate Cutting Torch	401 KAR 51:017	SO_2	0.6 lb/MMscf	N/A	N/A	Use of natural gas
EP 03-09	Hot Rolling Mill Oxy-Fuel Coil Cutting Torch	401 KAR 51:017	$PM/PM_{10}/PM_{2.5}$	0.075 lb/hr 0.33 ton/yr	N/A	N/A	Monitoring (See V.2) Recordkeeping (see V.3)
EP 03-09	Hot Rolling Mill Oxy-Fuel Coil Cutting Torch	401 KAR 51:017	NO_x	68 lb/MMscf	N/A	N/A	Use of natural gas
EP 03-09	Hot Rolling Mill Oxy-Fuel Coil Cutting Torch	401 KAR 51:017	CO	52 lb/MMscf	N/A	N/A	Use of natural gas
EP 03-09	Hot Rolling Mill Oxy-Fuel Coil Cutting	401 KAR 51:017	VOC	5.5 lb/MMscf	N/A	N/A	Use of natural gas

EP 03-09	Hot Rolling Mill Oxy-Fuel Coil Cutting Torch	401 KAR 51:017	SO_2	0.6 lb/MMscf	N/A	N/A	Use of natural gas
EP 03-10	Ingot Grinding	401 KAR 51:017	Filterable PM $PM_{10}/PM_{2.5}$	0.005 gr/dscf	N/A	N/A	Monitoring (See V.2) Recordkeeping (see V.3)
EP 03-10	Ingot Grinding	401 KAR 51:017	HAP	N/A	N/A	N/A	Monitoring (See V.2) Recordkeeping (see V.3)
EP 03-11	Ingot Grinding Oxy-Fuel Cutting Torch	401 KAR 51:017	Filterable PM $PM_{10}/PM_{2.5}$	0.075 lb/hr 7.6 lb/ MMscf	N/A	N/A	Monitoring (See V.2) Recordkeeping (see V.3)
EP 03-11	Ingot Grinding Oxy-Fuel Cutting Torch	401 KAR 51:017	NO_x	100 lb/MMscf	N/A	N/A	Monitoring (See V.2) Recordkeeping (see V.3)
EP 03-11	Ingot Grinding Oxy-Fuel Cutting Torch	401 KAR 51:017	CO	84 lb/MMscf	N/A	N/A	Monitoring (See V.2) Recordkeeping (see V.3)
EP 03-11	Ingot Grinding Oxy-Fuel Cutting Torch	401 KAR 51:017	SO_2	0.6 lb/MMscf	N/A	N/A	Monitoring (See V.2) Recordkeeping (see V.3)
EP 03-11	Ingot Grinding Oxy-Fuel Cutting Torch	401 KAR 51:017	VOC	5.5 lb/MMscf	N/A	N/A	Monitoring (See V.2) Recordkeeping (see V.3)
EP 03-11	Ingot Grinding Oxy-Fuel Cutting Torch	401 KAR 51:017	CO_2e	N/A	N/A	N/A	Monitoring (See V.2) Recordkeeping (see V.3)
EP 03-11	Ingot Grinding Oxy-Fuel Cutting Torch	401 KAR 51:017	HAP	N/A	N/A	N/A	Monitoring (See V.2) Recordkeeping (see V.3)

Section V.2: Monitoring Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Monitored	Description of Monitoring
EP 03-01	Walking Beam Reheat Furnace	SO_2	401 KAR 51:017	Fuel	Monthly natural gas usage
EP 03-01	Walking Beam Reheat Furnace	NO_x	401 KAR 51:017	N/A	General Monitoring Requirements
EP 03-01	Walking Beam Reheat Furnace	Filterable PM $PM_{10}/PM_{2.5}$	401 KAR 51:017	N/A	General Monitoring Requirements
EP 03-01	Walking Beam Reheat Furnace	CO	401 KAR 51:017	N/A	General Monitoring Requirements
EP 03-01	Walking Beam Reheat Furnace	VOC	401 KAR 51:017	N/A	General Monitoring Requirements
EP 03-01	Walking Beam Reheat Furnace	CO_2e	401 KAR 51:017	N/A	General Monitoring Requirements
EP 03-01	Walking Beam Reheat Furnace	N/A	401 KAR 51:017	N/A	General Monitoring Requirements
EP 03-02	Ingot Bogie Hearth Furnace	SO_2	401 KAR 51:017	Fuel	Monthly natural gas usage
EP 03-02	Ingot Bogie Hearth Furnace	NO_x	401 KAR 51:017	N/A	General Monitoring Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Monitored	Description of Monitoring
EP 03-02	Ingot Bogie Hearth Furnace	$PM_{10}/PM_{2.5}$	401 KAR 51:017	N/A	General Monitoring Requirements
EP 03-02	Ingot Bogie Hearth Furnace	Filterable PM	401 KAR 51:017	N/A	General Monitoring Requirements
EP 03-02	Ingot Bogie Hearth Furnace	CO	401 KAR 51:017	N/A	General Monitoring Requirements
EP 03-02	Ingot Bogie Hearth Furnace	VOC	401 KAR 51:017	N/A	General Monitoring Requirements
EP 03-02	Ingot Bogie Hearth Furnace	CO_2e	401 KAR 51:017	N/A	General Monitoring Requirements
EP 03-03	Roughing Mill Stand	Filterable PM	401 KAR 51:017	Operational Status	The permittee shall perform monthly status inspections of the affected sources. The observations shall include but not be limited to, the physical appearance of all equipment.
EP 03-03	Roughing Mill Stand	PM_{10}	401 KAR 51:017	Operational Status	The permittee shall perform monthly status inspections of the affected sources. The observations shall include but not be limited to, the physical appearance of all equipment.
EP 03-03	Roughing Mill Stand	$PM_{2.5}$	401 KAR 51:017	Operational Status	The permittee shall perform monthly status inspections of the affected sources. The observations shall include but not be limited to, the physical appearance of all equipment.
EP 03-03	Roughing Mill Stand	VOC	401 KAR 51:017	Oil and grease	Oil and grease usage monitored monthly
EP 03-03	Roughing Mill Stand	CO_2e	401 KAR 51:017	N/A	General Monitoring Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Monitored	Description of Monitoring
EP 03-03	Roughing Mill Stand	Opacity	401 KAR 59:010, Section 3(1)	Visible emissions	Weekly visible emission checks during operation of the unit
EP 03-03	Roughing Mill Stand	PM	401 KAR 59:010, Section 3(1)	Steel Processed	Calculate the process weight rate and the hourly emissions of PM, as a monthly average, based on the method specified in appendix A to 401 KAR 59:010 for comparison to the standard.
EP 03-04	Steckel Mill Finishing Stand	$PM/PM_{10}/PM_{2.5}$	401 KAR 51:017	Operational Status	Monitor the pressure drop across the scrubber and the scrubber liquid flow rate.
EP 03-04	Steckel Mill Finishing Stand	VOC	401 KAR 51:017	Oil and grease	Oil and grease usage monitored monthly
EP 03-04	Steckel Mill Finishing Stand	CO_2e	401 KAR 51:017	N/A	General Monitoring Requirements
EP 03-04	Steckel Mill Finishing Stand	Opacity	401 KAR 59:010, Section 3(1)	Visible emissions	Weekly visible emission checks during operation of the unit
EP 03-04	Steckel Mill Finishing Stand	PM	401 KAR 59:010, Section 3(1)	Steel Processed	Calculate the process weight rate and the hourly emissions of PM, as a monthly average, based on the method specified in appendix A to 401 KAR 59:010 for comparison to the standard.
EP 03-05	Steckel Mill Coiling Furnaces	SO_2	401 KAR 51:017	Fuel	Monthly natural gas usage
EP 03-05	Steckel Mill Coiling Furnaces	NO_x	401 KAR 51:017	N/A	General Monitoring Requirements
EP 03-05	Steckel Mill Coiling Furnaces	PM	401 KAR 51:017	N/A	General Monitoring Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Monitored	Description of Monitoring
EP 03-05	Steckel Mill Coiling Furnaces	Filterable PM	401 KAR 51:017	N/A	General Monitoring Requirements
EP 03-05	Steckel Mill Coiling Furnaces	CO	401 KAR 51:017	N/A	General Monitoring Requirements
EP 03-05	Steckel Mill Coiling Furnaces	VOC	401 KAR 51:017	N/A	General Monitoring Requirements
EP 03-05	Steckel Mill Coiling Furnaces	CO_2e	401 KAR 51:017	N/A	General Monitoring Requirements
EP 03-06	Coil Sample Plasma Cutter	PM	401 KAR 51:017	N/A	General Monitoring Requirements
EP 03-06	Coil Sample Plasma Cutter	NO_x	401 KAR 51:017	N/A	General Monitoring Requirements
EP 03-06	Coil Sample Plasma Cutter	Total HAPs	401 KAR 51:017	N/A	General Monitoring Requirements
EP 03-07	Coil Tagger	$PM/PM_{10}/PM_{2.5}$	401 KAR 51:017	N/A	General Monitoring Requirements
EP 03-07	Coil Tagger	VOC	401 KAR 51:017	N/A	General Monitoring Requirements
EP 03-08	Hot Rolling Mill Oxy-Fuel Plate Cutting Torch	$PM/PM_{10}/PM_{2.5}$	401 KAR 51:017	N/A	General Monitoring Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Monitored	Description of Monitoring
EP 03-08	Hot Rolling Mill Oxy-Fuel Plate Cutting Torch	NO_x	401 KAR 51:017	N/A	General Monitoring Requirements
EP 03-08	Hot Rolling Mill Oxy-Fuel Plate Cutting Torch	CO	401 KAR 51:017	N/A	General Monitoring Requirements
EP 03-08	Hot Rolling Mill Oxy-Fuel Plate Cutting Torch	VOC	401 KAR 51:017	N/A	General Monitoring Requirements
EP 03-08	Hot Rolling Mill Oxy-Fuel Plate Cutting Torch	SO_2	401 KAR 51:017	N/A	General Monitoring Requirements
EP 03-09	Hot Rolling Mill Oxy-Fuel Coil Cutting Torch	$PM/PM_{10}/PM_{2.5}$	401 KAR 51:017	N/A	General Monitoring Requirements
EP 03-09	Hot Rolling Mill Oxy-Fuel Coil Cutting Torch	NO_x	401 KAR 51:017	N/A	General Monitoring Requirements
EP 03-09	Hot Rolling Mill Oxy-Fuel Coil Cutting Torch	CO	401 KAR 51:017	N/A	General Monitoring Requirements
EP 03-09	Hot Rolling Mill Oxy-Fuel Coil Cutting Torch	VOC	401 KAR 51:017	N/A	General Monitoring Requirements
EP 03-09	Hot Rolling Mill Oxy-Fuel Coil Cutting Torch	SO_2	401 KAR 51:017	N/A	General Monitoring Requirements
EP 03-10	Ingot Grinding	Filterable PM $PM_{10}/PM_{2.5}$	401 KAR 51:017	N/A	General Monitoring Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Monitored	Description of Monitoring
EP 03-10	Ingot Grinding	HAP	401 KAR 51:017	N/A	General Monitoring Requirements
EP 03-11	Ingot Grinding Oxy-Fuel Cutting Torch	Filterable PM $PM_{10}/PM_{2.5}$	401 KAR 51:017	N/A	General Monitoring Requirements
EP 03-11	Ingot Grinding Oxy-Fuel Cutting Torch	NO_x	401 KAR 51:017	N/A	General Monitoring Requirements
EP 03-11	Ingot Grinding Oxy-Fuel Cutting Torch	CO	401 KAR 51:017	N/A	General Monitoring Requirements
EP 03-11	Ingot Grinding Oxy-Fuel Cutting Torch	SO_2	401 KAR 51:017	N/A	General Monitoring Requirements
EP 03-11	Ingot Grinding Oxy-Fuel Cutting Torch	VOC	401 KAR 51:017	N/A	General Monitoring Requirements
EP 03-11	Ingot Grinding Oxy-Fuel Cutting Torch	CO_2e	401 KAR 51:017	N/A	General Monitoring Requirements
EP 03-11	Ingot Grinding Oxy-Fuel Cutting Torch	HAP	401 KAR 51:017	N/A	General Monitoring Requirements

Section V.3: Recordkeeping Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Recorded	Description of Recordkeeping
EP 03-01	Walking Beam Reheat Furnace	SO_2	401 KAR 51:017	Fuel	Monthly natural gas usage
EP 03-01	Walking Beam Reheat Furnace	NO_x	401 KAR 51:017	N/A	General recordkeeping requirements
EP 03-01	Walking Beam Reheat Furnace	Filterable PM $PM_{10}/PM_{2.5}$	401 KAR 51:017	N/A	General recordkeeping requirements
EP 03-01	Walking Beam Reheat Furnace	CO	401 KAR 51:017	N/A	General recordkeeping requirements
EP 03-01	Walking Beam Reheat Furnace	VOC	401 KAR 51:017	N/A	General recordkeeping requirements
EP 03-01	Walking Beam Reheat Furnace	CO_2e	401 KAR 51:017	N/A	General recordkeeping requirements
EP 03-01	Walking Beam Reheat Furnace	N/A	401 KAR 51:017	N/A	General recordkeeping requirements
EP 03-02	Ingot Bogie Hearth Furnace	SO_2	401 KAR 51:017	Fuel	Monthly natural gas usage
EP 03-02	Ingot Bogie Hearth Furnace	NO_x	401 KAR 51:017	N/A	General recordkeeping requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Recorded	Description of Recordkeeping
EP 03-02	Ingot Bogie Hearth Furnace	$PM_{10}/PM_{2.5}$	401 KAR 51:017	N/A	General recordkeeping requirements
EP 03-02	Ingot Bogie Hearth Furnace	Filterable PM	401 KAR 51:017	N/A	General recordkeeping requirements
EP 03-02	Ingot Bogie Hearth Furnace	CO	401 KAR 51:017	N/A	General recordkeeping requirements
EP 03-02	Ingot Bogie Hearth Furnace	VOC	401 KAR 51:017	N/A	General recordkeeping requirements
EP 03-02	Ingot Bogie Hearth Furnace	CO_2e	401 KAR 51:017	N/A	General recordkeeping requirements
EP 03-03	Roughing Mill Stand	Filterable PM	401 KAR 51:017	Operational Status	The permittee shall perform monthly status inspections of the affected sources. The observations shall include but not be limited to, the physical appearance of all equipment.
EP 03-03	Roughing Mill Stand	PM_{10}	401 KAR 51:017	Operational Status	The permittee shall perform monthly status inspections of the affected sources. The observations shall include but not be limited to, the physical appearance of all equipment.
EP 03-03	Roughing Mill Stand	$PM_{2.5}$	401 KAR 51:017	Operational Status	The permittee shall perform monthly status inspections of the affected sources. The observations shall include but not be limited to, the physical appearance of all equipment.
EP 03-03	Roughing Mill Stand	VOC	401 KAR 51:017	Oil and grease	Oil and grease usage recorded monthly
EP 03-03	Roughing Mill Stand	CO_2e	401 KAR 51:017	N/A	General Recordkeeping Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Recorded	Description of Recordkeeping
EP 03-03	Roughing Mill Stand	Opacity	401 KAR 59:010, Section 3(1)	Visible emissions	Weekly visible emission checks during operation of the unit
EP 03-03	Roughing Mill Stand	PM	401 KAR 59:010, Section 3(1)	Steel Processed	Calculate the process weight rate and the hourly emissions of PM, as a monthly average, based on the method specified in appendix A to 401 KAR 59:010 for comparison to the standard.
EP 03-04	Steckel Mill Finishing Stand	$PM/PM_{10}/PM_{2.5}$	401 KAR 51:017	Operational Status	Record the pressure drop across the scrubber and the scrubber liquid flow rate.
EP 03-04	Steckel Mill Finishing Stand	VOC	401 KAR 51:017	Oil and grease	Oil and grease usage recorded monthly
EP 03-04	Steckel Mill Finishing Stand	CO_2e	401 KAR 51:017	N/A	General Recordkeeping Requirements
EP 03-04	Steckel Mill Finishing Stand	Opacity	401 KAR 59:010, Section 3(1)	Visible emissions	Weekly visible emission checks during operation of the unit
EP 03-04	Steckel Mill Finishing Stand	PM	401 KAR 59:010, Section 3(1)	Steel Processed	Calculate the process weight rate and the hourly emissions of PM, as a monthly average, based on the method specified in appendix A to 401 KAR 59:010 for comparison to the standard.
EP 03-05	Steckel Mill Coiling Furnaces	SO_2	401 KAR 51:017	Fuel	Monthly natural gas usage
EP 03-05	Steckel Mill Coiling Furnaces	NO_x	401 KAR 51:017	N/A	General recordkeeping requirements
EP 03-05	Steckel Mill Coiling Furnaces	PM	401 KAR 51:017	N/A	General recordkeeping requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Recorded	Description of Recordkeeping
EP 03-05	Steckel Mill Coiling Furnaces	Filterable PM	401 KAR 51:017	N/A	General recordkeeping requirements
EP 03-05	Steckel Mill Coiling Furnaces	CO	401 KAR 51:017	N/A	General recordkeeping requirements
EP 03-05	Steckel Mill Coiling Furnaces	VOC	401 KAR 51:017	N/A	General recordkeeping requirements
EP 03-05	Steckel Mill Coiling Furnaces	CO_2e	401 KAR 51:017	N/A	General recordkeeping requirements
EP 03-06	Coil Sample Plasma Cutter	PM	401 KAR 51:017	N/A	General recordkeeping requirements
EP 03-06	Coil Sample Plasma Cutter	NO_x	401 KAR 51:017	N/A	General recordkeeping requirements
EP 03-06	Coil Sample Plasma Cutter	Total HAPs	401 KAR 51:017	N/A	General recordkeeping requirements
EP 03-07	Coil Tagger	$PM/PM_{10}/PM_{2.5}$	401 KAR 51:017	N/A	General recordkeeping requirements
EP 03-07	Coil Tagger	VOC	401 KAR 51:017	N/A	General recordkeeping requirements
EP 03-08	Hot Rolling Mill Oxy-Fuel Plate Cutting Torch	$PM/PM_{10}/PM_{2.5}$	401 KAR 51:017	N/A	General recordkeeping requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Recorded	Description of Recordkeeping
EP 03-08	Hot Rolling Mill Oxy-Fuel Plate Cutting Torch	NO_x	401 KAR 51:017	N/A	General recordkeeping requirements
EP 03-08	Hot Rolling Mill Oxy-Fuel Plate Cutting Torch	CO	401 KAR 51:017	N/A	General recordkeeping requirements
EP 03-08	Hot Rolling Mill Oxy-Fuel Plate Cutting Torch	VOC	401 KAR 51:017	N/A	General recordkeeping requirements
EP 03-08	Hot Rolling Mill Oxy-Fuel Plate Cutting Torch	SO_2	401 KAR 51:017	N/A	General recordkeeping requirements
EP 03-09	Hot Rolling Mill Oxy-Fuel Coil Cutting Torch	$PM/PM_{10}/PM_{2.5}$	401 KAR 51:017	N/A	General recordkeeping requirements
EP 03-09	Hot Rolling Mill Oxy-Fuel Coil Cutting Torch	NO_x	401 KAR 51:017	N/A	General recordkeeping requirements
EP 03-09	Hot Rolling Mill Oxy-Fuel Coil Cutting Torch	CO	401 KAR 51:017	N/A	General recordkeeping requirements
EP 03-09	Hot Rolling Mill Oxy-Fuel Coil Cutting Torch	VOC	401 KAR 51:017	N/A	General recordkeeping requirements
EP 03-09	Hot Rolling Mill Oxy-Fuel Coil Cutting Torch	SO_2	401 KAR 51:017	N/A	General recordkeeping requirements
EP 03-10	Ingot Grinding	Filterable PM PM10/PM2.5	401 KAR 51:017	N/A	General recordkeeping requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Recorded	Description of Recordkeeping
EP 03-10	Ingot Grinding	HAP	401 KAR 51:017	N/A	General recordkeeping requirements
EP 03-11	Ingot Grinding Oxy-Fuel Cutting Torch	Filterable PM PM10/PM2.5	401 KAR 51:017	N/A	General recordkeeping requirements
EP 03-11	Ingot Grinding Oxy-Fuel Cutting Torch	NOx	401 KAR 51:017	N/A	General recordkeeping requirements
EP 03-11	Ingot Grinding Oxy-Fuel Cutting Torch	CO	401 KAR 51:017	N/A	General recordkeeping requirements
EP 03-11	Ingot Grinding Oxy-Fuel Cutting Torch	SO2	401 KAR 51:017	N/A	General recordkeeping requirements
EP 03-11	Ingot Grinding Oxy-Fuel Cutting Torch	VOC	401 KAR 51:017	N/A	General recordkeeping requirements
EP 03-11	Ingot Grinding Oxy-Fuel Cutting Torch	CO2e	401 KAR 51:017	N/A	General recordkeeping requirements
EP 03-11	Ingot Grinding Oxy-Fuel Cutting Torch	HAP	401 KAR 51:017	N/A	General recordkeeping requirements

Section V.4: Reporting Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Reported	Description of Reporting
EP 03-01	Walking Beam Reheat Furnace	SO_2	401 KAR 51:017	N/A	General reporting requirements
EP 03-01	Walking Beam Reheat Furnace	NO_x	401 KAR 51:017	N/A	General reporting requirements
EP 03-01	Walking Beam Reheat Furnace	Filterable PM $PM_{10}/PM_{2.5}$	401 KAR 51:017	N/A	General reporting requirements
EP 03-01	Walking Beam Reheat Furnace	CO	401 KAR 51:017	N/A	General reporting requirements
EP 03-01	Walking Beam Reheat Furnace	VOC	401 KAR 51:017	N/A	General reporting requirements
EP 03-01	Walking Beam Reheat Furnace	CO_2e	401 KAR 51:017	N/A	General reporting requirements
EP 03-01	Walking Beam Reheat Furnace	N/A	401 KAR 51:017	N/A	General reporting requirements
EP 03-02	Ingot Bogie Hearth Furnace	SO_2	401 KAR 51:017	N/A	General reporting requirements
EP 03-02	Ingot Bogie Hearth Furnace	NO_x	401 KAR 51:017	N/A	General reporting requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Reported	Description of Reporting
EP 03-02	Ingot Bogie Hearth Furnace	$PM_{10}/PM_{2.5}$	401 KAR 51:017	N/A	General reporting requirements
EP 03-02	Ingot Bogie Hearth Furnace	Filterable PM	401 KAR 51:017	N/A	General reporting requirements
EP 03-02	Ingot Bogie Hearth Furnace	CO	401 KAR 51:017	N/A	General reporting requirements
EP 03-02	Ingot Bogie Hearth Furnace	VOC	401 KAR 51:017	N/A	General reporting requirements
EP 03-02	Ingot Bogie Hearth Furnace	CO_2e	401 KAR 51:017	N/A	General reporting requirements
EP 03-03	Roughing Mill Stand	Filterable PM	401 KAR 51:017	N/A	General reporting requirements
EP 03-03	Roughing Mill Stand	PM_{10}	401 KAR 51:017	N/A	General reporting requirements
EP 03-03	Roughing Mill Stand	$PM_{2.5}$	401 KAR 51:017	N/A	General reporting requirements
EP 03-03	Roughing Mill Stand	VOC	401 KAR 51:017	N/A	General reporting requirements
EP 03-03	Roughing Mill Stand	CO_2e	401 KAR 51:017	N/A	General reporting requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Reported	Description of Reporting
EP 03-03	Roughing Mill Stand	Opacity	401 KAR 59:010, Section 3(1)	N/A	General reporting requirements
EP 03-03	Roughing Mill Stand	PM	401 KAR 59:010, Section 3(1)	N/A	General reporting requirements
EP 03-04	Steckel Mill Finishing Stand	$PM/PM_{10}/PM_{2.5}$	401 KAR 51:017	N/A	General reporting requirements
EP 03-04	Steckel Mill Finishing Stand	VOC	401 KAR 51:017	N/A	General reporting requirements
EP 03-04	Steckel Mill Finishing Stand	CO_2e	401 KAR 51:017	N/A	General reporting requirements
EP 03-04	Steckel Mill Finishing Stand	Opacity	401 KAR 59:010, Section 3(1)	N/A	General reporting requirements
EP 03-04	Steckel Mill Finishing Stand	PM	401 KAR 59:010, Section 3(1)	N/A	General reporting requirements
EP 03-05	Steckel Mill Coiling Furnaces	SO_2	401 KAR 51:017	N/A	General reporting requirements
EP 03-05	Steckel Mill Coiling Furnaces	NO_x	401 KAR 51:017	N/A	General reporting requirements
EP 03-05	Steckel Mill Coiling Furnaces	PM	401 KAR 51:017	N/A	General reporting requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Reported	Description of Reporting
EP 03-05	Steckel Mill Coiling Furnaces	Filterable PM	401 KAR 51:017	N/A	General reporting requirements
EP 03-05	Steckel Mill Coiling Furnaces	CO	401 KAR 51:017	N/A	General reporting requirements
EP 03-05	Steckel Mill Coiling Furnaces	VOC	401 KAR 51:017	N/A	General reporting requirements
EP 03-05	Steckel Mill Coiling Furnaces	CO_2e	401 KAR 51:017	N/A	General reporting requirements
EP 03-06	Coil Sample Plasma Cutter	PM	401 KAR 51:017	N/A	General reporting requirements
EP 03-06	Coil Sample Plasma Cutter	NO_x	401 KAR 51:017	N/A	General reporting requirements
EP 03-06	Coil Sample Plasma Cutter	Total HAPs	401 KAR 51:017	N/A	General reporting requirements
EP 03-07	Coil Tagger	$PM/PM_{10}/PM_{2.5}$	401 KAR 51:017	N/A	General reporting requirements
EP 03-07	Coil Tagger	VOC	401 KAR 51:017	N/A	General reporting requirements
EP 03-08	Hot Rolling Mill Oxy-Fuel Plate Cutting Torch	$PM/PM_{10}/PM_{2.5}$	401 KAR 51:017	N/A	General reporting requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Reported	Description of Reporting
EP 03-08	Hot Rolling Mill Oxy-Fuel Plate Cutting Torch	NO_x	401 KAR 51:017	N/A	General reporting requirements
EP 03-08	Hot Rolling Mill Oxy-Fuel Plate Cutting Torch	CO	401 KAR 51:017	N/A	General reporting requirements
EP 03-08	Hot Rolling Mill Oxy-Fuel Plate Cutting Torch	VOC	401 KAR 51:017	N/A	General reporting requirements
EP 03-08	Hot Rolling Mill Oxy-Fuel Plate Cutting Torch	SO_2	401 KAR 51:017	N/A	General reporting requirements
EP 03-09	Hot Rolling Mill Oxy-Fuel Coil Cutting Torch	$PM/PM_{10}/PM_{2.5}$	401 KAR 51:017	N/A	General reporting requirements
EP 03-09	Hot Rolling Mill Oxy-Fuel Coil Cutting Torch	NO_x	401 KAR 51:017	N/A	General reporting requirements
EP 03-09	Hot Rolling Mill Oxy-Fuel Coil Cutting Torch	CO	401 KAR 51:017	N/A	General reporting requirements
EP 03-09	Hot Rolling Mill Oxy-Fuel Coil Cutting Torch	VOC	401 KAR 51:017	N/A	General reporting requirements
EP 03-09	Hot Rolling Mill Oxy-Fuel Coil Cutting Torch	SO_2	401 KAR 51:017	N/A	General reporting requirements
EP 03-10	Ingot Grinding	Filterable PM PM10/PM2.5	401 KAR 51:017	N/A	General reporting requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Reported	Description of Reporting
EP 03-10	Ingot Grinding	HAP	401 KAR 51:017	N/A	General reporting requirements
EP 03-11	Ingot Grinding Oxy-Fuel Cutting Torch	Filterable PM PM10/PM2.5	401 KAR 51:017	N/A	General reporting requirements
EP 03-11	Ingot Grinding Oxy-Fuel Cutting Torch	NOx	401 KAR 51:017	N/A	General reporting requirements
EP 03-11	Ingot Grinding Oxy-Fuel Cutting Torch	CO	401 KAR 51:017	N/A	General reporting requirements
EP 03-11	Ingot Grinding Oxy-Fuel Cutting Torch	SO2	401 KAR 51:017	N/A	General reporting requirements
EP 03-11	Ingot Grinding Oxy-Fuel Cutting Torch	VOC	401 KAR 51:017	N/A	General reporting requirements
EP 03-11	Ingot Grinding Oxy-Fuel Cutting Torch	CO2e	401 KAR 51:017	N/A	General reporting requirements
EP 03-11	Ingot Grinding Oxy-Fuel Cutting Torch	HAP	401 KAR 51:017	N/A	General reporting requirements

Section V.5: Testing Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Tested	Description of Testing
EP 03-01	Walking Beam Reheat Furnace	SO_2	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-01	Walking Beam Reheat Furnace	NO_x	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-01	Walking Beam Reheat Furnace	Filterable PM $PM_{10}/PM_{2.5}$	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-01	Walking Beam Reheat Furnace	CO	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-01	Walking Beam Reheat Furnace	VOC	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-01	Walking Beam Reheat Furnace	CO_2e	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-01	Walking Beam Reheat Furnace	N/A	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-02	Ingot Bogie Hearth Furnace	SO_2	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-02	Ingot Bogie Hearth Furnace	NO_x	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Tested	Description of Testing
EP 03-02	Ingot Bogie Hearth Furnace	$PM_{10}/PM_{2.5}$	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-02	Ingot Bogie Hearth Furnace	Filterable PM	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-02	Ingot Bogie Hearth Furnace	CO	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-02	Ingot Bogie Hearth Furnace	VOC	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-02	Ingot Bogie Hearth Furnace	CO_2e	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-03	Roughing Mill Stand	Filterable PM	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-03	Roughing Mill Stand	PM_{10}	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-03	Roughing Mill Stand	$PM_{2.5}$	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-03	Roughing Mill Stand	VOC	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-03	Roughing Mill Stand	CO_2e	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Tested	Description of Testing
EP 03-03	Roughing Mill Stand	Opacity	401 KAR 59:010, Section 3(1)	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-03	Roughing Mill Stand	PM	401 KAR 59:010, Section 3(1)	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-04	Steckel Mill Finishing Stand	$PM/PM_{10}/PM_{2.5}$	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-04	Steckel Mill Finishing Stand	VOC	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-04	Steckel Mill Finishing Stand	CO_2e	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-04	Steckel Mill Finishing Stand	Opacity	401 KAR 59:010, Section 3(1)	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-04	Steckel Mill Finishing Stand	PM	401 KAR 59:010, Section 3(1)	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-05	Steckel Mill Coiling Furnaces	SO_2	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-05	Steckel Mill Coiling Furnaces	NO_x	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-05	Steckel Mill Coiling Furnaces	PM	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Tested	Description of Testing
EP 03-05	Steckel Mill Coiling Furnaces	Filterable PM	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-05	Steckel Mill Coiling Furnaces	CO	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-05	Steckel Mill Coiling Furnaces	VOC	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-05	Steckel Mill Coiling Furnaces	CO_2e	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-06	Coil Sample Plasma Cutter	PM	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-06	Coil Sample Plasma Cutter	NO_x	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-06	Coil Sample Plasma Cutter	Total HAPs	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-07	Coil Tagger	$PM/PM_{10}/PM_{2.5}$	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-07	Coil Tagger	VOC	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-08	Hot Rolling Mill Oxy-Fuel Plate Cutting Torch	$PM/PM_{10}/PM_{2.5}$	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Tested	Description of Testing
EP 03-08	Hot Rolling Mill Oxy-Fuel Plate Cutting Torch	NO_x	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-08	Hot Rolling Mill Oxy-Fuel Plate Cutting Torch	CO	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-08	Hot Rolling Mill Oxy-Fuel Plate Cutting Torch	VOC	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-08	Hot Rolling Mill Oxy-Fuel Plate Cutting Torch	SO_2	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-09	Hot Rolling Mill Oxy-Fuel Coil Cutting Torch	$PM/PM_{10}/PM_{2.5}$	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-09	Hot Rolling Mill Oxy-Fuel Coil Cutting Torch	NO_x	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-09	Hot Rolling Mill Oxy-Fuel Coil Cutting Torch	CO	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-09	Hot Rolling Mill Oxy-Fuel Coil Cutting Torch	VOC	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-09	Hot Rolling Mill Oxy-Fuel Coil Cutting Torch	SO_2	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-10	Ingot Grinding	Filterable PM PM10/PM2.5	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Tested	Description of Testing
EP 03-10	Ingot Grinding	HAP	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-11	Ingot Grinding Oxy-Fuel Cutting Torch	Filterable PM PM10/PM2.5	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-11	Ingot Grinding Oxy-Fuel Cutting Torch	NOx	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-11	Ingot Grinding Oxy-Fuel Cutting Torch	CO	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-11	Ingot Grinding Oxy-Fuel Cutting Torch	SO2	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-11	Ingot Grinding Oxy-Fuel Cutting Torch	VOC	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-11	Ingot Grinding Oxy-Fuel Cutting Torch	CO2e	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 03-11	Ingot Grinding Oxy-Fuel Cutting Torch	HAP	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045

Division for Air Quality

300 Sower Boulevard
Frankfort, KY 40601
(502) 564-3999

DEP7007B

Manufacturing or Processing Operations

___ Section B.1: Process Information
___ Section B.2: Materials and Fuel Information
___ Section B.3: Notes, Comments, and Explanations

Additional Documentation

___ Complete DEP7007AI, DEP7007N, DEP7007V, and DEP7007GG.
___ Attach a flow diagram
___ Attach SDS

Source Name: Nucor Steel Brandenburg
KY EIS (AFS) #: 21- 163-00044
Permit #: V-20-001 R1
Agency Interest (AI) ID: 162861
Date: March 01, 2024

Section B.1: Process Information

Emission Unit #	Emission Unit Name	Describe Emission Unit	Process ID	Process Name	Manufacturer	Model No.	Proposed/Actual Date of Construction Commencement *(MM/YYYY)*	Is the Process Continuous or Batch?	Number of Batches per 24 Hours *(if applicable)*	Hours per Batch *(if applicable)*
04-01	Shot Blaster	Removing surface deposits on light steel plates and preparing light steel plates for further treament.	04	Continuous Heat Treat	SMS	N/A	04/2022	Continuous	N/A	N/A
04-02	Austenitizing Furnace	Indirect-fired furnace equipped with radiant tube low-Nox burners with a total heat capacity of 71.55 MMBtu/hr	04	Continuous Heat Treat	SMS	N/A	04/2022	Continuous	N/A	N/A
04-03	Tempering Furnace	Direct-fired furnace with natural gas cold air burners with a total heat capacity of 43.48 MMBtu/hr	04	Continuous Heat Treat	SMS	N/A	04/2022	Continuous	N/A	N/A
04-04	Continuous Heat Treat Plasma Cutting	Plasma torches used to dry cut steel plates to desired length	04	Continuous Heat Treat	SMS, SATO	TBD	04/2022	Continuous	N/A	N/A

Emission Unit #	Emission Unit Name	Describe Emission Unit	Process ID	Process Name	Manufacturer	Model No.	Proposed/Actual Date of Construction Commencement *(MM/YYYY)*	Is the Process Continuous or Batch?	Number of Batches per 24 Hours *(if applicable)*	Hours per Batch *(if applicable)*
04-05	Continuous Heat Treat Entry Tagger	Used to stamp heat resistant paint to mark steel plates	04	Continuous Heat Treat	Alpine Metal Tech	TBD	04/2022	Continuous	N/A	N/A
04-06	Continuous Heat Treat Exit Tagger	Used to stamp heat resistant paint to mark steel plates	04	Continuous Heat Treat	Alpine Metal Tech	TBD	04/2022	Continuous	N/A	N/A

Section B.2: Materials and Fuel Information

**Maximum yearly fuel usage rate only applies if applicant request operating restrictions through federally enforceable limitations.*

Emission Unit #	Emission Unit Name	Name of Raw Materials Input	Maximum Quantity of Each Raw Material Input		Total Process Weight Rate for Emission Unit *(tons/hr)*	Name of Finished Materials	Maximum Quantity of Each Finished Material Output		Fuel Type	Maximum Hourly Fuel Usage Rate		Maximum Yearly Fuel Usage Rate		Sulfur Content *(%)*	Ash Content *(%)*
				(Specify Units/hr)				*(Specify Units/hr)*			*(Specify Units)*		*(Specify Units)*		
04-01	Shot Blaster	Steel Plate	N/A	N/A	50	Steel Plate	50	ton	N/A	N/A	N/A	N/A	N/A	N/A	N/A
04-02	Austenitizing Furnace	Steel Plate	N/A	N/A	50	Heat Treated Steel Plate	50	ton	Natural Gas	7.28E-02	MMscf/hr	637.5	MMscf/hr	N/A	N/A
04-03	Tempering Furnace	Steel Plate	N/A	N/A	50	Heat Treated Steel Plate	50	ton	Natural Gas	4.26E-02	MMscf/hr	373.4	MMscf/hr	N/A	N/A
04-04	Continuous Heat Treat Plasma Cutting	Steel Plate	50	ton	50	Heat Treated Steel Plate	50	ton	N/A	N/A	N/A	N/A	N/A	N/A	N/A
04-05	Continuous Heat Treat Entry Tagger	Steel Plate	125	ton	125	Heat Treated Steel Plate	125	ton	N/A	N/A	N/A	N/A	N/A	N/A	N/A
04-06	Continuous Heat Treat Exit Tagger	Steel Plate	125	ton	125	Heat Treated Steel Plate	125	ton	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Division for Air Quality 300 Sower Boulevard Frankfort, KY 40601 (502) 564-3999	**DEP7007V** Applicable Requirements and Compliance Activities	**Additional Documentation** ___ Complete DEP7007AI

___ Section V.1: Emission and Operating Limitation(s)
___ Section V.2: Monitoring Requirements
___ Section V.3: Recordkeeping Requirements
___ Section V.4: Reporting Requirements
___ Section V.5: Testing Requirements
___ Section V.6: Notes, Comments, and Explanations

Source Name: **Nucor Steel Brandenburg**
KY EIS (AFS) #: **21-163-00044**
Permit #: **V-20-001 R1**
Agency Interest (AI) ID: **162861**
Date: **March 01, 2024**

Section V.1: Emission and Operating Limitation(s)

Emission Unit #	Emission Unit Description	Applicable Regulation or Requirement	Pollutant	Emission Limit (if applicable)	Voluntary Emission Limit or Exemption (if applicable)	Operating Requirement or Limitation (if applicable)	Method of Determining Compliance with the Emission and Operating Requirement(s)
EP 04-01	Shot Blaster	401 KAR 51:017	$PM/PM_{10}/PM_{2.5}$	0.003 gr/dscf	N/A	Install, operate, and maintain a dust collector in accordance with manufacturer's specifications	Monitoring (see V.2) Recordkeeping (see V.3)
EP 04-02	Austenitizing Furnace	401 KAR 51:017	SO_2	0.6 lb/MMscf	N/A	Only natural gas shall be combusted in the Austenitizing Furnace	Monitoring (see V.2) Use of Natural Gas Recordkeeping (see V.3)
EP 04-02	Austenitizing Furnace	401 KAR 51:017	NO_x	160 lb/MMscf	N/A	N/A	Monitoring (see V.2) Recordkeeping (see V.3)
EP 04-02	Austenitizing Furnace	401 KAR 59:015 Section 4	PM	0.38 lb/MMBtu	N/A	N/A	Use of natural gas
EP 04-02	Austenitizing Furnace	401 KAR 59:015 Section 4	Opacity	≤ 20%	N/A	N/A	Use of natural gas
EP 04-02	Austenitizing Furnace	401 KAR 51:017	$PM/PM_{10}/PM_{2.5}$	7.6 lb/MMscf	N/A	N/A	Use of natural gas
EP 04-02	Austenitizing Furnace	401 KAR 51:017	Filterable PM	1.9 lb/MMscf	N/A	N/A	Use of natural gas
EP 04-02	Austenitizing Furnace	401 KAR 51:017	CO	88.6 lb/MMscf	N/A	N/A	Use of natural gas
EP 04-02	Austenitizing Furnace	401 KAR 51:017	VOC	5.5 lb/MMscf	N/A	N/A	Use of natural gas
EP 04-02	Austenitizing Furnace	401 KAR 51:017	CO_2e	120,713 lb/MMscf	N/A	Energy efficient design	Use of natural gas
EP 04-03	Tempering Furnace	401 KAR 51:017	SO_2	0.6 lb/MMscf	N/A	Only natural gas shall be combusted in the Tempering Furnace	Monitoring (see V.2) Recordkeeping (see V.3)
EP 04-03	Tempering Furnace	401 KAR 51:017	NO_x	160 lb/MMscf	N/A	The Tempering Furnace shall be equipped with low NOx burners (burners designed to maintain 0.16 lb/MMBtu)	Use of natural gas
EP 04-03	Tempering Furnace	401 KAR 51:017	$PM/PM_{10}/PM_{2.5}$	7.6 lb/MMscf	N/A	N/A	Use of natural gas
EP 04-03	Tempering Furnace	401 KAR 51:017	Filterable PM	1.9 lb/MMscf	N/A	N/A	Use of natural gas
EP 04-03	Tempering Furnace	401 KAR 51:017	CO	154 lb/MMscf	N/A	N/A	Use of natural gas
EP 04-03	Tempering Furnace	401 KAR 51:017	VOC	5.5 lb/MMscf	N/A	N/A	Use of natural gas
EP 04-03	Tempering Furnace	401 KAR 51:017	CO_2e	120,713 lb/MMscf	N/A	Energy efficient design	Use of natural gas

EP 04-04	Continuous Heat Treat Plasma Cutting	401 KAR 51:017	$PM/PM_{10}/PM_{2.5}$	0.00532 lb/in. cut 0.91 ton/yr	N/A	Install, operate, and maintain a dust collector in accordance with manufacturer's specifications	Monitoring (see V.2) Recordkeeping (see V.3)
EP 04-04	Continuous Heat Treat Plasma Cutting	401 KAR 51:017	NO_x	0.93 lb/hr 4.09 ton/yr	N/A	N/A	N/A
EP 04-04	Continuous Heat Treat Plasma Cutting	401 KAR 51:017	Total HAPs	25 ton/yr (plantwide limit)	N/A	N/A	Monitoring (see V.2) Recordkeeping (see V.3)
EP 04-05	Continuous Heat Treat Entry Tagger	401 KAR 51:017	$PM/PM_{10}/PM_{2.5}$	0.0001 lb/hr 0.00013 ton/yr	N/A	Maintain equipment in accordance with manufacturer's specifications to minimize ink usage	Monitoring (see V.2) Recordkeeping (see V.3)
EP 04-05	Continuous Heat Treat Entry Tagger	401 KAR 51:017	VOC	0.031 lb/hr 0.042 ton/yr	N/A	Maintain equipment in accordance with manufacturer's specifications to minimize ink usage	Monitoring (see V.2) Recordkeeping (see V.3)
EP 04-06	Continuous Heat Treat Exit Tagger	401 KAR 51:017	$PM/PM_{10}/PM_{2.5}$	0.001 lb/hr 0.002 ton/yr	N/A	Maintain equipment in accordance with manufacturer's specifications to minimize ink usage	Monitoring (see V.2) Recordkeeping (see V.3)
EP 04-06	Continuous Heat Treat Exit Tagger	401 KAR 51:017	VOC	0.434 lb/hr 0.59 ton/yr	N/A	Maintain equipment in accordance with manufacturer's specifications to minimize ink usage	Monitoring (see V.2) Recordkeeping (see V.3)

Section V.2: Monitoring Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Monitored	Description of Monitoring
EP 04-01	Shot Blaster	$PM/PM_{10}/PM_{2.5}$	401 KAR 51:017	Pressure drop across baghouse	Maintenance and operating parameters of control equipment
EP 04-02	Austenitizing Furnace	SO_2	401 KAR 59:015 Section 5 401 KAR 51:017	Natural gas combusted	Monthly and 12-month rolling natural gas combusted (MMscf)
EP 04-02	Austenitizing Furnace	PM	401 KAR 59:015 Section 4	N/A	General monitoring requirements
EP 04-02	Austenitizing Furnace	Opacity	401 KAR 59:015 Section 4	N/A	General monitoring requirements
EP 04-02	Austenitizing Furnace	$PM/PM_{10}/PM_{2.5}$	401 KAR 51:017	Natural gas combusted	Monthly and 12-month rolling natural gas combusted (MMscf)
EP 04-02	Austenitizing Furnace	Filterable PM	401 KAR 51:017	Natural gas combusted	Monthly and 12-month rolling natural gas combusted (MMscf)
EP 04-02	Austenitizing Furnace	CO	401 KAR 51:017	Natural gas combusted	Monthly and 12-month rolling natural gas combusted (MMscf)
EP 04-02	Austenitizing Furnace	VOC	401 KAR 51:017	Natural gas combusted	Monthly and 12-month rolling natural gas combusted (MMscf)
EP 04-02	Austenitizing Furnace	CO_2e	401 KAR 51:017	Natural gas combusted	Monthly and 12-month rolling natural gas combusted (MMscf)

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Monitored	Description of Monitoring
EP 04-03	Tempering Furnace	SO_2	401 KAR 51:017	Natural gas combusted	Monthly and 12-month rolling natural gas combusted (MMscf)
EP 04-03	Tempering Furnace	NO_x	401 KAR 51:017	Natural gas combusted	Monthly and 12-month rolling natural gas combusted (MMscf)
EP 04-03	Tempering Furnace	$PM/PM_{10}/PM_{2.5}$	401 KAR 51:017	Natural gas combusted	Monthly and 12-month rolling natural gas combusted (MMscf)
EP 04-03	Tempering Furnace	Filterable PM	401 KAR 51:017	Natural gas combusted	Monthly and 12-month rolling natural gas combusted (MMscf)
EP 04-03	Tempering Furnace	CO	401 KAR 51:017	Natural gas combusted	Monthly and 12-month rolling natural gas combusted (MMscf)
EP 04-03	Tempering Furnace	VOC	401 KAR 51:017	Natural gas combusted	Monthly and 12-month rolling natural gas combusted (MMscf)
EP 04-03	Tempering Furnace	CO_2e	401 KAR 51:017	Natural gas combusted	Monthly and 12-month rolling natural gas combusted (MMscf)
EP 04-04	Continuous Heat Treat Plasma Cutting	$PM/PM_{10}/PM_{2.5}$	401 KAR 51:017	Pressure drop across baghouse	Maintenance and operating parameters of control equipment
EP 04-04	Continuous Heat Treat Plasma Cutting	NO_x	401 KAR 51:017	N/A	General monitoring requirements
EP 04-04	Continuous Heat Treat Plasma Cutting	Total HAPs	401 KAR 51:017	N/A	General monitoring requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Monitored	Description of Monitoring
EP 04-05	Continuous Heat Treat Entry Tagger	$PM/PM_{10}/PM_{2.5}$	401 KAR 51:017	N/A	General monitoring requirements
EP 04-05	Continuous Heat Treat Entry Tagger	VOC	401 KAR 51:017	N/A	General monitoring requirements
EP 04-06	Continuous Heat Treat Exit Tagger	$PM/PM_{10}/PM_{2.5}$	401 KAR 51:017	N/A	General monitoring requirements
EP 04-06	Continuous Heat Treat Exit Tagger	VOC	401 KAR 51:017	N/A	General monitoring requirements

Section V.3: Recordkeeping Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Recorded	Description of Recordkeeping
EP 04-01	Shot Blaster	$PM/PM_{10}/PM_{2.5}$	401 KAR 51:017	Pressure drop across baghouse	Maintenance and operating parameters of control equipment
EP 04-02	Austenitizing Furnace	SO_2	401 KAR 59:015 Section 5 401 KAR 51:017	Natural gas combusted	Monthly and 12-month rolling natural gas combusted (MMscf)
EP 04-02	Austenitizing Furnace	NO_x	401 KAR 51:017	Natural gas combusted	Monthly and 12-month rolling natural gas combusted (MMscf)
EP 04-02	Austenitizing Furnace	PM	401 KAR 59:015 Section 3(1)	N/A	General recordkeeping requirements
EP 04-02	Austenitizing Furnace	Opacity	401 KAR 59:015 Section 3(1)	N/A	General recordkeeping requirements
EP 04-02	Austenitizing Furnace	$PM/PM_{10}/PM_{2.5}$	401 KAR 51:017	Natural gas combusted	Monthly and 12-month rolling natural gas combusted (MMscf)
EP 04-02	Austenitizing Furnace	Filterable PM	401 KAR 51:017	Natural gas combusted	Monthly and 12-month rolling natural gas combusted (MMscf)
EP 04-02	Austenitizing Furnace	CO	401 KAR 51:017	Natural gas combusted	Monthly and 12-month rolling natural gas combusted (MMscf)
EP 04-02	Austenitizing Furnace	VOC	401 KAR 51:017	Natural gas combusted	Monthly and 12-month rolling natural gas combusted (MMscf)

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Recorded	Description of Recordkeeping
EP 04-02	Austenitizing Furnace	CO_2e	401 KAR 51:017	Natural gas combusted	Monthly and 12-month rolling natural gas combusted (MMscf)
EP 04-03	Tempering Furnace	SO_2	401 KAR 51:017	Natural gas combusted	Monthly and 12-month rolling natural gas combusted (MMscf)
EP 04-03	Tempering Furnace	NO_x	401 KAR 51:017	Natural gas combusted	Monthly and 12-month rolling natural gas combusted (MMscf)
EP 04-03	Tempering Furnace	$PM/PM_{10}/PM_{2.5}$	401 KAR 51:017	Natural gas combusted	Monthly and 12-month rolling natural gas combusted (MMscf)
EP 04-03	Tempering Furnace	Filterable PM	401 KAR 51:017	Natural gas combusted	Monthly and 12-month rolling natural gas combusted (MMscf)
EP 04-03	Tempering Furnace	CO	401 KAR 51:017	Natural gas combusted	Monthly and 12-month rolling natural gas combusted (MMscf)
EP 04-03	Tempering Furnace	VOC	401 KAR 51:017	Natural gas combusted	Monthly and 12-month rolling natural gas combusted (MMscf)
EP 04-03	Tempering Furnace	CO_2e	401 KAR 51:017	Natural gas combusted	Monthly and 12-month rolling natural gas combusted (MMscf)
EP 04-04	Continuous Heat Treat Plasma Cutting	$PM/PM_{10}/PM_{2.5}$	401 KAR 51:017	Pressure drop across baghouse	Maintenance and operating parameters of control equipment
EP 04-04	Continuous Heat Treat Plasma Cutting	NO_x	401 KAR 51:017	N/A	General recordkeeping requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Recorded	Description of Recordkeeping
EP 04-04	Continuous Heat Treat Plasma Cutting	Total HAPs	401 KAR 51:017	N/A	General recordkeeping requirements
EP 04-05	Continuous Heat Treat Entry Tagger	$PM/PM_{10}/PM_{2.5}$	401 KAR 51:017	N/A	General recordkeeping requirements
EP 04-05	Continuous Heat Treat Entry Tagger	VOC	401 KAR 51:017	N/A	General recordkeeping requirements
EP 04-06	Continuous Heat Treat Exit Tagger	$PM/PM_{10}/PM_{2.5}$	401 KAR 51:017	N/A	General recordkeeping requirements
EP 04-06	Continuous Heat Treat Exit Tagger	VOC	401 KAR 51:017	N/A	General recordkeeping requirements

Section V.4: Reporting Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Reported	Description of Reporting
EP 04-01	Shot Blaster	$PM/PM_{10}/PM_{2.5}$	401 KAR 51:017	N/A	General reporting requirements
EP 04-02	Austenitizing Furnace	SO_2	401 KAR 59:015 Section 5 401 KAR 51:017	Natural gas combusted	Monthly and 12-month rolling natural gas combusted (MMscf)
EP 04-02	Austenitizing Furnace	NO_x	401 KAR 51:017	N/A	General reporting requirements
EP 04-02	Austenitizing Furnace	PM	401 KAR 59:015 Section 3(1)	N/A	General reporting requirements
EP 04-02	Austenitizing Furnace	Opacity	401 KAR 59:015 Section 3(1)	N/A	General reporting requirements
EP 04-02	Austenitizing Furnace	$PM/PM_{10}/PM_{2.5}$	401 KAR 51:017	N/A	General reporting requirements
EP 04-02	Austenitizing Furnace	Filterable PM	401 KAR 51:017	N/A	General reporting requirements
EP 04-02	Austenitizing Furnace	CO	401 KAR 51:017	N/A	General reporting requirements
EP 04-02	Austenitizing Furnace	VOC	401 KAR 51:017	N/A	General reporting requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Reported	Description of Reporting
EP 04-02	Austenitizing Furnace	CO_2e	401 KAR 51:017	N/A	General reporting requirements
EP 04-03	Tempering Furnace	SO_2	401 KAR 51:017	N/A	General reporting requirements
EP 04-03	Tempering Furnace	NO_x	401 KAR 51:017	N/A	General reporting requirements
EP 04-03	Tempering Furnace	$PM/PM_{10}/PM_{2.5}$	401 KAR 51:017	N/A	General reporting requirements
EP 04-03	Tempering Furnace	Filterable PM	401 KAR 51:017	N/A	General reporting requirements
EP 04-03	Tempering Furnace	CO	401 KAR 51:017	N/A	General reporting requirements
EP 04-03	Tempering Furnace	VOC	401 KAR 51:017	N/A	General reporting requirements
EP 04-03	Tempering Furnace	CO_2e	401 KAR 51:017	N/A	General reporting requirements
EP 04-04	Continuous Heat Treat Plasma Cutting	$PM/PM_{10}/PM_{2.5}$	401 KAR 51:017	N/A	General reporting requirements
EP 04-04	Continuous Heat Treat Plasma Cutting	NO_x	401 KAR 51:017	N/A	General reporting requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Reported	Description of Reporting
EP 04-04	Continuous Heat Treat Plasma Cutting	Total HAPs	401 KAR 51:017	N/A	General reporting requirements
EP 04-05	Continuous Heat Treat Entry Tagger	$PM/PM_{10}/PM_{2.5}$	401 KAR 51:017	N/A	General reporting requirements
EP 04-05	Continuous Heat Treat Entry Tagger	VOC	401 KAR 51:017	N/A	General reporting requirements
EP 04-06	Continuous Heat Treat Exit Tagger	$PM/PM_{10}/PM_{2.5}$	401 KAR 51:017	N/A	General reporting requirements
EP 04-06	Continuous Heat Treat Exit Tagger	VOC	401 KAR 51:017	N/A	General reporting requirements

Section V.5: Testing Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Tested	Description of Testing
EP 04-01	Shot Blaster	$PM/PM_{10}/PM_{2.5}$	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 04-02	Austenitizing Furnace	SO_2	401 KAR 59:015 Section 5 401 KAR 51:017	Natural gas combusted	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 04-02	Austenitizing Furnace	NO_x	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 04-02	Austenitizing Furnace	PM	401 KAR 59:015 Section 3(1)	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 04-02	Austenitizing Furnace	Opacity	401 KAR 59:015 Section 3(1)	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 04-02	Austenitizing Furnace	$PM/PM_{10}/PM_{2.5}$	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 04-02	Austenitizing Furnace	Filterable PM	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 04-02	Austenitizing Furnace	CO	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 04-02	Austenitizing Furnace	VOC	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Tested	Description of Testing
EP 04-02	Austenitizing Furnace	CO_2e	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 04-03	Tempering Furnace	SO_2	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 04-03	Tempering Furnace	NO_x	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 04-03	Tempering Furnace	$PM/PM_{10}/PM_{2.5}$	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 04-03	Tempering Furnace	Filterable PM	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 04-03	Tempering Furnace	CO	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 04-03	Tempering Furnace	VOC	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 04-03	Tempering Furnace	CO_2e	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 04-04	Continuous Heat Treat Plasma Cutting	$PM/PM_{10}/PM_{2.5}$	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 04-04	Continuous Heat Treat Plasma Cutting	NO_x	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Tested	Description of Testing
EP 04-04	Continuous Heat Treat Plasma Cutting	Total HAPs	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 04-05	Continuous Heat Treat Entry Tagger	$PM/PM_{10}/PM_{2.5}$	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 04-05	Continuous Heat Treat Entry Tagger	VOC	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 04-06	Continuous Heat Treat Exit Tagger	$PM/PM_{10}/PM_{2.5}$	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 04-06	Continuous Heat Treat Exit Tagger	VOC	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045

Division for Air Quality

300 Sower Boulevard
Frankfort, KY 40601
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DEP7007B

Manufacturing or Processing Operations

___ Section B.1: Process Information
___ Section B.2: Materials and Fuel Information
___ Section B.3: Notes, Comments, and Explanations

Additional Documentation

___ Complete DEP7007AI, DEP7007N, DEP7007V, and DEP7007GG.
___ Attach a flow diagram
___ Attach SDS

Source Name: Nucor Steel Brandendburg
KY EIS (AFS) #: 21- 163-00044
Permit #: V-20-001 R1
Agency Interest (AI) ID: 162861
Date: March 01, 2024

Section B.1: Process Information

Emission Unit #	Emission Unit Name	Describe Emission Unit	Process ID	Process Name	Manufacturer	Model No.	Proposed/Actual Date of Construction Commencement *(MM/YYYY)*	Is the Process Continuous or Batch?	Number of Batches per 24 Hours *(if applicable)*	Hours per Batch *(if applicable)*
05-01	Group 1 Car Bottom Furnaces	Four car bottom furnaces equipped with direct-fired natural gas burners, with a total heat capacity of 46 MMBtu/hr each	05	Heavy Plate Processing	TBD	TBD	12/2021	Batch	N/A	N/A
05-03	Heavy Plate Burning Beds-Plasma Cutters	One plasma cutters used to dry cut heavy steel plates to desired size apart of the burning bed	05	Heavy Plate Processing	TBD	TBD	12/2021	Batch	192	0.13
05-03	Heavy Plate Burning Beds-Oxy Fuel Torches	Twelve oxy fuel cutters used to cut heavy steel plates to desired size, 4 torches in each of the 3 burning beds	05	Heavy Plate Processing	TBD	TBD	12/2021	Batch	120	0.2
05-04	Heavy Plate Hand-Held Trigger	Used to stamp heavy plates	05	Heavy Plate Processing	TBD	TBD	12/2021	Batch	432	0.55

Section B.2: Materials and Fuel Information

**Maximum yearly fuel usage rate only applies if applicant request operating restrictions through federally enforceable limitations.*

Emission Unit #	Emission Unit Name	Name of Raw Materials Input	Maximum Quantity of Each Raw Material Input		Total Process Weight Rate for Emission Unit	Name of Finished Materials	Maximum Quantity of Each Finished Material Output		Fuel Type	Maximum Hourly Fuel Usage Rate		Maximum Yearly Fuel Usage Rate		Sulfur Content	Ash Content
				(Specify Units/hr)	*(tons/hr)*			*(Specify Units/hr)*			*(Specify Units)*		*(Specify Units)*	*(%)*	*(%)*
05-01	Group 1 Car Bottom Furnaces	Steel Plate	30	ton	30	Heat Treated Steel Plate	30	ton	Natural Gas	0.18	MMscf/hr	1577	MMscf/yr	N/A	N/A
05-03	Heavy Plate Burning Beds-Plasma Cutters	Steel Plate	440	ton	440	Heat Treated Steel Plate	440	ton	N/A	N/A	N/A	N/A	N/A	N/A	N/A
05-03	Heavy Plate Burning Beds-Oxy Fuel Torches	Steel Plate	275	ton	275	Heat Treated Steel Plate	275	ton	Natural Gas	0.00021	MMscf/hr	1.8396	MMscf/yr	N/A	N/A
05-04	Heavy Plate Hand-Held Trigger	Steel Plate Indentification Ink	18 0.017	plate lb	440	Tagged Steel Plate	440	ton	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Division for Air Quality

300 Sower Boulevard
Frankfort, KY 40601
(502) 564-3999

DEP7007V

Applicable Requirements and Compliance Activities

___ Section V.1: Emission and Operating Limitation(s)
___ Section V.2: Monitoring Requirements
___ Section V.3: Recordkeeping Requirements
___ Section V.4: Reporting Requirements
___ Section V.5: Testing Requirements
___ Section V.6: Notes, Comments, and Explanations

Additional Documentation

___ Complete DEP7007AI

Source Name: Nucor Steel Brandenburg
KY EIS (AFS) #: 21-163-00044
Permit #: V-20-001 R1
Agency Interest (AI) ID: 162861
Date: March 01, 2024

Section V.1: Emission and Operating Limitation(s)

Emission Unit #	Emission Unit Description	Applicable Regulation or Requirement	Pollutant	Emission Limit (if applicable)	Voluntary Emission Limit or Exemption (if applicable)	Operating Requirement or Limitation (if applicable)	Method of Determining Compliance with the Emission and Operating Requirement(s)
EP 05-01	Heavy Plate Car Bottom Furnaces	401 KAR 51:017	SO_2	0.47 ton/yr	N/A	N/A	Monitoring (see V.2) Recordkeeping (see V.3)
EP 05-01	Heavy Plate Car Bottom Furnaces	401 KAR 51:017	NO_x	64.47 ton/yr	N/A	N/A	Monitoring (see V.2) Recordkeeping (see V.3)
EP 05-01	Heavy Plate Car Bottom Furnaces	401 KAR 51:017	$PM_{10}/PM_{2.5}$	6.00 ton/yr	N/A	N/A	use of natural gas
EP 05-01	Heavy Plate Car Bottom Furnaces	401 KAR 51:017	Filterable PM	1.50 ton/yr	N/A	N/A	use of natural gas
EP 05-01	Heavy Plate Car Bottom Furnaces	401 KAR 51:017	CO	66.37 ton/yr	N/A	N/A	use of natural gas
EP 05-01	Heavy Plate Car Bottom Furnaces	401 KAR 51:017	VOC	4.35 ton/yr	N/A	N/A	use of natural gas
EP 05-01	Heavy Plate Car Bottom Furnaces	401 KAR 51:017	CO_2e	95,378 ton/yr	N/A	N/A	use of natural gas
EP 05-01	Heavy Plate Car Bottom Furnaces	401 KAR 51:017	Total HAPs	25 ton/yr (plantwide limit)	N/A	Energy efficient design	Monitoring (see V.2) Recordkeeping (see V.3)
EP 05-03	Heavy Plate Cutting Beds #1-#3	401 KAR 51:017	Filterable PM	0.0053 lb/in. cut (plasma) 0.012 lb/hr (oxy-fuel) 0.22 ton/yr	N/A	Install, operate, and maintain a dust collector in accordance with manufacturer's specifications	Monitoring (see V.2) Recordkeeping (see V.3)
EP 05-03	Heavy Plate Cutting Beds #1-#3	401 KAR 51:017	$PM_{10}/PM_{2.5}$	0.0053 lb/in. cut (plasma) 0.012 lb/hr (oxy-fuel) 0.22 ton/yr	N/A	Install, operate, and maintain a dust collector in accordance with manufacturer's specifications	Monitoring (see V.2) Recordkeeping (see V.3)
EP 05-03	Heavy Plate Cutting Beds #1-#3	401 KAR 51:017	NO_x	1.4 lb/hr (plasma) 100 lb/MMscf (oxy-fuel) 6.22 ton/yr	N/A	N/A	Monitoring (see V.2) Recordkeeping (see V.3)
EP 05-03	Heavy Plate Cutting Beds #1-#3	401 KAR 51:017	CO	84 lb/MMscf 0.07 ton/year	N/A	N/A	use of natural gas
EP 05-03	Heavy Plate Cutting Beds #1-#3	401 KAR 51:017	SO_2	0.6 lb/MMscf 0.00055 ton/yr	N/A	N/A	use of natural gas
EP 05-03	Heavy Plate Cutting Beds #1-#3	401 KAR 51:017	VOC	5.5 lb/MMscf 0.0051 ton/yr	N/A	N/A	use of natural gas
EP 05-04	Heavy Plate Hand-Held Trigger	401 KAR 51:017	$PM/PM_{10}/PM_{2.5}$	0.00003 lb/hr 0.00002 ton/yr	N/A	Use of hand-held trigger to minimize ink usage	Monitoring (see V.2) Recordkeeping (see V.3)
EP 05-04	Heavy Plate Hand-Held Trigger	401 KAR 51:017	VOC	0.014 lb/hr 0.0073 ton/yr	N/A	Use of hand-held trigger to minimize ink usage	Monitoring (see V.2) Recordkeeping (see V.3)

Section V.2: Monitoring Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Monitored	Description of Monitoring
EP 05-01	Heavy Plate Car Bottom Furnaces	SO2	401 KAR 51:017	Natural gas combusted	Monthly and 12-month rolling natural gas combusted (MMscf)
EP 05-01	Heavy Plate Car Bottom Furnaces	NOx	401 KAR 51:017	N/A	General monitoring requirements
EP 05-01	Heavy Plate Car Bottom Furnaces	PM10/PM2.5	401 KAR 51:017	Natural gas combusted	Monthly and 12-month rolling natural gas combusted (MMscf)
EP 05-01	Heavy Plate Car Bottom Furnaces	Filterable PM	401 KAR 51:017	Natural gas combusted	Monthly and 12-month rolling natural gas combusted (MMscf)
EP 05-01	Heavy Plate Car Bottom Furnaces	CO	401 KAR 51:017	Natural gas combusted	Monthly and 12-month rolling natural gas combusted (MMscf)
EP 05-01	Heavy Plate Car Bottom Furnaces	VOC	401 KAR 51:017	Natural gas combusted	Monthly and 12-month rolling natural gas combusted (MMscf)
EP 05-01	Heavy Plate Car Bottom Furnaces	CO2e	401 KAR 51:017	Natural gas combusted	Monthly and 12-month rolling natural gas combusted (MMscf)
EP 05-01	Heavy Plate Car Bottom Furnaces	Total HAPs	401 KAR 51:017	N/A	General monitoring requirements
EP 05-03	Heavy Plate Cutting Beds #1-#3	Filterable PM	401 KAR 51:017	N/A	Monthly and 12-month rolling natural gas combusted (MMscf)

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Monitored	Description of Monitoring
EP 05-03	Heavy Plate Cutting Beds #1-#3	PM10/PM2.5	401 KAR 51:017	N/A	Monthly and 12-month rolling natural gas combusted (MMscf)
EP 05-03	Heavy Plate Cutting Beds #1-#3	NOx	401 KAR 51:017	N/A	Monthly and 12-month rolling natural gas combusted (MMscf)
EP 05-03	Heavy Plate Cutting Beds #1-#3	CO	401 KAR 51:017	N/A	Monthly and 12-month rolling natural gas combusted (MMscf)
EP 05-03	Heavy Plate Cutting Beds #1-#3	SO2	401 KAR 51:017	N/A	Monthly and 12-month rolling natural gas combusted (MMscf)
EP 05-03	Heavy Plate Cutting Beds #1-#3	VOC	401 KAR 51:017	N/A	Monthly and 12-month rolling natural gas combusted (MMscf)
EP 05-04	Heavy Plate Hand-Held Trigger	PM/PM10/PM2.5	401 KAR 51:017	N/A	General monitoring requirements
EP 05-04	Heavy Plate Hand-Held Trigger	VOC	401 KAR 51:017	N/A	General monitoring requirements

Section V.3: Recordkeeping Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Recorded	Description of Recordkeeping
EP 05-01	Heavy Plate Car Bottom Furnaces	SO2	401 KAR 51:017	Natural gas combusted	Monthyl and 12-month rolling natural gas combusted (MMscf)
EP 05-01	Heavy Plate Car Bottom Furnaces	NOx	401 KAR 51:017	N/A	General recordkeeping requirements
EP 05-01	Heavy Plate Car Bottom Furnaces	PM10/PM2.5	401 KAR 51:017	Natural gas combusted	Monthyl and 12-month rolling natural gas combusted (MMscf)
EP 05-01	Heavy Plate Car Bottom Furnaces	Filterable PM	401 KAR 51:017	Natural gas combusted	Monthyl and 12-month rolling natural gas combusted (MMscf)
EP 05-01	Heavy Plate Car Bottom Furnaces	CO	401 KAR 51:017	Natural gas combusted	Monthyl and 12-month rolling natural gas combusted (MMscf)
EP 05-01	Heavy Plate Car Bottom Furnaces	VOC	401 KAR 51:017	Natural gas combusted	Monthyl and 12-month rolling natural gas combusted (MMscf)
EP 05-01	Heavy Plate Car Bottom Furnaces	CO2e	401 KAR 51:017	Natural gas combusted	Monthyl and 12-month rolling natural gas combusted (MMscf)
EP 05-01	Heavy Plate Car Bottom Furnaces	Total HAPs	401 KAR 51:017	N/A	General recordkeeping requirements
EP 05-03	Heavy Plate Cutting Beds #1-#3	Filterable PM	401 KAR 51:017	Natural gas combusted	Monthyl and 12-month rolling natural gas combusted (MMscf)

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Recorded	Description of Recordkeeping
EP 05-03	Heavy Plate Cutting Beds #1-#3	PM10/PM2.5	401 KAR 51:017	Natural gas combusted	Monthyl and 12-month rolling natural gas combusted (MMscf)
EP 05-03	Heavy Plate Cutting Beds #1-#3	NOx	401 KAR 51:017	Natural gas combusted	Monthyl and 12-month rolling natural gas combusted (MMscf)
EP 05-03	Heavy Plate Cutting Beds #1-#3	CO	401 KAR 51:017	Natural gas combusted	Monthyl and 12-month rolling natural gas combusted (MMscf)
EP 05-03	Heavy Plate Cutting Beds #1-#3	SO2	401 KAR 51:017	N/A	Monthyl and 12-month rolling natural gas combusted (MMscf)
EP 05-03	Heavy Plate Cutting Beds #1-#3	VOC	401 KAR 51:017	N/A	Monthyl and 12-month rolling natural gas combusted (MMscf)
EP 05-04	Heavy Plate Hand-Held Trigger	PM/PM10/PM2.5	401 KAR 51:017	N/A	General recordkeeping requirements
EP 05-04	Heavy Plate Hand-Held Trigger	VOC	401 KAR 51:017	N/A	General recordkeeping requirements

Section V.4: Reporting Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Reported	Description of Reporting
EP 05-01	Heavy Plate Car Bottom Furnaces	SO2	401 KAR 51:017	N/A	General reporting requirements
EP 05-01	Heavy Plate Car Bottom Furnaces	NOx	401 KAR 51:017	N/A	General reporting requirements
EP 05-01	Heavy Plate Car Bottom Furnaces	PM10/PM2.5	401 KAR 51:017	N/A	General reporting requirements
EP 05-01	Heavy Plate Car Bottom Furnaces	Filterable PM	401 KAR 51:017	N/A	General reporting requirements
EP 05-01	Heavy Plate Car Bottom Furnaces	CO	401 KAR 51:017	N/A	General reporting requirements
EP 05-01	Heavy Plate Car Bottom Furnaces	VOC	401 KAR 51:017	N/A	General reporting requirements
EP 05-01	Heavy Plate Car Bottom Furnaces	CO2e	401 KAR 51:017	N/A	General reporting requirements
EP 05-01	Heavy Plate Car Bottom Furnaces	Total HAPs	401 KAR 51:017	N/A	General reporting requirements
EP 05-03	Heavy Plate Cutting Beds #1-#3	Filterable PM	401 KAR 51:017	N/A	General reporting requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Reported	Description of Reporting
EP 05-03	Heavy Plate Cutting Beds #1-#3	PM10/PM2.5	401 KAR 51:017	N/A	General reporting requirements
EP 05-03	Heavy Plate Cutting Beds #1-#3	NOx	401 KAR 51:017	N/A	General reporting requirements
EP 05-03	Heavy Plate Cutting Beds #1-#3	CO	401 KAR 51:017	N/A	General reporting requirements
EP 05-03	Heavy Plate Cutting Beds #1-#3	SO2	401 KAR 51:017	N/A	General reporting requirements
EP 05-03	Heavy Plate Cutting Beds #1-#3	VOC	401 KAR 51:017	N/A	General reporting requirements
EP 05-04	Heavy Plate Hand-Held Trigger	PM/PM10/PM2.5	401 KAR 51:017	N/A	General reporting requirements
EP 05-04	Heavy Plate Hand-Held Trigger	VOC	401 KAR 51:017	N/A	General reporting requirements

Section V.5: Testing Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Tested	Description of Testing
EP 05-01	Heavy Plate Car Bottom Furnaces	SO2	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 05-01	Heavy Plate Car Bottom Furnaces	NOx	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 05-01	Heavy Plate Car Bottom Furnaces	PM10/PM2.5	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 05-01	Heavy Plate Car Bottom Furnaces	Filterable PM	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 05-01	Heavy Plate Car Bottom Furnaces	CO	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 05-01	Heavy Plate Car Bottom Furnaces	VOC	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 05-01	Heavy Plate Car Bottom Furnaces	CO2e	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 05-01	Heavy Plate Car Bottom Furnaces	Total HAPs	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 05-03	Heavy Plate Cutting Beds #1-#3	Filterable PM	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Tested	Description of Testing
EP 05-03	Heavy Plate Cutting Beds #1-#3	PM10/PM2.5	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 05-03	Heavy Plate Cutting Beds #1-#3	NOx	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 05-03	Heavy Plate Cutting Beds #1-#3	CO	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 05-03	Heavy Plate Cutting Beds #1-#3	SO2	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 05-03	Heavy Plate Cutting Beds #1-#3	VOC	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 05-04	Heavy Plate Hand-Held Trigger	PM/PM10/PM2.5	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 05-04	Heavy Plate Hand-Held Trigger	VOC	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045

Division for Air Quality 300 Sower Boulevard Frankfort, KY 40601 (502) 564-3999	**DEP7007B** Manufacturing or Processing Operations ___ Section B.1: Process Information ___ Section B.2: Materials and Fuel Information ___ Section B.3: Notes, Comments, and Explanations	**Additional Documentation** ___ Complete DEP7007AI, DEP7007N, DEP7007V, and DEP7007GG. ___ Attach a flow diagram ___ Attach SDS

Source Name: **Nucor Steel Brandenburg**

KY EIS (AFS) #: **21-163-00044**

Permit #: **V-20-001 R1**

Agency Interest (AI) ID: **162861**

Date: **March 01, 2024**

Section B.1: Process Information

Emission Unit #	Emission Unit Name	Describe Emission Unit	Process ID	Process Name	Manufacturer	Model No.	Proposed/Actual Date of Construction Commencement *(MM/YYYY)*	Is the Process Continuous or Batch?	Number of Batches per 24 Hours *(if applicable)*	Hours per Batch *(if applicable)*
EP 09-01	Melt Shop ICW Cooling Tower, System 100	3-Cell cooling tower (49,200 gpm) to support noncontact water demand for Melt Shop processes	09	Cooling Tower	TBD	TBD		Continuous	N/A	N/A
EP 09-02	Melt Shop DCW Cooling Tower, System 200	2-Cell cooling tower (16,000 gpm) to provide contact cooling water to Melt Shop	09	Cooling Tower	TBD	TBD		Continuous	N/A	N/A
EP 09-04	Rolling Mill DCW Cooling Tower, System 400	3-Cell cooling tower (55,000 gpm) to support Rolling Mill contact cooling water demand	09	Cooling Tower	TBD	TBD		Continuous	N/A	N/A
EP 09-05	Rolling Mill ACC ICW Cooling Tower, System 500	2-Cell cooling tower (35,000 gpm) for the ACC cooling water system in the Rolling Mill	09	Cooling Tower	TBD	TBD		Continuous	N/A	N/A
EP 09-06	Heavy Plate Quench DCW Cooling Tower, System 600	2-Cell cooling tower (10,100 gpm) to support contact cooling water demand for heavy plate processing area	09	Cooling Tower	TBD	TBD		Continuous	N/A	N/A
EP 09-07	Quench & ACC Laminar DCW Cooling Tower, System 700	3-Cell cooling tower (44,000 gpm) to support contact cooling water demand for heavy plate processing area and ACC cooling water system.	09	Cooling Tower	TBD	TBD		Continuous	N/A	N/A
EP 09-08	Heat Treat Cooling Tower, System 800	8-Cell cooling tower (30,900 gpm) to support cooling water demand from Continuous Heat Treat water quenching	09	Cooling Tower	TBD	TBD		Continuous	N/A	N/A
EP 09-09	Air Separation Plant Cooling Tower, System 900	4-Cell cooling tower (12,800 gpm) to support cooling water demand from the Air Separation Plant	09	Cooling Tower	TBD	TBD		Continuous	N/A	N/A

Section B.2: Materials and Fuel Information

**Maximum yearly fuel usage rate only applies if applicant request operating restrictions through federally enforceable limitations.*

Emission Unit #	Emission Unit Name	Name of Raw Materials Input	Maximum Quantity of Each Raw Material Input		Total Process Weight Rate for Emission Unit *(tons/hr)*	Name of Finished Materials	Maximum Quantity of Each Finished Material Output		Fuel Type	Maximum Hourly Fuel Usage Rate		Maximum Yearly Fuel Usage Rate		Sulfur Content *(%)*	Ash Content *(%)*
				(Specify Units/hr)				*(Specify Units/hr)*			*(Specify Units)*		*(Specify Units)*		
EP 09-01	Melt Shop ICW Cooling Tower, System 100	Water	2,952,000	gal	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EP 09-02	Melt Shop DCW Cooling Tower, System 200	Water	960,000	gal	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EP 09-04	Rolling Mill DCW Cooling Tower, System 400	Water	3,300,000	gal	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EP 09-05	Rolling Mill ACC ICW Cooling Tower, System 500	Water	2,100,000	gal	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EP 09-06	Heavy Plate Quench DCW Cooling Tower, System 600	Water	606,000	gal	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EP 09-07	Quench & ACC Laminar DCW Cooling Tower, System 700	Water	2,640,000	gal	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EP 09-08	Heat Treat Cooling Tower, System 800	Water	1,854,000	gal	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EP 09-09	Air Separation Plant Cooling Tower, System 900	Water	768,000	gal	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Division for Air Quality 300 Sower Boulevard Frankfort, KY 40601 (502) 564-3999

DEP7007V

Applicable Requirements and Compliance Activities

___ Section V.1: Emission and Operating Limitation(s)

___ Section V.2: Monitoring Requirements

___ Section V.3: Recordkeeping Requirements

___ Section V.4: Reporting Requirements

___ Section V.5: Testing Requirements

___ Section V.6: Notes, Comments, and Explanations

Additional Documentation
___ Complete DEP7007AI

Source Name: **Nucor Steel Brandenburg**

KY EIS (AFS) #: **21-163-00044**

Permit #: **V-20-001 R1**

Agency Interest (AI) ID: **162861**

Date: **March 01, 2024**

Section V.1: Emission and Operating Limitation(s)

Emission Unit #	**Emission Unit Description**	**Applicable Regulation or Requirement**	**Pollutant**	**Emission Limit** (if applicable)	**Voluntary Emission Limit or Exemption** (if applicable)	**Operating Requirement or Limitation** (if applicable)	**Method of Determining Compliance with the Emission and Operating Requirement(s)**
EU09	Cooling Towers	40 CFR 63.402 Chromium	Chromium	N/A	N/A	The use of chromium based water treatment chemicals in the cooling towers (EU09) is prohibited	Recordkeeping (see V.3)
EP 09-01	Melt Shop ICW Cooling Tower, System 100	401 KAR 51:017	PM	N/A	N/A	Water flow rate not to exceed 49,200 gpm; TDS concentration not to exceed 2,800 ppm; mist eliminator drift loss maintained at 0.001% or less to the total gpm	High-efficiency drift eliminators Monitoring (see V.2) Recordkeeping (see V.3)
EP 09-01	Melt Shop ICW Cooling Tower, System 100	401 KAR 51:017	PM	N/A	N/A	Perform regular cooling water maintenance as recommended by the vendor to assure that the drift loss is maintained at all times	Recordkeeping (see V.3)
EP 09-01	Melt Shop ICW Cooling Tower, System 100	401 KAR 59;010 Section 3(1)	Opacity	≤ 20%	N/A	N/A	Monitoring (see V.2) Recordkeeping (see V.3)
EP 09-01	Melt Shop ICW Cooling Tower, System 100	401 KAR 59;010 Section 3(1)	PM	Process Weight Rate Emission Limit	N/A	N/A	Meet the BACT operating requirement above (0.001% or less to total gpm)
EP 09-02	Melt Shop DCW Cooling Tower, System 200	401 KAR 51:017	PM	N/A	N/A	Water flow rate not to exceed 16,000 gpm; TDS concentration not to exceed 3,000 ppm; mist eliminator drift loss maintained at 0.001% or less to the total gpm	High-efficiency drift eliminators Monitoring (see V.2) Recordkeeping (see V.3)

EP 09-02	Melt Shop DCW Cooling Tower, System 200	401 KAR 51:017	PM	N/A	N/A	Perform regular cooling water maintenance as recommended by the vendor to assure that the drift loss is maintained at all times	N/A
EP 09-02	Melt Shop DCW Cooling Tower, System 200	401 KAR 59;010 Section 3(1)	Opacity	≤ 20%	N/A	N/A	Monitoring (see V.2) Recordkeeping (see V.3)
EP 09-02	Melt Shop DCW Cooling Tower, System 200	401 KAR 59;010 Section 3(1)	PM	Process Weight Rate Emission Limit	N/A	N/A	Meet the BACT operating requirement above (0.001% or less to total gpm)
EP 09-04	Rolling Mill DCW Cooling Tower, System 400	401 KAR 51:017	PM	N/A	N/A	Water flow rate not to exceed 55,000 gpm; TDS concentration not to exceed 3,000 ppm; mist eliminator drift loss maintained at 0.001% or less to the total gpm	High-efficiency drift eliminators Monitoring (see V.2) Recordkeeping (see V.3)
EP 09-04	Rolling Mill DCW Cooling Tower, System 400	401 KAR 51:017	PM	N/A	N/A	Perform regular cooling water maintenance as recommended by the vendor to assure that the drift loss is maintained at all times	N/A
EP 09-04	Rolling Mill DCW Cooling Tower, System 400	401 KAR 59;010 Section 3(1)	Opacity	≤ 20%	N/A	N/A	Monitoring (see V.2) Recordkeeping (see V.3)
EP 09-04	Rolling Mill DCW Cooling Tower, System 400	401 KAR 59;010 Section 3(1)	PM	Process Weight Rate Emission Limit	N/A	N/A	Meet the BACT operating requirement above (0.001% or less to total gpm)
EP 09-05	Rolling Mill ACC ICW Cooling Tower, System 500	401 KAR 51:017	PM	N/A	N/A	Water flow rate not to exceed 35,000 gpm; TDS concentration not to exceed 2,800 ppm; mist eliminator drift loss maintained at 0.001% or less to the total gpm	High-efficiency drift eliminators Monitoring (see V.2) Recordkeeping (see V.3)
EP 09-05	Rolling Mill ACC ICW Cooling Tower, System 500	401 KAR 51:017	PM	N/A	N/A	Perform regular cooling water maintenance as recommended by the vendor to assure that the drift loss is maintained at all times	N/A
EP 09-05	Rolling Mill ACC ICW Cooling Tower, System 500	401 KAR 59;010 Section 3(1)	Opacity	≤ 20%	N/A	N/A	Monitoring (see V.2) Recordkeeping (see V.3)
EP 09-05	Rolling Mill ACC ICW Cooling Tower, System 500	401 KAR 59;010 Section 3(1)	PM	Process Weight Rate Emission Limit	N/A	N/A	Meet the BACT operating requirement above (0.001% or less to total gpm)
EP 09-06	Heavy Plate Quench DCW Cooling Tower, System 600	401 KAR 51:017	PM	N/A	N/A	Water flow rate not to exceed 10,100 gpm; TDS concentration not to exceed 3,000 ppm; mist eliminator drift loss maintained at 0.001% or less to the total gpm	High-efficiency drift eliminators Monitoring (see V.2) Recordkeeping (see V.3)

EP 09-06	Heavy Plate Quench DCW Cooling Tower, System 600	401 KAR 51:017	PM	N/A	N/A	Perform regular cooling water maintenance as recommended by the vendor to assure that the drift loss is maintained at all times	N/A
EP 09-06	Heavy Plate Quench DCW Cooling Tower, System 600	401 KAR 59;010 Section 3(1)	Opacity	≤ 20%	N/A	N/A	Monitoring (see V.2) Recordkeeping (see V.3)
EP 09-06	Heavy Plate Quench DCW Cooling Tower, System 600	401 KAR 59;010 Section 3(1)	PM	Process Weight Rate Emission Limit	N/A	N/A	Meet the BACT operating requirement above (0.001% or less to total gpm)
EP 09-07	Quench & ACC Laminar DCW Cooling Tower, System 700	401 KAR 51:017	PM	N/A	N/A	Water flow rate not to exceed 44,000 gpm; TDS concentration not to exceed 3,000 ppm; mist eliminator drift loss maintained at 0.001% or less to the total gpm	High-efficiency drift eliminators Monitoring (see V.2) Recordkeeping (see V.3)
EP 09-07	Quench & ACC Laminar DCW Cooling Tower, System 700	401 KAR 51:017	PM	N/A	N/A	Perform regular cooling water maintenance as recommended by the vendor to assure that the drift loss is maintained at all times	N/A
EP 09-07	Quench & ACC Laminar DCW Cooling Tower, System 700	401 KAR 59;010 Section 3(1)	Opacity	≤ 20%	N/A	N/A	Monitoring (see V.2) Recordkeeping (see V.3)
EP 09-07	Quench & ACC Laminar DCW Cooling Tower, System 700	401 KAR 59;010 Section 3(1)	PM	Process Weight Rate Emission Limit	N/A	N/A	Meet the BACT operating requirement above (0.001% or less to total gpm)
EP 09-08	Heat Treat Cooling Tower, System 800	401 KAR 51:017	PM	N/A	N/A	Water flow rate not to exceed 30,900 gpm; TDS concentration not to exceed 3,000 ppm; mist eliminator drift loss maintained at 0.001% or less to the total gpm	High-efficiency drift eliminators Monitoring (see V.2) Recordkeeping (see V.3)
EP 09-08	Heat Treat Cooling Tower, System 800	401 KAR 51:017	PM	N/A	N/A	Perform regular cooling water maintenance as recommended by the vendor to assure that the drift loss is maintained at all times	N/A
EP 09-08	Heat Treat Cooling Tower, System 800	401 KAR 59;010 Section 3(1)	Opacity	≤ 20%	N/A	N/A	Monitoring (see V.2) Recordkeeping (see V.3)
EP 09-08	Heat Treat Cooling Tower, System 800	401 KAR 59;010 Section 3(1)	PM	Process Weight Rate Emission	N/A	N/A	Meet the BACT operating requirement above (0.001% or less to total gpm)
EP 09-09	Air Separation Plant Cooling Tower, System 900	401 KAR 51:017	PM	N/A	N/A	Water flow rate not to exceed 12,800 gpm; TDS concentration not to exceed 2,800 ppm; mist eliminator drift loss maintained at 0.001% or less to the total gpm	High-efficiency drift eliminators Monitoring (see V.2) Recordkeeping (see V.3)

EP 09-09	Air Separation Plant Cooling Tower, System 900	401 KAR 51:017	PM	N/A	N/A	Perform regular cooling water maintenance as recommended by the vendor to assure that the drift loss is maintained at all times	N/A
EP 09-09	Air Separation Plant Cooling Tower, System 900	401 KAR 59;010 Section 3(1)	Opacity	≤ 20%	N/A	N/A	Monitoring (see V.2) Recordkeeping (see V.3)
EP 09-09	Air Separation Plant Cooling Tower, System 900	401 KAR 59;010 Section 3(1)	PM	Process Weight Rate Emission Limit	N/A	N/A	Meet the BACT operating requirement above (0.001% or less to total gpm)

Section V.2: Monitoring Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Monitored	Description of Monitoring
EU09	Cooling Towers	Chromium	40 CFR 63.402 Chromium	N/A	General monitoring requirements
EP 09-01	Melt Shop ICW Cooling Tower, System 100	PM	401 KAR 51:017	Total dissolved solids Water throughput Pump head pressures	Monitor the total dissolved solids concentration or conductivity in the cooling towers' water weekly until the variability is assessed. After the variability is assessed, the monitoring may be done monthly upon concurrence of the Division. Monitor the water gallon per minute throughput on a daily basis.Monitor the common header pressure each pump is connected to or thetotal return flow rate for the system
EP 09-01	Melt Shop ICW Cooling Tower, System 100	PM	401 KAR 51:017	N/A	General monitoring requirements
EP 09-01	Melt Shop ICW Cooling Tower, System 100	Opacity	401 KAR 59;010 Section 3(1)	Opacity	Perform a qualitative visual observation of each stack weekly to ensure that mist eliminators are operating properly
EP 09-01	Melt Shop ICW Cooling Tower, System 100	PM	401 KAR 59;010 Section 3(1)	N/A	Demonstrated through meeting BACT operating requirement (0.001% or less to total gpm)
EP 09-02	Melt Shop DCW Cooling Tower, System 200	PM	401 KAR 51:017	Total dissolved solids Water throughput Pump head pressures	Monitor the total dissolved solids concentration or conductivity in the cooling towers' water weekly until the variability is assessed. After the variability is assessed, the monitoring may be done monthly upon concurrence of the Division. Monitor the water gallon per minute throughput on a daily basis.Monitor the common header pressure each pump is connected to or thetotal return flow rate for the system
EP 09-02	Melt Shop DCW Cooling Tower, System 200	PM	401 KAR 51:017	N/A	General monitoring requirements
EP 09-02	Melt Shop DCW Cooling Tower, System 200	Opacity	401 KAR 59;010 Section 3(1)	Opacity	Perform a qualitative visual observation of each stack weekly to ensure that mist eliminators are operating properly

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Monitored	Description of Monitoring
EP 09-02	Melt Shop DCW Cooling Tower, System 200	PM	401 KAR 59;010 Section 3(1)	N/A	Demonstrated through meeting BACT operating requirement (0.001% or less to total gpm)
EP 09-04	Rolling Mill DCW Cooling Tower, System 400	PM	401 KAR 51:017	Total dissolved solids Water throughput Pump head pressures	Monitor the total dissolved solids concentration or conductivity in the cooling towers' water weekly until the variability is assessed. After the variability is assessed, the monitoring may be done monthly upon concurrence of the Division. Monitor the water gallon per minute throughput on a daily basis.Monitor the common header pressure each pump is connected to or thetotal return flow rate for the system
EP 09-04	Rolling Mill DCW Cooling Tower, System 400	PM	401 KAR 51:017	N/A	General monitoring requirements
EP 09-04	Rolling Mill DCW Cooling Tower, System 400	Opacity	401 KAR 59;010 Section 3(1)	Opacity	Perform a qualitative visual observation of each stack weekly to ensure that mist eliminators are operating properly
EP 09-04	Rolling Mill DCW Cooling Tower, System 400	PM	401 KAR 59;010 Section 3(1)	N/A	Demonstrated through meeting BACT operating requirement (0.001% or less to total gpm)
EP 09-05	Rolling Mill ACC ICW Cooling Tower, System 500	PM	401 KAR 51:017	Total dissolved solids Water throughput Pump head pressures	Monitor the total dissolved solids concentration or conductivity in the cooling towers' water weekly until the variability is assessed. After the variability is assessed, the monitoring may be done monthly upon concurrence of the Division. Monitor the water gallon per minute throughput on a daily basis.Monitor the common header pressure each pump is connected to or thetotal return flow rate for the system
EP 09-05	Rolling Mill ACC ICW Cooling Tower, System 500	PM	401 KAR 51:017	N/A	General monitoring requirements
EP 09-05	Rolling Mill ACC ICW Cooling Tower, System 500	Opacity	401 KAR 59;010 Section 3(1)	Opacity	Perform a qualitative visual observation of each stack weekly to ensure that mist eliminators are operating properly
EP 09-05	Rolling Mill ACC ICW Cooling Tower, System 500	PM	401 KAR 59;010 Section 3(1)	N/A	Demonstrated through meeting BACT operating requirement (0.001% or less to total gpm)

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Monitored	Description of Monitoring
EP 09-06	Heavy Plate Quench DCW Cooling Tower, System 600	PM	401 KAR 51:017	Total dissolved solids Water throughput Pump head pressures	Monitor the total dissolved solids concentration or conductivity in the cooling towers' water weekly until the variability is assessed. After the variability is assessed, the monitoring may be done monthly upon concurrence of the Division. Monitor the water gallon per minute throughput on a daily basis.Monitor the common header pressure each pump is connected to or thetotal return flow rate for the system
EP 09-06	Heavy Plate Quench DCW Cooling Tower, System 600	PM	401 KAR 51:017	N/A	General monitoring requirements
EP 09-06	Heavy Plate Quench DCW Cooling Tower, System 600	Opacity	401 KAR 59;010 Section 3(1)	Opacity	Perform a qualitative visual observation of each stack weekly to ensure that mist eliminators are operating properly
EP 09-06	Heavy Plate Quench DCW Cooling Tower, System 600	PM	401 KAR 59;010 Section 3(1)	N/A	Demonstrated through meeting BACT operating requirement (0.001% or less to total gpm)
EP 09-07	Quench & ACC Laminar DCW Cooling Tower, System 700	PM	401 KAR 51:017	Total dissolved solids Water throughput Pump head pressures	Monitor the total dissolved solids concentration or conductivity in the cooling towers' water weekly until the variability is assessed. After the variability is assessed, the monitoring may be done monthly upon concurrence of the Division. Monitor the water gallon per minute throughput on a daily basis.Monitor the common header pressure each pump is connected to or thetotal return flow rate for the system
EP 09-07	Quench & ACC Laminar DCW Cooling Tower, System 700	PM	401 KAR 51:017	N/A	General monitoring requirements
EP 09-07	Quench & ACC Laminar DCW Cooling Tower, System 700	Opacity	401 KAR 59;010 Section 3(1)	Opacity	Perform a qualitative visual observation of each stack weekly to ensure that mist eliminators are operating properly
EP 09-07	Quench & ACC Laminar DCW Cooling Tower, System 700	PM	401 KAR 59;010 Section 3(1)	N/A	Demonstrated through meeting BACT operating requirement (0.001% or less to total gpm)

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Monitored	Description of Monitoring
EP 09-08	Heat Treat Cooling Tower, System 800	PM	401 KAR 51:017	Total dissolved solids Water throughput Pump head pressures	Monitor the total dissolved solids concentration or conductivity in the cooling towers' water weekly until the variability is assessed. After the variability is assessed, the monitoring may be done monthly upon concurrence of the Division. Monitor the water gallon per minute throughput on a daily basis.Monitor the common header pressure each pump is connected to or thetotal return flow rate for the system
EP 09-08	Heat Treat Cooling Tower, System 800	PM	401 KAR 51:017	N/A	General monitoring requirements
EP 09-08	Heat Treat Cooling Tower, System 800	Opacity	401 KAR 59;010 Section 3(1)	Opacity	Perform a qualitative visual observation of each stack weekly to ensure that mist eliminators are operating properly
EP 09-08	Heat Treat Cooling Tower, System 800	PM	401 KAR 59;010 Section 3(1)	N/A	Demonstrated through meeting BACT operating requirement (0.001% or less to total gpm)
EP 09-09	Air Separation Plant Cooling Tower, System 900	PM	401 KAR 51:017	Total dissolved solids Water throughput Pump head pressures	Monitor the total dissolved solids concentration or conductivity in the cooling towers' water weekly until the variability is assessed. After the variability is assessed, the monitoring may be done monthly upon concurrence of the Division. Monitor the water gallon per minute throughput on a daily basis.Monitor the common header pressure each pump is connected to or thetotal return flow rate for the system
EP 09-09	Air Separation Plant Cooling Tower, System 900	PM	401 KAR 51:017	N/A	General monitoring requirements
EP 09-09	Air Separation Plant Cooling Tower, System 900	Opacity	401 KAR 59;010 Section 3(1)	Opacity	Perform a qualitative visual observation of each stack weekly to ensure that mist eliminators are operating properly
EP 09-09	Air Separation Plant Cooling Tower, System 900	PM	401 KAR 59;010 Section 3(1)	N/A	Demonstrated through meeting BACT operating requirement (0.001% or less to total gpm)

Section V.3: Recordkeeping Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Recorded	Description of Recordkeeping
EU09	Cooling Towers	Chromium	40 CFR 63.402 Chromium	N/A	Maintain records of the SDSs of any water treatment chemicals used in each cooling tower.
EP 09-01	Melt Shop ICW Cooling Tower, System 100	PM	401 KAR 51:017	Total dissolved solids Water throughput Pump head pressures	Maintain records of the cooling towers' TDS or conductivity. Maintain records of the daily average gallon per minute throughput. Maintain records of the manufacturer provided pump curves.
EP 09-01	Melt Shop ICW Cooling Tower, System 100	PM	401 KAR 51:017	N/A	Maintain records of maintenance on the cooling towers and misteliminators
EP 09-01	Melt Shop ICW Cooling Tower, System 100	Opacity	401 KAR 59;010 Section 3(1)	Opacity	Maintain records of the qualitative visual observations and any corrective action taken including results due to observed emissions.
EP 09-01	Melt Shop ICW Cooling Tower, System 100	PM	401 KAR 59;010 Section 3(1)	N/A	General Recordkeeping Requirements
EP 09-02	Melt Shop DCW Cooling Tower, System 200	PM	401 KAR 51:017	Total dissolved solids Water throughput Pump head pressures	Maintain records of the cooling towers' TDS or conductivity. Maintain records of the daily average gallon per minute throughput. Maintain records of the manufacturer provided pump curves.
EP 09-02	Melt Shop DCW Cooling Tower, System 200	PM	401 KAR 51:017	N/A	Maintain records of maintenance on the cooling towers and misteliminators
EP 09-02	Melt Shop DCW Cooling Tower, System 200	Opacity	401 KAR 59;010 Section 3(1)	Opacity	Maintain records of the qualitative visual observations and any corrective action taken including results due to observed emissions.
EP 09-02	Melt Shop DCW Cooling Tower, System 200	PM	401 KAR 59;010 Section 3(1)	N/A	General Recordkeeping Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Recorded	Description of Recordkeeping
EP 09-04	Rolling Mill DCW Cooling Tower, System 400	PM	401 KAR 51:017	Total dissolved solids Water throughput Pump head pressures	Maintain records of the cooling towers' TDS or conductivity. Maintain records of the daily average gallon per minute throughput. Maintain records of the manufacturer provided pump curves.
EP 09-04	Rolling Mill DCW Cooling Tower, System 400	PM	401 KAR 51:017	N/A	Maintain records of maintenance on the cooling towers and misteliminators
EP 09-04	Rolling Mill DCW Cooling Tower, System 400	Opacity	401 KAR 59;010 Section 3(1)	Opacity	Maintain records of the qualitative visual observations and any corrective action taken including results due to observed emissions.
EP 09-04	Rolling Mill DCW Cooling Tower, System 400	PM	401 KAR 59;010 Section 3(1)	N/A	General Recordkeeping Requirements
EP 09-05	Rolling Mill ACC ICW Cooling Tower, System 500	PM	401 KAR 51:017	Total dissolved solids Water throughput Pump head pressures	Maintain records of the cooling towers' TDS or conductivity. Maintain records of the daily average gallon per minute throughput. Maintain records of the manufacturer provided pump curves.
EP 09-05	Rolling Mill ACC ICW Cooling Tower, System 500	PM	401 KAR 51:017	N/A	Maintain records of maintenance on the cooling towers and misteliminators
EP 09-05	Rolling Mill ACC ICW Cooling Tower, System 500	Opacity	401 KAR 59;010 Section 3(1)	Opacity	Maintain records of the qualitative visual observations and any corrective action taken including results due to observed emissions.
EP 09-05	Rolling Mill ACC ICW Cooling Tower, System 500	PM	401 KAR 59;010 Section 3(1)	N/A	General Recordkeeping Requirements
EP 09-06	Heavy Plate Quench DCW Cooling Tower, System 600	PM	401 KAR 51:017	Total dissolved solids Water throughput Pump head pressures	Maintain records of the cooling towers' TDS or conductivity. Maintain records of the daily average gallon per minute throughput. Maintain records of the manufacturer provided pump curves.
EP 09-06	Heavy Plate Quench DCW Cooling Tower, System 600	PM	401 KAR 51:017	N/A	Maintain records of maintenance on the cooling towers and misteliminators

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Recorded	Description of Recordkeeping
EP 09-06	Heavy Plate Quench DCW Cooling Tower, System 600	Opacity	401 KAR 59;010 Section 3(1)	Opacity	Maintain records of the qualitative visual observations and any corrective action taken including results due to observed emissions.
EP 09-06	Heavy Plate Quench DCW Cooling Tower, System 600	PM	401 KAR 59;010 Section 3(1)	N/A	General Recordkeeping Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Recorded	Description of Recordkeeping
EP 09-07	Quench & ACC Laminar DCW Cooling Tower, System 700	PM	401 KAR 51:017	Total dissolved solids Water throughput Pump head pressures	Maintain records of the cooling towers' TDS or conductivity. Maintain records of the daily average gallon per minute throughput. Maintain records of the manufacturer provided pump curves.
EP 09-07	Quench & ACC Laminar DCW Cooling Tower, System 700	PM	401 KAR 51:017	N/A	Maintain records of maintenance on the cooling towers and misteliminators
EP 09-07	Quench & ACC Laminar DCW Cooling Tower, System 700	Opacity	401 KAR 59;010 Section 3(1)	Opacity	Maintain records of the qualitative visual observations and any corrective action taken including results due to observed emissions.
EP 09-07	Quench & ACC Laminar DCW Cooling Tower, System 700	PM	401 KAR 59;010 Section 3(1)	N/A	General Recordkeeping Requirements
EP 09-08	Heat Treat Cooling Tower, System 800	PM	401 KAR 51:017	Total dissolved solids Water throughput Pump head pressures	Maintain records of the cooling towers' TDS or conductivity. Maintain records of the daily average gallon per minute throughput. Maintain records of the manufacturer provided pump curves.
EP 09-08	Heat Treat Cooling Tower, System 800	PM	401 KAR 51:017	N/A	Maintain records of maintenance on the cooling towers and misteliminators
EP 09-08	Heat Treat Cooling Tower, System 800	Opacity	401 KAR 59;010 Section 3(1)	Opacity	Maintain records of the qualitative visual observations and any corrective action taken including results due to observed emissions.
EP 09-08	Heat Treat Cooling Tower, System 800	PM	401 KAR 59;010 Section 3(1)	N/A	General Recordkeeping Requirements
EP 09-09	Air Separation Plant Cooling Tower, System 900	PM	401 KAR 51:017	Total dissolved solids Water throughput Pump head pressures	Maintain records of the cooling towers' TDS or conductivity. Maintain records of the daily average gallon per minute throughput. Maintain records of the manufacturer provided pump curves.
EP 09-09	Air Separation Plant Cooling Tower, System 900	PM	401 KAR 51:017	N/A	Maintain records of maintenance on the cooling towers and misteliminators

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Recorded	Description of Recordkeeping
EP 09-09	Air Separation Plant Cooling Tower, System 900	Opacity	401 KAR 59;010 Section 3(1)	Opacity	Maintain records of the qualitative visual observations and any corrective action taken including results due to observed emissions.
EP 09-09	Air Separation Plant Cooling Tower, System 900	PM	401 KAR 59;010 Section 3(1)	N/A	General Recordkeeping Requirements

Section V.4: Reporting Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Reported	Description of Reporting
EU09	Cooling Towers	Chromium	40 CFR 63.402 Chromium	N/A	General reporting requirements
EP 09-01	Melt Shop ICW Cooling Tower, System 100	PM	401 KAR 51:017	N/A	General reporting requirements
EP 09-01	Melt Shop ICW Cooling Tower, System 100	PM	401 KAR 51:017	N/A	General reporting requirements
EP 09-01	Melt Shop ICW Cooling Tower, System 100	Opacity	401 KAR 59;010 Section 3(1)	N/A	General reporting requirements
EP 09-01	Melt Shop ICW Cooling Tower, System 100	PM	401 KAR 59;010 Section 3(1)	N/A	General reporting requirements
EP 09-02	Melt Shop DCW Cooling Tower, System 200	PM	401 KAR 51:017	N/A	General reporting requirements
EP 09-02	Melt Shop DCW Cooling Tower, System 200	PM	401 KAR 51:017	N/A	General reporting requirements
EP 09-02	Melt Shop DCW Cooling Tower, System 200	Opacity	401 KAR 59;010 Section 3(1)	N/A	General reporting requirements
EP 09-02	Melt Shop DCW Cooling Tower, System 200	PM	401 KAR 59;010 Section 3(1)	N/A	General reporting requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Reported	Description of Reporting
EP 09-04	Rolling Mill DCW Cooling Tower, System 400	PM	401 KAR 51:017	N/A	General reporting requirements
EP 09-04	Rolling Mill DCW Cooling Tower, System 400	PM	401 KAR 51:017	N/A	General reporting requirements
EP 09-04	Rolling Mill DCW Cooling Tower, System 400	Opacity	401 KAR 59;010 Section 3(1)	N/A	General reporting requirements
EP 09-04	Rolling Mill DCW Cooling Tower, System 400	PM	401 KAR 59;010 Section 3(1)	N/A	General reporting requirements
EP 09-05	Rolling Mill ACC ICW Cooling Tower, System 500	PM	401 KAR 51:017	N/A	General reporting requirements
EP 09-05	Rolling Mill ACC ICW Cooling Tower, System 500	PM	401 KAR 51:017	N/A	General reporting requirements
EP 09-05	Rolling Mill ACC ICW Cooling Tower, System 500	Opacity	401 KAR 59;010 Section 3(1)	N/A	General reporting requirements
EP 09-05	Rolling Mill ACC ICW Cooling Tower, System 500	PM	401 KAR 59;010 Section 3(1)	N/A	General reporting requirements
EP 09-06	Heavy Plate Quench DCW Cooling Tower, System 600	PM	401 KAR 51:017	N/A	General reporting requirements
EP 09-06	Heavy Plate Quench DCW Cooling Tower, System 600	PM	401 KAR 51:017	N/A	General reporting requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Reported	Description of Reporting
EP 09-06	Heavy Plate Quench DCW Cooling Tower, System 600	Opacity	401 KAR 59;010 Section 3(1)	N/A	General reporting requirements
EP 09-06	Heavy Plate Quench DCW Cooling Tower, System 600	PM	401 KAR 59;010 Section 3(1)	N/A	General reporting requirements
EP 09-07	Quench & ACC Laminar DCW Cooling Tower, System 700	PM	401 KAR 51:017	N/A	General reporting requirements
EP 09-07	Quench & ACC Laminar DCW Cooling Tower, System 700	PM	401 KAR 51:017	N/A	General reporting requirements
EP 09-07	Quench & ACC Laminar DCW Cooling Tower, System 700	Opacity	401 KAR 59;010 Section 3(1)	N/A	General reporting requirements
EP 09-07	Quench & ACC Laminar DCW Cooling Tower, System 700	PM	401 KAR 59;010 Section 3(1)	N/A	General reporting requirements
EP 09-08	Heat Treat Cooling Tower, System 800	PM	401 KAR 51:017	N/A	General reporting requirements
EP 09-08	Heat Treat Cooling Tower, System 800	PM	401 KAR 51:017	N/A	General reporting requirements
EP 09-08	Heat Treat Cooling Tower, System 800	Opacity	401 KAR 59;010 Section 3(1)	N/A	General reporting requirements
EP 09-08	Heat Treat Cooling Tower, System 800	PM	401 KAR 59;010 Section 3(1)	N/A	General reporting requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Reported	Description of Reporting
EP 09-09	Air Separation Plant Cooling Tower, System 900	PM	401 KAR 51:017	N/A	General reporting requirements
EP 09-09	Air Separation Plant Cooling Tower, System 900	PM	401 KAR 51:017	N/A	General reporting requirements
EP 09-09	Air Separation Plant Cooling Tower, System 900	Opacity	401 KAR 59;010 Section 3(1)	N/A	General reporting requirements
EP 09-09	Air Separation Plant Cooling Tower, System 900	PM	401 KAR 59;010 Section 3(1)	N/A	General reporting requirements

Section V.5: Testing Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Tested	Description of Testing
EU09	Cooling Towers	Chromium	40 CFR 63.402 Chromium	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 09-01	Melt Shop ICW Cooling Tower, System 100	PM	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 09-01	Melt Shop ICW Cooling Tower, System 100	PM	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 09-01	Melt Shop ICW Cooling Tower, System 100	Opacity	401 KAR 59;010 Section 3(1)	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 09-01	Melt Shop ICW Cooling Tower, System 100	PM	401 KAR 59;010 Section 3(1)	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 09-02	Melt Shop DCW Cooling Tower, System 200	PM	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 09-02	Melt Shop DCW Cooling Tower, System 200	PM	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 09-02	Melt Shop DCW Cooling Tower, System 200	Opacity	401 KAR 59;010 Section 3(1)	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 09-02	Melt Shop DCW Cooling Tower, System 200	PM	401 KAR 59;010 Section 3(1)	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Tested	Description of Testing
EP 09-04	Rolling Mill DCW Cooling Tower, System 400	PM	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 09-04	Rolling Mill DCW Cooling Tower, System 400	PM	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 09-04	Rolling Mill DCW Cooling Tower, System 400	Opacity	401 KAR 59;010 Section 3(1)	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 09-04	Rolling Mill DCW Cooling Tower, System 400	PM	401 KAR 59;010 Section 3(1)	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 09-05	Rolling Mill ACC ICW Cooling Tower, System 500	PM	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 09-05	Rolling Mill ACC ICW Cooling Tower, System 500	PM	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 09-05	Rolling Mill ACC ICW Cooling Tower, System 500	Opacity	401 KAR 59;010 Section 3(1)	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 09-05	Rolling Mill ACC ICW Cooling Tower, System 500	PM	401 KAR 59;010 Section 3(1)	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 09-06	Heavy Plate Quench DCW Cooling Tower, System 600	PM	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 09-06	Heavy Plate Quench DCW Cooling Tower, System 600	PM	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Tested	Description of Testing
EP 09-06	Heavy Plate Quench DCW Cooling Tower, System 600	Opacity	401 KAR 59;010 Section 3(1)	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 09-06	Heavy Plate Quench DCW Cooling Tower, System 600	PM	401 KAR 59;010 Section 3(1)	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 09-07	Quench & ACC Laminar DCW Cooling Tower, System 700	PM	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 09-07	Quench & ACC Laminar DCW Cooling Tower, System 700	PM	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 09-07	Quench & ACC Laminar DCW Cooling Tower, System 700	Opacity	401 KAR 59;010 Section 3(1)	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 09-07	Quench & ACC Laminar DCW Cooling Tower, System 700	PM	401 KAR 59;010 Section 3(1)	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 09-08	Heat Treat Cooling Tower, System 800	PM	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 09-08	Heat Treat Cooling Tower, System 800	PM	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 09-08	Heat Treat Cooling Tower, System 800	Opacity	401 KAR 59;010 Section 3(1)	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 09-08	Heat Treat Cooling Tower, System 800	PM	401 KAR 59;010 Section 3(1)	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Tested	Description of Testing
EP 09-09	Air Separation Plant Cooling Tower, System 900	PM	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 09-09	Air Separation Plant Cooling Tower, System 900	PM	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 09-09	Air Separation Plant Cooling Tower, System 900	Opacity	401 KAR 59;010 Section 3(1)	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 09-09	Air Separation Plant Cooling Tower, System 900	PM	401 KAR 59;010 Section 3(1)	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045

Division for Air Quality

300 Sower Boulevard
Frankfort, KY 40601
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DEP7007V
Applicable Requirements and Compliance Activities

___ Section V.1: Emission and Operating Limitation(s)
___ Section V.2: Monitoring Requirements
___ Section V.3: Recordkeeping Requirements
___ Section V.4: Reporting Requirements
___ Section V.5: Testing Requirements
___ Section V.6: Notes, Comments, and Explanations

Additional Documentation

___ Complete DEP7007AI

Source Name: Nucor Steel Brandenburg
KY EIS (AFS) #: 21- 163-00044
Permit #: V-20-001 R1
Agency Interest (AI) ID: 162861
Date: March 01, 2024

Section V.1: Emission and Operating Limitation(s)

Emission Unit #	Emission Unit Description	Applicable Regulation or Requirement	Pollutant	Emission Limit (if applicable)	Voluntary Emission Limit or Exemption (if applicable)	Operating Requirement or Limitation (if applicable)	Method of Determining Compliance with the Emission and Operating Requirement(s)
10	Emergency Generators >500 HP	40 CFR 63.6605	N/A	N/A	N/A	Operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require you to make any further efforts to reduce emissions if levels required by this standard have been achieved.	N/A
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	40 CFR 63.6590(c)(1)	N/A	N/A	N/A	An affected source that is a new or reconstructed CI stationary RICE located at an area source of HAP emissions must meet the requirements of Subpart ZZZZ through compliance with 40 CFR 60 Subpart IIII. No further requirements apply for such engines under 40 CFR Part 63.	N/A
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	401 KAR 51:017	PM	0.15 g/hp-hr	N/A	Comply with 40 CFR 60 Subpart IIII	Recordkeeeping (see V.3)
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	401 KAR 51:017	NMHC + NOx	4.77 g/hp-hr	N/A	Comply with 40 CFR 60 Subpart IIII	Recordkeeeping (see V.3)
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	401 KAR 51:017	CO	2.61 g/hp-hr	N/A	Comply with 40 CFR 60 Subpart IIII	Recordkeeeping (see V.3)
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	401 KAR 51:017	SO_2	N/A	N/A	Use of ultra-low sulfur diesel fuel (max fuel sulfur content 15 ppm)	Recordkeeeping (see V.3)
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	40 CFR 60.4211(f)(1)	N/A	N/A	N/A	There is no time limit on the use of emergency situations	Monitoring (see. V.2) Recordkeeping (see V.3) Reporting (see V.4)

10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	40 CFR 60.4211(f)(2)	N/A	N/A	N/A	The emergency stationary RICE may be operated for any combination of the purposes specified in 40 CFR 60.4211(f)(2)(i) through (iii) for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed 40 CFR 60.4211(f)(3) counts as part of the 100 hours per calendar year allowed by this paragraph.	Monitoring (see. V.2) Recordkeeping (see V.3) Reporting (see V.4)
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	40 CFR 60.4206	N/A	N/A	N/A	Operate and maintain the stationary CI ICE such that the emission standards required in 40 CFR 60.4205 are achieved over the entire life of the engine.	Monitoring (see. V.2) Recordkeeping (see V.3) Reporting (see V.4)
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	40 CFR 60.4211(g)	N/A	N/A	N/A	If the engine and control device are not installed, configured, operated, and maintained according to the manufacturer's emission-related written instructions, or the emission-related settings are changed in a way that is not permitted by the manufacturer, compliance must be demonstrated as specified in 40 CFR 60.4211 (g)(3).	N/A
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	40 CFR 60.4209(a)	N/A	N/A	N/A	Install a non-resettable hour meter on each unit prior to the start-up of the engine.	N/A
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	40 CFR 60.4207(b)	N/A	N/A	N/A	Use diesel fuel that meets the requirements of 40 CFR 80.510(b) for nonroad diesel fuel	N/A
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	40 CFR 60.4205(b)	N/A	N/A	N/A	Comply with the emission standards for new nonroad CI engines in 40 CFR 60.4202, for all pollutants, for the same model year and maximum engine power for their 2007 model year and later emergency stationary CI ICE.	Recordkeeping (see V.3)
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	40 CFR 60.4233(e)	N/A	N/A	N/A	Comply with the emission standards for new nonroad SI engines in Table 1 to this subpart for their stationary SI ICE.	Recordkeeping (see V.3)

Section V.2: Monitoring Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Monitored	Description of Monitoring
10	Emergency Generators >500 HP	N/A	40 CFR 63.6605	N/A	General monitoring requirements
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	N/A	40 CFR 63.6590(c)(1)	N/A	General monitoring requirements
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	PM	401 KAR 51:017	N/A	General monitoring requirements
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	NMHC + NOx	401 KAR 51:017	N/A	General monitoring requirements
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	CO	401 KAR 51:017	N/A	General monitoring requirements
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	SO_2	401 KAR 51:017	N/A	General monitoring requirements
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	N/A	40 CFR 60.4211(f)(1)	Operation	Monitor monthly hours of operation recorded through the non-resettable hour meter. The purpose of the operation for each emission point shall be monitored.
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	N/A	40 CFR 60.4211(f)(2)	Operation	Monitor monthly hours of operation recorded through the non-resettable hour meter. The purpose of the operation for each emission point shall be monitored.
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	N/A	40 CFR 60.4206	Operation	Monitor monthly hours of operation recorded through the non-resettable hour meter. The purpose of the operation for each emission point shall be monitored.

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Monitored	Description of Monitoring
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	N/A	40 CFR 60.4211(g)	N/A	General monitoring requirements
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	N/A	40 CFR 60.4209(a)	N/A	General monitoring requirements
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	N/A	40 CFR 60.4207(b)	N/A	General monitoring requirements
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	N/A	40 CFR 60.4205(b)	N/A	General monitoring requirements
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	N/A	40 CFR 60.4233(e)	N/A	General monitoring requirements

Section V.3: Recordkeeping Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Recorded	Description of Recordkeeping
10	Emergency Generators >500 HP	N/A	40 CFR 63.6605	N/A	General recordkeeping requirements
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	N/A	40 CFR 63.6590(c)(1)	N/A	General recordkeeping requirements
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	PM	401 KAR 51:017	N/A	Engine certification records
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	NMHC + NOx	401 KAR 51:017	N/A	Engine certification records
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	CO	401 KAR 51:017	N/A	Engine certification records
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	SO_2	401 KAR 51:017	N/A	Engine certification records
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	N/A	40 CFR 60.4211(f)(1)	Operation	Compile and maintain records of the total hours of operation of each engine and the total amount of diesel fuel consumed by each engine on a monthly basis and on a consecutive twelve (12) month total.
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	N/A	40 CFR 60.4211(f)(2)	Operation	Compile and maintain records of the total hours of operation of each engine and the total amount of diesel fuel consumed by each engine on a monthly basis and on a consecutive twelve (12) month total.
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	N/A	40 CFR 60.4206	Operation	Compile and maintain records of the total hours of operation of each engine and the total amount of diesel fuel consumed by each engine on a monthly basis and on a consecutive twelve (12) month total.

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Recorded	Description of Recordkeeping
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	N/A	40 CFR 60.4211(g)	N/A	General recordkeeping requirements
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	N/A	40 CFR 60.4209(a)	N/A	General recordkeeping requirements
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	N/A	40 CFR 60.4207(b)	N/A	General recordkeeping requirements
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	N/A	40 CFR 60.4205(b)	N/A	Maintain records of the manufacturer’s certified emissions certificate, manufacturer’s written operating instructions, and any procedures developed by the owner or operator that are approved by the engine manufacturer, over the entire life of the engine.
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	N/A	40 CFR 60.4233(e)	N/A	Maintain records of the manufacturer’s certified emissions certificate, manufacturer’s written operating instructions, and any procedures developed by the owner or operator that are approved by the engine manufacturer, over the entire life of the engine.

Section V.4: Reporting Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Reported	Description of Reporting
10	Emergency Generators >500 HP	N/A	40 CFR 63.6605	N/A	General reporting requirements
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	N/A	40 CFR 63.6590(c)(1)	N/A	General reporting requirements
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	PM	401 KAR 51:017	N/A	General reporting requirements
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	NMHC + NOx	401 KAR 51:017	N/A	General reporting requirements
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	CO	401 KAR 51:017	N/A	General reporting requirements
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	SO_2	401 KAR 51:017	N/A	General reporting requirements
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	N/A	40 CFR 60.4211(f)(1)	Operation	Monthly hours of operation for each emission point in EU10 shall be included in the semi- annual report to the regional office.
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	N/A	40 CFR 60.4211(f)(2)	Operation	For any engine that operates or is contractually obligated to be available for more than 15 hours per calendar year for the purpose specified in 40 CFR 60.4211(f)(2)(ii) and (iii) or that operates for the purpose specified in 40 CFR 60.4211(f)(3)(i), the permittee shall submit an annual report according to the requirements in 40 CFR 60.4214(d)(1) through (3).
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	N/A	40 CFR 60.4206	Operation	Monthly hours of operation for each emission point in EU10 shall be included in the semi- annual report to the regional office.

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Reported	Description of Reporting
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	N/A	40 CFR 60.4211(g)	N/A	General reporting requirements
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	N/A	40 CFR 60.4209(a)	N/A	General reporting requirements
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	N/A	40 CFR 60.4207(b)	N/A	General reporting requirements
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	N/A	40 CFR 60.4205(b)	N/A	General reporting requirements
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	N/A	40 CFR 60.4233(e)	N/A	General reporting requirements

Section V.5: Testing Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Tested	Description of Testing
10	Emergency Generators >500 HP	N/A	40 CFR 63.6605	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	N/A	40 CFR 63.6590(c)(1)	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	PM	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	NMHC + NOx	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	CO	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	SO_2	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	N/A	40 CFR 60.4211(f)(1)	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	N/A	40 CFR 60.4211(f)(2)	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Tested	Description of Testing
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	N/A	40 CFR 60.4206	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	N/A	40 CFR 60.4211(g)	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	N/A	40 CFR 60.4209(a)	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	N/A	40 CFR 60.4207(b)	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	N/A	40 CFR 60.4205(b)	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
10	10-01, 10-02, 10-03, 10-04, 10-08, 10-09 & 10-10	N/A	40 CFR 60.4233(e)	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.

Division for Air Quality

300 Sower Boulevard
Frankfort, KY 40601
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DEP7007EE

Internal Combustion Engines

___ Section EE.1: General Information
___ Section EE.2: Operating Information
___ Section EE.3: Design Information
___ Section EE.4: Fuel Information
___ Section EE.5: Emission Factor Information
___ Section EE.6: Notes, Comments, and Explanations

Additional Documentation

___ Complete DEP7007AI, DEP7007N, DEP7007V, and DEP7007GG

___ Attach EPA certification of the engine

Source Name: Nucor Steel Brandenburg
KY EIS (AFS) #: 21-163-00044
Permit #: V-20-001 R1
Agency Interest (AI) ID: 162861
Date: March 01, 2024

Section EE.1: General Information

Emission Unit #	Emission Unit Name	Control Device ID	Stack ID	Manufacturer	Model Number	Model Year	Date of Manufacture	Proposed/Actual Date of Construction Commencement *(MM/YYYY)*	Date Reconstructed/ Modified	List Applicable Regulations
10-01	G100-1 Emergency Generator (1,474 HP)	N/A	S1001	Caterpillar Inc.	DQKAB	2021	2021	04/2022	N/A	40 CFR 60 Subpart IIII 40 CFR 63 Subpart ZZZZ 401 KAR 51:017
10-02	G100-2 Emergency Generator (2,937 HP)	N/A	S1002	Caterpillar Inc.	3516C	2021	2021	04/2022	N/A	40 CFR 60 Subpart IIII 40 CFR 63 Subpart ZZZZ 401 KAR 51:017
10-03	G100-3 Emergency Generator (2,937 HP)	N/A	S1003	Caterpillar Inc.	3516C	2021	2021	04/2022	N/A	40 CFR 60 Subpart IIII 40 CFR 63 Subpart ZZZZ 401 KAR 51:017
10-04	G200-1 Emergency Generator (1,474 HP)	N/A	S1004	Caterpillar Inc.	DQKAB	2021	2021	04/2022	N/A	40 CFR 60 Subpart IIII 40 CFR 63 Subpart ZZZZ 401 KAR 51:017
10-08	G300-1 Emergency Generator (1,474 HP)	N/A	S1008	Caterpillar Inc.	DQKAB	2021	2021	04/2022	N/A	40 CFR 60 Subpart IIII 40 CFR 63 Subpart ZZZZ 401 KAR 51:017
10-09	G400-1 Emergency Generator (1,474 HP)	N/A	S1009	Caterpillar Inc.	DQKAB	2021	2021	04/2022	N/A	40 CFR 60 Subpart IIII 40 CFR 63 Subpart ZZZZ 401 KAR 51:017
10-10	G500-1 Emergency Generator (1,411 HP)	N/A	S1010	Perkins	5008C-E30TAG5	2022	2022	2022	N/A	40 CFR 60 Subpart IIII 40 CFR 63 Subpart ZZZZ 401 KAR 51:017

Section EE.2: Operating Information

Emission Unit #	**Engine Purpose** (Identify if Non-Emergency, Emergency,Fire/Water Pump, Black-start engine for combustion turbine, Engine Testing)	**Hours Operated**	**Is this engine a rental?** *(Yes/No)*	**Rental Time Period** *(hrs)*	**Alternate Operating Scenarios** (Describe any operating scenarios in which the engine may be used in a different configuration)
10-01	Emergency	≤ 100	No	N/A	N/A
10-02	Emergency	≤ 100	No	N/A	N/A
10-03	Emergency	≤ 100	No	N/A	N/A
10-04	Emergency	≤ 100	No	N/A	N/A
10-08	Emergency	≤ 100	No	N/A	N/A
10-09	Emergency	≤ 100	No	N/A	N/A
10-10	Emergency	≤ 100	No	N/A	N/A

Section EE.3: Design Information

Emission Unit #	Engine Type (Identify all that apply: Commercial, Institutional, Stationary, Non-Road)	Ignition Type (Identify if either Compression or Spark Ignition)	Engine Family (Identify all that apply: 2-stroke, 4-stroke, Rich Burn, Lean Burn)	Maximum Engine Power *(bhp)*	Maximum Engine Speed *(rpm)*	Total Displacement *(L)*	Number of Cylinders
10-01	Stationary, Non-Road	Compression	4-stroke	1,474	1,980	32.1	12
10-02	Stationary, Non-Road	Compression	4-stroke	2,937	1,568	69	16
10-03	Stationary, Non-Road	Compression	4-stroke	2,937	1,568	69	16
10-04	Stationary, Non-Road	Compression	4-stroke	1,474	1,980	32.1	12
10-08	Stationary, Non-Road	Compression	4-stroke	1,474	1,980	32.1	12
10-09	Stationary, Non-Road	Compression	4-stroke	1,474	1,980	32.1	12
10-10	Stationary, Non-Road	Compression	4-stroke	1,411	1,980	30.56	8

Section EE.4: Fuel Information

Emission Unit #	Identify if Primary, Secondary, or Tertiary Fuel	Fuel Type (Identify if Diesel, Gasoline, Natural Gas, Liquefied Petroleum Gas (LPG), Landfill/Digester Gas, or Other)	Fuel Grade	Percent Time Used (%)	Maximum Fuel Consumption	Heat Content	Sulfur Content (%)	SCC Code	SCC Units
10-01	Primary	Diesel	Ultra Low-Sulfur Diesel	100	71.9	137,000 Btu/gal	0.0015	2-01-001-02	1000 gallons diesel burned
10-02	Primary	Diesel	Ultra Low-Sulfur Diesel	100	71.9	137,000 Btu/gal	0.0015	2-01-001-02	1000 gallons diesel burned
10-03	Primary	Diesel	Ultra Low-Sulfur Diesel	100	71.9	137,000 Btu/gal	0.0015	2-01-001-02	1000 gallons diesel burned
10-04	Primary	Diesel	Ultra Low-Sulfur Diesel	100	71.9	137,000 Btu/gal	0.0015	2-01-001-02	1000 gallons diesel burned
10-08	Primary	Diesel	Ultra Low-Sulfur Diesel	100	71.9	137,000 Btu/gal	0.0015	2-01-001-02	1000 gallons diesel burned
10-09	Primary	Diesel	Ultra Low-Sulfur Diesel	100	71.9	137,000 Btu/gal	0.0015	2-01-001-02	1000 gallons diesel burned
10-10	Primary	Diesel	Ultra Low-Sulfur Diesel	100	65.0	137,000 Btu/gal	0.0015	2-01-001-02	1000 gallons diesel burned

Section EE.5: Emission Factor Information

Emission factors expressed here are based on the potential to emit.

Emission Unit #	Fuel	Pollutant	Emission Factor	Emission Factor Units	Source of Emission Factor
10-02 & 10-03	Diesel	$PM/PM_{10}/PM_{2.5}$	0.12	g/kw-hr	EPA Certificate MCPXL78.1NZS-009
10-02 & 10-03	Diesel	NO_x	5.07	g/kw-hr	EPA Certificate MCPXL78.1NZS-009
10-02 & 10-03	Diesel	CO	0.9	g/kw-hr	EPA Certificate MCPXL78.1NZS-009
10-02 & 10-03	Diesel	SO_2	1.20E-05	lb/hp-hr	AP-42, Table 3.4-1
10-02 & 10-03	Diesel	VOC	0.26	g/kw-hr	EPA Certificate MCPXL78.1NZS-009
10-02 & 10-03	Diesel	CO_2	73.96	kg/MMBtu	40 CFR Part 98, Table C-1
10-02 & 10-03	Diesel	N_2O	6.00E-04	kg/MMBtu	40 CFR Part 98, Table C-2
10-02 & 10-03	Diesel	CH_4	3.00E-03	kg/MMBtu	40 CFR Part 98, Table C-2
10-02 & 10-03	Diesel	Benzene	7.76E-04	lb/MMBtu	AP-42, Table 3.4-3
10-02 & 10-03	Diesel	Toluene	2.81E-04	lb/MMBtu	AP-42, Table 3.4-3

Emission Unit #	Fuel	Pollutant	Emission Factor	Emission Factor Units	Source of Emission Factor
10-02 & 10-03	Diesel	Xylenes	1.93E-04	lb/MMBtu	AP-42, Table 3.4-3
10-01, 10-04, 10-08, &10-09	Diesel	$PM/PM_{10}/PM_{2.5}$	0.06	g/kw-hr	EPA Certificate MCPXL32.0NZS-008
10-01, 10-04, 10-08, &10-09	Diesel	NO_x	5.58	g/kw-hr	EPA Certificate MCPXL32.0NZS-008
10-01, 10-04, 10-08, &10-09	Diesel	CO	0.9	g/kw-hr	EPA Certificate MCPXL32.0NZS-008
10-01, 10-04, 10-08, &10-09	Diesel	SO_2	1.20E-05	lb/hp-hr	AP-42, Table 3.4-1
10-01, 10-04, 10-08, &10-09	Diesel	VOC	0.08	g/kw-hr	EPA Certificate MCPXL32.0NZS-008
10-01, 10-04, 10-08, &10-09	Diesel	CO_2	73.96	kg/MMBtu	40 CFR Part 98, Table C-1
10-01, 10-04, 10-08, &10-09	Diesel	N_2O	6.00E-04	kg/MMBtu	40 CFR Part 98, Table C-2
10-01, 10-04, 10-08, &10-09	Diesel	CH_4	3.00E-03	kg/MMBtu	40 CFR Part 98, Table C-2
10-01, 10-04, 10-08, &10-09	Diesel	Benzene	7.76E-04	lb/MMBtu	AP-42, Table 3.4-3
10-01, 10-04, 10-08, &10-09	Diesel	Toluene	2.81E-04	lb/MMBtu	AP-42, Table 3.4-3

Emission Unit #	Fuel	Pollutant	Emission Factor	Emission Factor Units	Source of Emission Factor
10-01, 10-04, 10-08, &10-09	Diesel	Xylenes	1.93E-04	lb/MMBtu	AP-42, Table 3.4-3
10-10	Diesel	$PM/PM_{10}/PM_{2.5}$	0.08	g/kw-hr	EPA Certificate NCPLX45.8NZS
10-10	Diesel	NO_x	5.63	g/kw-hr	EPA Certificate NCPLX45.8NZS
10-10	Diesel	CO	1.3	g/kw-hr	EPA Certificate NCPLX45.8NZS
10-10	Diesel	SO_2	1.20E-05	lb/hp-hr	AP-42, Table 3.4-1
10-10	Diesel	VOC	0.14	g/kw-hr	EPA Certificate NCPLX45.8NZS
10-10	Diesel	CO_2	73.96	kg/MMBtu	40 CFR Part 98, Table C-1
10-10	Diesel	N_2O	6.00E-04	kg/MMBtu	40 CFR Part 98, Table C-2
10-10	Diesel	CH_4	3.00E-03	kg/MMBtu	40 CFR Part 98, Table C-2
10-10	Diesel	Benzene	7.76E-04	lb/MMBtu	AP-42, Table 3.4-3
10-10	Diesel	Toluene	2.81E-04	lb/MMBtu	AP-42, Table 3.4-3
10-10	Diesel	Xylenes	1.93E-04	lb/MMBtu	AP-42, Table 3.4-3

Division for Air Quality

300 Sower Boulevard
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DEP7007B

Manufacturing or Processing Operations

___ Section B.1: Process Information
___ Section B.2: Materials and Fuel Information
___ Section B.3: Notes, Comments, and Explanations

Additional Documentation

__ Complete DEP7007AI, DEP7007N, DEP7007V, and DEP7007GG.
__ Attach a flow diagram
__ Attach SDS

Source Name: Nucor Steel Brandenburg
KY EIS (AFS) #: 163-00044
Permit #: V-20-001 R1
Agency Interest (AI) ID: 162861
Date: March 01, 2024

Section B.1: Process Information

Emission Unit #	Emission Unit Name	Describe Emission Unit	Process ID	Process Name	Manufacturer	Model No.	Proposed/Actual Date of Construction Commencement *(MM/YYYY)*	Is the Process Continuous or Batch?	Number of Batches per 24 Hours *(if applicable)*	Hours per Batch *(if applicable)*
12-01	Slag Processing Equipment	Required to handle, quench, crush and screen the slag	12	Slag Processing	N/A	N/A	12/2021	Semi-continuous	N/A	N/A
12-02	Slag Processing Piles	Required to temporarily store in-process material and final size-specific products prior to off-site transport	12	Slag Processing	N/A	N/A	12/2021	Batch	N/A	N/A
12-03	Slag Plant Pot Slagger	Required to add processed slag to slag pots for protection	12	Slag Processing	N/A	N/A	12/2021	Batch	36	0.67
12-04	Slag Plant Oxy Fuel-Fired Torches	Required to cut revert scrap for recycle to EAF	12	Slag Processing	N/A	N/A	12/2021	Batch	N/A	N/A

Section B.2: Materials and Fuel Information

**Maximum yearly fuel usage rate only applies if applicant request operating restrictions through federally enforceable limitations.*

Emission Unit #	Emission Unit Name	Name of Raw Materials Input	Maximum Quantity of Each Raw Material Input		Total Process Weight Rate for Emission Unit *(tons/hr)*	Name of Finished Materials	Maximum Quantity of Each Finished Material Output		Fuel Type	Maximum Hourly Fuel Usage Rate		Maximum Yearly Fuel Usage Rate		Sulfur Content *(%)*	Ash Content *(%)*
				(Specify Units/hr)				*(Specify Units/hr)*			*(Specify Units)*		*(Specify Units)*		
12-01	Slag Processing Equipment	Metal Slag	400	tons	400	Slag byproduct aggregate	400	tons	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12-02	Slag Processing Piles	Metal Slag	400	tons	400	Slag byproduct aggregate	400	tons	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12-03	Slag Plant Pot Slagger	Metal Slag	13.5	tons	13.5	Metal Slag	13.5	tons	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12-04	Slag Plant Oxy Fuel-Fired Torches	Metal Scrap	12	tons	12	Metal Slag	12	tons	Natural Gas	9.90E-03	MMscf/hr	86.7	MMscf/yr	N/A	N/A

Division for Air Quality

300 Sower Boulevard

Frankfort, KY 40601

(502) 564-3999

DEP7007V

Applicable Requirements and Compliance Activities

___ Section V.1: Emission and Operating Limitation(s)

___ Section V.2: Monitoring Requirements

___ Section V.3: Recordkeeping Requirement

___ Section V.4: Reporting Requirements

___ Section V.5: Testing Requirements

___ Section V.6: Notes, Comments, and Explanations

Additional Documentation

__ Complete DEP7007AI

Source Name: Nucor Steel Brandenburg

KY EIS (AFS) #: 163-00044

Permit #: V-20-001 R1

Agency Interest (AI) ID: 162861

Date: March 01, 2024

Section V.1: Emission and Operating Limitation(s)

Emission Unit #	Emission Unit Description	Applicable Regulation or Requirement	Pollutant	Emission Limit (if applicable)	Voluntary Emission Limit or Exemption (if applicable)	Operating Requirement or Limitation (if applicable)	Method of Determining Compliance with the Emission and Operating Requirement(s)
12	Slag Processing (EU12)	401 KAR 59:010 Section 3(1)	Opacity	< 20%	N/A	N/A	Monitoring (see V.2) Recordkeeping (see V.3)
12	Slag Processing (EU12)	401 KAR 59:010 Section 3(2)	PM	Hourly Process Weight Rate Emission Limit	N/A	N/A	Monitoring (see V.2)
12	Slag Processing (EU12)	401 KAR 63:010 Section 3(1)	Fugitives	N/A	N/A	Do not cause or permit the discharge of visible fugitive dust emissions beyond the lot line of the property on which the emission originate.	N/A

12	Slag Processing (EU12)	401 KAR 63:010 Section 3(2)	Fugitives	N/A	N/A	Take reasonable precautions to prevent particulate matter from becoming airborne.	N/A
12-01	Slag Processing Equipment	401 KAR 51:017	PM (filterable)	2.06 lb/hr; 1.77 ton/yr	N/A	Wet Suppression	Recordkeeping (see V.3)
12-01	Slag Processing Equipment	401 KAR 51:017	PM_{10}	0.76 lb/hr; 0.78 ton/yr	N/A	Wet Suppression	Recordkeeping (see V.3)
12-01	Slag Processing Equipment	401 KAR 51:017	$PM_{2.5}$	0.16 lb/hr; 0.26 ton/yr	N/A	Wet Suppression	Recordkeeping (see V.3)
12-03	Slag Plant Pot Slagger	401 KAR 51:017	PM (filterable)	0.0095 lb/hr; 0.041 ton/yr	N/A	Wet Suppression	Recordkeeping (see V.3)
12-03	Slag Plant Pot Slagger	401 KAR 51:017	PM_{10}	0.0031 lb/hr; 0.014 ton/yr	N/A	Wet Suppression	Recordkeeping (see V.3)
12-03	Slag Plant Pot Slagger	401 KAR 51:017	$PM_{2.5}$	0.0009 lb/hr; 0.004 ton/yr	N/A	Wet Suppression	Recordkeeping (see V.3)
12-04	Slag Plant Oxy Fuel-Fired Torches	401 KAR 51:017	PM (filterable)	4.66 lb/MMscf	N/A	Use of natural gas	Recordkeeping (see V.3)
12-04	Slag Plant Oxy Fuel-Fired Torches	401 KAR 51:017	PM_{10}	10.36 lb/MMscf	N/A	Use of natural gas	Recordkeeping (see V.3)
12-04	Slag Plant Oxy Fuel-Fired Torches	401 KAR 51:017	$PM_{2.5}$	10.36 lb/MMscf	N/A	Use of natural gas	Recordkeeping (see V.3)
12-04	Slag Plant Oxy Fuel-Fired Torches	401 KAR 51:017	CO	84 lb/MMscf	N/A	Use of natural gas	Recordkeeping (see V.3)
12-04	Slag Plant Oxy Fuel-Fired Torches	401 KAR 51:017	NOx	70 lb/MMscf	N/A	Use of natural gas	Recordkeeping (see V.3)
12-04	Slag Plant Oxy Fuel-Fired Torches	401 KAR 51:017	VOC	5.5 lb/MMscf	N/A	Use of natural gas	Recordkeeping (see V.3)
12-04	Slag Plant Oxy Fuel-Fired Torches	401 KAR 51:017	SO_2	0.6 lb/MMscf	N/A	Use of natural gas	Recordkeeping (see V.3)

Section V.2: Monitoring Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Monitored	Description of Monitoring
12	Slag Processing (EU12)	Opacity	401 KAR 59:010 Section 3(1)	Opacity	Perform a qualitative visual observation of the opacity of emissions from each stack/vent on a weekly basis during operation of the unit.
12	Slag Processing (EU12)	PM	401 KAR 59:010 Section 3(2)	Slag Throughput	Monitor the daily and 12-month rolling throughput of slag in tons and hours of operation.
12	Slag Processing (EU12)	Fugitives	401 KAR 63:010 Section 3(1)	N/A	General Monitoring Requirements
12	Slag Processing (EU12)	Fugitives	401 KAR 63:010 Section 3(2)	N/A	General Monitoring Requirements
12-01	Slag Processing Equipment	PM (filterable)	401 KAR 51:017	N/A	General Monitoring Requirements
12-01	Slag Processing Equipment	PM10	401 KAR 51:017	N/A	General Monitoring Requirements
12-01	Slag Processing Equipment	PM2.5	401 KAR 51:017	N/A	General Monitoring Requirements
12-03	Slag Plant Pot Slagger	PM (filterable)	401 KAR 51:017	N/A	General Monitoring Requirements
12-03	Slag Plant Pot Slagger	PM10	401 KAR 51:017	N/A	General Monitoring Requirements
12-03	Slag Plant Pot Slagger	PM2.5	401 KAR 51:017	N/A	General Monitoring Requirements
12-04	Slag Plant Oxy Fuel-Fired Torches	PM (filterable)	401 KAR 51:017	Fuel usage	Monitoring of natural gas usage
12-04	Slag Plant Oxy Fuel-Fired Torches	PM10	401 KAR 51:017	Fuel usage	Monitoring of natural gas usage
12-04	Slag Plant Oxy Fuel-Fired Torches	PM2.5	401 KAR 51:017	Fuel usage	Monitoring of natural gas usage
12-04	Slag Plant Oxy Fuel-Fired Torches	CO	401 KAR 51:017	Fuel usage	Monitoring of natural gas usage
12-04	Slag Plant Oxy Fuel-Fired Torches	NOx	401 KAR 51:017	Fuel usage	Monitoring of natural gas usage
12-04	Slag Plant Oxy Fuel-Fired Torches	VOC	401 KAR 51:017	Fuel usage	Monitoring of natural gas usage
12-04	Slag Plant Oxy Fuel-Fired Torches	SO_2	401 KAR 51:017	Fuel usage	Monitoring of natural gas usage

Section V.3: Recordkeeping Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Recorded	Description of Recordkeeping
12	Slag Processing (EU12)	Opacity	401 KAR 59:010 Section 3(1)	Opacity	Perform a qualitative visual observation of the opacity of emissions from each stack/vent on a weekly basis during operation of the unit.
12	Slag Processing (EU12)	PM	401 KAR 59:010 Section 3(2)	Slag Throughput	Record the daily and 12-month rolling throughput of slag in tons and hours of operation.
12	Slag Processing (EU12)	Fugitives	401 KAR 63:010 Section 3(1)	N/A	General Recordkeeping Requirements
12	Slag Processing (EU12)	Fugitives	401 KAR 63:010 Section 3(2)	N/A	General Recordkeeping Requirements
12-01	Slag Processing Equipment	PM (filterable)	401 KAR 51:017	N/A	Record of emission limit calculations
12-01	Slag Processing Equipment	PM10	401 KAR 51:017	N/A	Record of emission limit calculations
12-01	Slag Processing Equipment	PM2.5	401 KAR 51:017	N/A	Record of emission limit calculations
12-03	Slag Plant Pot Slagger	PM (filterable)	401 KAR 51:017	N/A	Record of emission limit calculations
12-03	Slag Plant Pot Slagger	PM10	401 KAR 51:017	N/A	Record of emission limit calculations
12-03	Slag Plant Pot Slagger	PM2.5	401 KAR 51:017	N/A	Record of emission limit calculations
12-04	Slag Plant Oxy Fuel-Fired Torches	PM (filterable)	401 KAR 51:017	Fuel Usage	Record natural gas usage
12-04	Slag Plant Oxy Fuel-Fired Torches	PM10	401 KAR 51:017	Fuel Usage	Record natural gas usage
12-04	Slag Plant Oxy Fuel-Fired Torches	PM2.5	401 KAR 51:017	Fuel Usage	Record natural gas usage
12-04	Slag Plant Oxy Fuel-Fired Torches	CO	401 KAR 51:017	Fuel Usage	Record natural gas usage
12-04	Slag Plant Oxy Fuel-Fired Torches	NOx	401 KAR 51:017	Fuel Usage	Record natural gas usage
12-04	Slag Plant Oxy Fuel-Fired Torches	VOC	401 KAR 51:017	Fuel Usage	Record natural gas usage
12-04	Slag Plant Oxy Fuel-Fired Torches	SO_2	401 KAR 51:017	Fuel Usage	Record natural gas usage

Section V.4: Reporting Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Reported	Description of Reporting
12	Slag Processing (EU12)	Opacity	401 KAR 59:010 Section 3(1)	N/A	General Reporting Requirements
12	Slag Processing (EU12)	PM	401 KAR 59:010 Section 3(2)	N/A	General Reporting Requirements
12	Slag Processing (EU12)	Fugitives	401 KAR 63:010 Section 3(1)	N/A	General Reporting Requirements
12	Slag Processing (EU12)	Fugitives	401 KAR 63:010 Section 3(2)	N/A	General Reporting Requirements
12-01	Slag Processing Equipment	PM (filterable)	401 KAR 51:017	N/A	General Reporting Requirements
12-01	Slag Processing Equipment	PM10	401 KAR 51:017	N/A	General Reporting Requirements
12-01	Slag Processing Equipment	PM2.5	401 KAR 51:017	N/A	General Reporting Requirements
12-03	Slag Plant Pot Slagger	PM (filterable)	401 KAR 51:017	N/A	General Reporting Requirements
12-03	Slag Plant Pot Slagger	PM10	401 KAR 51:017	N/A	General Reporting Requirements
12-03	Slag Plant Pot Slagger	PM2.5	401 KAR 51:017	N/A	General Reporting Requirements
12-04	Slag Plant Oxy Fuel-Fired Torches	PM (filterable)	401 KAR 51:017	N/A	General Reporting Requirements
12-04	Slag Plant Oxy Fuel-Fired Torches	PM10	401 KAR 51:017	N/A	General Reporting Requirements
12-04	Slag Plant Oxy Fuel-Fired Torches	PM2.5	401 KAR 51:017	N/A	General Reporting Requirements
12-04	Slag Plant Oxy Fuel-Fired Torches	CO	401 KAR 51:017	N/A	General Reporting Requirements
12-04	Slag Plant Oxy Fuel-Fired Torches	NOx	401 KAR 51:017	N/A	General Reporting Requirements
12-04	Slag Plant Oxy Fuel-Fired Torches	VOC	401 KAR 51:017	N/A	General Reporting Requirements
12-04	Slag Plant Oxy Fuel-Fired Torches	SO_2	401 KAR 51:017	N/A	General Reporting Requirements

Section V.5: Testing Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Tested	Description of Testing
12	Slag Processing (EU12)	Opacity	401 KAR 59:010 Section 3(1)	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
12	Slag Processing (EU12)	PM	401 KAR 59:010 Section 3(2)	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
12	Slag Processing (EU12)	Fugitives	401 KAR 63:010 Section 3(1)	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
12	Slag Processing (EU12)	Fugitives	401 KAR 63:010 Section 3(2)	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
12-01	Slag Processing Equipment	PM (filterable)	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
12-01	Slag Processing Equipment	PM10	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
12-01	Slag Processing Equipment	PM2.5	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
12-03	Slag Plant Pot Slagger	PM (filterable)	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
12-03	Slag Plant Pot Slagger	PM10	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
12-03	Slag Plant Pot Slagger	PM2.5	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
12-04	Slag Plant Oxy Fuel-Fired Torches	PM (filterable)	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
12-04	Slag Plant Oxy Fuel-Fired Torches	PM10	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
12-04	Slag Plant Oxy Fuel-Fired Torches	PM2.5	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
12-04	Slag Plant Oxy Fuel-Fired Torches	CO	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
12-04	Slag Plant Oxy Fuel-Fired Torches	NOx	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
12-04	Slag Plant Oxy Fuel-Fired Torches	VOC	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.
12-04	Slag Plant Oxy Fuel-Fired Torches	SO_2	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.

Division for Air Quality 300 Sower Boulevard Frankfort, KY 40601 (502) 564-3999	**DEP7007B** Manufacturing or Processing Operations ___ Section B.1: Process Information ___ Section B.2: Materials and Fuel Information ___ Section B.3: Notes, Comments, and Explanations	**Additional Documentation** ___ Complete DEP7007AI, DEP7007N, DEP7007V, and DEP7007GG. ___ Attach a flow diagram ___ Attach SDS

Source Name: **Nucor Steel Brandenburg**

KY EIS (AFS) #: **21- 163-00044**

Permit #: **V-20-001-R1**

Agency Interest (AI) ID: **162861**

Date: **March 01, 2024**

Section B.1: Process Information

Emission Unit #	Emission Unit Name	Describe Emission Unit	Process ID	Process Name	Manufacturer	Model No.	Proposed/Actual Date of Construction Commencement *(MM/YYYY)*	Is the Process Continuous or Batch?	Number of Batches per 24 Hours *(if applicable)*	Hours per Batch *(if applicable)*
17-01A	Light Plate Burning Beds	Plasma cutters used to cut light steel plates to desired specifications, 2 total cutters located in each of the two burning beds	17	Light Plate Finishing	Kinetic	TBD	04/2022	Continuous	N/A	N/A
17-01B	Light Plate Burning Beds	Oxy fuel torches used to cut light steel plates to desired specifications, 8 total torches located in each of the two burning beds	17	Light Plate Finishing	Kinetic	TBD	04/2022	Continuous	N/A	N/A
17-02	Light Plate Finishing Line Tagger	Tagger used to mark finished light steel plates	17	Light Plate Finishing	Alpine Metal Tech	TBD	04/2022	Continuous	N/A	N/A

Section B.2: Materials and Fuel Information

**Maximum yearly fuel usage rate only applies if applicant request operating restrictions through federally enforceable limitations.*

Emission Unit #	Emission Unit Name	Name of Raw Materials Input	Maximum Quantity of Each Raw Material Input		Total Process Weight Rate for Emission Unit *(tons/hr)*	Name of Finished Materials	Maximum Quantity of Each Finished Material Output		Fuel Type	Maximum Hourly Fuel Usage Rate		Maximum Yearly Fuel Usage Rate		Sulfur Content *(%)*	Ash Content *(%)*
				(Specify Units/hr)				*(Specify Units/hr)*			*(Specify Units)*		*(Specify Units)*		
17-01A	Light Plate Burning Beds	Steel Plate	500	ton	500	Steel Plate	500	ton	N/A	N/A	N/A	N/A	N/A	N/A	N/A
17-01B	Light Plate Burning Beds	Steel Plate	300	ton	300	Steel Plate	300	ton	Natural Gas	8.00E-05	MMscf/hr	7.01E-01	MMscf/hr	N/A	N/A
17-02	Light Plate Finishing Line Tagger	Steel Plate	250	ton	250	Steel Plate	250	ton	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Division for Air Quality

300 Sower Boulevard
Frankfort, KY 40601
(502) 564-3999

DEP7007HH

Haul Roads

_____ Section HH.1: Haul Roads
_____ Section HH.2: Yard Area
_____ Section HH.3: Notes, Comments, and Explanations

Additional Documentation

___ Complete DEP7007AI, DEP7007N and DEP7007V

___ SDS for dust suppressant

Source Name: **Nucor Steel Brandenburg**

KY EIS (AFS) #: **21- 163-00044**

Permit #: **V-20-001 R1**

Agency Interest (AI) ID: **162861**

Date: **March 01, 2024**

Section HH.1: Haul Roads

HH.1A Unpaved Haul Roads:

Average Number of Days in a Year with 0.01 inches of Precipitation (P): 120 Days

Mean Vehicle Weight (W): 48.45 Tons

Surface Material Silt Content (s): 6 %

Haul Road Length: 1.97 Miles

Maximum Vehicle Miles Traveled in a Year: 96,462.20 Miles

Describe the dust control method for unpaved haul road(s):
(If dust control suppressants will be utilized, attach the approved Safety Data Sheet(s), as applicable.)

Combination of wet suppression and good work practices, inlcuding reduced vehicle speed and a dust management plan.

Emission factor: AP-42 Section 13.2.2 "Unpaved Roads" (11/06)

HH.1B Paved Haul Roads:

Average Number of Days in a Year with 0.01 inches of Precipitation (P): 120 Days

Mean Vehicle Weight (W): 37.94 Tons

Road Surface Silt Loading (sL): 4 (G/M^2)

Haul Road Length: 6.79 Miles

Maximum Vehicle Miles Traveled in a Year: 408,997 Miles

Describe the dust control method for paved haul road(s):
(If dust control suppressants will be utilized, attach the approved Safety Data Sheet(s), as applicable.)

Combination of wet suppression/vacuuming and surface improvements (pavement) along with good work practices, including a dust management plan.

Section HH.2: Yard Area (Aggregate Handling And Storage Piles):

Average Number of Days in a Year with 0.01 inches of Precipitation (P): 120 Days

Mean Wind Speed (U): 6.86 MPH

Material Moisture Content (M): %

Describe the dust control method for yard area:
(If dust control suppressants will be utilized, attach the approved Safety Data Sheet(s), as applicable.)

Division for Air Quality 300 Sower Boulevard Frankfort, KY 40601 (502) 564-3999

DEP7007V

Applicable Requirements and Compliance Activities

___ Section V.1: Emission and Operating Limitation(s)
___ Section V.2: Monitoring Requirements
___ Section V.3: Recordkeeping Requirements
___ Section V.4: Reporting Requirements
___ Section V.5: Testing Requirements
___ Section V.6: Notes, Comments, and Explanations

Additional Documentation
___ Complete DEP7007AI

Source Name: **Nucor Steel Brandenburg**
KY EIS (AFS) #: **21-163-00044**
Permit #: **V-20-001 R1**
Agency Interest (AI) ID: **162861**
Date: **March 01, 2024**

Section V.1: Emission and Operating Limitation(s)

Emission Unit #	Emission Unit Description	Applicable Regulation or Requirement	Pollutant	Emission Limit (if applicable)	Voluntary Emission Limit or Exemption (if applicable)	Operating Requirement or Limitation (if applicable)	Method of Determining Compliance with the Emission and Operating Requirement(s)
EP 17-01A	Light Plate Burning Beds-Plasma Cutter	401 KAR 51:017	PM	0.0053 lb/in. cut 104 lb/MMscf (oxy-fuel) 1.37 ton/yr	N/A	Install, operate, and maintain a dust collector in accordance with manufacturer's specifications	Monitoring (see V.2) Recordkeeping (see V.3)
EP 17-01A	Light Plate Burning Beds-Plasma Cutter	401 KAR 51:017	PM_{10}	0.0053 lb/in. cut 109 lb/MMscf (oxy-fuel) 1.37 ton/yr	N/A	Install, operate, and maintain a dust collector in accordance with manufacturer's specifications	Monitoring (see V.2) Recordkeeping (see V.3)
EP 17-01A	Light Plate Burning Beds-Plasma Cutter	401 KAR 51:017	$PM_{2.5}$	0.0053 lb/in. cut 109 lb/MMscf (oxy-fuel) 1.37 ton/yr	N/A	Install, operate, and maintain a dust collector in accordance with manufacturer's specifications	Monitoring (see V.2) Recordkeeping (see V.3)
EP 17-01A	Light Plate Burning Beds-Plasma Cutter	401 KAR 51:017	NO_x	1.1 lb/hr (plasma) 100 lb/MMscf (oxy-fuel) 4.60 ton/yr	N/A	N/A	N/A
EP 17-01A	Light Plate Burning Beds-Plasma Cutter	401 KAR 51:017	Total HAPs	25 ton/yr (plantwide limit)	N/A	N/A	Monitoring (see V.2) Recordkeeping (see V.3)
EP 17-01B	Light Plate Burning Beds-Oxy Fuel Torches	401 KAR 51:017	CO	84 lb/MMscf (oxy-fuel) 0.03 ton/yr	N/A	N/A	Use of oxy-fuel
EP 17-01B	Light Plate Burning Beds-Oxy Fuel Torches	401 KAR 51:017	VOC	5.5 lb/MMscf (oxy-fuel)	N/A	N/A	Use of oxy-fuel
EP 17-01B	Light Plate Burning Beds-Oxy Fuel Torches	401 KAR 51:017	SO_2	0.6 lb/MMscf (oxy-fuel) 0.0021 ton/yr	N/A	N/A	Use of oxy-fuel
EP 17-01B	Light Plate Burning Beds-Oxy Fuel Torches	401 KAR 51:017	PM	0.021 lb/hr 0.092 ton/yr	N/A	N/A	Monitoring (see V.2) Recordkeeping (see V.3)
EP 17-01B	Light Plate Burning Beds-Oxy Fuel Torches	401 KAR 51:017	PM_{10}	0.021 lb/hr 0.092 ton/yr	N/A	N/A	Monitoring (see V.2) Recordkeeping (see V.3)
EP 17-01B	Light Plate Burning Beds-Oxy Fuel Torches	401 KAR 51:017	$PM_{2.5}$	0.021 lb/hr 0.092 ton/yr	N/A	N/A	Monitoring (see V.2) Recordkeeping (see V.3)
EP 17-01B	Light Plate Burning Beds-Oxy Fuel Torches	401 KAR 51:017	Total HAPs	25 ton/yr (plantwide limit)	N/A	N/A	Monitoring (see V.2) Recordkeeping (see V.3)

EP 17-01B	Light Plate Burning Beds-Oxy Fuel Torches	401 KAR 51:017	CO_2e	10 lb/hr 42 ton/yr	N/A	Energy efficient design	Use of oxy-fuel
EP 17-02	Light Plate Finishing line Tagger	401 KAR 51:017	$PM/PM_{10}/PM_{2.5}$	0.0032 lb/hr 0.0045 ton/yr	N/A	Maintain equipment in accordance with manufacturer's specifications to minimize ink usage	Monitoring (see V.2) Recordkeeping (see V.3)
EP 17-02	Light Plate Finishing line Tagger	401 KAR 51:017	VOC	0.87 lb/hr 1.23 ton/yr	N/A	Maintain equipment in accordance with manufacturer's specifications to minimize ink usage	Monitoring (see V.2) Recordkeeping (see V.3)

Section V.2: Monitoring Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Monitored	Description of Monitoring
EP 17-01A	Light Plate Burning Beds- Plasma Cutter	PM	401 KAR 51:017	Pressure drop across baghouse	Maintenance and operating parameters of control equipment
EP 17-01A	Light Plate Burning Beds- Plasma Cutter	PM_{10}	401 KAR 51:017	Pressure drop across baghouse	Maintenance and operating parameters of control equipment
EP 17-01A	Light Plate Burning Beds- Plasma Cutter	$PM_{2.5}$	401 KAR 51:017	Pressure drop across baghouse	Maintenance and operating parameters of control equipment
EP 17-01A	Light Plate Burning Beds- Plasma Cutter	NO_x	401 KAR 51:017	N/A	General monitoring requirements
EP 17-01A	Light Plate Burning Beds- Plasma Cutter	Total HAPs	401 KAR 51:017	N/A	General monitoring requirements
EP 17-01B	Light Plate Burning Beds- Oxy Fuel Torches	CO	401 KAR 51:017	N/A	General monitoring requirements
EP 17-01B	Light Plate Burning Beds- Oxy Fuel Torches	VOC	401 KAR 51:017	N/A	General monitoring requirements
EP 17-01B	Light Plate Burning Beds- Oxy Fuel Torches	SO_2	401 KAR 51:017	N/A	General monitoring requirements
EP 17-01B	Light Plate Burning Beds- Oxy Fuel Torches	PM	401 KAR 51:017	Pressure drop across baghouse	Maintenance and operating parameters of control equipment
EP 17-01B	Light Plate Burning Beds- Oxy Fuel Torches	PM_{10}	401 KAR 51:017	Pressure drop across baghouse	Maintenance and operating parameters of control equipment

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Monitored	Description of Monitoring
EP 17-01B	Light Plate Burning Beds-Oxy Fuel Torches	$PM_{2.5}$	401 KAR 51:017	Pressure drop across baghouse	Maintenance and operating parameters of control equipment
EP 17-01B	Light Plate Burning Beds-Oxy Fuel Torches	Total HAPs	401 KAR 51:017	N/A	General monitoring requirements
EP 17-01B	Light Plate Burning Beds-Oxy Fuel Torches	CO_2e	401 KAR 51:017	N/A	General monitoring requirements
EP 17-02	Light Plate Finishing line Tagger	$PM/PM_{10}/PM_{2.5}$	401 KAR 51:017	N/A	General monitoring requirements
EP 17-02	Light Plate Finishing line Tagger	VOC	401 KAR 51:017	N/A	General monitoring requirements

Section V.3: Recordkeeping Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Recorded	Description of Recordkeeping
EP 17-01A	Light Plate Burning Beds-Plasma Cutter	PM	401 KAR 51:017	Pressure drop across baghouse	Maintenance and operating parameters of control equipment
EP 17-01A	Light Plate Burning Beds-Plasma Cutter	PM_{10}	401 KAR 51:017	Pressure drop across baghouse	Maintenance and operating parameters of control equipment
EP 17-01A	Light Plate Burning Beds-Plasma Cutter	$PM_{2.5}$	401 KAR 51:017	Pressure drop across baghouse	Maintenance and operating parameters of control equipment
EP 17-01A	Light Plate Burning Beds-Plasma Cutter	NO_x	401 KAR 51:017	N/A	General recordkeeping requirements
EP 17-01A	Light Plate Burning Beds-Plasma Cutter	Total HAPs	401 KAR 51:017	N/A	General recordkeeping requirements
EP 17-01B	Light Plate Burning Beds-Oxy Fuel Torches	CO	401 KAR 51:017	N/A	General recordkeeping requirements
EP 17-01B	Light Plate Burning Beds-Oxy Fuel Torches	VOC	401 KAR 51:017	N/A	General recordkeeping requirements
EP 17-01B	Light Plate Burning Beds-Oxy Fuel Torches	SO_2	401 KAR 51:017	N/A	General recordkeeping requirements
EP 17-01B	Light Plate Burning Beds-Oxy Fuel Torches	PM	401 KAR 51:017	Pressure drop across baghouse	Maintenance and operating parameters of control equipment
EP 17-01B	Light Plate Burning Beds-Oxy Fuel Torches	PM_{10}	401 KAR 51:017	Pressure drop across baghouse	Maintenance and operating parameters of control equipment

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Recorded	Description of Recordkeeping
EP 17-01B	Light Plate Burning Beds-Oxy Fuel Torches	$PM_{2.5}$	401 KAR 51:017	Pressure drop across baghouse	Maintenance and operating parameters of control equipment
EP 17-01B	Light Plate Burning Beds-Oxy Fuel Torches	Total HAPs	401 KAR 51:017	N/A	General recordkeeping requirements
EP 17-01B	Light Plate Burning Beds-Oxy Fuel Torches	CO_2e	401 KAR 51:017	N/A	General recordkeeping requirements
EP 17-02	Light Plate Finishing line Tagger	$PM/PM_{10}/PM_{2.5}$	401 KAR 51:017	N/A	General recordkeeping requirements
EP 17-02	Light Plate Finishing line Tagger	VOC	401 KAR 51:017	N/A	General recordkeeping requirements

Section V.4: Reporting Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Reported	Description of Reporting
EP 17-01A	Light Plate Burning Beds-Plasma Cutter	PM	401 KAR 51:017	N/A	General reporting requirements
EP 17-01A	Light Plate Burning Beds-Plasma Cutter	PM_{10}	401 KAR 51:017	N/A	General reporting requirements
EP 17-01A	Light Plate Burning Beds-Plasma Cutter	$PM_{2.5}$	401 KAR 51:017	N/A	General reporting requirements
EP 17-01A	Light Plate Burning Beds-Plasma Cutter	NO_x	401 KAR 51:017	N/A	General reporting requirements
EP 17-01A	Light Plate Burning Beds-Plasma Cutter	Total HAPs	401 KAR 51:017	N/A	General reporting requirements
EP 17-01B	Light Plate Burning Beds-Oxy Fuel Torches	CO	401 KAR 51:017	N/A	General reporting requirements
EP 17-01B	Light Plate Burning Beds-Oxy Fuel Torches	VOC	401 KAR 51:017	N/A	General reporting requirements
EP 17-01B	Light Plate Burning Beds-Oxy Fuel Torches	SO_2	401 KAR 51:017	N/A	General reporting requirements
EP 17-01B	Light Plate Burning Beds-Oxy Fuel Torches	PM	401 KAR 51:017	N/A	General reporting requirements
EP 17-01B	Light Plate Burning Beds-Oxy Fuel Torches	PM_{10}	401 KAR 51:017	N/A	General reporting requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Reported	Description of Reporting
EP 17-01B	Light Plate Burning Beds-Oxy Fuel Torches	$PM_{2.5}$	401 KAR 51:017	N/A	General reporting requirements
EP 17-01B	Light Plate Burning Beds-Oxy Fuel Torches	Total HAPs	401 KAR 51:017	N/A	General reporting requirements
EP 17-01B	Light Plate Burning Beds-Oxy Fuel Torches	CO_2e	401 KAR 51:017	N/A	General reporting requirements
EP 17-02	Light Plate Finishing line Tagger	$PM/PM_{10}/PM_{2.5}$	401 KAR 51:017	N/A	General reporting requirements
EP 17-02	Light Plate Finishing line Tagger	VOC	401 KAR 51:017	N/A	General reporting requirements

Section V.5: Testing Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Tested	Description of Testing
EP 17-01A	Light Plate Burning Beds-Plasma Cutter	PM	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 17-01A	Light Plate Burning Beds-Plasma Cutter	PM_{10}	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 17-01A	Light Plate Burning Beds-Plasma Cutter	$PM_{2.5}$	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 17-01A	Light Plate Burning Beds-Plasma Cutter	NO_x	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 17-01A	Light Plate Burning Beds-Plasma Cutter	Total HAPs	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 17-01B	Light Plate Burning Beds-Oxy Fuel Torches	CO	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 17-01B	Light Plate Burning Beds-Oxy Fuel Torches	VOC	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 17-01B	Light Plate Burning Beds-Oxy Fuel Torches	SO_2	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 17-01B	Light Plate Burning Beds-Oxy Fuel Torches	PM	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 17-01B	Light Plate Burning Beds-Oxy Fuel Torches	PM_{10}	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Tested	Description of Testing
EP 17-01B	Light Plate Burning Beds-Oxy Fuel Torches	$PM_{2.5}$	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 17-01B	Light Plate Burning Beds-Oxy Fuel Torches	Total HAPs	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 17-01B	Light Plate Burning Beds-Oxy Fuel Torches	CO_2e	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 17-02	Light Plate Finishing line Tagger	$PM/PM_{10}/PM_{2.5}$	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045
EP 17-02	Light Plate Finishing line Tagger	VOC	401 KAR 51:017	N/A	Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045

Section V.6: Notes, Comments, and Explanations

APPENDIX C EMISSION CALCULATIONS

Emission Point ID	Emission Point Name	Model Source Type	Filterable PM		PM_{10}		$PM_{2.5}$	
			lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
EU01-MSBH	Melt Shop - Baghouse	Point	25.49	111.6	73.64	322.5	48.15	210.9
EU01-MSFUG	Melt Shop - Fugitives	Point	0.48	1.47	0.80	2.46	0.59	1.82
EP 01-01	EAF Oxy-fuel Burners	Melt Shop	-	-	-	-	-	-
EP 01-02	Ladle Metallurgical Furnace	Melt Shop	Included in Melt Shop Emissions					
EP 01-03	Vacuum Degasser	Point	0.06	0.27	0.06	0.27	0.06	0.27
EP 01-04	Continuous Caster	Melt Shop	Included in Melt Shop Emissions					
EP 01-05	Caster Spray Vent	Point	12.50	54.75	2.00	8.76	0.25	1.10
EP 01-06	Primary Caster Torch Cut Off	RM BL Source	0.08	0.35	0.09	0.39	0.09	0.39
EP 01-07	Melt Shop Baghouse Dust Silo and Loadout	Point	0.077	0.34	0.08	0.34	0.08	0.34
EP 01-08A	Tundish Dump Station	Area	0.024	0.10	0.012	0.05	0.004	0.02
EP 01-08B	Tundish Relining Station	Melt Shop	Included in Melt Shop Emissions					
EP 01-09	Ladle Preparation	Melt Shop	Included in Melt Shop Emissions					
EP 01-10	Furnace Refractory Cleanout	Melt Shop	Included in Melt Shop Emissions					
EP 01-11	Caster Quench Box	Point	3.35	14.68	0.54	2.35	0.067	0.29
EP 01-12	Secondary Caster Torch Cut Off	RM BL Source	0.09	0.38	0.098	0.43	0.098	0.43
EP 02-01	Ladle Preheaters	Melt Shop	-	-	-	-	-	-
~~EP 02-02~~	~~Ladle Dryer~~		-	-	-	-	-	-
EP 02-03	Tundish Preheater	Melt Shop	-	-	-	-	-	-
EP 02-04	Tundish Dryer	Melt Shop	-	-	-	-	-	-
EP 02-05	Tundish Mandrel Preheaters	Melt Shop	-	-	-	-	-	-
EP 02-06	Tundish SEN Preheaters	Melt Shop	-	-	-	-	-	-
EP 03-01	Walking Beam Reheat Furnace	Point	0.67	2.96	2.68	11.82	2.68	11.82
EP 03-02	Ingot Bogie Hearth Furnaces	Point	0.23	1.00	0.916	4.01	0.92	4.01
EP 03-03	Roughing Mill Stand	RM BL Source	0.81	3.54	0.92	4.04	0.36	1.57
EP 03-04A	Steckel Mill Finishing Stand - Scrubber	Point	1.72	7.53	1.72	7.53	0.86	3.76
EP 03-04B	Steckel Mill Finishing Stand - RMMV	RM BL Source	2.00	8.76	1.57	6.87	0.55	2.39
EP 03-05	Steckel Mill Coiling Furnaces	Point	0.04	0.18	0.17	0.73	0.17	0.73
EP 03-06A	Coil Sample Plasma Cutter - Baghouse	Point	0.04	0.02	0.04	0.02	0.04	0.02
EP 03-06B	Coil Sample Plasma Cutter - Uncaptured	RM BL Source	0.07	0.03	0.07	0.03	0.07	0.03
EP 03-07	Coil Tagger	RM BL Source	0.01	0.01	0.01	0.01	0.01	0.01
EP 03-08	Rolling Mill Oxy-Fuel Plate Cutting Torch	RM BL Source	0.08	0.33	0.08	0.33	0.08	0.33
EP 03-09	Rolling Mill Oxy-Fuel Coil Cutting Torch	RM BL Source	0.08	0.33	0.08	0.33	0.08	0.33
EP 03-10A	Ingot Grinding - Baghouse	Point	2.07	9.07	2.07	9.07	1.04	4.54
EP 03-10B	Ingot Grinding - Uncaptured	RM BL Source	0.79	0.33	0.79	0.33	0.39	0.16
EP 03-11	Ingot Grinding Oxy-Fuel Cutting Torch	RM BL Source	0.08	0.33	0.08	0.34	0.08	0.34

Emission Point ID	Emission Point Name	Model Source Type	NOx		CO		SO_2	
			lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
EU01-MSBH	Melt Shop - Baghouse	Point	113.10	363.8	538.56	1,733	94.25	303.2
EU01-MSFUG	Melt Shop - Fugitives	Point	1.14	3.68	5.44	17.50	0.95	3.06
EP 01-01	EAF Oxy-fuel Burners	Melt Shop	-	-	-	-	-	-
EP 01-02	Ladle Metallurgical Furnace	Melt Shop						
EP 01-03	Vacuum Degasser	Point	1.36	4.38	20.40	65.63	1.36	4.38
EP 01-04	Continuous Caster	Melt Shop						
EP 01-05	Caster Spray Vent	Point	-	-	-	-	-	-
EP 01-06	Primary Caster Torch Cut Off	RM BL Source	0.18	0.81	0.15	0.68	0.00	0.00
EP 01-07	Melt Shop Baghouse Dust Silo and Loadout	Point	-	-	-	-	-	-
EP 01-08A	Tundish Dump Station	Area	-	-	-	-	-	-
EP 01-08B	Tundish Relining Station	Melt Shop						
EP 01-09	Ladle Preparation	Melt Shop						
EP 01-10	Furnace Refractory Cleanout	Melt Shop						
EP 01-11	Caster Quench Box	Point	-	-	-	-	-	-
EP 01-12	Secondary Caster Torch Cut Off	RM BL Source	0.19	0.84	0.16	0.70	0.00	0.01
EP 02-01	Ladle Preheaters	Melt Shop	-	-	-	-	-	-
~~EP 02-02~~	~~Ladle Dryer~~		-	-	-	-	-	-
EP 02-03	Tundish Preheater	Melt Shop	-	-	-	-	-	-
EP 02-04	Tundish Dryer	Melt Shop	-	-	-	-	-	-
EP 02-05	Tundish Mandrel Preheaters	Melt Shop	-	-	-	-	-	-
EP 02-06	Tundish SEN Preheaters	Melt Shop	-	-	-	-	-	-
EP 03-01	Walking Beam Reheat Furnace	Point	25.20	111.05	29.65	130.64	0.21	0.93
EP 03-02	Ingot Bogie Hearth Furnaces	Point	14.76	64.65	10.13	44.37	0.07	0.32
EP 03-03	Roughing Mill Stand	RM BL Source	-	-	-	-	-	-
EP 03-04A	Steckel Mill Finishing Stand - Scrubber	Point	-	-	-	-	-	-
EP 03-04B	Steckel Mill Finishing Stand - RMMV	RM BL Source	-	-	-	-	-	-
EP 03-05	Steckel Mill Coiling Furnaces	Point	1.79	7.84	1.84	8.07	0.01	0.06
EP 03-06A	Coil Sample Plasma Cutter - Baghouse	Point	0.55	2.39	-	-	-	-
EP 03-06B	Coil Sample Plasma Cutter - Uncaptured	RM BL Source	0.03	0.13	-	-	-	-
EP 03-07	Coil Tagger	RM BL Source	-	-	-	-	-	-
EP 03-08	Rolling Mill Oxy-Fuel Plate Cutting Torch	RM BL Source	0.00	0.00	0.00	0.00	0.00	0.00
EP 03-09	Rolling Mill Oxy-Fuel Coil Cutting Torch	RM BL Source	0.00	0.00	0.00	0.00	0.00	0.00
EP 03-10A	Ingot Grinding - Baghouse	Point	-	-	-	-	-	-
EP 03-10B	Ingot Grinding - Uncaptured	RM BL Source	-	-	-	-	-	-
EP 03-11	Ingot Grinding Oxy-Fuel Cutting Torch	RM BL Source	0.05	0.20	0.04	0.17	2.79E-04	1.22E-03

Emission Point ID	Emission Point Name	Model Source Type	VOC lb/hr	VOC tons/yr	Lead lb/hr	Lead tons/yr
EU01-MSBH	Melt Shop - Baghouse	Point	24.24	77.96	1.2E-01	0.39
EU01-MSFUG	Melt Shop - Fugitives	Point	0.24	0.79	0.001	0.004
EP 01-01	EAF Oxy-fuel Burners	Melt Shop	-	-	-	-
EP 01-02	Ladle Metallurgical Furnace	Melt Shop				
EP 01-03	Vacuum Degasser	Point	1.36	4.38	0.00	0.00
EP 01-04	Continuous Caster	Melt Shop				
EP 01-05	Caster Spray Vent	Point	4.40	19.27	-	-
EP 01-06	Primary Caster Torch Cut Off	RM BL Source	0.01	0.04	0.00	0.00
EP 01-07	Melt Shop Baghouse Dust Silo and Loadout	Point	-	-	0.00	0.00
EP 01-08A	Tundish Dump Station	Area	-	-	-	-
EP 01-08B	Tundish Relining Station	Melt Shop				
EP 01-09	Ladle Preparation	Melt Shop				
EP 01-10	Furnace Refractory Cleanout	Melt Shop				
EP 01-11	Caster Quench Box	Point	-	-	-	-
EP 01-12	Secondary Caster Torch Cut Off	RM BL Source	0.01	0.05	0.00	0.00
EP 02-01	Ladle Preheaters	Melt Shop	-	-	-	-
~~EP 02-02~~	~~Ladle Dryer~~		-	-	-	-
EP 02-03	Tundish Preheater	Melt Shop	-	-	-	-
EP 02-04	Tundish Dryer	Melt Shop	-	-	-	-
EP 02-05	Tundish Mandrel Preheaters	Melt Shop	-	-	-	-
EP 02-06	Tundish SEN Preheaters	Melt Shop	-	-	-	-
EP 03-01	Walking Beam Reheat Furnace	Point	1.94	8.55	0.00	0.00
EP 03-02	Ingot Bogie Hearth Furnaces	Point	0.66	2.90	0.00	0.00
EP 03-03	Roughing Mill Stand	RM BL Source	1.50	3.95	-	-
EP 03-04A	Steckel Mill Finishing Stand - Scrubber	Point	1.62	5.66	-	-
EP 03-04B	Steckel Mill Finishing Stand - RMMV	RM BL Source	0.09	0.30	-	-
EP 03-05	Steckel Mill Coiling Furnaces	Point	0.12	0.53	0.00	0.00
EP 03-06A	Coil Sample Plasma Cutter - Baghouse	Point	-	-	-	-
EP 03-06B	Coil Sample Plasma Cutter - Uncaptured	RM BL Source	-	-	-	-
EP 03-07	Coil Tagger	RM BL Source	0.19	0.10	-	-
EP 03-08	Rolling Mill Oxy-Fuel Plate Cutting Torch	RM BL Source	0.00	0.00	0.00	0.00
EP 03-09	Rolling Mill Oxy-Fuel Coil Cutting Torch	RM BL Source	0.00	0.00	0.00	0.00
EP 03-10A	Ingot Grinding - Baghouse	Point	-	-	0.01	0.05
EP 03-10B	Ingot Grinding - Uncaptured	RM BL Source	-	-	0.00	0.00
EP 03-11	Ingot Grinding Oxy-Fuel Cutting Torch	RM BL Source	2.56E-03	1.12E-02	8.11E-06	3.55E-05

Emission Point ID	Emission Point Name	Model Source Type	Fluoride		CO_2e	
			lb/hr	tons/yr	lb/hr	tons/yr
EU01-MSBH	Melt Shop - Baghouse	Point	4.74E-01	1.53	102,326	329,175
EU01-MSFUG	Melt Shop - Fugitives	Point	4.79E-03	1.54E-02	1,034	3,325
EP 01-01	EAF Oxy-fuel Burners	Melt Shop	-	-	14,166	62,047
EP 01-02	Ladle Metallurgical Furnace	Melt Shop				
EP 01-03	Vacuum Degasser	Point	-	-	781	2,511
EP 01-04	Continuous Caster	Melt Shop				
EP 01-05	Caster Spray Vent	Point	0.26	0.54	-	-
EP 01-06	Primary Caster Torch Cut Off	RM BL Source	-	-	222	974
EP 01-07	Melt Shop Baghouse Dust Silo and Loadout	Point	-	-	-	-
EP 01-08A	Tundish Dump Station	Area	-	-	-	-
EP 01-08B	Tundish Relining Station	Melt Shop				
EP 01-09	Ladle Preparation	Melt Shop				
EP 01-10	Furnace Refractory Cleanout	Melt Shop				
EP 01-11	Caster Quench Box	Point	-	-	-	-
EP 01-12	Secondary Caster Torch Cut Off	RM BL Source	-	-	230	1,010
EP 02-01	Ladle Preheaters	Melt Shop	-	-	11,243	49,244
~~EP 02-02~~	~~Ladle Dryer~~		-	-	-	-
EP 02-03	Tundish Preheater	Melt Shop	-	-	2,587	11,330
EP 02-04	Tundish Dryer	Melt Shop	-	-	1,293	5,664
EP 02-05	Tundish Mandrel Preheaters	Melt Shop	-	-	1,183	5,184
EP 02-06	Tundish SEN Preheaters	Melt Shop	-	-	336	1,472
EP 03-01	Walking Beam Reheat Furnace	Point	-	-	42,605	187,744
EP 03-02	Ingot Bogie Hearth Furnaces	Point	-	-	14,556.58	63,758
EP 03-03	Roughing Mill Stand	RM BL Source	-	-	57	151
EP 03-04A	Steckel Mill Finishing Stand - Scrubber	Point	-	-	61.60	215.59
EP 03-04B	Steckel Mill Finishing Stand - RMMV	RM BL Source	-	-	3.24	11.35
EP 03-05	Steckel Mill Coiling Furnaces	Point	-	-	2,649	11,601
EP 03-06A	Coil Sample Plasma Cutter - Baghouse	Point	-	-	-	-
EP 03-06B	Coil Sample Plasma Cutter - Uncaptured	RM BL Source	-	-	-	-
EP 03-07	Coil Tagger	RM BL Source	-	-	-	-
EP 03-08	Rolling Mill Oxy-Fuel Plate Cutting Torch	RM BL Source	-	-	1.2	5.3
EP 03-09	Rolling Mill Oxy-Fuel Coil Cutting Torch	RM BL Source	-	-	1.2	5.3
EP 03-10A	Ingot Grinding - Baghouse	Point	-	-	-	-
EP 03-10B	Ingot Grinding - Uncaptured	RM BL Source	-	-	-	-
EP 03-11	Ingot Grinding Oxy-Fuel Cutting Torch	RM BL Source	-	-	56.13	245.86

Emission Point ID	Emission Point Name	Model Source Type	Filterable PM		PM_{10}		$PM_{2.5}$	
			lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
EP 04-01	Shot Blaster		0.85	3.72	0.85	3.72	0.85	3.72
EP 04-02	Austenitizing Furnace		0.14	0.61	0.55	2.42	0.55	2.42
EP 04-03	Tempering Furnace		0.08	0.35	0.32	1.42	0.32	1.42
EP 04-04	Continuous Heat Treat Plasma Cutting	Volume	0.21	0.91	0.21	0.91	0.21	0.91
EP 04-05	Continuous Heat Treat Entry Tagger	Volume	9.4E-05	1.3E-04	9.4E-05	1.3E-04	9.4E-05	1.3E-04
EP 04-06	Continuous Heat Treat Exit Tagger	Volume	1.3E-03	1.8E-03	1.3E-03	1.8E-03	1.3E-03	1.8E-03
EP 17-01AA	Light Plate Burning Beds #1 & #2 - Baghouse	Point	0.12	0.53	0.12	0.53	0.12	0.53
EP 17-01AB	Light Plate Burning Beds #1 & #2 - Uncaptured	Volume	0.19	0.84	0.19	0.84	0.19	0.84
EP 17-01BA	Light Plate Burning Beds #1 & #2 - Baghouse	Point	0.01	0.04	0.01	0.04	0.01	0.04
EP 17-01BB	Light Plate Burning Beds #1 & #2 - Uncaptured	Volume	0.01	0.06	0.01	0.06	0.01	0.06
EP 17-02	Light Plate Finishing Line Tagger	Volume	0.003	0.005	0.003	0.005	0.003	0.005
EP 05-01	Heavy Plate Car Bottom Furnaces #1-#4		0.34	1.50	1.37	6.00	1.37	6.00
EP 05-03AA	Heavy Plate Burning Beds #1 - #3 - Baghouse	Point	0.04	0.17	0.04	0.17	0.04	0.17
EP 05-03AB	Heavy Plate Burning Beds #1 - #3 - Uncaptured	Volume	0.06	0.26	0.06	0.26	0.06	0.26
EP 05-03BA	Heavy Plate Burning Beds - Baghouse	Point	0.01	0.05	0.01	0.05	0.01	0.05
EP 05-03BB	Heavy Plate Burning Beds - Uncaptured	Volume	0.02	0.08	0.02	0.08	0.02	0.08
EP 05-04	Heavy Plate Hand-Held Tagger	Volume	2.71E-05	0.00	0.00	0.00	0.00	0.00
EP 18-01	Paint System Preheater	Volume	1.23E-06	5.38E-06	4.92E-06	2.15E-05	4.92E-06	2.15E-05
EP 18-02	Shot Blaster		0.31	1.35	0.31	1.35	0.31	1.35
EP 18-03	Plate Painting Operations		0.51	2.22	0.51	2.22	0.51	2.22
EP 18-04	RTO Combustion		4.5E-03	0.020	0.018	0.078	0.018	0.078
EP 18-05	Paint System Dryer	Volume	1.8E-07	7.8E-07	7.1E-07	3.1E-06	7.1E-07	3.1E-06
EP 06-01A	EAF Flux & Carbon Handling - Baghouse	Point	0.06	0.03	0.03	0.01	0.00	0.00
EP 06-01B	EAF Flux & Carbon Handling - Uncaptured	Volume	0.22	0.10	0.10	0.05	0.02	0.01
EP 06-02	EAF Lime Silos		0.12	0.51	0.12	0.52	0.12	0.52
EP 06-03A	LMF Flux & Carbon Handling - Baghouse	Point	0.06	0.01	0.03	0.00	0.00	0.00
EP 06-03B	LMF Flux & Carbon Handling - Uncaptured	Volume	0.22	0.03	0.10	0.01	0.02	0.00
EP 06-04	EAF Carbon Silo		0.04	0.17	0.04	0.17	0.04	0.17
EP 06-05A	LMF Alloy Handling - Baghouse	Point	0.05	0.01	0.03	0.01	0.00	0.00
EP 06-05B	LMF Alloy Handling - Uncaptured	Volume	0.22	0.06	0.10	0.03	0.02	0.00

Emission Point ID	Emission Point Name	Model Source Type	NOx		CO		SO_2	
			lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
EP 04-01	Shot Blaster		-	-	-	-	-	-
EP 04-02	Austenitizing Furnace		11.64	51.00	6.45	28.24	0.04	0.19
EP 04-03	Tempering Furnace		6.82	29.87	6.56	28.75	0.03	0.11
EP 04-04	Continuous Heat Treat Plasma Cutting	Volume	0.93	4.09	-	-	-	-
EP 04-05	Continuous Heat Treat Entry Tagger	Volume	-	-	-	-	-	-
EP 04-06	Continuous Heat Treat Exit Tagger	Volume	-	-	-	-	-	-
EP 17-01AA	Light Plate Burning Beds #1 & #2 - Baghouse	Point	1.00	4.37	-	-	-	-
EP 17-01AB	Light Plate Burning Beds #1 & #2 - Uncaptured	Volume	0.05	0.23	-	-	-	-
EP 17-01BA	Light Plate Burning Beds #1 & #2 - Baghouse	Point	0.01	0.03	0.01	0.03	4.6E-05	2.0E-04
EP 17-01BB	Light Plate Burning Beds #1 & #2 - Uncaptured	Volume	4.0E-04	1.8E-03	3.4E-04	1.5E-03	2.4E-06	1.1E-05
EP 17-02	Light Plate Finishing Line Tagger	Volume	-	-	-	-	-	-
EP 05-01	Heavy Plate Car Bottom Furnaces #1-#4		14.72	64.47	15.15	66.37	0.11	0.47
EP 05-03AA	Heavy Plate Burning Beds #1 - #3 - Baghouse	Point	1.33	5.82	-	-	-	-
EP 05-03AB	Heavy Plate Burning Beds #1 - #3 - Uncaptured	Volume	0.07	0.31	-	-	-	-
EP 05-03BA	Heavy Plate Burning Beds - Baghouse	Point	0.02	0.09	0.02	0.07	1.2E-04	5.2E-04
EP 05-03BB	Heavy Plate Burning Beds - Uncaptured	Volume	1.1E-03	4.6E-03	8.8E-04	3.9E-03	6.3E-06	2.8E-05
EP 05-04	Heavy Plate Hand-Held Tagger	Volume	-	-	-	-	-	-
EP 18-01	Paint System Preheater	Volume	6.47E-05	2.83E-04	5.44E-05	2.38E-04	3.88E-07	1.70E-06
EP 18-02	Shot Blaster		-	-	-	-	-	-
EP 18-03	Plate Painting Operations		-	-	-	-	-	-
EP 18-04	RTO Combustion		0.584	2.558	0.395	1.731	1.4E-03	0.006
EP 18-05	Paint System Dryer	Volume	9.3E-06	4.1E-05	7.8E-06	3.4E-05	5.6E-08	2.4E-07
EP 06-01A	EAF Flux & Carbon Handling - Baghouse	Point	-	-	-	-	-	-
EP 06-01B	EAF Flux & Carbon Handling - Uncaptured	Volume	-	-	-	-	-	-
EP 06-02	EAF Lime Silos		-	-	-	-	-	-
EP 06-03A	LMF Flux & Carbon Handling - Baghouse	Point	-	-	-	-	-	-
EP 06-03B	LMF Flux & Carbon Handling - Uncaptured	Volume	-	-	-	-	-	-
EP 06-04	EAF Carbon Silo		-	-	-	-	-	-
EP 06-05A	LMF Alloy Handling - Baghouse	Point	-	-	-	-	-	-
EP 06-05B	LMF Alloy Handling - Uncaptured	Volume	-	-	-	-	-	-

Emission Point ID	Emission Point Name	Model Source Type	VOC		Lead	
			lb/hr	tons/yr	lb/hr	tons/yr
EP 04-01	Shot Blaster		-	-	-	-
EP 04-02	Austenitizing Furnace		0.40	1.75	3.6E-05	1.6E-04
EP 04-03	Tempering Furnace		0.23	1.03	0.00	0.00
EP 04-04	Continuous Heat Treat Plasma Cutting	Volume	-	-	-	-
EP 04-05	Continuous Heat Treat Entry Tagger	Volume	0.03	0.04	-	-
EP 04-06	Continuous Heat Treat Exit Tagger	Volume	0.43	0.59	-	-
EP 17-01AA	Light Plate Burning Beds #1 & #2 - Baghouse	Point	-	-	-	-
EP 17-01AB	Light Plate Burning Beds #1 & #2 - Uncaptured	Volume	-	-	-	-
EP 17-01BA	Light Plate Burning Beds #1 & #2 - Baghouse	Point	4.2E-04	1.8E-03	8.6E-07	3.7E-06
EP 17-01BB	Light Plate Burning Beds #1 & #2 - Uncaptured	Volume	2.2E-05	9.6E-05	1.4E-06	5.9E-06
EP 17-02	Light Plate Finishing Line Tagger	Volume	0.867	1.23	-	-
EP 05-01	Heavy Plate Car Bottom Furnaces #1-#4		0.99	4.35	0.00	0.00
EP 05-03AA	Heavy Plate Burning Beds #1 - #3 - Baghouse	Point	-	-	-	-
EP 05-03AB	Heavy Plate Burning Beds #1 - #3 - Uncaptured	Volume	-	-	-	-
EP 05-03BA	Heavy Plate Burning Beds - Baghouse	Point	1.1E-03	4.8E-03	1.3E-06	5.6E-06
EP 05-03BB	Heavy Plate Burning Beds - Uncaptured	Volume	5.8E-05	2.5E-04	2.0E-06	8.9E-06
EP 05-04	Heavy Plate Hand-Held Tagger	Volume	0.01	0.01	-	-
EP 18-01	Paint System Preheater	Volume	3.56E-06	1.56E-05	3.24E-10	1.42E-09
EP 18-02	Shot Blaster		-	-	-	-
EP 18-03	Plate Painting Operations		5.49	24.04	-	-
EP 18-04	RTO Combustion		0.013	0.057	1.2E-06	5.2E-06
EP 18-05	Paint System Dryer	Volume	5.1E-07	2.2E-06	4.7E-11	2.0E-10
EP 06-01A	EAF Flux & Carbon Handling - Baghouse	Point	-	-	-	-
EP 06-01B	EAF Flux & Carbon Handling - Uncaptured	Volume	-	-	-	-
EP 06-02	EAF Lime Silos		-	-	-	-
EP 06-03A	LMF Flux & Carbon Handling - Baghouse	Point	-	-	-	-
EP 06-03B	LMF Flux & Carbon Handling - Uncaptured	Volume	-	-	-	-
EP 06-04	EAF Carbon Silo		-	-	-	-
EP 06-05A	LMF Alloy Handling - Baghouse	Point	-	-	-	-
EP 06-05B	LMF Alloy Handling - Uncaptured	Volume	-	-	-	-

Emission Point ID	Emission Point Name	Model Source Type	Fluoride		CO_2e	
			lb/hr	tons/yr	lb/hr	tons/yr
EP 04-01	Shot Blaster		-	-	-	-
EP 04-02	Austenitizing Furnace		-	-	8,785	38,478
EP 04-03	Tempering Furnace		-	-	5,146	22,538
EP 04-04	Continuous Heat Treat Plasma Cutting	Volume	-	-	-	-
EP 04-05	Continuous Heat Treat Entry Tagger	Volume	-	-	-	-
EP 04-06	Continuous Heat Treat Exit Tagger	Volume	-	-	-	-
EP 17-01AA	Light Plate Burning Beds #1 & #2 - Baghouse	Point	-	-	-	-
EP 17-01AB	Light Plate Burning Beds #1 & #2 - Uncaptured	Volume	-	-	-	-
EP 17-01BA	Light Plate Burning Beds #1 & #2 - Baghouse	Point	-	-	9	40
EP 17-01BB	Light Plate Burning Beds #1 & #2 - Uncaptured	Volume	-	-	0	2
EP 17-02	Light Plate Finishing Line Tagger	Volume	-	-	-	-
EP 05-01	Heavy Plate Car Bottom Furnaces #1-#4		-	-	21,776	95,378
EP 05-03AA	Heavy Plate Burning Beds #1 - #3 - Baghouse	Point	-	-	-	-
EP 05-03AB	Heavy Plate Burning Beds #1 - #3 - Uncaptured	Volume	-	-	-	-
EP 05-03BA	Heavy Plate Burning Beds - Baghouse	Point	-	-	24	105
EP 05-03BB	Heavy Plate Burning Beds - Uncaptured	Volume	-	-	1	6
EP 05-04	Heavy Plate Hand-Held Tagger	Volume	-	-	-	-
EP 18-01	Paint System Preheater	Volume	-	-	0.08	0.34
EP 18-02	Shot Blaster		-	-	-	-
EP 18-03	Plate Painting Operations		-	-	-	-
EP 18-04	RTO Combustion		-	-	284	1,244
EP 18-05	Paint System Dryer	Volume	-	-	0.011	0.049
EP 06-01A	EAF Flux & Carbon Handling - Baghouse	Point	-	-	-	-
EP 06-01B	EAF Flux & Carbon Handling - Uncaptured	Volume	-	-	-	-
EP 06-02	EAF Lime Silos		-	-	-	-
EP 06-03A	LMF Flux & Carbon Handling - Baghouse	Point	-	-	-	-
EP 06-03B	LMF Flux & Carbon Handling - Uncaptured	Volume	-	-	-	-
EP 06-04	EAF Carbon Silo		-	-	-	-
EP 06-05A	LMF Alloy Handling - Baghouse	Point	-	-	-	-
EP 06-05B	LMF Alloy Handling - Uncaptured	Volume	-	-	-	-

Emission Point ID	Emission Point Name	Model Source Type	Filterable PM		PM_{10}		$PM_{2.5}$	
			lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
~~EP 07-01~~	~~DRI Unloading Dock~~							
~~EP 07-02~~	~~DRI Storage Silo #1~~							
~~EP 07-03~~	~~DRI Storage Silo #2~~							
~~EP 07-04~~	~~DRI Silo Loadout~~							
~~EP 07-05~~	~~DRI Day Bins~~							
~~EP 07-06~~	~~DRI Transfer Conveyors~~							
~~EP 07-07~~	~~DRI Emergency Chutes~~							
EP 08-01	Barge Scrap Unloading	Volume	0.18	0.14	0.09	0.07	0.03	0.02
EP 08-02	Rail Scrap Unloading	Area	0.06	0.09	0.03	0.04	0.01	0.01
EP 08-03	Scrap Pile Loading	Area	0.89	0.86	0.42	0.41	0.06	0.06
EP 08-04	Scrap Charging	Area	0.27	0.86	0.13	0.41	0.02	0.06
EP 09-01	Melt Shop ICW Cooling Tower, System 100		0.69	3.02	0.51	2.25	0.00	6.76E-03
EP 09-02	Melt Shop DCW Cooling Tower, System 200		0.240	1.05	0.175	0.764	0.00	0.00
~~EP 09-03~~	~~Rolling Mill ICW Cooling Tower~~		-	-	-	-	-	-
EP 09-04	Rolling Mill DCW Cooling Tower, System 400		0.83	3.62	0.568	2.49	0.00	0.01
EP 09-05	Rolling Mill ACC ICW Cooling Tower, System 500		0.49	2.15	0.34	1.48	0.00	0.00
EP 09-06	Heavy Plate Quench DCW Cooling Tower, System 600		0.152	0.66	0.110	0.48	0.00	0.00
EP 09-07	Quench & ACC Laminar DCW Cooling Tower, System 700		0.661	2.89	0.480	2.102	0.00	0.01
EP 09-08	Heat Treat Cooling Tower, System 800		0.46	2.03	0.337	1.48	0.00	0.00
EP 09-09	Air Seperation Plant Cooling Tower, System 900		0.18	0.79	0.134	0.59	0.00	0.00
EP 10-01	G100-1 Emergency Generator		0.15	0.04	0.15	0.04	0.15	0.04
EP 10-02	G100-2 Emergency Generator		0.58	0.14	0.58	0.14	0.58	0.14
EP 10-03	G100-3 Emergency Generator		0.58	0.14	0.58	0.14	0.58	0.14
EP 10-04	G200-1 Emergency Generator		0.145	0.04	0.15	0.04	0.15	0.04
EP 10-08	G300-1 Emergency Generator		0.15	0.04	0.15	0.04	0.15	0.04
EP 10-09	G400-1 Emergency Generator		0.15	0.04	0.145	0.04	0.15	0.04
EP 10-10	G500-1 Emergency Generator		0.19	0.05	0.186	0.046	0.19	0.05
EP 11-01	ASU Emergency Generator		0.033	0.01	0.068	0.02	0.07	0.02
EP 11-02	Admin Building Emergency Generator		0.009	0.00	0.019	0.00	0.02	0.00

Emission Point ID	Emission Point Name	Model Source Type	NOx		CO		SO_2	
			lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
~~EP 07-01~~	~~DRI Unloading Dock~~		-	-	-	-	-	-
~~EP 07-02~~	~~DRI Storage Silo #1~~		-	-	-	-	-	-
~~EP 07-03~~	~~DRI Storage Silo #2~~		-	-	-	-	-	-
~~EP 07-04~~	~~DRI Silo Loadout~~		-	-	-	-	-	-
~~EP 07-05~~	~~DRI Day Bins~~		-	-	-	-	-	-
~~EP 07-06~~	~~DRI Transfer Conveyors~~		-	-	-	-	-	-
~~EP 07-07~~	~~DRI Emergency Chutes~~		-	-	-	-	-	-
EP 08-01	Barge Scrap Unloading	Volume	-	-	-	-	-	-
EP 08-02	Rail Scrap Unloading	Area	-	-	-	-	-	-
EP 08-03	Scrap Pile Loading	Area	-	-	-	-	-	-
EP 08-04	Scrap Charging	Area	-	-	-	-	-	-
EP 09-01	Melt Shop ICW Cooling Tower, System 100		-	-	-	-	-	-
EP 09-02	Melt Shop DCW Cooling Tower, System 200		-	-	-	-	-	-
~~EP 09-03~~	~~Rolling Mill ICW Cooling Tower~~		-	-	-	-	-	-
EP 09-04	Rolling Mill DCW Cooling Tower, System 400		-	-	-	-	-	-
EP 09-05	Rolling Mill ACC ICW Cooling Tower, System 500		-	-	-	-	-	-
EP 09-06	Heavy Plate Quench DCW Cooling Tower, System 600		-	-	-	-	-	-
EP 09-07	Quench & ACC Laminar DCW Cooling Tower, System 700		-	-	-	-	-	-
EP 09-08	Heat Treat Cooling Tower, System 800		-	-	-	-	-	-
EP 09-09	Air Seperation Plant Cooling Tower, System 900		-	-	-	-	-	-
EP 10-01	G100-1 Emergency Generator		13.52	3.38	2.18	0.55	0.02	0.00
EP 10-02	G100-2 Emergency Generator		24.48	6.12	4.35	1.09	0.04	0.01
EP 10-03	G100-3 Emergency Generator		24.48	6.12	4.35	1.09	0.04	0.01
EP 10-04	G200-1 Emergency Generator		13.52	3.38	2.18	0.55	0.02	0.00
EP 10-08	G300-1 Emergency Generator		13.52	3.38	2.18	0.55	0.02	0.00
EP 10-09	G400-1 Emergency Generator		13.52	3.38	2.18	0.55	0.02	0.00
EP 10-10	G500-1 Emergency Generator		13.06	3.26	3.02	0.75	0.02	0.00
EP 11-01	ASU Emergency Generator		2.03	0.51	4.06	1.01	0.00	0.00
EP 11-02	Admin Building Emergency Generator		1.15	0.29	3.39	0.85	0.00	0.00

Emission Point ID	Emission Point Name	Model Source Type	VOC		Lead	
			lb/hr	tons/yr	lb/hr	tons/yr
~~EP 07-01~~	~~DRI Unloading Dock~~		-	-	-	-
~~EP 07-02~~	~~DRI Storage Silo #1~~		-	-	-	-
~~EP 07-03~~	~~DRI Storage Silo #2~~		-	-	-	-
~~EP 07-04~~	~~DRI Silo Loadout~~		-	-	-	-
~~EP 07-05~~	~~DRI Day Bins~~		-	-	-	-
~~EP 07-06~~	~~DRI Transfer Conveyors~~		-	-	-	-
~~EP 07-07~~	~~DRI Emergency Chutes~~		-	-	-	-
EP 08-01	Barge Scrap Unloading	Volume	-	-	-	-
EP 08-02	Rail Scrap Unloading	Area	-	-	-	-
EP 08-03	Scrap Pile Loading	Area	-	-	-	-
EP 08-04	Scrap Charging	Area	-	-	-	-
EP 09-01	Melt Shop ICW Cooling Tower, System 100		-	-	-	-
EP 09-02	Melt Shop DCW Cooling Tower, System 200		-	-	-	-
~~EP 09-03~~	~~Rolling Mill ICW Cooling Tower~~		-	-	-	-
EP 09-04	Rolling Mill DCW Cooling Tower, System 400		-	-	-	-
EP 09-05	Rolling Mill ACC ICW Cooling Tower, System 500		-	-	-	-
EP 09-06	Heavy Plate Quench DCW Cooling Tower, System 600		-	-	-	-
EP 09-07	Quench & ACC Laminar DCW Cooling Tower, System 700		-	-	-	-
EP 09-08	Heat Treat Cooling Tower, System 800		-	-	-	-
EP 09-09	Air Seperation Plant Cooling Tower, System 900		-	-	-	-
EP 10-01	G100-1 Emergency Generator		0.19	0.05	-	-
EP 10-02	G100-2 Emergency Generator		1.26	0.31	-	-
EP 10-03	G100-3 Emergency Generator		1.26	0.31	-	-
EP 10-04	G200-1 Emergency Generator		0.19	0.05	-	-
EP 10-08	G300-1 Emergency Generator		0.19	0.05	-	-
EP 10-09	G400-1 Emergency Generator		0.19	0.05	-	-
EP 10-10	G500-1 Emergency Generator		0.32	0.08	-	-
EP 11-01	ASU Emergency Generator		1.01	0.25	-	-
EP 11-02	Admin Building Emergency Generator		0.03	0.01	-	-

Emission Point ID	Emission Point Name	Model Source Type	Fluoride		CO_2e	
			lb/hr	tons/yr	lb/hr	tons/yr
~~EP 07-01~~	~~DRI Unloading Dock~~		-	-	-	-
~~EP 07-02~~	~~DRI Storage Silo #1~~		-	-	-	-
~~EP 07-03~~	~~DRI Storage Silo #2~~		-	-	-	-
~~EP 07-04~~	~~DRI Silo Loadout~~		-	-	-	-
~~EP 07-05~~	~~DRI Day Bins~~		-	-	-	-
~~EP 07-06~~	~~DRI Transfer Conveyors~~		-	-	-	-
~~EP 07-07~~	~~DRI Emergency Chutes~~		-	-	-	-
EP 08-01	Barge Scrap Unloading	Volume	-	-	-	-
EP 08-02	Rail Scrap Unloading	Area	-	-	-	-
EP 08-03	Scrap Pile Loading	Area	-	-	-	-
EP 08-04	Scrap Charging	Area	-	-	-	-
EP 09-01	Melt Shop ICW Cooling Tower, System 100		-	-	-	-
EP 09-02	Melt Shop DCW Cooling Tower, System 200		-	-	-	-
~~EP 09-03~~	~~Rolling Mill ICW Cooling Tower~~		-	-	-	-
EP 09-04	Rolling Mill DCW Cooling Tower, System 400		-	-	-	-
EP 09-05	Rolling Mill ACC ICW Cooling Tower, System 500		-	-	-	-
EP 09-06	Heavy Plate Quench DCW Cooling Tower, System 600		-	-	-	-
EP 09-07	Quench & ACC Laminar DCW Cooling Tower, System 700		-	-	-	-
EP 09-08	Heat Treat Cooling Tower, System 800		-	-	-	-
EP 09-09	Air Seperation Plant Cooling Tower, System 900		-	-	-	-
EP 10-01	G100-1 Emergency Generator		-	-	1,609	402
EP 10-02	G100-2 Emergency Generator		-	-	3,087	772
EP 10-03	G100-3 Emergency Generator		-	-	3,087	772
EP 10-04	G200-1 Emergency Generator		-	-	1,609	402
EP 10-08	G300-1 Emergency Generator		-	-	1,609	402
EP 10-09	G400-1 Emergency Generator		-	-	1,609	402
EP 10-10	G500-1 Emergency Generator		-	-	1,453	363
EP 11-01	ASU Emergency Generator		-	-	408	102
EP 11-02	Admin Building Emergency Generator		-	-	116	29

Emission Point ID	Emission Point Name	Model Source Type	Filterable PM		PM_{10}		$PM_{2.5}$	
			lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
EP 12-01	Slag Processing Equipment	Volume/ Area	2.06	1.77	0.76	0.78	0.16	0.26
EP 12-02	Slag Processing Storage Piles	Area	0.12	0.44	0.06	0.22	0.01	0.03
EP 12-03	Slag Plant Pot Slagger	Volume	0.01	0.04	3.1E-03	0.01	8.8E-04	3.9E-03
EP 12-04A	Slag Plant Oxy Fuel-Fired Torches - Baghouse	Point	0.02	0.08	0.08	0.33	0.08	0.33
EP 12-04B	Slag Plant Oxy Fuel-Fired Torches - Uncaptured	Point	0.03	0.12	0.03	0.12	0.03	0.12
EP 13-01	Water Bath Vaporizer		0.05	0.24	0.22	0.95	0.22	0.95
EP 14-01	Paved Roads	Volume	3.39	13.63	0.68	2.73	0.20	0.80
EP 14-02	Unpaved Roads	Volume	8.61	34.63	2.30	9.23	0.23	0.92
EP 15-01	Miscellaneous Heaters	RM BL Source	0.07	0.33	0.30	1.31	0.30	1.31
EP 16-01	Cleaning Tanks		-	-	-	-	-	-
	Facility Total		76.16	301.97	103.41	432.74	64.88	271.89
	PSD Triggered?		**Yes**		**Yes**		**Yes**	

Emission Point ID	Emission Point Name	Model Source Type	NOx		CO		SO_2	
			lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
EP 12-01	Slag Processing Equipment	Volume/Area	-	-	-	-	-	-
EP 12-02	Slag Processing Storage Piles	Area	-	-	-	-	-	-
EP 12-03	Slag Plant Pot Slagger	Volume	-	-	-	-	-	-
EP 12-04A	Slag Plant Oxy Fuel-Fired Torches - Baghouse	Point	0.99	4.34	0.83	3.64	0.01	0.03
EP 12-04B	Slag Plant Oxy Fuel-Fired Torches - Uncaptured	Point	0	0	0	0	0	0
EP 13-01	Water Bath Vaporizer		1.42	6.23	2.39	10.46	0.02	0.07
EP 14-01	Paved Roads	Volume	--	--	--	--	--	--
EP 14-02	Unpaved Roads	Volume	--	--	--	--	--	--
EP 15-01	Miscellaneous Heaters	RM BL Source	2.75	12.02	3.29	14.43	0.02	0.10
EP 16-01	Cleaning Tanks		-	-	-	-	-	-
	Facility Total		319.97	775.04	669.35	2,160.97	97.25	312.97
	PSD Triggered?		**Yes**		**Yes**		**Yes**	

Emission Point ID	Emission Point Name	Model Source Type	VOC		Lead	
			lb/hr	tons/yr	lb/hr	tons/yr
EP 12-01	Slag Processing Equipment	Volume/Area	-	-	-	-
EP 12-02	Slag Processing Storage Piles	Area	-	-	-	-
EP 12-03	Slag Plant Pot Slagger	Volume	-	-	-	-
EP 12-04A	Slag Plant Oxy Fuel-Fired Torches - Baghouse	Point	0.05	0.24	0.00	0.00
EP 12-04B	Slag Plant Oxy Fuel-Fired Torches - Uncaptured	Point	0	0	0.00	0.00
EP 13-01	Water Bath Vaporizer		0.16	0.68	0.00	0.00
EP 14-01	Paved Roads	Volume	--	--	--	--
EP 14-02	Unpaved Roads	Volume	--	--	--	--
EP 15-01	Miscellaneous Heaters	RM BL Source	0.22	0.94	0.00	0.00
EP 16-01	Cleaning Tanks		0.12	0.52	-	-
	Facility Total		50.06	161.14	0.14	0.44
	PSD Triggered?		**Yes**		**No**	

Emission Point ID	Emission Point Name	Model Source Type	Fluoride		CO_2e	
			lb/hr	tons/yr	lb/hr	tons/yr
EP 12-01	Slag Processing Equipment	Volume/Area	-	-	-	-
EP 12-02	Slag Processing Storage Piles	Area	-	-	-	-
EP 12-03	Slag Plant Pot Slagger	Volume	-	-	-	-
EP 12-04A	Slag Plant Oxy Fuel-Fired Torches - Baghouse	Point	-	-	1,195	5,234
EP 12-04B	Slag Plant Oxy Fuel-Fired Torches - Uncaptured	Point	-	-	0	0
EP 13-01	Water Bath Vaporizer		-	-	3,432	15,032
EP 14-01	Paved Roads	Volume	--	--	--	-
EP 14-02	Unpaved Roads	Volume	--	--	--	-
EP 15-01	Miscellaneous Heaters	RM BL Source	-	-	4,734	20,734
EP 16-01	Cleaning Tanks		-	-	-	-
	Facility Total		0.74	2.08	255,366.11	938,111.72
	PSD Triggered?		**No**		**Yes**	

Emission Unit (EU) No.	Emission Point Description	Filterable PM	PM_{10}	$PM_{2.5}$	NO_X	CO	SO_2	VOC	Lead	Fluoride	CO_2e
		lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
EU01	Melt Shop - Baghouse	25.49	73.64	48.15	113.10	538.56	94.25	24.2	0.12	0.47	133,135
EU01	Melt Shop - Fugitives	0.48	0.80	0.59	1.14	5.44	0.95	0.24	1.22E-03	4.79E-03	1,034
EP 01-01	Electric Arc Furnace	Included in Melt Shop Baghouse and Fugitive Emissions									
EP 01-02	Ladle Metallurical Furnace	Included in Melt Shop Baghouse and Fugitive Emissions									
EP 01-03	Vacuum Degasser	0.06	0.06	0.06	1.36	20.40	1.36	1.36	2.35E-04	-	781
EP 01-04	Continuous Caster	Included in Melt Shop Baghouse and Fugitive Emissions									
EP 01-05	Caster Spray Vent	12.50	2.00	0.25	-	-	-	4.40	-	0.26	-
EP 01-06	Primary Caster Torch Cut Off	0.079	0.090	0.090	0.18	0.15	0.0011	0.010	8.86E-06	-	222.4
EP 01-07	Melt Shop Baghouse Dust Silo and Loadout	0.0771	0.0771	0.0771	-	-	-	-	3.89E-06	-	-
EP 01-08	Tundish Preparation - Dump Station (08A)	0.024	0.012	0.0043	-	-	-	-	-	-	-
	Tundish Preparation - Relining Station (08B)	Included in Melt Shop Baghouse and Fugitive Emissions									
EP 01-09	Ladle Preparation	Included in Melt Shop Baghouse and Fugitive Emissions									
EP 01-10	Furnace Refractory Cleanout	Included in Melt Shop Baghouse and Fugitive Emissions									
EP 01-11	Caster Quench Box	3.35	0.54	0.0670	-	-	-	-	-	-	-
EP 01-12	Secondary Caster Torch Cut Off	0.087	0.098	0.098	0.191	0.160	0.001	0.011	9.73E-06	-	230.5
	TOTAL	42.15	77.31	49.39	115.98	564.72	96.56	30.26	0.123	0.74	135,402

Emission Unit (EU) No.	Emission Point Description	Filterable PM	PM_{10}	$PM_{2.5}$	NO_X	CO	SO_2	VOC	Lead	Fluoride	CO_2e
		tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr
EU01	Melt Shop - Baghouse	111.64	322.53	210.88	363.83	1,733	303.19	77.96	0.39	1.53	464,116
EU01	Melt Shop - Fugitives	1.47	2.46	1.82	3.68	17.50	3.06	0.79	3.94E-03	0.02	3,325
EP 01-01	Electric Arc Furnace	Included in Melt Shop Baghouse and Fugitive Emissions									
EP 01-02	Ladle Metallurical Furnace	Included in Melt Shop Baghouse and Fugitive Emissions									
EP 01-03	Vacuum Degasser	0.27	0.27	0.27	4.38	65.63	4.38	4.38	1.03E-03	-	2,511
EP 01-04	Continuous Caster	Included in Melt Shop Baghouse and Fugitive Emissions									
EP 01-05	Caster Spray Vent	54.75	8.76	1.10	-	-	-	19.27	-	0.54	-
EP 01-06	Primary Caster Torch Cut Off	0.35	0.39	0.39	0.81	0.68	0.005	0.04	3.88E-05	-	973.90
EP 01-07	Melt Shop Baghouse Dust Silo and Loadout	0.34	0.34	0.34	-	-	-	-	1.70E-05	-	-
EP 01-08	Tundish Preparation - Dump Station (08A)	0.10	0.051	0.019	-	-	-	-	-	-	-
	Tundish Preparation - Relining Station (08B)	Included in Melt Shop Baghouse and Fugitive Emissions									
EP 01-09	Ladle Preparation	Included in Melt Shop Baghouse and Fugitive Emissions									
EP 01-10	Furnace Refractory Cleanout	Included in Melt Shop Baghouse and Fugitive Emissions									
EP 01-11	Caster Quench Box	14.68	2.35	0.29	-	-	-	-	-	-	-
EP 01-12	Secondary Caster Torch Cut Off	0.38	0.43	0.43	0.84	0.70	0.01	0.05	4.26E-05	-	1,010
	TOTAL	183.99	337.58	215.54	373.52	1,817	310.63	102.49	0.39	2.08	471,935

Melt Shop
EU01

Nucor Steel Brandenburg
Brandenburg, KY

Inputs

Description	Value	Units	Notes
Annual Operation	8,760	hrs/yr	
Maximum Annual Production	1,750,000	tons/yr	1
Maximum Hourly Average Production	272	tons/hr	2
30-day Average Hourly Production	250	tons/hr	2
Total Baghouse Exhaust Flow Rate	1,652,094	dscfm	3
Melt Shop Capture Efficiency	99.0%	%	4

Notes:

1. Maximum annual production rate is 1,750,000 tons/yr liquid steel.
2. Maximum hourly production rate is 272 tons/hr and the 30-day average hourly production rate is 250 tons/hr.
3. Design melt shop air flow rate of 2 million acfm @ 180°F.
4. Design melt shop building capture efficiency based on CFD modeling.

Emissions Summary

Pollutants	Hourly Emission Rate (lb/hr)	Annual Emission Rate (tpy)
Total PM	73.64	322.5
Filterable PM	25.49	111.6
PM_{10}	73.64	322.5
$PM_{2.5}$	48.15	210.9
30-Day Rolling Average Emission Rates		
NO_x	105.00	367.5
CO	500.00	1750.0
SO_2	87.50	306.3
Maximum Hourly Emission Rates		
NO_x	114.2	367.5
CO	544.0	1,750
SO_2	95.20	306.3
Lead	0.12	0.39
VOC	24.48	78.75
CO_2e	103,360	332,500
Total HAPs	0.62	1.98

Emission Calculation Equations

Gaseous and HAP emission calculations based on lb/ton emission factor:

$$\frac{\text{lb pollutant}}{\text{ton steel cast}} \text{ x } \frac{\text{ton steel cast}}{\text{hr}} = \frac{\text{lb pollutant}}{\text{hour}}$$

$$\frac{\text{lb pollutant}}{\text{ton steel cast}} \text{ x } \frac{\text{ton steel } \textit{cast}}{\text{year}} \text{ x } \frac{\text{ton}}{\text{2,000 lb}} = \frac{\text{ton pollutant}}{\text{year}}$$

Particulate emission calculations based on grain loading emission factor:

$$\frac{\text{gr pollutant}}{\text{dry std ft}^3} \text{ x } \frac{\text{dry std ft}^3}{\text{min}} \text{ x } \frac{\text{60 min}}{\text{hour}} \text{ x } \frac{\text{lb}}{\text{7,000 gr}} = \frac{\text{lb pollutant}}{\text{hour}}$$

$$\frac{\text{lb pollutant}}{\text{hour}} \text{ x } \frac{\text{8,760 hour}}{\text{year}} \text{ x } \frac{\text{ton}}{\text{2,000 lb}} = \frac{\text{ton pollutant}}{\text{year}}$$

Emission Calculations

Pollutants	Emission Factor		Hourly Emission Rate	Annual Emission Rate	Notes
	(lb/ton)	(gr/dscf)	(lb/hr)	(tpy)	
Total PM	-	0.0052	73.64	322.53	5
Filterable PM	-	0.0018	25.49	111.64	6
PM_{10}	-	0.0052	73.64	322.53	6
$PM_{2.5}$	-	0.0034	48.15	210.88	6
30-Day Rolling Average Emission Rates					
$NO_{x\ (30\text{-Day})}$	0.42	-	105.0	367.5	6
CO $_{(30\text{-Day})}$	2.00	-	500.0	1750.0	6
$SO_{2\ (30\text{-Day})}$	0.35	-	87.5	306.3	6
Maximum Hourly Emission Rates					
NO_x	0.42	-	114.2	367.5	6
CO	2.00	-	544.0	1750.0	6
SO_2	0.35	-	95.2	306.3	6
Lead	4.50E-04	-	0.12	0.39	9
VOC	0.09	-	24.48	78.75	6
CO_2e	380	-	103,360	332,500	7,8
Arsenic	3.84E-07	-	1.05E-04	0.00034	9
Beryllium	2.80E-07	-	7.62E-05	0.00025	10
Cadmium	6.25E-06	-	1.70E-03	0.0055	9
Chromium	9.08E-05	-	2.47E-02	0.079	9
Mercury	4.63E-10	-	1.26E-07	4.05E-07	9
Manganese	7.41E-04	-	2.02E-01	0.65	9
Nickel	4.08E-06	-	1.11E-03	0.0036	9
Selenium	4.63E-09	-	1.26E-06	4.05E-06	9
Fluoride	0.00176	-	0.48	1.54	11
Hydrogen Fluoride	0.00062	-	0.17	0.54	11
Chlorine	0.000349	-	0.09	0.31	11
Total HAPs	-	-	0.62	1.98	

Notes:

5. Emission factor includes condensable and filterable particulate matter; emission standard for PM exiting a control device, from 40 CFR 60.272a(a)(1).

6. BACT limit for melt shop steel production.

7. CO_2 emission factor from "Undue Impact of Climate Legislation on Specialty Steel Production: Requested Legislative Amendments (2009)", Specialty Steel Industry of North America. This emission factor does not include other natural gas fired sources in the Melt Shop.

8. CO_2e assumed to be equivalent to CO_2 emissions. Emission factors are not available for Meltshop Operations. However, CH_4 and N_2O emissions are negligible compared to CO_2.

9. Lead and metal HAP potential emission factors are based on analyses of Nucor Gallatin baghouse dust from 2014-2016. Emission factors are the average plus two standard deviations.

10. Emission factor from AP-42 12.5.1, Table 12.5.1-9. Baghouse dust data not available for beryllium.

11. Fluoride, hydrogen fluoride, and chlorine emissions calculated based on emission factors developed at Nucor Steel Berkeley, a similar steel mill that uses fluorspar as flux agent in EAF and in caster mold powder. Nucor Berkeley fluorspar usage is limited to 500 lb/heat, while NSBB is limiting fluorspar usgae to 250 lb/heat. Therefore, Nucor Berkeley emission factors for fluoride and hydrogen fluoride were conservativley divided by 2 to account for potential emissions from fluorspar containing caster mold powders.

Melt Shop - Baghouse

EU01-MSBH

Baghouse Emissions

Nucor Steel Brandenburg

Brandenburg, KY

Inputs

Description	Value	Units	Notes
Annual Operation	8,760	hrs/yr	
Maximum Annual Production	1,750,000	tons/yr	1
Maximum Hourly Average Production	272	tons/hr	2
30-Day Average Hourly Production	250	tons/hr	2
Total Baghouse Exhaust Flow Rate	1,652,094	dscfm	3
Capture Efficiency	99.0%	%	4

Notes:

1. Maximum annual production rate is 1,750,000 tons/yr liquid steel.
2. Maximum hourly production rate is 272 tons/hr based on 168 ton/heat and 37 minutes per heat.
3. Design melt shop air flow rate of 2 million acfm @ 200°F.
4. Design melt shop building capture efficiency based on CFD modeling.

Summary of Emissions Discharged from Baghouse Vents

Pollutants	Hourly Emission Rate (lb/hr)	Annual Emission Rate (tpy)	Notes
Total PM	73.64	322.5	5
Filterable PM	25.49	111.6	5
PM_{10}	73.64	322.5	5
$PM_{2.5}$	48.15	210.9	5
30-Day Rolling Average Emission Rates (BACT Limits)			
$NO_{x\ (30\text{-}Day)}$	104	363.8	6
$CO_{\ (30\text{-}Day)}$	495	1,732.5	6
$SO_{2\ (30\text{-}Day)}$	86.6	303.2	6
Maximum Hourly Emission Rates (Short-term Model Rates)			
NO_x	113	363.8	6
CO	539	1,733	6
SO_2	94.2	303.2	6
Lead	0.12	0.39	6
VOC	24.24	78.0	6
CO_2e	102,326	329,175	6
Arsenic	1.03E-04	3.33E-04	6
Beryllium	7.54E-05	2.43E-04	6
Cadmium	1.68E-03	5.41E-03	6
Chromium	2.44E-02	7.86E-02	6
Mercury	1.25E-07	4.01E-07	6
Manganese Compounds	2.00E-01	6.42E-01	6
Nickel	1.10E-03	3.54E-03	6
Selenium	1.25E-06	4.01E-06	6
Fluoride	0.47	1.53	6
Hydrogen Fluoride	0.17	0.54	6
Chlorine	0.09	0.30	6
Total HAPs	0.61	2	6

5. Particulate emissions calcuated below based on baghouse grain loading efficiency.
6. Emission rates based on 99% capture efficiency for melt shop building with emissions discharged from baghouse.

Emission Calculation Equations

Particulate emission calculations based on grain loading emission factor:

$$\frac{\text{gr pollutant}}{\text{dry std ft}^3} \times \frac{\text{dry std ft}^3}{\text{min}} \times \frac{\text{60 min}}{\text{hour}} \times \frac{\text{lb}}{\text{7,000 gr}} = \frac{\text{lb pollutant}}{\text{hour}}$$

$$\frac{\text{lb pollutant}}{\text{hour}} \times \frac{\text{8,760 hour}}{\text{year}} \times \frac{\text{ton}}{\text{2,000 lb}} = \frac{\text{ton pollutant}}{\text{year}}$$

Emission Calculations - Emitted from Baghouse Stack

Pollutants	Emission Factor		Hourly Emission Rate	Annual Emission Rate	Notes
	(lb/ton)	(gr/dscf)	(lb/hr)	(tpy)	
Total PM	-	0.0052	73.64	322.53	7
Filterable PM	-	0.0018	25.49	111.64	8
PM_{10}	-	0.0052	73.64	322.53	8
$PM_{2.5}$	-	0.0034	48.15	210.88	8

Notes:

7. Emission factor includes condensable and filterable particulate matter; emission standard for PM exiting a control device, from 40 CFR 60.272a(a)(1).
8. BACT limit for melt shop steel production, including emissions from charging, tapping, and slagging.

Basis of emissions from sources located in Melt Shop:

Non-particulate emissions are uncontrolled and emitted from either the Melt Shop baghouse stack or as fugitive emissions from the open EAF charge bay door.

Particulate emissions are either captured within the Melt Shop and controlled by Melt Shop Baghouse; settle out within the Melt Shop building and removed during cleaning operations; or emitted as fugitive emissions from the open scrap car door.

PM emissions are generated within the Melt Shop from the following processes:

1. Charging, tapping, and slagging of the EAF; emissions are captured by the EAF Canopy Hood at 99% and ducted to the baghouse.
2. Melting and refining within the EAF and LMF; emissions are captured by the DESs at 99%; uncaptured emissions from DES are captured by the EAF Canopy Hood at 99%; captured emissions are ducted to the baghouse.
3. EAF ladle preheaters combustion emissions; emissions are captured by the EAF Ladle Preheater Hood at 98% and ducted to the baghouse.
4. LMF ladle preheater combustion emissions; emissions are captured by the Melt Shop Canopy Hood at 90% and ducted to the baghouse.
5. Casting; emissions are captured by the Caster Canopy Hood at 95% and ducted to the baghouse.
6. Tundish, Mandrel, and SEN preheaters combustion emissions; emissions are captured by the Caster Canopy Hood at 98% and ducted to the baghouse.
7. Tundish, Ladle, and EAF hearth refractory dumping and repair stations; tundish dump emissions are captured by the Melt Shop Canopy Hood at 90% and ducted to the baghouse. (Tundish dump emissions do not occur inside the Melt Shop).

Summary of Fugitive Emissions Discharged from Scrap Car Door

Pollutants	Hourly Emission Rate (lb/hr)	Annual Emission Rate (tpy)	Notes
Total PM	1.38	4.24	1
Filterable PM	0.48	1.47	1
PM_{10}	0.80	2.46	1
$PM_{2.5}$	0.59	1.82	1
NO_x	1.14	3.68	2
CO	5.44	17.50	2
SO_2	0.95	3.06	2
Lead	0.0012	0.0039	2
VOC	0.24	0.79	2
CO_2e	1,033.6	3,325.0	2
Arsenic	1.05E-06	3.36E-06	2
Beryllium	7.62E-07	2.45E-06	2
Cadmium	1.70E-05	5.46E-05	2
Chromium	2.47E-04	7.94E-04	2
Mercury	1.26E-09	4.05E-09	2
Manganese Compounds	2.02E-03	6.49E-03	2
Nickel	1.11E-05	3.57E-05	2
Selenium	1.26E-08	4.05E-08	2
Fluoride	4.79E-03	1.54E-02	2
Hydrogen Fluoride	1.69E-03	5.44E-03	2
Chlorine	9.48E-04	3.05E-03	2
Total HAPs	0.006	0.020	2

Notes:

1. PM fugitive emissions calculated below.
2. Emission rates based on 99% total capture efficiency for melt shop building with 1% emitted as fugitives.

Inputs

Description	Value	Units	Notes
Annual Operating Hours	8,760	hrs/yr	
Potential Annual Melt Shop Production	1,750,000	tons cast/yr	3
Maximum Hourly Production	272	tons cast/hr	4
EAF Direct Evacuation Capture (DEC) System Efficiency	99%	%	5
EAF Charging Canopy Hood Capture Efficiency	99%	%	6
EAF Melting Canopy Hood Capture Efficiency	99%	%	6
LMF DEC System Efficiency	98%	%	5
Caster Canopy Hood Capture Efficiency	98%	%	6
Melt Shop Canopy Capture Efficiency	90%	%	6
Vertical Ladle Preheater Lid Duct Capture Efficiency	98%	%	6
Building Capture Efficiency	75.0%	%	6
Percent of Filterable PM that is PM_{10}	58.0%	%	7
Percent of Filterable PM that is $PM_{2.5}$	43.0%	%	7

Notes:

3. Maximum annual production rate is 1,750,000 tons/yr liquid steel.
4. Maximum 30-day average hourly production rate is 250 tons/hr.
5. Design capture efficiency for DEC installed on EAF and LMF.
6. Design capture efficiency based on CFD modeling.
7. Percentages from AP-42 Chapter 12.5 Iron and Steel Production Table 12.5-2, EAF uncontrolled.

Calculation Methodology:

- Non-particulate emissions are calculated using the uncontrolled melt shop emission factors (see Melt Shop Emission Calculation Sheet) and distributed to either the baghouse stack based on an overall Melt Shop capture efficiency of 99% basd on CFD modeling or as fugitive emissions for the 1% of the uncaptured emissions.
- Particulate emissions are calculated using uncontrolled emission factors for the various operations within the Melt Shop and applying capture efficiencies for each capture system (i.e., DES; canopies, and hoods) to calculate the emissions that are transferred to the baghouse for control. The remaining uncaptured emissions within the Melt Shop are either maintained within the Melt Shop based on the 75% building capture efficiency or emitted as fugitive emissions (remaining 25%).

Step 1. Calculate the uncaptured PM emissions within Melt Shop from charging, tapping, and slagging of the EAF.

Emission Factor for charging, tapping, and slagging: 1.4 lb PM/ton steel cast, uncontrolled (AP-42, Table 12.5-1)

Equation: $$\frac{\text{lb PM}}{\text{ton steel cast}} \text{ x } \frac{\text{ton steel cast}}{\text{year}} \text{ x } \frac{\text{ton}}{\text{2000 lb}} \text{ x } (1 - \text{Canopy Capture Efficiency}) = \frac{\text{ton PM}}{\text{year}} \text{ discharged inside the Melt Shop}$$

Calculation: (1.4 lb PM/ton steel cast) x (1750000 ton steel cast/year) x (1 ton/2,000 lb) x (1 - 0.99) = 12.25 ton PM/year discharged inside Melt Shop

Step 2. Calculate the uncaptured PM emissions within Melt Shop from melting and refining within the EAF and LMF.

Emission Factor for melting and refining: 38 lb PM/ton steel cast, uncontrolled (AP-42, Table 12.5-1)

Equation: $$\frac{\text{lb PM}}{\text{ton steel cast}} \text{ x } \frac{\text{ton steel cast}}{\text{year}} \text{ x } \frac{\text{ton}}{\text{2000 lb}} \text{ x } (1 - \text{DSES Capture Efficiency}) \text{ x } (1 - \text{Canopy Capture Efficiency}) = \frac{\text{ton PM}}{\text{year}} \text{ discharged inside Melt Shop}$$

Calculation: (38 lb PM/ton steel cast) x (1750000 ton steel cast/year) x (1 ton/2,000 lb) x (1 - 0.99) x (1 - 0.99) = 3.33 ton PM/year discharged inside Melt Shop

Step 3. Calculate the uncaptured PM emissions within Melt Shop from the EAF ladle preheater combustion emissions (see Ladle Dryer calculation sheet for more detail).

Emission Factor for natural gas combustion: 7.6 lb PM/million scf natural gas burned (AP-42 Section 1.4 Natural Gas Combustion Table 1.4-2)

Equation: $\frac{\text{lb PM}}{\text{million scf}} \times \frac{\text{scf}}{\text{1,020 Btu}} \times \frac{\text{million Btu}}{\text{hr}} \times \frac{\text{8,760 hours}}{\text{year}} \times \frac{\text{ton}}{\text{2,000 lbs}} \times (1 - \text{EAF Ladle Preheater Hood Capture Efficiency}) = \frac{\text{ton PM}}{\text{year}}$ discharged inside Melt Shop

Calculation: (7.6 lb PM/MMscf gas) x (scf/1020 Btu) x (75 MMBtu/hr) x (8760 hr/yr) x (1 ton/2,000 lb) x (1 - 0.98) = 0.049 ton PM/year discharged inside the melt shop

Step 4. Calculate the uncaptured PM emissions within Melt Shop from the LMF ladle preheaters combustion emissions (see Ladle Preheater calculation sheet for more detail).

Emission Factor for natural gas combustion: 7.6 lb PM/million scf natural gas burned (AP-42 Section 1.4 Natural Gas Combustion Table 1.4-2)

Equation: $\frac{\text{lb PM}}{\text{million scf}} \times \frac{\text{scf}}{\text{1,020 Btu}} \times \frac{\text{million Btu}}{\text{hr}} \times \frac{\text{8,760 hours}}{\text{year}} \times \frac{\text{ton}}{\text{2,000 lbs}} \times (1 - \text{Melt Shop Canopy Capture Efficiency}) = \frac{\text{ton PM}}{\text{year}}$ discharged inside Melt Shop

Calculation: (7.6 lb PM/MMscf gas) x (scf/1020 Btu) x (20 MMBtu/hr) x (8760 hr/yr) x (1 ton/2,000 lb) x (1 - 0.9) = 0.065 ton PM/year discharged inside Melt Shop

Step 5. Calculate the uncaptured PM emissions within Melt Shop from caster operations.

Emission Factor for casting: 0.07 lb/ton uncontrolled (AP-42, Table 12.5-1, Teeming at source)

Equation: $\frac{\text{lb PM}}{\text{ton steel cast}} \times \frac{\text{ton steel cast}}{\text{year}} \times \frac{\text{ton}}{\text{2000 lb}} \times (1 - \text{Caster Canopy Capture Efficiency}) = \frac{\text{ton PM}}{\text{year}}$ discharged inside Melt Shop

Calculation: (0.07 lb PM/ton steel cast) x (1750000 ton steel cast/year) x (1 ton/2,000 lb) x (1 - 0.98) = 1.23 ton PM/year discharged inside the Melt Shop

Step 6. Calculate the uncaptured PM emissions within Melt Shop from the Tundish, Mandrel, and SEN preheaters combustion emissions (see calculation sheets for more detail).

Emission Factor for natural gas combustion: 7.6 lb PM/million scf natural gas burned (AP-42 Section 1.4 Natural Gas Combustion Table 1.4-2)

Equation: $\frac{\text{lb PM}}{\text{million scf}} \times \frac{\text{scf}}{\text{1,020 Btu}} \times \sum\frac{\text{million Btu}}{\text{hr}} \times \frac{\text{8,760 hours}}{\text{year}} \times \frac{\text{ton}}{\text{2,000 lbs}} \times (1 - \text{Caster Canopy Capture Efficiency}) = \frac{\text{ton PM}}{\text{year}}$ discharged inside Melt Shop

Calculation: (7.6 lb PM/MMscf gas) x (scf/1020 Btu) x (45.624) x (8760 hr/yr) x (1 ton/2,000 lb) x (1 - 0.98) = 0.03 ton PM/year discharged inside Melt Shop

Step 7. Calculate the uncaptured PM emissions within Melt Shop from tundish relining, ladle dump and relining , and EAF hearth dumping and relining operations (see calculation sheets for more detail).

Emission Factor for refractory preparation: 0.0088 lb/ton uncontrolled (AP-42, Table 12.5-1, Teeming at source)

Equation: $\frac{\text{lb PM}}{\text{ton material}} \times \sum\frac{\text{ton material}}{\text{year}} \times \frac{\text{ton}}{\text{2000 lb}} \times (1 - \text{Melth Shop Canopy Capture Efficiency}) = \frac{\text{ton PM}}{\text{year}}$ discharged inside Melt Shop

Calculation: (0.0088 lb PM/ton refractory) x (14633 ton/year) x (1 ton/2,000 lb) x (1 - 0.9) = 0.006 ton PM/year discharged inside Melt Shop

Step 8. Sum all of the uncaptured emissions within the Melt Shop from Steps 1 through 7.

Calculation: (12.25 ton PM/year + 3.33 ton PM/year + 0.049 ton PM/year + 0.065 ton PM/year + 1.23 ton PM/year + 0.03 ton PM/year + 0.006 ton PM/year) = 16.95 ton PM/year

Step 9. Apply the Melt Shop building capture efficiency (75%) to the uncaptured emissions discharged within the Melt Shop.

Calculation: (16.95 ton PM/year) x (1 - 0.75) = 4.24 ton PM/year as fugitive emissions released through scrap car door

Step 10. Calculate PM10 and PM2.5 fugitive emissions from the PM fugitive emissions and percentage of PM that is PM10 and PM2.5.

Calculation: PM10: (4.24 ton PM/year) x (58%) = 2.46 ton PM10/year as fugitive emissions released through scrap car door

PM2.5: (4.24 ton PM/year) x (43%) = 1.82 ton PM10/year as fugitive emissions released through scrap car door

Inputs

Description	Value	Units	Notes
Annual Operating Hours	8,760	hrs/yr	
Exhaust Flow Rate	196,132	dscfm	1
Annual Average Steel Processing Rate	1,750,000	tons/yr	
Maximum Steel Processing Rate	420	ton/hr	
Percent of Filterable PM that is PM_{10}	0.16	%	2
Percent of Filterable PM that is $PM_{2.5}$	0.02	%	2

Notes:

1. Total flow rate of two (2) caster spray vents based on design volumetric flow for each fan.
2. A linear factor of 0.16 is used to calculate PM_{10} and a factor of 0.02 is used to calculate $PM_{2.5}$ based on a technical paper by Reisman and Frisbie relating the spray vents to cooling towers since speciation is not possible due to moisture saturation.

0.002617284

Emissions Summary

Pollutant	Hourly Emission Rate (lb/hr)	Annual Emission Rate (tpy)
Filterable PM	12.50	54.75
PM_{10}	2.00	8.76
$PM_{2.5}$	0.250	1.10
VOC	4.40	19.27
Total HAPs	0.30	1.30

Emission Calculation Equations

Particulate emission calculations based on grain loading emission factor:

$$\frac{\text{gr pollutant}}{\text{dry std ft}^3} \times \frac{\text{dry std ft}^3}{\text{min}} \times \frac{\text{60 min}}{\text{hour}} \times \frac{\text{lbs}}{\text{7000 gr}} = \frac{\text{lbs pollutant}}{\text{hour}}$$

$$\frac{\text{lbs pollutant}}{\text{hour}} \times \frac{\text{8760 hours}}{\text{year}} \times \frac{\text{ton}}{\text{2000 lbs}} = \frac{\text{tons pollutant}}{\text{year}}$$

Gaseous and HAP emission calculations based on lb/ton emission factor:

$$\frac{\text{lb pollutant}}{\text{ton steel cast}} \times \frac{\text{ton steel cast}}{\text{hr}} = \frac{\text{lb pollutant}}{\text{hour}}$$

$$\frac{\text{lb pollutant}}{\text{ton steel cast}} \times \frac{\text{ton steel } \textit{cast}}{\text{year}} \times \frac{\text{ton}}{\text{2000 lb}} = \frac{\text{ton pollutant}}{\text{year}}$$

Emissions Calculations

Pollutant	Emission Factor		Hourly Emission Rate	Annual Emission Rate	Notes
	(gr/dscf)	(lb/ton)	(lb/hr)	(tpy)	
Filterable PM	7.44E-03	-	12.50	54.75	3
PM_{10}	1.19E-03	-	2.00	8.76	
$PM_{2.5}$	1.49E-04	-	0.25	1.10	
VOC	-	-	4.40	19.27	4,5
Fluoride	-	6.20E-04	0.26	0.54	6
Hydrogen Fluoride	-	9.20E-05	0.04	0.08	6
Chlorine	-	6.17E-04	0.26	0.54	6
Total HAPs	-	-	0.30	1.30	

Notes:

3. Concentration based on facility engineering test at Nucor Darlington conducted August 2018 on the cast line vent exhaust stack. The concentration is the maximum of the four test runs with a 10% safety factor.

4. Emission rate based on facility engineering test at Nucor Berkeley conducted on November 29, 2012 on the cast line vent exhaust stack. The emission rate is the maximum of the two test runs, ratioed by average hourly steel throughput.

5. Oils are not expected to break down into hazardous or toxic compounds. Therefore, HAP emissions from oil-based lubricants are considered negligible.

6. Fluoride, hydrogen fluoride, and chlorine emissions calculated based on emission factor developed at Nucor Steel Berkeley, a similar steel mill. Emission factors for fluoride and hydrogen fluoride are based on a BACT limit of 500 pounds of fluorspar added per heat.

Primary Caster Torch Cut Off
EP 01-06

Nucor Steel Brandenburg
Brandenburg, KY

Description: Primary caster torch cutting machine used to cut continuous cast into slabs and includes two trolleys. Each trolley is equipped with a double torch, one for main oxy-cutting process and the other for sample cutting. Worst-case emissions based on cutting slabs during continuous casting operations where two torches are completing the main cutting process and the sample torches are on stand-by with pilot flame.

Inputs

Description	Value	Units	Notes
Annual Operating Hours	8,760	hrs/yr	
Annual Average Steel Processing Rate	1,750,000	tons/yr	
Maximum Steel Processing Rate	420	ton/hr	
Number of cuts per hour	8.5	cuts/hr	1
Maximum Duration of Full Fuel Burn per Cut	5	minutes	2
Maximum Hourly Cut Time	42	min/hr	3
Operating Torch Fuel Consumption at Full Burn Rate	642	scf/hr	4
Pilot flame fuel consumption (each torch)	300	scf/hr	5
Total Fuel Consumption for Caster Torch Cutting	1,842	scf/hr	6
Natural Gas Heating Value	1,020	Btu/scf	7
Total Heat Capacity	1.88	MMBtu/hr	

Notes:

1. Cuts per hour based on widest, thickest, and shortest slabs, which generates the greatest cutting time per hour.
2. Maximum duration of cuts based on manufacturer's specification for widest and thickest slabs to be cast at NBB.
3. Maximum cut time based on worst-case cut speed and cuts per hour.
4. Time-weighted average (43 min/60 min) of maximum fuel consumption rate of torch during cutting (24 m^3/h).
5. Manufacturer's specification for pilot fuel consumption (5 scfm). Pilot flames are always on when casting.
6. Total heat capacity includes one operating torch for cutting process and pilot flame for all four torches.
7. AP-42 basis for natural gas heating value.

Total Emissions Summary

Pollutant	Primary Torch Cutoff	
	Hourly (lb/hr)	Annual (tpy)
Filterable PM	0.079	0.35
PM_{10}	0.090	0.39
$PM_{2.5}$	0.090	0.39
NO_X	0.18	0.81
CO	0.15	0.68
SO_2	0.0011	0.005
Lead	9.21E-07	4.03E-06
VOC	0.010	0.044
CO_2e	222.4	974
Total HAP	0.0051	0.0223

Emission Calculation Equations

Emission calculations based fume generation rate and metal HAP content of steel:

$$\frac{0.81\ \text{g PM/PM}_{10}\text{/PM}_{2.5}}{\text{min}} \times \frac{43\ \text{min}}{\text{hr}} \times \frac{\text{lb}}{453.6\ \text{g}} = \frac{0.076\ \text{lb PM/PM}_{10}\text{/PM}_{2.5}}{\text{hr}}$$

$$\frac{0.81\ \text{g PM}}{\text{min}} \times \text{metal HAP wt\%} \times \frac{43\ \text{min}}{\text{hr}} \times \frac{\text{lb}}{453.6\ \text{g}} = \frac{\text{lb metal HAP}}{\text{hr}}$$

$$\frac{\text{lb pollutant}}{\text{hr}} \times \frac{8{,}760\ \text{hr}}{\text{yr}} \times \frac{\text{ton}}{2{,}000\ \text{lb}} = \frac{\text{ton pollutant}}{\text{year}}$$

Emission calculations based on lb/million scf of natural gas emission factors:

$$\frac{\text{lb pollutant}}{\text{million scf}} \times \frac{\text{scf}}{1{,}020\ \text{Btu}} \times \frac{\text{million Btu}}{\text{hr}} = \frac{\text{lb pollutant}}{\text{hr}}$$

$$\frac{\text{lb pollutant}}{\text{hour}} \times \frac{8{,}760\ \text{hours}}{\text{year}} \times \frac{\text{ton}}{2{,}000\ \text{lbs}} = \frac{\text{ton pollutant}}{\text{year}}$$

Emissions Calculations - PM and metal HAPs

Pollutant	Metal HAP max wt% in Nucor Steel	Emission Factor	Hourly Emission Rate	Annual Emission Rate	Notes
	(wt%)	(g/min)	(lb/hr)	(tpy)	
Filterable PM	-	0.81	0.076	0.331	3
PM_{10}	-	0.81	0.076	0.331	3
$PM_{2.5}$	-	0.81	0.076	0.331	3
Arsenic	0.017%	0.00014	1.30E-05	5.70E-05	4,5
Chromium	0.010%	0.00	7.79E-06	3.41E-05	4,5
Cobalt	0.031%	0.00025	2.34E-05	1.02E-04	4,5
Lead	0.011%	0.00009	7.94E-06	3.48E-05	4,5
Manganese	1.6%	0.01	1.20E-03	5.27E-03	4,5
Nickel	0.49%	0.004	3.68E-04	1.61E-03	4,5
Total HAP	-	-	1.62E-03	7.11E-03	-

Notes:

3. Filterable PM/PM10/PM2.5 emission factor based on Fumes and Gases in the Welding Environment, the American Welding Society, dated 01/90.

4. HAP emission rates based on the HAP content for Nucor Steel for all metal HAPs greater than or equal to 0.01% by weight.

5. Maximum weight percent of metal in Nucor Steel multiplied by Total PM emission factor.

Emissions Calculations - Natural Gas Combustion

Pollutant	Emission Factor		Hourly Emission Rate	Annual Emission Rate	Notes
	($lb/10^6$ scf)	(lb/MMBtu)	(lb/hr)	(tpy)	
Filterable PM	1.9	0.002	0.003500	0.015329	6
PM_{10}	7.6	0.007	0.013999	0.061316	6
$PM_{2.5}$	7.6	0.007	0.013999	0.061316	6
NO_X	100	0.10	0.18420	0.80679	7
CO	84	0.08	0.15473	0.67770	7
SO_2	0.6	0.001	1.11E-03	4.84E-03	6
Lead	0.0005	4.90E-07	9.21E-07	4.03E-06	6
VOC	5.5	0.005	1.01E-02	0.04	6
CO_2	120,000	117.65	221.04	968.14	6
N_2O	2.2	0.002	4.05E-03	0.02	6
CH_4	2.3	0.002	4.24E-03	0.02	6
CO_2e	-	-	222.35	973.90	8
Benzene	0.0021	2.06E-06	3.87E-06	1.69E-05	9
Dichlorobenzene	0.0012	1.18E-06	2.21E-06	9.68E-06	9
Formaldehyde	0.075	7.35E-05	1.38E-04	6.05E-04	9
Hexane	1.8	1.76E-03	3.32E-03	0.01	9
Naphthalene	0.00061	5.98E-07	1.12E-06	4.92E-06	9
Polycyclic Organic Matter	0.0000882	8.65E-08	1.62E-07	7.12E-07	9
Toluene	0.0034	3.33E-06	6.26E-06	2.74E-05	9
Arsenic	0.0002	1.96E-07	3.68E-07	1.61E-06	10
Beryllium	0.000012	1.18E-08	2.21E-08	9.68E-08	10
Cadmium	0.0011	1.08E-06	2.03E-06	8.87E-06	10
Chromium	0.0014	1.37E-06	2.58E-06	1.13E-05	10
Cobalt	0.000084	8.24E-08	1.55E-07	6.78E-07	10
Manganese Compounds	0.00038	3.73E-07	7.00E-07	3.07E-06	10
Mercury	0.00026	2.55E-07	4.79E-07	2.10E-06	10
Nickel	0.0021	2.06E-06	3.87E-06	1.69E-05	10
Selenium	0.000024	2.35E-08	4.42E-08	1.94E-07	10
Total HAP	-	0.002	3.48E-03	1.52E-02	

Notes:

6. Emission factors from AP-42 Section 1.4 *Natural Gas Combustion* Table 1.4-2; assume Total PM=PM_{10}=$PM_{2.5}$.
7. Emission factors from AP-42 Section 1.4 *Natural Gas Combustion* Table 1.4-1.
8. Global Warming Potentials from 40 CFR 98 Subpart A Table A-1.
9. Emission factors from AP-42 Section 1.4 *Natural Gas Combustion* Table 1.4-3.
10. Emission factors from AP-42 Section 1.4 *Natural Gas Combustion* Table 1.4-4.

Inputs

Description	Value	Units	Notes
Annual Operating Hours	8,760	hrs/yr	
Exhaust Flow Rate	52,582	scfm	1
Annual Average Steel Processing Rate	1,750,000	tons/yr	
Maximum Steel Processing Rate	420	ton/hr	
Percent of Filterable PM that is PM_{10}	0.16	%	2
Percent of Filterable PM that is $PM_{2.5}$	0.02	%	2

Notes:

1. Design exhaust flow rate of 100,000 Bm^3/hr at 55°C (131°F).
2. A linear factor of 0.16 is used to calculate PM_{10} and a factor of 0.02 is used to calculate $PM_{2.5}$ based on a technical paper by Reisman and Frisbie relating the spray vents to cooling towers since speciation is not possible due to moisture saturation.

Emissions Summary

Pollutant	Hourly Emission Rate (lb/hr)	Annual Emission Rate (tpy)
Filterable PM	3.35	14.7
PM_{10}	0.54	2.35
$PM_{2.5}$	0.07	0.29

Emission Calculation Equations

Particulate emission calculations based on grain loading emission factor:

$$\frac{\text{gr pollutant}}{\text{dry std ft}^3} \times \frac{\text{dry std ft}^3}{\text{min}} \times \frac{\text{60 min}}{\text{hour}} \times \frac{\text{lbs}}{\text{7000 gr}} = \frac{\text{lbs pollutant}}{\text{hour}}$$

$$\frac{\text{lbs pollutant}}{\text{hour}} \times \frac{\text{8760 hours}}{\text{year}} \times \frac{\text{ton}}{\text{2000 lbs}} = \frac{\text{tons pollutant}}{\text{year}}$$

Hourly and Annual Emission Calculations

Pollutant	Emission Factor (gr/dscf)	Hourly Emission Rate (lb/hr)	Annual Emission Rate (tpy)	Notes
Filterable PM	7.44E-03	3.3514	14.679	3
PM_{10}	1.19E-03	0.5362	2.349	
$PM_{2.5}$	1.49E-04	0.0670	0.2936	

Notes:

3. Concentration based on facility engineering test at Nucor Darlington conducted August 2018 on the cast line vent exhaust stack. The concentration is the maximum of the four test runs with a 10% safety factor.

Secondary Caster Torch Cut Off

EP 01-12

Nucor Steel Brandenburg

Brandenburg, KY

Description: Secondary caster torch cutting machine used to cut cold slabs per customer specifications that are wider than the standard casted slab can produce. Secondary caster torch cutting machine includes two trolleys, one in operation and the other as backup. Each trolley is equipped with a double torch, one for main oxy-cutting process and the other for sample cutting. Worst-case emissions based on a maximum of 4 cuts per slab and 10 minutes to move cut slabs and reposition new slab, where one torch is completing the main cutting process and the other torches are on stand-by with pilot flame.

Inputs

Description	Value	Units	Notes
Annual Operating Hours	8,760	hrs/yr	
Annual Average Steel Processing Rate	1,750,000	tons/yr	
Maximum Steel Processing Rate	420	ton/hr	
Maximum number of cuts per hour	5.2	cuts/hr	1
Maximum Duration of Cut	9	minutes	2
Maximum Hourly Cut Time	47	min/hr	3
Operating Torch Fuel Consumption at Full Burn Rate	709	scf/hr	4
Pilot flame fuel consumption (each torch)	300	scf/hr	5
Total Fuel Consumption for Caster Torch Cutting	1,909	scf/hr	6
Natural Gas Heating Value	1,020	Btu/scf	7
Total Heat Capacity	1.95	MMBtu/hr	

Notes:

1. Cuts per hour based on widest, thickest, and shortest slabs, which generates the greatest cutting time per hour.
2. Maximum duration of cuts based on manufacturer's specification for widest and thickest slabs to be cast at NBB.
3. Maximum cut time based on maximum duration of cut and cuts per hour.
4. Time-weighted average (47 min/60 min) of maximum fuel consumption rate of torch during cutting (24 m^3/h).
5. Manufacturer's specification for pilot fuel consumption (5 scfm). Pilot flames are always on when casting.
6. Total heat capacity includes one operating torch for cutting process and pilot flame for all four torches.
7. AP-42 basis for natural gas heating value.

Total Emissions Summary

Pollutant	Primary Torch Cutoff	
	Hourly (lb/hr)	Annual (tpy)
Filterable PM	0.087	0.38
PM_{10}	0.098	0.43
$PM_{2.5}$	0.098	0.43
NO_X	0.19	0.84
CO	0.16	0.70
SO_2	0.0011	0.0050
Lead	9.55E-07	4.18E-06
VOC	0.011	0.046
CO_2e	230.5	1009.6
Total HAP	0.0054	0.0236

Emission Calculation Equations

Emission calculations based fume generation rate and metal HAP content of steel:

$$\frac{0.81 \text{ g PM/PM}_{10}\text{/PM}_{2.5}}{\text{min}} \times \frac{47 \text{ min}}{\text{hr}} \times \frac{\text{lb}}{453.6 \text{ g}} = \frac{0.084 \text{ lb PM/PM}_{10}\text{/PM}_{2.5}}{\text{hr}}$$

$$\frac{0.81 \text{ g PM}}{\text{min}} \times \text{metal HAP wt\%} \times \frac{47 \text{ min}}{\text{hr}} \times \frac{\text{lb}}{453.6 \text{ g}} = \frac{\text{lb metal HAP}}{\text{hr}}$$

$$\frac{\text{lb pollutant}}{\text{hr}} \times \frac{8{,}760 \text{ hr}}{\text{yr}} \times \frac{\text{ton}}{2{,}000 \text{ lb}} = \frac{\text{ton pollutant}}{\text{year}}$$

Emission calculations based on lb/million scf of natural gas emission factors:

$$\frac{\text{lb pollutant}}{\text{million scf}} \times \frac{\text{scf}}{1{,}020 \text{ Btu}} \times \frac{\text{million Btu}}{\text{hr}} = \frac{\text{lb pollutant}}{\text{hr}}$$

$$\frac{\text{lb pollutant}}{\text{hour}} \times \frac{8{,}760 \text{ hours}}{\text{year}} \times \frac{\text{ton}}{2{,}000 \text{ lbs}} = \frac{\text{ton pollutant}}{\text{year}}$$

Emissions Calculations - PM and metal HAPs

Pollutant	Metal HAP max wt% in Nucor Steel	Emission Factor	Hourly Emission Rate	Annual Emission Rate	Notes
	(wt%)	(g/min)	(lb/hr)	(tpy)	
Filterable PM	-	0.81	0.084	0.366	3
PM_{10}	-	0.81	0.084	0.366	3
$PM_{2.5}$	-	0.81	0.084	0.366	3
Arsenic	0.017%	0.00014	1.44E-05	6.30E-05	4,5
Chromium	0.010%	0.00	8.61E-06	3.77E-05	4,5
Cobalt	0.031%	0.00025	2.58E-05	1.13E-04	4,5
Lead	0.011%	0.00009	8.78E-06	3.84E-05	4,5
Manganese	1.6%	0.01	1.33E-03	5.82E-03	4,5
Nickel	0.49%	0.004	4.07E-04	1.78E-03	4,5
Total HAP	-	-	1.79E-03	7.85E-03	-

Notes:

3. Filterable PM/PM10/PM2.5 emission factor based on Fumes and Gases in the Welding Environment, the American Welding Society, dated 01/90.

4. HAP emission rates based on the HAP content for Nucor Steel for all metal HAPs greater than or equal to 0.01% by weight.

5. Maximum weight percent of metal in Nucor Steel multiplied by Total PM emission factor.

Emissions Calculations - Natural Gas Combustion

Pollutant	Emission Factor		Hourly Emission Rate	Annual Emission Rate	Notes
	(lb/10^6 scf)	(lb/MMBtu)	(lb/hr)	(tpy)	
Filterable PM	1.9	0.002	0.0036	0.016	6
PM_{10}	7.6	0.007	0.015	0.064	6
$PM_{2.5}$	7.6	0.007	0.015	0.064	6
NO_X	100	0.10	0.19	0.84	7
CO	84	0.08	0.16	0.70	7
SO_2	0.6	0.001	0.0011	0.0050	6
Lead	0.0005	4.90E-07	9.55E-07	4.18E-06	6
VOC	5.5	0.005	1.05E-02	0.05	6
CO_2	120,000	117.65	229.1	1,003.6	6
N_2O	2.2	0.002	4.20E-03	0.02	6
CH_4	2.3	0.002	4.39E-03	0.02	6
CO_2e	-	-	230.5	1,009.6	8
Benzene	0.0021	2.06E-06	4.01E-06	1.76E-05	9
Dichlorobenzene	0.0012	1.18E-06	2.29E-06	1.00E-05	9
Formaldehyde	0.075	7.35E-05	1.43E-04	6.27E-04	9
Hexane	1.8	1.76E-03	3.44E-03	0.02	9
Naphthalene	0.00061	5.98E-07	1.16E-06	5.10E-06	9
Polycyclic Organic Matter	0.0000882	8.65E-08	1.68E-07	7.38E-07	9
Toluene	0.0034	3.33E-06	6.49E-06	2.84E-05	9
Arsenic	0.0002	1.96E-07	3.82E-07	1.67E-06	10
Beryllium	0.000012	1.18E-08	2.29E-08	1.00E-07	10
Cadmium	0.0011	1.08E-06	2.10E-06	9.20E-06	10
Chromium	0.0014	1.37E-06	2.67E-06	1.17E-05	10
Cobalt	0.000084	8.24E-08	1.60E-07	7.03E-07	10
Manganese Compounds	0.00038	3.73E-07	7.26E-07	3.18E-06	10
Mercury	0.00026	2.55E-07	4.96E-07	2.17E-06	10
Nickel	0.0021	2.06E-06	4.01E-06	1.76E-05	10
Selenium	0.000024	2.35E-08	4.58E-08	2.01E-07	10
Total HAP	-	0.002	3.61E-03	1.58E-02	

Notes:

6. Emission factors from AP-42 Section 1.4 *Natural Gas Combustion* Table 1.4-2; assume Total PM=PM_{10}=$PM_{2.5}$.
7. Emission factors from AP-42 Section 1.4 *Natural Gas Combustion* Table 1.4-1.
8. Global Warming Potentials from 40 CFR 98 Subpart A Table A-1.
9. Emission factors from AP-42 Section 1.4 *Natural Gas Combustion* Table 1.4-3.
10. Emission factors from AP-42 Section 1.4 *Natural Gas Combustion* Table 1.4-4.

Emission Unit (EU) No.	Emission Point Description	Filterable PM	PM_{10}	$PM_{2.5}$	NO_X	CO	SO_2	VOC	Lead	Fluoride	CO_2e
		lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
EP 03-01	Walking Beam Reheat Furnace	0.67	2.68	2.68	25.20	29.65	0.21	1.94	1.76E-04	-	42,605
EP 03-02	Ingot Bogie Hearth Furnaces	0.23	0.92	0.92	14.76	10.13	7.24E-02	0.66	6.03E-05	-	14,557
EP 03-03	4-Hi Roughing Mill Stand with Descaler	0.81	0.92	0.36	-	-	-	1.50	-	-	57.36
EP 03-04	Steckel Mill Finishing Stand	3.72	3.29	1.41	-	-	-	1.70	-	-	64.84
EP 03-05	Steckel Mill Coiling Furnaces	0.04	0.17	0.17	1.79	1.84	1.32E-02	0.12	1.10E-05	-	2,649
EP 03-06	Coil Sample Plasma Cutter	0.114	0.114	0.114	0.57	-	-	-	-	-	-
EP 03-07	Coil Tagger	0.014	0.014	0.014	-	-	-	0.19	-	-	-
EP 03-08	RM Oxy-Fuel Plate Cutting Torch	0.075	0.075	0.075	0.001	0.001	6.00E-06	0.0001	7.88E-06	-	1.21
EP 03-09	RM Oxy-Fuel Coil Cutting Torch	0.075	0.075	0.075	0.001	0.001	6.00E-06	0.0001	7.88E-06	-	1.21
EP 03-10	Ingot Grinding	2.859	2.859	1.429	-	-	-	-	0.014	-	-
EP 03-11	Ingot Grinding Oxy-Fuel Cutting Torch	0.076	0.079	0.079	0.047	0.039	0.000	0.003	0.000	-	56.132
	TOTAL	32.71	56.49	37.37	228.64	224.92	1.61	28.13	0.06	0.00	59,991

Emission Unit (EU) No.	Emission Point Description	Filterable PM	PM_{10}	$PM_{2.5}$	NO_X	CO	SO_2	VOC	Lead	Fluoride	CO_2e
		tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr
EP 03-01	Walking Beam Reheat Furnace	2.96	11.82	11.82	111.05	130.64	0.93	8.55	7.78E-04	-	187,744
EP 03-02	Ingot Bogie Hearth Furnaces	1.00	4.01	4.01	64.65	44.37	0.32	2.90	2.64E-04	-	63,758
EP 03-03	4-Hi Roughing Mill Stand with Descaler	3.54	4.04	1.57	-	-	-	3.95	-	-	150.7
EP 03-04	Steckel Mill Finishing Stand	16.29	14.40	6.16	-	-	-	5.95	-	-	226.9
EP 03-05	Steckel Mill Coiling Furnaces	0.18	0.73	0.73	7.84	8.07	0.06	0.53	4.81E-05	-	11,601
EP 03-06	Coil Sample Plasma Cutter	0.06	0.06	0.06	2.51	-	-	-	-	-	-
EP 03-07	Coil Tagger	0.01	0.01	0.01	-	-	-	0.10	-	-	-
EP 03-08	RM Oxy-Fuel Plate Cutting Torch	0.33	0.33	0.33	0.0044	0.0037	2.63E-05	0.0002	3.45E-05	-	5.29
EP 03-09	RM Oxy-Fuel Coil Cutting Torch	0.33	0.33	0.33	0.0044	0.0037	2.63E-05	0.0002	3.45E-05	-	5.29
EP 03-10	Ingot Grinding	9.40	9.23	4.70	-	-	-	-	0.05	-	-
EP 03-11	Ingot Grinding Oxy-Fuel Cutting Torch	0.33	0.34	0.34	0.20	0.17	1.22E-03	0.01	3.55E-05	-	245.86
	TOTAL	42.52	52.61	72.43	227.93	183.56	7.43	22.02	0.05	59,990.66	263,737.62

Walking Beam Reheat Furnace
EP 03-01

Nucor Steel Brandenburg
Brandenburg, KY

Inputs

Description	Value	Units	Notes
Annual Operating Hours	8,760	hr/yr	
Natural Gas Heating Value	1,020	Btu/scf	1
Maximum Heat Capacity During Cold Starts	460	MMBtu/hr	2
Heat Capacity During Steady-state Operation	360	MMBtu/hr	3
Cold Starts per Year	4	events	4
Hours per Cold Start	48	hr/cold start	5
Total Annual Cold Start Hours	192	hr/yr	
Total Annual Hours of Steady-state Operation	8,568	hr/yr	
Steady-state Operation Natural Gas Consumption	0.35	MMscf/hr	6
Annual Natural Gas Consumption	3,111	MMscf/yr	7

Notes:

1. AP-42 basis for natural gas heating value.
2. Maximum total heat capacity for all burners at full potential firing capacity.
3. Conservative total heat capacity for all burners firing at maximum operating capacity feeding cold slabs.
4. Conservative estimate of number of cold starts per year.
5. Total duration of a cold start, during which the furnace temperature is slowly increased to the operating temperature. The burners would likely never operate at full potential firing capacity, and only during the final stages of the cold start process.
6. Natural gas fuel consumption rate at 365 MMBtu/hr maximum operating capacity.
7. Annual natural gas consumption based on 48 hours at maximum potential firing capacity and 8,568 hours at maximum operating capacity.

Emissions Summary

Pollutant	Hourly Emission Rate (lb/hr)	Annual Emission Rate (tpy)
Total PM	2.68	11.82
Filterable PM	0.67	2.96
PM_{10}	2.68	11.82
$PM_{2.5}$	2.68	11.82
NO_x	25.20	111.05
CO	29.65	130.64
SO_2	0.21	0.93
Lead	1.76E-04	7.78E-04
VOC	1.94	8.55
CO_2e	42,605	187,744
Total HAPs	0.67	2.94

Emission Calculation Equations

Emission calculations based on lb/million scf of natural gas emission factors:

$$\frac{\text{lb pollutant}}{\text{million scf}} \times \frac{\text{million scf}}{\text{hr}} = \frac{\text{lb pollutant}}{\text{hr}}$$

$$\frac{\text{lb pollutant}}{\text{hour}} \times \frac{\text{8,760 hours}}{\text{year}} \times \frac{\text{ton}}{\text{2,000 lbs}} = \frac{\text{ton pollutant}}{\text{year}}$$

Emissions Calculations

Pollutant	Emission Factor		Hourly Emission Rate	Annual Emission Rate	Notes
	($lb/10^6$ scf)	(lb/MMBtu)	(lb/hr)	(tpy)	
Total PM	7.6	0.007	2.68	11.82	8,9
Filterable PM	1.9	0.002	0.67	2.96	9
PM_{10}	7.6	0.007	2.68	11.82	8,9
$PM_{2.5}$	7.6	0.007	2.68	11.82	8,9
NO_x	71.4	0.07	25.20	111.05	9
CO	84	0.08	29.65	130.64	9
SO_2	0.6	5.9E-04	0.21	0.93	10
Lead	5.00E-04	4.90E-07	1.76E-04	7.78E-04	10
VOC	5.5	0.005	1.94	8.55	9
CO_2	120,000	117.65	42,352.94	186,635.29	10
N_2O	2.2	2.16E-03	0.78	3.42	10
CH_4	2.3	2.25E-03	0.81	3.58	10
CO_2e	120,713	-	42604.62	187,744	9,11
Benzene	2.10E-03	2.06E-06	7.41E-04	3.27E-03	12
Dichlorobenzene	1.20E-03	1.18E-06	4.24E-04	1.87E-03	12
Formaldehyde	7.50E-02	7.35E-05	0.03	0.12	12
Hexane	1.80E+00	1.76E-03	0.64	2.80	12
Naphthalene	6.10E-04	5.98E-07	2.15E-04	9.49E-04	12
Polycyclic Organic Matter	8.82E-05	8.65E-08	3.11E-05	1.37E-04	12
Toluene	3.40E-03	3.33E-06	1.20E-03	5.29E-03	12
Arsenic	2.00E-04	1.96E-07	7.06E-05	3.11E-04	13
Beryllium	1.20E-05	1.18E-08	4.24E-06	1.87E-05	13
Cadmium	1.10E-03	1.08E-06	3.88E-04	1.71E-03	13
Chromium	1.40E-03	1.37E-06	4.94E-04	2.18E-03	13
Cobalt	8.40E-05	8.24E-08	2.96E-05	1.31E-04	13
Manganese Compounds	3.80E-04	3.73E-07	1.34E-04	5.91E-04	13
Mercury	2.60E-04	2.55E-07	9.18E-05	4.04E-04	13
Nickel	2.10E-03	2.06E-06	7.41E-04	3.27E-03	13
Selenium	2.40E-05	2.35E-08	8.47E-06	3.73E-05	13
Total HAPs	-	1.85E-03	0.67	2.94	

Notes:

8. PM emission factors include condensable and filterable PM. All PM is assumed less than 1 micrometer, as per footnote 'c' to AP-42 Table 1.4-2.

9. Emission Factor is BACT limit for natural gas direct-fired recuperative low-NO_x burners.

10. Emission factors from AP-42 Section 1.4 Natural Gas Combustion Table 1.4-2.

11. Global Warming Potentials from 40 CFR 98 Subpart A Table A-1.

12. Emission factors from AP-42 Section 1.4 Natural Gas Combustion Table 1.4-3.

13. Emission factors from AP-42 Section 1.4 Natural Gas Combustion Table 1.4-4.

Coil Sample Plasma Cutter

EP 03-06

Nucor Steel Brandenburg

Brandenburg, KY

Description: Coil Sample Plasma Cutter is located with the Downcoiler and includes a plasma cutter to collect a sample of coil a few times a day for quality assurance testing.

Inputs

Description	Value	Units	Notes
Annual Operating Hours	8,760	hrs/yr	
Maximum Hourly Processing Rate	250	tons/hr	1
Maximum Annual Processing Rate	250,000	tons/yr	2
Coil wieght	25	ton/coil	2
Number of Cuts per Coil	1	cuts	
Number of Cuts per Hour	10	cuts	2
Number of Cuts per Year	10,000	cuts	2
Maximum Coil Width	160	inches	
Maximum Hourly Cut Rate	1,600	in/hr	3
Annual Cut Rate	1,600,000	in/yr	4
Plasma Cutter Cutting Speed at 1.25 inch thick coil	3,900	in/hr	5
Worst-case Metal Thickness	1.25	inch	5
Cutting Technique (Dry, Semidry, Wet)	Dry		5
Kerf (width of cut)	0.164	inch	5
Metal Density	0.283	lb/in^3	6
Fume Generation (% of particulate generated)	5.0%	%	6
Fume System Capture Efficiency	95%	%	7
Baghouse Control Efficiency	99%	%	7
Building Capture Efficiency	70%	%	8

Notes:

1. Maximum hourly processing rate based on Steckel Mill output rate of 250 ton/hr.
2. Annual processing rate based on 10,000 coils per year at 25 tons/coil.
3. Maximum hourly cut rate based on plates cut per hour and maximum plate width.
4. Annual cut rate based on plates cut per year and maximum plate width.
5. Manufacturer's specification for plasma cutter including cutting speed at 1.25" metal thickness.
6. Specific gravity and fume generation rate based on data provided by the Swedish Institute of Production Engineering Research (https://www3.epa.gov/ttnchie1/efdocs/welding.pdf)
7. Conservative control efficiency for fume collector based on manufacturer specifications, which exhausts into building.
8. Capture efficiency of PM emissions released within building and discharged to atmosphere via roof vent.

Emissions Summary

Pollutant	Hourly Emission Rate (lb/hr)	Annual Emission Rate (tpy)
Filterable PM	0.11	0.057
PM_{10}	0.11	0.057
$PM_{2.5}$	0.11	0.057
NOx	0.57	2.51
Total HAP	3.55E-03	1.78E-03

Calculation Basis:

Calculation methodology derived from Swedish Institute of Production Engineering Research.

PM Emission Factor (lb PM/inch metal cut)

Emission Factor (lb/in)= Metal Density (lb/in3) x Metal Thickness (in) x Average Kerf (in) x Fume Generation

Emission Factor (lb/in) = 0.0029 lb PM/inch metal cut

PM Emissions Calculations

Emissions captured (95%) and controlled (99%) by baghouse:

$$\text{Emission Factor}\left(\frac{\text{lb PM}}{\text{in}_{\text{cut}}}\right)\ \text{x}\ \text{Material Cut Rate}\left(\frac{\text{in}}{\text{hr}}\right)\text{x (Capture Efficiency) x (1}-\text{Control Efficiency)}\ =\ \frac{\text{lb PM}}{\text{hour}}$$

$$\frac{\text{lb PM}}{\text{hour}}\ \text{x}\ \frac{\text{8,760 hours}}{\text{year}}\ \text{x}\ \frac{\text{ton}}{\text{2,000 lbs}} = \frac{\text{ton PM}}{\text{year}}$$

Emissions not captured by baghouse within building and released to atmosphere via roof vent with 70% building capture:

$$\text{Emission Factor}\left(\frac{\text{lb PM}}{\text{in}_{\text{cut}}}\right)\ \text{x}\ \text{Material Cut Rate}\left(\frac{\text{in}}{\text{hr}}\right)\ \text{x (1}-\text{Baghouse Capture Efficiency) x (1}-\text{Building Capture Efficiency)}\ = \frac{\text{lb PM}}{\text{hour}}$$

NO_x Emission Factor (lb NO_x/hr) - Research document emission factor = 5.5 L NOx/min

Emission Factor (lb/hr) = (5.5 L NOx/min) x (0.12 lb NOx/ft^3) x (1 ft^3/28.3 L) x (60 min/hr)

Emission Factor (lb/hr) = (1.40 lb NOx/hr

Emissions Calculations

$$\text{Emission Factor}\left(\frac{\text{lb NOx}}{\text{hr}}\right)\ \text{x}\ \frac{\text{Plate Cut Rate}\left(\frac{\text{in}}{\text{hr}}\right)}{\text{Cutting Speed}\left(\frac{\text{in}}{\text{hr}}\right)}\ =\ \frac{\text{lb NOx}}{\text{hour}}$$

$$\frac{\text{lb NOx}}{\text{hour}}\ \text{x}\ \frac{\text{8,760 hours}}{\text{year}}\ \text{x}\ \frac{\text{ton}}{\text{2,000 lbs}} = \frac{\text{ton NOx}}{\text{year}}$$

PM Emissions:

Pollutant	Emission Factor	Maximum Hourly Cut Rate	Annual Cut Rate	Uncontrolled Hourly Emission Rate	Uncontrolled Annual Emission Rate
	(lb/in cut)	(in/hr)	(in/yr)	(lb/hr)	(tpy)
Filterable PM	0.0029	1,600	1,600,000	4.64	2.32
PM_{10}	0.0029	1,600	1,600,000	4.64	2.32
$PM_{2.5}$	0.0029	1,600	1,600,000	4.64	2.32

Pollutant	Uncontrolled		Controlled[(a)]		Uncaptured[(b)]	
	Hourly Emission Rate	Annual Emission Rate	Hourly Emission Rate	Annual Emission Rate	Hourly Emission Rate	Annual Emission Rate
	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
Filterable PM	4.64	2.32	0.044	0.022	0.070	0.035
PM_{10}	4.64	2.32	0.044	0.022	0.070	0.035
$PM_{2.5}$	4.64	2.32	0.044	0.022	0.070	0.035
Manganese Compounds	7.38E-02	3.69E-02	7.01E-04	3.50E-04	1.11E-03	5.53E-04
Chromium	4.78E-02	2.39E-02	4.54E-04	2.27E-04	7.17E-04	3.58E-04
Nickel	2.26E-02	1.13E-02	2.15E-04	1.07E-04	3.39E-04	1.69E-04
Arsenic	7.98E-04	3.99E-04	7.58E-06	3.79E-06	1.20E-05	5.98E-06
Total HAP	1.45E-01	7.25E-02	1.38E-03	6.88E-04	2.17E-03	1.09E-03

a. Emission rate includes 95% capture from down-draft table and 99% conrol from baghouse.

b. Emissions include 5% uncapatured by down-draft table and emitted within building; dischrage to atmoshpere via roof vent with 70% building capture efficiency.

NOx Emissions:

Pollutant	Emission Factor	Maximum Hourly Cut Rate	Cutting Speed	Cutter Use Rate	Hourly Emission Rate	Annual Emission Rate
	(lb/hr)	(in/hr)	(in/hr)	(% of hour)	(lb/hr)	(tpy)
NOx	1.40	1,600	3,900	41%	0.57	2.51

HAP Emissions:

Pollutant	PM Hourly Emission Rate	PM Annual Emission Rate	Concentration(9)	Hourly Emission Rate	Annual Emission Rate
	(lb/hr)	(tpy)	(%)	(lb/hr)	(tpy)
Manganese Compounds	4.639	2.32	1.59%	7.38E-02	3.69E-02
Chromium	4.639	2.32	1.030%	4.78E-02	2.39E-02
Nickel	4.639	2.32	0.487%	2.26E-02	1.13E-02
Arsenic	4.639	2.32	0.017%	7.98E-04	3.99E-04

9. HAP emission rates based on the HAP content for Nucor Steel for all metal HAPs greater than or equal to 0.01% by weight. Emission rates do not account for particulate-phase control by the baghouse.

Ingot Grinding
EP 03-10

Nucor Steel Brandenburg
Brandenburg, KY

Description: The ingot grinding operations, which include a traversing grinder and a stationary grinder, will be contained within a partial enclosure. A travelling capture system will collect potential emissions that are then vented to a baghouse (Ingot Grinding Baghouse) for control of filterable PM and PM_{10} (filterable and condensable) to 0.005 gr/dscf and $PM_{2.5}$ (filterable and condensable) to 0.0025 gr/dscf. The uncaptured emissions will be emitted within the building and discharged to atmosphere through the Rolling Mill building monovent.

Inputs

Description	Value	Units	Notes
Annual Operating Hours	8,760	hrs/yr	
Maximum Steel Processing Rate	225	tons/hr	1
Annual Average Steel Processing Rate	186,000	tons/yr	2
Grain Loading Emission Factor	0.005	gr/scf	3
Design Volumetric Vent Rate	48,327	scfm	4
Baghouse Capture Efficiency	95%	%	4
Building Capture Efficiency	70%	%	5
$PM_{2.5}$ Speciation	50%	%	6

Note:

1. Maximum Ingot Grinding processing rate based on 225 ton/hr.
2. Annual steel processing rate design of 186,000 ton/yr.
3. BACT grainloading factor for baghouse.
4. Design baghouse flow rate and system capture efficiency.
5. Capture efficiency of PM emissions released within building and discharged to atmosphere via roof vent.
6. $PM_{2.5}$ speciation assumed to be 50% based on 20% speciation found in RTI International, "Evaluation of $PM_{2.5}$ Emissions and Controls at Two Michigan Steel Mills and a Coke Oven Battery," February 7, 2006, Table B-1: Details of PM Emission Estimates for U.S. Steel, plus a 30% safety factor.

Emissions Summary

Source Description	Pollutant	Hourly Emission Rate (lb/hr)	Annual Emission Rate (tpy)
Ingot Grinding Baghouse	Filterable PM	2.07	9.07
	PM_{10}	2.07	9.07
	$PM_{2.5}$	1.04	4.54
	Total HAP	0.0710	0.3111
Uncaptured Ingot Grinding Emissions	Filterable PM	0.79	0.33
	PM_{10}	0.79	0.33
	$PM_{2.5}$	0.39	0.16
	Total HAP	0.027	0.011
Total Ingot Grinding Emissions	Filterable PM	2.86	9.40
	PM_{10}	2.86	9.40
	$PM_{2.5}$	1.43	4.70
	Total HAP	0.098	0.322

Baghouse Emission Calculation Equations

Particulate emission calculations based on grain loading emission factor:

$$\frac{\text{gr pollutant}}{\text{std ft}^3} \times \frac{\text{std ft}^3}{\text{min}} \times \frac{\text{60 min}}{\text{hour}} \times \frac{\text{lb}}{\text{7000 gr}} = \frac{\text{lb pollutant}}{\text{hour}}$$

$$\frac{\text{lb pollutant}}{\text{hour}} \times \frac{\text{8,760 hours}}{\text{year}} \times \frac{\text{ton}}{\text{2,000 lbs}} = \frac{\text{ton pollutant}}{\text{year}}$$

Hourly and Annual Emission Calculations

Pollutant	Exhaust Flow Rate (scfm)	Outlet Grain Loading (gr/scf)	Hourly Emission Rate (lb/hr)	Annual Emission Rate (tpy)
Filterable PM	48,327	0.005	2.07	9.07
PM_{10}	48,327	0.005	2.07	9.07
$PM_{2.5}$	48,327	0.0025	1.04	4.54

HAP Emissions:

Pollutant	Dust Concentration[6] (%)	PM Emission Rate (lb/hr)	Hourly Emission Rate (lb/hr)	Annual Emission Rate (tpy)
Lead	5.04E-03	2.07	1.04E-02	4.57E-02
Mercury	1.61E-08	2.07	3.33E-08	1.46E-07
Arsenic	1.33E-05	2.07	2.76E-05	1.21E-04
Cadmium	2.17E-04	2.07	4.49E-04	1.97E-03
Chromium	3.15E-03	2.07	6.53E-03	2.86E-02
Manganese Compounds	2.57E-02	2.07	5.33E-02	2.33E-01
Nickel	1.42E-04	2.07	2.93E-04	1.28E-03
Selenium	1.61E-07	2.07	3.33E-07	1.46E-06

6. Metal HAP dust concentrations are based on analyses of Nucor Gallatin baghouse dust from 2014-2016. Concentrations are the average plus two standard deviations of the reported concentrations.

Uncaptured Emission Calculation Equations

$$\frac{\text{lb pollutant}}{\text{ton steel cast}} \text{ x } \frac{\text{ton steel cast}}{\text{hr}} \text{x } (1 - \%\text{ baghouse capture})\text{x}(70\%\text{ building capture}) = \frac{\text{lb pollutant}}{\text{hour}}$$

$$\frac{\text{lb pollutant}}{\text{ton steel cast}} \text{x} \frac{\text{ton steel } \mathit{cast}}{\text{year}} \text{x} \frac{\text{ton}}{2{,}000\text{ lb}} \text{x } (1 - \%\text{ baghousecapture})\text{x}(70\%\text{ building capture}) = \frac{\text{ton pollutant}}{\text{year}}$$

Emission Calculations

Pollutants	Emission Factor[7] (lb/ton)	Dust Concentration[6] (%)	Hourly Emission Rate (lb/hr)	Annual Emission Rate (tpy)	Notes
Filterable PM	0.1	--	0.79	0.33	
PM_{10}	0.1	--	0.79	0.33	
$PM_{2.5}$	0.05	--	0.39	0.16	
Lead	0.1	0.504%	3.97E-03	1.64E-03	
Mercury	0.1	0.000002%	1.26E-08	5.23E-09	
Arsenic	0.1	0.0013%	1.05E-05	4.34E-06	
Cadmium	0.1	0.022%	1.71E-04	7.06E-05	
Chromium	0.1	0.315%	2.48E-03	1.03E-03	
Manganese Compounds	0.1	2.57%	2.03E-02	8.37E-03	
Nickel	0.1	0.014%	1.12E-04	4.61E-05	
Selenium	0.1	0.00002%	1.27E-07	5.23E-08	

7. Emission factor obtained from the Emission Inventory Improvement Program (EIIP), Volume II, Chapter 14 for Steel Manufacturing scarfing (3-03-009-32)

Ingot Grinding Oxy-Fuel Cutting Torch

EP 03-11

Nucor Steel Brandenburg

Brandenburg, KY

Description: The oxy-fuel torch is employed for cutting ingots that are 5 to 36 inches thick. Emissions generated from the oxy-fuel torch cutting of the ingots will be emitted within the building and discharged to atmosphere through the Rolling Mill building monovent.

Inputs

Description	Value	Units	Notes
Annual Operating Hours	8,760	hrs/yr	
Maximum Hourly Processing Rate	225	tons/hr	1
Maximum Annual Processing Rate	186,000	tons/yr	2
Natural Gas Consumption per Torch	465	scf/hr	3
Number of Torches	1	-	4
Total Natural Gas Consumption	465	scf/hr	4
Total Natural Gas Consumption	0.000465	MMscf/hr	
Building Capture Efficiency	70%	%	5

Notes:

1. Based on maximum hourly tons of steel processed through the grinding operation.
2. Based on maximum annual tons of steel cut by grinding torch.
3. Manufacturer's specifications for cutting tips.
4. One burning bed with a gantry and one oxy torch.
5. Emissions discharge out of the Rolling Mill building monovent with a conservative capture efficiency of 70% for PM emissions.

Total Emissions Summary

Pollutant	Hourly Emission Rate (lb/hr)	Annual Emission Rate (tpy)
Filterable PM	0.0759	0.332
PM_{10}	0.0785	0.344
$PM_{2.5}$	0.0785	0.344
NO_X	0.0465	0.204
CO	0.039	0.171
SO_2	0.00028	0.00122
Lead	8.11E-06	3.55E-05
VOC	0.0026	0.01120
CO_2e	56.1	245.9
Total HAP	0.003252	0.01425

Emission Calculation Equations

Emission calculations based fume generation rate and metal HAP content of steel:

$$\frac{0.81\text{ g PM/PM}_{10}\text{/PM}_{2.5}}{\text{min}} \text{ x } \frac{60\text{ min}}{\text{hr}} \text{ x 1 Torch x } \frac{\text{lb}}{453.6\text{ g}} \text{ x (70\% building capture) } = \frac{0.075\text{lb PM/PM}_{10}\text{/PM}_{2.5}}{\text{hr}}$$

$$\frac{0.81\text{ g PM}}{\text{min}} \text{ x metal HAP wt\% x } \frac{60\text{ min}}{\text{hr}} \text{ x 1 Torch x } \frac{\text{lb}}{453.6\text{ g}} \text{ x (70\% building capture) } = \frac{\text{lb metal HAP}}{\text{hr}}$$

$$\frac{\text{lb pollutant}}{\text{hr}} \text{ x } \frac{8{,}760\text{ hr}}{\text{yr}} \text{ x } \frac{\text{ton}}{2{,}000\text{ lb}} = \frac{\text{ton pollutant}}{\text{year}}$$

Emissions Calculations - PM and metal HAPs

Pollutant	Metal HAP max wt% in Nucor Steel	Emission Factor	Hourly Emission Rate	Annual Emission Rate	Notes
	(wt%)	(g/min)	(lb/hr)	(tpy)	
Filterable PM	-	0.81	0.0750	0.329	4
PM_{10}	-	0.81	0.0750	0.329	4
$PM_{2.5}$	-	0.81	0.0750	0.329	4
Arsenic	0.017%	0.00014	0.000013	5.65E-05	5,6
Chromium	1.03%	0.01	0.000773	3.38E-03	5,6
Cobalt	0.031%	0.00025	0.000023	1.02E-04	5,6
Lead	0.011%	0.00009	0.000008	3.45E-05	5,6
Manganese	1.6%	0.01	0.001193	5.22E-03	5,6
Nickel	0.49%	0.004	0.000365	1.60E-03	5,6
Total HAP	-	-	2.37E-03	1.04E-02	-

Notes:

4. Filterable PM/PM10/PM2.5 emission factor based on Fumes and Gases in the Welding Environment, the American Welding Society, dated 01/90.

5. HAP emission rates based on the HAP content for Nucor Steel for all metal HAPs greater than or equal to 0.01% by weight.

6. Maximum weight percent of metal in Nucor Steel multiplied by Total PM emission factor.

Emission Calculation Equations

Emission calculations based on lb/million scf of natural gas emission factors:

$$\frac{\text{lb pollutant}}{\text{million scf}} \text{ x } \frac{\text{scf}}{1{,}020\text{ Btu}} \text{ x } \frac{\text{million Btu}}{\text{hr}} = \frac{\text{lb pollutant}}{\text{hr}}$$

$$\frac{\text{lb pollutant}}{\text{hour}} \text{ x } \frac{8{,}760\text{ hours}}{\text{year}} \text{ x } \frac{\text{ton}}{2{,}000\text{ lbs}} = \frac{\text{ton pollutant}}{\text{year}}$$

Emissions Calculations - Natural Gas Combustion

Pollutant	Emission Factor		Hourly Emission Rate	Annual Emission Rate	Notes
	(lb/10^6 scf)	(lb/MMBtu)	(lb/hr)	(tpy)	
Filterable PM	1.9	0.002	0.000884	0.00387	7
PM_{10}	7.6	0.007	0.00353	0.0155	7
$PM_{2.5}$	7.6	0.007	0.00353	0.0155	7
NO_X	100	0.098	0.05	0.20	8
CO	84	0.082	0.04	0.17	8
SO_2	0.6	0.001	2.79E-04	1.22E-03	7
Lead	0.0005	0.000	2.33E-07	1.02E-06	7
VOC	5.5	0.005	2.56E-03	0.01	7
CO_2	120,000	117.647	55.80	244.40	7
N_2O	2.2	0.002	1.02E-03	0.00	7
CH_4	2.3	0.002	1.07E-03	0.00	7
CO_2e	-	-	56.13	245.86	9
Benzene	0.0021	2.06E-06	9.77E-07	4.28E-06	10
Dichlorobenzene	0.0012	1.18E-06	5.58E-07	2.44E-06	10
Formaldehyde	0.075	7.35E-05	3.49E-05	1.53E-04	10
Hexane	1.8	1.76E-03	8.37E-04	0.00	10
Naphthalene	0.00061	5.98E-07	2.84E-07	1.24E-06	10
Toluene	0.0034	3.33E-06	1.58E-06	6.92E-06	10
Arsenic	0.0002	1.96E-07	9.30E-08	4.07E-07	11
Beryllium	0.000012	1.18E-08	5.58E-09	2.44E-08	11
Cadmium	0.0011	1.08E-06	5.12E-07	2.24E-06	11
Chromium	0.0014	1.37E-06	6.51E-07	2.85E-06	11
Cobalt	0.000084	8.24E-08	3.91E-08	1.71E-07	11
Manganese Compounds	0.00038	3.73E-07	1.77E-07	7.74E-07	11
Mercury	0.00026	2.55E-07	1.21E-07	5.30E-07	11
Nickel	0.0021	2.06E-06	9.77E-07	4.28E-06	11
Selenium	0.000024	2.35E-08	1.12E-08	4.89E-08	11
Total HAP	-	0.002	8.78E-04	3.85E-03	

Notes:

7. Emission factors from AP-42 Section 1.4 Natural Gas Combustion Table 1.4-2; assume Total PM=PM_{10}=$PM_{2.5}$.
8. Emission factors from AP-42 Section 1.4 *Natural Gas Combustion* Table 1.4-1.
9. Global Warming Potentials from 40 CFR 98 Subpart A Table A-1.
10. Emission factors from AP-42 Section 1.4 *Natural Gas Combustion* Table 1.4-3.
11. Emission factors from AP-42 Section 1.4 *Natural Gas Combustion* Table 1.4-4.

Emission Unit (EU) No.	Emission Point Description	Filterable PM lb/hr	PM_{10} lb/hr	$PM_{2.5}$ lb/hr	NO_X lb/hr	CO lb/hr	SO_2 lb/hr	VOC lb/hr	Lead lb/hr	Fluoride lb/hr	CO_2e lb/hr
EP 04-01	Shot Blaster	0.85	0.85	0.85	-	-	-	-	-	-	-
EP 04-02	Austenitizing Furnace	0.14	0.55	0.55	11.6	6.45	4.37E-02	0.40	3.64E-05	-	8,785
EP 04-03	Tempering Furnace	0.08	0.32	0.32	6.82	6.56	2.56E-02	0.23	2.13E-05	-	5,146
EP 04-04	Continuous Heat Treat Plasma Cutting	0.209	0.209	0.209	0.93	-	-	-	-	-	-
EP 04-05	Continuous Heat Treat Entry Tagger	0.00009	0.00009	0.00009	-	-	-	0.031	-	-	-
EP 04-06	Continuous Heat Treat Exit Tagger	0.0013	0.0013	0.0013	-	-	-	0.43	-	-	-
	TOTAL	1.28	1.94	1.94	19.4	13.0	0.07	1.10	5.77E-05	0.00	13,931

Emission Unit (EU) No.	Emission Point Description	Filterable PM tons/yr	PM_{10} tons/yr	$PM_{2.5}$ tons/yr	NO_X tons/yr	CO tons/yr	SO_2 tons/yr	VOC tons/yr	Lead tons/yr	Fluoride tons/yr	CO_2e tons/yr
EP 04-01	Shot Blaster	3.72	3.72	3.72	-	-	-	-	-	-	-
EP 04-02	Austenitizing Furnace	0.61	2.42	2.42	51.0	28.2	0.19	1.75	1.59E-04	-	38,478
EP 04-03	Tempering Furnace	0.35	1.42	1.42	29.9	28.8	0.11	1.03	9.34E-05	-	22,538
EP 04-04	Continuous Heat Treat Plasma Cutting	0.91	0.91	0.91	4.1	-	-	-	-	-	-
EP 04-05	Continuous Heat Treat Entry Tagger	0.00013	0.00013	0.00013	-	-	-	0.042	-	-	-
EP 04-06	Continuous Heat Treat Exit Tagger	0.0018	0.0018	0.0018	-	-	-	0.59	-	-	-
	TOTAL	5.59	8.47	8.47	85.0	57.0	0.30	3.41	2.53E-04	0.00	61,016

Continuous Heat Treat Plasma Cutting

EP 04-04

Nucor Steel Brandenburg

Brandenburg, KY

Inputs

Description	Value	Units	Notes
Annual Operating Hours	8,760	hrs/yr	
Maximum Hourly Processing Rate	50	tons/hr	1
Maximum Annual Processing Rate	339,000	tons/yr	
Number of Cuts per Plate	1	cut	
Maximum Width of Plate	160	inch	
Maximum Plates per Hour	10	plates/hr	1
Average Hourly Cut Rate	1,600	in/hr	2
Plasma Cutter Cutting Speed at 1.75" Thick Plate	2,400	in/hr	3
Metal Thickness	1.75	inch	4
Cutting Technique (Dry, Semidry, Wet)	Dry		3
Kerf (width of cut)	0.215	inch	3
Metal Density	0.283	lb/in^3	5
Fume Generation (% of particulate generated)	5.0%	%	5
Fume System Capture Efficiency	95%	%	6
Dust Collector Control Efficiency	99%	%	6
Building Capture Efficiency	70%	%	7

Notes:

1. Maximum operation includes cutting 50 ton/hr production and an average plate weight of 5 ton.
2. Maximum hourly cut rate based on plates cut per hour and maximum plate width.
3. Manufacturer's specification for plasma cutter including cutting speed at 2" metal thickness.
4. Plate thickness processed in Continuous Heat Treat Line ranges from 0.1875" to 4" thickness. Cut speed of 1.75" plates generates maximum emissions, even though PM emission factor is smaller for 1.75" compared to 3" plates.
5. Specific gravity and fume generation rate based on data provided by the Swedish Institute of Production Engineering Research (https://www3.epa.gov/ttnchie1/efdocs/welding.pdf)
6. Conservative control efficiency for fume collector based on manufacturer specifications, which exhausts into building.
7. Capture efficiency of PM emissions released within building and discharged to atmosphere via roof vent.

Emissions Summary

Pollutant	Hourly Emission Rate (lb/hr)	Annual Emission Rate (tpy)
Filterable PM	0.21	0.91
PM_{10}	0.21	0.91
$PM_{2.5}$	0.21	0.91
NOx	0.93	4.09
Total HAP	6.52E-03	2.06E-01

Calculation Basis:

Calculation methodology derived from Swedish Institute of Production Engineering Research.

PM Emission Factor (lb PM/inch metal cut)

Emission Factor (lb/in)= Metal Density (lb/in3) x Metal Thickness (in) x Average Kerf (in) x Fume Generation

Emission Factor (lb/in) = 0.00532 lb PM/inch metal cut

PM Emissions Calculations

Emissions captured (95%) and controlled (99%) by baghhouse:

$$\text{Emission Factor}\left(\frac{\text{lb PM}}{\text{in cut}}\right) \text{ x Material Cut Rate}\left(\frac{\text{in}}{\text{hr}}\right) \text{x (Capture Efficiency) x (1} - \text{Control Efficiency)} = \frac{\text{lb PM}}{\text{hour}}$$

$$\frac{\text{lb PM}}{\text{hour}} \text{ x } \frac{\text{8,760 hours}}{\text{year}} \text{ x } \frac{\text{ton}}{\text{2,000 lbs}} = \frac{\text{ton PM}}{\text{year}}$$

Emissions not captured by baghouse within building and released to atmosphere via roof vent with 70% building capture:

$$\text{Emission Factor}\left(\frac{\text{lb PM}}{\text{in cut}}\right) \text{ x Material Cut Rate}\left(\frac{\text{in}}{\text{hr}}\right) \text{ x (1} - \text{Baghouse Capture Efficiency) x (1} - \text{Building Capture Efficiency)} = \frac{\text{lb PM}}{\text{hour}}$$

NO_x Emission Factor (lb NO_x/hr) - Research document emission factor = 5.5 L NOx/min

Emission Factor (lb/hr) = (5.5 L NOx/min) x (0.12 lb NOx/ft^3) x (1 ft^3/28.3 L) x (60 min/hr) = 1.4 lb NOx/hr

Emission Factor (lb/in) = 1.40 lb NOx/hr

Emissions Calculations

$$\text{Emission Factor}\left(\frac{\text{lb NOx}}{\text{hr}}\right) \text{ x } \frac{\text{Plate Cut Rate}\left(\frac{\text{in}}{\text{hr}}\right)}{\text{Cutting Speed}\left(\frac{\text{in}}{\text{hr}}\right)} = \frac{\text{lb NOx}}{\text{hour}}$$

$$\frac{\text{lb NOx}}{\text{hour}} \text{ x } \frac{\text{8,760 hours}}{\text{year}} \text{ x } \frac{\text{ton}}{\text{2,000 lbs}} = \frac{\text{ton NOx}}{\text{year}}$$

PM Emissions:

Pollutant	Emission Factor	Maximum Cut Rate	Uncontrolled Hourly Emission Rate	Uncontrolled Annual Emission Rate
	(lb/in cut)	(in/hr)	(lb/hr)	(tpy)
Filterable PM	0.0053	1,600	8.51	37.29
PM_{10}	0.0053	1,600	8.51	37.29
$PM_{2.5}$	0.0053	1,600	8.51	37.29

Pollutant	Uncontrolled		Controlled[(a)]		Uncaptured[(b)]	
	Hourly Emission Rate	Annual Emission Rate	Hourly Emission Rate	Annual Emission Rate	Hourly Emission Rate	Annual Emission Rate
	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
Filterable PM	8.51	37.29	0.081	0.35	0.128	0.56
PM_{10}	8.51	37.29	0.081	0.35	0.128	0.56
$PM_{2.5}$	8.51	37.29	0.081	0.35	0.128	0.56
Manganese Oxide	0.14	0.59	0.001	0.01	0.002	0.01
Chromium	0.09	0.38	0.001	0.00	0.001	0.01
Nickel	0.04	0.18	0.000	0.00	0.001	0.00
Arsenic	0.00	0.01	0.000	0.00	0.000	0.00

a. Emission rate includes 95% capture from down-draft table and 99% control from baghouse.

b. Emissions include 5% uncapatured by down-draft table and emitted within building; dischrage to atmoshpere via roof vent with 70% building capture efficiency.

NOx Emissions:

Pollutant	Emission Factor	Maximum Inches Cut per Hour	Cutting Speed	Cutter Use Rate	Hourly Emission Rate	Annual Emission Rate
	(lb/hr)	(in/hr)	(in/hr)	(% of hour)	(lb/hr)	(tpy)
NOx	1.40	1,600	2,400	0.67	0.93	4.09

HAP Emissions:

Pollutant	PM Hourly Emission Rate	PM Annual Emission Rate	Concentration[(8)]	Hourly Emission Rate	Annual Emission Rate
	(lb/hr)	(tpy)	(%)	(lb/hr)	(tpy)
Manganese Oxide	8.515	37.29	1.59%	1.35E-01	5.93E-01
Chromium	8.515	37.29	1.030%	8.77E-02	3.84E-01
Nickel	8.515	37.29	0.487%	4.15E-02	1.82E-01
Arsenic	8.515	37.29	0.017%	1.46E-03	6.41E-03

8. HAP emission rates based on the HAP content for Nucor Steel for all metal HAPs greater than or equal to 0.01% by weight. Emission rates do not account for particulate-phase control by the baghouse.

Emission Unit (EU) No.	Emission Point Description	Filterable PM lb/hr	PM_{10} lb/hr	$PM_{2.5}$ lb/hr	NO_X lb/hr	CO lb/hr	SO_2 lb/hr	VOC lb/hr	Lead lb/hr	Fluoride lb/hr	CO_2e lb/hr
EP 17-01	Light Plate Burning Beds #1 & #2 - Plasma Cutters	0.31	0.31	0.31	1.05	-	-	-	-	-	-
	Light Plate Burning Beds #1 & #2 - Oxy Fuel Torches	0.021	0.021	0.021	0.008	0.007	4.80E-05	0.0004	2.21E-06	-	9.7
EP 17-02	Light Plate Finishing Line Tagger	0.003	0.003	0.003	-	-	-	0.87	-	-	-
	TOTAL	0.34	0.34	0.34	1.06	0.01	4.80E-05	0.87	2.21E-06	0	9.7

Emission Unit (EU) No.	Emission Point Description	Filterable PM tons/yr	PM_{10} tons/yr	$PM_{2.5}$ tons/yr	NO_X tons/yr	CO tons/yr	SO_2 tons/yr	VOC tons/yr	Lead tons/yr	Fluoride tons/yr	CO_2e tons/yr
EP 17-01	Light Plate Burning Beds #1 & #2 - Plasma Cutters	1.37	1.37	1.37	4.60	-	-	-	-	-	-
	Light Plate Burning Beds #1 & #2 - Oxy Fuel Torches	0.092	0.092	0.092	0.035	0.029	0.00021	0.00193	9.66E-06	-	42
EP 17-02	Light Plate Finishing Line Tagger	0.0045	0.0045	0.0045	-	-	-	1.23	-	-	-
	TOTAL	1.47	1.47	1.47	4.63	0.03	0.00	1.24	9.66E-06	0	42

Light Plate Burning Beds #1 & #2

Nucor Steel Brandenburg

EP 17-01A

Brandenburg, KY

Plasma Cutters

Description: Light Plate Finishing Line includes 2 Burning Beds; each Burning Bed includes two gantries, each gantry has two oxy-fuel torches and one plasma cutter. Plasma cutters are employed for cutting light plates no more than 2 inches thick to customer specifications.

Inputs

Description	Value	Units	Notes
Annual Operating Hours	8,760	hrs/yr	
Maximum Hourly Processing Rate	500	tons/hr	1
Maximum Annual Processing Rate	100,000	tons/yr	2
Number of Operating Plasma Cutters	4		
Cutting Technique (Dry, Semidry, Wet)	Dry		
Metal Density	0.283	lb/in^3	3
Fume Generation (% of particulate generated)	5.00%	%	3
Fume System Capture Efficiency	95%	%	4
Baghouse Control Efficiency	99%	%	4
Building Capture Efficiency	70%	%	5

Notes:

1. Maximum operation for plasma cutter is 10 plates per hour and maximum plate weight of 50 ton/plate.
2. Based on average plate wieght of 10 ton/plate and 10,000 plates/year.
3. Specific gravity and fume generation rate based on data provided by the Swedish Institute of Production Engineering Research (https://www3.epa.gov/ttnchie1/efdocs/welding.pdf)
4. Conservative capture and control efficiencies for integrated dust collection system and baghouse.
5. Capture efficiency of PM emissions released within building and discharged to atmosphere via roof vent.

Emissions Summary

Pollutant	Hourly Emission Rate	Annual Emission Rate
	(lb/hr)	(tpy)
Filterable PM	0.31	1.37
PM_{10}	0.31	1.37
$PM_{2.5}$	0.31	1.37
NOx	1.05	4.60
Total HAP	9.29E-05	4.07E-04

Manufacturer's Sepcifications Based on Metal Thickness

Metal Thickness (in)	Cutting Speed (in/min)	Cutting Speed (in/hr)	Kerf Width (in)
0.75	115	6900	0.145
1	85	5100	0.148
1.25	65	3900	0.164
1.5	48	2880	0.183
1.75	40	2400	0.215
2	30	1800	0.237
2.25	25	1500	0.25
2.5	20	1200	0.275
3	10	600	0.34

Calculation Basis:

Calculation methodology derived from Swedish Institute of Production Engineering Research.

PM Emission Factor (lb PM/inch metal cut)

Emission Factor (lb/in)= Metal Density (lb/in3) x Metal Thickness (in) x Average Kerf (in) x Fume Generation

PM Emissions Calculations

Emissions captured (95%) and controlled (99%) by baghhouse:

$$\text{Emission Factor}\left(\frac{\text{lb PM}}{\text{in cut}}\right)\ \text{x Material Cut Rate}\left(\frac{\text{in}}{\text{hr}}\right)\text{x (Capture Efficiency) x (1}-\text{Control Efficiency)} = \frac{\text{lb PM}}{\text{hour}}$$

$$\frac{\text{lb PM}}{\text{hour}}\ \text{x}\ \frac{\text{8,760 hours}}{\text{year}}\ \text{x}\ \frac{\text{ton}}{\text{2,000 lbs}} = \frac{\text{ton PM}}{\text{year}}$$

Emissions not captured by baghouse within building and released to atmosphere via roof vent with 70% building capture:

$$\text{Emission Factor}\left(\frac{\text{lb PM}}{\text{in cut}}\right)\ \text{x Material Cut Rate}\left(\frac{\text{in}}{\text{hr}}\right)\ \text{x (1} - \text{Baghouse Capture Efficiency) x (1} - \text{Building Capture Efficiency)} = \frac{\text{lb PM}}{\text{hour}}$$

Worst-case Emissions Based on Metal Thickness:

Metal Thickness (in)	Kerf Width (in)	PM Emission Factor (lb/in cut)	Maximum Cutting Speed (in/hr)	Uncontrolled PM Emissions (lb/hr)	Controlled PM Emissions (lb/hr)	Annual PM Emissions (ton/yr)
0.75	0.145	0.00154	6900	10.62	0.101	0.442
1	0.148	0.00209	5100	10.68	0.101	0.444
1.25	0.164	0.00290	3900	11.31	0.107	0.471
1.5	0.183	0.00388	2880	11.19	0.106	0.465
1.75	**0.215**	**0.00532**	**2400**	**12.78**	**0.121**	**0.532**
2	0.237	0.00671	1800	12.07	0.115	0.502
2.25	0.25	0.00796	1500	11.94	0.113	0.497
2.5	0.275	0.00973	1200	11.67	0.111	0.486
3	0.34	0.01443	600	8.66	0.082	0.360

Pollutant	Uncontrolled		Controlled[(a)]		Uncaptured[(b)]	
	Hourly Emission Rate	Annual Emission Rate	Hourly Emission Rate	Annual Emission Rate	Hourly Emission Rate	Annual Emission Rate
	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
Filterable PM	12.78	55.97	0.121	0.53	0.192	0.84
PM_{10}	12.78	55.97	0.121	0.53	0.192	0.84
$PM_{2.5}$	12.78	55.97	0.121	0.53	0.192	0.84
Manganese Compounds	1.93E-03	8.45E-03	1.83E-05	8.03E-05	2.90E-05	1.27E-04
Chromium	1.25E-03	5.48E-03	1.19E-05	5.20E-05	1.88E-05	8.21E-05
Nickel	5.91E-04	2.59E-03	5.62E-06	2.46E-05	8.87E-06	3.88E-05
Arsenic	2.09E-05	9.14E-05	1.98E-07	8.69E-07	3.13E-07	1.37E-06
Total HAP	3.79E-03	1.66E-02	3.60E-05	1.58E-04	5.69E-05	2.49E-04

a. Emission rate includes 95% capture from down-draft table and 99% conrol from baghouse.
b. Emissions include 5% uncapatured by down-draft table and emitted within building; dischrage to atmoshpere via roof vent with 70% building capture efficiency.

NO_x Emission Factor (lb NO_x/hr) - Research document emission factor = 5.5 L NOx/min

Emission Factor (lb/hr) = (5.5 L NOx/min) x (0.12 lb NOx/ft^3) x (1 ft^3/28.3 L) x (60 min/hr)

Emission Factor (lb/hr) 1.40 lb NOx/hr

Emissions Calculations

$$\text{Emission Factor}\left(\frac{\text{lb NOx}}{\text{hr}}\right) \times \frac{\text{Plate Cut Rate}\left(\frac{\text{in}}{\text{hr}}\right)}{\text{Cutting Speed}\left(\frac{\text{in}}{\text{hr}}\right)} = \frac{\text{lb NOx}}{\text{hour}}$$

$$\frac{\text{lb NOx}}{\text{hour}} \times \frac{\text{8,760 hours}}{\text{year}} \times \frac{\text{ton}}{\text{2,000 lbs}} = \frac{\text{ton NOx}}{\text{year}}$$

NOx Emissions:

Pollutant	Emission Factor	Maximum Inches Cut per Hour	Cutting Speed	Cutter Use Rate	Hourly Emission Rate	Annual Emission Rate
	(lb/hr)	(in/hr)	(in/hr)	(% of hour)	(lb/hr)	(tpy)
NOx	1.40	1,800	2,400	0.75	1.05	4.60

HAP Emissions:

Pollutant	PM Hourly Emission Rate	PM Annual Emission Rate	Concentration(6)	Hourly Emission Rate	Annual Emission Rate
	(lb/hr)	(tpy)	(%)	(lb/hr)	(tpy)
Manganese Compounds	0.121	0.53	1.59%	1.93E-03	8.45E-03
Chromium	0.121	0.53	1.03%	1.25E-03	5.48E-03
Nickel	0.121	0.53	0.487%	5.91E-04	2.59E-03
Arsenic	0.121	0.53	0.017%	2.09E-05	9.14E-05

6. HAP emission rates based on maximum HAP content for Nucor steel for all metal HAPs greater than or equal to 0.01% by weight.

Light Plate Burning Beds #1 & #2

EP 17-01B

Oxy Fuel Torches

Nucor Steel Brandenburg

Brandenburg, KY

Description: Light Plate Finishing Line includes 2 Burning Beds; each Burning Bed includes 2 gantries, each gantry has 2 oxy-fuel torches and one plasma cutter. Oxy-fuel torches are employed for cutting light plates primarily between 3 and 5 inches thick to customer specifications.

Inputs

Description	Value	Units	Notes
Annual Operating Hours	8,760	hrs/yr	
Maximum Hourly Processing Rate	300	tons/hr	1
Maximum Annual Processing Rate	217,000	tons/yr	2
Natural Gas Consumption per Torch	10	scf/hr	3
Number of Torches	8	-	4
Total Natural Gas Consumption	80	scf/hr	4
Total Natural Gas Consumption	0.00008	MMscf/hr	
Dust Collector Capture Efficiency	95%	%	5
Dust Collector Control Efficiency	99%	%	5
Building Capture Efficiency	70%	%	6

Notes:

1. Based on 6 plates per hour at maximum plate wieght of 50 ton/plate.
2. Based on 7,750 plates per year and an average plate wieght of 28 ton/plate.
3. Manufacturer's specifications for cutting tips.
4. Two burning beds each with 4 torches, conservatively assuming all 8 torches continuously operate.
5. Conservative capture and control efficiencies for integrated dust collection system and baghouse.
6. Capture efficiency of PM emissions released within building and discharged to atmosphere via roof vent.

Total Emissions Summary

Pollutant	Hourly Emission Rate (lb/hr)	Annual Emission Rate (tpy)
Filterable PM	0.0210	0.092
PM_{10}	0.0210	0.092
$PM_{2.5}$	0.0210	0.092
NO_X	0.0080	0.035
CO	0.007	0.029
SO_2	0.00005	0.0002
Lead	2.21E-06	9.66E-06
VOC	0.0004	0.002
CO_2e	10	42
Total HAP	0.00060	0.0026

Emission Calculation Equations

Emission calculations based fume generation rate and metal HAP content of steel:

$$\frac{0.81 \text{ g PM/PM}_{10}\text{/PM}_{2.5}}{\text{min}} \text{ x } \frac{60 \text{ min}}{\text{hr}} \text{ x 8 Torches x } \frac{\text{lb}}{453.6 \text{ g}} \text{ x 95\% capture x } (1-99\% \text{ control}) = \frac{0.0081 \text{ lb PM/PM}_{10}\text{/PM}_{2.5}}{\text{hr}}$$

$$\frac{0.81 \text{ g PM}}{\text{min}} \text{ x metal HAP wt\% x } \frac{60 \text{ min}}{\text{hr}} \text{ x 8 Torches x } \frac{\text{lb}}{453.6 \text{ g}} \text{ x 95\% capture x } (1-99\% \text{ control}) = \frac{\text{lb metal HAP}}{\text{hr}}$$

$$\frac{\text{lb pollutant}}{\text{hr}} \text{ x } \frac{8{,}760 \text{ hr}}{\text{yr}} \text{ x } \frac{\text{ton}}{2{,}000 \text{ lb}} = \frac{\text{ton pollutant}}{\text{year}}$$

Emissions Calculations - PM and metal HAPs

Pollutant	Metal HAP max wt% in Nucor Steel	Emission Factor	Uncontrolled Hourly Emission Rate	Uncontrolled Annual Emission Rate	Notes
	(wt%)	(g/min)	(lb/hr)	(tpy)	
Filterable PM	-	0.81	0.857	3.754	7
PM_{10}	-	0.81	0.857	3.754	7
$PM_{2.5}$	-	0.81	0.857	3.754	7
Arsenic	0.017%	0.00014	1.47E-04	6.46E-04	8,9
Chromium	0.010%	0.00	8.83E-05	3.87E-04	8,9
Cobalt	0.031%	0.00025	2.65E-04	1.16E-03	8,9
Lead	0.011%	0.00009	9.00E-05	3.94E-04	8,9
Manganese Compounds	1.6%	0.01	1.36E-02	5.97E-02	8,9
Nickel	0.49%	0.004	4.17E-03	1.83E-02	8,9
Total HAP	-	-	1.84E-02	8.06E-02	-

Notes:

7. Filterable PM/PM10/PM2.5 emission factor based on Fumes and Gases in the Welding Environment, the American Welding Society, dated 01/90.

8. HAP emission rates based on the HAP content for Nucor Steel for all metal HAPs greater than or equal to 0.01% by weight.

9. Maximum weight percent of metal in Nucor Steel multiplied by Total PM emission factor.

Pollutant	Uncontrolled		Controlled[a]		Uncaptured[b]	
	Hourly Emission Rate	Annual Emission Rate	Hourly Emission Rate	Annual Emission Rate	Hourly Emission Rate	Annual Emission Rate
	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
Filterable PM	0.857	3.755	0.0081	0.036	0.013	0.056
PM_{10}	0.858	3.757	0.0081	0.036	0.0129	0.056
$PM_{2.5}$	0.858	3.757	0.0081	0.036	0.0129	0.056
Arsenic	1.47E-04	6.46E-04	1.40E-06	6.14E-06	2.21E-06	9.69E-06
Chromium	8.84E-05	3.87E-04	8.40E-07	3.68E-06	1.33E-06	5.81E-06
Cobalt	2.65E-04	1.16E-03	2.52E-06	1.10E-05	3.97E-06	1.74E-05
Lead	9.00E-05	3.94E-04	8.55E-07	3.75E-06	1.35E-06	5.92E-06
Manganese Compounds	1.36E-02	5.97E-02	1.29E-04	5.67E-04	2.04E-04	8.95E-04
Nickel	4.17E-03	1.83E-02	3.97E-05	1.74E-04	6.26E-05	2.74E-04
Beryllium	9.60E-10	4.20E-09	9.12E-12	3.99E-11	1.44E-11	6.31E-11
Cadmium	8.80E-08	3.85E-07	8.36E-10	3.66E-09	1.32E-09	5.78E-09
Mercury	2.08E-08	9.11E-08	1.98E-10	8.65E-10	3.12E-10	1.37E-09
Selenium	1.92E-09	8.41E-09	1.82E-11	7.99E-11	2.88E-11	1.26E-10
Total HAP	1.84E-02	8.06E-02	1.75E-04	7.65E-04	2.76E-04	1.21E-03

a. Emission rate includes 95% capture from down-draft table and 99% conrol from baghouse.

b. Emissions include 5% uncapatured by down-draft table and emitted within building; dischrage to atmoshpere via roof vent with 70% building capture efficiency.

Emission Calculation Equations

Emission calculations based on lb/million scf of natural gas emission factors:

$$\frac{\text{lb pollutant}}{\text{million scf}} \times \frac{\text{scf}}{\text{1,020 Btu}} \times \frac{\text{million Btu}}{\text{hr}} = \frac{\text{lb pollutant}}{\text{hr}}$$

$$\frac{\text{lb pollutant}}{\text{hour}} \times \frac{\text{8,760 hours}}{\text{year}} \times \frac{\text{ton}}{\text{2,000 lbs}} = \frac{\text{ton pollutant}}{\text{year}}$$

Emissions Calculations - Natural Gas Combustion

Pollutant	Emission Factor		Hourly Emission Rate	Annual Emission Rate	Notes
	($lb/10^6$ scf)	(lb/MMBtu)	(lb/hr)	(tpy)	
Filterable PM	1.9		0.0002	0.0007	10
PM_{10}	7.6	0.007	0.0006	0.0027	10
$PM_{2.5}$	7.6	0.007	0.0006	0.0027	10
NO_X	100	0.098	0.01	0.04	11
CO	84	0.082	0.01	0.03	11
SO_2	0.6	0.001	4.80E-05	2.10E-04	10
Lead	0.0005	0.000	4.00E-08	1.75E-07	10
VOC	5.5	0.005	4.40E-04	0.00	10
CO_2	120,000	117.647	9.60	42.05	10
N_2O	2.2	0.002	1.76E-04	0.00	10
CH_4	2.3	0.002	1.84E-04	0.00	10
CO_2e	-	-	9.66	42.30	12
Benzene	0.0021	2.06E-06	1.68E-07	7.36E-07	13
Dichlorobenzene	0.0012	1.18E-06	9.60E-08	4.20E-07	13
Formaldehyde	0.075	7.35E-05	6.00E-06	2.63E-05	13
Hexane	1.8	1.76E-03	1.44E-04	0.00	13
Naphthalene	0.00061	5.98E-07	4.88E-08	2.14E-07	13
Polycyclic Organic Matter	0.0000882	8.65E-08	7.06E-09	3.09E-08	13
Toluene	0.0034	3.33E-06	2.72E-07	1.19E-06	13
Arsenic	0.0002	1.96E-07	1.60E-08	7.01E-08	14
Beryllium	0.000012	1.18E-08	9.60E-10	4.20E-09	14
Cadmium	0.0011	1.08E-06	8.80E-08	3.85E-07	14
Chromium	0.0014	1.37E-06	1.12E-07	4.91E-07	14
Cobalt	0.000084	8.24E-08	6.72E-09	2.94E-08	14
Manganese Compounds	0.00038	3.73E-07	3.04E-08	1.33E-07	14
Mercury	0.00026	2.55E-07	2.08E-08	9.11E-08	14
Nickel	0.0021	2.06E-06	1.68E-07	7.36E-07	14
Selenium	0.000024	2.35E-08	1.92E-09	8.41E-09	14
Total HAP	-	0.002	1.51E-04	6.62E-04	

Notes:

10. Emission factors from AP-42 Section 1.4 Natural Gas Combustion Table 1.4-2; assume Total PM=PM_{10}=$PM_{2.5}$.
11. Emission factors from AP-42 Section 1.4 *Natural Gas Combustion* Table 1.4-1.
12. Global Warming Potentials from 40 CFR 98 Subpart A Table A-1.
13. Emission factors from AP-42 Section 1.4 *Natural Gas Combustion* Table 1.4-3.
14. Emission factors from AP-42 Section 1.4 *Natural Gas Combustion* Table 1.4-4.

Emission Unit (EU) No.	Emission Point Description	Filterable PM	PM_{10}	$PM_{2.5}$	NO_X	CO	SO_2	VOC	Lead	Fluoride	CO_2e
		lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
EP 05-01	Heavy Plate Car Bottom Furnaces #1-#4	0.34	1.4	1.4	14.7	15.2	1.08E-01	0.99	9.02E-05	-	21,776
EP 05-03	Heavy Plate Burning Beds #1 - #3 - Plasma Cutter	0.10	9.86E-02	9.86E-02	1.40	-	-	-	-	-	-
	Heavy Plate Burning Beds #1 - #3 - Oxy Fuel Torches	3.15E-02	3.15E-02	3.15E-02	2.10E-02	1.76E-02	1.26E-04	1.16E-03	3.31E-06	-	25.35
EP 05-04	Heavy Plate Hand-Held Tagger	2.71E-05	2.71E-05	2.71E-05	-	-	-	1.42E-02	-	-	-
	TOTAL	0.47	1.50	1.50	16.14	15.17	0.11	1.01	9.35E-05	0	21,801

Emission Unit (EU) No.	Emission Point Description	Filterable PM	PM_{10}	$PM_{2.5}$	NO_X	CO	SO_2	VOC	Lead	Fluoride	CO_2e
		tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr
EP 05-01	Heavy Plate Car Bottom Furnaces #1-#4	1.50	6.00	6.00	64.47	66.37	0.47	4.35	3.95E-04	-	95,378
EP 05-03	Heavy Plate Burning Beds #1 - #3 - Plasma Cutter	0.43	4.32E-01	4.32E-01	6.13	-	-	-	-	-	-
	Heavy Plate Burning Beds #1 - #3 - Oxy Fuel Torches	1.38E-01	1.38E-01	1.38E-01	9.20E-02	7.73E-02	5.52E-04	5.06E-03	1.45E-05	-	111.03
EP 05-04	Heavy Plate Hand-Held Tagger	1.82E-05	1.82E-05	1.82E-05	-	-	-	7.28E-03	-	-	-
	TOTAL	2.07	6.57	6.57	70.69	66.45	0.47	4.36	4.10E-04	0	95,489

Heavy Plate Burning Beds #1 - #3

EP 05-03A

Plasma Cutter

Nucor Steel Brandenburg

Brandenburg, KY

Description: Heavy Plate Processing Line includes 3 Burning Beds; each Burning Bed includes 2 gantries, each gantry has 2 oxy-fuel torches. One of the burning beds is equiped with a plasma cutter for cutting heavy plates between 2 and 3 inches thick to customer specifications.

Inputs

Description	Value	Units	Notes
Annual Operating Hours	8,760	hrs/yr	
Maximum Hourly Processing Rate	440	tons/hr	1
Maximum Annual Processing Rate	180,000	tons/yr	2
Plasma Cutter Cutting Speed at 3" Thick Plate	600	in/hr	3
Metal Thickness	2	inch	3
Cutting Technique (Dry, Semidry, Wet)	Dry		
Kerf (width of cut)	0.237	inch	3
Metal Density	0.283	lb/in^3	4
Fume Generation (% of particulate generated)	5.0%	%	4
Fume System Capture Efficiency	95%	%	5
Baghouse Control Efficiency	99%	%	5
Building Capture Efficiency	70%	%	6

Notes:

1. Maximum operation for plasma cutter is 8 plates per hour and maximum plate weight of 55 ton/plate.
2. Based on average plate wieght of 18 ton/plate and 10,000 plates/year.
3. Manufacturer's specification for plasma cutter including cutting speed at 2" metal thickness.
4. Specific gravity and fume generation rate based on data provided by the Swedish Institute of Production Engineering Research (https://www3.epa.gov/ttnchie1/efdocs/welding.pdf)
5. Conservative capture and control efficiencies for integrated dust collection system and baghouse.
6. Capture efficiency of PM emissions released within building and discharged to atmosphere via roof vent.

Emissions Summary

Pollutant	Hourly Emission Rate	Annual Emission Rate
	(lb/hr)	(tpy)
Filterable PM	0.099	0.43
PM_{10}	0.099	0.43
$PM_{2.5}$	0.099	0.43
NOx	1.40	6.13
Total HAP	3.08E-03	1.35E-02

Calculation Basis:

Calculation methodology derived from Swedish Institute of Production Engineering Research.

PM Emission Factor (lb PM/inch metal cut)

Emission Factor (lb/in)= Metal Density (lb/in3) x Metal Thickness (in) x Average Kerf (in) x Fume Generation

Emission Factor (lb/in) = 0.0067 lb PM/inch metal cut

PM Emissions Calculations

Emissions captured (95%) and controlled (99%) by baghouse:

$$\text{Emission Factor}\left(\frac{\text{lb PM}}{\text{in cut}}\right) \text{ x Material Cut Rate}\left(\frac{\text{in}}{\text{hr}}\right) \text{x (Capture Efficiency) x (1} - \text{Control Efficiency)} = \frac{\text{lb PM}}{\text{hour}}$$

$$\frac{\text{lb PM}}{\text{hour}} \text{ x } \frac{\text{8,760 hours}}{\text{year}} \text{ x } \frac{\text{ton}}{\text{2,000 lbs}} = \frac{\text{ton PM}}{\text{year}}$$

Emissions not captured by baghouse within building and released to atmosphere via roof vent with 70% building capture:

$$\text{Emission Factor}\left(\frac{\text{lb PM}}{\text{in cut}}\right) \text{ x Material Cut Rate}\left(\frac{\text{in}}{\text{hr}}\right) \text{ x (1} - \text{Capture Efficiency) x (1} - \text{Building Capture Efficiency)} = \frac{\text{lb PM}}{\text{hour}}$$

NO_x Emission Factor (lb NO_x/hr) - Research document emission factor = 5.5 L NOx/min

Emission Factor (lb/hr) = (5.5 L NOx/min) x (0.12 lb NOx/ft^3) x (1 ft^3/28.3 L) x (60 min/hr)

Emission Factor (lb/hr) = (5 1.40 lb NOx/hr

Emissions Calculations

$$\text{Emission Factor}\left(\frac{\text{lb NOx}}{\text{hr}}\right) \text{ x } \frac{\text{Plate Cut Rate}\left(\frac{\text{in}}{\text{hr}}\right)}{\text{Cutting Speed}\left(\frac{\text{in}}{\text{hr}}\right)} = \frac{\text{lb NOx}}{\text{hour}}$$

$$\frac{\text{lb NOx}}{\text{hour}} \text{ x } \frac{\text{8,760 hours}}{\text{year}} \text{ x } \frac{\text{ton}}{\text{2,000 lbs}} = \frac{\text{ton NOx}}{\text{year}}$$

PM Emissions:

Pollutant	Emission Factor	Maximum Cut Rate	Uncontrolled Hourly Emission Rate	Uncontrolled Annual Emission Rate
	(lb/in cut)	(in/hr)	(lb/hr)	(tpy)
Filterable PM	0.0067	600	4.02	17.62
PM_{10}	0.0067	600	4.02	17.62
$PM_{2.5}$	0.0067	600	4.02	17.62

Pollutant	Uncontrolled		Controlled[a]		Uncaptured[b]	
	Hourly Emission Rate	Annual Emission Rate	Hourly Emission Rate	Annual Emission Rate	Hourly Emission Rate	Annual Emission Rate
	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
Filterable PM	4.02	17.62	0.038	0.17	0.060	0.26
PM_{10}	4.02	17.62	0.038	0.17	0.060	0.26
$PM_{2.5}$	4.02	17.62	0.038	0.17	0.060	0.26
Manganese Compounds	6.40E-02	2.80E-01	6.08E-04	2.66E-03	9.59E-04	4.20E-03
Chromium	4.14E-02	1.81E-01	3.94E-04	1.72E-03	6.21E-04	2.72E-03
Nickel	1.96E-02	8.58E-02	1.86E-04	8.15E-04	2.94E-04	1.29E-03
Arsenic	6.92E-04	3.03E-03	6.57E-06	2.88E-05	1.04E-05	4.55E-05
Total HAP	1.26E-01	5.50E-01	1.19E-03	5.23E-03	1.89E-03	8.26E-03

a. Emission rate includes 95% capture from down-draft table and 99% conrol from baghouse.
b. Emissions include 5% uncapatured by down-draft table and emitted within building; dischrage to atmoshpere via roof vent with 70% building capture efficiency.

NOx Emissions:

Pollutant	Emission Factor	Maximum Inches Cut per Hour	Cutting Speed	Cutter Use Rate	Hourly Emission Rate	Annual Emission Rate
	(lb/hr)	(in/hr)	(in/hr)	(% of hour)	(lb/hr)	(tpy)
NOx	1.40	600	600	1.00	1.40	6.13

HAP Emissions:

Pollutant	PM Hourly Emission Rate	PM Annual Emission Rate	Concentration[6]	Hourly Emission Rate	Annual Emission Rate
	(lb/hr)	(tpy)	(%)	(lb/hr)	(tpy)
Manganese Compounds	4.022	17.62	1.59%	6.40E-02	2.80E-01
Chromium	4.022	17.62	1.030%	4.14E-02	1.81E-01
Nickel	4.022	17.62	0.487%	1.96E-02	8.58E-02
Arsenic	4.022	17.62	0.017%	6.92E-04	3.03E-03

6. HAP emission rates based on maximum HAP content for Nucor steel for all metal HAPs greater than or equal to 0.01% by weight.

Heavy Plate Burning Beds
EP 05-03B
Oxy Fuel Torches

Nucor Steel Brandenburg
Brandenburg, KY

Description: Heavy Plate Processing Line includes 3 Burning Beds; each Burning Bed includes 2 gantry, each gantry has 2 oxy-fuel torches . Oxy-fuel torches are employed for cutting heavy plates primarily between 3 and 18 inches thick to customer specifications.

Inputs

Description	Value	Units	Notes
Annual Operating Hours	8,760	hrs/yr	
Maximum Hourly Processing Rate	275	tons/hr	1
Maximum Annual Processing Rate	268,750	tons/yr	2
Natural Gas Consumption per Torch	17.5	scf/hr	3
Number of Torches	12	-	4
Total Natural Gas Consumption	210	scf/hr	
Total Natural Gas Consumption	0.00021	MMscf/hr	
Dust Collector Capture Efficiency	95%	%	5
Dust Collector Control Efficiency	99%	%	5
Building Capture Efficiency	70%	%	6

Notes:

1. Based on 5 plates per hour at maximum plate wieght of 55 ton/plate.
2. Based on 6,250 plates per year and an average plate wieght of 43 ton/plate.
3. Manufacturer's specifications for cutting tips.
4. Three burning beds each with 4 torches, conservatively assuming all 12 torches continuously operate.
5. Conservative capture and control efficiencies for integrated dust collection system and baghouse.
6. Capture efficiency of PM emissions released within building and discharged to atmosphere via roof vent.

Total Emissions Summary

Pollutant	Hourly Emission Rate (lb/hr)	Annual Emission Rate (tpy)
Filterable PM	0.0319	0.140
PM_{10}	0.0331	0.145
$PM_{2.5}$	0.0331	0.145
NO_X	0.021	0.09
CO	0.018	0.08
SO_2	0.00013	0.0006
Lead	3.31E-06	1.45E-05
VOC	0.0012	0.005
CO_2e	25	111
Total HAP	0.00107	0.0047

PM and Metal HAP Emission Calculation Equations

Emission calculations based fume generation rate and metal HAP content of steel:

$$\frac{0.81\text{ g PM/PM}_{10}\text{/PM}_{2.5}}{\text{min}} \text{ x } \frac{60\text{ min}}{\text{hr}} \text{ x 8 Torches x } \frac{\text{lb}}{453.6\text{ g}} \text{ x 90\% capture x } (1-99\%\text{ control}) = \frac{0.0021\text{ lb PM/PM}_{10}\text{/PM}_{2.5}}{\text{hr}}$$

$$\frac{0.81\text{ g PM}}{\text{min}} \text{ x metal HAP wt\% x } \frac{60\text{ min}}{\text{hr}} \text{ x 7 Torches x } \frac{\text{lb}}{453.6\text{ g}} \text{ x 90\% capture x } (1-99\%\text{ control}) = \frac{\text{lb metal HAP}}{\text{hr}}$$

$$\frac{\text{lb pollutant}}{\text{hr}} \text{ x } \frac{8{,}760\text{ hr}}{\text{yr}} \text{ x } \frac{\text{ton}}{2{,}000\text{ lb}} = \frac{\text{ton pollutant}}{\text{year}}$$

Emissions Calculations - PM and metal HAPs

Pollutant	Metal HAP max wt% in Nucor Steel	Emission Factor	Uncontrolled Hourly Emission Rate	Uncontrolled Annual Emission Rate	Notes
	(wt%)	(g/min)	(lb/hr)	(tpy)	
Filterable PM	-	0.81	1.286	5.631	7
PM_{10}	-	0.81	1.286	5.631	7
$PM_{2.5}$	-	0.81	1.286	5.631	7
Arsenic	0.017%	0.00014	2.21E-04	9.69E-04	8,9
Chromium	0.010%	0.00	1.32E-04	5.80E-04	8,9
Cobalt	0.031%	0.00025	3.97E-04	1.74E-03	8,9
Lead	0.011%	0.00009	1.35E-04	5.91E-04	8,9
Manganese Compounc	1.6%	0.01	2.04E-02	8.95E-02	8,9
Nickel	0.49%	0.004	6.26E-03	2.74E-02	8,9
Total HAP	-	-	2.76E-02	1.21E-01	-

Notes:

7. Filterable PM/PM10/PM2.5 emission factor based on Fumes and Gases in the Welding Environment, the American Welding Society, dated 01/90.

8. HAP emission rates based on the HAP content for Nucor Steel for all metal HAPs greater than or equal to 0.01% by weight.

9. Maximum weight percent of metal in Nucor Steel multiplied by Total PM emission factor.

Pollutant	Uncontrolled		Controlled[a]		Uncaptured[b]	
	Hourly Emission Rate	Annual Emission Rate	Hourly Emission Rate	Annual Emission Rate	Hourly Emission Rate	Annual Emission Rate
	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
Filterable PM	1.286	5.633	0.0122	0.054	0.019	0.084
PM_{10}	1.287	5.638	0.0122	0.054	0.0193	0.085
$PM_{2.5}$	1.287	5.638	0.0122	0.054	0.0193	0.085
Arsenic	2.21E-04	9.69E-04	2.10E-06	9.20E-06	3.32E-06	1.45E-05
Chromium	1.33E-04	5.81E-04	1.26E-06	5.52E-06	1.99E-06	8.72E-06
Cobalt	3.97E-04	1.74E-03	3.77E-06	1.65E-05	5.96E-06	2.61E-05
Lead	1.35E-04	5.92E-04	1.28E-06	5.62E-06	2.03E-06	8.88E-06
Manganese Compounc	2.04E-02	8.95E-02	1.94E-04	8.51E-04	3.07E-04	1.34E-03
Nickel	6.26E-03	2.74E-02	5.95E-05	2.61E-04	9.39E-05	4.11E-04
Beryllium	2.52E-09	1.10E-08	2.39E-11	1.05E-10	3.78E-11	1.66E-10
Cadmium	2.31E-07	1.01E-06	2.19E-09	9.61E-09	3.47E-09	1.52E-08
Mercury	5.46E-08	2.39E-07	5.19E-10	2.27E-09	8.19E-10	3.59E-09
Selenium	5.04E-09	2.21E-08	4.79E-11	2.10E-10	7.56E-11	3.31E-10
Total HAP	2.76E-02	1.21E-01	2.62E-04	1.15E-03	4.14E-04	1.81E-03

a. Emission rate includes 95% capture from down-draft table and 99% conrol from baghouse.

b. Emissions include 5% uncapatured by down-draft table and emitted within building; dischrage to atmoshpere via roof vent with 70% building capture efficiency.

Fuel Combustion Emission Calculation Equations

Emission calculations based on lb/million scf of natural gas emission factors:

$$\frac{\text{lb pollutant}}{\text{million scf}} \times \frac{\text{scf}}{\text{1,020 Btu}} \times \frac{\text{million Btu}}{\text{hr}} = \frac{\text{lb pollutant}}{\text{hr}}$$

$$\frac{\text{lb pollutant}}{\text{hour}} \times \frac{\text{8,760 hours}}{\text{year}} \times \frac{\text{ton}}{\text{2,000 lbs}} = \frac{\text{ton pollutant}}{\text{year}}$$

Emissions Calculations - Natural Gas Combustion

Pollutant	Emission Factor		Hourly Emission Rate	Annual Emission Rate	Notes
	($lb/10^6$ scf)	(lb/MMBtu)	(lb/hr)	(tpy)	
Filterable PM	1.9	0.002	0.0004	0.0017	7
PM_{10}	7.6	0.007	0.0016	0.0070	7
$PM_{2.5}$	7.6	0.007	0.0016	0.0070	7
NO_X	100	0.098	0.02	0.09	8
CO	84	0.082	0.02	0.08	8
SO_2	0.6	0.001	1.26E-04	5.52E-04	7
Lead	0.0005	0.000	1.05E-07	4.60E-07	7
VOC	5.5	0.005	1.16E-03	0.01	7
CO_2	120,000	117.647	25.20	110.38	7
N_2O	2.2	0.002	4.62E-04	0.00	7
CH_4	2.3	0.002	4.83E-04	0.00	7
CO_2e	-	-	25.35	111.03	9
Benzene	0.0021	2.06E-06	4.41E-07	1.93E-06	10
Dichlorobenzene	0.0012	1.18E-06	2.52E-07	1.10E-06	10
Formaldehyde	0.075	7.35E-05	1.58E-05	6.90E-05	10
Hexane	1.8	1.76E-03	3.78E-04	0.00	10
Naphthalene	0.00061	5.98E-07	1.28E-07	5.61E-07	10
Polycyclic Organic Mat	0.0000882	8.65E-08	1.85E-08	8.11E-08	10
Toluene	0.0034	3.33E-06	7.14E-07	3.13E-06	10
Arsenic	0.0002	1.96E-07	4.20E-08	1.84E-07	11
Beryllium	0.000012	1.18E-08	2.52E-09	1.10E-08	11
Cadmium	0.0011	1.08E-06	2.31E-07	1.01E-06	11
Chromium	0.0014	1.37E-06	2.94E-07	1.29E-06	11
Cobalt	0.000084	8.24E-08	1.76E-08	7.73E-08	11
Manganese Compound	0.00038	3.73E-07	7.98E-08	3.50E-07	11
Mercury	0.00026	2.55E-07	5.46E-08	2.39E-07	11
Nickel	0.0021	2.06E-06	4.41E-07	1.93E-06	11
Selenium	0.000024	2.35E-08	5.04E-09	2.21E-08	11
Total HAP	-	0.002	3.97E-04	1.74E-03	

Notes:

7. Emission factors from AP-42 Section 1.4 Natural Gas Combustion Table 1.4-2; assume Total PM=PM_{10}=$PM_{2.5}$.
8. Emission factors from AP-42 Section 1.4 *Natural Gas Combustion* Table 1.4-1.
9. Global Warming Potentials from 40 CFR 98 Subpart A Table A-1.
10. Emission factors from AP-42 Section 1.4 *Natural Gas Combustion* Table 1.4-3.
11. Emission factors from AP-42 Section 1.4 *Natural Gas Combustion* Table 1.4-4.

Emission Unit (EU) No.	Emission Point Description	Filterable PM	PM_{10}	$PM_{2.5}$	NO_X	CO	SO_2	VOC	Lead	Fluoride	CO_2e
		lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
EP 09-01	Melt Shop ICW Cooling Tower, System 100	0.69	0.51	1.54E-03	-	-	-	-	-	-	-
EP 09-02	Melt Shop DCW Cooling Tower, System 200	0.240	0.17	5.31E-04	-	-	-	-	-	-	-
~~EP 09-03~~	~~Rolling Mill ICW Cooling Tower~~	-	-	-	-	-	-	-	-	-	-
EP 09-04	Rolling Mill DCW Cooling Tower, System 400	0.826	0.568	1.79E-03	-	-	-	-	-	-	-
EP 09-05	Rolling Mill ACC ICW Cooling Tower, System 500	0.49	0.34	1.06E-03	-	-	-	-	-	-	-
EP 09-06	Heavy Plate Quench DCW Cooling Tower, System 600	0.152	0.110	0.000	-	-	-	-	-	-	-
EP 09-07	Quench & ACC Laminar DCW Cooling Tower, System 700	0.661	0.480	1.46E-03	-	-	-	-	-	-	-
EP 09-08	Heat Treat Cooling Tower, System 800	0.46	0.34	0.00	-	-	-	-	-	-	-
EP 09-09	Air Seperation Plant Cooling Tower, System 900	0.179	0.134	0.000	-	-	-	-	-	-	-
	TOTAL	19.91	14.29	0.044	0	0	0	0	0	0	0

Emission Unit (EU) No.	Emission Point Description	Filterable PM	PM_{10}	$PM_{2.5}$	NO_X	CO	SO_2	VOC	Lead	Fluoride	CO_2e
		tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr
EP 09-01	Melt Shop ICW Cooling Tower, System 100	3.02	2.25	0.0068	-	-	-	-	-	-	-
EP 09-02	Melt Shop DCW Cooling Tower, System 200	1.05	0.764	0.0023	-	-	-	-	-	-	-
~~EP 09-03~~	~~Rolling Mill ICW Cooling Tower~~	-	-	-	-	-	-	-	-	-	-
EP 09-04	Rolling Mill DCW Cooling Tower, System 400	3.62	2.49	0.0078	-	-	-	-	-	-	-
EP 09-05	Rolling Mill ACC ICW Cooling Tower, System 500	2.15	1.48	0.0047	-	-	-	-	-	-	-
EP 09-06	Heavy Plate Quench DCW Cooling Tower, System 600	0.66	0.48	0.0015	-	-	-	-	-	-	-
EP 09-07	Quench & ACC Laminar DCW Cooling Tower, System 700	2.89	2.102	0.0064	-	-	-	-	-	-	-
EP 09-08	Heat Treat Cooling Tower, System 800	2.03	1.48	0.0045	-	-	-	-	-	-	-
EP 09-09	Air Seperation Plant Cooling Tower, System 900	0.79	0.59	0.0018	-	-	-	-	-	-	-
	TOTAL	18.87	11.64	0.036	0	0	0	0	0	0	0

Inputs

Description	Value	Units	Notes
Annual Operating Hours	8,760	hrs/yr	
Cooling Tower Circulating Water Rate	49,200	gal/min	1
Percent Drift	0.001%	%	2
Total Dissolved Solids (TDS) Content	2,800	ppm	3
Percent of Filterable PM that is PM_{10}	74.68%	%	4
Percent of Filterable PM that is $PM_{2.5}$	0.22%	%	4

Notes:

1. Cooling tower vendor rated cooling capacity.
2. Based on BACT requirements for High Efficiency Drift Eliminator.
3. Design TDS concentration for non-contact cooling water.
4. Conservatively based on an expanded Reisman-Frisbie method.

Emissions Summary

Pollutant	Hourly Emission Rate	Annual Emission Rate
	(lb/hr)	(tpy)
Filterable PM	0.69	3.02
PM_{10}	0.51	2.25
$PM_{2.5}$	1.5E-03	6.76E-03

Emission Calculation Equations

Particulate emission calculations based on percent drift and TDS content:

$$\text{Cooling Water Circulating Rate}\left(\frac{\text{gal}}{\text{min}}\right) \text{ x } \%\text{ Drift x } \frac{\text{TDS Content (ppm)}}{1{,}000{,}000} \text{ x } \frac{60\text{ min}}{\text{hour}} \text{ x } \frac{8.34\text{ lb}}{\text{gal}} \times \text{Particle Size Distribution (\%)} = \frac{\text{lb pollutant}}{\text{hour}}$$

$$\frac{\text{lb pollutant}}{\text{hour}} \text{ x } \frac{8{,}760\text{ hours}}{\text{year}} \text{ x } \frac{\text{ton}}{2{,}000\text{ lbs}} = \frac{\text{ton pollutant}}{\text{year}}$$

Emission Calculations

Pollutant	Cooling Tower Circulating Water Rate	% Drift	Drift Rate	Total Dissolved Solids Content	Particle Size Distribution[5]	Hourly Emission Rate	Annual Emission Rate
	(gal/min)	%	(gal/min)	(ppm)	%	(lb/hr)	(tpy)
Filterable PM	49,200	0.001%	0.49	2,800	100%	0.69	3.02
PM_{10}	49,200	0.001%	0.49	2,800	74.68%	0.51	2.25
$PM_{2.5}$	49,200	0.001%	0.49	2,800	0.22%	1.54E-03	6.76E-03

Notes:

5. Particulate size distribution is based on the a geometric relationship between the aerodynamic diameter of the water droplets and the aerodynamic diameter of the particulate contained inside the droplet and an emission rate using data from a test conducted by Environmental Systems Corporation at the Electric Power Research Institute (EPRI). Please see "Calculating Realistic PM_{10} Emissions From Cooling Towers." Reisman-Frisbie. Environmental Progress 21 (July 2002): Pages 127-130 for more details.

Inputs

Description	Value	Units	Notes
Annual Operating Hours	8,760	hrs/yr	
Cooling Tower Circulating Water Rate	16,000	gal/min	1
Percent Drift	0.001%	%	2
Total Dissolved Solids Content	3,000	ppm	3
Percent of Filterable PM that is PM_{10}	72.7%	%	4
Percent of Filterable PM that is $PM_{2.5}$	0.22%	%	4

Notes:

1. Cooling tower vendor rated cooling capacity.
2. Based on BACT requirements for High Efficiency Drift Eliminator.
3. Design TDS concentration for contact cooling water.
4. Based on the Reisman-Frisbie method: Environmental Progress (Vol 21, No 2), July 2002.

Emissions Summary

Pollutant	Hourly Emission Rate	Annual Emission Rate
	(lb/hr)	(tpy)
Filterable PM	0.24	1.05
PM_{10}	0.17	0.76
$PM_{2.5}$	5.3E-04	2.33E-03

Emission Calculations

Pollutant	Cooling Tower Circulating Water Rate	% Drift	Drift Rate	Total Dissolved Solids Content(3)	Particle Size Distribution(5)	Hourly Emission Rate (6)	Annual Emission Rate (7)
	(gal/min)	%	(gal/min)	(ppm)	%	(lb/hr)	(tpy)
Filterable PM	16,000	0.001%	0.16	3,000	100%	0.24	1.05
PM_{10}	16,000	0.001%	0.16	3,000	72.7%	0.17	0.76
$PM_{2.5}$	16,000	0.001%	0.16	3,000	0.22%	5.31E-04	2.33E-03

Notes:

5. Particulate size distribution is based on the a geometric relationship between the aerodynamic diameter of the water droplets and the aerodynamic diameter of the particulate contained inside the droplet and an emission rate using data from a test conducted by Environmental Systems Corporation at the Electric Power Research Institute (EPRI). Please see "Calculating Realistic PM_{10} Emissions From Cooling Towers." Reisman-Frisbie. Environmental Progress 21 (July 2002): Pages 127-130 for more details.

6. Hourly Emission Rate (lb/hr) = Cooling Water Drift Rate (gal/min) * Dissolved Solids Content (ppm) / 1,000,000 * 60 min/hr * 8.34 lb/gal of water * Particle Size Distribution %

7. Annual Emission Rate (tpy) = Hourly Emission Rate (lb/hr) * Annual Operating Hours (hrs/yr) / 2000 lb/ton

Inputs

Description	Value	Units	Notes
Annual Operating Hours	8,760	hrs/yr	
Cooling Tower Circulating Water Rate	55,000	gal/min	1
Percent Drift	0.001%	%	2
Total Dissolved Solids Content	3,000	ppm	3
Percent of Filterable PM that is PM_{10}	68.81%	%	4
Percent of Filterable PM that is $PM_{2.5}$	0.22%	%	4

Notes:

1. Cooling tower vendor rated cooling capacity.
2. Based on BACT requirements for High Efficiency Drift Eliminator.
3. Design TDS concentration for contact cooling water.
4. Based on the Reisman-Frisbie method: Environmental Progress (Vol 21, No 2), July 2002.

Emissions Summary

Pollutant	Hourly Emission Rate	Annual Emission Rate
	(lb/hr)	(tpy)
Filterable PM	0.83	3.62
PM_{10}	0.57	2.49
$PM_{2.5}$	1.79E-03	7.85E-03

Emission Calculations

Pollutant	Cooling Tower Circulating Water Rate	% Drift	Drift Rate	Total Dissolved Solids Content(3)	Particle Size Distribution(5)	Hourly Emission Rate (6)	Annual Emission Rate (7)
	(gal/min)	%	(gal/min)	(ppm)	%	(lb/hr)	(tpy)
Filterable PM	55,000	0.001%	0.55	3,000	100%	0.83	3.62
PM_{10}	55,000	0.001%	0.55	3,000	68.81%	0.57	2.49
$PM_{2.5}$	55,000	0.001%	0.55	3,000	0.22%	1.79E-03	7.85E-03

Notes:

5. Particulate size distribution is based on the a geometric relationship between the aerodynamic diameter of the water droplets and the aerodynamic diameter of the particulate contained inside the droplet and an emission rate using data from a test conducted by Environmental Systems Corporation at the Electric Power Research Institute (EPRI). Please see "Calculating Realistic PM_{10} Emissions From Cooling Towers." Reisman-Frisbie. Environmental Progress 21 (July 2002): Pages 127-130 for more details.

6. Hourly Emission Rate (lb/hr) = Cooling Water Drift Rate (gal/min) * Dissolved Solids Content (ppm) / 1,000,000 * 60 min/hr * 8.34 lb/gal of water * Particle Size Distribution %

7. Annual Emission Rate (tpy) = Hourly Emission Rate (lb/hr) * Annual Operating Hours (hrs/yr) / 2000 lb/ton

Rolling Mill ACC ICW Cooling Tower, System 500
EP 09-05

Nucor Steel Brandenburg
Brandenburg, KY

Inputs

Description	Value	Units	Notes
Annual Operating Hours	8,760	hrs/yr	
Cooling Tower Circulating Water Rate	35,000	gal/min	1
Percent Drift	0.001%	%	2
Total Dissolved Solids Content	2,800	ppm	3
Percent of Filterable PM that is PM_{10}	68.81%	%	4
Percent of Filterable PM that is $PM_{2.5}$	0.22%	%	4

Notes:

1. Cooling tower vendor rated cooling capacity.
2. Based on BACT requirements for High Efficiency Drift Eliminator.
3. Design TDS concentration for contact cooling water.
4. Based on the Reisman-Frisbie method: Environmental Progress (Vol 21, No 2), July 2002.

Emissions Summary

Pollutant	Hourly Emission Rate	Annual Emission Rate
	(lb/hr)	(tpy)
Filterable PM	0.49	2.15
PM_{10}	0.34	1.48
$PM_{2.5}$	1.06E-03	4.66E-03

Emission Calculations

Pollutant	Cooling Tower Circulating Water Rate	% Drift	Drift Rate	Total Dissolved Solids Content(3)	Particle Size Distribution(5)	Hourly Emission Rate (6)	Annual Emission Rate (7)
	(gal/min)	%	(gal/min)	(ppm)	%	(lb/hr)	(tpy)
Filterable PM	35,000	0.001%	0.35	2,800	100%	0.49	2.15
PM_{10}	35,000	0.001%	0.35	2,800	68.81%	0.34	1.48
$PM_{2.5}$	35,000	0.001%	0.35	2,800	0.22%	1.06E-03	4.66E-03

Notes:

5. Particulate size distribution is based on the a geometric relationship between the aerodynamic diameter of the water droplets and the aerodynamic diameter of the particulate contained inside the droplet and an emission rate using data from a test conducted by Environmental Systems Corporation at the Electric Power Research Institute (EPRI). Please see "Calculating Realistic PM_{10} Emissions From Cooling Towers." Reisman-Frisbie. Environmental Progress 21 (July 2002): Pages 127-130 for more details.

6. Hourly Emission Rate (lb/hr) = Cooling Water Drift Rate (gal/min) * Dissolved Solids Content (ppm) / 1,000,000 * 60 min/hr * 8.34 lb/gal of water * Particle Size Distribution %

7. Annual Emission Rate (tpy) = Hourly Emission Rate (lb/hr) * Annual Operating Hours (hrs/yr) / 2000 lb/ton

Heavy Plate Quench DCW Cooling Tower, System 600

EP 09-06

Nucor Steel Brandenburg

Brandenburg, KY

Inputs

Description	Value	Units	Notes
Annual Operating Hours	8,760	hrs/yr	
Cooling Tower Circulating Water Rate	10,100	gal/min	1
Percent Drift	0.001%	%	2
Total Dissolved Solids Content	3,000	ppm	3
Percent of Filterable PM that is PM_{10}	72.66%	%	4
Percent of Filterable PM that is $PM_{2.5}$	0.22%	%	4

Notes:

1. Cooling tower vendor rated cooling capacity.
2. Based on BACT requirements for High Efficiency Drift Eliminator.
3. Design TDS concentration for contact cooling water.
4. Based on the Reisman-Frisbie method: Environmental Progress (Vol 21, No 2), July 2002.

Emissions Summary

Pollutant	Hourly Emission Rate	Annual Emission Rate
	(lb/hr)	(tpy)
Filterable PM	0.15	0.66
PM_{10}	0.11	0.48
$PM_{2.5}$	3.35E-04	1.47E-03

Emission Calculations

Pollutant	Cooling Tower Circulating Water Rate	% Drift	Drift Rate	Total Dissolved Solids Content(3)	Particle Size Distribution(5)	Hourly Emission Rate (6)	Annual Emission Rate (7)
	(gal/min)	%	(gal/min)	(ppm)	%	(lb/hr)	(tpy)
Filterable PM	10,100	0.001%	0.10	3,000	100%	0.152	0.66
PM_{10}	10,100	0.001%	0.10	3,000	72.66%	0.110	0.48
$PM_{2.5}$	10,100	0.001%	0.10	3,000	0.22%	3.35E-04	1.47E-03

Notes:

5. Particulate size distribution is based on the a geometric relationship between the aerodynamic diameter of the water droplets and the aerodynamic diameter of the particulate contained inside the droplet and an emission rate using data from a test conducted by Environmental Systems Corporation at the Electric Power Research Institute (EPRI). Please see "Calculating Realistic PM_{10} Emissions From Cooling Towers." Reisman-Frisbie. Environmental Progress 21 (July 2002): Pages 127-130 for more details.

6. Hourly Emission Rate (lb/hr) = Cooling Water Drift Rate (gal/min) * Dissolved Solids Content (ppm) / 1,000,000 * 60 min/hr * 8.34 lb/gal of water * Particle Size Distribution %

7. Annual Emission Rate (tpy) = Hourly Emission Rate (lb/hr) * Annual Operating Hours (hrs/yr) / 2000 lb/ton

Quench & ACC Laminar DCW Cooling Tower, System 700
EP 09-07

Nucor Steel Brandenburg
Brandenburg, KY

Inputs

Description	Value	Units	Notes
Annual Operating Hours	8,760	hrs/yr	
Cooling Tower Circulating Water Rate	44,000	gal/min	1
Percent Drift	0.001%	%	2
Total Dissolved Solids Content	3,000	ppm	3
Percent of Filterable PM that is PM_{10}	72.66%	%	4
Percent of Filterable PM that is $PM_{2.5}$	0.22%	%	4

Notes:

1. Cooling tower vendor rated cooling capacity.
2. Based on BACT requirements for High Efficiency Drift Eliminator.
3. Design TDS concentration for contact cooling water.
4. Based on the Reisman-Frisbie method: Environmental Progress (Vol 21, No 2), July 2002.

Emissions Summary

Pollutant	Hourly Emission Rate	Annual Emission Rate
	(lb/hr)	(tpy)
Filterable PM	0.66	2.89
PM_{10}	0.48	2.10
$PM_{2.5}$	1.46E-03	6.39E-03

Emission Calculations

Pollutant	Cooling Tower Circulating Water Rate	% Drift	Drift Rate	Total Dissolved Solids Content(3)	Particle Size Distribution(5)	Hourly Emission Rate (6)	Annual Emission Rate (7)
	(gal/min)	%	(gal/min)	(ppm)	%	(lb/hr)	(tpy)
Filterable PM	44,000	0.001%	0.44	3,000	100%	0.66	2.89
PM_{10}	44,000	0.001%	0.44	3,000	72.66%	0.48	2.10
$PM_{2.5}$	44,000	0.001%	0.44	3,000	0.22%	1.46E-03	6.39E-03

Notes:

5. Particulate size distribution is based on the a geometric relationship between the aerodynamic diameter of the water droplets and the aerodynamic diameter of the particulate contained inside the droplet and an emission rate using data from a test conducted by Environmental Systems Corporation at the Electric Power Research Institute (EPRI). Please see "Calculating Realistic PM_{10} Emissions From Cooling Towers." Reisman-Frisbie. Environmental Progress 21 (July 2002): Pages 127-130 for more details.

6. Hourly Emission Rate (lb/hr) = Cooling Water Drift Rate (gal/min) * Dissolved Solids Content (ppm) / 1,000,000 * 60 min/hr * 8.34 lb/gal of water * Particle Size Distribution %

7. Annual Emission Rate (tpy) = Hourly Emission Rate (lb/hr) * Annual Operating Hours (hrs/yr) / 2000 lb/ton

Heat Treat Cooling Tower, System 800

EP 09-08

Nucor Steel Brandenburg

Brandenburg, KY

Inputs

Description	Value	Units	Notes
Annual Operating Hours	8,760	hrs/yr	
Cooling Tower Circulating Water Rate	30,900	gal/min	1
Percent Drift	0.001%	%	2
Total Dissolved Solids Content	3,000	ppm	3
Percent of Filterable PM that is PM_{10}	72.66%	%	4
Percent of Filterable PM that is $PM_{2.5}$	0.22%	%	4

Notes:

1. Cooling tower vendor rated cooling capacity.
2. Based on BACT requirements for High Efficiency Drift Eliminator.
3. Design TDS concentration for contact cooling water.
4. Based on the Reisman-Frisbie method: Environmental Progress (Vol 21, No 2), July 2002.

Emissions Summary

Pollutant	Hourly Emission Rate	Annual Emission Rate
	(lb/hr)	(tpy)
Filterable PM	0.46	2.03
PM_{10}	0.34	1.48
$PM_{2.5}$	1.03E-03	4.49E-03

Emission Calculations

Pollutant	Cooling Tower Circulating Water Rate	% Drift	Drift Rate	Total Dissolved Solids Content(3)	Particle Size Distribution(5)	Hourly Emission Rate (6)	Annual Emission Rate (7)
	(gal/min)	%	(gal/min)	(ppm)	%	(lb/hr)	(tpy)
Filterable PM	30,900	0.001%	0.31	3,000	100%	0.46	2.03
PM_{10}	30,900	0.001%	0.31	3,000	72.66%	0.34	1.48
$PM_{2.5}$	30,900	0.001%	0.31	3,000	0.22%	1.03E-03	4.49E-03

Notes:

5. Particulate size distribution is based on the a geometric relationship between the aerodynamic diameter of the water droplets and the aerodynamic diameter of the particulate contained inside the droplet and an emission rate using data from a test conducted by Environmental Systems Corporation at the Electric Power Research Institute (EPRI). Please see "Calculating Realistic PM_{10} Emissions From Cooling Towers." Reisman-Frisbie. Environmental Progress 21 (July 2002): Pages 127-130 for more details.

6. Hourly Emission Rate (lb/hr) = Cooling Water Drift Rate (gal/min) * Dissolved Solids Content (ppm) / 1,000,000 * 60 min/hr * 8.34 lb/gal of water * Particle Size Distribution %

7. Annual Emission Rate (tpy) = Hourly Emission Rate (lb/hr) * Annual Operating Hours (hrs/yr) / 2000 lb/ton

Air Seperation Plant Cooling Tower, System 900

EP 09-09

Nucor Steel Brandenburg

Brandenburg, KY

Inputs

Description	Value	Units	Notes
Annual Operating Hours	8,760	hrs/yr	
Cooling Tower Circulating Water Rate	12,800	gal/min	1
Percent Drift	0.001%	%	2
Total Dissolved Solids (TDS) Content	2,800	ppm	3
Percent of Filterable PM that is PM_{10}	74.68%	%	4
Percent of Filterable PM that is $PM_{2.5}$	0.22%	%	4

Notes:

1. Cooling tower vendor rated cooling capacity.
2. Based on BACT requirements for High Efficiency Drift Eliminator.
3. Design TDS concentration for non-contact cooling water.
4. Based on the Reisman-Frisbie method: Environmental Progress (Vol 21, No 2), July 2002.

Emissions Summary

Pollutant	Hourly Emission Rate	Annual Emission Rate
	(lb/hr)	(tpy)
Filterable PM	0.18	0.79
PM_{10}	0.13	0.59
$PM_{2.5}$	4.0E-04	1.76E-03

Emission Calculation Equations

Particulate emission calculations based on percent drift and TDS content:

$$\text{Cooling Water Circulating Rate}\left(\frac{\text{gal}}{\text{min}}\right) \text{ x } \%\text{ Drift x } \frac{\text{TDS Content (ppm)}}{1{,}000{,}000} \text{ x } \frac{60\text{ min}}{\text{hour}} \text{ x } \frac{8.34\text{ lb}}{\text{gal}} \times \text{Particle Size Distribution (\%)} = \frac{\text{lb pollutant}}{\text{hour}}$$

$$\frac{\text{lb pollutant}}{\text{hour}} \text{ x } \frac{8{,}760\text{ hours}}{\text{year}} \text{ x } \frac{\text{ton}}{2{,}000\text{ lbs}} = \frac{\text{ton pollutant}}{\text{year}}$$

Emission Calculations

Pollutant	Cooling Tower Circulating Water Rate	% Drift	Drift Rate	Total Dissolved Solids Content (3)	Particle Size Distribution(5)	Hourly Emission Rate	Annual Emission Rate
	(gal/min)	%	(gal/min)	(ppm)	%	(lb/hr)	(tpy)
Filterable PM	12,800	0.001%	0.13	2,800	100%	0.18	0.79
PM_{10}	12,800	0.001%	0.13	2,800	74.68%	0.13	0.59
$PM_{2.5}$	12,800	0.001%	0.13	2,800	0.22%	4.02E-04	1.76E-03

Notes:

5. Particulate size distribution is based on the a geometric relationship between the aerodynamic diameter of the water droplets and the aerodynamic diameter of the particulate contained inside the droplet and an emission rate using data from a test conducted by Environmental Systems Corporation at the Electric Power Research Institute (EPRI). Please see "Calculating Realistic PM_{10} Emissions From Cooling Towers." Reisman-Frisbie. Environmental Progress 21 (July 2002): Pages 127-130 for more details.

EU10 Emergency Generators > 500 HP

Project Emissions

Nucor Steel Brandenburg

Brandenburg, KY

Emission Unit (EU) No.	Emission Point Description	Filterable PM lb/hr	PM_{10} lb/hr	$PM_{2.5}$ lb/hr	NO_X lb/hr	CO lb/hr	SO_2 lb/hr	VOC lb/hr	Lead lb/hr	Fluoride lb/hr	CO_2e lb/hr
EP 10-01	G100-1 Emergency Generator	0.15	0.15	0.15	13.52	2.18	0.02	0.19	-	-	1,609
EP 10-02	G100-2 Emergency Generator	0.58	0.58	0.58	24.48	4.35	0.04	1.26	-	-	3,087
EP 10-03	G100-3 Emergency Generator	0.58	0.58	0.58	24.48	4.35	0.04	1.26	-	-	3,087
EP 10-04	G200-1 Emergency Generator	0.15	0.15	0.15	13.52	2.18	0.02	0.19	-	-	1,609
EP 10-08	G300-1 Emergency Generator	0.15	0.15	0.15	13.52	2.18	0.02	0.19	-	-	1,609
EP 10-09	G400-1 Emergency Generator	0.15	0.15	0.15	13.52	2.18	0.02	0.19	-	-	1,609
EP 10-10	G500-1 Emergency Generator	0.19	0.19	0.19	13.06	3.02	0.02	0.32			1,453
	TOTAL	1.93	1.93	1.93	116.11	20.43	0.16	3.61	0	0	14,063

Emission Unit (EU) No.	Emission Point Description	Filterable PM tons/yr	PM_{10} tons/yr	$PM_{2.5}$ tons/yr	NO_X tons/yr	CO tons/yr	SO_2 tons/yr	VOC tons/yr	Lead tons/yr	Fluoride tons/yr	CO_2e tons/yr
EP 10-01	G100-1 Emergency Generator	0.04	0.04	0.04	3.38	0.55	4.47E-03	0.05	-	-	402
EP 10-02	G100-2 Emergency Generator	0.14	0.14	0.14	6.12	1.09	8.91E-03	0.31	-	-	772
EP 10-03	G100-3 Emergency Generator	0.14	0.14	0.14	6.12	1.09	8.91E-03	0.31	-	-	772
EP 10-04	G200-1 Emergency Generator	0.04	0.04	0.04	3.38	0.55	4.47E-03	0.05	-	-	402
EP 10-08	G300-1 Emergency Generator	0.04	0.04	0.04	3.38	0.55	4.47E-03	0.05	-	-	402
EP 10-09	G400-1 Emergency Generator	0.04	0.04	0.04	3.38	0.55	4.47E-03	0.05	-	-	402
EP 10-10	G500-1 Emergency Generator	0.05	0.05	0.05	3.26	0.75	4.28E-03	0.08			363
	TOTAL	0.48	0.48	0.48	29.03	5.11	0.04	0.90	0	0	3,516

Possible areas of Service: Melt shop (Hot metal cranes)

Inputs

Description	Value	Units	Notes
Annual Operating Hours	500	hrs/yr	1
Engine Rating	2,937	hp	2
Piston Displacement per Cylinder	4.3	liters	2
Fuel Consumption Rate	138.0	gal/hr	2
Heat Input Capacity	18.9	MMBtu/hr	3
Sulfur Content in Diesel Fuel	15	ppm	4

Notes:

1. Emergency generators PTE is based on EPA guidance of 500 hours per year.
2. Engine operating rate from CAT 3516C -2000kW spec sheet for standby mode.
3. Heat input capacity calculated from fuel consumption rate and geat content of diesel (137,030 Btu/gal).
4. Per 40 CFR 63.6604(b), represents maximum sulfur content for nonroad diesel fuel [40 CFR 80.510(b)(1)(i)].

Emissions Summary

Pollutant	Hourly Emission Rate (lb/hr)	Annual Emission Rate (tpy)
Filterable PM	0.58	0.14
PM_{10}	0.58	0.14
$PM_{2.5}$	0.58	0.14
NO_x	24.48	6.12
CO	4.35	1.09
SO_2	0.04	0.01
VOC	1.26	0.31
CO_2e	3,087.47	771.87
Total HAPs	0.03	0.01

Emission Calculation Equations

Criteria pollutant emission calculations based on lb/hp-hr emission factor:

$$\frac{\text{lb pollutant}}{\text{hp-hr}} \times \text{engine power output (hp)} = \frac{\text{lb pollutant}}{\text{hour}}$$

$$\frac{\text{lb pollutant}}{\text{hour}} \times \frac{\text{500 hour}}{\text{year}} \times \frac{\text{ton}}{\text{2,000 lb}} = \frac{\text{ton pollutant}}{\text{year}}$$

HAP emission calculations based on lb/million Btu emission factor:

$$\frac{\text{lb pollutant}}{\text{MMBtu}} \times \frac{\text{18.9 MMBtu}}{\text{hr}} = \frac{\text{lb pollutant}}{\text{hour}}$$

$$\frac{\text{lb pollutant}}{\text{hour}} \times \frac{\text{500 hour}}{\text{year}} \times \frac{\text{ton}}{\text{2,000 lb}} = \frac{\text{ton pollutant}}{\text{year}}$$

Emissions Calculations

Pollutant	Published Emission Factors		Final Emission Factors		Hourly Emission Rate (lb/hr)	Annual Emission Rate (tpy)
	Value	Unit	Value	Unit	(lb/hr)	(ton/yr)
Filterable PM	0.12	g/kw-hr [5]	2.0E-04	lb/hp-hr	0.58	0.14
PM_{10}	0.12	g/kw-hr [5]	2.0E-04	lb/hp-hr	0.58	0.14
$PM_{2.5}$	0.12	g/kw-hr [5]	2.0E-04	lb/hp-hr	0.58	0.14
NO_X	5.07	g/kw-hr [5]	8.34E-03	lb/hp-hr	24.48	6.12
CO	0.9	g/kw-hr [5]	1.5E-03	lb/hp-hr	4.35	1.09
SO_2	1.2E-05	lb/hp-hr [6]	1.21E-05	lb/hp-hr	0.04	8.91E-03
VOC	0.26	g/kw-hr [5]	4.3E-04	lb/hp-hr	1.26	0.31
CO_2	73.96	kg/MMBtu [7]	162.71	lb/MMBtu	3,077	769.2
N_2O	6.00E-04	kg/MMBtu [8]	1.3E-03	lb/MMBtu	0.025	0.01
CH_4	3.0E-03	kg/MMBtu [8]	6.60E-03	lb/MMBtu	0.125	0.03
CO_2e [9]	--	--	--	--	3,087	771.9
Benzene	7.76E-04	lb/MMBtu[10]	7.76E-04	lb/MMBtu	1.47E-02	3.67E-03
Toluene	2.81E-04	lb/MMBtu[10]	2.81E-04	lb/MMBtu	0.01	1.33E-03
Xylenes	1.93E-04	lb/MMBtu[10]	1.93E-04	lb/MMBtu	3.6E-03	9.12E-04
Formaldehyde	7.89E-05	lb/MMBtu[10]	7.89E-05	lb/MMBtu	1.5E-03	3.73E-04
Acetaldehyde	2.52E-05	lb/MMBtu[10]	2.52E-05	lb/MMBtu	4.8E-04	1.19E-04
Acrolein	7.88E-06	lb/MMBtu[10]	7.88E-06	lb/MMBtu	1.5E-04	3.73E-05
Naphthalene	1.30E-04	lb/MMBtu[11]	1.30E-04	lb/MMBtu	2.5E-03	6.15E-04
Total HAPs	--		--		0.028	7.05E-03

Notes:

5. Emission factors from EPA certificate MCPXL78.1NZS-009 provided in units of g/kw-hr and converted to lb/hp-hr by dividing by 453.59 g/lb and multiplying by 1.341 HP/kW.

6. Emission factors from AP-42, Table 3.4-1 assuming ultra-low sulfur diesel (15 ppm), provided in units of lb/hp-hr.

7. Emission factor from 40 CFR Part 98, Table C-1 in units of kg/MMBtu and converted to lb/MMBtu by multiplying by 2.2 lb/kg.

8. Emission factors from 40 CFR Part 98, Table C-2 in units of kg/MMBtu and converted to lb/MMBtu by multiplying by 2.2 lb/kg.

9. Global Warming Potentials from 40 CFR 98 Subpart A Table A-1.

10. Emission factors from AP-42, Table 3.4-3 provided in units of lb/MMBtu.

11. Emission factors from AP-42, Table 3.4-4 provided in units of lb/MMBtu.

Possible areas of Service: Caster and Water treatment systems

Inputs

Description	Value	Units	Notes
Annual Operating Hours	500	hrs/yr	1
Engine Rating	2,937	hp	2
Piston Displacement per Cylinder	4.3	liters	2
Fuel Consumption Rate	138.0	gal/hr	2
Heat Input Capacity	18.9	MMBtu/hr	3
Sulfur Content in Diesel Fuel	15	ppm	4

Notes:

1. Emergency generators PTE is based on EPA guidance of 500 hours per year.
2. Engine operating rate from CAT C32 -1000kW spec sheet for standby mode.
3. Heat input capacity calculated from fuel consumption rate and geat content of diesel (137,030 Btu/gal).
4. Per 40 CFR 63.6604(b), represents maximum sulfur content for nonroad diesel fuel [40 CFR 80.510(b)(1)(i)].

Emissions Summary

Pollutant	Hourly Emission Rate (lb/hr)	Annual Emission Rate (tpy)
Filterable PM	0.58	0.14
PM_{10}	0.58	0.14
$PM_{2.5}$	0.58	0.14
NO_x	24.48	6.12
CO	4.35	1.09
SO_2	0.04	0.01
VOC	1.26	0.31
CO_2e	3,087.47	771.87
Total HAPs	0.03	0.01

Emission Calculation Equations

Criteria pollutant emission calculations based on lb/hp-hr emission factor:

$$\frac{\text{lb pollutant}}{\text{hp}-\text{hr}} \text{ x engine power output (hp) } = \frac{\text{lb pollutant}}{\text{hour}}$$

$$\frac{\text{lb pollutant}}{\text{hour}} \text{ x } \frac{\text{500 hour}}{\text{year}} \text{ x } \frac{\text{ton}}{\text{2,000 lb}} = \frac{\text{ton pollutant}}{\text{year}}$$

HAP emission calculations based on lb/million Btu emission factor:

$$\frac{\text{lb pollutant}}{\text{MMBtu}} \text{ x } \frac{\text{18.9 MMBtu}}{\text{hr}} = \frac{\text{lb pollutant}}{\text{hour}}$$

$$\frac{\text{lb pollutant}}{\text{hour}} \text{ x } \frac{\text{500 hour}}{\text{year}} \text{ x } \frac{\text{ton}}{\text{2,000 lb}} = \frac{\text{ton pollutant}}{\text{year}}$$

Emissions Calculations

Pollutant	Published Emission Factors		Final Emission Factors		Hourly Emission Rate (lb/hr)	Annual Emission Rate (tpy)
	Value	Unit	Value	Unit	(lb/hr)	(ton/yr)
Filterable PM	0.12	g/kw-hr [5]	2.0E-04	lb/hp-hr	0.58	0.14
PM_{10}	0.12	g/kw-hr [5]	2.0E-04	lb/hp-hr	0.58	0.14
$PM_{2.5}$	0.12	g/kw-hr [5]	2.0E-04	lb/hp-hr	0.58	0.14
NO_X	5.07	g/kw-hr [5]	8.34E-03	lb/hp-hr	24.48	6.12
CO	0.9	g/kw-hr [5]	1.5E-03	lb/hp-hr	4.35	1.09
SO_2	1.2E-05	lb/hp-hr [6]	1.21E-05	lb/hp-hr	0.04	8.91E-03
VOC	0.26	g/kw-hr [5]	4.3E-04	lb/hp-hr	1.26	0.31
CO_2	73.96	kg/MMBtu [7]	162.71	lb/MMBtu	3,077	769.2
N_2O	6.00E-04	kg/MMBtu [8]	1.3E-03	lb/MMBtu	0.025	0.01
CH_4	3.0E-03	kg/MMBtu [8]	6.60E-03	lb/MMBtu	0.125	0.03
CO_2e [9]	--	--	--	--	3,087	771.9
Benzene	7.76E-04	lb/MMBtu[10]	7.76E-04	lb/MMBtu	1.47E-02	3.67E-03
Toluene	2.81E-04	lb/MMBtu[10]	2.81E-04	lb/MMBtu	0.01	1.33E-03
Xylenes	1.93E-04	lb/MMBtu[10]	1.93E-04	lb/MMBtu	3.6E-03	9.12E-04
Formaldehyde	7.89E-05	lb/MMBtu[10]	7.89E-05	lb/MMBtu	1.5E-03	3.73E-04
Acetaldehyde	2.52E-05	lb/MMBtu[10]	2.52E-05	lb/MMBtu	4.8E-04	1.19E-04
Acrolein	7.88E-06	lb/MMBtu[10]	7.88E-06	lb/MMBtu	1.5E-04	3.73E-05
Naphthalene	1.30E-04	lb/MMBtu[11]	1.30E-04	lb/MMBtu	2.5E-03	6.15E-04
Total HAPs	--		--		0.028	7.05E-03

Notes:

5. Emission factors from EPA certificate MCPXL78.1NZS-009 provided in units of g/kw-hr and converted to lb/hp-hr by dividing by 453.59 g/lb and multiplying by 1.341 HP/kW.
6. Emission factors from AP-42, Table 3.4-1 assuming ultra-low sulfur diesel (15 ppm), provided in units of lb/hp-hr.
7. Emission factor from 40 CFR Part 98, Table C-1 in units of kg/MMBtu and converted to lb/MMBtu by multiplying by 2.2 lb/kg.
8. Emission factors from 40 CFR Part 98, Table C-2 in units of kg/MMBtu and converted to lb/MMBtu by multiplying by 2.2 lb/kg.
9. Global Warming Potentials from 40 CFR 98 Subpart A Table A-1.
10. Emission factors from AP-42, Table 3.4-3 provided in units of lb/MMBtu.
11. Emission factors from AP-42, Table 3.4-4 provided in units of lb/MMBtu.

G500-1 Emergency Generator

EP 10-10

Nucor Steel Brandenburg

Brandenburg, KY

Possible areas of Service: Rolling Mill, System 500

Inputs

Description	Value	Units	Notes
Annual Operating Hours	500	hrs/yr	1
Engine Rating	1,411	hp	2
Piston Displacement per Cylinder	3.8	liters	2
Fuel Consumption Rate	65.0	gal/hr	2
Heat Input Capacity	8.9	MMBtu/hr	3
Sulfur Content in Diesel Fuel	15	ppm	4

Notes:

1. Emergency generators PTE is based on EPA guidance of 500 hours per year.
2. Engine operating rate from Taylor TD1000P -1000kW spec sheet for standby mode.
3. Heat input capacity calculated from fuel consumption rate and heat content of diesel (137,030 Btu/gal).
4. Per 40 CFR 63.6604(b), represents maximum sulfur content for nonroad diesel fuel [40 CFR 80.510(b)(1)(i)].

Emissions Summary

Pollutant	Hourly Emission Rate (lb/hr)	Annual Emission Rate (tpy)
Filterable PM	0.19	0.05
PM_{10}	0.19	0.05
$PM_{2.5}$	0.19	0.05
NO_x	13.06	3.26
CO	3.02	0.75
SO_2	0.02	4.3E-03
VOC	0.32	0.08
CO_2e	1,453.35	363.34
Total HAPs	0.01	3.3E-03

Emission Calculation Equations

Criteria pollutant emission calculations based on lb/hp-hr emission factor:

$$\frac{\text{lb pollutant}}{\text{hp}-\text{hr}} \text{ x engine power output (hp)} = \frac{\text{lb pollutant}}{\text{hour}}$$

$$\frac{\text{lb pollutant}}{\text{hour}} \text{ x } \frac{\text{500 hour}}{\text{year}} \text{ x } \frac{\text{ton}}{\text{2,000 lb}} = \frac{\text{ton pollutant}}{\text{year}}$$

HAP emission calculations based on lb/million Btu emission factor:

$$\frac{\text{lb pollutant}}{\text{MMBtu}} \text{ x } \frac{\text{9.9 MMBtu}}{\text{hr}} = \frac{\text{lb pollutant}}{\text{hour}}$$

$$\frac{\text{lb pollutant}}{\text{hour}} \text{ x } \frac{\text{500 hour}}{\text{year}} \text{ x } \frac{\text{ton}}{\text{2,000 lb}} = \frac{\text{ton pollutant}}{\text{year}}$$

Emissions Calculations

Pollutant	Published Emission Factors		Final Emission Factors		Hourly Emission Rate (lb/hr)	Annual Emission Rate (tpy)
	Value	Unit	Value	Unit	(lb/hr)	(ton/yr)
Filterable PM	0.08	g/kw-hr [5]	1.3E-04	lb/hp-hr	0.19	0.05
PM_{10}	0.08	g/kw-hr [5]	1.3E-04	lb/hp-hr	0.19	0.05
$PM_{2.5}$	0.08	g/kw-hr [5]	1.3E-04	lb/hp-hr	0.19	0.05
NO_X	5.63	g/kw-hr [5]	9.26E-03	lb/hp-hr	13.06	3.26
CO	1.3	g/kw-hr [5]	2.1E-03	lb/hp-hr	3.02	0.75
SO_2	1.2E-05	lb/hp-hr [6]	1.21E-05	lb/hp-hr	0.02	4.3E-03
VOC	0.14	g/kw-hr [5]	2.3E-04	lb/hp-hr	0.32	0.08
CO_2	73.96	kg/MMBtu [7]	162.71	lb/MMBtu	1,448	362.1
N_2O	6.00E-04	kg/MMBtu [8]	1.3E-03	lb/MMBtu	0.012	2.9E-03
CH_4	3.0E-03	kg/MMBtu [8]	6.60E-03	lb/MMBtu	0.059	0.01
CO_2e [9]	--	--	--	--	1,453	363.3
Benzene	7.76E-04	lb/MMBtu[10]	7.76E-04	lb/MMBtu	6.91E-03	1.73E-03
Toluene	2.81E-04	lb/MMBtu[10]	2.81E-04	lb/MMBtu	2.5E-03	6.25E-04
Xylenes	1.93E-04	lb/MMBtu[10]	1.93E-04	lb/MMBtu	1.7E-03	4.29E-04
Formaldehyde	7.89E-05	lb/MMBtu[10]	7.89E-05	lb/MMBtu	7.0E-04	1.76E-04
Acetaldehyde	2.52E-05	lb/MMBtu[10]	2.52E-05	lb/MMBtu	2.2E-04	5.61E-05
Acrolein	7.88E-06	lb/MMBtu[10]	7.88E-06	lb/MMBtu	7.0E-05	1.75E-05
Naphthalene	1.30E-04	lb/MMBtu[11]	1.30E-04	lb/MMBtu	1.2E-03	2.89E-04
Total HAPs	--		--		0.013	3.3E-03

Notes:

5. Emission factors from EPA certificate NCPLX45.8NZS provided in units of g/kw-hr and converted to lb/hp-hr by dividing by 453.59 g/lb and multiplying by 1.341 HP/kW.

6. Emission factors from AP-42, Table 3.4-1 assuming ultra-low sulfur diesel (15 ppm), provided in units of lb/hp-hr.

7. Emission factor from 40 CFR Part 98, Table C-1 in units of kg/MMBtu and converted to lb/MMBtu by multiplying by 2.2 lb/kg.

8. Emission factors from 40 CFR Part 98, Table C-2 in units of kg/MMBtu and converted to lb/MMBtu by multiplying by 2.2 lb/kg.

9. Global Warming Potentials from 40 CFR 98 Subpart A Table A-1.

10. Emission factors from AP-42, Table 3.4-3 provided in units of lb/MMBtu.

11. Emission factors from AP-42, Table 3.4-4 provided in units of lb/MMBtu.

Emission Unit (EU) No.	Emission Point Description	Filterable PM	PM_{10}	$PM_{2.5}$	NO_X	CO	SO_2	VOC	Lead	Fluoride	CO_2e
		lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
EP 12-01	Slag Processing Equipment	2.06	0.76	0.16	-	-	-	-	-	-	-
EP 12-02	Slag Processing Storage Piles	0.12	0.06	9.04E-03	-	-	-	-	-	-	-
EP 12-03	Slag Plant Pot Slagger	0.0095	0.0031	0.0009	-	-	-	-	-	-	-
EP 12-04	Slag Plant Oxy Fuel-Fired Torches	0.02	0.08	7.57E-02	0.99	0.83	0.01	0.05	0.00	-	1,195
	TOTAL	2.18	0.82	0.17	0	0	0	0	0	0	0

Emission Unit (EU) No.	Emission Point Description	Filterable PM	PM_{10}	$PM_{2.5}$	NO_X	CO	SO_2	VOC	Lead	Fluoride	CO_2e
		tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr
EP 12-01	Slag Processing Equipment	1.77	0.78	0.26	-	-	-	-	-	-	-
EP 12-02	Slag Processing Storage Piles	0.44	0.22	0.03	-	-	-	-	-	-	-
EP 12-03	Slag Plant Pot Slagger	0.041	0.014	0.004	-	-	-	-	-	-	-
EP 12-04	Slag Plant Oxy Fuel-Fired Torches	0.08	0.33	0.33	4.34	3.64	0.03	0.24	0.00	-	5,234
	TOTAL	2.22	1.00	0.29	0	0	0	0	0	0	0

Inputs

Description	Value	Units	Notes
Annual Operating Hours	8,760	hrs/yr	
Maximum Hourly Processing Rate	12	tons/hr	
Maximum Annual Processing Rate	105,120	tons/yr	1
Natural Gas Consumption per Torch	33	scf/min	1
Number of Torches	5	-	
Total Natural Gas Consumption	9,900	scf/hr	2
Total Natural Gas Consumption	0.0099	MMscf/hr	
Dust Collector Capture Efficiency	95%	%	
Dust Collector Control Efficiency	99.9%	%	3

Notes:

1. Revert scrap cutting contract rate is 52,000 tons/year; 105,120 tons/year used for PTE.
1. Design capacity for Donze 1053 oxy fuel-fired torchs.
2. Conservatively assumes 5 torches continuously operate.
3. Conservative control efficiency for integrated dust collection system.

Total Emissions Summary

Pollutant	Hourly Emission Rate (lb/hr)	Annual Emission Rate (tpy)
Filterable PM	0.05	0.20
PM_{10}	0.10	0.45
$PM_{2.5}$	0.10	0.45
NO_X	0.990	4.34
CO	0.832	3.64
SO_2	0.00594	0.0260
Lead	5.00E-06	2.19E-05
VOC	0.0545	0.238
CO_2e	1195	5,234
Total HAP	0.0193	0.0845

Emission Calculation Equations

Emission calculations based fume generation rate and metal HAP content of steel:

$$\frac{0.81\ \text{g PM/PM}_{10}\text{/PM}_{2.5}}{\text{min}} \times \frac{60\ \text{min}}{\text{hr}} \times 7\ \text{Torches} \times \frac{\text{lb}}{453.6\ \text{g}} \times 90\%\ \text{capture} \times (1-99\%\ \text{control}) = \frac{0.0021\ \text{lb PM/PM}_{10}\text{/PM}_{2.5}}{\text{hr}}$$

$$\frac{0.81\ \text{g PM}}{\text{min}} \times \text{metal HAP wt\%} \times \frac{60\ \text{min}}{\text{hr}} \times 7\ \text{Torches} \times \frac{\text{lb}}{453.6\ \text{g}} \times 90\%\ \text{capture} \times (1-99\%\ \text{control}) = \frac{\text{lb metal HAP}}{\text{hr}}$$

$$\frac{\text{lb pollutant}}{\text{hr}} \times \frac{8{,}760\ \text{hr}}{\text{yr}} \times \frac{\text{ton}}{2{,}000\ \text{lb}} = \frac{\text{ton pollutant}}{\text{year}}$$

Emissions Calculations - PM and metal HAPs

Pollutant	Metal HAP max wt% in Nucor Steel	Emission Factor	Hourly Emission Rate	Annual Emission Rate	Hourly Uncaptured Emission Rate	Annual Uncaptured Emission Rate	Notes
	(wt%)	(g/min)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	
Filterable PM	-	0.81	0.0005	0.0022	0.03	0.12	4
PM_{10}	-	0.81	0.0005	0.0022	0.03	0.12	4
$PM_{2.5}$	-	0.81	0.0005	0.0022	0.03	0.12	4
Arsenic	0.017%	0.00014	8.75E-08	3.83E-07	4.61E-06	2.02E-05	5,6
Chromium	0.010%	0.00	5.24E-08	2.30E-07	2.76E-06	1.21E-05	5,6
Cobalt	0.031%	0.00025	1.57E-07	6.89E-07	8.28E-06	3.63E-05	5,6
Lead	0.011%	0.00009	5.34E-08	2.34E-07	2.81E-06	1.23E-05	5,6
Manganese	1.6%	0.01	8.09E-06	3.54E-05	4.26E-04	1.87E-03	5,6
Nickel	0.49%	0.004	2.48E-06	1.09E-05	1.30E-04	5.71E-04	5,6
Total HAP	-	-	1.09E-05	4.78E-05	5.75E-04	2.52E-03	-

Notes:

4. Filterable PM/PM10/PM2.5 emission factor based on Fumes and Gases in the Welding Environment, the American Welding Society, dated 01/90.

5. HAP emission rates based on the HAP content for Nucor Steel for all metal HAPs greater than or equal to 0.01% by weight.
6. Maximum weight percent of metal in Nucor Steel multiplied by Total PM emission factor.

Emission Calculation Equations

Emission calculations based on lb/million scf of natural gas emission factors:

$$\frac{\text{lb pollutant}}{\text{million scf}} \times \frac{\text{scf}}{1{,}020\ \text{Btu}} \times \frac{\text{million Btu}}{\text{hr}} = \frac{\text{lb pollutant}}{\text{hr}}$$

$$\frac{\text{lb pollutant}}{\text{hour}} \times \frac{8{,}760\ \text{hours}}{\text{year}} \times \frac{\text{ton}}{2{,}000\ \text{lbs}} = \frac{\text{ton pollutant}}{\text{year}}$$

Emissions Calculations - Natural Gas Combustion

Pollutant	Emission Factor		Hourly Emission Rate	Annual Emission Rate	Notes
	($lb/10^6$ scf)	(lb/MMBtu)	(lb/hr)	(tpy)	
Filterable PM	1.9		0.0188	0.0824	7
PM_{10}	7.6	0.007	0.0752	0.3296	7
$PM_{2.5}$	7.6	0.007	0.0752	0.3296	7
NO_X	100	0.098	0.99	4.34	8
CO	84	0.082	0.83	3.64	8
SO_2	0.6	0.001	5.94E-03	2.60E-02	7
Lead	0.0005	0.000	4.95E-06	2.17E-05	7
VOC	5.5	0.005	5.45E-02	0.24	7
CO_2	120,000	117.647	1,188.00	5,203.44	7
N_2O	2.2	0.002	2.18E-02	0.10	7
CH_4	2.3	0.002	2.28E-02	0.10	7
CO_2e	-	-	1,195.06	5,234.36	9
Benzene	0.0021	2.06E-06	2.08E-05	9.11E-05	10
Dichlorobenzene	0.0012	1.18E-06	1.19E-05	5.20E-05	10
Formaldehyde	0.075	7.35E-05	7.43E-04	3.25E-03	10
Hexane	1.8	1.76E-03	1.78E-02	0.08	10
Naphthalene	0.00061	5.98E-07	6.04E-06	2.65E-05	10
Polycyclic Organic Matter	0.0000882	8.65E-08	8.73E-07	3.82E-06	10
Toluene	0.0034	3.33E-06	3.37E-05	1.47E-04	10
Arsenic	0.0002	1.96E-07	1.98E-06	8.67E-06	11
Beryllium	0.000012	1.18E-08	1.19E-07	5.20E-07	11
Cadmium	0.0011	1.08E-06	1.09E-05	4.77E-05	11
Chromium	0.0014	1.37E-06	1.39E-05	6.07E-05	11
Cobalt	0.000084	8.24E-08	8.32E-07	3.64E-06	11
Manganese Compounds	0.00038	3.73E-07	3.76E-06	1.65E-05	11
Mercury	0.00026	2.55E-07	2.57E-06	1.13E-05	11
Nickel	0.0021	2.06E-06	2.08E-05	9.11E-05	11
Selenium	0.000024	2.35E-08	2.38E-07	1.04E-06	11
Total HAP	-	0.002	1.87E-02	8.19E-02	

Notes:

7. Emission factors from AP-42 Section 1.4 Natural Gas Combustion Table 1.4-2; assume Total PM=PM_{10}=$PM_{2.5}$.
8. Emission factors from AP-42 Section 1.4 *Natural Gas Combustion* Table 1.4-1.
9. Global Warming Potentials from 40 CFR 98 Subpart A Table A-1.
10. Emission factors from AP-42 Section 1.4 *Natural Gas Combustion* Table 1.4-3.
11. Emission factors from AP-42 Section 1.4 *Natural Gas Combustion* Table 1.4-4.

Emission Unit (EU) No.	Emission Point Description	Filterable PM lb/hr	PM_{10} lb/hr	$PM_{2.5}$ lb/hr	NO_X lb/hr	CO lb/hr	SO_2 lb/hr	VOC lb/hr	Lead lb/hr	Fluoride lb/hr	CO_2e lb/hr
EP 14-01	Paved Roads	3.4	0.68	0.20	--	--	--	--	--	--	--
EP 14-02	Unpaved Roads	8.61	2.30	0.23	--	--	--	--	--	--	--
	TOTAL	12.00	2.97	0.43	0	0	0	0	0	0	0

Emission Unit (EU) No.	Emission Point Description	Filterable PM tons/yr	PM_{10} tons/yr	$PM_{2.5}$ tons/yr	NO_X tons/yr	CO tons/yr	SO_2 tons/yr	VOC tons/yr	Lead tons/yr	Fluoride tons/yr	CO_2e tons/yr
EP 14-01	Paved Roads	13.6	2.73	0.80	--	--	--	--	--	--	--
EP 14-02	Unpaved Roads	34.6	9.23	0.92	--	--	--	--	--	--	--
	TOTAL	48.25	11.95	1.73	0	0	0	0	0	0	0

Paved Road Inputs

Description	Value	Units	Notes
Annual Hours of Operation	8,760	hrs/yr	
Days of Operation per Year	365	days/yr	
Average road surface silt loading *(sL)*	4.0	g/m^2	1
Number of Days with > 0.01 Inches of Rain	120	days/yr	2
Paved Road Control Efficiency	90%	%	3

Particle Size Range[(4)]	k (lb/VMT)
< 30 µm	0.011
< 15 µm	0.0027
< 10 µm	0.0022
< 2.5 µm	0.00054

Notes:

1. From AP-42, Section 13.2.1, Table 13.2.1-3, updated January 2011
2. From AP-42, Section 13.2.1, Figure 13.2.1-2, updated January 2011
3. From EPA document: *Control of Open Fugitive Dust Sources*, published September 1988.
4. Per AP-42 (Table 13.2.2-2), PM_{30} is assumed equivalent to total suspended particulate matter (TSP).

Paved Roads - Calculation Basis

Calculation methodology derived from AP-42 Section 13.2.1, "*Paved Roads,*" 01/11

$$Emission\ Factor\ (lb/VMT) = k \cdot sL^{0.91} \cdot W^{1.02}$$

where: *sL* = Road surface silt loading, g/m^2
W = Average vehicle weight, tons
k = Particle size multiplier, lb/VMT [(1)]
1. From AP-42, Section 13.2.1, Table 13.2.1-1, updated January 2011

$$Emission\ Factor(lb/VMT)\ Extrapolated\ for\ Natural\ Mitigation\ (E_{ext}) = \mathrm{E} \cdot \left(1 - \frac{P}{4N}\right)$$

where: *E* = Uncontrolled emission factor
P = Number of days with > 0.01 inches of precipitation
N = Number of days in the averaging period (365 for annual)

Unpaved Road Inputs

Description	Value	Units	Notes
Annual Hours of Operation	8,760	hrs/yr	
Days of Operation per Year	365	days/yr	
Surface material silt content (s)	6	%	
Average road surface silt loading *(sL)*	9.7	g/m^2	1
Number of Days with > 0.01 Inches of Rain	120	days/yr	3
Control Efficiency	90%	%	4

Empirical Constants for Industrial Roads			
	$PM_{2.5}$	PM_{10}	PM_{30}
k	0.15	1.5	4.9
a	0.9	0.9	0.7
b	0.45	0.45	0.45

Unpaved Roads - Calculation Basis

Calculation methodology derived from AP-42 Section 13.2.2, "*Unpaved Roads,*" (11/06)

Accounts for all vehicular traffic (i.e., light-duty, medium duty, heavy duty) on unpaved roads

$$Emission\ Factor\ (lb/VMT) = k \cdot (s/12)^a \cdot (W/3)^b$$

where: *s = Surface material silt content (%)*
W = Mean vehicle weight
k,a, b = Empirical constants for industrial roads (1)
1. From AP-42, Section 13.2.2, Table 13.2.2-2, Dated 11/06

$$Emission\ Factor(lb/VMT)\ Extrapolated\ for\ Natural\ Mitigation\ (E_{ext}) = \mathrm{E} \cdot \left(\frac{N-P}{N}\right)$$

where: E = Uncontrolled emission factor
P = Number of days with > 0.01 inches of precipitation
N = Number of days in the averaging period (365 for annual)

PM ROADWAY EMISSIONS

Road Segment	Road Segment Distance	Vehicle Miles Traveled	Average Vehicle Weight	PM Emission Factor	PM Extrapolated Emission Factor	Uncontrolled Emission Rate	Controlled PM Emission Rate	
	(miles)	(VMT/day)	(tons)	(lb/VMT)	(lb/VMT_{ext})	(lb/day)	(lb/hr)	(ton/yr)
Paved Segment 1	0.05	50.80	14.65	0.60	0.55	30.5	0.13	0.51
Paved Segment 2	0.43	280.36	7.36	0.30	0.27	83.4	0.35	1.40
Paved Segment 3	0.45	32.40	16.19	0.66	0.61	21.5	0.09	0.36
Paved Segment 4	0.11	64.68	6.65	0.27	0.25	17.3	0.07	0.29
Paved Segment 5	0.21	78.12	13.00	0.53	0.49	41.5	0.17	0.70
Paved Segment 6	0.06	9.84	26.43	1.10	1.01	10.8	0.04	0.18
Paved Segment 7	0.23	10.12	19.41	0.80	0.73	8.1	0.03	0.14
Paved Segment 8	0.19	63.46	7.36	0.30	0.27	18.9	0.08	0.32
Paved Segment 9	0.24	10.56	19.41	0.80	0.73	8.4	0.04	0.14
Paved Segment 10	0.27	29.44	29.36	1.22	1.12	35.9	0.15	0.60
Paved Segment 11	0.77	166.32	29.21	1.21	1.11	201.9	0.84	3.38
Paved Segment 11b	0.12	11.44	29.52	1.23	1.13	14.0	0.06	0.24
Paved Segment 12	0.18	24.48	29.34	1.22	1.12	29.8	0.12	0.50
Paved Segment 16	0.17	17.16	79.82	3.38	3.11	58.1	0.24	0.97
Paved Segment 20	0.23	44.62	97.90	4.17	3.82	185.9	0.77	3.11
Paved Segment 21	0.35	18.20	17.61	0.72	0.66	13.2	0.05	0.22
Paved Segment 23	1.42	28.40	29.00	1.20	1.11	34.2	0.14	0.57
				TOTAL PAVED ROAD PM EMISSIONS			3.39	13.63
Unpaved Segment 7	0.23	10.12	19.41	7.0	4.69	70.7	0.29	1.18
Unpaved Segment 8	0.19	63.46	7.36	4.5	3.03	286.7	1.19	4.80
Unpaved Segment 9	0.24	10.56	19.41	7.0	4.69	73.8	0.31	1.24
Unpaved Segment 13	0.11	14.08	39.83	9.7	6.48	136.0	0.57	2.28
Unpaved Segment 14	0.41	70.52	44.55	10.2	6.82	716.2	2.98	12.00
Unpaved Segment 15	0.14	12.88	58.07	11.4	7.68	147.4	0.61	2.47
Unpaved Segment 17	0.09	23.40	79.82	13.2	8.86	309.0	1.29	5.18
Unpaved Segment 18	0.05	13.90	88.68	13.8	9.29	192.4	0.80	3.22
Unpaved Segment 19	0.40	30.40	98.05	14.5	9.72	440.4	1.83	7.38
Unpaved Segment 22	0.11	14.96	29.34	8.4	5.65	125.9	0.52	2.11
				TOTAL UNPAVED ROAD PM EMISSIONS			8.61	34.63

PM10 ROADWAY EMISSIONS

Road Segment	Road Segment Distance	Vehicle Miles Traveled	Average Vehicle Weight	PM10 Emission Factor	PM10 Extrapolated Emission Factor	Uncontrolled Emission Rate	Controlled PM10 Emission Rate	
	(miles)	(VMT/day)	(tons)	(lb/VMT)	(lb/VMT_{ext})	(lb/day)	(lb/hr)	(ton/yr)
Paved Segment 1	0.05	50.80	14.65	0.120	0.110	6.10	0.025	0.10
Paved Segment 2	0.43	280.36	7.36	0.059	0.055	16.67	0.069	0.28
Paved Segment 3	0.45	32.40	16.19	0.133	0.122	4.31	0.018	0.072
Paved Segment 4	0.11	64.68	6.65	0.054	0.049	3.47	0.014	0.058
Paved Segment 5	0.21	78.12	13.00	0.106	0.098	8.30	0.035	0.14
Paved Segment 6	0.06	9.84	26.43	0.219	0.201	2.16	0.009	0.036
Paved Segment 7	0.23	10.12	19.41	0.160	0.147	1.62	0.007	0.027
Paved Segment 8	0.19	63.46	7.36	0.060	0.055	3.78	0.016	0.063
Paved Segment 9	0.24	10.56	19.41	0.160	0.147	1.69	0.007	0.028
Paved Segment 10	0.27	29.44	29.36	0.244	0.224	7.18	0.030	0.120
Paved Segment 11	0.77	166.32	29.21	0.243	0.223	40.38	0.168	0.676
Paved Segment 11b	0.12	11.44	29.52	0.245	0.225	2.81	0.012	0.047
Paved Segment 12	0.18	24.48	29.34	0.244	0.224	5.97	0.025	0.10
Paved Segment 16	0.17	17.16	79.82	0.677	0.621	11.61	0.048	0.19
Paved Segment 20	0.23	44.62	97.90	0.833	0.765	37.19	0.155	0.62
Paved Segment 21	0.35	18.20	17.61	0.145	0.133	2.64	0.011	0.04
Paved Segment 23	1.42	28.40	29.00	0.241	0.221	6.84	0.029	0.11
				TOTAL PAVED ROAD PM EMISSIONS			0.68	2.73
Unpaved Segment 7	0.23	10.12	19.41	1.862	1.250	18.85	0.08	0.32
Unpaved Segment 8	0.19	63.46	7.36	1.204	0.808	76.40	0.32	1.28
Unpaved Segment 9	0.24	10.56	19.41	1.862	1.250	19.67	0.08	0.33
Unpaved Segment 13	0.11	14.08	39.83	2.574	1.728	36.24	0.15	0.61
Unpaved Segment 14	0.41	70.52	44.55	2.707	1.817	190.87	0.80	3.20
Unpaved Segment 15	0.14	12.88	58.07	3.049	2.047	39.28	0.16	0.66
Unpaved Segment 17	0.09	23.40	79.82	3.519	2.362	82.34	0.34	1.38
Unpaved Segment 18	0.05	13.90	88.68	3.690	2.477	51.28	0.21	0.86
Unpaved Segment 19	0.40	30.40	98.05	3.860	2.591	117.35	0.49	1.97
Unpaved Segment 22	0.11	14.96	29.34	2.243	1.505	33.55	0.14	0.56
				TOTAL UNPAVED ROAD PM EMISSIONS			2.30	9.23

PM2.5 ROADWAY EMISSIONS

Road Segment	Road Segment Distance	Vehicle Miles Traveled	Average Vehicle Weight	PM2.5 Emission Factor	PM2.5 Extrapolated Emission Factor	Uncontrolled Emission Rate	Controlled PM2.5 Emission Rate	
	(miles)	(VMT/day)	(tons)	(lb/VMT)	(lb/VMT_{ext})	(lb/day)	(lb/hr)	(ton/yr)
Paved Segment 1	0.05	50.80	14.65	0.029	0.027	1.50	0.006	0.025
Paved Segment 2	0.4	280.36	7.36	0.015	0.013	4.09	0.017	0.069
Paved Segment 3	0.5	32.40	16.19	0.033	0.030	1.06	0.0044	0.018
Paved Segment 4	0.11	64.68	6.65	0.013	0.012	0.85	0.0035	0.014
Paved Segment 5	0.21	78.12	13.00	0.026	0.024	2.04	0.0085	0.034
Paved Segment 6	0.06	9.84	26.43	0.054	0.049	0.53	0.0022	0.009
Paved Segment 7	0.23	10.12	19.41	0.039	0.036	0.40	0.0017	0.007
Paved Segment 8	0.19	63.46	7.36	0.015	0.013	0.93	0.0039	0.016
Paved Segment 9	0.24	10.56	19.41	0.80	0.73	8.45	0.04	0.14
Paved Segment 10	0.27	29.44	29.36	0.060	0.055	1.76	0.0073	0.030
Paved Segment 11	0.77	166.32	29.21	0.060	0.055	9.91	0.041	0.17
Paved Segment 11b	0.12	11.44	29.52	0.060	0.055	0.69	0.0029	0.012
Paved Segment 12	0.18	24.48	29.34	0.060	0.055	1.47	0.0061	0.025
Paved Segment 16	0.17	17.16	79.82	0.166	0.152	2.85	0.012	0.048
Paved Segment 20	0.23	44.62	97.90	0.205	0.188	9.13	0.038	0.153
Paved Segment 21	0.35	18.20	17.61	0.036	0.033	0.65	0.003	0.011
Paved Segment 23	1.42	28.40	29.00	0.059	0.054	1.68	0.007	0.028
				TOTAL PAVED ROAD PM EMISSIONS			0.20	0.80
Unpaved Segment 7	0.23	10.12	19.41	0.186	0.125	1.88	0.008	0.032
Unpaved Segment 8	0.19	63.46	7.36	0.120	0.081	7.64	0.032	0.13
Unpaved Segment 9	0.24	10.56	19.41	0.186	0.125	1.97	0.008	0.033
Unpaved Segment 13	0.11	14.08	39.83	0.257	0.173	3.62	0.015	0.061
Unpaved Segment 14	0.41	70.52	44.55	0.271	0.182	19.09	0.080	0.32
Unpaved Segment 15	0.14	12.88	58.07	0.305	0.205	3.93	0.016	0.066
Unpaved Segment 17	0.09	23.40	79.82	0.352	0.236	8.23	0.034	0.14
Unpaved Segment 18	0.05	13.90	88.68	0.369	0.248	5.13	0.021	0.086
Unpaved Segment 19	0.40	30.40	98.05	0.386	0.259	11.74	0.049	0.20
Unpaved Segment 22	0.11	14.96	29.34	0.224	0.151	3.36	0.014	0.056
				TOTAL UNPAVED ROAD PM EMISSIONS			0.23	0.92

APPENDIX D RBLC RESULTS

Process Type	Pollutant		Units	Minimum	Maximum
Steel Production EAF	Particulate Matter	Particulate Matter (PM)	GR/DSCF	0.0014	0.0014
Steel Production EAF	Particulate Matter	Particulate matter, total (TPM)	GR/DSCF	0.0018	0.0052
Steel Production EAF	Particulate Matter	Particulate matter, total < 10 µ (TPM10)	GR/DSCF	0.0017	0.0052
Steel Production EAF	Particulate Matter	Particulate matter, total < 2.5 µ (TPM2.5)	GR/DSCF	0.0009	0.0052
Steel Production EAF	Particulate Matter	Particulate matter, filterable (FPM)	GR/DSCF	0.0018	0.0052
Steel Production EAF	Particulate Matter	Particulate matter, filterable < 10 µ (FPM10)	GR/DSCF	0.0003	0.0052
Steel Production EAF	Particulate Matter	Particulate matter, filterable < 2.5 µ (FPM2.5)	GR/DSCF	0.0018	0.0049
Steel Production EAF	Particulate Matter	Particulate matter, total < 10 µ (TPM10)	LB/T	0.1	0.1
Steel Production EAF	Particulate Matter	Particulate matter, total < 2.5 µ (TPM2.5)	LB/T	0.1	0.1
Steel Production EAF	Particulate Matter	Particulate matter, filterable < 10 µ (FPM10)	LB/T	0.10	0.11
Steel Production EAF	Particulate Matter	Particulate matter, filterable < 2.5 µ (FPM2.5)	LB/T	0.11	0.11
Steel Production EAF	NOx		LB/T	0.2	0.9
Steel Production EAF	SO_2		LB/T	0.10	1.76
Steel Production EAF	CO		LB/T	1.70	4.8
Steel Production EAF	VOC		LB/T	0.07	0.43
Steel Production EAF	GHG		LB/T	0.16	535
Steel Production EAF	HAP	Lead (Pb) / Lead Compounds	GR/DSCF	0.000007	0.0032
Steel Production EAF	HAP	Mercury	GR/DSCF	0.0000045	0.0000045
Steel Production EAF	HAP	Fluorides, Total	LB/T	0.007	0.07
Steel Production EAF	HAP	Lead (Pb) / Lead Compounds	LB/T	0.0002	0.0018
Steel Production EAF	HAP	Mercury	LB/T	0.00002	0.0002

Process Type	Pollutant		Units	Minimum	Maximum
Steel Production Caster	Particulate Matter	Particulate matter, total < 10 µ (TPM10)	GR/DSCF	0.002	0.003
		Particulate matter, total < 2.5 µ (TPM2.5)		0.003	0.0052
		Particulate matter, filterable (FPM)		0.0018	0.0052
		Particulate matter, filterable < 10 µ (FPM10)		0.0018	0.0018
		Particulate Matter (PM)	LB/T	0.002	0.002
		Particulate matter, filterable (FPM)		0.0003	0.0003
		Particulate matter, filterable < 10 µ (FPM10)		0.004	0.004
		Particulate matter, filterable < 2.5 µ (FPM2.5)		0.002	0.002
		Particulate matter, total < 2.5 µ (TPM2.5)	LB/MMBTU	0.0075	0.0075
	NOx		LB/T	0.02	0.05
			LB/MMBTU	0.1	0.15
	SO_2		LB/T	0.0002	0.0002
			LB/MMBTU	0.0006	0.0006
	CO		LB/T	0.03	0.03
			LB/MMBTU	0.084	0.084
	VOC		LB/T	0.0018429	0.0018429
			LB/MMBTU	0.0054	0.0054
	HAP	Lead (Pb) / Lead Compounds	LB/T	0.0005	0.0010
		Fluorides, Total		0.01	0.01
Caster Spray Vent	Particulate Matter	Particulate matter, filterable (FPM)	GR/DSCF	0.003	0.003
		Particulate matter, filterable < 10 µ (FPM10)		0.0005	0.0005
		Particulate matter, filterable < 2.5 µ (FPM2.5)		0.0001	0.0001
	HAP	Fluorides, Total	LB/TON	0.5	0.5
Cooling Towers	Particulate Matter	Particulate matter, total (TPM)	% drift	0.001	0.001
		Particulate matter, total < 10 µ (TPM10)		0.0005	0.003
		Particulate matter, total < 2.5 µ (TPM2.5)		0.0005	0.003
		Particulate matter, total (TPM)	% weight	0.001	0.001
		Particulate matter, filterable (FPM)	LB/HR	0.12	0.66
		Particulate matter, filterable < 10 µ (FPM10)		0.05	0.33
		Particulate matter, filterable < 2.5 µ (FPM2.5)		0.0003	0.0013
		Particulate matter, total < 10 µ (TPM10)		0.0023	0.0028
		Particulate matter, total < 2.5 µ (TPM2.5)		0.0001	0.0001

Process Type	Pollutant		Units	Minimum	Maximum
Reheat Furnace	Particulate Matter	Particulate matter (PM)	LB/MMBTU	0.0075	0.0075
		Particulate matter, total (TPM)		0.0076	0.013
		Particulate matter, total < 10 µ (TPM10)		0.0076	0.0076
		Particulate matter, total < 2.5 µ (TPM2.5)		0.0075	0.0076
		Particulate matter, filterable < 10 µ (FPM10)		0.00191	0.0075
		Particulate matter, filterable < 2.5 µ (FPM2.5)		0.0075	0.0075
	NOx			0.07	0.15
			LB/MMSCF	0.07	0.07
			LB/TON	0.075	0.075
	SO_2		LB/MMBTU	0.0006	0.0006
	CO			0.0035	0.084
			LB/MMSCF	84	84
	VOC		LB/MMBTU	0.0054	0.0055
	GHG		LB/MMBTU	119	119
Cutting Torches	Particulate Matter	Particulate Matter (PM)	LB/TON	0.003	0.003
		Particulate matter, total < 10 µ (TPM10)		0.03	0.03
		Particulate matter, total < 2.5 µ (TPM2.5)		0.01	0.01
		Particulate matter, filterable (FPM)		0.03	0.03
		Particulate matter, filterable < 10 µ (FPM10)		0.003	0.003
		Particulate matter, filterable < 2.5 µ (FPM2.5)		0.003	0.003
		Particulate Matter (PM)	LB/MMBTU	0.0019	0.0074
		Particulate matter, total < 10 µ (TPM10)		0.0076	0.0076
		Particulate matter, filterable (FPM)		0.16	0.16
		Particulate matter, filterable < 10 µ (FPM10)		0.0074	0.0076
		Particulate matter, filterable < 2.5 µ (FPM2.5)		0.0074	0.0074
		Particulate matter, filterable (FPM)	LB/1000 LBS	0.01	0.01
		Particulate matter, filterable (FPM)	GR/DSCF	0.0018	0.0018
	NOx		LB/TON	0.23	0.23
			LB/MMBTU	0.097	0.875
	SO_2			0.0006	0.0006
	CO			0.082	0.084
	VOC			0.0053	0.0055
	GHG		LB/TON	1.70	1.70
Ingot Grinding	Particulate Matter	Particulate matter, total < 2.5 µ (TPM2.5)	LB/HR	0.07	4.27
		Particulate matter, total < 10 µ (TPM10)		0.07	4.27
		Particulate matter, total < 2.5 µ (TPM2.5)	gr/dscf	0.001	0.001
		Particulate matter, total < 10 µ (TPM10)		0.001	0.001

Process Type	Pollutant		Units	Minimum	Maximum
Emergency Generators > 500 HP	Particulate Matter	Particulate matter, total (TPM)	g/hp-hr	0.05	0.15
		Particulate matter, total < 10 µ (TPM10)		0.15	0.15
		Particulate matter, total < 2.5 µ (TPM2.5)		0.15	0.15
		Particulate matter, total (TPM)	g/kwh	0.2	0.2
		Particulate matter, total < 10 µ (TPM10)		0.2	0.2
		Particulate matter, total < 2.5 µ (TPM2.5)		0.2	0.2
		Particulate matter, total < 10 µ (TPM10)	LB/HR	0.07	0.66
		Particulate matter, total < 2.5 µ (TPM2.5)		0.07	0.66
		Particulate matter, filterable < 10 µ (FPM10)		0.15	0.15
		Particulate matter, filterable < 2.5 µ (FPM2.5)		0.15	0.15
		Particulate matter, filterable < 10 µ (FPM10)	LB/HP-HR	0.0003	0.0003
		Particulate matter, filterable < 2.5 µ (FPM2.5)		0.003	0.003
	NOx		g/hp-hr	3.9	4.8
			g/kwh	5.6	6.4
			LB/HR	3.45	21.2
	CO		g/hp-hr	0.9	2.61
			g/kwh	3.5	3.5
			LB/HP-HR	0.006	0.006
	SO2		PPM	15	15
	VOC		g/hp-hr	0.32	4.8
			g/kwh	0.4	6.4
			LB/HP-HR	0.001	0.001
			LB/HR	1.98	1.98
	GHG		tpy	209	811
			lb/mmbtu	163	164
			kg/mmbtu	74.21	74.21
			LB/HR	3632	3632

Process Type	Pollutant		Units	Minimum	Maximum
Paved Roads	Particulate Matter	Particulate matter, filterable (FPM)	tpy	2.8	2.8
		Particulate matter, total (TPM)		2.97	2.97
		Particulate matter, fugitive		0.8	16.74
		Particulate matter, total < 10 µ (TPM10)		0.06	2.6
		Particulate matter, total < 2.5 µ (TPM2.5)		0.01	0.2
		Particulate matter, filterable < 10 µ (FPM10)		0.16	3.55
		Particulate matter, filterable < 2.5 µ (FPM2.5)		0.04	0.75
		Particulate matter, total < 10 µ (TPM10)	LB/HR	0.08	3.9
		Particulate matter, total < 2.5 µ (TPM2.5)		0.5	0.5
		Particulate matter, total (TPM)		0.08	0.08
		Particulate matter, total (TPM)	% opacity	10	10
		Particulate matter, total < 10 µ (TPM10)	% control	90	90
		Particulate matter, total < 2.5 µ (TPM2.5)		90	90

Summary of RBLC Results for PM/PM10/PM2.5 Emissions from Miscellaneous Sources
Process Type: 99.009 - Industrial Process Cooling Towers and 81.290 - Other Steel Manufacturing Processes

PM Emission Limits in % drift

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	Pollutant	PM Emission Limit	PM Emission Limit Unit (% drift)	PM Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
FL-0368	NUCOR STEEL FLORIDA FACILITY	2/14/2019	2 Cooling Towers	19,650	GAL/MIN	Drift Eliminators	0	Particulate matter, total (TPM)	0.001	%	DRIFT RATE	BACT-PSD		
TX-0815	TOTAL PETROCHEMICALS & REFINING USA, INC.	1/17/2017	Cooling Tower	0		Drift Eliminators	99.999	Particulate matter, filterable < 10 µ (FPM10)	0			BACT-PSD		
*LA-0323	MONSANTO COMPANY	1/9/2017	Cooling Water Tower	18,000	GAL/MIN	Drift Eliminators with Draft Factor of 0.003%	0	Particulate matter, total < 10 µ (TPM10)	0.003	%		BACT-PSD		Drift Eliminators with Drift Factor of 0.003%
*LA-0323	MONSANTO COMPANY	1/9/2017	Cooling Water Tower	18,000	GAL/MIN	Drift Eliminators with Drift Factor of 0.003%	0	Particulate matter, total < 2.5 µ (TPM2.5)	0.003	%		BACT-PSD		Drift Eliminators with Drift Factor of 0.003%
LA-0317	METHANEX USA, LLC	12/22/2016	cooling towers (I-CT-621, II-CT-621)	66,000	GAL/MIN (each)	Drift Eliminators	0	Particulate matter, total < 10 µ (TPM10)	0.001	%	DRIFT RATE	BACT-PSD		
LA-0317	METHANEX USA, LLC	12/22/2016	cooling towers (I-CT-621, II-CT-621)	66,000	GAL/MIN (each)	Drift Eliminators	0	Particulate matter, total < 2.5 µ (TPM2.5)	0.001	%	DIRFT RATE	BACT-PSD		
LA-0314	INDORAMA VENTURES OLEFINS, LLC	8/3/2016	cooling towers - 007	86,500	GAL/MIN	Drift Eliminators	0	Particulate matter, total < 10 µ (TPM10)	0.0005	%	DRIFT RATE	BACT-PSD		
LA-0314	INDORAMA VENTURES OLEFINS, LLC	8/3/2016	cooling towers - 007	86,500	GAL/MIN	Drift Eliminators	0	Particulate matter, total < 2.5 µ (TPM2.5)	0.0005	%	DRIFT RATE	BACT-PSD		
TX-0803	FLINT HILLS RESOURCES HOUSTON CHEMICAL LLC	7/12/2016	Cooling Tower	0		Drift Eliminators	0	Particulate matter, total < 10 µ (TPM10)	0.001	% DRIFT		BACT-PSD		
TX-0803	FLINT HILLS RESOURCES HOUSTON CHEMICAL LLC	7/12/2016	Cooling Tower	0		Drift Eliminators	0	Particulate matter, total < 2.5 µ (TPM2.5)	0.001	% DRIFT		BACT-PSD		
LA-0305	LAKE CHARLES METHANOL, LLC	6/30/2016	Cooling Towers	0		Drift Eliminators	0	Particulate matter, total < 10 µ (TPM10)	0.0005	%	THREE ONE-HOUR TEST AVERAGE	BACT-PSD	Unit A = 241,843 GAL/MIN Unit B = 201,196 GAL/MIN Unit C = 72,531 GAL/MIN	
LA-0305	LAKE CHARLES METHANOL, LLC	6/30/2016	Cooling Towers	0		Drift Eliminators	0	Particulate matter, total < 2.5 µ (TPM2.5)	0.0005	%	THREE ONE-HOUR TEST AVERAGE	BACT-PSD	Unit A = 241,843 GAL/MIN Unit B = 201,196 GAL/MIN Unit C = 72,531 GAL/MIN	
FL-0356	FLORIDA POWER & LIGHT	3/9/2016	Mechanical Draft Cooling Tower	465,815	GALLONS WATER/MIN	Must have certified drift rate no more than 0.0005%.	0	Particulate matter, total (TPM)	0			BACT-PSD		
LA-0318	FLOPAM, INC.	1/7/2016	cooling towers	0		Integrated Drift Eliminators	0	Particulate matter, total < 10 µ (TPM10)	0			BACT-PSD		
AR-0161	SUN BIO MATERIAL COMPANY	9/23/2019	Cooling Towers	0		Drift Eliminators, Low TDS	0	Particulate matter, total < 2.5 µ (TPM2.5)	0.0005	% DRIFT LOSS		BACT-PSD	Non-contact cooling towers	
AR-0161	SUN BIO MATERIAL COMPANY	9/23/2019	Cooling Towers	0		Drift Eliminators, Low TDS	0	Particulate matter, total < 10 µ (TPM10)	0.0005	% DRIFT LOSS		BACT-PSD	Non-contact cooling towers	
LA-0391	MAGNOLIA POWER GENERATING STATION UNIT 1	6/3/2022	Cooling Tower	8,400	GAL/MIN	High Efficiency Drift Eliminators	0	Particulate matter, total < 2.5 µ (TPM2.5)	0.0005	%		BACT-PSD	Equipped with high-efficiency drift eliminators <= 0.0005% drift rate.	
LA-0391	MAGNOLIA POWER GENERATING STATION UNIT 1	6/3/2022	Cooling Tower	8,400	GAL/MIN	High Efficiency Drift Eliminators	0	Particulate matter, total < 10 µ (TPM10)	0.0005	%		BACT-PSD	Equipped with high-efficiency drift eliminators <= 0.0005% drift rate.	
KS-0040	JOHNS MANVILLE AT MCPHERSON	12/3/2019	Cooling Towers	0		Drift Rate Control	0	Particulate matter, total (TPM)	0.001	%		BACT-PSD	Two cooling towers	Drift Rate from each cooling towers shall be 0.001% or less. There are total 2 towers for this PSD project.
MN-0094	CHS OILSEED PROCESSING - FAIRMONT	8/22/2019	Cooling Towers	12,000	GAL/MIN		0	Particulate matter, total (TPM)	0.005	%	DRIFT LOSS	N/A		
*NE-0064	NORFOLK CRUSH, LLC	11/21/2022	Cooling Tower	480,060	GAL/HR	There is a drift loss design specification and a TDS concentration limit.	0	Particulate matter, total (TPM)	0.0005	%	DRIFT LOSS	BACT-PSD	This is a three (3) celled cooling tower controlled by a mist eliminator.	The drift loss percent is guaranteed by the manufacturer.
*NE-0068	AG PROCESSING INC - DAVID CITY	6/27/2023	Cooling Tower 1	759,600	GAL/HR	There is a drift loss design specification with the mist eliminator (CE-8000) and a TDS concentration limit.	0	Particulate matter, total (TPM)	0.0005	%		BACT-PSD	This cooling tower (EP-8000) has 5 cells and is controlled by a mist eliminator.	The drift loss of 0.0005 percent is guaranteed by the manufacturer and TDS concentration of 3000 ppm is verified by monthly samples and tests.
*NE-0068	AG PROCESSING INC - DAVID CITY	6/27/2023	Cooling Tower 2	303,840	GAL/HR	There is a drift loss design specification with the mist eliminator (CE-8001) and a TDS concentration limit.	0	Particulate matter, total (TPM)	0.0005	%		BACT-PSD	This cooling tower (EP-8001) has 2 cells and is controlled by a mist eliminator.	The drift loss of 0.0005 percent is guaranteed by the manufacturer and TDS concentration of 3000 ppm is verified by monthly samples and tests.

Summary of RBLC Results for PM/PM10/PM2.5 Emissions from Miscellaneous Sources
Process Type: 99.009 - Industrial Process Cooling Towers and 81.290 - Other Steel Manufacturing Processes

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	Pollutant	PM Emission Limit	PM Emission Limit Unit (% drift)	PM Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
OH-0387	INTEL OHIO SITE	9/20/2022	Cooling Towers: P054 through P178	0		Drift Eliminator	0	Particulate matter, total (TPM)	0.0005	%	DRIFT RATE	BACT-PSD	125 cooling towers: P054 through P178	
TX-0864	EQUISTAR CHEMICALS CHANNELVIEW COMPLEX	9/9/2019	Cooling Tower	0		Drift Eliminators	0	Particulate matter, total (TPM)	0.005	% DRIFT		BACT-PSD		
TX-0940	FIBERGLASS MANUFACTURING FACILITY	9/6/2022	Cooling Tower	2,175	GAL/MIN	Drift Eliminator	0	Particulate matter, total (TPM)	0.001	%		BACT-PSD		
AR-0168	BIG RIVER STEEL LLC	3/17/2021	Contact Cooling Tower	75,000	GAL/HR	Drift Eliminators, Low TDS	0	Particulate matter, total (TPM)	0.001	% DRIFT LOSS		BACT-PSD	SN-109	
AR-0171	NUCOR STEEL ARKANSAS	2/14/2019	SN-49 Cooling Tower 4	0			0	Particulate matter, total < 10 µ (TPM10)	0.0005	% EFFECIENCY		BACT-PSD		
AR-0171	NUCOR STEEL ARKANSAS	2/14/2019	SN-49 Cooling Tower 4	0		High Efficiency Drift Eliminator	0	Particulate matter, total < 2.5 µ (TPM2.5)	0.0001	% EFFECIENCY		BACT-PSD		
AR-0172	NUCOR STEEL ARKANSAS	9/1/2021	SN-212 Cooling Tower	0		High Efficiency Drift/Mist Eliminator	0	Particulate matter, total < 10 µ (TPM10)	0.0005	% DRIFT LOSS		BACT-PSD		
AR-0172	NUCOR STEEL ARKANSAS	9/1/2021	SN-212 Cooling Tower	0		High Efficiency Drift/Mist Eliminator	0	Particulate matter, total < 2.5 µ (TPM2.5)	0.0005	% DRIFT LOSS		BACT-PSD		
AR-0173	BIG RIVER STEEL LLC	1/31/2022	Cooling Towers	0		Drift Eliminators, Low TDS	0	Particulate matter, total < 2.5 µ (TPM2.5)	0.0005	DRIFT LOSS		BACT-PSD	SN-52 through SN-68 SN-133	
AR-0177	NUCOR STEEL ARKANSAS	11/21/2022	Cooling tower, SN-241	0		Mist Eliminator	0	Particulate matter, total < 10 µ (TPM10)	0.0005	% DRIFT LOSS		BACT-PSD	Galvanization Line No. 2 Cooling Tower	
AR-0177	NUCOR STEEL ARKANSAS	11/21/2022	Cooling tower, SN-241	0		Mist Eliminator	0	Particulate matter, total < 2.5 µ (TPM2.5)	0.0005	% DRIFT LOSS		BACT-PSD	Galvanization Line No. 2 Cooling Tower	
*AR-0180	HYBAR LLC	4/28/2023	Cooling Towers	0		Drift Eliminators, Low TDS	0	Particulate matter, total < 10 µ (TPM10)	0.0005	% DRIFT LOSS		BACT-PSD	SN-11 through SN-16	
*AR-0180	HYBAR LLC	4/28/2023	Cooling Towers	0		Drift Eliminators, Low TDS	0	Particulate matter, total < 2.5 µ (TPM2.5)	0.0005	% DRIFT LOSS		BACT-PSD	SN-11 through SN-16	
IN-0359	NUCOR STEEL	3/30/2023	Laminar Cooling Tower (Contact Type)	31,600	GAL/MIN	High Efficiency Drift Eliminators	0	Particulate matter, total (TPM)	0.005	DRIFT LOSS RATE (%)		BACT-PSD		
WI-0311	SUPERIOR REFINING COMPANY LLC	9/27/2019	Cooling Tower No.1 (P80)	10,000	GAL/MIN	Drift eliminator, cooling additive control system that results in a total dissolved solids (TDS) concentration of not more than 3,000 ppm.	75	Particulate matter, total (TPM)	0.0005	% CIRCULATION DRIFT		BACT-PSD	2 cells	Total cooling water circulation rate may not exceed 10,000 gallons per minute (GAL/MIN), on an hourly average basis. Use of a cooling additive control system that results in a total dissolved solids (TDS) concentration of not more than 3,000 ppm. May demonstrate compliance with the TDS limitation through measurement of cooling water conductivity.

PM Emission Limits in % weight

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	Pollutant	PM Emission Limit	PM Emission Limit Unit (% weight)	PM Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
IL-0126	NUCOR STEEL KANKAKEE, INC.	11/1/2018	Cooling Towers	4,500	GAL/MIN	Drift Eliminators	0	Particulate matter, total (TPM)	0.001	%		BACT-PSD		Total particulate addresses PM and PM10/PM2.5 Permit limit is 0.79 ton/yr for PM and PM10/PM2.5

Summary of RBLC Results for PM/PM10/PM2.5 Emissions from Miscellaneous Sources
Process Type: 99.009 - Industrial Process Cooling Towers and 81.290 - Other Steel Manufacturing Processes
PM Emission Limits in LB/HR

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	Pollutant	PM Emission Limit	PM Emission Limit Unit (LB/HR)	PM Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
SC-0183	NUCOR STEEL - BERKELEY	5/4/2018	Cooling Towers	0		Proper Equipment Design, Operation and Maintenance	0	Particulate matter, filterable (FPM)	0.66	LB/HR	3-HOUR BLOCK AVERAGE	BACT-PSD	Contact cooling tower No. 4 - Mega, equipped with drift eliminators (existing)	Limiting TDS (less than 3,000 ppm), utilize high efficiency drift eliminators (achieving drift rate of 0.001%), routine inspections on drift eliminator in accordance with vendor specifications, and monitor conductivity monthly.
SC-0183	NUCOR STEEL - BERKELEY	5/4/2018	Cooling Towers	0		Proper Equipment Design, Operation and Maintenance	0	Particulate matter, filterable < 10 µ (FPM10)	0.33	LB/HR	3-HOUR BLOCK AVERAGE	BACT-PSD	Contact cooling tower No. 4 - Mega, equipped with drift eliminators (existing)	Limiting TDS (less than 3,000 ppm), utilize high efficiency drift eliminators (achieving drift rate of 0.001%), routine inspections on drift eliminator in accordance with vendor specifications, and monitor conductivity monthly.
SC-0183	NUCOR STEEL - BERKELEY	5/4/2018	Cooling Towers	0		Proper Equipment Design, Operation and Maintenance	0	Particulate matter, filterable < 2.5 µ (FPM2.5)	0.0013	LB/HR	3-HOUR BLOCK AVERAGE	BACT-PSD	Contact cooling tower No. 4 - Mega, equipped with drift eliminators (existing)	Limiting TDS (less than 3,000 ppm), utilize high efficiency drift eliminators (achieving drift rate of 0.001%), routine inspections on drift eliminator in accordance with vendor specifications, and monitor conductivity monthly.
SC-0183	NUCOR STEEL - BERKELEY	5/4/2018	Cooling Towers (Contact Cooling Tower)	0		Proper Equipment Design, Operation and Maintenance	0	Particulate matter, filterable (FPM)	0.13	LB/HR	3-HOUR BLOCK AVERAGE	BACT-PSD	Contact cooling tower (new)	Limiting TDS (less than 3,000 ppm), utilize high efficiency drift eliminators (achieving drift rate of 0.001%), routine inspections on drift eliminator in accordance with vendor specifications, and monitor conductivity monthly.
SC-0183	NUCOR STEEL - BERKELEY	5/4/2018	Cooling Towers (Contact Cooling Tower)	0		Proper Equipment Design, Operation and Maintenance	0	Particulate matter, filterable < 10 µ (FPM10)	0.06	LB/HR	3-HOUR BLOCK AVERAGE	BACT-PSD	Contact cooling tower (new)	Limiting TDS (less than 3,000 ppm), utilize high efficiency drift eliminators (achieving drift rate of 0.001%), routine inspections on drift eliminator in accordance with vendor specifications, and monitor conductivity monthly.
SC-0183	NUCOR STEEL - BERKELEY	5/4/2018	Cooling Towers (Contact Cooling Tower)	0		Proper Equipment Design, Operation and Maintenance	0	Particulate matter, filterable < 2.5 µ (FPM2.5)	0.0003	LB/HR	3-HOUR BLOCK AVERAGE	BACT-PSD	Contact cooling tower (new)	Limiting TDS (less than 3,000 ppm), utilize high efficiency drift eliminators (achieving drift rate of 0.001%), routine inspections on drift eliminator in accordance with vendor specifications, and monitor conductivity monthly.
SC-0183	NUCOR STEEL - BERKELEY	5/4/2018	Cooling Towers (Non-Contact Cooling Tower)	0		Proper Equipment Design, Operation and Maintenance	0	Particulate matter, filterable (FPM)	0.12	LB/HR	3-HOUR BLOCK AVERAGE	BACT-PSD	Non-contact cooling tower equpped with drift eliminators (new)	Limiting TDS (less than 3,900 ppm), utilize high efficiency drift eliminators (achieving drift rate of 0.001%), routine inspections on drift eliminator in accordance with vendor specifications, and monitor conductivity monthly.
SC-0183	NUCOR STEEL - BERKELEY	5/4/2018	Cooling Towers (Non-Contact Cooling Tower)	0		Proper Equipment Design, Operation and Maintenance	0	Particulate matter, filterable < 10 µ (FPM10)	0.05	LB/HR	3-HOUR BLOCK AVERAGE	BACT-PSD	Non-contact cooling tower equpped with drift eliminators (new)	Limiting TDS (less than 3,900 ppm), utilize high efficiency drift eliminators (achieving drift rate of 0.001%), routine inspections on drift eliminator in accordance with vendor specifications, and monitor conductivity monthly.
SC-0183	NUCOR STEEL - BERKELEY	5/4/2018	Cooling Towers (Non-Contact Cooling Tower)	0		Proper Equipment Design, Operation and Maintenance	0	Particulate matter, filterable < 2.5 µ (FPM2.5)	0.0003	LB/HR	3-HOUR BLOCK AVERAGE	BACT-PSD	Non-contact cooling tower equpped with drift eliminators (new)	Limiting TDS (less than 3,900 ppm), utilize high efficiency drift eliminators (achieving drift rate of 0.001%), routine inspections on drift eliminator in accordance with vendor specifications, and monitor conductivity monthly.
SC-0196	NUCOR CORPORATION - DARLINGTON PLANT	4/29/2019	Cooling Tower (Reheat #1 Cooling Tower)	0		Proper Equipment Design, Operation and Maintenance	0	Particulate matter, total < 10 µ (TPM10)	0.0023	LB/HR	3-HOUR BLOCK AVERAGE	BACT-PSD	Non-contact cooling tower equipped with drift eliminators.	Utilize high efficiency drift eliminators achieving drift rate of 0.001%. Monthly monitoring of conductivity. Logs of maintenance.
SC-0196	NUCOR CORPORATION - DARLINGTON PLANT	4/29/2019	Cooling Tower (Reheat #1 Cooling Tower)	0		Proper Equipment Design, Operation and Maintenance	0	Particulate matter, total < 2.5 µ (TPM2.5)	0.0001	LB/HR	3-HOUR BLOCK AVERAGE	BACT-PSD	Non-contact cooling tower equipped with drift eliminators.	Utilize high efficiency drift eliminators achieving drift rate of 0.001%. Monthly monitoring of conductivity. Logs of maintenance.
SC-0196	NUCOR CORPORATION - DARLINGTON PLANT	4/29/2019	Cooling Tower (Reheat #2 Cooling Tower)	0		Proper Equipment Design, Operation and Maintenance	0	Particulate matter, total < 10 µ (TPM10)	0.0028	LB/HR	3-HOUR BLOCK AVERAGE	BACT-PSD	Non-contact cooling tower equipped with drift eliminators.	Utilize high efficiency drift eliminators achieving drift rate of 0.001%. Monthly monitoring of conductivity. Logs of maintenance.
SC-0196	NUCOR CORPORATION - DARLINGTON PLANT	4/29/2019	Cooling Tower (Reheat #2 Cooling Tower)	0		Proper Equipment Design, Operation and Maintenance	0	Particulate matter, total < 2.5 µ (TPM2.5)	0	LB/HR	3-HOUR AVERAGE	BACT-PSD	Non-contact cooling tower equipped with drift eliminators.	Utilize high efficiency drift eliminators achieving drift rate of 0.001%. Monthly monitoring of conductivity. Logs of maintenance.
SC-0196	NUCOR CORPORATION - DARLINGTON PLANT	4/29/2019	Cooling Tower (Rod Line Cooling Tower)	0		Proper Equipment Design, Operation and Maintenance	0	Particulate matter, total < 10 µ (TPM10)	0.0025	LB/HR	3-HOUR AVERAGE	BACT-PSD	Non-contact cooling tower equipped with drift eliminators.	Utilize high efficiency drift eliminators achieving drift rate of 0.001%. Monthly monitoring of conductivity. Logs of maintenance.
SC-0196	NUCOR CORPORATION - DARLINGTON PLANT	4/29/2019	Cooling Tower (Rod Line Cooling Tower)	0		Proper Equipment Design, Operation and Maintenance	0	Particulate matter, total < 2.5 µ (TPM2.5)	0.0001	LB/HR	3-HOUR BLOCK AVERAGE	BACT-PSD	Non-contact cooling tower equipped with drift eliminators.	Utilize high efficiency drift eliminators achieving drift rate of 0.001%. Monthly monitoring of conductivity. Logs of maintenance.

Summary of RBLC Results for PM/PM10/PM2.5 Emissions from Reheat Furnaces
Process Type: 81.290 - Other Steel Manufacturing Processes, 81.230 - Casting and Pouring Processes, 81.320 - Cupola Furnaces, and 81.390 - Other Steel Foundry Processes

PM Emission Limits in lb/mmbtu

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	Pollutant	PM Emission Limit	PM Emission Limit Unit (lb/MMBtu)	PM Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
IL-0126	NUCOR STEEL KANKAKEE, INC.	11/1/2018	Natural Gas-Fired Reheat Furnace	125.5	mmBtu/hr	Good combustion practices	0	Particulate matter, total (TPM)	0.013	LB/MMBTU	3-HR BLOCK AVERAG	BACT-PSD		BACT limit addresses PM and PM10/PM 2.5 Permit emission limits for PM and PM10/PM2.5 is 1.60 lb/hr and 7.16 ton/yr. Emission limit reflects USEPA's emission factor for natural gas-fired reheat furnaces in Section 12.5.1 of AP-42
LA-0309	BENTELER STEEL TUBE FACILITY	6/4/2015	Shell Reheat Furnace - S04	79.7	mm btu/hr	good combustion techniques	0	Particulate matter, total < 10 µ (TPM10)	0.0076	LB/MMBTU		BACT-PSD		
LA-0309	BENTELER STEEL TUBE FACILITY	6/4/2015	Shell Reheat Furnace - S04	79.7	mm btu/hr	good combustion techniques	0	Particulate matter, total < 2.5 µ (TPM2.5)	0.0076	LB/MMBTU		BACT-PSD		
MI-0417	GERDAU MACSTEEL, INC.	10/27/2014	EUBILLET-REHEAT (Walking Beam Billet Reheat Furnace)	260.7	MMBTU/H total burner capacity	THE PERMITTEE SHALL EMPLOY EFFECTIVE COMBUSTION AND OEPRATIONAL CONTROL PRACTICES TO MINIMIZE EMISSIONS OF PM10.	0	Particulate matter, total < 2.5 µ (TPM2.5)	0			BACT-PSD	A walking beam billet reheat furnace equipped with Ultra-Low NOx burners with the total input capacity of 260.7 MMBTU/H.	The applicant reviewed the use of a fabric filter, ESP and wet scrubber, all were found to not be cost effective.
GA-0142	OSCEOLA STEEL CO.	12/29/2010	Reheat Furnace	75	MMBTU/H	Fabric Filter (Baghouse) and Fuel Selection (firing natural gas exclusively)	0	Particulate matter, total (TPM)	0.0076	LB/MMBTU		BACT-PSD		
OH-0341	NUCOR STEEL MARION, INC.	12/23/2010	Reheat furnace for steel billet	184	MMBtu/H		0	Particulate matter, total < 2.5 µ (TPM2.5)	0.0075	LB/MMBTU		BACT-PSD		If required Method 201/202A and 202. All PM considered PM2.5.
PA-0274	ALLEGHENY LUDLUM CORPORATION - BRACKENRIDGE FACILITY	2/16/2010	THREE (3) WALKING BEAM REHEAT FURANCES (S-201, S-202, AND S-203)	465	MMBTU/H EACH	THE PERMITTEE SHALL EMPLOY EFFECTIVE COMBUSTION AND OPERATIONAL CONTROL PRACTICES TO MINIMIZE EMISSIONS OF PM.	0	Particulate matter (PM)	0.0075	LB/MMBTU		BACT-PSD	EACH FURNACE IS FIRED WITH NATURAL GAS AND EACH FURNACE IS EQUIPPED WITH ULTRA LOW NOX BURNERS.	HEAT INPUT TO EACH FURNACE IS LIMITED TO 465 MMBTU/HR AND THE TOTAL NATURAL GAS INPUT TO THE THREE (3) FURNACES SHALL NOT EXCEED 8,729 MILLION CUBIC FEET PER 12 CONSECUTIVE MONTHS. EMISSIONS ARE ALSO LIMITED TO 3.49 LB/HR AND 15.28 TONS/YR FOR EACH FURNACE AND 34.37 TONS/YR FOR ALL THREE FURNACES. THESE LIMITS APPLY AT ALL TIMES DURING OPERATION INCLUDING STARTUP AND SHUTDOWN.
PA-0274	ALLEGHENY LUDLUM CORPORATION - BRACKENRIDGE FACILITY	2/16/2010	THREE (3) WALKING BEAM REHEAT FURANCES (S-201, S-202, AND S-203)	465	MMBTU/H EACH	THE PERMITTEE SHALL EMPLOY EFFECTIVE COMBUSTION AND OPERATIONAL CONTROL PRACTICES TO MINIMIZE EMISSIONS OF PM10.	0	Particulate matter, filterable < 10 µ (FPM10)	0.0075	LB/MMBTU		BACT-PSD	EACH FURNACE IS FIRED WITH NATURAL GAS AND EACH FURNACE IS EQUIPPED WITH ULTRA LOW NOX BURNERS.	HEAT INPUT TO EACH FURNACE IS LIMITED TO 465 MMBTU/HR AND THE TOTAL NATURAL GAS INPUT TO THE THREE (3) FURNACES SHALL NOT EXCEED 8,729 MILLION CUBIC FEET PER 12 CONSECUTIVE MONTHS. EMISSIONS ARE ALSO LIMITED TO 3.49 LB/HR AND 15.28 TONS/YR FOR EACH FURNACE AND 34.37 TONS/YR FOR ALL THREE FURNACES. THESE LIMITS APPLY AT ALL TIMES DURING OPERATION INCLUDING STARTUP AND SHUTDOWN.
PA-0274	ALLEGHENY LUDLUM CORPORATION - BRACKENRIDGE FACILITY	2/16/2010	THREE (3) WALKING BEAM REHEAT FURANCES (S-201, S-202, AND S-203)	465	MMBTU/H EACH	THE PERMITTEE SHALL EMPLOY EFFECTIVE COMBUSTION AND OPERATIONAL CONTROL PRACTICES TO MINIMIZE EMISSIONS OF PM2.5.	0	Particulate matter, filterable < 2.5 µ (FPM2.5)	0.0075	LB/MMBTU		BACT-PSD	EACH FURNACE IS FIRED WITH NATURAL GAS AND EACH FURNACE IS EQUIPPED WITH ULTRA LOW NOX BURNERS.	HEAT INPUT TO EACH FURNACE IS LIMITED TO 465 MMBTU/HR AND THE TOTAL NATURAL GAS INPUT TO THE THREE (3) FURNACES SHALL NOT EXCEED 8,729 MILLION CUBIC FEET PER 12 CONSECUTIVE MONTHS. EMISSIONS ARE ALSO LIMITED TO 3.49 LB/HR AND 15.28 TONS/YR FOR EACH FURNACE AND 34.37 TONS/YR FOR ALL THREE FURNACES. THESE LIMITS APPLY AT ALL TIMES DURING OPERATION INCLUDING STARTUP AND SHUTDOWN.
OH-0331	AK STEEL CORPORATION MANSFIELD WORKS	1/11/2010	Slab Reheat Furnace	1138800	MMBtu/YR		0	Particulate matter, filterable < 10 µ (FPM10)	0.00191	LB/MMBTU		BACT-PSD		TPY based on restriction on Btu usage of natural gas: restricted to 1,138,800 MMBtu per rolling 12-months. Only conduct Method 201/201A if required.

Summary of RBLC Results for NOx Emissions from Reheat Furnaces
Process Type: 81.290 - Other Steel Manufacturing Processes, 81.230 - Casting and Pouring Processes, 81.320 - Cupola Furnaces, and 81.390 - Other Steel Foundry Processes

NOx Emission Limits in lb/mmbtu

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	NOx Emission Limit	NOx Emission Limit Unit (lb/MMBtu)	NOx Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
IL-0126	NUCOR STEEL KANKAKEE, INC.	11/1/2018	Natural Gas-Fired Reheat Furnace	125.5	mmBtu/hr	Good combustion practices and low-NOx burners	0	0.07	LB/MMBTU	DAILY (24-HR) AVERAGE	BACT-PSD		
NJ-0087	GERDAU SAYREVILLE	3/26/2018	Billet Reheat Furnace	1178	MMSCF/YR	Low NOx Burners	0	0.1	LB/MMBTU	AV OF THREE STACK TEST RUNS ANNUALLY	RACT	SIZE: 172.8 MMBTU/H	
LA-0309	BENTELER STEEL TUBE FACILITY	6/4/2015	Shell Reheat Furnace - S04	79.7	mm btu/hr	ULNB	0	0.075	LB/MMBTU		BACT-PSD		
TX-0705	STEEL MINIMILL FACILITY	7/24/2014	Rolling Mill Billet Reheat Furnace	1300000	tons/year	Ultra-low NOX burners.	0	0.073	LB/MMBTU		BACT-PSD		
PA-0274	ALLEGHENY LUDLUM CORPORATION - BRACKENRIDGE FACILITY	2/16/2010	THREE (3) WALKING BEAM REHEAT FURANCES (S-201, S-202, AND S-203)	465	MMBTU/H EACH	ULTRA LOW NOX BURNERS ON EACH FURNACE.	0	0.07	LB/MMBTU		BACT-PSD	EACH FURNACE IS FIRED WITH NATURAL GAS AND EACH FURNACE IS EQUIPPED WITH ULTRA LOW NOX BURNERS.	HEAT INPUT TO EACH FURNACE IS LIMITED TO 465 MMBTU/HR AND THE TOTAL NATURAL GAS INPUT TO THE THREE (3) FURNACES SHALL NOT EXCEED 8,729 MILLION CUBIC FEET PER 12 CONSECUTIVE MONTHS. EMISSIONS ARE ALSO LIMITED TO 32.55 LB/HR AND 142.57 TONS/YR FOR EACH FURNACE AND 320.78 TONS/YR FOR ALL THREE FURNACES. THESE LIMITS APPLY AT ALL TIMES DURING OPERATION INCLUDING STARTUP AND SHUTDOWN.
OH-0331	AK STEEL CORPORATION MANSFIELD WORKS	1/11/2010	Slab Reheat Furnace	1138800	MMBtu/YR		0	0.14	LB/MMBTU		N/A		TPY based on restriction on Btu usage of natural gas: restricted to 1,138,800 MMBtu per rolling 12-months. Only conduct Method 7 if required.

NOx Emission Limits in lb/MMscf

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	NOx Emission Limit	NOx Emission Limit Unit (lb/MMscf)	NOx Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
MI-0417	GERDAU MACSTEEL, INC.	10/27/2014	EUBILLET-REHEAT (Walking Beam Billet Reheat Furnace)	260.7	MMBTU/H total burner capacity	Ultra-low NOx burners and good combustion practices.	0	0.07	LB/MMSCF	TEST PROTOCOL	BACT-PSD	A walking beam billet reheat furnace equipped with Ultra-Low NOx burners with the total input capacity of 260.7 MMBTU/H.	There are 3 emission limits: 1. 0.07 LB/MMSCF with averaging time determined by test protocol. PSD BACT. 2. 18.3 LB/H with averaging time determined by test protocol. PSD BACT. 3. 57.9 T/YR based upon a 12-month rolling time period as determined at the end of each calendar month. Applicant evaluated cost effectiveness to control NOx emissions with SCR and SNCR, both were found to not be cost effective to control.

NOx Emission Limits in lb/ton

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	NOx Emission Limit	NOx Emission Limit Unit (lb/ton)	NOx Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
GA-0142	OSCEOLA STEEL CO.	12/29/2010	Reheat Furnace	75	MMBTU/H	Low NOx burners with FGR technology and good combustion/operating practices.	0	0.075	LB/TON	3 HOUR STACK TESTING	BACT-PSD		

NOx Emission Limits in lb/hr

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	NOx Emission Limit	NOx Emission Limit Unit (lb/hr)	NOx Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
OH-0341	NUCOR STEEL MARION, INC.	12/23/2010	Reheat furnace for steel billet	184	MMBtu/H	Low NOx burners	0	27.6	lb/hr		BACT-PSD		Certification of the NOx CEM within 60 days fo the effective date of permit.

Summary of RBLC Results for SO_2 Emissions from Reheat Furnaces
Process Type: 81.290 - Other Steel Manufacturing Processes, 81.230 - Casting and Pouring Processes, and 81.390 - Other Steel Foundry Processes

SO_2 Emission Limits in lb/mmbtu

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	SO_2 Emission Limit	SO_2 Emission Limit Unit (lb/MMBtu)	SO_2 Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
MI-0417	GERDAU MACSTEEL, INC.	10/27/2014	EUBILLET-REHEAT (Walking Beam Billet Reheat Furnace)	260.7	MMBTU/H total burner capacity		0	0			BACT-PSD	A walking beam billet reheat furnace equipped with Ultra-Low NOx burners with the total input capacity of 260.7 MMBTU/H.	The applicant did not evaluate control for SO2 from the billet reheat furnace, SO2 BACT is fuel specification for the use of clean burn fuel (pipeline quality natural gas).
GA-0142	OSCEOLA STEEL CO.	12/29/2010	Reheat Furnace	75	MMBTU/H	Fabric Filter (Baghouse) and Fuel Selection (firing natural gas exclusively)	0	0.0006	LB/MMBTU		BACT-PSD		
OH-0341	NUCOR STEEL MARION, INC.	12/23/2010	Reheat furnace for steel billet	184	MMBtu/H		0	0.0006	LB/MMBTU		BACT-PSD		
PA-0274	ALLEGHENY LUDLUM CORPORATION - BRACKENRIDGE FACILITY	2/16/2010	THREE (3) WALKING BEAM REHEAT FURANCES (S-201, S-202, AND S-203)	465	MMBTU/H EACH	THE PERMITTEE SHALL EMPLOY EFFECTIVE COMBUSTION AND OPERATIONAL CONTROL PRACTICES TO MINIMIZE EMISSIONS OF SOX.	0	0.0006	LB/MMBTU		BACT-PSD	EACH FURNACE IS FIRED WITH NATURAL GAS AND EACH FURNACE IS EQUIPPED WITH ULTRA LOW NOX BURNERS.	HEAT INPUT TO EACH FURNACE IS LIMITED TO 465 MMBTU/HR AND THE TOTAL NATURAL GAS INPUT TO THE THREE (3) FURNACES SHALL NOT EXCEED 8,729 MILLION CUBIC FEET PER 12 CONSECUTIVE MONTHS. EMISSIONS ARE ALSO LIMITED TO 0.28 LB/HR AND 1.22 TONS/YR FOR EACH FURNACE AND 2.75 TONS/YR FOR ALL THREE FURNACES. THESE LIMITS APPLY AT ALL TIMES DURING OPERATION INCLUDING STARTUP AND SHUTDOWN.

Summary of RBLC Results for CO Emissions from Reheat Furnaces
Process Type: 81.290 - Other Steel Manufacturing Processes, 81.320 - Cupola Furnaces, and 81.390 - Other Steel Foundry Processes

SO_2 Emission Limits in lb/mmscf

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	CO Emission Limit	CO Emission Limit Unit (lb/MMscf)	CO Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
LA-0309	BENTELER STEEL TUBE FACILITY	6/4/2015	Shell Reheat Furnace - S04	79.7	mm btu/hr	good combustion practices	0	0			BACT-PSD		
MI-0417	GERDAU MACSTEEL, INC.	10/27/2014	EUBILLET-REHEAT (Walking Beam Billet Reheat Furnace)	260.7	MMBTU/H total burner capacity		0	84	LB/MMSCF	TEST PROTOCOL	BACT-PSD	A walking beam billet reheat furnace equipped with Ultra-Low NOx burners with the total input capacity of 260.7 MMBTU/H.	The second emission limit of 68.6 T/YR is based upon a 12-month rolling time period as determined at the end of each calendar month. The applicant reviewed the use of a regenerative thermal oxidizer, a recuperative thermal oxidizer, and an oxidation catalyst. All were found to be not cost effective.

SO_2 Emission Limits in lb/mmbtu

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	CO Emission Limit	CO Emission Limit Unit (lb/MMBtu)	CO Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
GA-0142	OSCEOLA STEEL CO.	12/29/2010	Reheat Furnace	75	MMBTU/H	Good Combustion/Operating Practices	0	0.0035	LB/MMBTU	3-HOUR STACK TESTING	BACT-PSD		
PA-0274	ALLEGHENY LUDLUM CORPORATION - BRACKENRIDGE FACILITY	2/16/2010	THREE (3) WALKING BEAM REHEAT FURANCES (S-201, S-202, AND S-203)	465	MMBTU/H EACH	THE PERMITTEE SHALL EMPLOY EFFECTIVE COMBUSTION AND OPERATIONAL CONTROL PRACTICES TO MINIMIZE EMISSIONS OF CO.	0	0.02	LB/MMBTU		BACT-PSD	EACH FURNACE IS FIRED WITH NATURAL GAS AND EACH FURNACE IS EQUIPPED WITH ULTRA LOW NOX BURNERS.	HEAT INPUT TO EACH FURNACE IS LIMITED TO 465 MMBTU/HR AND THE TOTAL NATURAL GAS INPUT TO THE THREE (3) FURNACES SHALL NOT EXCEED 8,729 MILLION CUBIC FEET PER 12 CONSECUTIVE MONTHS. EMISSIONS ARE ALSO LIMITED TO 9.3 LB/HR AND 40.73 TONS/YR FOR EACH FURNACE AND 91.65 TONS/YR FOR ALL THREE FURNACES. THESE LIMITS APPLY AT ALL TIMES DURING OPERATION INCLUDING STARTUP AND SHUTDOWN.
OH-0331	AK STEEL CORPORATION MANSFIELD WORKS	1/11/2010	Slab Reheat Furnace	1138800	MMBtu/YR		0	0.084	LB/MMBTU		BACT-PSD		TPY based on restriction on Btu usage of natural gas: restricted to 1,138,800 MMBtu per rolling 12-months. Only conduct Method 10 if required.

SO_2 Emission Limits in lb/mmbtu

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	CO Emission Limit	CO Emission Limit Unit (lb/hr)	CO Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
OH-0341	NUCOR STEEL MARION, INC.	12/23/2010	Reheat furnace for steel billet	184	MMBtu/H		0	15.46	lb/hr		BACT-PSD		Certification of the CO CEM within 60 days of the effective date of permit.

Summary of RBLC Results for VOC Emissions from Reheat Furnaces
Process Type: 19.600 - Misc. Boilers, Furnaces, Heaters, 81.290 - Other Steel Manufacturing Processes, 81.230 - Casting and Pouring Processes, and 81.390 - Other Steel Foundry Processes

SO_2 Emission Limits in lb/mmbtu

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	VOC Emission Limit	VOC Emission Limit Unit (lb/MMBtu)	VOC Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
SC-0183	NUCOR STEEL - BERKELEY	5/4/2018	Reheat Furnace/Beam Mill (reheat furnace)	0		Good combustion practices	0	0			BACT-PSD	Reheat furnace rated at 185 MMBtu/hr (existing).	Good combustion practices and only permitted to burn natural gas as fuel.
LA-0309	BENTELER STEEL TUBE FACILITY	6/4/2015	Shell Reheat Furnace - S04	79.7	mm btu/hr	good combustion practices	0	0			BACT-PSD		
OH-0341	NUCOR STEEL MARION, INC.	12/23/2010	Reheat furnace for steel billet	184	MMBtu/H		0	0.0054	LB/MMBTU		BACT-PSD		
PA-0274	ALLEGHENY LUDLUM CORPORATION - BRACKENRIDGE FACILITY	2/16/2010	THREE (3) WALKING BEAM REHEAT FURANCES (S-201, S-202, AND S-203)	465	MMBTU/H EACH	THE PERMITTEE SHALL EMPLOY EFFECTIVE COMBUSTION AND OPERATIONAL CONTROL PRACTICES TO MINIMIZE EMISSIONS OF VOC.	0	0.0054	LB/MMBTU		BACT-PSD	EACH FURNACE IS FIRED WITH NATURAL GAS AND EACH FURNACE IS EQUIPPED WITH ULTRA LOW NOX BURNERS.	HEAT INPUT TO EACH FURNACE IS LIMITED TO 465 MMBTU/HR AND THE TOTAL NATURAL GAS INPUT TO THE THREE (3) FURNACES SHALL NOT EXCEED 8,729 MILLION CUBIC FEET PER 12 CONSECUTIVE MONTHS. EMISSIONS ARE ALSO LIMITED TO 2.51 LB/HR AND 11.0TONS/YR FOR EACH FURNACE AND 24.75 TONS/YR FOR ALL THREE FURNACES. THESE LIMITS APPLY AT ALL TIMES DURING OPERATION INCLUDING STARTUP AND SHUTDOWN.
OH-0331	AK STEEL CORPORATION MANSFIELD WORKS	1/11/2010	Slab Reheat Furnace	1138800	MMBtu/YR		0	0.0055	LB/MMBTU		BACT-PSD		TPY based on restriction on Btu usage of natural gas: restricted to 1,138,800 MMBtu per rolling 12-months. Only conduct Method 18 if required.

Summary of RBLC Results for GHG Emissions from Reheat Furnaces
Process Type: 81.290 - Other Steel Manufacturing Processes and 81.390 - Other Steel Foundry Processes

GHG Emission Limits in tpy

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	GHG Emission Limit	GHG Emission Limit Unit (tpy)	GHG Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
IL-0126	NUCOR STEEL KANKAKEE, INC.	11/1/2018	Natural Gas-Fired Reheat Furnace	125.5	mmBtu/hr	Energy efficient design and operation	0	65200	TPY		BACT-PSD		Compliance determined using relevant procedures for quantification of GHG emissions in 40 CFR 98 Subpart C
LA-0309	BENTELER STEEL TUBE FACILITY	6/4/2015	Shell Reheat Furnace - S04	79.7	mm btu/hr	designs and work practices	0	0			BACT-PSD		

GHG Emission Limits in lb/mmbtu

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	GHG Emission Limit	GHG Emission Limit Unit (lb/mmbtu)	GHG Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
MI-0417	GERDAU MACSTEEL, INC.	10/27/2014	EUBILLET-REHEAT (Walking Beam Billet Reheat Furnace)	260.7	MMBTU/H total burner capacity	Ultra-low NOx burners and good combustion practices.	0	119	LB/MMBTU	TEST PROTOCOL	BACT-PSD	A walking beam billet reheat furnace equipped with Ultra-Low NOx burners with the total input capacity of 260.7 MMBTU/H.	Note the second emission limit of 97,907 T/YR is based on a 120-month rolling time period as determined at the end of each calendar month. The applicant evaluated carbon sequestration and capture and terrestrial sequestration. Terrestrial sequestration was the lowest cost per ton at $162 per ton. The total overall cost for this project would have been $163,333,500 which does not include annual upkeep. This was found not to be cost effective. BACT was determined to be energy efficiency with an energy efficiency plan for the melt shop.

Summary of RBLC Results for PM/PM10/PM2.5 Emissions from Torch Cutting
Process Type: 81.290 - Other Steel Manufacturing Processes and 81.390 - Other Steel Foundry Processes

PM Emission Limits in tpy

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	Pollutant	PM Emission Limit	PM Emission Limit Unit (tpy)	PM Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
IL-0126	NUCOR STEEL KANKAKEE, INC.	11/1/2018	Rolling Mill and Cutting Torches	500,000	TONS/YR	Good industry practice for a rolling mill	0	Particulate matter, total < 10 µ (TPM10)	6.65	TPY		BACT-PSD		Emissions of PM10 from the rolling mill are permit limits, not BACT limits. Emissions of PM10 from cutting torches are negligible.
IL-0126	NUCOR STEEL KANKAKEE, INC.	11/1/2018	Rolling Mill and Cutting Torches	500,000	TONS/YR	Good industry practice for a rolling mill	0	Particulate matter, total < 2.5 µ (TPM2.5)	2.46	TPY		BACT-PSD		Emissions of PM2.5 from the rolling mill is a permit limit, not a BACT limit. Emissions of PM2.5 from cutting torches are
IL-0126	NUCOR STEEL KANKAKEE, INC.	11/1/2018	Rolling Mill and Cutting Torches	500,000	TONS/YR	Good industry practice for a rolling mill	0	Particulate matter, filterable (FPM)	6.65	TPY		BACT-PSD		Emissions of PM from cutting torches are negligible.

PM Emission Limits in lb/mmbtu

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	Pollutant	PM Emission Limit	PM Emission Limit Unit (lb/mmbtu)	PM Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
PA-0274	ALLEGHENY LUDLUM CORPORATION - BRACKENRIDGE FACILITY	2/16/2010	Torch Cutting Operation (S-220)	6	MMBTU/H	Emissions of PM shall be controlled by a baghouse with a minimum overall control efficiency of 99.9%. The permittee shall also employ effective combustion and operational control practices to minimize PM emissions.	99.9	Particulate Matter (PM)	0.0074	LB/MMBTU		BACT-PSD	The maximum throughput of specialty steel products to the torch cutting operation is 374,227 tons/yr. This unit is equipped with a baghouse.	Heat input to the torch cutting operation shall be limited to 6.0 MMBtu/hr anEmissions of PM from the torch cutting operation (including natural gas combustion emissions) are also limited to 2.91 lbs/hr and 12.73 tons/yr. These limits apply at all times during operation including startup and shutdown.
PA-0274	ALLEGHENY LUDLUM CORPORATION - BRACKENRIDGE FACILITY	2/16/2010	Torch Cutting Operation (S-220)	6	MMBTU/H	Emissions of PM10 shall be controlled by a baghouse with a minimum overall control efficiency of 99.9%. The permittee shall also employ effective combustion and operational control practices to minimize PM10 emissions.	99.9	Particulate matter, filterable < 10 µ (FPM10)	0.0074	LB/MMBTU		BACT-PSD	The maximum throughput of specialty steel products to the torch cutting operation is 374,227 tons/yr. This unit is equipped with a baghouse.	Heat input to the torch cutting operation shall be limited to 6.0 MMBtu/hr and the unit shall only fire pipeline quality natural gas. Emissions of PM10 from the torch cutting operation (including natural gas combustion emissions) are also limited to 2.91 lbs/hr and 12.73 tons/yr. These limits apply at all times during operation including startup and shutdown.
PA-0274	ALLEGHENY LUDLUM CORPORATION - BRACKENRIDGE FACILITY	2/16/2010	Torch Cutting Operation (S-220)	6	MMBTU/H	Emissions of PM2.5 shall be controlled by a baghouse with a minimum overall control efficiency of 99.9%. The permittee shall also employ effective combustion and operational control practices to minimize PM2.5 emissions.	99.9	Particulate matter, filterable < 2.5 µ (FPM2.5)	0.0074	LB/MMBTU		BACT-PSD	The maximum throughput of specialty steel products to the torch cutting operation is 374,227 tons/yr. This unit is equipped with a baghouse.	Heat input to the torch cutting operation shall be limited to 6.0 MMBtu/hr and the unit shall only fire pipeline quality natural gas. Emissions of PM2.5 from the torch cutting operation (including natural gas combustion emissions) are also limited to 2.91 lbs/hr and 12.73 tons/yr. These limits apply at all times during operation including startup and shutdown.
IL-0132	NUCOR STEEL KANKAKEE, INC.	1/25/2021	Manual Metal Cutting Torches / Automatic Caster Cutoff Torches	0		Good Combustion Practices	0	Particulate matter, total (TPM)	0.0019	LB/MMBTU		BACT-PSD	Torches are either located in or out of Melt Shop building	
IL-0132	NUCOR STEEL KANKAKEE, INC.	1/25/2021	Manual Metal Cutting Torches / Automatic Caster Cutoff Torches	0		Good Combustion Practices	0	Particulate matter, total < 10 µ (TPM10)	0.0076	LB/MMBTU		BACT-PSD	Torches are either located in or out of Melt Shop building	Emission Limit 1 also applicable to total PM2.5

PM Emission Limits in LB/HR

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	Pollutant	PM Emission Limit	PM Emission Limit Unit (LB/HR)	PM Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
MI-0430	HURON CASTING INC. & BLUE DIAMOND STEEL CASTING	3/30/2017	EUTORCHES1-18 (Cutting torches #1-18) at the HCI facility.	0			0	Particulate matter, total < 10 µ (TPM10)	0.22	LB/HR		BACT-PSD	Cutting torches #1-18 located at the Huron Casting (HCI) portion of the stationary source.	
MI-0430	HURON CASTING INC. & BLUE DIAMOND STEEL CASTING	3/30/2017	EUTORCHES1-18 (Cutting torches #1-18) at the HCI facility.	0			0	Particulate matter, total < 2.5 µ (TPM2.5)	0.044	LB/HR		BACT-PSD	Cutting torches #1-18 located at the Huron Casting (HCI) portion of the stationary source.	
AL-0301	NUCOR STEEL TUSCALOOSA, INC.	7/22/2014	Plasma Torches	0.64	MMBTU/H	Baghouse	99	Particulate matter, filterable (FPM)	0.1	LB/HR		BACT-PSD	Two Torches	
PA-0274	ALLEGHENY LUDLUM CORPORATION - BRACKENRIDGE FACILITY	2/16/2010	Plasma Torch Cutting Operation (S-222)	30,000	TPY SPECIALTY STEEL PRODUCTS	Emissions of PM from the plasma torch cutting operation shall be controlled by a baghouse with a minimum overall control efficiency of 99.9%.	99.9	Particulate Matter (PM)	0.01	LB/HR		BACT-PSD	This unit is equipped with a baghouse.	
PA-0274	ALLEGHENY LUDLUM CORPORATION - BRACKENRIDGE FACILITY	2/16/2010	Plasma Torch Cutting Operation (S-222)	30,000	TPY SPECIALTY STEEL PRODUCTS	Emissions of PM10 from the plasma torch cutting operation shall be controlled by a baghouse with a minimum overall control efficiency of 99.9%.	99.9	Particulate matter, filterable < 10 µ (FPM10)	0.01	LB/HR		BACT-PSD	This unit is equipped with a baghouse.	
PA-0274	ALLEGHENY LUDLUM CORPORATION - BRACKENRIDGE FACILITY	2/16/2010	Plasma Torch Cutting Operation (S-222)	30,000	TPY SPECIALTY STEEL PRODUCTS	Emissions of PM2.5 from the plasma torch cutting operation shall be controlled by a baghouse with a minimum overall control efficiency of 99.9%.	99.9	Particulate matter, filterable < 2.5 µ (FPM2.5)	0.01	LB/HR		BACT-PSD	This unit is equipped with a baghouse.	

PM Emission Limits in lb/1000 lbs

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	Pollutant	PM Emission Limit	PM Emission Limit Unit (lb/1000 lbs)	PM Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
MI-0430	HURON CASTING INC. & BLUE DIAMOND STEEL CASTING	3/30/2017	EUTORCHES1-18 (Cutting torches #1-18) at the HCI facility.	0			0	Particulate matter, filterable (FPM)	0.01	LB/1000 LBS		BACT-PSD	Cutting torches #1-18 located at the Huron Casting (HCI) portion of the stationary source.	

PM Emission Limits in gr/dscf

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	Pollutant	PM Emission Limit	PM Emission Limit Unit (gr/dscf)	PM Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
AL-0293	THYSSENKRUP STAINLESS USA, LLC	3/25/2010	Torch Cutoff vented to Baghouse (L011)	0		Baghouse	0	Particulate matter, filterable (FPM)	0.0018	GR/DSCF		BACT-PSD		
AL-0294	THYSSENKRUP STAINLESS USA, LLC	3/25/2010	Torch cutoff vented to Baghouse (LA8)	0		Baghouse	0	Particulate matter, filterable (FPM)	0.0018	GR/DSCF		BACT-PSD		

Summary of RBLC Results for NOx Emissions from Torch Cutting
Process Type: 81.290 - Other Steel Manufacturing Processes and 81.390 - Other Steel Foundry Processes

PM Emission Limits in LB/HR

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	NOx Emission Limit	NOx Emission Limit Unit (LB/HR)	NOx Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
AL-0301	NUCOR STEEL TUSCALOOSA, INC.	7/22/2014	Plasma Torches	0.64	MMBTU/H	Baghouse	99	0.56	LB/HR		BACT-PSD	Two Torches	
PA-0274	ALLEGHENY LUDLUM CORPORATION - BRACKENRIDGE FACILITY	2/16/2010	Plasma Torch Cutting Operation (S-222)	30,000	TPY SPECIALTY STEEL PRODUCTS	The permittee shall employ effective operational control practices to minimize emissions of NOx.	0	0.79	LB/HR		BACT-PSD	This unit is equipped with a baghouse.	

PM Emission Limits in lb/mmbtu

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	NOx Emission Limit	NOx Emission Limit Unit (lb/mmbtu)	NOx Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
IL-0126	NUCOR STEEL KANKAKEE, INC.	11/1/2018	Rolling Mill and Cutting Torches	500,000	TONS/YR	Good Industry Practice	0	0.1	LB/MMBTU		BACT-PSD		Emissions of NOx from cutting torches is negligible.
PA-0274	ALLEGHENY LUDLUM CORPORATION - BRACKENRIDGE FACILITY	2/16/2010	Torch Cutting Operation (S-220)	6	MMBTU/H	The permittee shall employ effective operational control practices to minimize emissions of NOx.	0	0.097	LB/MMBTU		BACT-PSD	The maximum throughput of specialty steel products to the torch cutting operation is 374,227 TONS/YR. This unit is equipped with a baghouse.	Heat input to the torch cutting operation shall be limited to 6.0 MMBtu/hr and the unit shall only fire pipeline quality natural gas. Emissions of NOx from the torch cutting operation (including natural gas combustion emissions) are also limited to 0.58 lbs/hr and 2.55 tons/yr. These limits apply at all times during operation including startup and shutdown.
IL-0132	NUCOR STEEL KANKAKEE, INC.	1/25/2021	Manual Metal Cutting Torches / Automatic Caster Cutoff Torches	0		Good Combustion Practices	0	0.1	LB/MMBTU		BACT-PSD	Torches are either located in or out of Melt Shop building	

Summary of RBLC Results for SO_2 Emissions from Torch Cutting
Process Type: 81.290 - Other Steel Manufacturing Processes and 81.390 - Other Steel Foundry Processes

SO_2 Emission Limits in lb/mmbtu

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	SO_2 Emission Limit	SO_2 Emission Limit Unit (lb/mmbtu)	SO_2 Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
PA-0274	ALLEGHENY LUDLUM CORPORATION - BRACKENRIDGE FACILITY	2/16/2010	Torch Cutting Operation (S-220)	6	MMBTU/H	The permittee shall employ effective combustion and operational control practices to minimize emissions of SOx.	0	0.0006	LB/MMBTU		BACT-PSD	The maximum throughput of specialty steel products to the torch cutting operation is 374,227 tons/yr. This unit is equipped with a baghouse.	Heat input to the torch cutting operation shall be limited to 6.0 MMBtu/hr and the unit shall only fire pipeline quality natural gas. Emissions of SOx from the torch cutting operation (including natural gas combustion emissions) are also limited to 0.004 LB/HR and 0.02 tons/yr. These limits apply at all times during operation including startup and shutdown.
IL-0132	NUCOR STEEL KANKAKEE, INC.	1/25/2021	Manual Metal Cutting Torches / Automatic Caster Cutoff Torches	0		Good Combustion Practices	0	0.0006			BACT-PSD	Torches are either located in or out of Melt Shop building	

Summary of RBLC Results for CO Emissions from Torch Cutting
Process Type: 81.290 - Other Steel Manufacturing Processes and 81.390 - Other Steel Foundry Processes

CO Emission Limits in lb/mmbtu

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	CO Emission Limit	CO Emission Limit Unit (lb/mmbtu)	CO Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
AL-0301	NUCOR STEEL TUSCALOOSA, INC.	7/22/2014	Plasma Torches	0.64	MMBTU/H	Baghouse	99	0.084	LB/MMBTU		BACT-PSD	Two Torches	
PA-0274	ALLEGHENY LUDLUM CORPORATION - BRACKENRIDGE FACILITY	2/16/2010	Torch Cutting Operation (S-220)	6	MMBTU/H	The permittee shall employ effective combustion and operational control practices to minimize emissions of CO.	0	0.082	LB/MMBTU		BACT-PSD	The maximum throughput of specialty steel products to the torch cutting operation is 374,227 tons/yr. This unit is equipped with a baghouse.	Heat input to the torch cutting operation shall be limited to 6.0 MMBtu/hr and the unit shall only fire pipeline quality natural gas. Emissions of CO from the torch cutting operation (including natural gas combustion emissions) are also limited to 0.49 LB/HR and 2.15 tons/yr. These limits apply at all times during operation including startup and shutdown.
IL-0132	NUCOR STEEL KANKAKEE, INC.	1/25/2021	Manual Metal Cutting Torches / Automatic Caster Cutoff Torches	0		Good Combustion Practices	0	0.084	LB/MMBTU		BACT-PSD	Torches are either located in or out of Melt Shop building	

Summary of RBLC Results for VOC Emissions from Torch Cutting
Process Type: 81.290 - Other Steel Manufacturing Processes and 81.390 - Other Steel Foundry Processes

VOC Emission Limits in lb/mmbtu

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	VOC Emission Limit	VOC Emission Limit Unit (lb/mmbtu)	VOC Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
PA-0274	ALLEGHENY LUDLUM CORPORATION - BRACKENRIDGE FACILITY	2/16/2010	Torch Cutting Operation (S-220)	6	MMBTU/H	The permittee shall employ effective combustion and operational control practices to minimize emissions of VOC.	0	0.0053	LB/MMBTU		BACT-PSD	The maximum throughput of specialty steel products to the torch cutting operation is 374,227 tons/yr. This unit is equipped with a baghouse.	Heat input to the torch cutting operation shall be limited to 6.0 MMBtu/hr and the unit shall only fire pipeline quality natural gas. Emissions of VOC from the torch cutting operation (including natural gas combustion emissions) are also limited to 0.03 LB/HR and 0.14 tons/yr. These limits apply at all times during operation including startup and shutdown.
IL-0132	NUCOR STEEL KANKAKEE, INC.	1/25/2021	Manual Metal Cutting Torches / Automatic Caster Cutoff Torches	0		Good Combustion Practices	0	0.0055	LB/MMBTU		BACT-PSD	Torches are either located in or out of Melt Shop building	

Summary of RBLC Results for GHG Emissions from Torch Cutting
Process Type: 81.290 - Other Steel Manufacturing Processes and 81.390 - Other Steel Foundry Processes

GHG Emission Limits in tpy

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	GHG Emission Limit	GHG Emission Limit Unit (tpy)	GHG Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
IL-0126	NUCOR STEEL KANKAKEE, INC.	11/1/2018	Rolling Mill and Cutting Torches	500,000	TONS/YR	Use of greases, lubricating oils and hydraulic oils shall be designed for stability	0	424	TPY	TOTAL 12 CONSECUTIVE MONTHS	BACT-PSD		Individual limits for the rolling mill and cutting torches are 353 and 71 tons/yr, respectively.

Summary of RBLC Results for PM/PM10/PM2.5 Emissions from Ingot Grinding
Process Type: 90.021 - Metallic Mineral/Ore Processing, 81.390 - Other Steel Foundry Processes, and 81.490 - Other Iron Foundry Processes

PM Emission Limits in LB/HR

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	Pollutant	PM Emission Limit	PM Emission Limit Unit (LB/HR)	PM Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
IN-0167	MAGNETATION LLC	4/16/2013	Iron Ore Wet Grinding and Filter Cake Production	700	T/H		0	Particulate matter, total < 2.5 µ (TPM2.5)	0.07	LB/HR	3 HOURS	BACT-PSD	Consists of three (3) conveyors and a filter cake feen bin.	Opacity shall not exceed 5% on a six minute average
IN-0167	MAGNETATION LLC	4/16/2013	Iron Ore Wet Grinding and Filter Cake Production	700	T/H		0	Particulate matter, total < 10 µ (TPM10)	0.07	LB/HR	3 HOURS	BACT-PSD	Consists of three (3) conveyors and a filter cake feen bin.	Opacity shall not exceed 5% on a six minute average
MI-0430	HURON CASTING INC. & BLUE DIAMOND STEEL CASTING	3/30/2017	EU-08 (Cut off saws 1-9, Grinders 1-13, Hand Grinders and 7 welders) at HCI facility	0		Baghouse #616 40,000 dscfm reverse air type	90	Particulate matter, total < 10 µ (TPM10)	0.5	LB/HR		BACT-PSD	This emission unit consists of cut off saws identified as #1-9; Grinders identified as #1-13; 7 to 12 Hand Grinders and 7 welders controlled by Baghouse #616 and is located at the Huron Casting Inc. portion of the stationary source.	Existing Baghouse at the time of the BACT review.
MI-0430	HURON CASTING INC. & BLUE DIAMOND STEEL CASTING	3/30/2017	EU-08 (Cut off saws 1-9, Grinders 1-13, Hand Grinders and 7 welders) at HCI facility	0		Baghouse #616 40,000 dscfm reverse air type	90	Particulate matter, total < 2.5 µ (TPM2.5)	0.5	LB/HR		BACT-PSD	This emission unit consists of cut off saws identified as #1-9; Grinders identified as #1-13; 7 to 12 Hand Grinders and 7 welders controlled by Baghouse #616 and is located at the Huron Casting Inc. portion of the stationary source.	Existing Baghouse at the time of the BACT review.
WI-0288	WAUPACA FOUNDRY, INC. PLANT 1	11/14/2018	P52 #2 TB Cleaning/Grinding	0		Baghouse	99	Particulate matter, total < 10 µ (TPM10)	0.6	LB/HR		BACT-PSD		
WI-0288	WAUPACA FOUNDRY, INC. PLANT 1	11/14/2018	P52 #2 TB Cleaning/Grinding	0		Baghouse	99	Particulate matter, total < 2.5 µ (TPM2.5)	0.6	LB/HR		BACT-PSD		
WI-0288	WAUPACA FOUNDRY, INC. PLANT 1	11/14/2018	P54 Lines 3/4 Spinner Feed/Cleaning/Grinding/Cast Handling	0		Baghouse	99	Particulate matter, total < 10 µ (TPM10)	4.27	LB/HR		BACT-PSD		
WI-0288	WAUPACA FOUNDRY, INC. PLANT 1	11/14/2018	P54 Lines 3/4 Spinner Feed/Cleaning/Grinding/Cast Handling	0		Baghouse	99	Particulate matter, total < 2.5 µ (TPM2.5)	4.27	LB/HR		BACT-PSD		

PM Emission Limits in gr/dscf

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	Pollutant	PM Emission Limit	PM Emission Limit Unit (gr/dscf)	PM Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
MI-0429	EAST JORDAN FOUNDRY LLC	4/27/2017	EUGRIND--Baghouses H and J combined limits	0		Baghouses H and J	99	Particulate matter, total < 10 µ (TPM10)	0.001	GR/DSCF		BACT-PSD	Cleaning and grinding--Removal of unwanted metal at the mold parting lines and elsewhere. Baghouses H and J control the particulate emissions from EU-GRIND.	For cleaning and grinding operations, the limits are 0.001 gr/dscf and 1.704 LB/HR each for PM, PM10 and PM2.5 from Baghouses H and J combined.
MI-0429	EAST JORDAN FOUNDRY LLC	4/27/2017	EUGRIND--Baghouses H and J combined limits	0		Baghouses H and J	99	Particulate matter, total < 2.5 µ (TPM2.5)	0.001	GR/DSCF		BACT-PSD	Cleaning and grinding--Removal of unwanted metal at the mold parting lines and elsewhere. Baghouses H and J control the particulate emissions from EU-GRIND.	For cleaning and grinding operations, the limits are 0.001 gr/dscf and 1.704 LB/HR each for PM, PM10 and PM2.5 from Baghouses H and J combined.

Summary of RBLC Results for PM/PM10/PM2.5 Emissions from Emergency Generators > 500 HP
Process Type: 17.110 - Large Internal Combustion Engines (Diesel Fuel Oil)

PM Emission Limits in g/hp-hr

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	Pollutant	PM Emission Limit	PM Emission Limit Unit (g/hp-hr)	PM Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
IN-0359	NUCOR STEEL	3/30/2023	Emergency Generator (CC-GEN1)	3,000	HP	Certified Engine	0	Particulate matter, total (TPM)	0.15	G/HP-HR		BACT-PSD		
KY-0115	NUCOR STEEL GALLATIN, LLC	4/19/2021	New Pumphouse (XB13) Emergency Generator #1 (EP 08-05)	2,922	HP	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	0	Particulate matter, total < 10 µ (TPM10)	0.15	G/HP-HR		BACT-PSD	No controls.	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Division's inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	4/19/2021	New Pumphouse (XB13) Emergency Generator #1 (EP 08-05)	2,922	HP	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	0	Particulate matter, total < 2.5 µ (TPM2.5)	0.15	G/HP-HR		BACT-PSD	No controls.	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Division's inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	4/19/2021	Tunnel Furnace Emergency Generator (EP 08-06)	2,937	HP	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	0	Particulate matter, total < 10 µ (TPM10)	0.15	G/HP-HR		BACT-PSD		The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Division's inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	4/19/2021	Tunnel Furnace Emergency Generator (EP 08-06)	2,937	HP	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	0	Particulate matter, total < 2.5 µ (TPM2.5)	0.15	G/HP-HR		BACT-PSD		The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Division's inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	4/19/2021	Caster B Emergency Generator (EP 08-07)	2,937	HP	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	0	Particulate matter, total < 10 µ (TPM10)	0.15	G/HP-HR		BACT-PSD		The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Division's inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	Pollutant	PM Emission Limit	PM Emission Limit Unit (g/hp-hr)	PM Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
KY-0115	NUCOR STEEL GALLATIN, LLC	4/19/2021	Caster B Emergency Generator (EP 08-07)	2,937	HP	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	0	Particulate matter, total < 2.5 µ (TPM2.5)	0.15	G/HP-HR		BACT-PSD		The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Division's inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	4/19/2021	Air Separation Unit Emergency Generator (EP 08-08)	700	HP	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	0	Particulate matter, total < 10 µ (TPM10)	0.15	G/HP-HR		BACT-PSD		The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Division's inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	4/19/2021	Air Separation Unit Emergency Generator (EP 08-08)	700	HP	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	0	Particulate matter, total < 2.5 µ (TPM2.5)	0.15	G/HP-HR		BACT-PSD		The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Division's inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
LA-0391	MAGNOLIA POWER GENERATING STATION UNIT 1	6/3/2022	Emergency Diesel Generator Engine	2,937	HP	Compliance with 40 CFR 60 Subpart IIII, good combustion practices,and use of ultra-low sulfur diesel fuel.	0	Particulate matter, total < 10 µ (TPM10)	0.15	G/HP-HR		BACT-PSD		BACT limit is 0.15 g/BHP-hr. Compliance with 40 CFR 60 Subpart IIII (Tier 2 non-road engines) standards, good combustion practices,and the use of ultra-low sulfur diesel fuel.
LA-0391	MAGNOLIA POWER GENERATING STATION UNIT 1	6/3/2022	Emergency Diesel Generator Engine	2,937	HP	Compliance with 40 CFR 60 Subpart IIII (Tier 2 non-road engines) standards, good combustion practices,and the use of ultra-low sulfur diesel fuel.	0	Particulate matter, total < 2.5 µ (TPM2.5)	0.15	G/HP-HR		BACT-PSD		BACT limit is 0.15 g/BHP-hr. Compliance with 40 CFR 60 Subpart IIII (Tier 2 non-road engines) standards, good combustion practices,and the use of ultra-low sulfur diesel fuel.
WI-0294	CARDINAL FG COMPANY	8/26/2019	P10- Diesel emergency Generator	0			0	Particulate matter, total (TPM)	0.05	G/B-HP-H		BACT-PSD		G/BHP-H (gram per brake horse power). Must combust only ultra-low sulfur fuel oil (0.0015% sulfur by weight), may not run generator more than 50 hours in any consecutive 12-month period, may only be used for emergency loss of power or generator maintenance.
WI-0300	NEMADJI TRAIL ENERGY CENTER	9/1/2020	Emergency Diesel Generator (P07)	1,490	HP	Limited to operate 500 hours/year, sulfur content of the diesel fuel oil fired may not exceed 15 ppm, and operate and maintain according to the manufacturer's	0	Particulate matter, total (TPM)	0.15	G/HP-HR		BACT-PSD		

PM Emission Limits in g/kwh

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	Pollutant	PM Emission Limit	PM Emission Limit Unit (g/kwh)	PM Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
AR-0177	NUCOR STEEL ARKANSAS	11/21/2022	SN-230 Galvanizing Line No, 2 Emergency Generator	3,634	HP		0	Particulate matter, total < 10 µ (TPM10)	0.2	G/KW-HR		BACT-PSD		
AR-0177	NUCOR STEEL ARKANSAS	11/21/2022	SN-230 Galvanizing Line No, 2 Emergency Generator	3,634	HP		0	Particulate matter, total < 2.5 µ (TPM2.5)	0.2	G/KW-HR		BACT-PSD		
IN-0317	RIVERVIEW ENERGY CORPORATION	6/11/2019	Emergency generator EU-6006	2,800	HP	Tier II diesel engine	0	Particulate matter, total (TPM)	0.2	G/KWH		BACT-PSD		Opacity: Acceleration 20%, Lugging 15%, Peak 50% Unit shall use Good Combustion Practices and energy efficiency as defined in the permit. 40 CFR 60, subpart IIII 40 CFR 63, subpart ZZZZ
OH-0387	INTEL OHIO SITE	9/20/2022	5,051 bhp (3,768 kWm) Diesel-Fired Emergency Generators: P001 through P046	5,051	HP	Certified to meet Tier 2 standards and Good Combustion Practices	0	Particulate matter, total (TPM)	0.2	G/KW-H		BACT-PSD	Forty-six 5,051 bhp (3,768 kWm) Diesel-Fired Emergency Generators: P001 through P046	0.02 tons per rolling, 12-month period for each generator

PM Emission Limits in LB/HR

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	Pollutant	PM Emission Limit	PM Emission Limit Unit (lb/hr)	PM Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
MI-0448	GRAYLING PARTICLEBOARD	12/18/2020	Emergency diesel generator engine (EUEMRGRICE1 in FGRICE)	500	H/YR	Certified Engines, Good Design, Operation, and Combustion Practices, Operational Restrictions/Limited Use	0	Particulate matter, total < 10 µ (TPM10)	0.66	LB/HR	HOURLY	BACT-PSD	One emergency diesel generator engine rated at 1500 KW (EUEMRGRICE1 in FGRICE).	No technically feasible add on control identified.
MI-0448	GRAYLING PARTICLEBOARD	12/18/2020	Emergency diesel generator engine (EUEMRGRICE1 in FGRICE)	500	H/YR	Certified Engines, Good Design, Operation, and Combustion Practices, Operational Restrictions/Limited Use	0	Particulate matter, total < 2.5 µ (TPM2.5)	0.66	LB/HR	HOURLY	BACT-PSD	One emergency diesel generator engine rated at 1500 KW (EUEMRGRICE1 in FGRICE).	No technically feasible add on control identified.
MI-0448	GRAYLING PARTICLEBOARD	12/18/2020	Emergency diesel generator engine (EUEMRGRICE2 in FGRICE)	500	H/YR	Certified Engines, Good Design, Operation, and Combustion Practices, Operational Restrictions/Limited Use	0	Particulate matter, total < 10 µ (TPM10)	0.22	LB/HR	HOURLY	BACT-PSD	One emergency diesel generator engine rated at 500 KW (EUEMRGRICE2 in FGRICE).	No technically feasible add on control identified.
MI-0448	GRAYLING PARTICLEBOARD	12/18/2020	Emergency diesel generator engine (EUEMRGRICE2 in FGRICE)	500	H/YR	Certified Engines, Good Design, Operation, and Combustion Practices, Operational Restrictions/Limited Use	0	Particulate matter, total < 2.5 µ (TPM2.5)	0.22	LB/HR	HOURLY	BACT-PSD	One emergency diesel generator engine rated at 500 KW (EUEMRGRICE2 in FGRICE).	No technically feasible add on control identified.
OH-0379	PETMIN USA INCORPORATED	2/6/2019	Emergency Generators (P005 and P006)	3,131	HP	Tier IV engine Good Combustion Practices	0	Particulate matter, filterable < 10 µ (FPM10)	0.15	LB/HR		BACT-PSD	Two identical Emergency generators, 3131 HP diesel engines. Throughputs and limits are for one generator, except as noted.	
OH-0379	PETMIN USA INCORPORATED	2/6/2019	Emergency Generators (P005 and P006)	3,131	HP	Tier IV engine Good Combustion Practices	0	Particulate matter, filterable < 2.5 µ (FPM2.5)	0.15	LB/HR		BACT-PSD	Two identical Emergency generators, 3131 HP diesel engines. Throughputs and limits are for one generator, except as noted.	
OH-0387	INTEL OHIO SITE	9/20/2022	5,051 bhp (3,768 kWm) Diesel-Fired Emergency Generators: P001 through P046	5,051	HP	Certified to meet Tier 2 standards and Good Combustion Practices	0	Particulate matter, total < 10 µ (TPM10)	0.07	LB/HR	EACH GENERATOR	BACT-PSD	Forty-six 5,051 bhp (3,768 kWm) Diesel-Fired Emergency Generators: P001 through P046	
OH-0387	INTEL OHIO SITE	9/20/2022	5,051 bhp (3,768 kWm) Diesel-Fired Emergency Generators: P001 through P046	5,051	HP	Certified to meet Tier 2 standards and Good Combustion Practices	0	Particulate matter, total < 2.5 µ (TPM2.5)	0.07	LB/HR	EACH GENERATOR	BACT-PSD	Forty-six 5,051 bhp (3,768 kWm) Diesel-Fired Emergency Generators: P001 through P046	

PM Emission Limits in lb/hp-hr

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	Pollutant	PM Emission Limit	PM Emission Limit Unit (lb/hp-hr)	PM Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
TX-0939	ORANGE COUNTY ADVANCED POWER STATION	3/13/2023	EMERGENCY GENERATOR	18.7	MMBTU/HR	Good Combustion Practices, Limited to 100 HR/YR	0	Particulate matter, filterable < 10 µ (FPM10)	0.0003	LB/HP-HR		BACT-PSD		
TX-0939	ORANGE COUNTY ADVANCED POWER STATION	3/13/2023	EMERGENCY GENERATOR	18.7	MMBTU/HR	Good Combustion Practices, Limited to 100 HR/YR	0	Particulate matter, filterable < 2.5 µ (FPM2.5)	0.003	LB/HP-HR		BACT-PSD		

Summary of RBLC Results for NOx Emissions from Emergency Generators > 500 HP
Process Type: 17.110 - Large Internal Combustion Engines (Diesel Fuel Oil)

NOx Emission Limits in g/hp-hr

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	NOx Emission Limit	NOx Emission Limit Unit (g/hp-hr)	NOx Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
IN-0359	NUCOR STEEL	3/30/2023	Emergency Generator (CC-GEN1)	3,000	HP	Certified Engine	0	4.8	G/HP-HR		BACT-PSD		
LA-0391	MAGNOLIA POWER GENERATING STATION UNIT 1	6/3/2022	Emergency Diesel Generator Engine	2,937	HP	Compliance with 40 CFR 60 Subpart IIII, good combustion practices,and use of ultra-low sulfur diesel fuel.	0	4.8	G/HP-HR		BACT-PSD		BACT limit is 4.8 g/BHP-hr (NOx + NMHC). Compliance with 40 CFR 60 Subpart IIII (Tier 2 non-road engines) standards, good combustion practices,and the use of ultra-low sulfur diesel fuel.
TX-0955	INEOS OLIGOMERS CHOCOLATE BAYOU	3/14/2023	Engine Emergency Generator	0		Tier III engine, operations limited to 100 hrs/yr	0	3.9	G/HP HR		LAER		
WI-0300	NEMADJI TRAIL ENERGY CENTER	9/1/2020	Emergency Diesel Generator (P07)	1,490	HP	Operation limited to 500 hours/year and operate and maintain according to the	0	4.8	G/HP-H		BACT-PSD		

NOx Emission Limits in g/kwh

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	NOx Emission Limit	NOx Emission Limit Unit (g/kwh)	NOx Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
AR-0177	NUCOR STEEL ARKANSAS	11/21/2022	SN-230 Galvanizing Line No, 2 Emergency Generator	3,634	HP		0	5.6	G/KW-HR		BACT-PSD		
IN-0317	RIVERVIEW ENERGY CORPORATION	6/11/2019	Emergency generator EU-6006	2,800	HP	Tier II diesel engine	0	6.4	G/KWH	TIER II NOX + NMHC LIMIT	BACT-PSD		Unit shall use Good Combustion Practices and energy efficiency as defined in the permit. 40 CFR 60, subpart IIII
OH-0387	INTEL OHIO SITE	9/20/2022	5,051 bhp (3,768 kWm) Diesel-Fired Emergency Generators: P001 through P046	5,051	HP	Certified to meet Tier 2 standards and Good Combustion Practices	0	6.4	G/KW-H	6.4 GRAMS NOX + NMHC/KW-HR	BACT-PSD	Forty-six 5,051 bhp (3,768 kWm) Diesel-Fired Emergency Generators: P001 through P046	15.8 tons per rolling, 12-month period for each generator

NOx Emission Limits in lb/hr

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	NOx Emission Limit	NOx Emission Limit Unit (lb/hr)	NOx Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
MI-0448	GRAYLING PARTICLEBOARD	12/18/2020	Emergency diesel generator engine (EUEMRGRICE1 in FGRICE)	500	H/YR	Certified engines, limited operating hours	0	21.2	LB/HR	HOURLY	BACT-PSD	One emergency diesel generator engine rated at 1500 KW (EUEMRGRICE1 in FGRICE).	Based on the limited hours of operation, Arauco concluded that add-on control would not be cost effective.
MI-0448	GRAYLING PARTICLEBOARD	12/18/2020	Emergency diesel generator engine (EUEMRGRICE2 in FGRICE)	500	H/YR	Certified Engines, Limited Operating Hours	0	4.4	LB/HR	HOURLY	BACT-PSD	One emergency diesel generator engine rated at 500 KW (EUEMRGRICE2 in FGRICE).	Based on the limited hours of operation, Arauco concluded that add-on control would not be cost effective.
OH-0379	PETMIN USA INCORPORATED	2/6/2019	Emergency Generators (P005 and P006)	3,131	HP	Tier IV engine Tier IV NSPS standards certified by engine manufacturer.	0	3.45	LB/HR		BACT-PSD	Two identical Emergency generators, 3131 HP diesel engines.	NSPS: 4.8 grams NOx + NMHC/bhp-hr

Summary of RBLC Results for CO Emissions from Emergency Generators > 500 HP
Process Type: 17.110 - Large Internal Combustion Engines (Diesel Fuel Oil)

CO Emission Limits in g/hp-hr

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	CO Emission Limit	CO Emission Limit Unit (g/hp-hr)	NOx Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
*AR-0180	HYBAR LLC	4/28/2023	Emergency Generators	0		Good Operating Practices, limited hours of operation, Compliance with NSPS Subpart IIII	0	0.9	G/BHP-HR		BACT-PSD	SN-17 through SN-20	
IN-0359	NUCOR STEEL	3/30/2023	Emergency Generator (CC-GEN1)	3000	HP	Oxidation Catalyst and Certified Engine	0	2.61	G/HP-HR		BACT-PSD		
LA-0391	MAGNOLIA POWER GENERATING STATION UNIT 1	6/3/2022	Emergency Diesel Generator Engine	2937	hp	Compliance with 40 CFR 60 Subpart IIII, good combustion practices,and the use of ultra-low sulfur diesel fuel.	0	2.6	G/HP-HR		BACT-PSD		BACT limit is 2.6 g/BHP-hr. Compliance with 40 CFR 60 Subpart IIII (Tier 2 non-road engines) standards, good combustion practices,and the use of ultra-low sulfur diesel fuel.
WI-0300	NEMADJI TRAIL ENERGY CENTER	9/1/2020	Emergency Diesel Generator (P07)	1490	HP	Operation limited to 500 hours/year, and operate and maintain generator according to the manufacturer's recommendations.	0	2.6	G/HP-H		BACT-PSD		

CO Emission Limits in g/kwh

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	CO Emission Limit	CO Emission Limit Unit	NOx Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
AR-0177	NUCOR STEEL ARKANSAS	11/21/2022	SN-230 Galvanizing Line No, 2 Emergency Generator	3634	HP		0	3.5	G/KW-HR		BACT-PSD		
IN-0317	RIVERVIEW ENERGY CORPORATION	6/11/2019	Emergency generator EU-6006	2800	HP	Tier II Diesel Engine	0	3.5	G/KWH		BACT-PSD		Unit shall use Good Combustion Practices and energy efficiency as defined in the permit. 40 CFR 60, subpart IIII 40 CFR 63, subpart ZZZZ
MI-0448	GRAYLING PARTICLEBOARD	12/18/2020	Emergency diesel generator engine (EUEMRGRICE1 in FGRICE)	500	H/YR	Good Design and Combustion Practices	0	3.5	G/KW-H	HOURLY	BACT-PSD	One emergency diesel generator engine rated at 1500 KW (EUEMRGRICE1 in FGRICE).	Arauco concluded that an oxidation catalyst would not be economically feasible, with an estimated cost of $71,000/ton.
MI-0448	GRAYLING PARTICLEBOARD	12/18/2020	Emergency diesel generator engine (EUEMRGRICE2 in FGRICE)	500	H/YR	Good Design and Combustion Practices	0	3.5	G/KW-H	HOURLY	BACT-PSD	One emergency diesel generator engine rated at 500 KW (EUEMRGRICE2 in FGRICE).	Arauco concluded that an oxidation catalyst would not be economically feasible, with an estimated cost of $71,000/ton.
OH-0387	INTEL OHIO SITE	9/20/2022	5,051 bhp (3,768 kWm) Diesel-Fired Emergency Generators: P001 through P046	5051	HP	Certified to meet Tier 2 standards and good combustion practices	0	3.5	G/KW-H		BACT-PSD	Forty-six 5,051 bhp (3,768 kWm) Diesel-Fired Emergency Generators: P001 through P046	0.2 tons per rolling, 12-month period for each generator

CO Emission Limits in LB/HP-HR

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	CO Emission Limit	CO Emission Limit Unit	NOx Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
TX-0939	ORANGE COUNTY ADVANCED POWER STATION	3/13/2023	EMERGENCY GENERATOR	18.7	MMBTU/HR	Good Combustion Practices, Limited to 100 HR/YR	0	0.006	LB/HP-HR		BACT-PSD		

Summary of RBLC Results for SO_2 Emissions from Emergency Generators > 500 HP
Process Type: 17.110 - Large Internal Combustion Engines (Diesel Fuel Oil)

SO_2 Emission Limits in PPM

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	SO_2 Emission Limit	SO_2 Emission Limit Unit (lb/mmbtu)	SO_2 Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
AR-0177	NUCOR STEEL ARKANSAS	11/21/202	SN-230 Galvanizing Line No, 2 Emergency Generator	3,634	HP	Fuel Specification	0	15	PPM FUEL		BACT-PSD		
*AR-018(	HYBAR LLC	4/28/2023	Emergency Generators	0		Good Operating Practices, limited hours of operation, Compliance with NSPS Subpart IIII	0	15	PPM MAX FUEL CONTENT		BACT-PSD	SN-17 through SN-20	
IN-0317	RIVERVIEW ENERGY CORPORATION	6/11/2019	Emergency Generator EU-6006	2,800	HP	ULSD	0	15	PPM	FUEL SULFUR CONTENT (ULSD)	BACT-PSD		Unit shall use Good Combustion Practices and energy efficiency as defined in the permit. 40 CFR 60, subpart IIII
TX-0876	PORT ARTHUR ETHANE CRACKER UNIT	2/6/2020	Emergency Generator	0		Tier 4 exhaust emission standards specified in 40 CFR Â§ 1039.101, limited to 100 hours per year of non-emergency operation	0	15	PPMW	TOTAL SULFUR	BACT-PSD	Ultra-low sulfur diesel containing no more than 15 ppmw total sulfur	

Summary of RBLC Results for VOC Emissions from Emergency Generators > 500 HP

Process Type: 17.110 - Large Internal Combustion Engines (Diesel Fuel Oil)

VOC Emission Limits in g/hp-hr

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	VOC Emission Limit	VOC Emission Limit Unit (g/hp-hr)	NOx Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
IN-0359	NUCOR STEEL	3/30/2023	Emergency Generator (CC-GEN1)	3,000	HP	Certified Engine	0	0.32	G/HP-HR		BACT-PSD		
LA-0391	MAGNOLIA POWER GENERATING STATION UNIT 1	6/3/2022	Emergency Diesel Generator Engine	2,937	HP	Compliance with 40 CFR 60 Subpart IIII standards, good combustion practices,and the use of ultra-low sulfur diesel fuel.	0	4.8	G/HP-HR		BACT-PSD		BACT limit is 4.8 g/BHP-hr (NOx + NMHC). Compliance with 40 CFR 60 Subpart IIII (Tier 2 non-road engines) standards, good combustion practices,and the use of ultra-low sulfur diesel fuel.
WI-0300	NEMADJI TRAIL ENERGY CENTER	9/1/2020	Emergency Diesel Generator (P07)	1,490	HP	Operation limited to 500 hours/year and operate and maintain generator according to the manufacturer's recommendations	0	0.32	G/HP-H		BACT-PSD		

VOC Emission Limits in g/kwh

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	VOC Emission Limit	VOC Emission Limit Unit	NOx Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
AR-0177	NUCOR STEEL ARKANSAS	11/21/2022	SN-230 Galvanizing Line No, 2 Emergency Generator	3,634	HP		0	0.8	G/KW-HR		BACT-PSD		
IN-0317	RIVERVIEW ENERGY CORPORATION	6/11/2019	Emergency generator EU-6006	2,800	HP	Tier II Diesel Engine	0	6.4	G/KWH	TIER II NOX + NMHC LIMIT	BACT-PSD		Unit shall use good combustion practices and energy efficiency as defined in the permit. 40 CFR 60, subpart IIII
OH-0387	INTEL OHIO SITE	9/20/2022	hp (3,768 kWm) Diesel-Fired Emergency Generators: P001 throu	5,051	HP	Certified to meet Tier 2 standards and Good Combustion Practices	0	0.4	G/KW-H		BACT-PSD	Forty-six 5,051 bhp (3,768 kWm) Diesel-Fired Emergency Generators: P001 through P046	0.06 tons per rolling, 12-month period for each generator

VOC Emission Limits in LB/HP-HR

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	VOC Emission Limit	VOC Emission Limit Unit	NOx Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
TX-0939	ORANGE COUNTY ADVANCED POWER STATION	3/13/2023	Emergency Generator	18.7	MMBTU/HR	Good Combustion Practices, Limited to 100 HR/YR	0	0.001	LB/HP-HR		BACT-PSD		

VOC Emission Limits in LB/HR

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	VOC Emission Limit	VOC Emission Limit Unit	NOx Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
LA-0390	DERIDDER SAWMILL	5/10/2022	GEN-1 - Emergency Generator No. 1	750	HP	Good combustion practices and maintenance and compliance with applicable 40 CFR 60 Subpart JJJJ limitation for VOC	0	1.98	LB/HR		BACT-PSD		
LA-0390	DERIDDER SAWMILL	5/10/2022	GEN-2 - Emergency Generator No. 2	750	HP	Good combustion practices and maintenance and compliance with applicable 40 CFR 60 Subpart JJJJ limitation for VOC	0	1.98	LB/HR		BACT-PSD		

Summary of RBLC Results for GHG Emissions from Emergency Generators > 500 HP

Process Type: 17.110 - Large Internal Combustion Engines (Diesel Fuel Oil)

GHG Emission Limits in tpy

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	GHG Emission Limit	GHG Emission Limit Unit (tpy)	GHG Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
IN-0317	RIVERVIEW ENERGY CORPORATION	6/11/2019	Emergency generator EU-6006	2,800	HP	Tier II Diesel Engine	0	811	TONS	12 CONSECUTIVE MONTHS	BACT-PSD		Unit shall use Good Combustion Practices and energy efficiency as defined in the permit. 40 CFR 60, subpart IIII 40 CFR 63, subpart ZZZZ
MI-0448	GRAYLING PARTICLEBOARD	12/18/2020	Emergency diesel generator engine (EUEMRGRICE1 in FGRICE)	500	H/YR	Good Combustion and Design Practices	0	590	TPY	12-MO ROLLING TIME PERIOD	BACT-PSD	One emergency diesel generator engine rated at 1500 KW (EUEMRGRICE1 in FGRICE).	The hours of operation are limited to 500 hours per year for the emergency generator engine. Based on the limited operation, add on control would not be cost effective.
MI-0448	GRAYLING PARTICLEBOARD	12/18/2020	Emergency diesel generator engine (EUEMRGRICE2 in FGRICE)	500	H/YR	Good Combustion and Design Practices	0	209	TPY	12-MO ROLLING TIME PERIOD	BACT-PSD	One emergency diesel generator engine rated at 500 KW (EUEMRGRICE2 in FGRICE).	The hours of operation are limited to 500 hours per year for the emergency generator engine. Based on the limited operation, add on control would not be cost effective.

GHG Emission Limits in lb/mmbtu

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	GHG Emission Limit	GHG Emission Limit Unit (lb/mmbtu)	GHG Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
AR-0177	NUCOR STEEL ARKANSAS	11/21/2022	SN-230 Galvanizing Line No, 2 Emergency Generator	3,634	HP		0	163	LB/MMBTU		BACT-PSD		
*AR-0180	HYBAR LLC	4/28/2023	Emergency Generators	0		Good Combustion Practices	0	164	LB/MMBTU		BACT-PSD	SN-17 through SN-20	
IN-0359	NUCOR STEEL	3/30/2023	Emergency Generator (CC-GEN1)	3,000	HP	Good engineering design and manufacturer's recommended operating and maintenance procedures.	0	163.6	LB/MMBTU		BACT-PSD		

GHG Emission Limits in kg/mmbtu

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	GHG Emission Limit	GHG Emission Limit Unit (kg/mmbtu)	GHG Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
LA-0391	MAGNOLIA POWER GENERATING STATION UNIT 1	6/3/2022	Emergency Diesel Generator Engine	2,937	HP	Compliance with 40 CFR 60 Subpart IIII, good combustion practices,and the use of ultra-low sulfur diesel fuel.	0	74.21	KG/MM BTU		BACT-PSD		BACT limit is 74.21 kg/MM BTU (163.61 lb/MM BTU). Compliance with 40 CFR 60 Subpart IIII (Tier 2 non-road engines) standards, good combustion practices,and the use of ultra-low sulfur diesel fuel.

GHG Emission Limits in LB/HR

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	GHG Emission Limit	GHG Emission Limit Unit (LB/HR)	GHG Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
OH-0379	PETMIN USA INCORPORATED	2/6/2019	Emergency Generators (P005 and P006)	3,131	HP	Tier IV Engine, Good Combustion Practices	0	3,632	LB/HR		BACT-PSD	Two identical emergency generators, 3131 HP diesel engines. Throughputs and limits are for one generator, except as noted.	

Summary of RBLC Results for PM/PM10/PM2.5 Emissions from Paved Roads

Process Type: 99.140 - Paved Roads

PM Emission Limits in tpy

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	Pollutant	PM Emission Limit	PM Emission Limit Unit (tpy)	PM Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
AR-0173	BIG RIVER STEEL LLC	1/31/2022	Paved Roadways	0		Development and Implementation of Fugitive Dust Control Plan	0	Particulate matter, filterable (FPM)	2.8	TPY		BACT-PSD		
AR-0173	BIG RIVER STEEL LLC	1/31/2022	Paved Roadways	0		Development and Implementation of Fugitive Dust Control Plan	0	Particulate matter, total < 10 µ (TPM10)	0.6	TPY		BACT-PSD		
AR-0173	BIG RIVER STEEL LLC	1/31/2022	Paved Roadways	0		Development and Implementation of Fugitive Dust Control Plan	0	Particulate matter, total < 2.5 µ (TPM2.5)	0.2	TPY		BACT-PSD		
*IA-0117	SHELL ROCK SOY PROCESSING	3/17/2021	Paved Road Fugitives	0		Sweeping	0	Particulate matter, total (TPM)	2.97	TPY	PM	BACT-PSD		PM2.5 = 0.15 Tons per year
OH-0368	PALLAS NITROGEN LLC	4/19/2017	Paved Roadways (F001)	70,000	MI/YR	i. Paving of all plant roads that will be used for raw material and product transport; ii. Covering, at all times, of open-bodied vehicles when transporting materials likely to become airborne; and iii. Compliance with the opacity limits. Specifically, additional mitigation measures potentially including road sweeping or wet suppression will be implemented on an as-needed basis determined through visual observation of emissions associated with truck movements on the plant site.	0	Particulate matter, fugitive	13.2	TPY		BACT-PSD	Paved roads	
OH-0368	PALLAS NITROGEN LLC	4/19/2017	Paved Roadways (F001)	70,000	MI/YR	i. Paving of all plant roads that will be used for raw material and product transport; ii. Covering, at all times, of open-bodied vehicles when transporting materials likely to become airborne; and iii. Compliance with the opacity limits. Specifically, additional mitigation measures potentially including road sweeping or wet suppression will be implemented on an as-needed basis determined through visual observation of emissions associated with truck movements on the plant site.	0	Particulate matter, total < 10 µ (TPM10)	2.6	TPY		BACT-PSD	Paved roads	
OH-0376	IRONUNITS LLC - TOLEDO HBI	2/9/2018	Paved roads (F001)	0		Water flushing and sweeping	0	Particulate matter, filterable < 10 µ (FPM10)	0.63	TPY		BACT-PSD	Trucks for materials transport on paved roads.	
OH-0376	IRONUNITS LLC - TOLEDO HBI	2/9/2018	Paved roads (F001)	0		Water flushing and sweeping	0	Particulate matter, filterable < 2.5 µ (FPM2.5)	0.15	TPY		BACT-PSD	Trucks for materials transport on paved roads.	
OH-0378	PTTGCA PETROCHEMICAL COMPLEX	12/21/2018	Facility Roadways (F001)	182,865	MI/YR	i. Pave all in-plant haul roads and parking areas; ii. Implement best management practices including posting and limiting vehicle speeds to 20 miles per hour and water spraying or sweeping as needed based on the daily inspections conducted	0	Particulate matter, fugitive	1.88	TPY	PER ROLLING 12 MONTH PERIOD	BACT-PSD	Facility roadways and parking areas; maximum of 182,865 annual vehicle miles traveled	
OH-0378	PTTGCA PETROCHEMICAL COMPLEX	12/21/2018	Facility Roadways (F001)	182,865	MI/YR	i. Pave all in-plant haul roads and parking areas; ii. Implement best management practices including posting and limiting vehicle speeds to 20 miles per hour and water spraying or sweeping as needed based on the daily inspections conducted	0	Particulate matter, total < 10 µ (TPM10)	0.38	TPY	PER ROLLING 12 MONTH PERIOD	BACT-PSD	Facility roadways and parking areas; maximum of 182,865 annual vehicle miles traveled	
OH-0378	PTTGCA PETROCHEMICAL COMPLEX	12/21/2018	Facility Roadways (F001)	182,865	MI/YR	i. Pave all in-plant haul roads and parking areas; ii. Implement best management practices including posting and limiting vehicle speeds to 20 miles per hour and water spraying or sweeping as needed based on the daily inspections conducted	0	Particulate matter, total < 2.5 µ (TPM2.5)	0.09	TPY	PER ROLLING 12 MONTH PERIOD	BACT-PSD	Facility roadways and parking areas; maximum of 182,865 annual vehicle miles traveled	
OH-0380	AMG VANADIUM LLC	8/7/2019	Paved Roadways (F001)	31,689	MI/YR	i. Pave all in-plant haul roads and parking areas. ii. Implement best management practices including posting and limiting vehicle speeds to 15 miles per hour in production areas. iii. Utilize a vacuum sweeper as needed based on the daily inspections	0	Particulate matter, total < 10 µ (TPM10)	0.06	TPY	PER ROLLING 12-MONTH PERIOD.	BACT-PSD	Paved roadways and parking areas with a maximum of 31,689 vehicle miles traveled per year	
OH-0380	AMG VANADIUM LLC	8/7/2019	Paved Roadways (F001)	31,689	MI/YR	i. Pave all in-plant haul roads and parking areas. ii. Implement best management practices including posting and limiting vehicle speeds to 15 miles per hour in production areas. iii. Utilize a vacuum sweeper as needed based on the daily inspections	0	Particulate matter, total < 2.5 µ (TPM2.5)	0.01	TPY	PER ROLLING 12-MONTH PERIOD.	BACT-PSD	Paved roadways and parking areas with a maximum of 31,689 vehicle miles traveled per year	
OH-0381	NORTHSTAR BLUESCOPE STEEL, LLC	9/27/2019	Plant Roadways & Parking Areas (F005)	686,399	MI/YR	Paved: sweeping, vacuuming, washing with water, and posted speed limits to comply with the applicable requirements. Unpaved: use of dust suppressant as necessary to comply with the applicable requirements.	0	Particulate matter, fugitive	16.74	TPY	PER ROLLING, 12-MONTH PERIOD.	BACT-PSD	Plant Roadways and Parking Areas. 0.88 miles unpaved and 12.94 miles paved. 27,636 unpaved VMT and 658,763 paved VMT	
OH-0381	NORTHSTAR BLUESCOPE STEEL, LLC	9/27/2019	Plant Roadways & Parking Areas (F005)	686,399	MI/YR	Paved: sweeping, vacuuming, washing with water, and posted speed limits to comply with the applicable requirements. Unpaved: use of dust suppressant as necessary to comply with the applicable requirements.	0	Particulate matter, filterable < 10 µ (FPM10)	3.55	TPY	PER ROLLING, 12-MONTH PERIOD.	BACT-PSD	Plant Roadways and Parking Areas. 0.88 miles unpaved and 12.94 miles paved. 27,636 unpaved VMT and 658,763 paved VMT	
OH-0381	NORTHSTAR BLUESCOPE STEEL, LLC	9/27/2019	Plant Roadways & Parking Areas (F005)	686,399	MI/YR	Paved: sweeping, vacuuming, washing with water, and posted speed limits to comply with the applicable requirements. Unpaved: use of dust suppressant as necessary to comply with the applicable requirements.	0	Particulate matter, filterable < 2.5 µ (FPM2.5)	0.75	TPY	PER ROLLING, 12-MONTH PERIOD.	BACT-PSD	Plant Roadways and Parking Areas. 0.88 miles unpaved and 12.94 miles paved. 27,636 unpaved VMT and 658,763 paved VMT	
OH-0387	INTEL OHIO SITE	9/20/2022	Facility paved roadways and parking areas	0		Pave all roadways and parking areas and implement best management practices, including limiting vehicle speeds and water spraying or sweeping as needed based on daily inspections.	0	Particulate matter, fugitive	0.8	TPY	PER ROLLING 12 MONTH PERIOD	BACT-PSD		
OH-0387	INTEL OHIO SITE	9/20/2022	Facility paved roadways and parking areas	0		Pave all roadways and parking areas and implement best management practices, including limiting vehicle speeds and water spraying or sweeping as needed based on daily inspections.	0	Particulate matter, filterable < 10 µ (FPM10)	0.16	TPY	PER ROLLING 12 MONTH PERIOD	BACT-PSD		
OH-0387	INTEL OHIO SITE	9/20/2022	Facility paved roadways and parking areas	0		Pave all roadways and parking areas and implement best management practices, including limiting vehicle speeds and water spraying or sweeping as needed based on daily inspections.	0	Particulate matter, filterable < 2.5 µ (FPM2.5)	0.04	TPY	PER ROLLING 12 MONTH PERIOD	BACT-PSD		

PM Emission Limits in LB/HR

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	Pollutant	PM Emission Limit	PM Emission Limit Unit (LB/HR)	PM Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
AR-0172	NUCOR STEEL ARKANSAS	9/1/2021	SN-122 SN-210 Paved Roads	0		Water Sprays, Sweeping	0	Particulate matter, total < 10 µ (TPM10)	3.9	LB/HR		BACT-PSD		
AR-0172	NUCOR STEEL ARKANSAS	9/1/2021	SN-122 SN-210 Paved Roads	0		Water Sprays, Sweeping	0	Particulate matter, total < 2.5 µ (TPM2.5)	0.5	LB/HR		BACT-PSD		
LA-0379	SHINTECH PLAQUEMINES PLANT 1	5/4/2021	Fugitive Dust (Paved Roads)	0		Paving plant road as much as practicable.	0	Particulate matter, total < 10 µ (TPM10)	0.08	LB/HR		BACT-PSD		
LA-0379	SHINTECH PLAQUEMINES PLANT 1	5/4/2021	Fugitive Dust (Paved Roads)	0		Paving plant road as much as practicable.	0	Particulate matter, total (TPM)	0.08	LB/HR		BACT-PSD		

PM Emission Limits in % opacity

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	Pollutant	PM Emission Limit	PM Emission Limit Unit (% opacity)	PM Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
IL-0129	CPV THREE RIVERS ENERGY CENTER	7/30/2018	Roadways	0		Paving is required for roads used by trucks transporting bulk materials.	0	Particulate matter, total (TPM)	10	% OPACITY		BACT-PSD	Roadways that serve trucks delivering bulk materials, e.g., ULSD or deionized water, for the combustion turbines or selective catalytic regenerator reagent.	TPM addresses PM, PM10 and PM2.5
IL-0130	JACKSON ENERGY CENTER	12/31/2018	Roadways	0			0	Particulate matter, total (TPM)	10	% OPACITY		BACT-PSD	Roadways that serve trucks delivering bulk materials, e.g., deionized water for the combustion turbines or selective catalytic reduction (SCR) reagent.	Paving required for roads used by trucks that transport bulk materials.
IL-0133	LINCOLN LAND ENERGY CENTER	7/29/2022	Roadways	0			0	Particulate matter, total (TPM)	10	% OPACITY	FROM FUGITIVE EMISSIONS	BACT-PSD	Roadways will serve trucks delivering bulk materials (e.g., selective catalytic reduction (SCR) reagent)	All roadways subject to regular travel must be paved. Must also implement a Fugitive Dust Program, including such measures as sweeping, water spray and prompt cleanups.

PM Emission Limits in % control

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	Pollutant	PM Emission Limit	PM Emission Limit Unit (% control)	PM Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
IN-0173	MIDWEST FERTILIZER CORPORATION	6/4/2014	Fugitive Dust From Paved Roads And Parking Lots	10,402	VEHICLE MILES TRAVELED	Pave all haul roads, daily sweeping with wet suppression, prompt cleanup of any spilled material.	90	Particulate matter, total < 10 µ (TPM10)	90	% CONTROL	CONTINUOUS	BACT-PSD		
IN-0173	MIDWEST FERTILIZER CORPORATION	6/4/2014	Fugitive Dust From Paved Roads And Parking Lots	10,402	VEHICLE MILES TRAVELED	Pave all haul roads, daily sweeping with wet suppression, prompt cleanup of any spilled material.	90	Particulate matter, total < 2.5 µ (TPM2.5)	90	% CONTROL	CONTINUOUS	BACT-PSD		
IN-0179	OHIO VALLEY RESOURCES, LLC	9/25/2013	Paved Roadways And Parking Lots With Public Access	17,160	VEHICLE MILES TRAVELED	Pave all plant haul roads, daily sweeping and wet suppression, prompt cleanup of any spilled material	90	Particulate matter, total < 10 µ (TPM10)	90	% CONTROL	CONTINUOUS	BACT-PSD		
IN-0179	OHIO VALLEY RESOURCES, LLC	9/25/2013	Paved Roadways And Parking Lots With Public Access	17,160	VEHICLE MILES TRAVELED	Pave all plant haul roads, daily sweeping and wet suppression, prompt cleanup of any spilled material	90	Particulate matter, total < 2.5 µ (TPM2.5)	90	% CONTROL	CONTINUOUS	BACT-PSD		
IN-0180	MIDWEST FERTILIZER CORPORATION	6/4/2014	Fugitive Dust From Paved Roads And Parking Lots	10,402	VEHICLE MILES TRAVELED	Pave all haul roads, daily sweeping with wet suppression, prompt cleanup of any spilled material.	90	Particulate matter, total < 10 µ (TPM10)	90	% CONTROL	CONTINUOUS	BACT-PSD		
IN-0180	MIDWEST FERTILIZER CORPORATION	6/4/2014	Fugitive Dust From Paved Roads And Parking Lots	10,402	VEHICLE MILES TRAVELED	Pave all haul roads, daily sweeping with wet suppression, prompt cleanup of any spilled material.	90	Particulate matter, total < 2.5 µ (TPM2.5)	90	% CONTROL	CONTINUOUS	BACT-PSD		

Summary of RBLC Results for PM/PM10/PM2.5 Emissions from Steel Production

Process Type: 81.210 - Electric Arc Furnaces

PM Emission Limits in gr/dscf

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	Pollutant	PM Emission Limit	PM Emission Limit Unit (gr/dscf)	PM Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
AR-0173	BIG RIVER STEEL LLC	1/31/2022	EAFs and LMFs	250	TONS STEEL PER HOUR	Fabric Filter	0	Particulate matter, total < 10 µ (TPM10)	0.0024	GR/DSCF		BACT-PSD		
AR-0173	BIG RIVER STEEL LLC	1/31/2022	EAFs and LMFs	250	TONS STEEL PER HOUR	Fabric Filter	0	Particulate matter, total < 2.5 µ (TPM2.5)	0.0024	GR/DSCF		BACT-PSD		
AR-0173	BIG RIVER STEEL LLC	1/31/2022	EAFs and LMFs	250	TONS STEEL PER HOUR	Fabric Filter	0	Particulate matter, filterable (FPM)	0.0018	GR/DSCF		BACT-PSD		
AR-0172	NUCOR STEEL ARKANSAS	9/1/2021	SN-01 EAF	585	TON STEEL PER HOUR	Baghouse	0	Particulate matter, total < 10 µ (TPM10)	0.0052	GR/DSCF		BACT-PSD		
AR-0172	NUCOR STEEL ARKANSAS	9/1/2021	SN-01 EAF	585	TON STEEL PER HOUR	Baghouse	0	Particulate matter, total < 2.5 µ (TPM2.5)	0.0052	GR/DSCF		BACT-PSD		
AR-0172	NUCOR STEEL ARKANSAS	9/1/2021	SN-01 EAF	585	TON STEEL PER HOUR	Baghouse	99	Particulate matter, filterable (FPM)	0.0018	GR/DSCF		BACT-PSD		
AR-0172	NUCOR STEEL ARKANSAS	9/1/2021	SN-01 EAF	585	TON STEEL PER HOUR	Baghouse	99	Particulate matter, filterable < 10 µ (FPM10)	0.0018	GR/DSCF		BACT-PSD		
AR-0172	NUCOR STEEL ARKANSAS	9/1/2021	SN-01 EAF	585	TON STEEL PER HOUR	Baghouse	99	Particulate matter, filterable < 2.5 µ (FPM2.5)	0.0018	GR/DSCF		BACT-PSD		
KY-0115	NUCOR STEEL GALLATIN, LLC	4/19/2021	Melt Shop #1 (EU 01 Baghouse #1 & #2 Stack)	2000000	TON STEEL/YR	Emissions are controlled by 2 Baghouses (combined stack). Combustion processes must develop a Good Combustion and Operating Practices (GCOP) Plan and non-combustion processes must develop a Good Work Practices (GWP) Plan to minimize emissions.	99.28	Particulate matter, total < 10 µ (TPM10)	0.0052	GR/DSCF	AVERAGED OVER 3 HEATS	BACT-PSD	Includes emissions from the following units: Twin shell DC EAF, A-Line Continuous caster, 2 Ladle Metallurgical Furnaces, 7 Ladle pre-heaters, 2 ladle dryers, 4 tundish pre-heaters, 2 tundish side pre-heaters, 4 SEN pre-heaters, 2 tundish dryers, 6 mandrel pre-heaters, tundish preparation activities, ladle preparation activities, used refractory cleanout, 4 stirring stations, scrap cutting from slag pot, and B-Line continuous caster. The capture efficiency of melt shop #1 is assumed to be 99%. Melt shop #1 & #2 (EU 01 and EU 20) are limited to a combined 3,500,000 tons steel casTPY as measured as the total cast tons at the outlet of the A-Line Continuous Caster (EP 01-03) and B-Line Continuous Caster (EP 20-03) combined. Simultaneous arc operation in both shells of EP 01-01 and simultaneous casting operations in both casters (EP 01-02 and EP 20-03) is prohibited. Equipped with CEMS for CO, NOx, and SO2.	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Division's inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction. And: The permittee shall prepare and implement a Good Work Practices (GWP) plan that includes written operating instructions and procedures that specify good operating and maintenance practices and includes, at a minimum, the following specific practices targeting emission minimization, and a means of verifying the practices have occurred: i. Tracking material usage to ensure that equipment is operated as designed and correcting any operating or design issues as quickly as possible; ii. Employing a preventative maintenance program, including a preventative maintenance schedule that is consistent with the manufacturer's instructions for routine and longterm maintenance. iii. Procedures and practices to monitor and ensure emissions are effectively captured by Melt Shop canopy hooding, and a description of corrective actions to be taken in the event that they are not.
KY-0115	NUCOR STEEL GALLATIN, LLC	4/19/2021	Melt Shop #1 (EU 01 Baghouse #1 & #2 Stack)	2000000	TON STEEL/YR	Emissions are controlled by 2 Baghouses (combined stack). Combustion processes must develop a Good Combustion and Operating Practices (GCOP) Plan and non-combustion processes must develop a Good Work Practices (GWP) Plan to minimize emissions.	99.28	Particulate matter, total < 2.5 µ (TPM2.5)	0.0034	GR/DSCF	AVERAGED OVER 3 HEATS	BACT-PSD	Includes emissions from the following units: Twin shell DC EAF, A-Line Continuous caster, 2 Ladle Metallurgical Furnaces, 7 Ladle pre-heaters, 2 ladle dryers, 4 tundish pre-heaters, 2 tundish side pre-heaters, 4 SEN pre-heaters, 2 tundish dryers, 6 mandrel pre-heaters, tundish preparation activities, ladle preparation activities, used refractory cleanout, 4 stirring stations, scrap cutting from slag pot, and B-Line continuous caster. The capture efficiency of melt shop #1 is assumed to be 99%. Melt shop #1 & #2 (EU 01 and EU 20) are limited to a combined 3,500,000 tons steel casTPY as measured as the total cast tons at the outlet of the A-Line Continuous Caster (EP 01-03) and B-Line Continuous Caster (EP 20-03) combined. Simultaneous arc operation in both shells of EP 01-01 and simultaneous casting operations in both casters (EP 01-02 and EP 20-03) is prohibited. Equipped with CEMS for CO, NOx, and SO2.	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Division's inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction. And: The permittee shall prepare and implement a Good Work Practices (GWP) plan that includes written operating instructions and procedures that specify good operating and maintenance practices and includes, at a minimum, the following specific practices targeting emission minimization, and a means of verifying the practices have occurred: i. Tracking material usage to ensure that equipment is operated as designed and correcting any operating or design issues as quickly as possible; ii. Employing a preventative maintenance program, including a preventative maintenance schedule that is consistent with the manufacturer's instructions for routine and longterm maintenance. iii. Procedures and practices to monitor and ensure emissions are effectively captured by Melt Shop canopy hooding, and a description of corrective actions to be taken in the event that they are not.
KY-0115	NUCOR STEEL GALLATIN, LLC	4/19/2021	Melt Shop #1 (EU 01 Baghouse #1 & #2 Stack)	2000000	TON STEEL/YR	Emissions are controlled by 2 Baghouses (combined stack). Combustion processes must develop a Good Combustion and Operating Practices (GCOP) Plan and non-combustion processes must develop a Good Work Practices (GWP) Plan to minimize emissions.	99.28	Particulate matter, filterable (FPM)	0.0018	GR/DSCF	AVERAGED OVER 3 HEATS	BACT-PSD	Includes emissions from the following units: Twin shell DC EAF, A-Line Continuous caster, 2 Ladle Metallurgical Furnaces, 7 Ladle pre-heaters, 2 ladle dryers, 4 tundish pre-heaters, 2 tundish side pre-heaters, 4 SEN pre-heaters, 2 tundish dryers, 6 mandrel pre-heaters, tundish preparation activities, ladle preparation activities, used refractory cleanout, 4 stirring stations, scrap cutting from slag pot, and B-Line continuous caster. The capture efficiency of melt shop #1 is assumed to be 99%. Melt shop #1 & #2 (EU 01 and EU 20) are limited to a combined 3,500,000 tons steel casTPY as measured as the total cast tons at the outlet of the A-Line Continuous Caster (EP 01-03) and B-Line Continuous Caster (EP 20-03) combined. Simultaneous arc operation in both shells of EP 01-01 and simultaneous casting operations in both casters (EP 01-02 and EP 20-03) is prohibited. Equipped with CEMS for CO, NOx, and SO2.	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Division's inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction. And: The permittee shall prepare and implement a Good Work Practices (GWP) plan that includes written operating instructions and procedures that specify good operating and maintenance practices and includes, at a minimum, the following specific practices targeting emission minimization, and a means of verifying the practices have occurred: i. Tracking material usage to ensure that equipment is operated as designed and correcting any operating or design issues as quickly as possible; ii. Employing a preventative maintenance program, including a preventative maintenance schedule that is consistent with the manufacturer's instructions for routine and longterm maintenance. iii. Procedures and practices to monitor and ensure emissions are effectively captured by Melt Shop canopy hooding, and a description of corrective actions to be taken in the event that they are not.
KY-0115	NUCOR STEEL GALLATIN, LLC	4/19/2021	Melt Shop #2 (EU 20 Baghouse #3 Stack)	2000000	TON STEEL/YR	Emissions are controlled by a Baghouse. Combustion processes must develop a Good Combustion and Operating Practices (GCOP) Plan and non-combustion processes must develop a Good Work Practices (GWP) Plan to minimize emissions.	99.9	Particulate matter, total < 10 µ (TPM10)	0.0052	GR/DSCF	AVERAGED OVER 3 HEATS	BACT-PSD		
KY-0115	NUCOR STEEL GALLATIN, LLC	4/19/2021	Melt Shop #2 (EU 20 Baghouse #3 Stack)	2000000	TON STEEL/YR	Emissions are controlled by a Baghouse. Combustion processes must develop a Good Combustion and Operating Practices (GCOP) Plan and non-combustion processes must develop a Good Work Practices (GWP) Plan to minimize emissions.	99.9	Particulate matter, total < 2.5 µ (TPM2.5)	0.0034	GR/DSCF	AVERAGED OVER 3 HEATS	BACT-PSD		
KY-0115	NUCOR STEEL GALLATIN, LLC	4/19/2021	Melt Shop #2 (EU 20 Baghouse #3 Stack)	2000000	TON STEEL/YR	Emissions are controlled by a Baghouse. Combustion processes must develop a Good Combustion and Operating Practices (GCOP) Plan and non-combustion processes must develop a Good Work Practices (GWP) Plan to minimize emissions.	99.9	Particulate matter, filterable (FPM)	0.0018	GR/DSCF	AVERAGED OVER 3 HEATS	BACT-PSD		
TX-0882	STEEL DYNAMICS SOUTHWEST, LLC	1/17/2020	Electric Arc Furnaces (EAF)	400	TON/HR	Baghouse	0	Particulate matter, filterable (FPM)	0.0052	GR/DSCF		BACT-PSD	400 tons per hour and 3,504,000 tons per year	NSPS A, Dc, TT, AAa, IIII MACT A, ZZZZ, YYYYY, CCCCCC
TX-0882	STEEL DYNAMICS SOUTHWEST, LLC	1/17/2020	Electric Arc Furnaces (EAF)	400	TON/HR	Baghouse	0	Particulate matter, filterable < 10 µ (FPM10)	0.0052	GR/DSCF		BACT-PSD	400 tons per hour and 3,504,000 tons per year	NSPS A, Dc, TT, AAa, IIII MACT A, ZZZZ, YYYYY, CCCCCC
TX-0882	STEEL DYNAMICS SOUTHWEST, LLC	1/17/2020	Electric Arc Furnaces (EAF)	400	TON/HR	Baghouse	0	Particulate matter, filterable < 2.5 µ (FPM2.5)	0.0052	GR/DSCF		BACT-PSD	400 tons per hour and 3,504,000 tons per year	NSPS A, Dc, TT, AAa, IIII MACT A, ZZZZ, YYYYY, CCCCCC
OH-0381	NORTHSTAR BLUESCOPE STEEL, LLC	9/27/2019	Electric Arc Furnace #2	250	TON/HR	Operation of a Baghouse control system a consisting of the following: (a) Direct Evacuation Control (DEC) system for collection of emissions from EAF and LMF; (b) roof canopy hood system for collection of emissions fugitive to the inside of Meltshop #2 from casting operations (P907-Caster #2) and emissions not captured by the DEC control systems;	0	Particulate matter, total < 10 µ (TPM10)	0.0024	GR/DSCF		BACT-PSD	EAF 2 (P905) Direct Evacuation Control (DEC) and LMF 3/4 (P906) DEC vents to Baghouse 2. Canopy hood captures emissions from P905, P906 and Caster 2 (P907) and vents to Baghouse 2.	Emission limits shown are combined emission limits for EAF #2 (P905), twin station ladle metallurgy facility (LMF 3/4)(P906), and caster #2 (P907).
OH-0381	NORTHSTAR BLUESCOPE STEEL, LLC	9/27/2019	Electric Arc Furnace #2	250	TON/HR	Operation of a Baghouse control system a consisting of the following: (a) Direct Evacuation Control (DEC) system for collection of emissions from EAF and LMF; (b) roof canopy hood system for collection of emissions fugitive to the inside of Meltshop #2 from casting operations (P907-Caster #2) and emissions not captured by the DEC control systems;	0	Particulate matter, total < 2.5 µ (TPM2.5)	0.0024	GR/DSCF		BACT-PSD	EAF 2 (P905) Direct Evacuation Control (DEC) and LMF 3/4 (P906) DEC vents to Baghouse 2. Canopy hood captures emissions from P905, P906 and Caster 2 (P907) and vents to Baghouse 2.	Emission limits shown are combined emission limits for EAF #2 (P905), twin station ladle metallurgy facility (LMF 3/4)(P906), and caster #2 (P907).

Summary of RBLC Results for PM/PM10/PM2.5 Emissions from Steel Production

Process Type: 81.210 - Electric Arc Furnaces

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	Pollutant	PM Emission Limit	PM Emission Limit Unit (gr/dscf)	PM Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
OH-0381	NORTHSTAR BLUESCOPE STEEL, LLC	9/27/2019	Electric Arc Furnace #2	250	TON/HR	Operation of a Baghouse control system a consisting of the following: (a) Direct Evacuation Control (DEC) system for collection of emissions from EAF and LMF; (b) roof canopy hood system for collection of emissions fugitive to the inside of Meltshop #2 from casting operations (P907-Caster #2) and emissions not captured by the DEC control systems;	0	Particulate matter, filterable (FPM)	0.0018	GR/DSCF		BACT-PSD	EAF 2 (P905) Direct Evacuation Control (DEC) and LMF 3/4 (P906) DEC vents to Baghouse 2. Canopy hood captures emissions from P905, P906 and Caster 2 (P907) and vents to Baghouse 2.	Emission limits shown are combined emission limits for EAF #2 (P905), twin station ladle metallurgy facility (LMF 3/4)(P906), and caster #2 (P907).
AL-0327	NUCOR STEEL DECATUR, LLC	8/14/2019	Electric Arc Furnaces	3600000	TON/YR	Baghouse	99	Particulate matter, total (TPM)	0.0052	GR/DSCF		BACT-PSD	The permitted process includes two (2) electrics arc furnaces and three (3) ladle metallurgy furnaces that are vented to two (2) Baghouses. The limits listed in the pollutant section apply to the combined emissions from both Baghouses. The facility is limited to 3,600,000 tons of steel produced per consecutive 12-month period.	
AL-0327	NUCOR STEEL DECATUR, LLC	8/14/2019	Electric Arc Furnaces	3600000	TON/YR	Baghouse	99	Particulate matter, filterable (FPM)	0.0018	GR/DSCF		BACT-PSD	The permitted process includes two (2) electrics arc furnaces and three (3) ladle metallurgy furnaces that are vented to two (2) Baghouses. The limits listed in the pollutant section apply to the combined emissions from both Baghouses. The facility is limited to 3,600,000 tons of steel produced per consecutive 12-month period.	
AR-0171	NUCOR STEEL ARKANSAS	2/14/2019	SN-01 EAF	585	TON/HR	Baghouse	0	Particulate matter, total < 10 µ (TPM10)	0.0052	GR/DSCF	AVERAGE OF 3 ONE-HOUR RUNS	BACT-PSD		
AR-0171	NUCOR STEEL ARKANSAS	2/14/2019	SN-01 EAF	585	TON/HR	Baghouse	0	Particulate matter, filterable (FPM)	0.0018	GR/DSCF	AVERAGE OF 3 ONE-HOUR RUNS	BACT-PSD		
AR-0171	NUCOR STEEL ARKANSAS	2/14/2019	SN-01 EAF	585	TON/HR	Baghouse	0	Particulate matter, filterable < 10 µ (FPM10)	0.0052	GR/DSCF	AVERAGE OF 3 ONE-HOUR RUNS	BACT-PSD		
FL-0368	NUCOR STEEL FLORIDA FACILITY	2/14/2019	Melt Shop Baghouse & Fugitives	450000	TON STEEL/YR	Baghouse	0	Particulate matter, total (TPM)	0.0024	GR/DSCF	AVERAGE OF 3 ONE-HOUR RUNS	BACT-PSD	Consists of one EAF (equipped with 3-phase electrodes), a ladle metallurgy station, alloy, carbon flux and slag handling in the meltshop, and natural gas combustion sources	Filterable & Condensable PM
FL-0368	NUCOR STEEL FLORIDA FACILITY	2/14/2019	Melt Shop Baghouse & Fugitives	450000	TON STEEL/YR	Baghouse	0	Particulate matter, filterable (FPM)	0.0018	GR/DSCF	AVERAGE OF 3 ONE-HOUR RUNS	BACT-PSD	Consists of one EAF (equipped with 3-phase electrodes), a ladle metallurgy station, alloy, carbon flux and slag handling in the meltshop, and natural gas combustion sources	NSPS limit of 0.0052 gr/dscf is also applicable, pursuant to 40 CFR 60, Subpart AAa.
SC-0183	NUCOR STEEL - BERKELEY	5/4/2018	Melt Shop Equipment (furnace Baghouse)	175	TPH	Direct shell evaluation furnace Baghouse	0	Particulate matter, filterable (FPM)	0.0031	GR/DSCF	12-HOUR BLOCK AVERAGE	BACT-PSD	The facility has two direct current powered Electric Arc Furnaces, each with the ability to tap approx. 175 tons. They operate independently of each other. The limits are for the furnace Baghouse.	
SC-0183	NUCOR STEEL - BERKELEY	5/4/2018	Melt Shop Equipment (furnace Baghouse)	175	TPH	Direct shell evaluation furnace Baghouse	0	Particulate matter, filterable < 10 µ (FPM10)	0.0022	GR/DSCF	12-HOUR BLOCK AVERAGE	BACT-PSD	The facility has two direct current powered Electric Arc Furnaces, each with the ability to tap approx. 175 tons. They operate independently of each other. The limits are for the furnace Baghouse.	
SC-0183	NUCOR STEEL - BERKELEY	5/4/2018	Melt Shop Equipment (canopy Baghouse)	0		Baghouse, Proper Operation and Maintenance	0	Particulate matter, total < 10 µ (TPM10)	0.0033	GR/DSCF	12-HOUR BLOCK AVERAGE	BACT-PSD	Canopy Baghouse (existing) controls emissions from Electric Arc Furnaces, Ladle Metallurgy Furnaces, Continuous Caster No.1 and No.2, Beam Mill Caster, etc.	The owner or operator shall continue to operate a Bag Leak Detection System (BLDS).
SC-0183	NUCOR STEEL - BERKELEY	5/4/2018	Melt Shop Equipment (canopy Baghouse)	0		Baghouse, Proper Operation and Maintenance	0	Particulate matter, total < 2.5 µ (TPM2.5)	0.0021	GR/DSCF	12-HOUR BLOCK AVERAGE	BACT-PSD	Canopy Baghouse (existing) controls emissions from Electric Arc Furnaces, Ladle Metallurgy Furnaces, Continuous Caster No.1 and No.2, Beam Mill Caster, etc.	The owner or operator shall continue to operate a Bag Leak Detection System (BLDS).
SC-0183	NUCOR STEEL - BERKELEY	5/4/2018	Melt Shop Equipment (canopy Baghouse)	0		Baghouse, Proper Operation and Maintenance	0	Particulate matter, filterable (FPM)	0.0018	GR/DSCF	12-HOUR BLOCK AVERAGE	BACT-PSD	Canopy Baghouse (existing) controls emissions from Electric Arc Furnaces, Ladle Metallurgy Furnaces, Continuous Caster No.1 and No.2, Beam Mill Caster, etc.	The owner or operator shall continue to operate a Bag Leak Detection System (BLDS).
SC-0188	CMC STEEL SOUTH CAROLINA	10/3/2017	Melt Shop	1000000	BILLET TONS/YR	Baghouse	0	Particulate matter, filterable < 10 µ (FPM10)	0.0018	GR/DSCF		BACT-PSD	This PSD permit is for the increase from 850,000 billet tons/yr to 1,000,000 billet tons/yr. No physical modifications were made to accommodate this increase. However, raw material handling, byproduct generation, and rolling mill operations increased as a result of the production increase.	
SC-0188	CMC STEEL SOUTH CAROLINA	10/3/2017	Melt Shop	1000000	BILLET TONS/YR	Baghouse	0	Particulate matter, filterable < 2.5 µ (FPM2.5)	0.0018	GR/DSCF		BACT-PSD	This PSD permit is for the increase from 850,000 billet tons/yr to 1,000,000 billet tons/yr. No physical modifications were made to accommodate this increase. However, raw material handling, byproduct generation, and rolling mill operations increased as a result of the production increase.	
AL-0319	NUCOR STEEL TUSCALOOSA, INC.	3/9/2017	Electric Arc Furnace	0		Baghouse	99	Particulate matter, total < 10 µ (TPM10)	0.0052	GR/DSCF		BACT-PSD	Emissions from the EAF are routed to two meltshop Baghouses. Emissions from two ladle metallurgy stations and a continuous caster are also routed to these Baghouses. The limits listed for each pollutant are for the Baghouses.	
AL-0319	NUCOR STEEL TUSCALOOSA, INC.	3/9/2017	Electric Arc Furnace	0		Baghouse	99	Particulate matter, total < 2.5 µ (TPM2.5)	0.0049	GR/DSCF		BACT-PSD	Emissions from the EAF are routed to two meltshop Baghouses. Emissions from two ladle metallurgy stations and a continuous caster are also routed to these Baghouses. The limits listed for each pollutant are for the Baghouses.	
AL-0319	NUCOR STEEL TUSCALOOSA, INC.	3/9/2017	Electric Arc Furnace	0		Baghouse	99	Particulate matter, filterable (FPM)	0.0018	GR/DSCF		BACT-PSD	Emissions from the EAF are routed to two meltshop Baghouses. Emissions from two ladle metallurgy stations and a continuous caster are also routed to these Baghouses. The limits listed for each pollutant are for the Baghouses.	
AL-0309	NUCOR STEEL DECATUR, LLC	3/2/2016	Two (2) Electric Arc Furnaces With Two (2) Meltshop Baghouses	0		Baghouse	99	Particulate matter, filterable (FPM)	0.0018	GR/DSCF		BACT-PSD	Steel melt limit of 3,200,000 tons per 12 month period	
AL-0309	NUCOR STEEL DECATUR, LLC	3/2/2016	Two (2) Electric Arc Furnaces With Two (2) Meltshop Baghouses	0		Baghouse	99	Particulate matter, total (TPM)	0.0052	GR/DSCF		BACT-PSD	Steel melt limit of 3,200,000 tons per 12 month period	
AL-0275	NUCOR STEEL TUSCALOOSA, INC.	7/22/2014	Electric Arc Furnace	0		Baghouse	99	Particulate matter, filterable (FPM)	0.0018	GR/DSCF		BACT-PSD		
AL-0275	NUCOR STEEL TUSCALOOSA, INC.	7/22/2014	Electric Arc Furnace	0		Baghouse	99	Particulate matter, filterable < 10 µ (FPM10)	0.0052	GR	DSCF	BACT-PSD		
AL-0275	NUCOR STEEL TUSCALOOSA, INC.	7/22/2014	Electric Arc Furnace	0		Baghouse	99	Particulate matter, filterable < 2.5 µ (FPM2.5)	0.0049	GR.	DSCF	BACT-PSD		
AL-0301	NUCOR STEEL TUSCALOOSA, INC.	7/22/2014	Electric Arc Furnace Baghouse # 2	600000	LB/HR	Baghouse	99	Particulate matter, filterable (FPM)	0.0018	GR/DSCF		BACT-PSD	Additional Baghouse to control existing EAF	
AL-0301	NUCOR STEEL TUSCALOOSA, INC.	7/22/2014	Electric Arc Furnace Baghouse # 2	600000	LB/HR	Agency did not provide any information.	99	Particulate matter, total < 10 µ (TPM10)	0.0052	GR/DSCF		BACT-PSD	Additional Baghouse to control existing EAF	
AL-0301	NUCOR STEEL TUSCALOOSA, INC.	7/22/2014	Electric Arc Furnace Baghouse # 2	600000	LB/HR	Agency did not provide any information.	99	Particulate matter, total < 2.5 µ (TPM2.5)	0.0049	GR/DSCF		BACT-PSD	Additional Baghouse to control existing EAF	
TX-0651	NUCOR CORPORATION	10/2/2013	Electric Arc Furnace	316	TPH	Enclosure, Capture, Fabric Filter	0	Particulate matter, total (TPM)	0.0032	GR/DSCF		MACT	1,500,000 TPY	
TX-0651	NUCOR CORPORATION	10/2/2013	Electric Arc Furnace	316	TPH	Enclosure, Capture, Fabric Filter	0	Particulate matter, filterable < 10 µ (FPM10)	0.0032	GR/DSCF		MACT	1,500,000 TPY	
TX-0651	NUCOR CORPORATION	10/2/2013	Electric Arc Furnace	316	TPH	Enclosure, Capture, Fabric Filter	0	Particulate matter, total < 10 µ (TPM10)	0.0052	GR/DSCF		MACT	1,500,000 TPY	
TX-0651	NUCOR CORPORATION	10/2/2013	Electric Arc Furnace	316	TPH	Enclosure, Capture, Fabric Filter	0	Particulate matter, filterable < 2.5 µ (FPM2.5)	0.0032	GR/DSCF		MACT	1,500,000 TPY	
TX-0651	NUCOR CORPORATION	10/2/2013	Electric Arc Furnace	316	TPH	Enclosure, Capture, Fabric Filter	0	Particulate matter, total < 2.5 µ (TPM2.5)	0.0052	GR/DSCF		MACT	1,500,000 TPY	
AR-0140	BIG RIVER STEEL LLC	9/18/2013	EAFS SN-01 AND SN-02	0		Baghouse	0	Particulate matter, filterable (FPM)	0.0018	GR/DSCF	3 HR	BACT-PSD		
AR-0140	BIG RIVER STEEL LLC	9/18/2013	EAFS SN-01 AND SN-02	0		Baghouse For Filterable	0	Particulate matter, total < 10 µ (TPM10)	0.0024	GR/DSCF	3 HR	BACT-PSD		
AR-0140	BIG RIVER STEEL LLC	9/18/2013	EAFS SN-01 AND SN-02	0		Fabric Filter	0	Particulate matter, total < 2.5 µ (TPM2.5)	0.0024	GR/SDCF		BACT-PSD		
OH-0350	REPUBLIC STEEL	7/18/2012	Electric Arc Furnace	150	T/H	Direct-Shell Evacuation Control system with adjustable air gap and water-cooled elbow and duct to Baghouse	0	Particulate matter, filterable (FPM)	0.0052	GR/DSCF		N/A	Elecric Arc Furnace 150 T/HR steel production. Restricted to 1,200,000 tons of liquid steel per rolling 12 months.	Subject to Part 63 Subpart YYYYY and Part 60 Subpart AAa. No TPY limit in permit.
OH-0350	REPUBLIC STEEL	7/18/2012	Electric Arc Furnace	150	T/H	Direct-Shell Evacuation Control system with adjustable air gap and water-cooled elbow and duct to Baghouse	0	Particulate matter, total < 10 µ (TPM10)	0.0034	GR/DSCF		N/A	Elecric Arc Furnace 150 T/HR steel production. Restricted to 1,200,000 tons of liquid steel per rolling 12 months.	Methods 201/201A, 202. No TPY limit in permit.
OH-0350	REPUBLIC STEEL	7/18/2012	Electric Arc Furnace	150	T/H	Direct-Shell Evacuation Control system with adjustable air gap and water-cooled elbow and duct to Baghouse	0	Particulate matter, total < 2.5 µ (TPM2.5)	0.0033	GR/DSCF		N/A	Elecric Arc Furnace 150 T/HR steel production. Restricted to 1,200,000 tons of liquid steel per rolling 12 months.	Methods 201/201A, 202. No TPY limit in permit.
CO-0066	CF & I STEEL L.P. DBA EVRAZ ROCKY MOUNTAIN STEEL	11/30/2011	Electric Arc Furnace (EAF 5)	185	TONS/HOUR	Baghouse	99.9	Particulate matter, total < 10 µ (TPM10)	0.0018	GR/DSCF	FILTERABLE	BACT-PSD		The permittee shall operate the deep storage canopy hood system at the EAF and shall eliminate all unnecessary openings as defined in the Division-approved closure plan through the use of sheeting, enclosures or other means to ensure that the opacity of visible emissions from the EAF/BOF/teeming aisle buildings does not exceed 6% (BACT), as measured by EPA Test Method 9. The permittee shall maintain sufficient negative pressure in the EAF/BOF/teeming aisle buildings through a properly designed and operated ventilation system to ensure that emissions do not escape from the buildings in excess of 6% opacity as measured by EPA Test Method 9.
CO-0066	CF & I STEEL L.P. DBA EVRAZ ROCKY MOUNTAIN STEEL	11/30/2011	Electric Arc Furnace (EAF 5)	185	TONS/HOUR	Baghouse	99.9	Particulate matter, total < 2.5 µ (TPM2.5)	0.0018	GR/DSCF	FILTERABLE	BACT-PSD		The permittee shall operate the deep storage canopy hood system at the EAF and shall eliminate all unnecessary openings as defined in the Division-approved closure plan through the use of sheeting, enclosures or other means to ensure that the opacity of visible emissions from the EAF/BOF/teeming aisle buildings does not exceed 6% (BACT), as measured by EPA Test Method 9. The permittee shall maintain sufficient negative pressure in the EAF/BOF/teeming aisle buildings through a properly designed and operated ventilation system to ensure that emissions do not escape from the buildings in excess of 6% opacity as measured by EPA Test Method 9.
CO-0066	CF & I STEEL L.P. DBA EVRAZ ROCKY MOUNTAIN STEEL	11/30/2011	Electric Arc Furnace (EAF 5)	185	TONS/HOUR	Baghouse	99.9	Particulate matter, total (TPM)	0.0018	GR/DSCF	FILTERABLE	BACT-PSD		The permittee shall operate the deep storage canopy hood system at the EAF and shall eliminate all unnecessary openings as defined in the Division-approved closure plan through the use of sheeting, enclosures or other means to ensure that the opacity of visible emissions from the EAF/BOF/teeming aisle buildings does not exceed 6% (BACT), as measured by EPA Test Method 9. The permittee shall maintain sufficient negative pressure in the EAF/BOF/teeming aisle buildings through a properly designed and operated ventilation system to ensure that emissions do not escape from the buildings in excess of 6% opacity as measured by EPA Test Method 9.
GA-0142	OSCEOLA STEEL CO.	12/29/2010	Electric Arc Furnace	430000	12 CONSECUTIVE MONTHS	Fabric Filter (Baghouse)	0	Particulate matter, total < 10 µ (TPM10)	0.0018	GR/DSCF	(FILTERABLE) 3 HOUR STACKTESTING	BACT-PSD	Per 12 CONSECUTIVE MONTHS to reflect 153 t/h; rated at 115 ton capacity. The process uses natural gas for startup at the rate of 27 MMBTU/H. Primary Fuel - Natural Gas (firing) Electricity (charging materials)	Other limits: 0.0026 GR/DSCF (total) 3 hour stack testing

Summary of RBLC Results for PM/PM10/PM2.5 Emissions from Steel Production

Process Type: 81.210 - Electric Arc Furnaces

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	Pollutant	PM Emission Limit	PM Emission Limit Unit (gr/dscf)	PM Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
OH-0339	THE TIMKEN COMPANY	12/29/2010	Electric Arc Furnace (2)	400000	TPY	Baghouse on melt shop building evacuation system	0	Particulate matter, filterable < 10 µ (FPM10)	0.0003	GR/DSCF	Baghouse	OTHER CASE-BY-CASE	Increasing annual production to 400,000 TONS STEEL PER YEAR from each of the 2 EAFs. Modifying process to charge scrap tires in place of some coke. Sharing the TPY SO2 emission limit with EAF at sister facility, Faircrest Steel.	PM10 surrogate for PM2.5. Method 201 or 201A.
OH-0342	THE TIMKEN COMPANY	12/29/2010	Electric Arc Furnace	1300000	TPY	Roof canopy hood fume collecion system with Direct Evacuation Control to Baghouse	0	Particulate matter, total < 10 µ (TPM10)	0.0017	GR/DSCF		OTHER CASE-BY-CASE	Increasing annual steel production to 1,300,000 TPY. Modifying process to charge scrap tires to replace part of the coke charged. Sharing the TPY SO2 emission limit with sister facility, Faircrest Steel.	
OH-0342	THE TIMKEN COMPANY	12/29/2010	Electric Arc Furnace	1300000	TPY	Roof canopy hood fume collecion system with Direct Evacuation Control to Baghouse	0	Particulate matter, total < 2.5 µ (TPM2.5)	0.0009	GR/DSCF		OTHER CASE-BY-CASE	Increasing annual steel production to 1,300,000 TPY. Modifying process to charge scrap tires to replace part of the coke charged. Sharing the TPY SO2 emission limit with sister facility, Faircrest Steel.	
OH-0341	NUCOR STEEL	12/23/2010	EAR, Continuous casting, and 6 pre-heaters	1800	T/D	Building enclosure equipped with a canopy hood/Baghouse system capable of achieving 100% capture of meltshop emissions.	0	Particulate matter, total < 10 µ (TPM10)	0.0052	GR/DSCF		BACT-PSD	Facility capacity of 657,000 TONS STEEL PER YEAR. 1 Electric Arc Furnace, including charging, melting, tapping, slag skimming; continuous casting operations, including torch cutting; 4 natural gas filed ladle preheaters; and 2 natural gas fired tundish preheaters.	combined meltshop emissions. Method 201 or 201A and 202 to be conducted w/i 180 days of operations under this permit.
OH-0341	NUCOR STEEL	12/23/2010	EAR, Continuous casting, and 6 pre-heaters	1800	T/D	Building enclosure equipped with a canopy hood/Baghouse system capable of achiieving 100% capture of meltshop emissions.	0	Particulate matter, total < 2.5 µ (TPM2.5)	0.0049	GR/DSCF		BACT-PSD	Facility capacity of 657,000 TONS STEEL PER YEAR. 1 Electric Arc Furnace, including charging, melting, tapping, slag skimming; continuous casting operations, including torch cutting; 4 natural gas filed ladle preheaters; and 2 natural gas fired tundish preheaters.	combined meltshop emissions. Method 202 with 201 or 201A to be conducted w/i 180 days of operations under this permit.
IN-0138	STEEL DYNAMICS, INC. (SDI) - ENGINEERED BAR *	3/12/2010	Electric Arc Furnace (EAF) And Ladle Metallurgy Station (LMS)	125	T/H OF STEEL	Baghouses	0	Particulate matter, filterable < 10 µ (FPM10)	0.0052	GR/DSCF	3 HRS	OTHER CASE-BY-CASE	Also process type: 81.220 Both have same throughput	Visible emissions - 3% opacity, 6 minute average of 24 readings PSD BACT
IN-0138	STEEL DYNAMICS, INC. (SDI) - ENGINEERED BAR *	3/12/2010	Electric Arc Furnace (EAF) And Ladle Metallurgy Station (LMS)	125	T/H OF STEEL	Baghouses	0	Particulate matter, total (TPM)	0.0018	GR/DSCF	3 HRS	OTHER CASE-BY-CASE	Also process type: 81.220 Both have same throughput	Visible emissions - 3% opacity, 6 minute average of 24 readings PSD BACT
OK-0128	MID AMERICAN STEEL AND WIRE COMPANY	9/8/2008	Electric Arc Furnaces	50	TONS PER FURNACE	Baghouse	99.9	Particulate matter, total < 10 µ (TPM10)	0.0018	GR/DSCF	1-HR	BACT-PSD		
OH-0315	NEW STEEL INTERNATIONAL, INC.	5/6/2008	Electric Arc Furnace (2)	331	T/H	Baghouse And Direct Evacuation Control W/ 100% Capture Efficiency	99.75	Particulate Matter (PM)	0.0014	GR/DSCF	EACH Baghouse (2) TO EAF AND LMF	BACT-PSD	Maximum production of 331 tons/hour and 2,204,624 tons/year of steel from each of 2 electric arc furnaces (EAF). Emissions are captured by the EAF canopy and Direct Evacuation Control system and vented to a Baghouse (for each). Capture efficiency is assumed to be 100%. Each of 2 electric arc furnaces (EAF) with 2 ladle metallurgy furnaces (LMF) each (total of 4) are vented to a dedicated baghouse (2). All of the emission limits are permitted together for each of the 2 Baghouses individually, i.e., the EAF and LMF share the same limits, at each stack.	Each of 2 electric arc furnaces (EAF) with 2 ladle metallurgy furnaces (LMF) each (total of 4) are vented to a dedicated baghouse (2). All of the emission limits are permitted together for each of the 2 baghouses individually, i.e., the EAF and LMF share the same limits, at each stack.

Summary of RBLC Results for PM/PM10/PM2.5 Emissions from Steel Production

Process Type: 81.210 - Electric Arc Furnaces

PM Emissions Limits in lb/hr

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	Pollutant	PM Emission Limit	PM Emission Limit Unit (LB/HR)	PM Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
MI-0438	GERDAU MACSTEEL MONROE	10/29/2018	EUEAF (Electric Arc Furnace)	130	TONS/HOUR	Direct-Shell Evacuation Control, reaction chamber, and Baghouse with high temperature Fabric Filter bags.	0	Particulate matter, total < 10 μ (TPM10)	12.91	LB/HR	HOURLY	BACT-PSD		
MI-0438	GERDAU MACSTEEL MONROE	10/29/2018	EUEAF (Electric Arc Furnace)	130	TONS/HOUR	Direct-Shell Evacuation Control, reaction chamber, and Baghouse with high temperature Fabric Filter bags.	0	Particulate matter, total < 2.5 μ (TPM2.5)	12.91	LB/HR	HOURLY	BACT-PSD		
MI-0438	GERDAU MACSTEEL MONROE	10/29/2018	EUEAF (Electric Arc Furnace)	130	TONS/HOUR	Direct-Shell Evacuation Control, reaction chamber, and Baghouse with high temperature Fabric Filter bags.	0	Particulate matter, filterable (FPM)	7.84	LB/HR	HOURLY	BACT-PSD		
OH-0316	V & M STAR	9/23/2008	Electric Arc Furnace	134	T/H	Canopy Hood Fume Collection With Direct Evacuation Control System And Fabric Filter Baghouse	99	Particulate matter, filterable < 10 μ (FPM10)	14.1	LB/HR	From EAF and Ladle Refining combined	BACT-PSD	134 tons of liquid steel/hour and 830,000 tons of liquid steel/year is the maximum production rate. Scrap Management Program submitted to minimize hg, but no limits for hg. Electric arc furnace is permitted with ladle refining station; they share their limits and stack.	LB/HR and TPY limits are for Electric Arc Furnace and ladle refining station combined, and limits include both stack and fugitive dust.
OH-0315	NEW STEEL INTERNATIONAL, INC.	5/6/2008	Electric Arc Furnace (2)	331	T/H	Baghouse And Direct Evacuation Control W/ 100% Capture Efficiency	99.75	Particulate matter, filterable < 2.5 μ (FPM2.5)	36.05	LB/HR	1 EAF W/ 2 LMF	LAER	Maximum production of 331 tons/hour and 2,204,624 tons/year of steel from each of 2 electric arc furnaces (EAF). Emissions are captured by the EAF canopy and Direct Evacuation Control system and vented to a Baghouse (for each). Capture efficiency is assumed to be 100%. Each of 2 electric arc furnaces (EAF) with 2 ladle metallurgy furnaces (LMF) each (total of 4) are vented to a dedicated baghouse (2). All of the emission limits are permitted together for each of the 2 Baghouses individually, i.e., the EAF and LMF share the same limits, at each stack.	Each of 2 electric arc furnaces (EAF) with 2 ladle metallurgy furnaces (LMF) each (total of 4) are vented to a dedicated baghouse (2). All of the emission limits are permitted together for each of the 2 Baghouses individually, i.e., the EAF and LMF share the same limits, at each stack. PM10 is used as a surrogate for PM2.5. Facility is non-attainment for PM2.5 and PSD for PM and PM10
AR-0096	NUCOR YAMATO STEEL	1/31/2008	Electric Arc Furnace	500	T/STEEL / H	Baghouse	0	Particulate matter, filterable < 10 μ (FPM10)	49.4	LB/HR		BACT-PSD		

PM Emission Limit in lb/ton

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	Pollutant	PM Emission Limit	PM Emission Limit Unit (lb/ton)	PM Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
MI-0417	GERDAU MACSTEEL, INC.	10/27/2014	FG-MELTSHOP (Melt Shop)	130	T/H	Direct Evacuation Control (DEC), hood, and Baghouse.	99	Particulate matter, total < 2.5 μ (TPM2.5)	0.1	LB/T	TEST PROTOCOL	BACT-PSD	Melt shop which includes an Electric Arc Furnace (EUEAF), a ladle metallurgy station (EULMF), and two (2) vacuum degassers (twin tank) (EUVTD). Two Process Codes associated are 81.210 (entered above) and 81.220. The throughput is 130 tons of liquid steel per hour The steel is melted in an Electric Arc Furnace using an electric arc along with natural gas fired oxy-fueled burners, which increase the steel melting rate. The molten steel is tapped from the vessel and is covered and transferred to the ladle metallurgy station. After ladle metallurgy is complete the ladle is covered and transferred to the vacuum degassing station.	There are 3 emission limits: 1. 0.1 LB/T liquid steel. Averaging Time is test protocol. PSD BACT. 2. 10.9 LB/HR with an averaging time determined by test protocol. PSD BACT. 3. 41.3 TPY based upon a 12-month rolling time period as determined at the end of each calendar month. PSD BACT. The applicant selected the top ranked control device, therefore a cost analysis was not completed.
MI-0404	GERDAU MACSTEEL, INC.	1/4/2013	Melt Shop (FG-MELTSHOP)	130	T liquid steel per H	Direct Evacuation Control (DEC), hood, and Baghouse	99	Particulate matter, total < 10 μ (TPM10)	0.1	LB/T LIQUID STEEL	TEST PROTOCOL (PSD BACT)	BACT-PSD	This process is a "flexible group" which includes an Electric Arc Furnace (EUEAF), a ladle metallurgy station (EULMF), and two vacuum degassers (twin tank) (EUVTD). The limits apply to the whole flexible group, not individual emission units of the group. Also, the primary fuel is electric with Oxy-fuel booster burners. The RBLC process code is 81.210 AND 81.220. The steel is melted in an Electric Arc Furnace using an electric arc along with natural gas fired oxy-fueled burners, which increase the steel melting rate. The molten steel is tapped from the vessel and is covered and transferred to the ladle metallurgy station. After ladle metallurgy is complete, the ladle is covered and transferred to the vacuum degassing station.	There is a third PM10 limit for this flexible group FG-MELTSHOP which is 50 TPY based on a 12-month rolling time period as determined at the end of each calendar month. This was also set per PSD BACT. This limit will be included on its own pollutant page since three emission limits cannot be included on one page. The applicant selected the top ranked control device, therefore a cost analysis was not completed.

Summary of RBLC Results for NOx Emissions from Steel Production
Process Type: 81.210 - Electric Arc Furnaces

NOx Emission Limits in LB/HR

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	NOx Emission Limit	lb/ton eqv	NOx Emission Limit Unit (LB/HR)	NOx Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
OH-0381	NORTHSTAR BLUESCOPE STEEL, LLC	9/27/2019	Electric Arc Furnace #2 (P905)	250	T/H		0	105	0.42	LB/HR		BACT-PSD	EAF 2 (P905) Direct Evacuation Control (DEC) and LMF 3/4 (P906) DEC vents to Baghouse 2. Canopy hood captures emissions from P905, P906 and Caster 2 (P907) and vents to Baghouse 2.	0.42 lbs/ton of liquid steel produced combined emission limit for EAF #2 (P905), twin station ladle metallurgy facility (LMF 3/4)(P906), and caster #2 (P907). 105 LB/HR combined emission limit for EAF #2 (P905) and twin station ladle metallurgy facility (LMF 3/4)(P906). 828.5 TPY per rolling 12-month period combined emission limit for EAF #1 (P901), ladle metallurgy facility (LMF 1/2)(P902), EAF #2 (P905) and twin station LMF 3/4 (P906).
AL-0319	NUCOR STEEL TUSCALOOSA, INC.	3/9/2017	Electric Arc Furnace	0			0	105	0.35	LB/HR		BACT-PSD	Emissions from the EAF are routed to two meltshop Baghouses. Emissions from two ladle metallurgy stations and a continuous caster are also routed to these Baghouses. The limits listed for each pollutant are for the Baghouses.	
OH-0316	V & M STAR	9/23/2008	Electric Arc Furnace	134	T/H		0	53.6	0.40	LB/HR	From EAF and Ladle Refining combined	BACT-PSD	134 tons of liquid steel/hour and 830,000 tons of liquid steel/year is the maximum production rate. Scrap Management Program submitted to minimize hg, but no limits for hg. Electric arc furnace is permitted with ladle refining station; they share their limits and stack.	LB/HR and TPY limits are for Electric Arc Furnace and ladle refining station combined
OH-0315	NEW STEEL INTERNATIONAL, INC.	5/6/2008	Electric Arc Furnace (2)	331	T/H	Low NOx Oxy-Fuel Burners	0	102.3	0.31	LB/HR	1 EAF	BACT-PSD	Maximum production of 331 tons/hour and 2,204,624 tons/year of steel from each of 2 electric arc furnaces (EAF). Emissions are captured by the EAF canopy and Direct Evacuation Control system and vented to a Baghouse (for each). Capture efficiency is assumed to be 100%. Each of 2 electric arc furnaces (EAF) with 2 ladle metallurgy furnaces (LMF) each (total of 4) are vented to a dedicated baghouse (2). All of the emission limits are permitted together for each of the 2 Baghouses individually, i.e., the EAF and LMF share the same limits, at each stack.	LB/HR and TPY limits for one of 2 EAF.
AR-0096	NUCOR YAMATO STEEL	1/31/2008	Electric Arc Furnace	500	T/STEEL / H	Low NOx Burners	0	190	0.38	LB/HR		BACT-PSD		

Summary of RBLC Results for NOx Emissions from Steel Production
Process Type: 81.210 - Electric Arc Furnaces

NOx Emissions Limits in lb/ton

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	NOx Emission Limit	NOx Emission Limit Unit (lb/ton)	NOx Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
AR-0173	BIG RIVER STEEL LLC	1/31/2022	EAFs and LMFs	250	TONS STEEL PER HOUR	Scrap Management plan and good operating practices	0	0.35	LB/TON OF STEEL		BACT-PSD	SN-01 and SN-02 of the Permit	
AR-0172	NUCOR STEEL ARKANSAS	9/1/2021	SN-01 EAF	585	TONS STEEL PER HOUR	Low NOx Burners	0	0.51	LB/TON		BACT-PSD		
KY-0115	NUCOR STEEL GALLATIN, LLC	4/19/2021	Melt Shop #1 (EU 01 Baghouse #1 & #2 Stack)	2,000,000	TONS STEEL/YR	Combustion processes must develop a Good Combustion and Operating Practices (GCOP) Plan. New equipment in the meltshop is equipped with low-NOx burners (70 lb/MMscf)	0	0.42	LB/TON	30-DAY ROLLING AVERAGE, CEMS	BACT-PSD	Includes emissions from the following units: Twin shell DC EAF, A-Line Continuous caster, 2 Ladle Metallurgical Furnaces, 7 Ladle pre-heaters, 2 ladle dryers, 4 tundish pre-heaters, 2 tundish side pre-heaters, 4 SEN pre-heaters, 2 tundish dryers, 6 mandrel pre-heaters, tundish preparation activities, ladle preparation activities, used refractory cleanout, 4 stirring stations, scrap cutting from slag pot, and B-Line continuous caster. The capture efficiency of melt shop #1 is assumed to be 99%. Melt shop #1 & #2 (EU 01 and EU 20) are limited to a combined 3,500,000 tons steel casTPY as measured as the total cast tons at the outlet of the A-Line Continuous Caster (EP 01-03) and B-Line Continuous Caster (EP 20-03) combined. Simultaneous arc operation in both shells of EP 01-01 and simultaneous casting operations in both casters (EP 01-02 and EP 20-03) is prohibited. Equipped with CEMS for CO, NOx, and SO2.	Also subject to a 44.9 LB/HR emission limitation, averaged over 24 hours on non-production days. Emissions are measured via CEMS. The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Division's inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	4/19/2021	Melt Shop #2 (EU 20 Baghouse #3 Stack)	2,000,000	TONS STEEL/YR	Combustion processes must develop a Good Combustion and Operating Practices (GCOP) Plan	0	0.42	LB/TON	30-DAY ROLLING AVERAGE, CEMS	BACT-PSD	Includes emissions from the following units: Single shell DC EAF, 2 Ladle Metallurgical Furnaces, tundish preparation activities (Incl. dump station, relining station, and skull torch cutting), ladle preparation activities (Incl. dump station and relining station), used refractory cleanout, scrap bucket charge, safety lining dryer for tundishes, vertical ladle preheater at LMF. The capture efficiency of melt shop #2 is assumed to be 99%. Melt shop #1 & #2 (EU 01 and EU 20) are limited to a combined 3,500,000 tons steel casTPY as measured as the total cast tons at the outlet of the A-Line Continuous Caster (EP 01-03) and B-Line Continuous Caster (EP 20-03) combined. Simultaneous arc operation in both shells of EP 01-01 and simultaneous casting operations in both casters (EP 01-02 and EP 20-03) is prohibited. Equipped with CEMS for CO, NOx, and SO2.	Also subject to a 44.9 LB/HR emission limitation, averaged over 24 hours on non-production days. Emissions are measured via CEMS. The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Division's inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
TX-0882	STEEL DYNAMICS SOUTHWEST, LLC	1/17/2020	Electric Arc Furnaces (EAF)	0				0.35	LB/TON		BACT-PSD	400 tons per hour and 3,504,000 tons per year	NSPS A, Dc, TT, AAa, IIII MACT A, ZZZZ, YYYYY, CCCCCC
TX-0867	OPTIMUS STEEL LLC	1/2/2020	Electric Arc Furnace	0		Good Combustion Practices	0	0.58	LB/TON		BACT-PSD		MACT YYYYY
SC-0197	NUCOR CORPORATION - DARLINGTON PLANT	12/17/2019	Melt Shop Equipment (Furnace and Canopy Baghouses)	1,314,000	TON/YR		0	0.41	LB/BILLET TON	24-HOUR AVERAGE	BACT-PSD	150 billet TONS/HOUR, 30-day block average 180 billet TONS/HOUR, 24-hour block average	
AL-0327	NUCOR STEEL DECATUR, LLC	8/14/2019	Electric Arc Furnace	0		Oxy-Fuel Burners	0	0.42	LB/TON		BACT-PSD	The permitted process includes two (2) electrics arc furnaces and three (3) ladle metallurgy furnaces that are vented to two (2) Baghouses. The limits listed in the pollutant section apply to the combined emissions from both Baghouses. The facility is limited to 3,600,000 tons of steel produced per consecutive 12-month period.	
SC-0196	NUCOR CORPORATION - DARLINGTON PLANT	4/29/2019	Meltshop (Furnace and Canopy Baghouse)	1,314,000	BILLET TONS/YR		0	0.35	LB/BILLET TON REGULAR AND LOW CARBON STEEL	24 HOUR AVERAGE	BACT-PSD		0.35 lb/billet tons equals 63.0 LB/HR (24 hour average) 0.41 lb/billet tons equals 73.8 LB/HR (24 hour average) 220 ppm id during slinging the banks.
SC-0196	NUCOR CORPORATION - DARLINGTON PLANT	4/29/2019	Meltshop (Furnace and Canopy Baghouse)	1,314,000	BILLET TONS/YR		0	0.41	LB/BILLET RESULFURIZED STEEL	24 HOUR AVERAGE	BACT-PSD		0.35 lb/billet tons equals 63.0 LB/HR (24 hour average) 0.41 lb/billet tons equals 73.8 LB/HR (24 hour average) 220 ppm id during slinging the banks.
AR-0171	NUCOR STEEL ARKANSAS	2/14/2019	SN-01 EAF	585	TONS STEEL PER HOUR	Natural Gas Fired Oxy Fuel Burners	0	0.51	LB/TON	3 HOUR	BACT-PSD		
FL-0368	NUCOR STEEL FLORIDA FACILITY	2/14/2019	Meltshop Baghouse & Fugitives	450,000	TON STEEL/YR	Oxy-fuel burners on the EAF, DEC System and Baghouse controls	0	0.3	LB/TON OF STEEL	AVERAGE OF 3 ONE-HOUR RUNS	BACT-PSD	Consists of one EAF (equipped with 3-phase electrodes), a ladle metallurgy station, alloy, carbon flux and slag handling in the meltshop, and natural gas combustion sources	This limit includes all four sources: EAF, LMF, caster, and the meltshop.
MI-0438	GERDAU MACSTEEL MONROE	10/29/2018	EUEAF (Electric Arc Furnace)	130	TON/HR	Real time process optimization (combustion controls) and the use of oxy-fuel burners.	0	0.27	LB/T	HOURLY	LAER	Natural gas used for supplemental heat.	NOx subject to LAER due to non-attainment for ozone, also subject to NOx BACT in NOx attainment area.
NE-0063	NUCOR STEEL DIVISION	11/7/2017	Electric Arc Furnace	1,350,000	TON/YR	Baghouse	0	0.42	LB/TON STEEL		BACT-PSD		
AL-0323	OUTOKUMPU STAINLESS USA, LLC	6/13/2017	Electric Arc Furnace	0		Direct Evacuation Control	0	0.6	LB/TON		BACT-PSD	EAF emissions vented to common Baghouse.	
NE-0063	NUCOR STEEL CORP	11/7/2017	Electric Arc Furnace	1,350,000	TON/YR	Baghouse	0	0.42	LB	TON STEEL	BACT-PSD		
AL-0309	NUCOR STEEL DECATUR, LLC	3/2/2016	Two (2) Electric Arc Furnaces With Two (2) Meltshop Baghouses	0		Oxy-Fuel Burners	0	0.42	LB/TON OF STEEL		BACT-PSD	Steel melt limit of 3,200,000 tons per 12 month period	

Summary of RBLC Results for NOx Emissions from Steel Production
Process Type: 81.210 - Electric Arc Furnaces

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	NOx Emission Limit	NOx Emission Limit Unit	NOx Emission Limit	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
MI-0417	GERDAU MACSTEEL, INC.	10/27/2014	FG-MELTSHOP (Melt Shop)	130	T/H	No controls. Real time process optimization (combustion controls) and the use of oxy-fuel burners.	0	0.2	LB/T	TEST PROTOCOL/ PSD BACT	BACT-PSD	Melt shop which includes an Electric Arc Furnace (EUEAF), a ladle metallurgy station (EULMF), and two (2) vacuum degassers (twin tank) (EUVTD). Two Process Codes associated are 81.210 (entered above) and 81.220. The throughput is 130 tons of liquid steel per hour The steel is melted in an Electric Arc Furnace using an electric arc along with natural gas fired oxy-fueled burners, which increase the steel melting rate. The molten steel is tapped from the vessel and is covered and transferred to the ladle metallurgy station. After ladle metallurgy is complete the ladle is covered and transferred to the vacuum degassing station.	There are three (3) emission limits: 0.2 LB/T liquid steel, 26 LB/HR, and 85 TPY based on a 12-month rolling time period as determined at the end of each calendar month. Applicant evaluated cost effectiveness to control NOx emissions with SCR and SNCR, both were found to not be cost effective to control. The cost value listed above is with the use of high temperature bags in the Baghouse and the cost to reheat the exhaust air.
TX-0651	NUCOR CORPORATION	10/2/2013	Electric Arc Furnace	316	TPH	Oxy Fired Burners	0	0.9	LB/TON OF STEEL		BACT-PSD	1,500,000 TPY	
AR-0140	BIG RIVER STEEL LLC	9/18/2013	EAFS SN-01 AND SN-02	0			0	0.3	LB/TON		BACT-PSD		
MI-0404	GERDAU MACSTEEL, INC.	1/4/2013	Melt Shop (FG-MELTSHOP)	130	T liquid steel per H	Real time process optimization (combustion controls) and the use of oxy-fuel burners.	0	0.2	LB/T LIQUID STEEL	TEST PROTOCOL (PSD BACT)	BACT-PSD	This process is a "flexible group" which includes an Electric Arc Furnace (EUEAF), a ladle metallurgy station (EULMF), and two vacuum degassers (twin tank) (EUVTD). The limits apply to the whole flexible group, not individual emission units of the group. Also, the primary fuel is electric with Oxy-fuel booster burners. The RBLC process code is 81.210 AND 81.220. The steel is melted in an Electric Arc Furnace using an electric arc along with natural gas fired oxy-fueled burners, which increase the steel melting rate. The molten steel is tapped from the vessel and is covered and transferred to the ladle metallurgy station. After ladle metallurgy is complete, the ladle is covered and transferred to the vacuum degassing station.	NOTE 1: There is a third emission limit which is 100 TPY, Avg. Time is 12-month rolling time period as determined at the end of each calendar month. This limit was also set per PSD BACT. NOTE2: Applicant evaluated cost effectiveness to control NOx emissions with SCR and SNCR, both were found to not be cost effective to control. The cost value listed above is with the use of high temperature bags in the Baghouse and the cost to reheat the exhaust air. Note 3: NOTE: This is the third NOx emission limit for FGMELTSHOP. Only 2 limits can be included per page, so this limit is included on its own page. The avg. time for this limit is a 12-month rolling time period as determined at the end of each calendar month. The applicant evaluated cost effectiveness to control NOx emissions with SCR and SNCR, both were found to not be cost effective to control. The cost value listed above is with the use of high temperature bags in the Baghouse and the cost to reheat the exhaust air.
OH-0350	REPUBLIC STEEL	7/18/2012	Electric Arc Furnace	150	T/H		0	0.5	LB/T	PER TON OF STEEL	N/A	Elecric Arc Furnace 150 T/HR steel production. Restricted to 1,200,000 tons of liquid steel per rolling 12 months.	
CO-0066	CF & I STEEL L.P. DBA EVRAZ ROCKY MOUNTAIN STEE	11/30/2011	Electric Arc Furnace (EAF 5)	185	TON/HR	BACT for NOX, SO2, and CO has been determined to be the use of process controls	0	0.28	LB PER TON STEEL	30-DAY ROLLING AVE	BACT-PSD		
GA-0142	OSCEOLA STEEL CO.	12/29/2010	Electric Arc Furnace	430,000	12 CONSECUTIVE MONTHS	Low NOx Burners with FGR Technology and Good Combustion/Operating practices.	0	0.35	LB/T	3 HOUR STACK TESTING	BACT-PSD	Per 12 CONSECUTIVE MONTHS to reflect 153 t/h; rated at 115 ton capacity. The process uses natural gas for startup at the rate of 27 MMBTU/H. Primary Fuel - Natural Gas (firing) Electricity (charging materials)	The Division also proposes simultaneous testing of both CO and NOx to ensure both BACT limits are achieved during peak operation of the EAF, because the limits are interdependent. This NOx BACT limit applies during all periods of the EAF heat cycle, including startup, shutdown, and malfunction.
OH-0339	THE TIMKEN COMPANY	12/29/2010	Electric Arc Furnace (2)	400,000	TPY		0	0.2	LB/T	PER TON OF STEEL	OTHER CASE-BY-CASE	Increasing annual production to 400,000 TONS STEEL PER YEAR from each of the 2 EAFs. Modifying process to charge scrap tires in place of some coke. Sharing the TPY SO2 emission limit with EAF at sister facility, Faircrest Steel.	Method 7 or 7A.
OH-0342	THE TIMKEN COMPANY	12/29/2010	Electric Arc Furnace	1,300,000	TPY		0	0.2	LB/T	PER TON OF STEEL	OTHER CASE-BY-CASE	Increasing annual steel production to 1,300,000 TPY. Modifying process to charge scrap tires to replace part of the coke charged. Sharing the TPY SO2 emission limit with sister facility, Faircrest Steel.	Method 7 or 7A.
OH-0341	NUCOR STEEL	12/23/2010	EAR, Continuous casting, and 6 pre-heaters	1,800	T/D		0	0.43	LB/T	PER TON OF STEEL	BACT-PSD	Facility capacity of 657,000 TONS STEEL PER YEAR. 1 Electric Arc Furnace, including charging, melting, tapping, slag skimming; continuous casting operations, including torch cutting; 4 natural gas filed ladle preheaters; and 2 natural gas fired tundish preheaters.	combined meltshop emissions. Method 7 to be conducted w/i 180 days of operations under this permit.
OK-0128	MID AMERICAN STEEL AND WIRE COMPANY	9/8/2008	Electric Arc Furnaces	50	TONS PER FURNACE		0	0.3	LB/T SCRAP	3-HR	BACT-PSD		

Summary of RBLC Results for SO_2 Emissions from Steel Production
Process Type: 81.210 - Electric Arc Furnaces

SO2 Emission Limits in LB/HR

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	SO_2 Emission Limit	SO2 Emission Limit Unit (LB/HR)	SO_2 Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
OH-0381	NORTHSTAR BLUESCOPE STEEL, LLC	9/27/2019	Electric Arc Furnace #2 (P905)	250	T/H	The development, implementation, and maintenance of: (a) a Scrap Management plan; and (b) a work practice plan addressing "argon stirring" during LMF desulfurization process.	0	87.5	LB/HR		BACT-PSD	EAF 2 (P905) Direct Evacuation Control (DEC) and LMF 3/4 (P906) DEC vents to Baghouse 2. Canopy hood captures emissions from P905, P906 and Caster 2 (P907) and vents to Baghouse 2.	0.35 lbs/ton of liquid steel produced combined emission limit for EAF #2 (P905), twin station ladle metallurgy facility (LMF 3/4)(P906), and caster #2 (P907). 87.5 LB/HR combined emission limit for EAF #2 (P905) and twin station ladle metallurgy facility (LMF 3/4)(P906). 575.90 TPY per rolling 12-month period combined emission limit for EAF #1 (P901), ladle metallurgy facility (LMF 1/2)(P902), EAF #2 (P905) and twin station LMF 3/4 (P906).
OH-0373	CHARTER STEEL - CLEVELAND INC	10/2/2017	Electric Arc Furnace (P900)	110	T/H	Melt Shop Sulfur-based Good Operating Practices: The permittee shall follow the melt shop's standard operating procedures as it relates to achieving each heat's final elemental chemistry specification for sulfur content. This includes any procedures for adjusting the sulfur content in the EAF, LMF and/or VTD.		166.16	LB/HR	SEE NOTES	LAER	Electric Arc Furnace (EAF), 110 TPH capacity, for the melting of scrap steel with Direct Evacuation Control (DEC) for capture and control of CO emissions, and a Baghouse for control of particulate emissions. The P900 Melt Shop Baghouse capture system includes a furnace roof control (Direct Evacuation Capture) system, a common roof canopy, and a scavenger canopy.	The emissions from emissions units P032-P038, P041, P043, P048, and P900-P902 that vent to the Melt Shop Baghouse shall not exceed the following BACT/LAER (for SO2) from the Baghouse outlet: SO2 emissions shall not exceed 166.16 LB/HR, 1.51 lbs/ton, and 314 TPY per rolling 12-month period. For purposes of demonstrating compliance with these SO2 emissions limits, the permittee has developed the following groupings of steel grades: • "low-sulfur steel grades" – no sulfur addition and carbon specification less than 0.6% carbon per heat with emission factor of 0.4 lb SO2/ton of steel; • "mid-sulfur steel grades" – sulfur addition to achieve a sulfur specification for the steel of less than 0.1% and carbon specification greater than or equal to 0.6% carbon per heat with emission factor of 0.75 lb SO2/ton of steel; and • "high-sulfur steel grades" – sulfur addition to achieve a sulfur specification for the steel of greater than or equal to 0.1% and less than or equal to 0.35% with emission factor of 1.51 lbs SO2/ton of steel. LAER measures for fugitive sulfur dioxide emissions escaping the melt shop building. Escaping visible fugitive dust emissions shall be used as the indicator for the existence of conditions that are also conducive to the escape of fugitive sulfur dioxide emissions, if present. The LAER measures shall be sufficient to minimize or eliminate visible emissions of fugitive dust from the door opening at the west end of the melt shop through which scrap cars enter and exit ("west end door" or "west end melt shop door"). The permittee shall operate the west end door when the EAF (P900) is in
OH-0316	V & M STAR	9/23/2008	Electric Arc Furnace	134	T/H		0	33.5	LB/HR	From EAF and Ladle Refining combined	Other Case-by-Case	134 tons of liquid steel/hour and 830,000 tons of liquid steel/year is the maximum production rate. Scrap Management Program submitted to minimize hg, but no limits for hg. Electric arc furnace is permitted with ladle refining station; they share their limits and stack.	LB/HR and TPY limits are for electric arc furnace and ladle refining station combined.
OH-0315	NEW STEEL INTERNATIONAL, INC.	5/6/2008	Electric Arc Furnace (2)	331	T/H		0	33	LB/HR	1 EAF	BACT-PSD	Maximum production of 331 tons/hour and 2,204,624 tons/year of steel from each of 2 electric arc furnaces (EAF). Emissions are captured by the EAF canopy and Direct Evacuation Control system and vented to a Baghouse (for each). Capture efficiency is assumed to be 100%. Each of 2 electric arc furnaces (EAF) with 2 ladle metallurgy furnaces (LMF) each (total of 4) are vented to a dedicated baghouse (2). All of the emission limits are permitted together for each of the 2 Baghouses individually, i.e., the EAF and LMF share the same limits, at each stack.	Limits are for 1 of 2 EAF.
AR-0096	NUCOR YAMATO STEEL	1/31/2008	Electric Arc Furnace	500	T/STEEL / H	LOW SULFUR COKE AND Scrap Management	0	100	LB/HR		BACT-PSD		

Summary of RBLC Results for SO_2 Emissions from Steel Production
Process Type: 81.210 - Electric Arc Furnaces

SO_2 Emissions Limits in lb/ton

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	SO_2 Emission Limit	SO_2 Emission Limit Unit (lb/ton)	SO_2 Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
AR-0173	BIG RIVER STEEL LLC	1/31/2022	EAFs and LMFs	250	TONS STEEL PER HOUR	Scrap Management Plan	0	0.2	LB/TON OF STEEL		BACT-PSD	SN-01 and SN-02 of the Permit	
TX-0932	CHAPPARAL STEEL MIDLOTHIAN, LP	1/14/2022	Meltshop - Electric Arc Furnaces, Ladle Metallurgical Furnace Stations, Preheaters	1,650,000	TONS	Sweet NG, Scrap Best Mgmt Practices	0	0			BACT-PSD		
AR-0172	NUCOR STEEL ARKANSAS	9/1/2021	SN-01 EAF	585	TONS STEEL PER HOUR	Good Operating Practices	0	0.2	LB/TON		BACT-PSD		
KY-0115	NUCOR STEEL GALLATIN, LLC	4/19/2021	Melt Shop #1 (EU 01 Baghouse #1 & #2 Stack)	2,000,000	TONS STEEL/YR	Combustion processes must develop a Good Combustion and Operating Practices (GCOP) Plan and the permittee shall limit the sulfur content of the EAF feedstock utilizing Scrap Management and/or shall add appropriate fluxes to the charge such that the emission limitations for SO2 are met.	0	0.35	LB/TON	30-DAY ROLLING AVERAGE, CEMS	BACT-PSD	Includes emissions from the following units: Single shell DC EAF, 2 Ladle Metallurgical Furnaces, tundish preparation activities (Incl. dump station, relining station, and skull torch cutting), ladle preparation activities (Incl. dump station and relining station), used refractory cleanout, scrap bucket charge, safety lining dryer for tundishes, vertical ladle preheater at LMF. The capture efficiency of melt shop #2 is assumed to be 99%. Melt shop #1 & #2 (EU 01 and EU 20) are limited to a combined 3,500,000 tons steel casTPY as measured as the total cast tons at the outlet of the A-Line Continuous Caster (EP 01-03) and B-Line Continuous Caster (EP 20-03) combined. Simultaneous arc operation in both shells of EP 01-01 and simultaneous casting operations in both casters (EP 01-02 and EP 20-03) is prohibited. Equipped with CEMS for CO, NOx, and SO2.	Also subject to a 87.5 LB/HR emission limitation on production days (30 day rolling average) and a 0.30 LB/HR emission limitation, averaged over 24 hours on non-production days. Emissions are measured via CEMS. The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Division's inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	4/19/2021	Melt Shop #2 (EU 20 Baghouse #3 Stack)	2,000,000	TONS STEEL/YR	Combustion processes must develop a Good Combustion and Operating Practices (GCOP) Plan and the permittee shall limit the sulfur content of the EAF feedstock utilizing Scrap Management and/or shall add appropriate fluxes to the charge such that the emission limitations for SO2 are met.	0	0.35	LB/TON	30-DAY ROLLING AVERAGE, CEMS	BACT-PSD	Includes emissions from the following units: Twin shell DC EAF, A-Line Continuous caster, 2 Ladle Metallurgical Furnaces, 7 Ladle pre-heaters, 2 ladle dryers, 4 tundish pre-heaters, 2 tundish side pre-heaters, 4 SEN pre-heaters, 2 tundish dryers, 6 mandrel pre-heaters, tundish preparation activities, ladle preparation activities, used refractory cleanout, 4 stirring stations, scrap cutting from slag pot, and B-Line continuous caster. The capture efficiency of melt shop #1 is assumed to be 99%. Melt shop #1 & #2 (EU 01 and EU 20) are limited to a combined 3,500,000 tons steel casTPY as measured as the total cast tons at the outlet of the A-Line Continuous Caster (EP 01-03) and B-Line Continuous Caster (EP 20-03) combined. Simultaneous arc operation in both shells of EP 01-01 and simultaneous casting operations in both casters (EP 01-02 and EP 20-03) is prohibited. Equipped with CEMS for CO, NOx, and SO2.	Also subject to a 87.5 LB/HR emission limitation on production days (30 day rolling average) and a 0.30 LB/HR emission limitation, averaged over 24 hours on non-production days. Emissions are measured via CEMS. The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Division's inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
TX-0882	STEEL DYNAMICS SOUTHWEST, LLC	1/17/2020	Electric Arc Furnaces (EAF)	0		Clean scrap	0	0.24	LB/TON		BACT-PSD	400 tons per hour and 3,504,000 tons per year	NSPS A, Dc, TT, AAa, IIII MACT A, ZZZZ, YYYYY, CCCCCC
TX-0867	OPTIMUS STEEL LLC	1/2/2020	Electric Arc Furnace	0		Clean scrap	0	0.216	LB/TON		BACT-PSD		MACT YYYYY
AL-0327	NUCOR STEEL DECATUR, LLC	8/14/2019	Electric Arc Furnaces	3,600,000	TONS OF STEEL 12-MO	Low sulfur injection carbon (less than or equal to 2% sulfur)	0	0.35	LB/TON OF STEEL		BACT-PSD	The permitted process includes two (2) electrics arc furnaces and three (3) ladle metallurgy furnaces that are vented to two (2) Baghouses. The limits listed in the pollutant section apply to the combined emissions from both Baghouses. The facility is limited to 3,600,000 tons of steel produced per consecutive 12-month period.	
SC-0196	NUCOR CORPORATION - DARLINGTON PLANT	4/29/2019	Meltshop (Furnace and Canopy Baghouses)	1,314,000	BILLET TONS/YEAR		0	0.35	LB/TON REGULAR AND LOW CARBON STEEL	24 HOUR AVERAGE	BACT-PSD		0.35 lb/billet tons equals 63.0 LB/HR (24 hour average). 0.67 lb/billet tons equals 101.25 LB/HR (24 hour average).
SC-0196	NUCOR CORPORATION - DARLINGTON PLANT	4/29/2019	Meltshop (Furnace and Canopy Baghouses)	1,314,000	BILLET TONS/YEAR		0	0.67	RESULFURIZED STEEL	24 HOUR AVERAGE	BACT-PSD		0.35 lb/billet tons equals 63.0 LB/HR (24 hour average). 0.67 lb/billet tons equals 101.25 LB/HR (24 hour average).
AR-0171	NUCOR STEEL ARKANSAS	2/14/2019	SN-01 EAF	585	TONS STEEL PER HOUR	Good Operating Practices	0	0.2	LB/TON	3-HR	BACT-PSD		
FL-0368	NUCOR STEEL FLORIDA FACILITY	2/14/2019	Meltshop Baghouse & Fugitives	450,000	TONS STEEL PER YEAR	Use of natural gas fuel, low-sulfure available carbon-based feed and charge material, as well as good combustion and/or process operations	0	0.6	LB/TON OF STEEL	30-DAY ROLLING AVG.	BACT-PSD	Consists of one EAF (equipped with 3-phase electrodes), a ladle metallurgy station, alloy, carbon flux and slag handling in the meltshop, and natural gas combustion sources	
MI-0438	GERDAU MACSTEEL MONROE	10/29/2018	EUEAF (Electric Arc Furnace)	130	TONS/HOUR	lime coating of the Baghouse bags	0	0.25	LB/T	MONTHLY AVERAGE	BACT-PSD	Natural gas used for supplemental heat.	There is a third emission limit which is 112.5 ton/year based upon a 12-month rolling time period.
AL-0323	OUTOKUMPU STAINLESS USA, LLC	6/13/2017	Electric Arc Furnace	0		Direct Evacuation Control	0	0.375	LB/TON		BACT-PSD	EAF emissions vented to common Baghouse.	
AL-0319	NUCOR STEEL TUSCALOOSA, INC.	3/9/2017	Electric Arc Furnace	0			0	0.44	LB/TON		BACT-PSD	Emissions from the EAF are routed to two meltshop Baghouses. Emissions from two ladle metallurgy stations and a continuous caster are also routed to these Baghouses. The limits listed for each pollutant are for the Baghouses.	
OK-0128	MID AMERICAN STEEL AND WIRE COMPANY	9/8/2008	Electric Arc Furnaces	50	TONS PER FURNACE	cleaned scrap	0	0.3	LB/T SCRAP	3-HR	BACT-PSD		
IN-0140	NUCOR STEEL	2/8/2010	MELTSHOP	502	T/H		0	0.33	LB/T OF STEEL	3 HRS	OTHER CASE-BY-CASE	Consists of: Electric Arc Furnaces 1 & 2, Two Continuous Casters, Desulfurization Station, Ladle Dryer, Ladle Preheater, One Argon Oxygen Decarurization Vessel, one LMF EU-13C, Two LMFs (EU13A & EU13B) 81.290 81.220 81.230	*ton of steel produced PSD BACT

Summary of RBLC Results for SO_2 Emissions from Steel Production
Process Type: 81.210 - Electric Arc Furnaces

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	SO_2 Emission Limit	SO_2 Emission Limit Unit (lb/ton)	SO_2 Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
OH-0341	NUCOR STEEL	12/23/2010	EAR, Continuous casting, and 6 pre-heaters	1,800	T/D		0	0.5	LB/T	PER TON OF STEEL	BACT-PSD	Facility capacity of 657,000 TONS STEEL PER YEAR. 1 Electric Arc Furnace, including charging, melting, tapping, slag skimming; continuous casting operations, including torch cutting; 4 natural gas filed ladle preheaters; and 2 natural gas fired tundish preheaters.	combined meltshop emissions. Method 6 to be conducted w/i 180 days of operations under this permit. BACT: use of natural gas for continuous casting operations and ladle and tundish perheaters.
GA-0142	OSCEOLA STEEL CO.	12/29/2010	Electric Arc Furnace	430,000	12 CONSECUTIVE MONTHS	Fuel Selection (firing natural gas exclusively) Charge Material Selection (Use of low-sulfur containing feed material.	0	0.18	LB/T	3 HOUR AVERAGE	BACT-PSD	Per 12 CONSECUTIVE MONTHS to reflect 153 t/h; rated at 115 ton capacity. The process uses natural gas for startup at the rate of 27 MMBTU/H. Primary Fuel - Natural Gas (firing) Electricity (charging materials)	The Permitee is required to use low-sulfur, carbon based feed and charge materials containing less than 2.5% sulfur by weight during all times the EAF is in operation.
OH-0339	THE TIMKEN COMPANY	12/29/2010	Electric Arc Furnace (2)	400,000	TPY		0	0.44	LB/T	PER TON OF STEEL W/ TIRE BURNING	OTHER CASE-BY-CASE	Increasing annual production to 400,000 TONS STEEL PER YEAR from each of the 2 EAFs. Modifying process to charge scrap tires in place of some coke. Sharing the TPY SO2 emission limit with EAF at sister facility, Faircrest Steel.	Method 6 or 6A. Sharing the TPY emission limit with sister facility Faircrest Steel located in the same county: 419 T/rolling 12 months.
OH-0342	THE TIMKEN COMPANY	12/29/2010	Electric Arc Furnace	1,300,000	TPY		0	0.52	LB/T	PER TON OF STEEL W/ TIRES	OTHER CASE-BY-CASE	Increasing annual steel production to 1,300,000 TPY. Modifying process to charge scrap tires to replace part of the coke charged. Sharing the TPY SO2 emission limit with sister facility, Faircrest Steel.	Sharing the TPY emission limit with 2 other EAFs at sister facility, Harrison Steel, located in the same county: 419 T/rolling 12 months. Method 6 or 6A.
CO-0066	CF & I STEEL L.P. DBA EVRAZ ROCKY MOUNTAIN STE	11/30/2011	Electric Arc Furnace (EAF 5)	185	TONS/HOUR	BACT for NOX, SO2, and CO has been determined to be the use of process controls	0	0.15	LB PER TON STEEL	DURATION OF TEST METHOD	BACT-PSD		
OH-0350	REPUBLIC STEEL	7/18/2012	Electric Arc Furnace	150	T/H		0	0.39	LB/T		N/A	Elecric Arc Furnace 150 T/HR steel production. Restricted to 1,200,000 tons of liquid steel per rolling 12 months.	
MI-0404	GERDAU MACSTEEL, INC.	1/4/2013	Melt Shop (FG-MELTSHOP)	130	T liquid steel per H		0	0.2	LB/T LIQUID STEEL	TEST PROTOCOL (PSD BACT)	BACT-PSD	This process is a "flexible group" which includes an Electric Arc Furnace (EUEAF), a ladle metallurgy station (EULMF), and two vacuum degassers (twin tank) (EUVTD). The limits apply to the whole flexible group, not individual emission units of the group. Also, the primary fuel is electric with Oxy-fuel booster burners. The RBLC process code is 81.210 AND 81.220. The steel is melted in an Electric Arc Furnace using an electric arc along with natural gas fired oxy-fueled burners, which increase the steel melting rate. The molten steel is tapped from the vessel and is covered and transferred to the ladle metallurgy station. After ladle metallurgy is complete, the ladle is covered and transferred to the vacuum degassing station.	NOTE: There is a 3rd SO2 emission limit which is 100 TPY based on a 12-month rolling time period as determined at the end of each calendar month. This limit will also be identified on its own "page" as 3 limits cannot be included here. The applicant evaluated charge substitution, lime addition to charge and FGD, both of which were found to be technically infeasible.
AR-0140	BIG RIVER STEEL LLC	9/18/2013	EAFS SN-01 AND SN-02	0		Scrap Management PLAN	0	0.18	LB/TON		BACT-PSD		
TX-0651	NUCOR CORPORATION	10/2/2013	Electric Arc Furnace	316	TPH	GOOD PROCESS OPERATION AND Scrap Management	0	1.76	LB/TON OF STEEL		BACT-PSD	1,500,000 TPY	
MI-0417	GERDAU MACSTEEL, INC.	10/27/2014	FG-MELTSHOP (Melt Shop)	130	T/H		0	0.2	LB/T	TEST PROTOCOL	BACT-PSD	Melt shop which includes an Electric Arc Furnace (EUEAF), a ladle metallurgy station (EULMF), and two (2) vacuum degassers (twin tank) (EUVTD). Two Process Codes associated are 81.210 (entered above) and 81.220. The throughput is 130 tons of liquid steel per hour The steel is melted in an Electric Arc Furnace using an electric arc along with natural gas fired oxy-fueled burners, which increase the steel melting rate. The molten steel is tapped from the vessel and is covered and transferred to the ladle metallurgy station. After ladle metallurgy is complete the ladle is covered and transferred to the vacuum degassing station.	There are three (3) emission limits which are: 0.2 LB/T liquid steel (PSD BACT) 26 LB/HR (PSD BACT) 85 TPY based upon a 12-month rolling time period as determined at the end of each calendar month. (PSD BACT) The applicant evaluated charge substitution, lime addition to charge and FGD, both of which were found to be technically infeasible.
AL-0309	NUCOR STEEL DECATUR, LLC	3/2/2016	Two (2) Electric Arc Furnaces With Two (2) Meltshop Baghouses	0		LOW SULFUR CHARGE CARBON (< 2.0 % SULFUR BY WEIGHT)	0	0.35	LB/TON OF STEEL		BACT-PSD	Steel melt limit of 3,200,000 tons per 12 month period	

Summary of RBLC Results for CO Emissions from Steel Production
Process Type: 81.210 - Electric Arc Furnaces

CO Emission Limits in LB/HR

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	CO Emission Limit	CO Emission Limit Unit (LB/HR)	CO Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
OH-0381	NORTHSTAR BLUESCOPE STEEL, LLC	9/27/2019	Electric Arc Furnace #2 (P905)	250	T/H	DEC systems with air gap	0	500	LB/HR	combined P905 AND P906	BACT-PSD	EAF 2 (P905) Direct Evacuation Control (DEC) and LMF 3/4 (P906) DEC vents to Baghouse 2. Canopy hood captures emissions from P905, P906 and Caster 2 (P907) and vents to Baghouse 2.	2.0 lbs/ton of liquid steel produced combined emission limit for EAF #2 (P905), twin station ladle metallurgy facility (LMF 3/4)(P906), and caster #2 (P907). 500 LB/HR combined emission limit for EAF #2 (P905) and twin station ladle metallurgy facility (LMF 3/4)(P906). 11,603.57 TPY per rolling 12-month period combined emission limit for EAF #1 (P901), ladle metallurgy facility (LMF 1/2)(P902), EAF #2 (P905) and twin station LMF 3/4 (P906).
OH-0373	CHARTER STEEL - CLEVELAND INC	10/2/2017	Electric Arc Furnace (P900)	110	T/H	Direct Evacuation Control (DEC) system with adjustable air gap and water-cooled elbow and duct	0	356	LB/HR		BACT-PSD	Electric Arc Furnace (EAF), 110 TPH capacity, for the melting of scrap steel with Direct Evacuation Control (DEC) for capture and control of CO emissions, and a Baghouse for control of particulate emissions. The P900 Melt Shop Baghouse capture system includes a furnace roof control (Direct Evacuation Capture) system, a common roof canopy, and a scavenger canopy.	1364.20 TPY per rolling 12 month period. The emissions from emissions units P032-P038, P041, P048, and P900-P902 that vent to the Melt Shop Baghouse shall not exceed 397.06 lbs/hr from the Baghouse outlet.
OH-0316	V & M STAR	9/23/2008	Electric Arc Furnace	134	T/H		0	536	LB/HR	From EAF and Ladle Refining combined	BACT-PSD	134 tons of liquid steel/hour and 830,000 tons of liquid steel/year is the maximum production rate. Scrap Management Program submitted to minimize hg, but no limits for hg. Electric arc furnace is permitted with ladle refining station; they share their limits and stack.	LB/HR and TPY limits are for electric arc furnace and ladle refining station combined.
OH-0315	NEW STEEL INTERNATIONAL, INC.	5/6/2008	Electric Arc Furnace (2)	331	T/H		0	660	LB/HR	1 EAF W/ 2 LMF	BACT-PSD	Maximum production of 331 tons/hour and 2,204,624 tons/year of steel from each of 2 electric arc furnaces (EAF). Emissions are captured by the EAF canopy and direct evacuation control system and vented to a baghouse (for each). Capture efficiency is assumed to be 100%. Each of 2 electric arc furnaces (EAF) with 2 ladle metallurgy furnaces (LMF) each (total of 4) are vented to a dedicated baghouse (2). All of the emission limits are permitted together for each of the 2 baghouses individually, i.e., the EAF and LMF share the same limits, at each stack.	Each of 2 electric arc furnaces (EAF) with 2 ladle metallurgy furnaces (LMF) each (total of 4) are vented to a dedicated baghouse (2). All of the emission limits are permitted together for each of the 2 baghouses individually, i.e., the EAF and LMF share the same limits, at each stack.
AR-0096	NUCOR YAMATO STEEL	1/31/2008	Electric Arc Furnace	500	T/STEEL / H	AIR GAP	0	10,000	LB/HR		BACT-PSD		

Summary of RBLC Results for CO Emissions from Steel Production
Process Type: 81.210 - Electric Arc Furnaces

CO Emissions Limits in lb/ton

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	CO Emission Limit	CO Emission Limit Unit (lb/ton)	CO Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
AR-0173	BIG RIVER STEEL LLC	1/31/2022	EAFs and LMFs	250	TONS STEEL PER HOUR	Scrap Management plan and good operating practices	0	2.02	LB/TON OF STEEL		BACT-PSD	SN-01 and SN-02 of the Permit	
AR-0172	NUCOR STEEL ARKANSAS	9/1/2021	SN-01 EAF	585	TONS STEEL PER HOUR	Direct Shell Evacuation	0	3	LB/TON		BACT-PSD		
KY-0115	NUCOR STEEL GALLATIN, LLC	4/19/2021	Melt Shop #1 (EU 01 Baghouse #1 & #2 Stack)	2,000,000	TONS STEEL/YR	Combustion processes must develop a Good Combustion and Operating Practices (GCOP) Plan.	0	2	LB/TON	30-DAY ROLLING AVERAGE, CEMS	BACT-PSD	Includes emissions from the following units: Single shell DC EAF, 2 Ladle Metallurgical Furnaces, tundish preparation activities (Incl. dump station, relining station, and skull torch cutting), ladle preparation activities (Incl. dump station and relining station), used refractory cleanout, scrap bucket charge, safety lining dryer for tundishes, vertical ladle preheater at LMF. The capture efficiency of melt shop #2 is assumed to be 99%. Melt shop #1 & #2 (EU 01 and EU 20) are limited to a combined 3,500,000 tons steel casTPY as measured as the total cast tons at the outlet of the A-Line Continuous Caster (EP 01-03) and B-Line Continuous Caster (EP 20-03) combined. Simultaneous arc operation in both shells of EP 01-01 and simultaneous casting operations in both casters (EP 01-02 and EP 20-03) is prohibited. Equipped with CEMS for CO, NOx, and SO2.	Also subject to a 42.6 LB/HR emission limitation, averaged over 24 hours on non-production days. Emissions are measured via CEMS. The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Division's inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	4/19/2021	Melt Shop #2 (EU 20 Baghouse #3 Stack)	2,000,000	TONS STEEL/YR	Good Combustion and Operating Practices (GCOP) Plan and specific design and operational requirements	0	2	LB/TON	30-DAY ROLLING AVERAGE, CEMS	BACT-PSD	Includes emissions from the following units: Twin shell DC EAF, A-Line Continuous caster, 2 Ladle Metallurgical Furnaces, 7 Ladle pre-heaters, 2 ladle dryers, 4 tundish pre-heaters, 2 tundish side pre-heaters, 4 SEN pre-heaters, 2 tundish dryers, 6 mandrel pre-heaters, tundish preparation activities, ladle preparation activities, used refractory cleanout, 4 stirring stations, scrap cutting from slag pot, and B-Line continuous caster. The capture efficiency of melt shop #1 is assumed to be 99%. Melt shop #1 & #2 (EU 01 and EU 20) are limited to a combined 3,500,000 tons steel casTPY as measured as the total cast tons at the outlet of the A-Line Continuous Caster (EP 01-03) and B-Line Continuous Caster (EP 20-03) combined. Simultaneous arc operation in both shells of EP 01-01 and simultaneous casting operations in both casters (EP 01-02 and EP 20-03) is prohibited. Equipped with CEMS for CO, NOx, and SO2.	Also subject to a 42.6 LB/HR emission limitation, averaged over 24 hours on non-production days. Emissions are measured via CEMS. The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Division's inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
TX-0882	STEEL DYNAMICS SOUTHWEST, LLC	1/17/2020	Electric Arc Furnaces (EAF)	0		Good Combustion Practices, clean fuel	0	2.02	LB/TON		BACT-PSD	400 tons per hour and 3,504,000 tons per year	NSPS A, Dc, TT, AAa, IIII MACT A, ZZZZ, YYYYY, CCCCCC
TX-0867	OPTIMUS STEEL LLC	1/2/2020	Electric Arc Furnace	0		Good Combustion Practices	0	3.275	LB/TON		BACT-PSD		MACT YYYYY
SC-0197	NUCOR CORPORATION - DARLINGTON PLANT	12/17/2019	Melt Shop Equipment (Furnace and Canopy Baghouses)	1,314,000	tons/year		0	3.13	LB/BILLET TON	24-HOUR AVERAGE	BACT-PSD	150 billet tons/hour, 30-day block average 180 billet tons/hour, 24-hour block average	
AL-0327	NUCOR STEEL DECATUR, LLC	8/14/2019	Electric Arc Furnaces	3,600,000	TONS OF STEEL 12-MO	Direct Evacuation Control	0	2.3	LB/TON OF STEEL		BACT-PSD	The permitted process includes two (2) electrics arc furnaces and three (3) ladle metallurgy furnaces that are vented to two (2) baghouses. The limits listed in the pollutant section apply to the combined emissions from both baghouses. The facility is limited to 3,600,000 tons of steel produced per consecutive 12-month period.	
SC-0196	NUCOR CORPORATION - DARLINGTON PLANT	4/29/2019	Meltshop (Furnace and Canopy Baghouses)	1,314,000	BILLET TONS/YEAR		0	3.13	LB/BILLET TON LOW CARBON STEEL	24 HOUR	BACT-PSD		3.13 lb/billet ton equals 563.4 LB/HR (24 hour average) 2.76 lb/billet ton equals 63.0 LB/HR (24 hour average)
SC-0196	NUCOR CORPORATION - DARLINGTON PLANT	4/29/2019	Meltshop (Furnace and Canopy Baghouses)	1,314,000	BILLET TONS/YEAR		0	2.76	LB/BILLET TON LOW CARBON STEEL	24 HOUR	BACT-PSD		3.13 lb/billet ton equals 563.4 LB/HR (24 hour average) 2.76 lb/billet ton equals 63.0 LB/HR (24 hour average)
AR-0171	NUCOR STEEL ARKANSAS	2/14/2019	SN-01 EAF	585	TONS STEEL PER HOUR	Direct Shell Evacuation	0	3	LB/TON	3-HR	BACT-PSD		
FL-0368	NUCOR STEEL FLORIDA FACILITY	2/14/2019	Meltshop Baghouse & Fugitives	450,000	TONS STEEL PER YEAR	DEC system, use of a Scrap Management plan & Good Combustion Practices	0	3.5	LB/TON OF STEEL	AVERAGE OF 3 ONE-HOUR RUNS	BACT-PSD	Consists of one EAF (equipped with 3-phase electrodes), a ladle metallurgy station, alloy, carbon flux and slag handling in the meltshop, and natural gas combustion sources	
MI-0438	GERDAU MACSTEEL MONROE	10/29/2018	EUEAF (Electric Arc Furnace)	130	TONS/HOUR	Direct-Shell Evacuation Control and CO reaction chamber	0	2	LB/T	MONTHLY AVERAGE	BACT-PSD	Natural gas used for supplemental heat.	There is a third emission limit which is 900 ton/year based upon a 12-month rolling time period.
NE-0063	NUCOR STEEL DIVISION	11/7/2017	Electric Arc Furnace	1,350,000	TON/YR	Baghouse	0	3.1	LB/TON STEEL		BACT-PSD		
SC-0188	CMC STEEL SOUTH CAROLINA	10/3/2017	Melt Shop	1,000,000	billet tons/yr	Good Combustion Practices with the use of Direct Evacuation Control (DEC)	0	1.7	LB/TON OF STEEL		BACT-PSD	This PSD permit is for the increase from 850,000 billet tons/yr to 1,000,000 billet tons/yr. No physical modifications were made to accommodate this increase. However, raw material handling, byproduct generation, and rolling mill operations increased as a result of the production increase.	
AL-0319	NUCOR STEEL TUSCALOOSA, INC.	3/9/2017	Electric Arc Furnace	0			0	2.2	LB/TON		BACT-PSD	Emissions from the EAF are routed to two meltshop baghouses. Emissions from two ladle metallurgy stations and a continuous caster are also routed to these baghouses. The limits listed for each pollutant are for the baghouses.	
*NE-0063	NUCOR STEEL CORP	11/7/2017	Electric Arc Furnace	1,350,000	TON/YR	Baghouse	0	3.1	LB	TON STEEL	BACT-PSD		
AL-0309	NUCOR STEEL DECATUR, LLC	3/2/2016	Two (2) Electric Arc Furnaces With Two (2) Meltshop Baghouses	0		Direct Evacuation Control	0	2.3	LB/TON OF STEEL		BACT-PSD	Steel melt limit of 3,200,000 tons per 12 month period	
MI-0417	GERDAU MACSTEEL, INC.	10/27/2014	FG-MELTSHOP (Melt Shop)	130	T/H	Direct Evacuation Control (DEC) and Co Reaction Chamber	89	2	LB/T	TEST PROTOCOL	BACT-PSD	Melt shop which includes an electric arc furnace (EUEAF), a ladle metallurgy station (EULMF), and two (2) vacuum degassers (twin tank) (EUVTD). Two Process Codes associated are 81.210 (entered above) and 81.220. The throughput is 130 tons of liquid steel per hour The steel is melted in an electric arc furnace using an electric arc along with natural gas fired oxy-fueled burners, which increase the steel melting rate. The molten steel is tapped from the vessel and is covered and transferred to the ladle metallurgy station. After ladle metallurgy is complete the ladle is covered and transferred to the vacuum degassing station.	There are three (3) CO emission limits: 1. 2 LB/T liquid steel with an averaging time determined by test protocol, 2. 260 LB/HR with an averaging time determined by test protocol, 3. 850 TPY based upon a 12-month rolling time period as determined at the end of each calendar month. All 3 limits are PSD BACT. The applicant also reviewed the use of flaring, an oxidation catalyst, and the use of thermal/catalytic oxidizer. All were found to increase NOx emissions of at least 200 ton per year and GHG increase of at least 150,000 ton per year. These technologies were found to have an adverse environmental impact and therefore a cost analysis was not completed.

Summary of RBLC Results for CO Emissions from Steel Production
Process Type: 81.210 - Electric Arc Furnaces

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	CO Emission Limit	CO Emission Limit Unit (lb/ton)	CO Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
*TX-0651	NUCOR CORPORATION	10/2/2013	Electric Arc Furnace	316	TPH	Good Combustion Practices	0	2.27	LB/T OF STEEL		BACT-PSD	1,500,000 TPY	
AR-0140	BIG RIVER STEEL LLC	9/18/2013	EAFS SN-01 AND SN-02	0			0	2	LB/TON STEEL	3 HR	BACT-PSD		
MI-0404	GERDAU MACSTEEL, INC.	1/4/2013	Melt Shop (FG-MELTSHOP)	130	T liquid steel per H	Direct Evacuation Control (DEC) and Co Reaction Chamber	89	2	LB/T LIQUID STEEL	TEST PROTOCOL (PSD BACT)	BACT-PSD	This process is a "flexible group" which includes an electric arc furnace (EUEAF), a ladle metallurgy station (EULMF), and two vacuum degassers (twin tank) (EUVTD). The limits apply to the whole flexible group, not individual emission units of the group. Also, the primary fuel is electric with Oxy-fuel booster burners. The RBLC process code is 81.210 AND 81.220. The steel is melted in an electric arc furnace using an electric arc along with natural gas fired oxy-fueled burners, which increase the steel melting rate. The molten steel is tapped from the vessel and is covered and transferred to the ladle metallurgy station. After ladle metallurgy is complete, the ladle is covered and transferred to the vacuum degassing station.	There is a 3rd CO emission limit for this flexible group which is 1,000 TPY based on a 12-month rolling time period as determined at the end of each calendar month. This limit is also PSD BACT. Since three limits cannot be included on one pollutant page, it will be included on its own page. The applicant also reviewed the use of flaring, an oxidation catalyst, and the use of thermal/catalytic oxidizer. All were found to increase NOx emissions of at least 287 TPY and GHG increase of at least 241,598 TPY. These technologies were found to have an adverse environmental impact and therefore a cost analysis was not completed.
OH-0350	REPUBLIC STEEL	7/18/2012	Electric Arc Furnace	150	T/H	Direct-Shell Evacuation Control system with adjustable air gap and water-cooled elbow and duct.	0	2	LB/T	PER TON OF STEEL	BACT-PSD	Electric arc furnace 150 T/HR steel production. Restricted to 1,200,000 tons of liquid steel per rolling 12 months.	
CO-0066	CF & I STEEL L.P. DBA EVRAZ ROCKY MOUNTAIN STE	11/30/2011	Electric Arc Furnace (EAF 5)	185	TONS/HOUR	BACT for NOX, SO2, and CO has been determined to be the use of process controls	0	2	LB/T STEEL	30-DAY ROLLING AVE	BACT-PSD		This facility experienced some periods where they exceeded this limit. They may request to modify the CO BACT limit.
GA-0142	OSCEOLA STEEL CO.	12/29/2010	Electric Arc Furnace	430,000	12 CONSECUTIVE MONTHS	DEC (Direct Evacuation Control) system (which includes Scrap Management Program, oxy-burners, oxygen lancing, increased water-cooled duct length, dampers and actuators, dilution air cross connection to allow canopy air to be mixed with DEC emissions, fourth hole (air gap).	0	2	LB/T	3 HOUR STACK TESTING	BACT-PSD	Per 12 consecutive months to reflect 153 t/h; rated at 115 ton capacity. The process uses natural gas for startup at the rate of 27 MMBTU/H. Primary Fuel - Natural Gas (firing) Electricity (charging materials)	The Division also proposes simultaneous testing of both CO and NOx to ensure both BACT limits are achieved during peak operation of the EAF, because the limits are interdependent. This CO BACT limit applies during all periods of the EAF heat cycle, including startup, shutdown, and malfunction.
OH-0339	THE TIMKEN COMPANY	12/29/2010	Electric Arc Furnace (2)	400,000	TPY		0	4.8	LB/T	PER TON OF STEEL	BACT-PSD	Increasing annual production to 400,000 tons steel per year from each of the 2 EAFs. Modifying process to charge scrap tires in place of some coke. Sharing the TPY SO2 emission limit with EAF at sister facility, Faircrest Steel.	Additional limit: 302 lbs CO/H from each EAF.
OH-0342	THE TIMKEN COMPANY	12/29/2010	Electric Arc Furnace	1,300,000	TPY	Direct Evacuation Control system with adjustable air gap, elbow, and water cooled ductwork for enhanced burnout of CO.	0	3.5	LB/T	PER TONS OF STEEL	BACT-PSD	Increasing annual steel production to 1,300,000 TPY. Modifying process to charge scrap tires to replace part of the coke charged. Sharing the TPY SO2 emission limit with sister facility, Faircrest Steel.	Additional limit: 700 LB CO/H.
OH-0341	NUCOR STEEL	12/23/2010	EAR, Continuous casting, and 6 pre-heaters	1,800	T/D	Direct evacuation (DEC) system to capture CO which is oxidized at air gap between DEC elbow and DEC duct.	0	2.23	LB/T	PER TON OF STEEL	BACT-PSD	Facility capacity of 657,000 tons steel per year. 1 Electric Arc Furnace, including charging, melting, tapping, slag skimming; continuous casting operations, including torch cutting; 4 natural gas filed ladle preheaters; and 2 natural gas fired tundish preheaters.	combined meltshop emissions. Method 10 to be conducted w/i 180 days of operations under this permit.
OK-0128	MID AMERICAN STEEL AND WIRE COMPANY	9/8/2008	Electric Arc Furnaces	50	TONS PER FURNACE	Use cleaned scrap	0	3	LB/T SCRAP	3-HR	BACT-PSD		
NC-0116	GERDAU AMERISTEEL US, INC	4/23/2008	CONSTEEL Electric Arc Furnace				0	4.4	LB/T	OF STEEL	BACT-PSD		

CO Emissions Limits in ton/yr

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	CO Emission Limit	CO Emission Limit Unit (ton/yr)	CO Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
IN-0138	STEEL DYNAMICS, INC. (SDI) - ENGINEERED BAR *	3/12/2010	Electric Arc Furnace (EAF) And Ladle Metallurgy Station (LMS)	125	T/H OF STEEL	Fourth Hole Duct or Direct Shell Evacuation System	0	2,409	TPY	12 CONSECUTIVE MONTH PERIOD	OTHER CASE-BY-CASE	Also process type: 81.220 Both have same throughput	The permittee shall install, calibrate, maintain, and operate a continuous emission monitoring system (CEMS) and related equipment for measuring co emissions rates in pounds per hour based on a 24-hour average from the common EAF baghouse/LMS baghouse stack. PSD BACT

Summary of RBLC Results for VOC Emissions from Steel Production
Process Type: 81.210 - Electric Arc Furnaces

VOC Emission Limits in LB/HR

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	VOC Emission Limit	VOC Emission Limit Unit (LB/HR)	VOC Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
OH-0381	NORTHSTAR BLUESCOPE STEEL, LLC	9/27/2019	Electric Arc Furnace #2 (P905)	250	T/H	The development, implementation, and maintenance of a Scrap Management Plan.	0	87.5	LB/HR	Combined P905 and P906	BACT-PSD	EAF 2 (P905) Direct Evacuation Control (DEC) and LMF 3/4 (P906) DEC vents to Baghouse 2. Canopy hood captures emissions from P905, P906 and Caster 2 (P907) and vents to Baghouse 2.	0.35 lbs/ton of liquid steel produced combined emission limit for EAF #2 (P905), twin station ladle metallurgy facility (LMF 3/4)(P906), and caster #2 (P907). 87.5 LB/HR combined emission limit for EAF #2 (P905) and twin station ladle metallurgy facility (LMF 3/4)(P906). 712.25 TPY per rolling 12-month period combined emission limit for EAF #1 (P901), ladle metallurgy facility (LMF 1/2)(P902), EAF #2 (P905) and twin station LMF 3/4 (P906).
OH-0316	V & M STAR	9/23/2008	Electric Arc Furnace	134	T/H		0	24.1	LB/HR	From EAF and Ladle Refining combined	Other Case-by-Case	134 tons of liquid steel/hour and 830,000 tons of liquid steel/year is the maximum production rate. Scrap Management Program submitted to minimize hg, but no limits for hg. Electric arc furnace is permitted with ladle refining station; they share their limits and stack.	LB/HR and TPY limits are for electric arc furnace and ladle refining station combined.
OH-0315	NEW STEEL INTERNATIONAL, INC.	5/6/2008	Electric Arc Furnace (2)	331	T/H		0	22.44	LB/HR	1 EAF	BACT-PSD	Maximum production of 331 tons/hour and 2,204,624 tons/year of steel from each of 2 electric arc furnaces (EAF). Emissions are captured by the EAF canopy and direct evacuation control system and vented to a baghouse (for each). Capture efficiency is assumed to be 100%. Each of 2 electric arc furnaces (EAF) with 2 ladle metallurgy furnaces (LMF) each (total of 4) are vented to a dedicated baghouse (2). All of the emission limits are permitted together for each of the 2 baghouses individually, i.e., the EAF and LMF share the same limits, at each stack.	LB/HR AND TPY LIMITS FOR ONE OF 2 EAF.
AR-0096	NUCOR YAMATO STEEL	1/31/2008	Electric Arc Furnace	500	T/STEEL / H	Scrap Management	0	65	LB/HR		BACT-PSD		

VOC Emissions Limits in lb/ton

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	VOC Emission Limit	VOC Emission Limit Unit (lb/ton)	VOC Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
AR-0173	BIG RIVER STEEL LLC	1/31/2022	EAFs and LMFs	250	TONS STEEL PER HOUR	Scrap Management Plan and Good Operating Practices	0	0.093	LB/TON OF STEEL		BACT-PSD	SN-01 and SN-02 of the Permit	
AR-0172	NUCOR STEEL ARKANSAS	9/1/2021	SN-01 EAF	585	TONS STEEL PER HOUR	Scrap Management System	0	0.13	LB/TON		BACT-PSD		
KY-0115	NUCOR STEEL GALLATIN, LLC	4/19/2021	Melt Shop #1 (EU 01 Baghouse #1 & #2 Stack)	2,000,000	TONS STEEL/YR	Combustion processes must develop a Good Combustion and Operating Practices (GCOP) Plan and non-combustion processes must develop a Good Work Practices (GWP) Plan to minimize emissions.	0	0.090	LB/TON	AVERAGED OVER 3 HEATS	BACT-PSD	Includes emissions from the following units: Single shell DC EAF, 2 Ladle Metallurgical Furnaces, tundish preparation activities (Incl. dump station, relining station, and skull torch cutting), ladle preparation activities (Incl. dump station and relining station), used refractory cleanout, scrap bucket charge, safety lining dryer for tundishes, vertical ladle preheater at LMF. The capture efficiency of melt shop #2 is assumed to be 99%. Melt shop #1 & #2 (EU 01 and EU 20) are limited to a combined 3,500,000 tons steel casTPY as measured as the total cast tons at the outlet of the A-Line Continuous Caster (EP 01-03) and B-Line Continuous Caster (EP 20-03) combined. Simultaneous arc operation in both shells of EP 01-01 and simultaneous casting operations in both casters (EP 01-02 and EP 20-03) is prohibited. Equipped with CEMS for CO, NOx, and SO2.	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Division's inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction. And: The permittee shall prepare and implement a Good Work Practices (GWP) plan that includes written operating instructions and procedures that specify good operating and maintenance practices and includes, at a minimum, the following specific practices targeting emission minimization, and a means of verifying the practices have occurred: i. Tracking material usage to ensure that equipment is operated as designed and correcting any operating or design issues as quickly as possible; ii. Employing a preventative maintenance program, including a preventative maintenance schedule that is consistent with the manufacturer's instructions for routine and long-term maintenance. iii. Procedures and practices to monitor and ensure emissions are effectively captured by Melt Shop canopy hooding, and a description of corrective actions to be taken in the event that they are not.
KY-0115	NUCOR STEEL GALLATIN, LLC	4/19/2021	Melt Shop #2 (EU 20 Baghouse #3 Stack)	2,000,000	TONS STEEL/YR	Combustion processes must develop a Good Combustion and Operating Practices (GCOP) Plan and non-combustion processes must develop a Good Work Practices (GWP) Plan to minimize emissions.	0	0.090	LB/TON	AVERAGED OVER 3 HEATS	BACT-PSD	Includes emissions from the following units: Twin shell DC EAF, A-Line Continuous caster, 2 Ladle Metallurgical Furnaces, 7 Ladle pre-heaters, 2 ladle dryers, 4 tundish pre-heaters, 2 tundish side pre-heaters, 4 SEN pre-heaters, 2 tundish dryers, 6 mandrel pre-heaters, tundish preparation activities, ladle preparation activities, used refractory cleanout, 4 stirring stations, scrap cutting from slag pot, and B-Line continuous caster. The capture efficiency of melt shop #1 is assumed to be 99%. Melt shop #1 & #2 (EU 01 and EU 20) are limited to a combined 3,500,000 tons steel casTPY as measured as the total cast tons at the outlet of the A-Line Continuous Caster (EP 01-03) and B-Line Continuous Caster (EP 20-03) combined. Simultaneous arc operation in both shells of EP 01-01 and simultaneous casting operations in both casters (EP 01-02 and EP 20-03) is prohibited. Equipped with CEMS for CO, NOx, and SO2.	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Division's inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction. And: The permittee shall prepare and implement a Good Work Practices (GWP) plan that includes written operating instructions and procedures that specify good operating and maintenance practices and includes, at a minimum, the following specific practices targeting emission minimization, and a means of verifying the practices have occurred: i. Tracking material usage to ensure that equipment is operated as designed and correcting any operating or design issues as quickly as possible; ii. Employing a preventative maintenance program, including a preventative maintenance schedule that is consistent with the manufacturer's instructions for routine and long-term maintenance. iii. Procedures and practices to monitor and ensure emissions are effectively captured by Melt Shop canopy hooding, and a description of corrective actions to be taken in the event that they are not.

Summary of RBLC Results for VOC Emissions from Steel Production
Process Type: 81.210 - Electric Arc Furnaces

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	VOC Emission Limit	VOC Emission Limit Unit (lb/ton)	VOC Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
TX-0882	STEEL DYNAMICS SOUTHWEST, LLC	1/17/2020	Electric Arc Furnaces (EAF)	0		Clean scrap	0	0.093	LB/TON		BACT-PSD	400 tons per hour and 3,504,000 tons per year	NSPS A, Dc, TT, AAa, IIII MACT A, ZZZZ, YYYYY, CCCCCC
TX-0867	OPTIMUS STEEL LLC	1/2/2020	Electric Arc Furnace	0		Work practices and material inspections, minimize any chlorinated plastics and free organic liquids, including draining any used oil filters	0	0.22	LB/TON		BACT-PSD		MACT YYYYY
AL-0327	NUCOR STEEL DECATUR, LLC	8/14/2019	Electric Arc Furnaces	3,600,000	TONS OF STEEL 12-MO	Scrap Management Program	0	0.13	LB/TON		BACT-PSD	The permitted process includes two (2) electrics arc furnaces and three (3) ladle metallurgy furnaces that are vented to two (2) baghouses. The limits listed in the pollutant section apply to the combined emissions from both baghouses. The facility is limited to 3,600,000 tons of steel produced per consecutive 12-month period.	
SC-0196	NUCOR CORPORATION - DARLINGTON PLANT	4/29/2019	Meltshop (Furnace and Canopy Baghouses)	1,314,000	BILLET TONS/YEAR		0	0.35	LB/BILLET TON ANY STEEL PRODUCTIO N	24 HOUR	BACT-PSD		
AR-0171	NUCOR STEEL ARKANSAS	2/14/2019	SN-01 EAF	585	TONS STEEL PER HOUR	Scrap Management System	0	0.13	LB/TON	3-HR	BACT-PSD		
FL-0368	NUCOR STEEL FLORIDA FACILITY	2/14/2019	Meltshop Baghouse & Fugitives	450,000	TONS STEEL PER YEAR	Good Combustion Practice and Process Control along with a Scrap Management Plan	0	0.30	LB/TON OF STEEL	3-HOUR AVG	BACT-PSD	Consists of one EAF (equipped with 3-phase electrodes), a ladle metallurgy station, alloy, carbon flux and slag handling in the meltshop, and natural gas combustion sources	
AL-0319	NUCOR STEEL TUSCALOOSA, INC.	3/9/2017	Electric Arc Furnace	0			0	0.13	LB/TON		BACT-PSD	Emissions from the EAF are routed to two meltshop baghouses. Emissions from two ladle metallurgy stations and a continuous caster are also routed to these baghouses. The limits listed for each pollutant are for the baghouses.	
AL-0309	NUCOR STEEL DECATUR, LLC	3/2/2016	Two (2) Electric Arc Furnaces With Two (2) Meltshop Baghouses	0		Scrap Management Program	0	0.13	LB/TON		BACT-PSD	Steel melt limit of 3,200,000 tons per 12 month period	
*TX-0651	NUCOR CORPORATION	10/2/2013	Electric Arc Furnace	316	TPH	Good Combustion Practice and Process Control	0	0.43	LB/TON OF STEEL		BACT-PSD	1,500,000 TPY	
MI-0404	GERDAU MACSTEEL, INC.	1/4/2013	Melt Shop (FG-MELTSHOP)	130	T liquid steel per H	Direct Evacuation Control (DEC) and VOC Reaction Chamber.	89	0.13	LB/T LIQUID STEEL	TEST PROTOCOL (PSD BACT)	BACT-PSD	This process is a "flexible group" which includes an Electric arc furnace (EUEAF), a ladle metallurgy station (EULMF), and two vacuum degassers (twin tank) (EUVTD). The limits apply to the whole flexible group, not individual emission units of the group. Also, the primary fuel is electric with Oxy-fuel booster burners. The RBLC process code is 81.210 AND 81.220. The steel is melted in an Electric arc furnace using an electric arc along with natural gas fired oxy-fueled burners, which increase the steel melting rate. The molten steel is tapped from the vessel and is covered and transferred to the ladle metallurgy station. After ladle metallurgy is complete, the ladle is covered and transferred to the vacuum degassing station.	There is a third VOC emission limit of 65 TPY based on a 12-month rolling time period as determined at the end of each calendar month. This limit is also PSD BACT. Since three limits cannot be input on one pollutant page, it will be included on its own page. The applicant also reviewed the use of flaring, an oxidation catalyst, and the use of thermal/catalytic oxidizer. All were found to increase NOx emissions of at least 287 tpy and GHG increase of at least 241,598 TPY. These technologies were found to have an adverse environmental impact and therefore a cost analysis was not completed. The applicant has also implemented a scrap management plan which would lower the potential amount of VOC.
OH-0350	REPUBLIC STEEL	7/18/2012	Electric Arc Furnace	150	T/H	Scrap Management and Direct-Shell Evacuation Control system with adjustable air gap and water-cooled elbow and duct.	0	0.10	LB/T	PER TON OF STEEL	BACT-PSD	Electric arc furnace 150 T/HR steel production. Restricted to 1,200,000 tons of liquid steel per rolling 12 months.	Method 18, 25, or 25A.
CO-0066	CF & I STEEL L.P. DBA EVRAZ ROCKY MOUNTAIN STE	11/30/2011	Electric Arc Furnace (EAF 5)	185	TONS/HOUR	The proportion of oily scrap (borings, turnings, properly drained used oil filters, etc.) charged in each batch shall not exceed 3% of the total scrap. Compliance records shall be maintained and made available to the Division for review upon request.	0	0.13	LB PER TON STEEL	DURATION OF TEST METHOD	BACT-PSD		
OH-0339	THE TIMKEN COMPANY	12/29/2010	Electric Arc Furnace (2)	400,000	TPY		0	0.37	LB/T	PER TON OF STEEL	BACT-PSD	Increasing annual production to 400,000 tons steel per year from each of the 2 EAFs. Modifying process to charge scrap tires in place of some coke. Sharing the TPY SO2 emission limit with EAF at sister facility, Faircrest Steel.	Additional limit: 23.3 lbs/ VOC/H for each of the EAFs. Subject to Part 63 subpart YYYYY. Method 18, 25, or 25A.
OH-0342	THE TIMKEN COMPANY	12/29/2010	Electric Arc Furnace	1,300,000	TPY		0	0.17	LB/T	PER TON OF STEEL	BACT-PSD	Increasing annual steel production to 1,300,000 TPY. Modifying process to charge scrap tires to replace part of the coke charged. Sharing the TPY SO2 emission limit with sister facility, Faircrest Steel.	Additional Limit: 34 LB VOC/H. Method 18, 25, or 25A. Development of Scrap Management Plan to help reduce VOC emissions..
OH-0341	NUCOR STEEL	12/23/2010	EAR, Continuous casting, and 6 pre-heaters	1,800	T/D	Scrap Management Plan to reduce VOCs	0	0.13	LB/T	PER TON OF STEEL	BACT-PSD	Facility capacity of 657,000 tons steel per year. 1 Electric arc furnace, including charging, melting, tapping, slag skimming; continuous casting operations, including torch cutting; 4 natural gas filed ladle preheaters; and 2 natural gas fired tundish preheaters.	combined meltshop emissions. Method 18, 25, or 25A to be conducted w/i 180 days of operations under this permit.
OK-0128	MID AMERICAN STEEL AND WIRE COMPANY	9/8/2008	Electric Arc Furnaces	50	TONS PER FURNACE	Clean scrap	0	0.30	LB/T SCRAP	3-HR	BACT-PSD		

Summary of RBLC Results for GHG Emissions from Steel Production
Process Type: 81.210 - Electric Arc Furnaces

GHG Emissions Limits in lb/ton

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	GHG Emission Limit	GHG Emission Limit Unit (lb/ton)	GHG Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
AR-0172	NUCOR STEEL ARKANSAS	9/1/2021	SN-01 EAF	585	TONS STEEL PER HOUR	Improved process control, variable speed drives, transformer efficiency, foamy slag practice, oxy fuel burners	0	535	LB/TON		BACT-PSD		
TX-0882	STEEL DYNAMICS SOUTHWEST, LLC	1/17/2020	Electric Arc Furnaces (EAF)	0		Good Combustion Practices, Clean Fuel	0	0			BACT-PSD	400 tons per hour and 3,504,000 tons per year	NSPS Dc, TT, AAa, IIII MACT ZZZZ, YYYYY, CCCCCC
OH-0381	NORTHSTAR BLUESCOPE STEEL, LLC	9/27/2019	Electric Arc Furnace #2 (P905)	250	T/H	Implementation of the following low-emitting processes, system designs, management practices and methods for EAF and LMF operations resulting in an overall emission rate of 292 lbs CO2e/ton of liquid steel produced. (a) furnace design – single bucket batch charging; (b) oxy-fuel burners – supplement of chemical energy thru scrap preheating and carbon/oxygen injection; (c) foamy slag practice – increased electrical efficiency and reduced radiant heat loss; (d) real-time off-gas analysis and closed-loop process control of oxygen flow and air ingress – regulates energy input and post-combustion temperature and composition; (e) ultra-high-power transformer – lower power-on times due to faster melting of scrap; (f) eccentric bottom tapping – lower treatment requirements in LMF due to reduced slag carryover from tapping; (g) heel practice – higher retention of liquid heel heats scrap faster resulting in quick arc stabilization.	0	292	LB/TON	Combined P905 and P906	BACT-PSD	EAF 2 (P905) Direct Evacuation Control (DEC) and LMF 3/4 (P906) DEC vents to baghouse 2. Canopy hood captures emissions from P905, P906 and Caster 2 (P907) and vents to baghouse 2.	292 lbs CO2e/ton of liquid steel produced combined emission limit for EAF #2 (P905), twin station ladle metallurgy facility (LMF 3/4)(P906), and caster #2 (P907). 73,000 LB/HR combined emission limit for EAF #2 (P905) and twin station ladle metallurgy facility (LMF 3/4)(P906). 594,220 TPY per rolling 12-month period combined emission limit for EAF #1 (P901), ladle metallurgy facility (LMF 1/2)(P902), EAF #2 (P905) and twin station LMF 3/4 (P906).
AR-0171	NUCOR STEEL ARKANSAS	2/14/2019	SN-01 EAF	585	TONS STEEL PER HOUR	Improved Process Control, Variable Speed Drives, Transformer Efficiency, Foamy Slag Practice, Oxy Fuel Burners	0	535	LB/TON STEEL		BACT-PSD		
FL-0368	NUCOR STEEL FLORIDA FACILITY	2/14/2019	Meltshop Baghouse & Fugitives	450,000	TONS STEEL PER YEAR	Scrap prehating & an energy monitoring and management system.	0	438	LB/TON OF STEEL	12-MONTH ROLLING AVERAGE	BACT-PSD	Consists of one EAF (equipped with 3-phase electrodes), a ladle metallurgy station, alloy, carbon flux and slag handling in the meltshop, and natural gas combustion sources	
MI-0417	GERDAU MACSTEEL, INC.	########	FG-MELTSHOP (Melt Shop)	130	T/H		0	320	LB/T	TEST PROTOCOL	BACT-PSD	Melt shop which includes an electric arc furnace (EUEAF), a ladle metallurgy station (EULMF), and two (2) vacuum degassers (twin tank) (EUVTD). Two Process Codes associated are 81.210 (entered above) and 81.220. The throughput is 130 tons of liquid steel per hour The steel is melted in an electric arc furnace using an electric arc along with natural gas fired oxy-fueled burners, which increase the steel melting rate. The molten steel is tapped from the vessel and is covered and transferred to the ladle metallurgy station. After ladle metallurgy is complete the ladle is covered and transferred to the vacuum degassing station.	The second limit above (134,396 TPY) is based upon a 12-month rolling time period as determined at the end of each calendar month. The applicant evaluated carbon sequestration and capture and terrestrial sequestration. Terrestrial sequestration was the lowest cost per ton at $162 per ton. The total overall cost for this project would have been $223,923,000 which does not include annual upkeep. This was found not to be cost effective. BACT was determined to be energy efficiency with an energy efficiency plan for the melt shop.
AR-0140	BIG RIVER STEEL LLC	9/18/2013	MELT SHOP GHG	0		Energy Efficiency Improvements	0	0.16	LB/TON OF STEEL		BACT-PSD		
MI-0404	GERDAU MACSTEEL, INC.	1/4/2013	Melt Shop (FG-MELTSHOP)	130	T liquid steel per H		0	0	LB/T LIQUID STEEL	TEST PROTOCOL (PSD BACT)	BACT-PSD	This process is a "flexible group" which includes an electric arc furnace (EUEAF), a ladle metallurgy station (EULMF), and two vacuum degassers (twin tank) (EUVTD). The limits apply to the whole flexible group, not individual emission units of the group. Also, the primary fuel is electric with Oxy-fuel booster burners. The RBLC process code is 81.210 AND 81.220. The steel is melted in an electric arc furnace using an electric arc along with natural gas fired oxy-fueled burners, which increase the steel melting rate. The molten steel is tapped from the vessel and is covered and transferred to the ladle metallurgy station. After ladle metallurgy is complete, the ladle is covered and transferred to the vacuum degassing station.	The applicant evaluated carbon sequestration and capture and terrestrial sequestration. Terrestrial sequestration was the lowest cost per ton at $162 per ton. The total overall cost for this project would have been $287,771,970 which does not include annual upkeep. This was found not to be cost effective. BACT was determined to be energy efficiency with an energy efficiency plan for the melt shop.

Summary of RBLC Results for GHG Emissions from Steel Production
Process Type: 81.210 - Electric Arc Furnaces
GHG Emissions Limits in ton/yr

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	GHG Emission Limit	GHG Emission Limit Unit (ton/yr)	GHG Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
AR-0173	BIG RIVER STEEL LLC	1/31/2022	EAFs and LMFs	250	TONS STEEL PER HOUR	Good Operating Practices	0	747,098	TON/YR		BACT-PSD	SN-01 and SN-02 of the Permit	
KY-0115	NUCOR STEEL GALLATIN, LLC	4/19/2021	Melt Shop #1 (EU 01 Baghouse #1 & #2 Stack)	2,000,000	TONS STEEL/YR	Good Combustion and Operating Practices (GCOP) Plan and specific design and operational requirements	0	535,000	TON/YR	12-MONTH ROLLING	BACT-PSD	Includes emissions from the following units: Single shell DC EAF, 2 Ladle Metallurgical Furnaces, tundish preparation activities (Incl. dump station, relining station, and skull torch cutting), ladle preparation activities (Incl. dump station and relining station), used refractory cleanout, scrap bucket charge, safety lining dryer for tundishes, vertical ladle preheater at LMF. The capture efficiency of melt shop #2 is assumed to be 99%. Melt shop #1 & #2 (EU 01 and EU 20) are limited to a combined 3,500,000 tons steel casTPY as measured as the total cast tons at the outlet of the A-Line Continuous Caster (EP 01-03) and B-Line Continuous Caster (EP 20-03) combined. Simultaneous arc operation in both shells of EP 01-01 and simultaneous casting operations in both casters (EP 01-02 and EP 20-03) is prohibited. Equipped with CEMS for CO, NOx, and SO2.	The permittee shall meet the following design and operational requirements: i. Install and maintain seals and modern insulation media to minimize heat losses from EAF doors, roof, and any openings around the burners or other equipment traversing through the furnace shell. ii. Install, operate, and maintain oxy-fuel burners in accordance with manufacturer's specifications to maximize heat transfer, reduce heat losses, and reduce electrode consumption resulting in high thermal efficiency and reduced electrical energy consumption. iii. Employ foamy slag practices to reduce radiation heat losses and increases the electric power efficiency of the EAFs. iv. Optimize process control operations to reduce electricity consumption through monitoring integration of real-time monitoring of process variables along with realtime control systems for carbon injection and lance oxygen practices. v. Implement a preventative maintenance program that is consistent with the manufacturer's instructions for routine and long-term maintenance of equipment important to the operation, including EAF doors, burners, etc. vi. Conduct periodic preventive maintenance of gas supply valves in accordance with the manufacturer's recommended procedures and schedule. vii. Conduct periodic calibration of gas supply meter in accordance with the manufacturer's recommended procedures and schedule.
KY-0115	NUCOR STEEL GALLATIN, LLC	4/19/2021	Melt Shop #2 (EU 20 Baghouse #3 Stack)	2,000,000	TONS STEEL/YR	Good Combustion and Operating Practices (GCOP) Plan and specific design and operational requirements	0	535,000	TON/YR	12-MONTH ROLLING	BACT-PSD	Includes emissions from the following units: Twin shell DC EAF, A-Line Continuous caster, 2 Ladle Metallurgical Furnaces, 7 Ladle pre-heaters, 2 ladle dryers, 4 tundish pre-heaters, 2 tundish side pre-heaters, 4 SEN pre-heaters, 2 tundish dryers, 6 mandrel pre-heaters, tundish preparation activities, ladle preparation activities, used refractory cleanout, 4 stirring stations, scrap cutting from slag pot, and B-Line continuous caster. The capture efficiency of melt shop #1 is assumed to be 99%. Melt shop #1 & #2 (EU 01 and EU 20) are limited to a combined 3,500,000 tons steel casTPY as measured as the total cast tons at the outlet of the A-Line Continuous Caster (EP 01-03) and B-Line Continuous Caster (EP 20-03) combined. Simultaneous arc operation in both shells of EP 01-01 and simultaneous casting operations in both casters (EP 01-02 and EP 20-03) is prohibited. Equipped with CEMS for CO, NOx, and SO2.	The permittee shall meet the following design and operational requirements: i. Install and maintain seals and modern insulation media to minimize heat losses from EAF doors, roof, and any openings around the burners or other equipment traversing through the furnace shell. ii. Install, operate, and maintain oxy-fuel burners in accordance with manufacturer's specifications to maximize heat transfer, reduce heat losses, and reduce electrode consumption resulting in high thermal efficiency and reduced electrical energy consumption. iii. Employ foamy slag practices to reduce radiation heat losses and increases the electric power efficiency of the EAFs. iv. Optimize process control operations to reduce electricity consumption through monitoring integration of real-time monitoring of process variables along with realtime control systems for carbon injection and lance oxygen practices. v. Implement a preventative maintenance program that is consistent with the manufacturer's instructions for routine and long-term maintenance of equipment important to the operation, including EAF doors, burners, etc. vi. Conduct periodic preventive maintenance of gas supply valves in accordance with the manufacturer's recommended procedures and schedule. vii. Conduct periodic calibration of gas supply meter in accordance with the manufacturer's recommended procedures and schedule.
AL-0327	NUCOR STEEL DECATUR, LLC	8/14/2019	Electric Arc Furnaces	3,600,000	TONS OF STEEL 12-MO		0	500,400	TON/YR		BACT-PSD	The permitted process includes two (2) electrics arc furnaces and three (3) ladle metallurgy furnaces that are vented to two (2) baghouses. The limits listed in the pollutant section apply to the combined emissions from both baghouses. The facility is limited to 3,600,000 tons of steel produced per consecutive 12-month period.	
AL-0319	NUCOR STEEL TUSCALOOSA, INC.	3/9/2017	Electric Arc Furnace	0			0	378,621	TON/YR	12-MONTH ROLLING TOTAL	BACT-PSD	Emissions from the EAF are routed to two meltshop baghouses. Emissions from two ladle metallurgy stations and a continuous caster are also routed to these baghouses. The limits listed for each pollutant are for the baghouses.	

Summary of RBLC Results for Lead/Mercury/Fluorides Emissions from Steel Production
Process Type: 81.210 - Electric Arc Furnaces

Lead/Mercury/Fluorides Emission Limits in gr/dscf

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	Pollutant	Emission Limit	Emission Limit Unit (gr/dscf)	Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
TX-0651	NUCOR CORPORATION	10/2/2013	Electric Arc Furnace	316	TPH	Enclosure, Capture, Fabric Filter	0	Lead (Pb) / Lead Compounds	0.0032	GR/DSCF		MACT	1,500,000 TPY	
OH-0350	REPUBLIC STEEL	7/18/2012	Electric Arc Furnace	150	T/H	Direct-Shell Evacuation Control system with adjustable air gap and water-cooled elbow and duct to baghouse	0	Lead (Pb) / Lead Compounds	0.000007	GR/SCF	RATE IS 0.000007 GR/SCF (DRY)	N/A	Electric arc furnace 150 T/HR steel production. Restricted to 1,200,000 tons of liquid steel per rolling 12 months.	Short term limit is 0.000007 grains/dscf.Method 12 or 29.
OH-0350	REPUBLIC STEEL	7/18/2012	Electric Arc Furnace	150	T/H	Direct-Shell Evacuation Control system with adjustable air gap and water-cooled elbow and duct to baghouse	0	Mercury	0.0000045	GR/SCF	RATE IS 0.0000045 GR/SCF (DRY)	N/A	Electric arc furnace 150 T/HR steel production. Restricted to 1,200,000 tons of liquid steel per rolling 12 months.	Short term limit is 0.0000045 grains/dscf.

Lead/Mercury/Fluorides Emissions Limits in LB/HR

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	Pollutant	Emission Limit	Emission Limit Unit (LB/HR)	Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
SC-0196	NUCOR CORPORATION - DARLINGTON PLANT	4/29/2019	Meltshop (Furnace and Canopy Baghouses)	1,314,000	BILLET TONS/YEAR	Baghouse and minimize calcium fluoride use	0	Fluorides, Total	1.91	LB/HR	3-HOUR BLOCK AVERAGE	BACT-PSD		Fluoride LB/HR limits do not include hydrogen fluoride. Limit calcium fluoride (CaF2) usage to 700 lbs CaF2 per heat.
SC-0183	NUCOR STEEL - BERKELEY	5/4/2018	Melt Shop Equipment (furnace Baghouse)	175	TPH	Direct Shell Evacuation Furnace Baghouse	0	Fluorides, Total	0.09	LB/HR	12-HOUR BLOCK AVERAGE/ PARTICULATE	BACT-PSD	The facility has two direct current powered electric arc furnaces, each with the ability to tap approx. 175 tons. They operate independently of each other. The limits are for the furnace baghouse.	Fluoride LB/HR limits do not include hydrogen fluoride. Limit Fluorspar usage to 500 lbs of fluorspar/heat. 1.57 LB/HR 12-HOUR BLOCK AVERAGE/GASEOUS
SC-0183	NUCOR STEEL - BERKELEY	5/4/2018	Melt Shop Equipment (furnace Baghouse)	175	TPH	Direct Shell Evacuation Furnace Baghouse	0	Fluorides, Total	0.09	LB/HR	12-HOUR BLOCK AVERAGE/ PARTICULATE	BACT-PSD	The facility has two direct current powered electric arc furnaces, each with the ability to tap approx. 175 tons. They operate independently of each other. The limits are for the furnace baghouse.	Fluoride LB/HR limits do not include hydrogen fluoride. Limit Fluorspar usage to 500 lbs of fluorspar/heat. 1.57 LB/HR 12-HOUR BLOCK AVERAGE/GASEOUS
AL-0319	NUCOR STEEL TUSCALOOSA, INC.	3/9/2017	Electric Arc Furnace	0			0	Lead (Pb) / Lead Compounds	0.6	LB/HR	12-MONTH ROLLING TOTAL	BACT-PSD	Emissions from the EAF are routed to two meltshop baghouses. Emissions from two ladle metallurgy stations and a continuous caster are also routed to these baghouses. The limits listed for each pollutant are for the baghouses.	Control Device: baghouse, 99%+ effective, verified Received error when attempting to input information into the control field
IN-0140	NUCOR STEEL	2/8/2010	MELTSHOP	502	T/H	Baghouse and Scrap Management Program	99	Mercury	0.08	LB/HR	3HR BLOCK AVERAGE	OTHER CASE-BY-CASE	Consists of: Electric Arc Furnaces 1 & 2, Two Continuous Casters, Desulfurization Station, Ladle Dryer, Ladle Preheater, One Argon Oxygen Decarurization Vessel, one LMF EU-13C, Two LMFs (EU13A & EU13B) 81.290 81.220 81.230	Minimized mercury emission by implementing Scrap Management Program (SMP) PSD BACT
IN-0140	NUCOR STEEL	2/8/2010	MELTSHOP	502	T/H	Baghouse	0	Lead (Pb) / Lead Compounds	0.24	LB/HR	3HR BLOCK AVERAGE	OTHER CASE-BY-CASE	Consists of: Electric Arc Furnaces 1 & 2, Two Continuous Casters, Desulfurization Station, Ladle Dryer, Ladle Preheater, One Argon Oxygen Decarurization Vessel, one LMF EU-13C, Two LMFs (EU13A & EU13B) 81.290 81.220 81.230	PSD BACT
IN-0140	NUCOR STEEL	2/8/2010	MELTSHOP	502	T/H	Baghouse and Granular Fluorspar	0	Fluorides, Total	5.02	LB/HR	3HR BLOCK AVERAGE	OTHER CASE-BY-CASE	Consists of: Electric Arc Furnaces 1 & 2, Two Continuous Casters, Desulfurization Station, Ladle Dryer, Ladle Preheater, One Argon Oxygen Decarurization Vessel, one LMF EU-13C, Two LMFs (EU13A & EU13B) 81.290 81.220 81.230	The fluorides emissions shall be minimized by using granular fluorspar and it shall be applied at an average rate of 500 lbs/heat or less at the LMFs PSD BACT
OH-0316	V & M STAR	9/23/2008	Electric Arc Furnace	134	T/H	Roof Canopy Hood Fume Collection w/ Direct Evacuation Control System and Fabric Filter Baghouse	99	Lead (Pb) / Lead Compounds	0.24	LB/HR	From EAF and Ladle Refining combined	Other Case-by-Case	134 tons of liquid steel/hour and 830,000 tons of liquid steel/year is the maximum production rate. Scrap Management Program submitted to minimize hg, but no limits for hg. Electric arc furnace is permitted with ladle refining station; they share their limits and stack.	LB/HR and TPY limits are for electric arc furnace and ladle refining station combined.
OH-0315	NEW STEEL INTERNATIONAL, INC.	5/6/2008	Electric Arc Furnace (2)	331	T/H	Baghouse and Direct Evacuation Control w/ 100% Capture Efficiency	99.75	Lead (Pb) / Lead Compounds	0.06	LB/HR	1 EAF W/ 2 LMF	Other Case-by-Case	Maximum production of 331 tons/hour and 2,204,624 tons/year of steel from each of 2 electric arc furnaces (EAF). Emissions are captured by the EAF canopy and direct evacuation control system and vented to a baghouse (for each). Capture efficiency is assumed to be 100%. Each of 2 electric arc furnaces (EAF) with 2 ladle metallurgy furnaces (LMF) each (total of 4) are vented to a dedicated baghouse (2). All of the emission limits are permitted together for each of the 2 baghouses individually, i.e., the EAF and LMF share the same limits, at each stack.	Each of 2 electric arc furnaces (EAF) with 2 ladle metallurgy furnaces (LMF) each (total of 4) are vented to a dedicated baghouse (2). All of the emission limits are permitted together for each of the 2 baghouses individually, i.e., the EAF and LMF share the same limits, at each stack. PB emission factor of 0.00019 from similar source stack test.
OH-0315	NEW STEEL INTERNATIONAL, INC.	5/6/2008	Electric Arc Furnace (2)	331	T/H		0	Fluorides, Total	24.75	LB/HR	1 EAF W/ 2 LMF	Other Case-by-Case	Maximum production of 331 tons/hour and 2,204,624 tons/year of steel from each of 2 electric arc furnaces (EAF). Emissions are captured by the EAF canopy and direct evacuation control system and vented to a baghouse (for each). Capture efficiency is assumed to be 100%. Each of 2 electric arc furnaces (EAF) with 2 ladle metallurgy furnaces (LMF) each (total of 4) are vented to a dedicated baghouse (2). All of the emission limits are permitted together for each of the 2 baghouses individually, i.e., the EAF and LMF share the same limits, at each stack.	Each of 2 electric arc furnaces (EAF) with 2 ladle metallurgy furnaces (LMF) each (total of 4) are vented to a dedicated baghouse (2). All of the emission limits are permitted together for each of the 2 baghouses individually, i.e., the EAF and LMF share the same limits, at each stack.
OH-0315	NEW STEEL INTERNATIONAL, INC.	5/6/2008	Electric Arc Furnace (2)	331	T/H	Participate in national Mercury Switch Removal Program and Lignite Injection at a rate of 8.75 LB/MMACF	45	Mercury	0.0066	LB/HR	1 EAF W/ 2 LMF	Other Case-by-Case	Maximum production of 331 tons/hour and 2,204,624 tons/year of steel from each of 2 electric arc furnaces (EAF). Emissions are captured by the EAF canopy and direct evacuation control system and vented to a baghouse (for each). Capture efficiency is assumed to be 100%. Each of 2 electric arc furnaces (EAF) with 2 ladle metallurgy furnaces (LMF) each (total of 4) are vented to a dedicated baghouse (2). All of the emission limits are permitted together for each of the 2 baghouses individually, i.e., the EAF and LMF share the same limits, at each stack.	Each of 2 electric arc furnaces (EAF) with 2 ladle metallurgy furnaces (LMF) each (total of 4) are vented to a dedicated baghouse (2). All of the emission limits are permitted together for each of the 2 baghouses individually, i.e., the EAF and LMF share the same limits, at each stack. Hg emissions from all rotary hearth furnaces, boilers, electric arc furnaces, and ladle metallurgy furnaces shall not exceed 100 pounds per rolling 12-month period. Quarterly reports for hg sorbent trap monitoring system and replace sorbent traps every 7 days; option to switch to continuous hg emissions monitoring system if it proves reliable in the future.
AR-0096	NUCOR YAMATO STEEL	1/31/2008	Electric Arc Furnace	500	T/STEEL / H	Baghouse and DSE	0	Lead (Pb) / Lead Compounds	0.5	LB/HR		BACT-PSD		To show compliance with lead emission rates, facility must comply with PM10 limit.

Summary of RBLC Results for Lead/Mercury/Fluorides Emissions from Steel Production
Process Type: 81.210 - Electric Arc Furnaces

Lead/Mercury/Fluorides Emission Limit in lb/ton

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	Pollutant	Emission Limit	Emission Limit Unit (lb/ton)	Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
AR-0173	BIG RIVER STEEL LLC	1/31/2022	EAFs and LMFs	250	TONS STEEL PER HOUR	Fabric Filter	0	Lead (Pb) / Lead Compounds	0.0001	LB/TON OF STEEL		BACT-PSD	SN-01 and SN-02 of the Permit	
AR-0172	NUCOR STEEL ARKANSAS	9/1/2021	SN-01 EAF	585	TONS STEEL PER HOUR	Baghouse	0	Lead (Pb) / Lead Compounds	0.0004	LB/TON		BACT-PSD		
KY-0115	NUCOR STEEL GALLATIN, LLC	4/19/2021	Melt Shop #1 (EU 01 Baghouse #1 & #2 Stack)	2,000,000	TONS STEEL/YR	Emissions are controlled by 2 baghouses (combined stack). Non combustion processes must develop a Good Work Practices (GWP) Plan to minimize emissions.	99.28	Fluorides, Total	0.0035	LB/TON	AVERAGED OVER 3 HEATS	BACT-PSD	Includes emissions from the following units: Single shell DC EAF, 2 Ladle Metallurgical Furnaces, tundish preparation activities (Incl. dump station, relining station, and skull torch cutting), ladle preparation activities (Incl. dump station and relining station), used refractory cleanout, scrap bucket charge, safety lining dryer for tundishes, vertical ladle preheater at LMF. The capture efficiency of melt shop #2 is assumed to be 99%. Melt shop #1 & #2 (EU 01 and EU 20) are limited to a combined 3,500,000 tons steel casTPY as measured as the total cast tons at the outlet of the A-Line Continuous Caster (EP 01-03) and B-Line Continuous Caster (EP 20-03) combined. Simultaneous arc operation in both shells of EP 01-01 and simultaneous casting operations in both casters (EP 01-02 and EP 20-03) is prohibited. Equipped with CEMS for CO, NOx, and SO2.	The permittee shall prepare and implement a Good Work Practices (GWP) plan that includes written operating instructions and procedures that specify good operating and maintenance practices and includes, at a minimum, the following specific practices targeting emission minimization, and a means of verifying the practices have occurred: i. Tracking material usage to ensure that equipment is operated as designed and correcting any operating or design issues as quickly as possible; ii. Employing a preventative maintenance program, including a preventative maintenance schedule that is consistent with the manufacturer's instructions for routine and longterm maintenance. iii. Procedures and practices to monitor and ensure emissions are effectively captured by Melt Shop canopy hooding, and a description of corrective actions to be taken in the event that they are not.
KY-0115	NUCOR STEEL GALLATIN, LLC	4/19/2021	Melt Shop #1 (EU 01 Baghouse #1 & #2 Stack)	2,000,000	TONS STEEL/YR	Emissions are controlled by 2 baghouses (combined stack). Combustion processes must develop a Good Combustion and Operating Practices (GCOP) Plan and non-combustion processes must develop a Good Work Practices (GWP) Plan to minimize emissions.	99.28	Lead (Pb) / Lead Compounds	0.0004	LB/TON	AVERAGED OVER 3 HEATS	BACT-PSD	Includes emissions from the following units: Single shell DC EAF, 2 Ladle Metallurgical Furnaces, tundish preparation activities (Incl. dump station, relining station, and skull torch cutting), ladle preparation activities (Incl. dump station and relining station), used refractory cleanout, scrap bucket charge, safety lining dryer for tundishes, vertical ladle preheater at LMF. The capture efficiency of melt shop #2 is assumed to be 99%. Melt shop #1 & #2 (EU 01 and EU 20) are limited to a combined 3,500,000 tons steel casTPY as measured as the total cast tons at the outlet of the A-Line Continuous Caster (EP 01-03) and B-Line Continuous Caster (EP 20-03) combined. Simultaneous arc operation in both shells of EP 01-01 and simultaneous casting operations in both casters (EP 01-02 and EP 20-03) is prohibited. Equipped with CEMS for CO, NOx, and SO2.	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Division's inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction. Also: The permittee shall prepare and implement a Good Work Practices (GWP) plan that includes written operating instructions and procedures that specify good operating and maintenance practices and includes, at a minimum, the following specific practices targeting emission minimization, and a means of verifying the practices have occurred: i. Tracking material usage to ensure that equipment is operated as designed and correcting any operating or design issues as quickly as possible; ii. Employing a preventative maintenance program, including a preventative maintenance schedule that is consistent with the manufacturer's instructions for routine and longterm maintenance. iii. Procedures and practices to monitor and ensure emissions are effectively captured by Melt Shop canopy hooding, and a description of corrective actions to be taken in the event that they are not.
KY-0115	NUCOR STEEL GALLATIN, LLC	4/19/2021	Melt Shop #1 (EU 01 Baghouse #1 & #2 Stack)	2,000,000	TONS STEEL/YR	Emissions are controlled by 2 baghouses (combined stack). Non combustion processes must develop a Good Work Practices (GWP) Plan to minimize emissions.	99.28	Fluorides, Total	0.0035	LB/TON	AVERAGED OVER 3 HEATS	BACT-PSD	Includes emissions from the following units: Single shell DC EAF, 2 Ladle Metallurgical Furnaces, tundish preparation activities (Incl. dump station, relining station, and skull torch cutting), ladle preparation activities (Incl. dump station and relining station), used refractory cleanout, scrap bucket charge, safety lining dryer for tundishes, vertical ladle preheater at LMF. The capture efficiency of melt shop #2 is assumed to be 99%. Melt shop #1 & #2 (EU 01 and EU 20) are limited to a combined 3,500,000 tons steel casTPY as measured as the total cast tons at the outlet of the A-Line Continuous Caster (EP 01-03) and B-Line Continuous Caster (EP 20-03) combined. Simultaneous arc operation in both shells of EP 01-01 and simultaneous casting operations in both casters (EP 01-02 and EP 20-03) is prohibited. Equipped with CEMS for CO, NOx, and SO2.	The permittee shall prepare and implement a Good Work Practices (GWP) plan that includes written operating instructions and procedures that specify good operating and maintenance practices and includes, at a minimum, the following specific practices targeting emission minimization, and a means of verifying the practices have occurred: i. Tracking material usage to ensure that equipment is operated as designed and correcting any operating or design issues as quickly as possible; ii. Employing a preventative maintenance program, including a preventative maintenance schedule that is consistent with the manufacturer's instructions for routine and longterm maintenance. iii. Procedures and practices to monitor and ensure emissions are effectively captured by Melt Shop canopy hooding, and a description of corrective actions to be taken in the event that they are not.
KY-0115	NUCOR STEEL GALLATIN, LLC	4/19/2021	Melt Shop #1 (EU 01 Baghouse #1 & #2 Stack)	2,000,000	TONS STEEL/YR	Emissions are controlled by 2 baghouses (combined stack). Combustion processes must develop a Good Combustion and Operating Practices (GCOP) Plan and non-combustion processes must develop a Good Work Practices (GWP) Plan to minimize emissions.	99.28	Lead (Pb) / Lead Compounds	0.0004	LB/TON	AVERAGED OVER 3 HEATS	BACT-PSD	Includes emissions from the following units: Single shell DC EAF, 2 Ladle Metallurgical Furnaces, tundish preparation activities (Incl. dump station, relining station, and skull torch cutting), ladle preparation activities (Incl. dump station and relining station), used refractory cleanout, scrap bucket charge, safety lining dryer for tundishes, vertical ladle preheater at LMF. The capture efficiency of melt shop #2 is assumed to be 99%. Melt shop #1 & #2 (EU 01 and EU 20) are limited to a combined 3,500,000 tons steel casTPY as measured as the total cast tons at the outlet of the A-Line Continuous Caster (EP 01-03) and B-Line Continuous Caster (EP 20-03) combined. Simultaneous arc operation in both shells of EP 01-01 and simultaneous casting operations in both casters (EP 01-02 and EP 20-03) is prohibited. Equipped with CEMS for CO, NOx, and SO2.	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Division's inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction. Also: The permittee shall prepare and implement a Good Work Practices (GWP) plan that includes written operating instructions and procedures that specify good operating and maintenance practices and includes, at a minimum, the following specific practices targeting emission minimization, and a means of verifying the practices have occurred: i. Tracking material usage to ensure that equipment is operated as designed and correcting any operating or design issues as quickly as possible; ii. Employing a preventative maintenance program, including a preventative maintenance schedule that is consistent with the manufacturer's instructions for routine and longterm maintenance. iii. Procedures and practices to monitor and ensure emissions are effectively captured by Melt Shop canopy hooding, and a description of corrective actions to be taken in the event that they are not.
TX-0882	STEEL DYNAMICS SOUTHWEST, LLC	1/17/2020	Electric Arc Furnaces (EAF)	0		Baghouse	0	Fluorides, Total	0.01	LB/TON	AVERAGED OVER 3 HEATS	BACT-PSD	400 tons per hour and 3,504,000 tons per year	NSPS A, Dc, TT, AAa, IIII MACT A, ZZZZ, YYYYY, CCCCCC
TX-0882	STEEL DYNAMICS SOUTHWEST, LLC	1/17/2020	Electric Arc Furnaces (EAF)	0		Baghouse	0	Lead (Pb) / Lead Compounds	0.0006	LB/TON		BACT-PSD	400 tons per hour and 3,504,000 tons per year	NSPS A, Dc, TT, AAa, IIII MACT A, ZZZZ, YYYYY, CCCCCC
AL-0327	NUCOR STEEL DECATUR, LLC	8/14/2019	Electric Arc Furnaces	3,600,000	TONS OF STEEL 12-MO	Baghouses	99	Lead (Pb) / Lead Compounds	0.002	LB/TON		BACT-PSD	The permitted process includes two (2) electrics arc furnaces and three (3) ladle metallurgy furnaces that are vented to two (2) baghouses. The limits listed in the pollutant section apply to the combined emissions from both baghouses. The facility is limited to 3,600,000 tons of steel produced per consecutive 12-month period.	
AR-0171	NUCOR STEEL ARKANSAS	2/14/2019	SN-01 EAF	585	TONS STEEL PER HOUR	Baghouse	0	Lead (Pb) / Lead Compounds	0			BACT-PSD		
FL-0368	NUCOR STEEL FLORIDA FACILITY	2/14/2019	Melt Shop Baghouse & Fugitives	450,000	TON STEEL/YR	Baghouse and Scrap Management Plan	0	Mercury	0.0001	LB/TON STEEL	3-HOUR AVG.	BACT-PSD	Consists of one EAF (equipped with 3-phase electrodes), a ladle metallurgy station, alloy, carbon flux and slag handling in the meltshop, and natural gas combustion sources	
NE-0062	NUCOR STEEL CORP	7/7/2017	Electric Arc Furnace	1,350,000	TON/YR	Baghouse	0	Fluorides, Total	0.059	LB	TON	BACT-PSD		
AR-0140	BIG RIVER STEEL LLC	9/18/2013	EAFS SN-01 AND SN-02	0		Fabric Filter	0	Lead (Pb) / Lead Compounds	0.00056	LB/TON STEEL		BACT-PSD		
CO-0066	CF & I STEEL L.P. DBA EVRAZ ROCKY MOUNTAIN STE	11/30/2011	Electric Arc Furnace (EAF 5)	185	TONS/HOUR	BACT for Pb has been determined to be the use of process controls, and the application of high efficiency baghouses (SRC 1 and SRC 3) equipped with membrane bags.	0	Lead (Pb) / Lead Compounds	0.0006	LB PER TON STEEL	DURATION OF TEST METHOD	BACT-PSD		
OH-0339	THE TIMKEN COMPANY	12/29/2010	Electric Arc Furnace (2)	400,000	TPY	Baghouse on melt shop building evacuation system	0	Lead (Pb) / Lead Compounds	0.0004	LB/T	PER TON OF STEEL	OTHER CASE-BY-CASE	Increasing annual production to 400,000 tons steel per year from each of the 2 EAFs. Modifying process to charge scrap tires in place of some coke. Sharing the TPY SO2 emission limit with EAF at sister facility, Faircrest Steel.	Method 12 or 29. Toxic limit based on State BAT.

Summary of RBLC Results for Lead/Mercury/Fluorides Emissions from Steel Production
Process Type: 81.210 - Electric Arc Furnaces

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	Pollutant	Emission Limit	Emission Limit Unit (lb/ton)	Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
OH-0339	THE TIMKEN COMPANY	12/29/2010	Electric Arc Furnace (2)	400,000	TPY		0	Mercury	0.0002	LB/T	PER TON OF STEEL	OTHER CASE-BY-CASE	Increasing annual production to 400,000 tons steel per year from each of the 2 EAFs. Modifying process to charge scrap tires in place of some coke. Sharing the TPY SO2 emission limit with EAF at sister facility, Faircrest Steel.	Additional limit: 0.013 LB/HR from each of the 2 EAFs. Toxic limit based on State rule.
OH-0342	THE TIMKEN COMPANY	12/29/2010	Electric Arc Furnace	1,300,000	TPY	Roof Canopy Hood Fume Collection System w/h Direct Evacuation Control to Baghouse	0	Lead (Pb) / Lead Compounds	0.001	LB/T	PER TON OF STEEL	OTHER CASE-BY-CASE	Increasing annual steel production to 1,300,000 TPY. Modifying process to charge scrap tires to replace part of the coke charged. Sharing the TPY SO2 emission limit with sister facility, Faircrest Steel.	Additional limit: 0.20 LB Pb/H. Based on State BAT.
OH-0342	THE TIMKEN COMPANY	12/29/2010	Electric Arc Furnace	1,300,000	TPY		0	Fluorides, Total	0.007	LB/T	PER TON OF STEEL	OTHER CASE-BY-CASE	Increasing annual steel production to 1,300,000 TPY. Modifying process to charge scrap tires to replace part of the coke charged. Sharing the TPY SO2 emission limit with sister facility, Faircrest Steel.	Additional limit: 1.4 LB Floride/H. Based on State rule.
OH-0342	THE TIMKEN COMPANY	12/29/2010	Electric Arc Furnace	1300000	TPY		0	Mercury	0.00002	LB/T	LB/T OF STEEL	OTHER CASE-BY-CASE	Increasing annual steel production to 1,300,000 TPY. Modifying process to charge scrap tires to replace part of the coke charged. Sharing the TPY SO2 emission limit with sister facility, Faircrest Steel.	Additional limit 0.0037 lb Hg/H. Based on State rule.
OH-0341	NUCOR STEEL	12/23/2010	EAR, Continuous casting, and 6 pre-heaters	1800	T/D	Building enclosure equipped with a canopy hood/Baghouse system capable of achieving 100% capture of meltshop emissions.	0	Lead (Pb) / Lead Compounds	0.002	LB/T	PER TON OF STEEL	BACT-PSD	Facility capacity of 657,000 TONS STEEL PER YEAR. 1 Electric Arc Furnace, including charging, melting, tapping, slag skimming; continuous casting operations, including torch cutting; 4 natural gas filed ladle preheaters; and 2 natural gas fired tundish preheaters.	combined meltshop emissions. Method 29 to be conducted w/i 180 days of operations under this permit. Scrap Management plan to reduce lead emissions.

Summary of RBLC Results for PM/PM10/PM2.5 Emissions from Steel Production
Process Type: 81.290 -Other Steel Manufacturing Processes

PM Emissions Limits in LB/HR

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	Pollutant	PM Emission Limit	PM Emission Limit Unit (LB/HR)	PM Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
SC-0196	NUCOR CORPORATION - DARLINGTON PLANT	4/29/2019	Melt Shop Equipment (Caster Spray Vents 1)	0		Good work practices - monthly monitoring of conductivity of Cooling Tower water systems. Operate in accordance with manufacturer guidelines.	0	Particulate matter, filterable (FPM)	2.35	LB/HR	3-HOUR BLOCK AVERAGE	BACT-PSD	Caster Spray Vents 1 - 4 strands	Monthly monitoring of conductivity of Cooling Tower water systems. Operate in accordance with manufacturer guidelines.
SC-0196	NUCOR CORPORATION - DARLINGTON PLANT	4/29/2019	Melt Shop Equipment (Caster Spray Vents 1)	0		Good work practices	0	Particulate matter, filterable < 10 µ (FPM10)	0.38	LB/HR	3-HOUR BLOCK AVERAGE	BACT-PSD	Caster Spray Vents 1 - 4 strands	Monthly monitoring of conductivity of Cooling Tower water systems. Operate in accordance with manufacturer guidelines.
SC-0196	NUCOR CORPORATION - DARLINGTON PLANT	4/29/2019	Melt Shop Equipment (Caster Spray Vents 2)	0		Good work practices	0	Particulate matter, filterable (FPM)	1.15	LB/HR	3-HOUR BLOCK AVERAGE	BACT-PSD	Caster Spray Vents 2	Monthly monitoring of conductivity of Cooling Tower water systems. Operate in accordance with manufacturer guidelines.
SC-0196	NUCOR CORPORATION - DARLINGTON PLANT	4/29/2019	Melt Shop Equipment (Caster Spray Vents 2)	0		Good work practices	0	Particulate matter, filterable < 10 µ (FPM10)	0.18	LB/HR	3-HOUR BLOCK AVERAGE	BACT-PSD	Caster Spray Vents 2	Monthly monitoring of conductivity of Cooling Tower water systems. Operate in accordance with manufacturer guidelines.
SC-0183	NUCOR STEEL - BERKELEY	5/4/2018	Melt Shop Equipment (caster spray vent 1)	0		Proper Operation and Maintenance of Caster Spray Vent 1.	0	Particulate matter, filterable (FPM)	1.43	LB/HR	3-HOUR BLOCK AVERAGE	BACT-PSD	Caster Spray Vent 1	Monthly monitoring of conductivity in Cooling Water Systems 4 and 14. Operate in accordance with manufacturer guidelines.

PM Emissions Limits in gr/dscf

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	Pollutant	PM Emission Limit	PM Emission Limit Unit (gr/dscf)	PM Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
KY-0115	NUCOR STEEL GALLATIN, LLC	4/19/2021	A-Line Caster Spray Vent (EP 01-14)	2,000,000	TONS STEEL/YI	The permittee must develop a Good Work Practices (GWP) Plan to minimize emissions.	0	Particulate matter, total < 10 µ (TPM10)	0.005	GR/DSCF	3-HR AVERAGE	BACT-PSD	Steam formed from the contact of cooling water with the hot steel is captured and vented through caster spray vents that discharge above the roof of the Melt Shop.	Also subject to a 0.30 LB/HR emission limit. The permittee shall prepare and implement a Good Work Practices (GWP) plan that includes written operating instructions and procedures that specify good operating and maintenance practices and includes, at a minimum, the following specific practices targeting emission minimization, and a means of verifying the practices have occurred: i. Tracking material usage to ensure that equipment is operated as designed and correcting any operating or design issues as quickly as possible; ii. Employing a preventative maintenance program, including a preventative maintenance schedule that is consistent with the manufacturer's instructions for routine and longterm maintenance. iii. Procedures and practices to monitor and ensure emissions are effectively captured by Melt Shop canopy hooding, and a description of corrective actions to be taken in the event that they are not.
KY-0115	NUCOR STEEL GALLATIN, LLC	4/19/2021	A-Line Caster Spray Vent (EP 01-14)	2,000,000	TONS STEEL/YI	The permittee must develop a Good Work Practices (GWP) Plan to minimize emissions.	0	Particulate matter, total < 2.5 µ (TPM2.5)	0.0001	GR/DSCF	3-HR AVERAGE	BACT-PSD	Steam formed from the contact of cooling water with the hot steel is captured and vented through caster spray vents that discharge above the roof of the Melt Shop.	Also subject to a 0.04 LB/HR emission limit. The permittee shall prepare and implement a Good Work Practices (GWP) plan that includes written operating instructions and procedures that specify good operating and maintenance practices and includes, at a minimum, the following specific practices targeting emission minimization, and a means of verifying the practices have occurred: i. Tracking material usage to ensure that equipment is operated as designed and correcting any operating or design issues as quickly as possible; ii. Employing a preventative maintenance program, including a preventative maintenance schedule that is consistent with the manufacturer's instructions for routine and longterm maintenance. iii. Procedures and practices to monitor and ensure emissions are effectively captured by Melt Shop canopy hooding, and a description of corrective actions to be taken in the event that they are not.
KY-0115	NUCOR STEEL GALLATIN, LLC	4/19/2021	A-Line Caster Spray Vent (EP 01-14)	2,000,000	TONS STEEL/YI	The permittee must develop a Good Work Practices (GWP) Plan to minimize emissions.	0	Particulate matter, filterable (FPM)	0.003	GR/DSCF	3-HR AVERAGE	BACT-PSD	Steam formed from the contact of cooling water with the hot steel is captured and vented through caster spray vents that discharge above the roof of the Melt Shop.	Also subject to a 1.84 LB/HR emission limit. The permittee shall prepare and implement a Good Work Practices (GWP) plan that includes written operating instructions and procedures that specify good operating and maintenance practices and includes, at a minimum, the following specific practices targeting emission minimization, and a means of verifying the practices have occurred: i. Tracking material usage to ensure that equipment is operated as designed and correcting any operating or design issues as quickly as possible; ii. Employing a preventative maintenance program, including a preventative maintenance schedule that is consistent with the manufacturer's instructions for routine and longterm maintenance. iii. Procedures and practices to monitor and ensure emissions are effectively captured by Melt Shop canopy hooding, and a description of corrective actions to be taken in the event that they are not.
KY-0115	NUCOR STEEL GALLATIN, LLC	4/19/2021	B-Line Caster Spray Vent (EP 20-11)	2,000,000	TONS STEEL/YI	The permittee must develop a Good Work Practices (GWP) Plan to minimize emissions.	0	Particulate matter, total < 10 µ (TPM10)	0.005	GR/DSCF	3-HR AVERAGE	BACT-PSD	Steam formed from the contact of cooling water with the hot steel is captured and vented through caster spray vents that discharge above the roof of the Melt Shop.	Also subject to a 0.98 LB/HR emission limit. The permittee shall prepare and implement a Good Work Practices (GWP) plan that includes written operating instructions and procedures that specify good operating and maintenance practices and includes, at a minimum, the following specific practices targeting emission minimization, and a means of verifying the practices have occurred: i. Tracking material usage to ensure that equipment is operated as designed and correcting any operating or design issues as quickly as possible; ii. Employing a preventative maintenance program, including a preventative maintenance schedule that is consistent with the manufacturer's instructions for routine and longterm maintenance. iii. Procedures and practices to monitor and ensure emissions are effectively captured by Melt Shop canopy hooding, and a description of corrective actions to be taken in the event that they are not.
KY-0115	NUCOR STEEL GALLATIN, LLC	4/19/2021	B-Line Caster Spray Vent (EP 20-11)	2,000,000	TONS STEEL/YI	The permittee must develop a Good Work Practices (GWP) Plan to minimize emissions.	0	Particulate matter, total < 2.5 µ (TPM2.5)	0.0001	GR/DSCF	3-HR AVERAGE	BACT-PSD	Steam formed from the contact of cooling water with the hot steel is captured and vented through caster spray vents that discharge above the roof of the Melt Shop.	Also subject to a 0.12 LB/HR emission limit. The permittee shall prepare and implement a Good Work Practices (GWP) plan that includes written operating instructions and procedures that specify good operating and maintenance practices and includes, at a minimum, the following specific practices targeting emission minimization, and a means of verifying the practices have occurred: i. Tracking material usage to ensure that equipment is operated as designed and correcting any operating or design issues as quickly as possible; ii. Employing a preventative maintenance program, including a preventative maintenance schedule that is consistent with the manufacturer's instructions for routine and longterm maintenance. iii. Procedures and practices to monitor and ensure emissions are effectively captured by Melt Shop canopy hooding, and a description of corrective actions to be taken in the event that they are not.
KY-0115	NUCOR STEEL GALLATIN, LLC	4/19/2021	B-Line Caster Spray Vent (EP 20-11)	2,000,000	TONS STEEL/YI	The permittee must develop a Good Work Practices (GWP) Plan to minimize emissions.	0	Particulate matter, filterable (FPM)	0.003	GR/DSCF	3-HR AVERAGE	BACT-PSD	Steam formed from the contact of cooling water with the hot steel is captured and vented through caster spray vents that discharge above the roof of the Melt Shop.	Also subject to a 6.13 LB/HR emission limit. The permittee shall prepare and implement a Good Work Practices (GWP) plan that includes written operating instructions and procedures that specify good operating and maintenance practices and includes, at a minimum, the following specific practices targeting emission minimization, and a means of verifying the practices have occurred: i. Tracking material usage to ensure that equipment is operated as designed and correcting any operating or design issues as quickly as possible; ii. Employing a preventative maintenance program, including a preventative maintenance schedule that is consistent with the manufacturer's instructions for routine and longterm maintenance. iii. Procedures and practices to monitor and ensure emissions are effectively captured by Melt Shop canopy hooding, and a description of corrective actions to be taken in the event that they are not. EPA Home Privacy and Sec
AR-0171	NUCOR STEEL ARKANSAS	2/14/2019	SN-131 and 145 Caster Spray Vents	0		Good work practices	0	Particulate matter, total < 10 µ (TPM10)	0.004	GR/DSCF		BACT-PSD		
AR-0171	NUCOR STEEL ARKANSAS	2/14/2019	SN-131 and 145 Caster Spray Vents	0		Good work practices	0	Particulate matter, total < 2.5 µ (TPM2.5)	0.0025	GR/DSCF		BACT-PSD		
AR-0171	NUCOR STEEL ARKANSAS	2/14/2019	SN-131 and 145 Caster Spray Vents	0		Good work practices	0	Particulate matter, filterable (FPM)	0.012	GR/DSCF		BACT-PSD		
SC-0183	NUCOR STEEL - BERKELEY	5/4/2018	Ielt Shop Equipment (caster spray vent	0		Proper Operation and Maintenance	0	Particulate matter, filterable (FPM)	0.003	GR/DSCF	3-HOUR BLOCK AVERAGE	BACT-PSD	Emissions from Caster Spray Vent 2 (existing)	Monthly monitoring of conductivity in Cooling Water Systems 4 and 14. Operate in accordance with manufacturer guidelines.
SC-0183	NUCOR STEEL - BERKELEY	5/4/2018	Melt Shop Equipment (caster spray vent 2)	0		Proper Operation and Maintenance	0	Particulate matter, filterable < 10 µ (FPM10)	0.0005	GR/DSCF	3-HOUR BLOCK AVERAGE	BACT-PSD	Emissions from Caster Spray Vent 2 (existing)	Monthly monitoring of conductivity in Cooling Water Systems 4 and 14. Operate in accordance with manufacturer guidelines.
SC-0183	NUCOR STEEL - BERKELEY	5/4/2018	Melt Shop Equipment (caster spray vent 2)	0		Proper Operation and Maintenance	0	Particulate matter, filterable < 2.5 µ (FPM2.5)	0.0001	GR/DSCF	3-HOUR BLOCK AVERAGE	BACT-PSD	Emissions from Caster Spray Vent 2 (existing)	Monthly monitoring of conductivity in Cooling Water Systems 4 and 14. Operate in accordance with manufacturer guidelines.

Summary of RBLC Results for VOC Emissions from Steel Production
Process Type: 81.290 -Other Steel Manufacturing Processes

VOC Emissions Limits in LB/HR

RBLCID	Facility Name	Permit Issuance Date	Process Name	Throughput	Throughput Units	Control Method Description	Percent Efficiency	VOC Emission Limit	VOC Emission Limit Unit (LB/HR)	VOC Emission Limit Average Time	Case-by-Case Basis	Summary of Process Notes	Summary of Pollutant Notes
KY-0015	NUCOR STEEL GALLATIN, LLC	4/19/2021	A-Line Caster Spray Vent (EP 01-14)	2,000,000	TON STEEL CASTPY	The permittee must develop a Good Work Practices (GWP) Plan to minimize emissions.	0	0.40	LB/HR	3-HOUR BLOCK AVERAGE	BACT-PSD	Steam formed from the contact of cooling water with the hot steel is captured and vented through caster spray vents that discharge above the roof of the Melt Shop.	The permittee shall prepare and implement a Good Work Practices (GWP) plan that includes written operating instructions and procedures that specify good operating and maintenance practices and includes, at a minimum, the following specific practices targeting emission minimization, and a means of verifying the practices have occurred: i. Tracking material usage to ensure that equipment is operated as designed and correcting any operating or design issues as quickly as possible; ii. Employing a preventative maintenance program, including a preventative maintenance schedule that is consistent with the manufacturer's instructions for routine and longterm maintenance. iii. Procedures and practices to monitor and ensure emissions are effectively captured by Melt Shop canopy hooding, and a description of corrective actions to be taken in the event that they are not.
KY-0015	NUCOR STEEL GALLATIN, LLC	4/19/2021	B-Line Caster Spray Vent (EP 20-11)	2,000,000	TON STEEL CASTPY	The permittee must develop a Good Work Practices (GWP) Plan to minimize emissions.	0	0.80	LB/HR	3-HOUR BLOCK AVERAGE	BACT-PSD	Steam formed from the contact of cooling water with the hot steel is captured and vented through caster spray vents that discharge above the roof of the Melt Shop.	The permittee shall prepare and implement a Good Work Practices (GWP) plan that includes written operating instructions and procedures that specify good operating and maintenance practices and includes, at a minimum, the following specific practices targeting emission minimization, and a means of verifying the practices have occurred: i. Tracking material usage to ensure that equipment is operated as designed and correcting any operating or design issues as quickly as possible; ii. Employing a preventative maintenance program, including a preventative maintenance schedule that is consistent with the manufacturer's instructions for routine and longterm maintenance. iii. Procedures and practices to monitor and ensure emissions are effectively captured by Melt Shop canopy hooding, and a description of corrective actions to be taken in the event that they are not.
SC-0196	NUCOR STEEL DARLINGTON	4/29/2019	Melt Shop Equipment (Caster Spray Vents 1)	0		Good work practices and proper maintenance.	0	0.35	LB/HR	3-HOUR BLOCK AVERAGE	BACT-PSD	Caster Spray Vents 1 - 4 strands	Maintain VOC minimization plan. Good work practices and proper maintenance.
SC-0196	NUCOR STEEL DARLINGTON	4/29/2019	Melt Shop Equipment (Caster Spray Vents 2)	0		VOC minimization plan	0	0.15	LB/HR	3-HOUR BLOCK AVERAGE	BACT-PSD	Caster Spray Vents 2	Good work practices and proper maintenance. Follow VOC minimization plan.
AR-0171	NUCOR STEEL ARKANSAS	2/14/2019	SN-131 and 145 Caster Spray Vents	0		Good work practices	0	4.4	LB/HR		BACT-PSD		
SC-0183	NUCOR STEEL - BERKELEY	5/4/2018	Melt Shop Equipment (caster spray vent 1)	0		Proper Operation and Maintenance of Caster Spray Vent 1.	0	0.53	LB/HR	3-HOUR BLOCK AVERAGE	BACT-PSD	Caster Spray Vent 1	Facility shall follow a VOC Minimization Plan.
SC-0183	NUCOR STEEL - BERKELEY	5/4/2018	Melt Shop Equipment (caster spray vent 2)	0		Proper Operation and Maintenance	0	0.53	LB/HR	3-HOUR BLOCK AVERAGE	BACT-PSD	Emissions from Caster Spray Vent 2 (existing)	Facility shall follow a VOC Minimization Plan.

APPENDIX E MARK UP OF PERMIT

Commonwealth of Kentucky
Energy and Environment Cabinet
Department for Environmental Protection
Division for Air Quality
300 Sower Boulevard, 2nd Floor
Frankfort, Kentucky 40601
(502) 564-3999

Final

AIR QUALITY PERMIT
Issued under 401 KAR 52:020

Permittee Name:	**Nucor Steel Brandenburg**
Mailing Address:	**Ronnie Greenwell Commerce Rd** **Brandenburg, KY 40108**
Source Name:	**Nucor Steel Brandenburg**
Mailing Address:	**Ronnie Greenwell Commerce Rd** **Brandenburg, KY 40108**
Source Location:	**Same as Above**
Permit:	**V-20-001**
~~R1~~R2	
Agency Interest:	**162861**
Activity:	**APE20220003**
Review Type:	**Title V / Title I - PSD**
Source ID:	**21-163-00044**
Regional Office:	**Owensboro Regional Office** **3032 Alvey Park Dr. W., Suite 700** **Owensboro, KY 42303** **(270) 687-7304**
County:	**Meade**
Application Complete Date:	**January 24, 2020**
Issuance Date:	**July 23, 2020**
Revision Date:	**October 27, 2022**
Expiration Date:	**July 23, 2025**

Rick Shewekah

For Michael J. Kennedy, P.E.
Director
Division for Air Quality

Version 4/1/2022

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Permit	Permit Type	Activity#	Complete Date	Issuance Date	Summary of Action
V-20-001	**Initial**	**APE20190004**	**1/24/2020**	**7/23/2020**	**Initial PSD Permit**
V-20-001 R1	**Significant Revision**	**APE20220003**	**3/21/2022**	**10/27/2022**	**Changes to PSD/design changes and addition of a Blast and Prime Line and other Support Equipment**

SECTION A - PERMIT AUTHORIZATION

Pursuant to a duly submitted application the Kentucky Energy and Environment Cabinet (Cabinet) hereby authorizes the operation of the equipment described herein in accordance with the terms and conditions of this permit. This permit has been issued under the provisions of Kentucky Revised Statutes (KRS) Chapter 224 and regulations promulgated pursuant thereto.

The permittee shall not construct, reconstruct, or modify any affected facilities without first submitting a complete application and receiving a permit for the planned activity from the permitting authority, except as provided in this permit or in 401 KAR 52:020, Title V Permits.

Issuance of this permit does not relieve the permittee from the responsibility of obtaining any other permits, licenses, or approvals required by the Cabinet or any other federal, state, or local agency.

Definitions: The following definitions apply to all abbreviations and variables used in this permit:

BACT	– Best Available Control Technology
Btu	– British thermal unit
CAM	– Compliance Assurance Monitoring
CEM	– Continuous Emission Monitoring
CI	– Compression Ignition
CO	– Carbon Monoxide
CO_2e	– Carbon Dioxide Equivalent
Division	– Kentucky Division for Air Quality
EAF	– Electric Arc Furnace
GCOP	– Good Combustion & Operating Practices
GDF	– Gasoline Dispensing Facility
GHG	– Greenhouse Gas
GWP	– Good Work Practices
HAP	– Hazardous Air Pollutant
HP	– Horse Power
LMF	– Ladle Metallurgical Furnace
MSDS	– Material Safety Data Sheets
mmHg	– Millimeter of mercury column height
NAAQS	– National Ambient Air Quality Standards
NESHAP	– National Emissions Standards for Hazardous Air Pollutants
NO_x	– Nitrogen Oxides
PM	– Particulate Matter
PM_{10}	– Particulate Matter equal to or smaller than 10 micrometers
$PM_{2.5}$	– Particulate Matter equal to or smaller than 2.5 micrometers
PSD	– Prevention of Significant Deterioration
RICE	– Reciprocating Internal Combustion Engine
SEN	– Submerged Entry Nozzle
SI	– Spark Ignition
SO_2	– Sulfur Dioxide
SSM	– Startup, Shutdown, & Malfunction
TDS	– Total Dissolved Solids
VOC	– Volatile Organic Compounds
MMBtu/hr	– million BTU per hour

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS

Group 1

Emission Unit 01 (EU 01) – Melt Shop,
Emission Unit 02 (EU 02) – Melt Shop Natural Gas Combustion Sources, &
Emission Unit 08 (EU 08) – Scrap Handling System

Emission Point #	Unit Name	Maximum Short-Term Capacity	Maximum Long-Term Capacity	Burner Maximum Capacity (MMBtu/hr)	Control Device	Construction Commenced
Emission Unit 01 (EU 01): Melt Shop						
01-01	Single Shell AC Electric Arc Furnace (EAF)	272 tons steel/hr	1,750,000 tons/yr*	7 oxy-fuel fired burners totaling 119.7 MMBtu/hr	Baghouse (C0101)	2020
01-02	Ladle Metallurgical Furnace	272 tons steel/hr; 250 lbs fluorspar/heat*	1,750,000 tons/yr**	----	Baghouse (C0101)	2020
01-03	Vacuum Degasser	272 tons steel/hr	1,750,000 tons/yr**	----	Baghouse (C0101) /Filter System	2020
01-04	Continuous Caster	~~370~~ 420 tons steel/hr	1,750,000 tons/yr**	----	Baghouse (C0101)	2020
01-05	Caster Spray Vent	~~370~~ 420 tons steel/hr	1,750,000 tons/yr**	----	None	2020
01-06	Primary Caster Torch Cutoff	~~370~~ 420 tons steel/hr	1,750,000 tons/yr**	1.88 MMBtu/hr	None	2020
01-07	Melt Shop Baghouse Dust Silo & Dust Handling System	6.8 tons dust/hr	43,750 tons/yr**	----	Bin Vent Filter (C0107)	2020
01-08B	Tundish Relining Station	1.35 tons refractory/hr	1,800 tons/yr**	----	Baghouse (C0101)	2020
01-09A	Ladle Preparation (Dump Station)	36 tons refractory/hr	6,000 tons/yr**	----	Baghouse (C0101)	2020
01-09B	Ladle Preparation (Relining Station)	6 tons refractory/hr	6,000 tons/yr**	----	Baghouse (C0101)	2020
01-10	Furnace Refractory Cleanout	3.13 tons refractory/hr	813 tons/yr**	----	Baghouse (C0101)	2020
01-11	Caster Quench Box	~~370~~ 420 tons steel/hr	1,750,000 tons/yr**	----	None	2022

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE

01-12	Secondary Caster Torch Cut Off	~~370~~ 420 tons steel/hr	1,750,000 tons/yr**	1.95 MMBtu/hr	None	2022

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Emission Point #	Unit Name	Maximum Short-Term Capacity	Maximum Long-Term Capacity	Burner Maximum Capacity (MMBtu/hr)	Control Device	Construction Commenced
Emission Unit 02 (EU 02): Melt Shop NG Combustion Sources						
02-01	5 Ladle Preheaters (02-01A, B, C, D, and E) & 2 LMF Ladle Preheaters (02-01F and G)	----	----	5 Ladle Preheaters at 15 MMBtu/hr, each; 2 LMF Ladle Preheaters at 10 MMBtu/hr, each	Baghouse (C0101)	2020
02-03	Tundish Preheaters #1 & #2	----	----	10.9 MMBtu/hr, each	Baghouse (C0101)	2020
02-04	Tundish Dryer	----	----	10.93 MMBtu/hr,	Baghouse (C0101)	2020
02-05	Mandrel Preheaters #1 & #2			5 MMBtu/hr, each	Baghouse (C0101)	2020
02-06	Tundish SEN Preheaters #1 & #2	----	----	1.42 MMBtu/hr, each	Baghouse (C0101)	2020
Emission Unit 08 (EU 08) – Scrap Handling System						
08-04	Scrap Charging	299 tons scrap/hr	1,925,000 tons/yr**	----	Baghouse (C0101)	2020

*Note: These units have an operational limit in **1. <u>Operating Limitations</u>**, below.
**Note: Long-term capacities of these units are bottlenecked by the upstream operational limit on the melt shop.

<u>EU 01 Controls Description:</u>
Controls: Negative Pressure Baghouse (Control ID# C0101) to be constructed in 2020. The Melt Shop building is equipped with canopy hoods to capture and vent emissions that are not captured by the direct shell evacuation system to the baghouse.

<u>APPLICABLE REGULATIONS</u>:
401 KAR 51:017, *Prevention of significant deterioration of air quality*
401 KAR 59:010, *New process operations*
401 KAR 60:005, Section 2(1), 40 C.F.R. 60.1 to 60.19, Table 1 (Subpart A), *General Provisions*
401 KAR 60:005, Section 2(2)(jj), 40 C.F.R. 60.270a to 60.276a (Subpart AAa), *Standards of Performance for Steel Plants: Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels Constructed After August 17, 1983*, applies to EP 01-01 and 01-07.
401 KAR 63:002, Section 2(4)(aaaaa), 40 C.F.R. 63.10680 to 63.10692, Table 1 (Subpart YYYYY), *National Emission Standards for Hazardous Air Pollutants for Area Sources: Electric Arc Furnace Steelmaking Facilities*
40 CFR 64, *Compliance Assurance Monitoring*

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

1. Operating Limitations:

a. Steel production rate shall not exceed 1,750,000 tons of steel/year on a rolling 12-month basis with the first period beginning on the issuance date of the final permit (V-20-001) from the EAF (EP 01-01) as measured as the total tons of molten metal sent to the caster (EP 01-04). [401 KAR 51:017]

b. The permittee shall not exceed 250 pounds of fluorspar per heat for EP 01-02. [To preclude 401 KAR 51:017, Section 8-16 for Fluorides]

c. Scrap substitutes shall be limited to the following general categories (may be added to EP 01-01): pig iron, hot briquetted Iron (HBI), direct reduced iron (DRI). [401 KAR 51:017]

d. The permittee shall use commercially available low residual, pre-processed, and inspected scrap. [401 KAR 51:017]

Compliance Demonstration Method:
Refer to **4. Specific Monitoring Requirements (n)** and **5. Specific Recordkeeping Requirements (g)**.

e. The permittee shall operate control equipment and/or implement work practice standards as reasonable precautions to prevent particulate matter from becoming airborne and exiting any opening from the melt shop (EU01) into the open air. Reasonable precautions include, but are not limited to: [401 KAR 51:017]
   i. Downdraft and/or plastic strip air curtains at melt shop (EU01) openings with the potential for fugitive particulate emissions;
   ii. Keeping other doors closed except for pass-through traffic;
   iii. The scrap charge bay door shall be maintained at all times with a plastic strip air curtain covering the top 15 feet of the opening; and
   iv. After removal from the furnaces, all molten slag shall be deposited into slag carrying pots and transported to the designated slag processing area.

f. *Chlorinated plastics, lead, and free organic liquids.* For metallic scrap utilized in the EAF, the permittee shall comply with the requirements in either 40 CFR 63.10685(a)(1) or (2). The permittee may have certain scrap at the facility subject to 40 CFR 63.10685(a)(1) and other scrap subject to 40 CFR 63.10685(a)(2) provided the scrap remains segregated until charge make-up. [40 CFR 63.10685(a)]

g. *Pollution prevention plan.* The permittee shall prepare and implement a Pollution Prevention Plan (PPP) for metallic scrap selection and inspection to minimize the amount of chlorinated plastics, lead, and free organic liquids that are charged to the furnace. The PPP shall be submitted to the Division for approval before startup of the EAF. The permittee must operate according to the plan as submitted during the review and approval process, operate according to the approved plan at all times after approval, and address any deficiency identified by the permitting authority within 60 days following disapproval of a plan. The permittee may request approval to revise the plan and may operate according to the revised plan unless and until the revision is disapproved by Division. The permittee

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

shall keep a copy of the plan onsite, and the permittee shall provide training on the PPP's requirements to all plant personnel with materials acquisition or inspection duties. Each plan must include the information in 40 CFR 63.10685(a)(1)(i) through (iii): [40 CFR 63.10685(a)(1); 401 KAR 51:017]

i. Specifications that scrap materials must be depleted (to the extent practicable) of undrained used oil filters, chlorinated plastics, and free organic liquids at the time of charging to the furnace. [40 CFR 63.10685(a)(1)(i)]
ii. A requirement in the scrap specifications for removal (to the extent practicable) of lead-containing components (such as batteries, battery cables, and wheel weights) from the scrap, except for scrap used to produce leaded steel. [40 CFR 63.10685(a)(1)(ii)]
iii. Procedures for determining if the requirements and specifications in 40 CFR 63.10685 (a)(1) are met (such as visual inspection or periodic audits of scrap providers) and procedures for taking corrective actions with vendors whose shipments are not within specifications. [40 CFR 63.10685(a)(1)(iii)]
iv. The requirements of 40 CFR 63.10685(a)(1) do not apply to the routine recycling of baghouse bags or other internal process or maintenance materials in the furnace. These exempted materials must be identified in the pollution prevention plan. [40 CFR 63.10685(a)(1)(iv)]

Compliance Demonstration Method:
Refer to **5. Specific Recordkeeping Requirements (d)** and **(g).**

h. *Restricted metallic scrap.* The permittee shall not charge to a furnace metallic scrap that contains scrap from motor vehicle bodies, engine blocks, oil filters, oily turnings, machine shop borings, transformers or capacitors containing polychlorinated biphenyls, lead-containing components, chlorinated plastics, or free organic liquids. This restriction does not apply to any post-consumer engine blocks, post-consumer oil filters, or oily turnings that are processed or cleaned to the extent practicable such that the materials do not include lead components, chlorinated plastics, or free organic liquids. This restriction does not apply to motor vehicle scrap that is charged to recover the chromium or nickel content if the permittee meets the requirements in 40 CFR 63.10685(b)(3). [40 CFR 63.10685(a)(2); 401 KAR 51:017]

i. For scrap containing motor vehicle scrap, the permittee shall procure the scrap pursuant to one of the compliance options in 40 CFR 63.10685(b)(1), (2), or (3), for each scrap provider, contract, or shipment. The permittee may have one scrap provider, contract, or shipment subject to one compliance provision and others subject to another compliance provision. [40 CFR 63.10685(b); 401 KAR 51:017]
   i. *Site-specific plan for mercury switches.* The permittee shall comply with the requirements in 40 CFR 63.10685(b)(1)(i) through (v). [40 CFR 63.10685(b)(1)]
      1) The permittee shall include a requirement in the scrap specifications for removal of mercury switches from vehicle bodies used to make the scrap. [40 CFR 63.10685(b)(1)(i)]
      2) The permittee shall prepare and operate according to a plan demonstrating how the facility will implement the scrap specification in 40 CFR 63.10685(b)(1)(i) for removal of mercury switches. The permittee shall submit the plan to the Division

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

for approval. The permittee shall operate according to this plan as submitted during the review and approval process, operate according to the approved plan at all times after approval, and address any deficiency identified by the Division within 60 days following disapproval of a plan. The permittee may request approval to revise the plan and may operate according to the revised plan unless and until the revision is disapproved by the Division. The Division may change the approval status of the plan upon 90-days written notice based upon the semiannual compliance report or other information. The plan shall include: [40 CFR 63.10685(b)(1)(ii)]

A. A means of communicating to scrap purchasers and scrap providers the need to obtain or provide motor vehicle scrap from which mercury switches have been removed and the need to ensure the proper management of the mercury switches removed from that scrap as required under the rules implementing subtitle C of the Resource Conservation and Recovery Act (RCRA) (40 CFR parts 261 through 265 and 268). The plan must include documentation of direction to appropriate staff to communicate to suppliers throughout the scrap supply chain the need to promote the removal of mercury switches from end-of-life vehicles. Upon the request of the Division, the permittee shall provide examples of materials that are used for outreach to suppliers, such as letters, contract language, policies for purchasing agents, and scrap inspection protocols; [40 CFR 63.10685(b)(1)(ii)(A)]
B. Provisions for obtaining assurance from scrap providers that motor vehicle scrap provided to the facility meet the scrap specification; [40 CFR 63.10685(b)(1)(ii)(B)]
C. Provisions for periodic inspections or other means of corroboration to ensure that scrap providers and dismantlers are implementing appropriate steps to minimize the presence of mercury switches in motor vehicle scrap and that the mercury switches removed are being properly managed, including the minimum frequency such means of corroboration will be implemented; and [40 CFR 63.10685(b)(1)(ii)(C)]
D. Provisions for taking corrective actions (i.e., actions resulting in scrap providers removing a higher percentage of mercury switches or other mercury-containing components) if needed, based on the results of procedures implemented in 40 CFR 63.10685(b)(1)(ii)(C). [40 CFR 63.10685(b)(1)(ii)(D)]

3) The permittee shall require each motor vehicle scrap provider to provide an estimate of the number of mercury switches removed from motor vehicle scrap sent to the facility during the previous year and the basis for the estimate. The Division may request documentation or additional information at any time. [40 CFR 63.10685(b)(1)(iii)]
4) The permittee shall establish a goal for each scrap provider to remove at least 80 percent of the mercury switches. Although a site-specific plan approved under 40 CFR 63.10685(b)(1) may require only the removal of convenience light switch mechanisms, the Division will credit all documented and verifiable mercury-containing components removed from motor vehicle scrap (such as sensors in anti-locking brake systems, security systems, active ride control, and other applications) when evaluating progress towards the 80 percent goal. [40 CFR 63.10685(b)(1)(iv)]

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

ii. *Option for approved mercury programs.* The permittee shall certify in the notification of compliance status that the permittee participates in and purchases motor vehicle scrap only from scrap providers who participate in a program for removal of mercury switches that has been approved by the Administrator based on the criteria in 40 CFR 63.10685(b)(2)(i) through (iii). If motor vehicle scrap is purchased from a broker, the permittee shall certify that all scrap received from that broker was obtained from other scrap providers who participate in a program for the removal of mercury switches that has been approved by the Administrator based on the criteria in 40 CFR 63.10685(b)(2)(i) through (iii). The National Vehicle Mercury Switch Recovery Program and the Vehicle Switch Recovery Program mandated by Maine State law are EPA-approved programs under 40 CFR 63.10685(b)(2) unless and until the Administrator disapproves the program (in part or in whole) under 40 CFR 63.10685(b)(2)(iii). [40 CFR 63.10685(b)(2)]

1) The program includes outreach that informs the dismantlers of the need for removal of mercury switches and provides training and guidance for removing mercury switches; [40 CFR 63.10685(b)(2)(i)]
2) The program has a goal to remove at least 80 percent of mercury switches from the motor vehicle scrap the scrap provider processes. Although a program approved under 40 CFR 63.10685(b)(2) may require only the removal of convenience light switch mechanisms, the Administrator will credit all documented and verifiable mercury-containing components removed from motor vehicle scrap (such as sensors in anti-locking brake systems, security systems, active ride control, and other applications) when evaluating progress towards the 80 percent goal; and [40 CFR 63.10685(b)(2)(ii)]
3) The program sponsor agrees to submit progress reports to the Administrator no less frequently than once every year that provide the number of mercury switches removed or the weight of mercury recovered from the switches, the estimated number of vehicles processed, an estimate of the percent of mercury switches recovered, and certification that the recovered mercury switches were recycled at facilities with permits as required under the rules implementing subtitle C of RCRA (40 CFR parts 261 through 265 and 268). The progress reports must be based on a database that includes data for each program participant; however, data may be aggregated at the State level for progress reports that will be publicly available. The Administrator may change the approval status of a program or portion of a program (e.g., at the State level) following 90-days notice based on the progress reports or on other information. [40 CFR 63.10685(b)(2)(iii)]
4) The permittee shall develop and maintain onsite a plan demonstrating the manner through which the facility is participating in an EPA-approved program. [40 CFR 63.10685(b)(2)(iv)]
   A. The plan shall include facility-specific implementation elements, corporate-wide policies, and/or efforts coordinated by a trade association as appropriate for each facility. [40 CFR 63.10685(b)(2)(iv)(A)]
   B. The permittee shall provide in the plan documentation of direction to appropriate staff to communicate to suppliers throughout the scrap supply chain the need to promote the removal of mercury switches from end-of-life vehicles. Upon the request of the Division, the permittee shall provide examples of

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

materials that are used for outreach to suppliers, such as letters, contract language, policies for purchasing agents, and scrap inspection protocols. [40 CFR 63.10685(b)(2)(iv)(B)]

C. The permittee shall conduct periodic inspections or provide other means of corroboration to ensure that scrap providers are aware of the need for and are implementing appropriate steps to minimize the presence of mercury in scrap from end-of-life vehicles. [40 CFR 63.10685(b)(2)(iv)(C)]

iii. *Option for specialty metal scrap.* The permittee shall certify in the notification of compliance status that the only materials from motor vehicles in the scrap are materials recovered for their specialty alloy (including, but not limited to, chromium, nickel, molybdenum, or other alloys) content (such as certain exhaust systems) and, based on the nature of the scrap and purchase specifications, that the type of scrap is not reasonably expected to contain mercury switches. [40 CFR 63.10685(b)(3)]

j. For scrap that does not contain motor vehicle scrap, the permittee shall procure the scrap pursuant to the following requirements for each scrap provider, contract, or shipment. The permittee may have one scrap provider, contract, or shipment subject to one compliance provision and others subject to another compliance provision. For scrap not subject to the requirements in 40 CFR 63.10685(b)(1) through (3), the permittee shall certify in the annual compliance certification and maintain records of documentation that this scrap does not contain motor vehicle scrap. [40 CFR 63.10685(b)(4)]

Compliance Demonstration Method:
For **1. Operating Limitations (i)** through **(k)**, refer to **4. Specific Monitoring Requirements (n)** and **(o)**, **5. Specific Recordkeeping Requirements (d), (e), (f),** and **(g), 6. Specific Reporting Requirements (f), (g), (h),** and **(i).**

k. The permittee shall install, operate, and maintain a capture system that collects the emissions from the EAF (including charging, melting, and tapping operations) and conveys the collected emissions to a control device for the removal of particulate matter (PM). [40 CFR 63.10686(a); 401 KAR 51:017]

Compliance Demonstration Method:
Refer to **4. Specific Monitoring Requirements (d), (e), (f), (l)** and **5. Specific Recordkeeping Requirements (a)** and **(g)**, **6. Specific Reporting Requirements (d).**

l. In accordance with 40 CFR 63, Subpart A, the permittee shall develop and implement a written startup, shutdown, and malfunction (SSM) plan that describes, in detail, procedures for operating and maintaining the source during periods of startup, shutdown, and malfunction; and a program of corrective action for malfunctioning process, air pollution control, and monitoring equipment used to comply with the relevant standard. The startup, shutdown, and malfunction plan does not need to address any scenario that would not cause the source to exceed an applicable emission limitation in the relevant standard. The SSM plan shall meet the requirements in 40 CFR 63.6(e)(3). This plan must be developed by the owner or operator before startup of the EAF. [40 CFR 63, Subpart YYYYY, Table 1]

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Compliance Demonstration Method:
Refer to **5. Specific Recordkeeping Requirements (g).**

m. The permittee shall prepare and maintain for Emission Points 01-01, 02-01, 02-03, 02-04, 02-05, and 02-06, upon initial compliance demonstration but no later than 180 days after startup, a good combustion and operation practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing PM, PM_{10}, $PM_{2.5}$, NO_x, CO, SO_2, VOC, and GHG emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Division's inspection. The plan shall include, but not be limited to: [401 KAR 51:017]
   i. A list of combustion optimization practices and a means of verifying the practices have occurred.
   ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred.
   iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.

Compliance Demonstration Method:
Refer to **5. Specific Recordkeeping Requirements (g)** and **(i)**, and **6. Specific Reporting Requirements (k)**.

n. The permittee shall meet the following design and operational requirements for Emission Points 01-01, 02-01, 02-03, 02-04, 02-05 and 02-06 as the BACT determination for GHG: [401 KAR 51:017]
   i. Install and maintain seals and modern insulation media to minimize heat losses from EAF doors, roof, and any openings around the burners or other equipment traversing through the furnace shell.
   ii. Install, operate, and maintain oxy-fuel burners in accordance with manufacturer's specifications to maximize heat transfer, reduce heat losses, and reduce electrode consumption resulting in high thermal efficiency and reduced electrical energy consumption.
   iii. Employ foamy slag practices to reduce radiation heat losses and increase the electric power efficiency of the EAF.
   iv. Optimize process control operations to reduce electricity consumption through monitoring integration of real-time monitoring of process variables along with real-time control systems for carbon injection and lance oxygen practices.
   v. Implement a preventative maintenance program that is consistent with the manufacturer's instructions for routine and long-term maintenance of equipment important to the operation, including EAF doors, burners, etc.
   vi. Conduct periodic preventive maintenance of gas supply valves in accordance with the manufacturer's recommended procedures and schedule.

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vii. Conduct periodic calibration of gas supply meter in accordance with the manufacturer's recommended procedures and schedule.
viii. Employ a program for efficient ladle and tundish management to minimize the level of preheating required and maintaining the performance of the ladles and tundishes through proper refractory lining.
ix. Implement a maintenance and repair program for furnaces, ladles and tundishes to minimize convective and radiant heat losses through proper installation and maintenance of refractory/insulation lining.

Compliance Demonstration Method:
Compliance shall be demonstrated as follows:
A. The facility construction shall be completed in accordance with the BACT determination for GHGs and incorporating the design elements listed above. Refer to **6. Specific Reporting Requirements (l)**, below.
B. The permittee shall prepare, maintain, and implement the GCOP plan. Refer to **1. Operating Limitations (m)**.
C. The permittee shall perform testing for PM, PM_{10}, $PM_{2.5}$, and VOC emissions and continuously monitor NO_x, CO, and SO_2 emissions. Refer to **3. Testing Requirements.**

o. The permittee shall maintain the overall capture efficiency of the Melt Shop Building at or above 99% capture efficiency for PM, PM_{10}, and $PM_{2.5}$. [401 KAR 51:017]

Compliance Demonstration Method:
Refer to **3. Testing Requirements (r), 6. Specific Reporting Requirements (i),** and **7. Specific Control Equipment Requirements (g)**.

p. For Emission Points 01-03, 01-05, 01-09 A&B, 01-10, and 01-11 the permittee shall prepare and implement, upon initial compliance demonstration but no later than 180 days after startup, a Good Work Practices (GWP) plan that includes written operating instructions and procedures that specify good operating and maintenance practices and includes, at a minimum, the following specific practices targeting PM, PM_{10}, $PM_{2.5}$, VOC, SO_2, CO, and NOx emission minimization, and a means of verifying the practices have occurred: [401 KAR 51:017]
i. Tracking material usage to ensure that equipment is operated as designed and correcting any operating or design issues as quickly as possible;
ii. Employing a preventative maintenance program, including a preventative maintenance schedule that is consistent with the manufacturer's instructions for routine and long-term maintenance.

Compliance Demonstration Method:
Refer to **5. Specific Recordkeeping Requirements (g)** and **(i)**, and **6. Specific Reporting Requirements (k)**.

q. The permittee shall limit the sulfur content of the EAF feedstock utilizing scrap management and/or shall add appropriate fluxes to the EAF and LMF such that the emission limitations for SO_2 in **2. Emission Limitations (c)** are met. [401 KAR 51:017]

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Compliance Demonstration Method:
Refer to **4. Specific Monitoring Requirements (a)**, **5. Specific Recordkeeping Requirements (g)** and **(h)**, and **6. Specific Reporting Requirements (a)** and **(b)**.

r. EPs 02-01, 02-03, 02-04, 02-05, and 02-06 shall be equipped with low NO_x burners (burners designed to maintain 70 lb/MMscf and the standards in **2. Emission Limitations (c)**). [401 KAR 51:017]

2. Emission Limitations:

a. ***Opacity Standard:*** The permittee shall not discharge or cause to be discharged into the atmosphere any gases which: [40 CFR 60.272a;40 CFR 63.10686(b)]

   i. Exit from a control device (C0101) and exhibit 3 percent opacity or greater; [40 CFR 60.272a(a)(2)]

   ii. From the dust handling system (EP 01-07), exhibit 10 percent opacity or greater. [40 CFR 60.272a(b)]

   iii. Exit from any melt shop (EU 01) opening, due solely to the operations of EAF(s) and exhibit 6 percent opacity or greater; [40 CFR 60.272a(a)(3); 40 CFR 63.10686(b)(2)]

   iv. Exit from any melt shop (EU 01) opening or stack and exhibit equal to or greater than twenty (20) percent opacity from any building opening or stack. [401 KAR 59:010, Section 3(1)(a)]

Compliance Demonstration Method:
The permittee shall demonstrate compliance with the opacity standards as follows:

A. For **2. Emission Limitations (a)(i)** and **(ii)**, the permittee shall meet the requirements in **3. Testing Requirements**, **4. Specific Monitoring Requirements (b), 5. Specific Recordkeeping Requirements (c),** and **6. Specific Reporting Requirements (c).**

B. For **2. Emission Limitations (a)(iii)**, the permittee shall meet the requirements in **3. Testing Requirements**, **4. Specific Monitoring Requirements (c)** or **(d)** and **5. Specific Recordkeeping Requirements (c),** and **6. Specific Reporting Requirements (c).**

C. Compliance with **2. Emission Limitations (a)(iv)** is assumed when complying with **2. Emission Limitations (a)(i)-(iii).**

b. ***Particulate Emission Standard:*** The permittee shall not discharge or cause to be discharged into the atmosphere any gases which exceed the following limits:

   i. From a control device (C0101): 0.0052 grains of PM per dry standard cubic foot (gr/dscf); [40 CFR 60.272a(a)(1); 40 CFR 63.10686(b)(1)]

   ii. For emissions from a control device or stack, the permittee shall not cause, suffer, allow or permit the emission into the open air of particulate matter from any affected facility which is in excess of the quantity specified in 401 KAR 59:010, Appendix A: [401 KAR 59:010, Section 3(2), Appendix A]

      1) For process weight rates of 0.50 ton/hr or less: 2.34 lb/hr
      2) For process weight rates > 0.5 ton/hr up to 30.00 tons/hr: $= 3.59\ \square^{0.62}$
      3) For process weight rates > 30.00 tons/hr: $= 17.3\ \square^{0.16}$

      Where:
      E = the allowable PM emissions rate (pounds/hr)

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P = the process weight rate (tons/hr)

iii. Emissions of PM, PM_{10}, and $PM_{2.5}$ shall not exceed the limits in the following two tables: [401 KAR 51:017]

Control Device (Stack)	Emission Units Controlled	BACT for PM (filterable)	BACT for PM_{10}	BACT for $PM_{2.5}$
Baghouse (C0101) Stack	01-01, 01-02, 01-03 (alloy addition), 01-04, 01-08B, 01-09 A&B, 01-10, 02-01, 02-03, 02-04, 02-05, 02-06 08-04	0.0018 gr/dscf; 25.49 lb/hr; 111.64 ton/yr	0.0052 gr/dscf; 73.64 lb/hr; 322.53 ton/yr	0.0034 gr/dscf; 48.15 lb/hr; 210.88 ton/yr

Emission Point	Description	BACT for PM (filterable)	BACT for PM_{10}	BACT for $PM_{2.5}$
01-03	Vacuum Degasser (under vacuum)	0.008 gr/dscf; 0.06 lb/hr; 0.27 ton/yr	0.008 gr/dscf; 0.06 lb/hr; 0.27 ton/yr	0.008 gr/dscf; 0.06 lb/hr; 0.27 ton/yr
01-05	Caster Spray Vent	12.50 lb/hr; 54.7~~8~~5 tons/yr;	2.00 lb/hr; 8.76 tons/yr;	0.25 lb/hr; 1.10 ton/yr;
01-06	Primary Caster Torch Cutoff	43 lb/MMscf; 0.~~33~~ 35 ton/yr	49 lb/MMscf; 0.~~33~~ 39 ton/yr	49 lb/MMscf; 0.~~33~~ 39 ton/yr
01-07	Melt Shop Baghouse Dust Silo & Dust Handling System	0.005 gr/dscf; 0.077 lb/hr; 0.34 ton/yr	0.005 gr/dscf; 0.077 lb/hr; 0.34 ton/yr	0.005 gr/dscf; 0.077 lb/hr; 0.34 ton/yr
01-11	Caster Quench Box	3.35 lb/hr; 14.7 ton/yr	0.54 lb/hr; 2.35 tons/yr	0.07 lb/hr; 0.29 ton/yr
01-12	Secondary Caster Torch Cutoff	45.~~8~~ 7 ~~lb~~lb./MMscf; 0.38 ton/yr	51.~~.5~~4 lb/MMscf; 0.43 ton/yr	51.~~5~~4 lb/MMscf; 0.43 ton/yr

Compliance Demonstration Method:

The permittee shall demonstrate compliance with the particulate emission standards as follows:

A. Compliance with **2. Emission Limitations (b)(i)** and **(ii)** is assumed when complying with **2. Emission Limitations (b)(iii)**.

B. Compliance with **2. Emission Limitations (b)(iii)** will be demonstrated as follows:

1) For the Melt Shop Baghouse (C0101) stack, the permittee shall meet the requirements in **1. Operating Limitations (a), (c), (d), (m), 3. Testing Requirements (m)** and **(q), 4. Specific Monitoring Requirements (l)** and **(o), 5. Specific Recordkeeping Requirements (a)** and **(g), 6. Specific Reporting Requirements (k),** and **7. Specific Control Equipment Operating Conditions.**

2) For EP 01-03, the permittee shall meet the requirements in **1. Operating Limitations (p), 4. Specific Monitoring Requirements (o), 5. Specific**

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Recordkeeping Requirements **(g)** and **(i)**, **6. Specific Reporting Requirements (k),** and **7. Specific Control Equipment Operating Conditions**.

3) For EP 01-05 and EP 01-11, the permittee shall meet the requirements in **1. Operating Limitations (p)**, **4. Specific Monitoring Requirements (o), 5. Specific Recordkeeping Requirements (g)** and **(i)**, **6. Specific Reporting Requirements (k)**
4) For EP 01-06 and EP 01-12 compliance with the emission limits is assumed when burning natural gas and meeting the requirements in **5. Specific Recordkeeping Requirements (g)** and **6. Specific Reporting Requirements (l).**
5) For EP 01-07, the permittee shall meet the requirements in **1. Operating Limitations**, **4. Specific Monitoring Requirements (f)** and **(o), 5. Specific Recordkeeping Requirements (g)**, and **7. Specific Control Equipment Operating Conditions**.

c. ***CO, NO$_x$, SO$_2$, and GHG Emission Standard:*** Emissions of CO, NO$_x$, SO$_2$, and GHG shall not exceed the limits in the following two tables: [401 KAR 51:017]

Control Device (Stack)	Emission Units	BACT for CO*	BACT for NO$_x$*	BACT for SO$_2$*	BACT for GHG (CO$_2$e)
Baghouse (C0101) Stack[1]	01-01, 01-02, 01-04, 01-08 B, 01-09 A&B, 01-10, 02-01, 02-03, 02-04, 02-05, 02-06, 08-04	1.98 lb/ton; 495 lb/hr; 1,733 ton/yr	0.42 lb/ton; 104 lb/hr; 363.8 ton/yr	0.35 lb/ton; 86.63 lb/hr; 303.2 ton/yr	464,088 ton/yr

*Note: BACT lb/ton and lb/hr limits are 30-day rolling averages and ton/yr limit is a 12-month rolling average.

[1] Compliance with the lb/ton emission standards shall take effect after three (3) consecutive months of production representing normal production a(100,000 tons/month), not to exceed permit expiration.

Emission Point	Description	BACT for CO	BACT for NO$_x$	BACT for SO$_2$	BACT for GHG (CO$_2$e)
01-03	Vacuum Degasser (under vacuum)	0.075 lb/ton; 65.63 tons/yr	0.005 lb/ton; 4.38 tons/yr	0.005 lb/ton; 4.38 tons/yr	2,511 ton/yr
01-06	Primary Caster Torch Cutoff	84 lb/MMscf; 0.68 ton/yr	100 lb/MMscf; 0.81 ton/yr	0.6 lb/MMscf; 0.005 ton/yr	974~~5~~ tons/yr
01-12	Secondary Caster Torch Cutoff	84 lb/MMscf; 0.70 ton/yr	100 lb/MMscf; 0.84 ton/yr	0.6 lb/MMscf; 0.005 ton/yr	1,0100~~1~~ tons/yr

Compliance Demonstration Method:
The permittee shall demonstrate compliance with the emission limitations for CO, NO$_x$, SO$_2$, and GHGs as follows:

A. **For the Melt Shop Baghouse (C0101) stack, the permittee shall meet the requirements in 1. Operating Limitations (a), (c), (d), (g) through (j), (l) through**

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(o), and (q), 3. Testing Requirements (q), 4. Specific Monitoring Requirements (a) and (o), 5. Specific Recordkeeping Requirements (g), (h) and (i), 6. Specific Reporting Requirements (a), (b), (k) and **(l)**, and **7. Specific Control Equipment Operating Conditions.**

B. For EP 01-03, the permittee shall meet the requirements in **1. Operating Limitations (p)**, **4. Specific Monitoring Requirements (o)**, **5. Specific Recordkeeping Requirements (g)** and **(i)**, **6. Specific Reporting Requirements (k)** and **(l)**, and **7. Specific Control Equipment Operating Conditions.**

C. For EP 01-06, and EP 01-12, compliance with the emission limits is assumed when burning natural gas and meeting the requirements in **5. Specific Recordkeeping Requirements (g)** and **6. Specific Reporting Requirements (l).**

D. For the Melt Shop Baghouse stack, the permittee shall use CEMs to demonstrate compliance with the emission standards listed above as follows:

1) The permittee shall demonstrate continuous compliance with CO emission limits using the following equations:

$$_{CO} = 4.364\,x\,10^{-6} \cdot \quad _{CO} \cdot$$

$$CO_{30\,day} = \overset{30}{\underset{i}{L}} \quad CO_i$$

$$_{30\,day} = \overset{30}{\underset{i}{L}} \quad _i$$

$$_{CO} = \frac{CO_{30\,day}}{_{30\,day}}$$

Where:

E_{CO}	= the daily average CO emissions, in lbs CO/hour
C_{CO}	= the average CEM CO concentration over 24 hours in ppm
V	= the average exhaust rate measured over 24 hours, in scfm.
$CO_{30\,day}$	= the 30-day rolling average CO emissions, in lbs CO/hour, as the average of all daily average CO emission rates for the preceding 30 operating days
CO_i	= the daily average CO emissions on the *i*th day, lbs CO/hr
$_{30\,day}$	= the 30-day rolling average production rate, in ton of steel cast/hr, as the average of all of the 24-hour average production rates for the preceding 30 operating days
$_i$	= the average production rate on the *i*th day, in ton of steel cast/hr during the 24-hour production day
$_{CO}$	= the 30-day rolling average CO emissions in lbs CO/ton of steel cast

2) The permittee shall demonstrate continuous compliance with total NO_X emission limits using the following equations:

$$_{NO_X} = 7.17\,x\,10^{-6} \cdot \quad _{NO_X} \cdot$$

$$NO_{X30\,day} = \overset{30}{\underset{i}{L}} \quad NO_{Xi}$$

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$$30\,day = \sum_{i}^{30} i$$

$$NO_X = \frac{NO_{X30\,day}}{30\,day}$$

Where:

NO_X = the daily average NOx emissions, in lbs NOx/hour
NO_X = the average CEM NOx concentration over 24 hours in ppm
V = the average exhaust rate measured over 24 hours, in scfm.
$NO_{X30\,day}$ = the 30-day rolling average NOx emissions, in lbs NOx/hour, as the average of all daily average NOx emission rates for the preceding 30 operating days
NO_{Xi} = the daily average NOx emissions on the *i*th day, lbs NOx/hr
NO_X = the 30-day rolling average NOx emissions in lbs NOx/ton of steel cast

3) The permittee shall demonstrate continuous compliance with total SO_2 emission limits using the following equations:

$$SO_2 = 9.974\,x\,10^{-6} \cdot SO_2 \cdot$$

$$SO_{2\,30\,day} = \sum_{i}^{30} SO_{2i}$$

$$30\,day = \sum_{i}^{30} i$$

$$SO_2 = \frac{SO_{2\,30\,day}}{30\,day}$$

Where:

SO_2 = the daily average SO_2 emissions, in lbs SO_2/hour
SO_2 = the average CEM concentration over 24 hours in ppm
V = the average exhaust rate measured over 24 hours, in scfm.
$SO_{2\,30\,day}$ = the 30-day rolling average SO_2 emissions, in lbs SO_2/hour, as the average of all daily average SO_2 emission rates for the preceding 30 operating days
$SO_{2\,i}$ = the daily average SO_2 emissions on the *i*th day, lbs SO_2/hr
SO_2 = the 30-day rolling average SO_2 emissions in lbs SO_2/ton of steel cast

d. ***VOC Emission Standard***: Emissions of VOC shall not exceed the limits in the following two tables: [401 KAR 51:017]

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Control Device (Stack)	Emission Units	BACT for VOC
Baghouse (C0101) Stack[1]	01-01, 01-02, 01-04, 01-08 B, 01-09 A&B, 01-10, 02-01, 02-03, 02-04, 02-05, 02-06, 08-04	0.09 lb/ton; 77.96 tons/yr

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[1] Compliance with the lb/ton emission standard shall take effect after three (3) consecutive months of production representing normal conditions (100,000 tons/month), not to exceed permit expiration.

Emission Point	Description	BACT for VOC
01-03	Vacuum Degasser (under vacuum)	0.005 lb/ton; 4.38 tons/yr
01-05	Caster Spray Vent	4.40~~0.40~~ lb/hr; 19.27~~1.75~~ tons/yr
01-06	Primary Caster Torch Cutoff	5.5 lb/MMscf; 0.044 tons/yr
01-12	Secondary Caster Torch Cutoff	5.5 lb/MMscf; 0.046 tons/yr

Compliance Demonstration Method:
The permittee shall demonstrate compliance with the emission limitations for VOC as follows:

A. For the Melt Shop Baghouse (C0101) stack, the permittee shall meet the requirements in **1. Operating Limitations (c), (d), (f), (g)** through **(j), (l),** and **(m), 3. Testing Requirements (q), 4. Specific Monitoring Requirements (n)** and **(o), 5. Specific Recordkeeping Requirements (g)** and **(i), 6. Specific Reporting Requirements (k),** and **7. Specific Control Equipment Operating Conditions.**

B. For EP 01-03, the permittee shall meet the requirements in **1. Operating Limitations (p), 4. Specific Monitoring Requirements (o), 5. Specific Recordkeeping Requirements (g)** and **(i), 6. Specific Reporting Requirements (k),** and **7. Specific Control Equipment Operating Conditions.**

C. For EP 01-05, the permittee shall meet the requirements in **1. Operating Limitations (p), 3. Testing Requirements (q), 4. Specific Monitoring Requirements (o), 5. Specific Recordkeeping Requirements (g)** and **(i), 6. Specific Reporting Requirements (k),** and **7. Specific Control Equipment Operating Conditions.**

D. For EP 01-06, and EP 01-12, compliance with the emission limits is assumed when burning natural gas and meeting the requirements in **5. Specific Recordkeeping Requirements (g)** and **6. Specific Reporting Requirements (l).**

3. Testing Requirements:

a. During performance tests required in 40 CFR 60.8, the permittee shall not add gaseous diluents to the effluent gas stream after the fabric in any pressurized fabric filter collector, unless the amount of dilution is separately determined and considered in the determination of emissions. [40 CFR 60.275a(a)]

b. When emissions from the EAF are combined with emissions from facilities not subject to the provisions of 40 CFR 60, Subpart AAa but controlled by a common capture system and control device, the permittee shall use either or both of the following procedures during a performance test (see also 40 CFR 60.276a(e)): [40 CFR 60.275a(b)]
   i. Determine compliance using the combined emissions. [40 CFR 60.275a(b)(1)]
   ii. Use a method that is acceptable to the Administrator and that compensates for the emissions from the facilities not subject to the provisions of 40 CFR 60, Subpart AAa. [40 CFR 60.275a(b)(2)]

c. When emission from the EAF are combined with emissions from facilities not subject to

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the provisions of 40 CFR 60, Subpart AAa, the permittee shall demonstrate compliance

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with 40 CFR 60.272(a)(3) based on emissions from only the affected facility(ies). [40 CFR 60.275a(c)]

d. In conducting the performance tests required in 40 CFR 60.8, the permittee shall use as reference methods and procedures the test methods in appendix A of 40 CFR 60 or other methods and procedures as specified in 40 CFR 60.275a, except as provided in 40 CFR 60.8(b). [40 CFR 60.275a(d)]

e. The permittee shall determine compliance with the particulate matter standards in 40 CFR 60.272a as follows: [40 CFR 60.275a(e)]
   i. Method 5 shall be used for negative-pressure fabric filters to determine the particulate matter concentration and volumetric flow rate of the effluent gas. The sampling time and sample volume for each run shall be at least 4 hours and 4.50 dscm (160 dscf) and, when a single EAF vessel is sampled, the sampling time shall include an integral number of heats. [40 CFR 60.275a(e)(1)]
   ii. Method 9 and the procedures of 40 CFR 60.11 shall be used to determine opacity. [40 CFR 60.275a(e)(3)]
   iii. To demonstrate compliance with 40 CFR 60.272a(a) (1), (2), and (3), the Method 9 test runs on the EU 01 baghouse stack shall be conducted concurrently with the particulate matter test runs on the EU 01 baghouse stack, unless inclement weather interferes. [40 CFR 60.275a(e)(4)]

f. To comply with 40 CFR 60.274a(c), (f), (g), and (h), the permittee shall obtain the information required in these requirements during the particulate matter runs. [40 CFR 60.275a(f)]

g. Any control device subject to the provisions of 40 CFR 60, Subpart AAa shall be designed and constructed to allow measurement of emissions using applicable test methods and procedures. [40 CFR 60.275a(g)]

h. Where emissions from the EAF are combined with emissions from facilities not subject to the provisions of 40 CFR 60, Subpart AAa but controlled by a common capture system and control device, the permittee may use any of the following procedures during a performance test: [40 CFR 60.275a(h)]
   i. Base compliance on control of the combined emissions; [40 CFR 60.275a(h)(1)]
   ii. Utilize a method acceptable to the Administrator that compensates for the emissions from the facilities not subject to the provisions of 40 CFR 60, Subpart AAa, or; [40 CFR 60.275a(h)(2)]
   iii. Any combination of the criteria of 40 CFR 60.275a(h)(1) and (h)(2). [40 CFR 60.275a(h)(3)]

i. Where emissions from the EAF are combined with emissions from facilities not subject to the provisions of 40 CFR 60, Subpart AAa, determinations of compliance with 40 CFR 60.272a(a)(3) will only be based upon emissions originating from the affected facility(ies). [40 CFR 60.275a(i)]

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j. Unless the presence of inclement weather makes concurrent testing infeasible, the permittee shall conduct concurrently the performance tests required under 40 CFR 60.8 to demonstrate compliance with 40 CFR 60.272a(a)(1), (2), and (3). [40 CFR 60.275a(j)]

k. For the purpose of 40 CFR 60, Subpart AAa, the permittee shall conduct the demonstration of compliance with 40 CFR 60.272a(a) and furnish the Administrator a written report of the results of the test. This report shall include the following information. [40 CFR 60.276a(f)]
   i. Facility name and address; [40 CFR 60.276a(f)(1)]
   ii. Plant representative; [40 CFR 60.276a(f)(2)]
   iii. Make and model of process, control device, and continuous monitoring equipment; [40 CFR 60.276a(f)(3)]
   iv. Flow diagram of process and emission capture equipment including other equipment or process(es) ducted to the same control device; [40 CFR 60.276a(f)(4)]
   v. Rated (design) capacity of process equipment; [40 CFR 60.276a(f)(5)]
   vi. Those data required under 40 CFR 60.274a(h); [40 CFR 60.276a(f)(6)]
      1) List of charge and tap weights and materials; [40 CFR 60.276a(f)(6)(i)]
      2) Heat times and process log; [40 CFR 60.276a(f)(6)(ii)]
      3) Control device operation log; and [40 CFR 60.276a(f)(6)(iii)]
      4) Continuous opacity monitor or Method 9 data. [40 CFR 60.276a(f)(6)(iv)]
   vii. Test dates and test times; [40 CFR 60.276a(f)(7)]
   viii. Test company; [40 CFR 60.276a(f)(8)]
   ix. Test company representative; [40 CFR 60.276a(f)(9)]
   x. Test observers from outside agency; [40 CFR 60.276a(f)(10)]
   xi. Description of test methodology used, including any deviation from standard reference methods; [40 CFR 60.276a(f)(11)]
   xii. Schematic of sampling location; [40 CFR 60.276a(f)(12)]
   xiii. Number of sampling points; [40 CFR 60.276a(f)(13)]
   xiv. Description of sampling equipment; [40 CFR 60.276a(f)(14)]
   xv. Listing of sampling equipment calibrations and procedures; [40 CFR 60.276a(f)(15)]
   xvi. Field and laboratory data sheets; [40 CFR 60.276a(f)(16)]
   xvii. Description of sample recovery procedures; [40 CFR 60.276a(f)(17)]
   xviii. Sampling equipment leak check results; [40 CFR 60.276a(f)(18)]
   xix. Description of quality assurance procedures; [40 CFR 60.276a(f)(19)]
   xx. Description of analytical procedures; [40 CFR 60.276a(f)(20)]
   xxi. Notation of sample blank corrections; and [40 CFR 60.276a(f)(21)]
   xxii. Sample emission calculations. [40 CFR 60.276a(f)(22)]

l. Except as provided in 40 CFR 63.10686(d)(6), the permittee shall conduct performance tests to demonstrate initial compliance with the applicable emissions limit for each emissions source subject to an emissions limit in 40 CFR 63.10686(b). [40 CFR 63.10686(d)]

m. The permittee must conduct each PM performance test for the EAF according to the procedures in 40 CFR 63.7, 40 CFR 63.10686(d) and 40 CFR 60.275a using the following

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test methods in 40 CFR part 60, appendices A-1, A-2, A-3, and A-4: [40 CFR 63.10686(d)(1)]

i. Method 1 or 1A of appendix A-1 of 40 CFR part 60 to select sampling port locations and the number of traverse points in each stack or duct. Sampling sites must be located at the outlet of the control device prior to any releases of the atmosphere. [40 CFR 63.10686(d)(1)(i)]
ii. Method 2, 2A, 2C, 2D, 2F, or 2G of appendix A-1 of 40 CFR part 60 to determine the volumetric flow rate of the stack gas. [40 CFR 63.10686(d)(1)(ii)]
iii. Method 3, 3A, or 3B of appendix A-3 of 40 CFR part 60 to determine the dry molecular weight of the stack gas. The permittee may use ANSI/ASME PTC 19.10-1981, “Flue and Exhaust Gas Analyses” (incorporated by reference – see 40 CFR 63.14) as an alternative to EPA method 3B. [40 CFR 63.10686(d)(1)(iii)]
iv. Method 4 of appendix A-3 of 40 CFR part 60 to determine the moisture content of the stack gas. [40 CFR 63.10686(d)(1)(iv)]
v. Method 5 or Method 5D of appendix A-3 of 40 CFR part 60 to determine the PM concentration. Three valid test runs are needed to comprise a PM performance test. For the EAF, sample only when metal is being melted and refined. The sample time and sample volume for each run shall be at least 4 hours and 160 dscf (4.50 dscm) and the sampling time shall include an integral number of heats. [40 CFR 60.275a(e)(1); 40 CFR 63.10686(d)(1)(v)]

n. The permittee shall conduct each opacity test for the melt shop according to the procedures in 40 CFR 63.6(h) and Method 9 of appendix A-4 of 40 CFR part 60. [40 CFR 63.10686(d)(2)]

o. During any performance test, the permittee shall monitor and record the information specified in 40 CFR 60.274a(h) for all heats covered by the test. [40 CFR 63.10686(d)(3)]

p. If the performance tests and/or compliance demonstrations are not conducted at the maximum capacity of the tested unit (EP 01-01) as specified herein, the source shall be limited to a production rate of no greater than 110 percent of the average production rate during the performance tests. If the source becomes capable of operating at a higher production rate than the production rate demonstrated during a prior performance test, the permittee shall conduct another performance test at the higher rate to demonstrate the source’s ability to comply with emissions. [401 KAR 50:045]

q. The permittee shall conduct performance tests on the Melt Shop Baghouse (C0101) stack and the Caster Spray Vent (EP 01-05) within 60 days after achieving the maximum production rate at which the EAF (EP 01-01) (or, for the caster spray vent, the caster) will be operated, but not later than 180 days after initial startup and annually thereafter for PM, PM_{10}, and $PM_{2.5}$~~,~~ from the Melt Shop Baghouse (C0101) and the Caster Spray Vent (EP 01-05) and VOC from the Caster Spray Vent (EP 01-05). The permittee shall conduct a performance test on the Melt Shop Baghouse (C0101) stack within 60 days after achieving production representing normal operation for three (3) consecutive months (100,000 tons/month) at which the EAF (EP 01-01) will be operated, but no later than permit expiration and annually thereafter for VOC [401 KAR 51:017]

i. The permittee shall use U.S. EPA Methods 201A & 202 for PM, PM_{10}, and $PM_{2.5}$;
ii. The permittee shall use U.S. EPA Method 25 for VOC;

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iii. The permittee may use an alternate method upon approval from the Division.

iv. These tests shall demonstrate compliance with **2. Emission Limitations** and establish emission factors for each pollutant in lb/ton.

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r. The permittee shall, during the testing on the Melt Shop Baghouse (C0101) stack required by **3. Testing Requirements (q)**, verify the direction of airflow through the largest building wall opening closest to the EAF, is inward using a smoke tube and the following procedures: [401 KAR 51:017]
   i. The direction of airflow shall be monitored for at least 1 hour, with checks made no more than 10 minutes apart.
   ii. The fan RPM/amperage and volumetric flow rate shall be monitored during the test.

s. The exhaust rate of emissions from the baghouse referenced under **2. Emission Limitations** above, is to be determined based upon measurement of flow rates in the caster canopy duct, ladle dryer, tundish deskull area, EAF canopy duct, DEC duct, LMF canopy duct, LMF duct, and VTD, combined, and converted to standard conditions over three 8-hour periods under conditions representative of normal EAF operations. The flow rate measurements shall be determined by EPA Methods 1 through 4. Alternatively, with approval from the Division, the permittee may measure the flow rate from a location that is representative of the total combined flow rate of the system. The permittee shall submit a report to the Division supporting the determination of any revised exhaust rate that is to be used in providing compliance assurance through the formula specified in **2. Emission Limitations** above. The exhaust rate is to be re-determined by the permittee if changes in operating conditions occur that would indicate that the previously-determined exhaust rate is no longer representative of normal operating conditions, and the Division concurs.

t. The permittee shall conduct initial performance tests on the Melt Shop Baghouse (C0101) stack within 60 days after achieving the maximum production rate at which the EAF (EP 01-01) will be operated, but not later than 180 days after initial startup for Lead (Pb) and Fluorides. [401 KAR 51:017]
   i. The permittee shall use U.S. EPA Method 12 for Lead (Pb);
   ii. The permittee shall use U.S. EPA Method 13A or 13B for Fluorides;
   iii. The permittee may use an alternate method upon approval from the Division.
   iv. These tests shall establish emission factors for each pollutant in lb/ton.

u. Pursuant to 401 KAR 59:005, Section 2(2) and 401 KAR 50:045, Section 1, performance testing using the Reference Methods specified in 401 KAR 50:015 shall be conducted if required by the Cabinet.

4. Specific Monitoring Requirements:

a. The permittee shall install, maintain, and operate continuous emission monitoring systems for the SO_2, NO_X, and CO concentrations of the gases in the Melt Shop baghouse stack, or other approved locations. The SO_2, NO_X, and CO monitors shall be installed and operated in compliance with Performance Specifications 2 and 4, as contained in 40 CFR Part 60, Appendix B. The span values for the monitors shall be 500 ppm for CO, 50 ppm for SO_2, and 50 ppm for NO_x. The monitors shall be calibrated as specified in Performance Specification 2 for SO_2 and NO_x, and Performance Specification 4 for CO as contained in 40 CFR Part 60 Appendix B. The quality assurance shall follow the requirements of 40 CFR Part 60 Appendix F. [401 KAR 51:017]

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

b. Visible emissions from each control device (C0101) must be performed by a certified visible emission observer and the permittee shall install and continuously operate a bag leak detection system according to 40 CFR 60.273a(e) for the baghouse stack. [40 CFR 60.273a(c)]
   i. Visible emission observations shall be conducted at least once per day for at least three 6-minute periods when the furnace is operating in the melting and refining period.
   ii. All visible emissions observations shall be conducted in accordance with Method 9.
   iii. If visible emissions occur from more than one point, the opacity shall be recorded for any points where visible emissions are observed.
   iv. Where it is possible to determine that a number of visible emission sites relate to only one incident of the visible emission, only one set of three 6-minute observations will be required. In that case, the Method 9 observations must be made for the site of highest opacity that directly relates to the cause (or location) of visible emissions observed during a single incident.
   v. Records shall be maintained of any 6-minute average that is in excess of the emission limit specified in 40 CFR 60.272a(a).

c. A furnace static pressure monitoring device is not required on any EAF equipped with a Direct-shell Evacuation Control (DEC) system if observations of shop opacity are performed by a certified visible emission observer as follows: [40 CFR 60.273a(d)]
   i. Shop opacity observations shall be conducted at least once per day when the furnace is operating in the meltdown and refining period.
   ii. Shop opacity shall be determined as the arithmetic average of 24 consecutive 15-second opacity observations of emissions from the shop taken in accordance with Method 9.
   iii. Shop opacity shall be recorded for any point(s) where visible emissions are observed.
   iv. Where it is possible to determine that a number of visible emission sites relate to only one incident of visible emissions, only one observation of shop opacity will be required. In this case, the shop opacity observations must be made for the site of highest opacity that directly relates to the cause (or location) of visible emissions observed during a single incident.

d. Except as provided under 40 CFR 60.274a(e), the permittee shall check and record on a once-per-shift basis the furnace static pressure (if DEC system is in use, and a furnace static pressure gauge is installed according to 40 CFR 60.274a(f)) and either: [40 CFR 60.274a(b)]
   i. Check and record the control system fan motor amperes and damper position on a once-per-shift basis;
   ii. Install, calibrate, and maintain a monitoring device that continuously records the volumetric flow rate through each separately ducted hood; or
   iii. Install, calibrate, and maintain a monitoring device that continuously records the volumetric flow rate at the control device inlet and check and record damper positions on a once-per-shift basis.
   iv. The monitoring device(s) may be installed in any appropriate location in the exhaust duct such that reproducible flow rate monitoring will result. The flow rate monitoring device(s) shall have an accuracy of ±10 percent over its normal operating range and shall be calibrated according to the manufacturer's instructions.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

v. The Administrator may require the permittee to demonstrate the accuracy of the monitoring device(s) relative to Methods 1 and 2 of appendix A of part 60.

e. When the permittee is required to demonstrate compliance with the standards under 40 CFR 60.272a(a)(3) and at any other time that the Administrator may require (under section 114 of the CAA, as amended) either: The control system fan motor amperes and all damper positions, the volumetric flow rate through each separately ducted hood, or the volumetric flow rate at the control device inlet and all damper positions shall be determined during all periods in which a hood is operated for the purpose of capturing emissions from the affected facility subject to 40 CFR 60.274a(b). The permittee may petition the Administrator for reestablishment of these parameters whenever the permittee can demonstrate to the Administrator's satisfaction that the affected facility operating conditions upon which the parameters were previously established are no longer applicable. The values of these parameters as determined during the most recent demonstration of compliance shall be maintained at the appropriate level for each applicable period. Operation at other than baseline values may be subject to the requirements of 40 CFR 60.276a(c). [40 CFR 60.274a(c)]

f. Except as provided under 40 CFR 60.274a(e), the permittee shall perform monthly operational status inspections of the equipment that is important to the performance of the total capture system (*i.e.*, 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 ductwork, and fan erosion). Any deficiencies shall be noted and proper maintenance performed. [40 CFR 60.274a(d)]

g. The permittee may petition the Administrator to approve any alternative to either the monitoring requirements specified in 40 CFR 60.274a(b) or the monthly operational status inspections specified in 40 CFR 60.274a(d) if the alternative will provide a continuous record of operation of each emission capture system. [40 CFR 60.274a(e)]

h. Except as provided for under 40 CFR 60.273a(d), if emissions during any phase of the heat time are controlled by the use of a DEC system, the permittee shall install, calibrate, and maintain a monitoring device that allows the pressure in the free space inside the EAF to be monitored. The pressure shall be recorded as 15-minute integrated averages. The monitoring device may be installed in any appropriate location in the EAF or DEC duct prior to the introduction of ambient air such that reproducible results will be obtained. The pressure monitoring device shall have an accuracy of ±5 mm of water gauge over its normal operating range and shall be calibrated according to the manufacturer's instructions. [40 CFR 60.274a(f)]

i. Except as provided for under 40 CFR 60.273a(d), when the permittee of an EAF controlled by a DEC is required to demonstrate compliance with the standard under 40 CFR 60.272a(a)(3), and at any other time the Administrator may require (under section 114 of the Clean Air Act, as amended), the pressure in the free space inside the furnace shall be determined during the meltdown and refining period(s) using the monitoring device

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

required under 40 CFR 60.274a(f). The permittee may petition the Administrator for reestablishment of the pressure whenever the permittee can demonstrate to the Administrator's satisfaction that the EAF operating conditions upon which the pressures were previously established are no longer applicable. The pressure determined during the most recent demonstration of compliance shall be maintained at all times when the EAF is operating in a meltdown and refining period. Operation at higher pressures may be considered by the Administrator to be unacceptable operation and maintenance of the affected facility. [40 CFR 60.274a(g)]

j. During any performance test required under 40 CFR 60.8, and for any report thereof required by 40 CFR 60.276a(f), or to determine compliance with 40 CFR 60.272a(a)(3), the permittee must monitor the following information for all heats covered by the test: [40 CFR 63.10686(d)(3), 40 CFR 60.274a(h)]
   i. Charge weights and materials, and tap weights and materials; [40 CFR 60.274a(h)(1)]
   ii. Heat times, including start and stop times, and a log of process operation, including periods of no operation during testing and the pressure inside an EAF when direct-shell evacuation control systems are used; [40 CFR 60.274a(h)(2)]
   iii. Control device operation log; and [40 CFR 60.274a(h)(3)]
   iv. Continuous opacity monitor or Method 9 data. [40 CFR 60.274a(h)(4)]

k. The permittee shall monitor the capture system and PM control device required by 40 CFR 63, Subpart YYYYY, maintain records, and submit reports according to the compliance assurance monitoring requirements in 40 CFR part 64. The exemption in 40 CFR 64.2(b)(1)(i) for emissions limitations or standards proposed after November 15, 1990 under section 111 or 112 of the CAA does not apply. In lieu of the deadlines for submittal in 40 CFR 64.5, the permittee shall submit the monitoring information required by 40 CFR 64.4 to the Division for approval by no later than startup of the affected source and operate according to the approved plan by no later than 180 days after the date of approval by the Division. [40 CFR 63.10686(e)]

l. Upon detecting an excursion or exceedance (as defined in the appropriate CAM plan), the permittee shall restore operation of the pollutant-specific emissions unit (including the control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include minimizing the period of any startup, shutdown or malfunction and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion or exceedance (other than those caused by excused startup or shutdown conditions). Such actions may include initial inspection and evaluation, recording that operations returned to normal without operator action (such as through response by a computerized distribution control system), or any necessary follow-up actions to return operation to within the indicator range, designated condition, or below the applicable emission limitation or standard, as applicable. [40 CFR 64.7(d)(1)]

m. Determination of whether the permittee has used acceptable procedures in response to an excursion or exceedance (as defined in the CAM plan) will be based on information

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

available, which may include but is not limited to, monitoring results, review of operation and maintenance procedures and records, and inspection of the control device, associated capture system, and the process. [40 CFR 64.7(d)(2)]

n. The permittee shall inspect each load of scrap as it is received either by truck, railcar, or barge. The permittee shall maintain records of the types and amounts of scrap used during stack tests. The permittee shall use only scrap and scrap mixes that are typical of the scrap used during stack tests when compliance was demonstrated. The scrap shall be largely free of foreign materials such as oil and greases and shall not contain materials likely to have excess organic material. [401 KAR 52:020, Section 10]

o. The permittee shall monitor the following: [401 KAR 52:020, Section 10]
   i. The daily, monthly, and 12-month steel production rate (as measured as the total tons of steel cast);
   ii. The amount of carbon charged or injected per heat;
   iii. The amount of fluorspar charged per heat;
   iv. The types of scrap and scrap substitutes charged to the furnace;
   v. The monthly and 12-month rolling process weight rate for each emission point;
   vi. For EP 02-01 through 02-06, the monthly and 12-month rolling natural gas combusted (MMscf). If the permittee elects not to install a fuel metering device to continuously monitor the amount of natural gas fed to each emission point, the permittee may use a combined meter for multiple emission points, as long as the natural gas apportioned to all emission points sums to 100% of the natural gas used;
   vii. For the Melt Shop Baghouse (C0101) stack and EP 01-03, monthly and 12-month rolling emissions of NO_x, CO, and SO_2.

p. At least once per day during Scrap Charging (EP 08-04) activities, the permittee shall perform qualitative monitoring of visible emissions to ensure effective capture by the Melt Shop Baghouse hooding. [401 KAR 51:017]

q. Refer to **SECTION F** for general monitoring requirements.

5. **Specific Recordkeeping Requirements:**
   a. The permittee shall maintain records of the following information: [40 CFR 60.274a(a)]
      i. All data obtained under 40 CFR 60.274a(b); and [40 CFR 60.274a(a)(1)]
      ii. All monthly operational status inspections performed under 40 CFR 60.274a(c). [40 CFR 60.274a(a)(2)]

   b. Records of the measurements required in 40 CFR 60.274a must be retained for at least 2 years following the date of the measurement. [40 CFR 60.276a(a)]

   c. The permittee shall maintain records of all shop opacity observations made in accordance with 40 CFR 60.273a(d). All shop opacity observations in excess of the emission limit specified in 40 CFR 60.272a(a)(3) shall indicate a period of excess emissions, and shall be reported to the Administrator semi-annually, according to 40 CFR 60.7(c). [40 CFR 60.276a(g)]

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

d. In addition to the records required by 40 CFR 63.10, the permittee shall keep records to demonstrate compliance with the requirements for the pollution prevention plan in 40 CFR 63.10685(a)(1) and/or for the use of only restricted scrap in 40 CFR 63.10685(a)(2) and for mercury in 40 CFR 63.10685(b)(1) through (3) as applicable. The permittee shall keep records documenting compliance with 40 CFR 63.10685(b)(4) for scrap that does not contain motor vehicle scrap. [40 CFR 63.10685(c)]

e. If the permittee is subject to the requirements for a site-specific plan for mercury under 40 CFR 63.10685(b)(1), the permittee shall maintain records of the number of mercury switches removed or the weight of mercury recovered from the switches and properly managed, the estimated number of vehicles processed, and an estimate of the percent of mercury switches recovered. [40 CFR 63.10685(c)(1)(i)]

f. If the permittee is subject to the option for approved mercury programs under 40 CFR 63.10685(b)(2), the permittee shall maintain records identifying each scrap provider and documenting the scrap provider's participation in an approved mercury switch removal program. If the permittee purchases motor vehicle scrap from a broker, the permittee shall maintain records identifying each broker and documentation that all scrap provided by the broker was obtained from other scrap providers who participate in an approved mercury switch removal program. [40 CFR 63.10685(c)(2)]

g. The permittee shall maintain records of the following: [401 KAR 52:020, Section 10]
   i. Amounts of carbon charged and injected per heat;
   ii. Amounts and types, as well as a general description of, the scrap or scrap substitutes charged to the furnace;
   iii. The maintenance and operating parameters of the control equipment. The parameters shall include recorded pressure drop ranges, and those parameters required to be monitored by 40 CFR 60, Subpart AAa.
   iv. The daily, monthly, and 12-month rolling steel production rate (as measured as the total tons of steel cast);
   v. The amount of fluorspar charged per heat;
   vi. The amount of lime charged per heat;
   vii. The monthly and 12-month rolling process weight rate for each emission point;
   viii. The monthly and 12-month rolling natural gas usage for each combustion emission point;
   ix. The monthly and 12-month rolling emissions of PM, PM_{10}, $PM_{2.5}$, NO_x, CO, SO_2, VOC, and GHGs in tons;
   x. Monitored parameters for the control devices as required by the approved CAM Plan and **7. <u>Specific Control Equipment Operating Conditions</u>**.
   xi. The training requirements in **1. <u>Operating Conditions</u> (g);**
   xii. The SSM plan developed in accordance with 40 CFR 63, Subpart A, as well as those records required by **1. <u>Operating Conditions</u> (l);**
   xiii. The GCOP plan required by **1. <u>Operating Conditions</u> (m)** as well as any revisions;
   xiv. The GWP plan required by **1. <u>Operating Conditions</u> (p)** as well as any revisions;
   xv. The sulfur content of carbon, as received.

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h. The permittee shall maintain records of the SO_2, CO, and NO_X (expressed as NO_2) concentrations recorded from the CEMs showing the corresponding steel production data and other data used to provide reasonable assurance of compliance with SO_2, NO_X, and CO emission limitations under the formulas specified in **2. <u>Emission Limitations</u> (c)**, **Compliance Demonstration Method**. [401 KAR 52:020, Section 10]

i. The permittee shall maintain records of any time that an emission point listed above was not operated according to the GCOP plan or GWP plan required by **1. <u>Operating Conditions</u> (m)** and **(p)** with a description of the situation and actions taken to remedy the issue. [401 KAR 52:020, Section 10]

j. Refer to **SECTION F** for general recordkeeping requirements.

6. <u>Specific Reporting Requirements</u>:

a. The permittee shall provide quarterly written and electronically formatted reports to the Division containing the data provided by the CEMs systems. All reports shall be sent by the 30th day following the end of each calendar quarter and shall be submitted in the format specified by the Division. The averaging periods used for data reporting shall correspond to the averaging periods specified herein for emission limitations. The emissions shall be reported in ppm averaged over 24 hours, 30-day rolling average pounds per hour, 30-day rolling average pounds per ton of steel cast, tons per reporting period, and cumulative tons per year for the preceding consecutive 12-month period. The permittee shall identify the methodology used to determine the above required information in the quarterly reports. NO_X emissions shall be reported as NO_2. A file shall be kept and maintained on the following items: [401 KAR 52:020, Section 10]
   i. Emission measurement;
   ii. Monitor performance testing measurements;
   iii. Performance evaluations;
   iv. Calibration checks;
   v. Adjustments and maintenance performed on the monitoring devices.

b. No later than 30 days after the end of each calendar quarter, the permittee shall submit to the Division a report containing the number of excursions above the SO_2, CO and NO_X emission limitations that are indicated by the methodology established in **2. <u>Emission Limitations</u> (c)**, **Compliance Demonstration Method**. The report shall include the date and time of the excursions, the indicated values of the excursions, and the percentage of EAF (EP 01-01) operating time during which excursions occurred in the calendar quarter. [401 KAR 52:020, Section 10]

c. The permittee shall submit a written report of exceedances of the control device opacity to the Division semi-annually. For the purposes of these reports, exceedances are defined as all 6-minute periods during which the average opacity is 3 percent or greater. [40 CFR 60.276a(b)]

d. If a furnace static pressure monitoring device is employed in lieu of conducting daily shop opacity observations under 40 CFR 60.273a(d): Operation at a furnace static pressure that

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

exceeds the value established under 40 CFR 60.274a(g) and either operation of control system fan motor amperes at values exceeding ±15 percent of the value established under 40 CFR 60.274a(c) or operation at flow rates lower than those established under 40 CFR 60.274a(c) may be considered by the Administrator to be unacceptable operation and maintenance of the affected facility. Operation at such values shall be reported to the Administrator semiannually. [40 CFR 60.276a(c)]

e. The permittee shall report records required by **5. Specific Recordkeeping Requirements (a)** and **(c)** that exceed established values or limits to the Division semi-annually according to 40 CFR 60.7(c) and **SECTION F**. [40 CFR 60.276a(c) and (g)]

f. For each scrap provider subject to a site-specific mercury reduction plan, the permittee shall submit semiannual progress reports to the Division that provide the number of mercury switches removed or the weight of mercury recovered from the switches, the estimated number of vehicles processed, an estimate of the percent of mercury switches removed, and certification that the removed mercury switches were recycled at RCRA-permitted facilities or otherwise properly managed pursuant to RCRA subtitle C regulations referenced in 40 CFR 63.10685(b)(1)(ii)(A). This information can be submitted in aggregated form and does not have to be submitted for each scrap provider, contract, or shipment. The Division may change the approval status of a site-specific plan following 90-days' notice based on the progress reports or other information. [40 CFR 63.10685(b)(1)(v)]

g. If the permittee is subject to the requirements for a site-specific plan for mercury under 40 CFR 63.10685(b)(1), the permittee shall submit semiannual reports of the number of mercury switches removed or the weight of mercury recovered from the switches and properly managed, the estimated number of vehicles processed, an estimate of the percent of mercury switches recovered, and a certification that the recovered mercury switches were recycled at RCRA-permitted facilities. The semiannual reports must include a certification that the permittee has conducted inspections or taken other means of corroboration as required under 40 CFR 63.10685(b)(1)(ii)(C). The permittee may include this information in the semiannual compliance reports required under 40 CFR 63.10685(c)(3). [40 CFR 63.10685(c)(1)(ii)]

h. The permittee shall submit semiannual compliance reports to the Administrator for the control of contaminants from scrap according to the requirements in 40 CFR 63.10(e). The report must clearly identify any deviation from the requirements in 40 CFR 63.10685(a) and (b) and the corrective action taken. The permittee shall identify which compliance option in 40 CFR 63.10685(b) applies to each scrap provider, contract, or shipment. [40 CFR 63.10685(c)(3)]

i. The notification of compliance status required by 40 CFR 63.9(h) must include each applicable certification of compliance, signed by a responsible official, in 40 CFR 63.10690(b)(1) through (6). [40 CFR 63.10690(b)]

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

i. For the pollution prevention plan requirements in 40 CFR 63.10685(a)(1): "This facility has submitted a pollution prevention plan for metallic scrap selection and inspection in accordance with 40 CFR 63.10685(a)(1)"; [40 CFR 63.10690(b)(1)]
ii. For the restrictions on metallic scrap in 40 CFR 63.10685(a)(2): "This facility complies with the requirements for restricted metallic scrap in accordance with 40 CFR 63.10685(a)(2)"; [40 CFR 63.10690(b)(2)]
iii. For the mercury requirements in 40 CFR 63.10685(b): [40 CFR 63.10690(b)(3)]
    1) "This facility has prepared a site-specific plan for mercury switches in accordance with 40 CFR 63.10685(b)(1)"; [40 CFR 63.10690(b)(3)(i)]
    2) "This facility participates in and purchases motor vehicle scrap only from scrap providers who participate in a program for removal of mercury switches that has been approved by the EPA Administrator in accordance with 40 CFR 63.10685(b)(2)" and has prepared a plan demonstrating how the facility participates in the EPA-approved program in accordance with 40 CFR 63.10685(b)(2)(iv); [40 CFR 63.10690(b)(3)(ii)]
    3) "The only materials from motor vehicles in the scrap charged to an electric arc furnace at this facility are materials recovered for their specialty alloy content in accordance with 40 CFR 63.10685(b)(3) which are not reasonably expected to contain mercury switches"; or [40 CFR 63.10690(b)(3)(iii)]
    4) "This facility complies with the requirements for scrap that does not contain motor vehicle scrap in accordance with 40 CFR 63.10685(b)(4)." [40 CFR 63.10690(b)(3)(iv)]
iv. This certification of compliance for the capture system requirements in 40 CFR 63.10686(a), signed by a responsible official: "This facility operates a capture system for each electric arc furnace and argon-oxygen decarburization vessel that conveys the collected emissions to a PM control device in accordance with 40 CFR 63.10686(a)". [40 CFR 63.10690(b)(4)]
v. If applicable, this certification of compliance for the performance test requirements in 40 CFR 63.10686(d)(6): "This facility certifies initial compliance with the applicable emissions limit in 40 CFR 63.10686(a) or (b) based on the results of a previous performance test in accordance with 40 CFR 63.10686(d)(6)". [40 CFR 63.10690(b)(5)]
vi. This certification of compliance for the monitoring requirements in 40 CFR 63.10686(e), signed by a responsible official: "This facility has developed and submitted proposed monitoring information in accordance with 40 CFR part 64". [40 CFR 63.10690(b)(6)]

j. If the permittee identifies a failure to achieve compliance with an emission limitation or standard for which the approved monitoring under CAM did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing indicator ranges or designated conditions, the permittee shall promptly notify the Division and, if necessary, submit a proposed modification to the Title V permit to address the necessary monitoring changes. Such a modification may include, but is not limited to, reestablishing indicator ranges or designated conditions, modifying the frequency of conducting monitoring and collecting data, or the monitoring of additional parameters. [40 CFR 64.7(e)]

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

k. The permittee shall include, in the semi-annual report, any time that the emission units listed above were not operated according to the GCOP or GWP plan required by **1. Operating Limitations (m)** and **(p)** with a description of the situation and actions taken to remedy the issue. Refer to **5. Specific Recordkeeping Requirements (i)**. [401 KAR 52:020, Section 10]

l. The permittee shall submit, within 180 days of startup, certification that the design elements proposed as BACT for the emission points listed above have been implemented in the final construction. [401 KAR 51:017]

m. Refer to **SECTION F** for general reporting requirements.

7. Specific Control Equipment Operating Conditions:

a. A bag leak detection system shall be installed and continuously operated on all single-stack fabric filters if the permittee elects not to install and operate a continuous opacity monitoring system as provided for 40 CFR 60.273a(c). In addition, the permittee shall meet the visible emissions observation requirements in 40 CFR 60.273a(c). The bag leak detection system must meet the specifications and requirements of 40 CFR 60.273a(e)(1) through (8). [40 CFR 60.273a(e)]
   i. The bag leak detection system must be certified by the manufacturer to be capable of detecting particulate matter emissions at concentrations of 1 milligram per actual cubic meter (0.00044 grains per actual cubic foot) or less. [40 CFR 60.273a(e)(1)]
   ii. The bag leak detection system sensor must provide output of relative particulate matter loadings and the permittee shall continuously record the output from the bag leak detection system using electronic or other means (e.g., using a strip chart recorder or a data logger.) [40 CFR 60.273a(e)(2)]
   iii. The bag leak detection system must be equipped with an alarm system that will sound when an increase in relative particulate loading is detected over the alarm set point established according to 40 CFR 60.273a(e)(4), and the alarm must be located such that it can be heard by the appropriate plant personnel. [40 CFR 60.273a(e)(3)]
   iv. For each bag leak detection system required by 40 CFR 60.273a(e), the permittee shall develop and submit to the Division, for approval, a site-specific monitoring plan that addresses the items identified in 40 CFR 60.273a(e)(4)(i) through (v). For each bag leak detection system that operates based on the triboelectric effect, the monitoring plan shall be consistent with the recommendations contained in the U.S. Environmental Protection Agency guidance document "Fabric Filter Bag Leak Detection Guidance" (EPA-454/R-98-015). The permittee shall operate and maintain the bag leak detection system according to the site-specific monitoring plan at all times. The plan shall describe the following: [40 CFR 60.273a(e)(4)]
      1) Installation of the bag leak detection system; [40 CFR 60.273a(e)(4)(i)]
      2) Initial and periodic adjustment of the bag leak detection system including how the alarm set-point will be established; [40 CFR 60.273a(e)(4)(ii)]
      3) Operation of the bag leak detection system including quality assurance procedures; [40 CFR 60.273a(e)(4)(iii)]

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

4) How the bag leak detection system will be maintained including a routine maintenance schedule and spare parts inventory list; and [40 CFR 60.273a(e)(4)(iv)]
5) How the bag leak detection system output shall be recorded and stored. [40 CFR 60.273a(e)(4)(v)]

v. The initial adjustment of the system shall, at a minimum, consist of establishing the baseline output by adjusting the sensitivity (range) and the averaging period of the device, and establishing the alarm set points and the alarm delay time (if applicable). [40 CFR 60.273a(e)(5)]

vi. Following initial adjustment, the permittee shall not adjust the averaging period, alarm set point, or alarm delay time without approval from the Division except as provided for in 40 CFR 60.273a(e)(6)(i) and (ii). [40 CFR 60.273a(e)(6)]

1) Once per quarter, the permittee may adjust the sensitivity of the bag leak detection system to account for seasonal effects including temperature and humidity according to the procedures identified in the site-specific monitoring plan required under 40 CFR 60.273a(e)(4). [40 CFR 60.273a(e)(6)(i)]
2) If opacities greater than zero percent are observed over four consecutive 15-second observations during the daily opacity observations required under 40 CFR 60.273a(c) and the alarm on the bag leak detection system does not sound, the permittee shall lower the alarm set point on the bag leak detection system to a point where the alarm would have sounded during the period when the opacity observations were made. [40 CFR 60.273a(e)(6)(ii)]

vii. For negative pressure, induced air baghouses that are discharged to the atmosphere through a stack, the bag leak detection sensor must be installed downstream of the baghouse and upstream of any wet scrubber. [40 CFR 60.273a(e)(7)]

viii. Where multiple detectors are required, the system's instrumentation and alarm may be shared among detectors. [40 CFR 60.273a(e)(8)]

b. For each bag leak detection system installed according to 40 CFR 60.273a(e), the permittee shall initiate procedures to determine the cause of all alarms within 1 hour of an alarm. Except as provided for under 40 CFR 60.273a(g), the cause of the alarm must be alleviated within 3 hours of the time the alarm occurred by taking whatever corrective action(s) are necessary. Corrective actions may include, but are not limited to, the following: [40 CFR 60.273a(f)]

i. Inspecting the baghouse for air leaks, torn or broken bags or filter media, or any other condition that may cause an increase in particulate emissions; [40 CFR 60.273a(f)(1)]
ii. Sealing off defective bags or filter media; [40 CFR 60.273a(f)(2)]
iii. Replacing defective bags or filter media or otherwise repairing the control device; [40 CFR 60.273a(f)(3)]
iv. Sealing off a defective baghouse compartment; [40 CFR 60.273a(f)(4)]
v. Cleaning the bag leak detection system probe or otherwise repairing the bag leak detection system; and [40 CFR 60.273a(f)(5)]
vi. Shutting down the process producing the particulate emissions. [40 CFR 60.273a(f)(6)]

c. In approving the site-specific monitoring plan required in 40 CFR 60.273a(e)(4), the Division may allow the permittee more than 3 hours to alleviate specific conditions that

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

cause an alarm if the permittee identifies the condition that could lead to an alarm in the monitoring plan, adequately explains why it is not feasible to alleviate the condition within 3 hours of the time the alarm occurred, and demonstrates that the requested additional time will ensure alleviation of the condition as expeditiously as practicable. [40 CFR 60.273a(g)]

d. The permittee shall maintain the following records for each bag leak detection system required under 40 CFR 60.273a(e): [40 CFR 60.276a(h)]
   i. Records of the bag leak detection system output; [40 CFR 60.276a(h)(1)]
   ii. Records of bag leak detection system adjustments, including the date and time of the adjustment, the initial bag leak detection system settings, and the final bag leak detection system settings; and [40 CFR 60.276a(h)(2)]
   iii. An identification of the date and time of all bag leak detection system alarms, the time that procedures to determine the cause of the alarm were initiated, if procedures were initiated within 1 hour of the alarm, the cause of the alarm, an explanation of the actions taken, the date and time the cause of the alarm was alleviated, and if the alarm was alleviated within 3 hours of the alarm. [40 CFR 60.276a(h)(3)]

e. The control devices associated with the emission units listed above shall be properly maintained, kept in good operating condition, used in conjunction with operation of the underlying emission units and operated consistent with the manufacturer's specifications. [401 KAR 51:017]

f. For Melt Shop Baghouse Dust Silo & Dust Handling System (EP 01-07): The permittee shall install, operate and maintain a dust collector designed to control particulate grain loading to 0.005 grain/dscf and the flow rate to 1,800 dscf/min. [401 KAR 51:017]

g. For the Melt Shop Baghouse (C0101), the permittee shall continuously monitor the volumetric flow rate in the stack, and maintain the 24-hour average volumetric flow rate (in standard conditions) to within ±10 percent of the level measured for each operating mode during the testing required in **3. Testing Requirements (r)**. [401 KAR 51:017]

h. The permittee shall maintain records of the manufacturer's specifications for each control device identified in the table above, identifying the grain loading, control efficiency, and flow rate for which each control device was designed. The fabric filters shall be designed to achieve the BACT limits in **2. Emission Limitations.** [401 KAR 51:017]

i. The permittee shall install, calibrate, maintain and operate, according to manufacturer's specifications, a continuous monitoring device (differential pressure gauges or manometers) to determine the pressure drop across the Melt Shop Baghouse (C0101) during the operation of the unit. A permanent label displaying the operating range established for the baghouse shall be posted next to the selected instrument. [401 KAR 51:017]

j. Scrap Charging (EP 08-04) shall only be performed inside the Melt Shop such that emissions are controlled by the Melt Shop Baghouse (C0101). If visible emission observations during charging indicate that emissions from this activity are escaping

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

capture, the activity shall be moved further into the Melt Shop until the emissions no longer escape. [401 KAR 51:017]

k. Refer to **SECTION E.**

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Group 2

Emission Unit 03 (EU 03) - Hot Rolling Mill,
Emission Unit 04 (EU 04) – Continuous Heat Treat Line,
Emission Unit 05 (EU 05) – Heavy Plate Processing,
Emission Unit 12 (EU 12) – Slag Processing,
Emission Unit 15 (EU 15) – Miscellaneous Equipment,
Emission Unit 17 (EU 17) – Light Plate Finishing Line, &
Emission Unit 18 (EU 18) – Blast and Prime Line

Emission Point #	Unit Name	Maximum Short-Term Capacity	Maximum Long-Term Capacity	Burner Maximum Capacity (MMBtu/hr)	Control Device	Construction Commenced
Emission Unit 03 (EU 03): Hot Rolling Mill						
03-01	Walking Beam Reheat Furnace	333 tons/hr	1,750,000 tons/yr*	460 MMBtu/hr	Low-NO_x burners (inherent)	2020
03-02	Ingot Bogie Hearth Furnaces #1 - #3	----	----	41 MMBtu/hr each	Low-NO_x burners (inherent)	2020
03-03	Roughing Mill Stand with Descaler	333 tons/hr	1,750,000 tons/yr**; 85.4 ton/yr* oil & grease	----	Wet Suppression	2020
03-04	Steckel Mill Finishing Stand	250 tons/hr	1,750,000 tons/yr**; 128.55 ton/yr* oil & grease	----	Wet Scrubber (C0304)	2020
03-05	Steckel Mill Coiling Furnaces #1 & #2	----	----	11.2 MMBtu/hr, each	Low-NO_x burners (inherent)	2020
03-06	Coil Sample Plasma Cutter	250 tons/hr	250,000 tons/yr**	----	Baghouse (C0306)	2022
03-07	Coil Tagger	250 tons/hr	250,000 tons/yr**	----	None	2022
03-08	Rolling Mill Oxy-Fuel Plate Cutting Torch	750 tons/hr	100,000 tons/yr**	----	None	2022

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

03-09	Rolling Mill Oxy-Fuel Coil Cutting Torch	750 tons/hr	100,000 tons/yr**	----	None	2022
03-10	Ingot Grinding	225 tons ingot/hr	1,860,000 tons ingot/yr	---	Baghouse (C0310)	2022
03-11	Ingot Grinding Oxy-Fuel Cutting Torch	225 tons ingot/hr	1,860,000 tons ingot/yr	---	None	2022
Emission Unit 04 (EU 04): Continuous Heat Treat Line						
04-01	Shot Blaster	50 tons/hr	339,000 tons/yr	----	Baghouse (C0401)	2020

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Emission Point #	Unit Name	Maximum Short-Term Capacity	Maximum Long-Term Capacity	Burner Maximum Capacity (MMBtu/hr)	Control Device	Construction Commenced
04-03	Tempering Furnace	----	----	43.48 MMBtu/hr	Low-NO_x burners (inherent)	2022
04-04	Continuous Heat Treat Plasma Torch Cutting	50 tons/hr	339,000 tons/yr	----	Dust Collector (C0404)	2022
04-05	Continuous Heat Treat Entry Tagger	125 ton/hr	339,000 tons/yr	----	None	2022
04-06	Continuous Heat Treat Exit Tagger	125 ton/hr	339,000 tons/yr	----	None	2022
Emission Unit 05 (EU 05): Heavy Plate Processing						
05-01	Heavy Plate Car Bottom Furnaces #1 - #4	----	----	46 MMBtu/hr, each	Low-NO_x burners (inherent)	2020
05-03	Heavy Plate Cutting Beds #1 - #3 (Plasma Torch & Oxy-Fuel Torches)	440 tons/hr for Plasma Torch	180,000 tons/yr	----	Baghouses (C0503A, B, C)	2022
		275 tons/hr for Oxy-Fuel torches; 0.00021 MMscf/hr	268,750 tons/yr; 1.8396 MMscf/yr			
05-04	Heavy Plate Tagger	440 tons/hr	450,000 tons/yr	----	None	2020
Emission Unit 12 (EU 12) – Slag Processing						
12-04	Slag Plant Oxy Fuel-Fired Torches	12 tons/hr	105,120 tons/yr; 86.7 MMscf/yr	----	Baghouse (C1204)	2022
Emission Unit 15 (EU 15) – Miscellaneous Equipment						
15-01	Natural Gas Direct-Fired Space Heaters, Process Water Heaters, & Air Makeup Heaters	----	----	40 MMBtu/hr (combined)	Low-NO_x burners (inherent)	2020
Emission Unit 17 (EU 17) – Light Plate Finishing Line						
17-01 A & B	Two (2) Light Plate Cutting Beds #1 - #2 (Plasma Cutters & Oxy-Fuel Torches)	500 ton/hr	317,000 ton/yr	----	Baghouses (C1701A, B, C, D)	2022
17-02	Light Plate Tagger	250 ton/hr	711,000 ton/yr	----	None	2022

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Emission Point #	Unit Name	Maximum Short-Term Capacity	Maximum Long-Term Capacity	Burner Maximum Capacity (MMBtu/hr)	Control Device	Construction Commenced
Emission Unit 18 (EU 18) – Blast and Prime Line						
18-01	Paint System Preheater	----	----	0.00066 MMBtu/hr	None	2022
18-02	Paint System Shot Blaster	400 ton/hr	1,000,000 ton/yr		Baghouse (C1802)	2022

*Note: These units have an operational limit in **1. Operating Limitations**, below.
**Note: Long-term capacities of these units are bottlenecked by the upstream operational limit on the melt shop.

APPLICABLE REGULATIONS:
401 KAR 51:017, *Prevention of significant deterioration of air quality*
401 KAR 59:010, *New process operations*

STATE-ORIGIN REQUIREMENTS:
401 KAR 63:020, *Potentially hazardous matter or toxic substances*

1. **Operating Limitations:**
   a. The permittee shall use only natural gas as fuel in EPs 03-01, 03-02, 03-05, 04-03, 05-01, and 15-01. [401 KAR 51:017]

   b. EPs 03-01, 03-02, 03-05, 04-03, 05-01, and 15-01 shall be equipped with low NO_x burners designed to achieve the following values and the NO_x standards in **2. Emission Limitations (c)**). [401 KAR 51:017]

Emission Point	NO_x Standard (lb/MMBtu)
03-01 & 15-01	0.07
04-03	0.16
03-02	0.12
03-05 & 05-01	0.08

   c. For EP 03-01, the total natural gas use shall not exceed 262.4 MMcf/month, averaged over a three-month rolling period, and 3,111 MMcf/yr on a 12-month rolling basis. [401 KAR 51:017]

   d. For EP 03-03, the annual oil and grease consumption, on a 12-month rolling basis, shall not exceed 85.4 tons/yr. [401 KAR 51:017]

   e. For EP 03-04, the annual oil and grease consumption, on a 12-month rolling basis, shall not exceed 128.5 tons/yr. [401 KAR 51:017]

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Compliance Demonstration Method:
Refer to **4. Specific Monitoring Requirements (a)**, **5. Specific Recordkeeping Requirements (a),** and **6. Specific Reporting Requirements (b).**

f. For EP 03-03, 03-04, 03-06, 03-07, 03-08, 03-09, 03-10, 03-11, 04-01, 04-04, 04-05, 04-06, 05-03, 05-04, 12-04, 17-01 A&B, 17-02, and 18-02 the permittee shall prepare and implement, upon initial compliance demonstration but no later than 180 days after startup, a Good Work Practices (GWP) plan that includes written operating instructions and procedures that specify good operating and maintenance practices and includes, at a minimum, the following specific practices targeting PM, PM_{10}, $PM_{2.5}$, NO_x, and VOC emission minimization, and a means of verifying the practices have occurred: [401 KAR 51:017]
   i. For EP 03-03 and 03-04, performing periodic maintenance to minimize leaks of oil and grease from seals and bearings.
   ii. Tracking material usage to ensure that equipment is operated as designed and correcting any operating or design issues as quickly as possible.
   iii. Employing a preventative maintenance program, including a preventative maintenance schedule that is consistent with the manufacturer's instructions for routine and long-term maintenance.

Compliance Demonstration Method:
Refer to **4. Specific Monitoring Requirements (c), 5. Specific Recordkeeping Requirements (a)** and **(c)**, and **6. Specific Reporting Requirements (a)** and **(b)**.

g. The permittee shall prepare and maintain for EP 03-01, 03-02, 03-05, 04-03, 05-01, 15-01, and 18-01, upon initial compliance demonstration but no later than 180 days after startup, a good combustion and operation practices (GCOP) plan that defines, measures and verifies the use of operational and design practices determined as BACT for minimizing PM, PM_{10}, $PM_{2.5}$, NO_x, CO, SO_2, VOC, and GHG emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Division's inspection. The plan shall include, but not be limited to: [401 KAR 51:017]
   i. A list of combustion optimization practices and a means of verifying the practices have occurred.
   ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred.
   iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction

Compliance Demonstration Method:
Refer to **5. Specific Recordkeeping Requirements (a)** and **(b)**, and **6. Specific Reporting Requirements (a)** and **(b)**.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

h. The permittee shall meet the following design and operational requirements for EP 03-01, 03-02, 03-05, 04-03, 05-01, and 15-01 as the BACT determination for GHG: [401 KAR 51:017]
   i. Use only pipeline quality natural gas.
   ii. The facility design shall include low-NOx recuperative burners to preheat the combustion air with heat from the exhaust gas.
   iii. Conduct periodic calibration of gas supply system in accordance with manufacturer's recommended procedures and schedule.
   iv. Conduct periodic thermography readings of furnace shell in areas recommended by the manufacturer and according to the schedule recommended by the manufacturer (at least annually).
   v. Install and maintain seals and modern insulation media to minimize heat losses from the furnace hearth, upper and lower sidewalls, doors, roof, and any openings around the burners or other equipment traversing through the furnace shell.
   vi. Maintain gas supply valves in accordance with the manufacturer's recommended procedures and schedule.
   vii. Install, operate, and maintain a combustion system that includes air-to-fuel ratio control for improved fuel efficiency.
   viii. Implement burner temperature control to achieve optimum temperature uniformity.

   Compliance Demonstration Method:
   Compliance shall be demonstrated as follows:
   A. The facility construction shall be completed in accordance with the BACT determination for GHGs and incorporating the design elements listed above. Refer to **6. Specific Reporting Requirements (b)**, below.
   B. The permittee shall prepare, maintain, and implement the GCOP plan. Refer to **1. Operating Limitations (g)**.

2. Emission Limitations:

a. ***Opacity Standard:*** The permittee shall not cause, suffer, allow, or permit any continuous emission into the open air from a control device or stack associated with any affected facility which is equal to or greater than twenty (20) percent opacity. [401 KAR 59:010, Section 3(1)(a)]

   Compliance Demonstration Method:
   Refer to **4. Specific Monitoring Requirements (b)** and **5. Specific Recordkeeping Requirements (a).**

b. ***Particulate Emission Standard:*** The permittee shall not discharge or cause to be discharged into the atmosphere any gases which exceed the following limits:
   i. For emissions from a control device or stack, the permittee shall not cause, suffer, allow or permit the emission into the open air of particulate matter from any affected facility which is in excess of the quantity specified in 401 KAR 59:010, Appendix A: [401 KAR 59:010, Section 3(2), Appendix A]
      1) For process weight rates of 0.50 ton/hr or less: 2.34 lb/hr
      2) For process weight rates > 0.5 ton/hr up to 30.00 tons/hr: = 3.59 ⍰ 0.62

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

3) For process weight rates > 30.00 tons/hr: = 17.3 □ $^{0.16}$
Where:
E = the allowable PM emissions rate (pounds/hr)
P = the process weight rate (tons/hr)

~~ii.~~ Emissions of PM, PM_{10}, and $PM_{2.5}$ shall not exceed the limits in the following table:
[401 KAR 51:017]

Emission Point	Description	BACT for PM (filterable)	BACT for PM_{10}	BACT for $PM_{2.5}$
03-01	Walking Beam Reheat Furnace (Including Cold Starts)	~~3.57~~1.9 lb/MMscf; 2.96~~5.55~~ ton/yr	~~13.26~~7.6 lb/MMscf; ~~20.62~~11.82 ton/yr	~~13.26~~7.6 lb/MMscf; ~~20.62~~11.82 ton/yr
03-02	Ingot Bogie Hearth Furnaces #1 - #3	1.9 lb/MMscf; 1.00 ton/yr	7.6 lb/MMscf; 4.01 ton/yr	7.6 lb/MMscf; 4.01 ton/yr
03-03	Roughing Mill Stand with Descaler	0.81 lb/hr; 3.54 ton/yr	0.92 lb/hr; 4.04 ton/yr	0.36 lb/hr; 1.57 ton/yr
03-04	Steckel Mill Finishing Stand (stack & uncaptured emissions)	0.005 gr/dscf; 3.72 lb/hr; 16.28 ton/yr	0.005 gr/dscf; 3.28 lb/hr; 14.36 ton/yr	0.0025 gr/dscf; 1.40 lb/hr; 6.13 ton/yr
03-05	Steckel Mill Coiling Furnaces #1 & #2	1.9 lb/MMscf; 0.18 ton/yr	7.6 lb/MMscf; 0.73 ton/yr	7.6 lb/MMscf; 0.73 ton/yr
03-06	Coil Sample Plasma Cutter	0.0029 lb/in cut; 0.057~~22~~ ton/yr	0.0029 lb/in cut; 0.057~~22~~ ton/yr	0.0029 lb/in cut; 0.057~~22~~ ton/yr
03-07	Coil Tagger	0.016 lb/hr; 0.008 ton/yr	0.016 lb/hr; 0.008 ton/yr	0.016 lb/hr; 0.008 ton/yr
03-08	Rolling Mill Oxy-Fuel Plate Cutting Torch	0.075 lb/hr; 0.33 ton/yr	0.075 lb/hr; 0.33 ton/yr	0.075 lb/hr; 0.33 ton/yr
03-09	Rolling Mill Oxy-Fuel Coil Cutting Torch	0.075 lb/hr; 0.33 ton/yr	0.075 lb/hr; 0.33 ton/yr	0.075 lb/hr; 0.33 ton/yr
03-10	Ingot Grinding	0.005 gr/dscf 2.07 lb/hr 9.07 ton/yr	0.005 gr/dscf 2.07 lb/hr 9.07 ton/yr	0.0025 gr/dscf 1.04 lb/hr 4.54 ton/yr
03-11	Ingot Grinding Oxy-Fuel Cutting Torch	163 lb/MMscf 0.33 ton/yr	169 lb/MMscf 0.34 ton/yr	169 lb/MMscf 0.34 ton/yr
04-01	Shot Blaster	0.003 gr/dscf; 0.85 lb/hr; 3.72 ton/yr	0.003 gr/dscf; 0.85 lb/hr; 3.72 ton/yr	0.003 gr/dscf; 0.85 lb/hr; 3.72 ton/yr
04-03	Tempering Furnace	1.9 lb/MMscf; 0.35 ton/yr	7.6 lb/MMscf; 1.42 ton/yr	7.6 lb/MMscf; 1.42 ton/yr

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

04-04	Continuous Heat Treat Plasma Torch Cutting	0.0053 lb/in cut; 0.~~35~~ 91 ton/yr	0.0053 lb/in cut; 0.~~35~~ 91 ton/yr	0.0053 lb/in cut; 0.~~35~~ 91 ton/yr
04-05	Continuous Heat Treat Entry Tagger	0.0001 lb/hr; 0.00013 ton/yr	0.0001 lb/hr; 0.00013 ton/yr	0.0001 lb/hr; 0.00013 ton/yr

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Emission Point	Description	BACT for PM (filterable)	BACT for PM_{10}	BACT for $PM_{2.5}$
04-06	Continuous Heat Treat Exit Tagger	0.002 lb/hr; 0.002 ton/yr	0.002 lb/hr; 0.002 ton/yr	0.002 lb/hr; 0.002 ton/yr
05-01	Heavy Plate Car Bottom Furnaces #1 - #4	1.9 lb/MMscf; 1.50 ton/yr	7.6 lb/MMscf; 6.0 ton/yr	7.6 lb/MMscf; 6.0 ton/yr
05-03	Heavy Plate Cutting Beds #1 - #4	0.0067 lb/in cut (Plasma); 152~~60~~ lb/MMscf (Oxy-fuel); 0.57~~22~~ ton/yr	0.0067 lb/in cut (Plasma); ~~66~~ 158 lb/MMscf (Oxy-fuel); 0.58~~23~~ ton/yr	0.0067 lb/in cut (Plasma); 158~~66~~ lb/MMscf (Oxy-fuel); 0.58~~23~~ ton/yr
05-04	Heavy Plate Tagger	0.00003 lb/hr; 0.00001 ton/yr	0.00003 lb/hr; 0.00001 ton/yr	0.00003 lb/hr; 0.00001 ton/yr
12-04	Slag Plant Oxy Fuel-Fired Torches	~~1.95~~4.66 lb/MMscf: 0.~~08~~ 20 ton/yr	~~7.65~~10.36 lb/MMscf: 0.45~~33~~ ton/yr	~~7.65~~10.36 lb/MMscf: 0.45~~33~~ ton/yr
15-01	Natural Gas Direct-Fired Space Heaters, Process Water Heaters, & Air Makeup Heaters	1.9 lbs/MMscf; 0.33 ton/yr	7.6 lbs/MMscf; 1.31 ton/yr	7.6 lbs/MMscf; 1.31 ton/yr
17-01 A&B	Two (2) Light Plate Cutting Beds #1 - #2 (Plasma Cutters & Oxy-Fuel Torches)	0.00532 lb/in cut (plasma); 263~~104~~ lb/MMscf (oxy-fuel); 1.46~~2.16~~ ton/yr	0.00532 lb/in cut (plasma); ~~109~~ 263 lb/MMscf (oxy-fuel); 1.46~~2.17~~ ton/yr	0.00532 lb/in cut (plasma); 263~~109~~ lb/MMscf (oxy-fuel); 1.46~~2.17~~ ton/yr
17-02	Light Plate Tagger	0.003 lb/hr; 0.0045 ton/yr	0.003 lb/hr; 0.0045 ton/yr	0.003 lb/hr; 0.0045 ton/yr
18-02	Paint System Shot Blaster	0.003 gr/dscf; 0.31 lb/hr; 1.35 ton/yr	0.003 gr/dscf; 0.31 lb/hr; 1.35 ton/yr	0.003 gr/dscf; 0.31 lb/hr; 1.35 ton/yr

Compliance Demonstration Method:
The permittee shall demonstrate compliance with the particulate emission standards as follows:

A. Compliance with **2. Emission Limitations (b)(i)** is assumed when complying with the emission limitations in **2. Emission Limitations (b)(ii)**.

B. Compliance with **2. Emission Limitations (b)(ii)** will be demonstrated as follows:

1) For 03-01, 03-02, 03-05, 04-03, 05-01, and 15-01 the permittee shall meet the requirements in **1. Operating Limitations (a) – (c), (g)** and **(h)**, **4. Specific Monitoring Requirements (a), 5. Specific Recordkeeping Requirements (a)** and **(b), 6. Specific Reporting Requirements (a)** and **(b)**.

2) For 03-03, 03-06, 03-07, 03-08, 03-09, 03-10, 03-11, 04-01, 04-04, 04-05, 04-06, 05-03, 05-04,

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

12-04, 17-01 A&B, 17-02, and 18-02 the permittee shall meet the requirements in **1. Operating Limitations (f), 4. Specific Monitoring Requirements (a),** and **5. Specific Recordkeeping Requirements (a)**, and **7. Specific Control Equipment Operating Conditions.**

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

3) For 03-04, the permittee shall meet the requirements in **1. Operating Limitations (f), 3. Testing Requirements (b), 4. Specific Monitoring Requirements (a),** and **5. Specific Recordkeeping Requirements (a)**, and **7. Specific Control Equipment Operating Conditions.**

c. ***CO, NO_x, SO_2, and GHG Emission Standard:*** Emissions of CO, NO_x, SO_2, and GHG shall not exceed the limits in the following table: [401 KAR 51:017]

Emission Point	Description	BACT for CO	BACT for NO_x	BACT for SO_2	BACT for GHG (CO_2e)
03-01	Walking Beam Reheat Furnace	84 lb/MMscf; 130.6 ton/yr	71.4 lb/MMscf; 111.05 ton/yr	0.6 lb/MMscf; 0.93 ton/yr	187,744 ton/yr
03-02	Ingot Bogie Hearth Furnaces #1 - #3	84 lb/MMscf; 44.40 ton/yr	122.14 lb/MMscf; 64.51 ton/yr	0.6 lb/MMscf; 0.32 ton/yr	63,758 ton/yr
03-03	Roughing Mill Stand with Descaler	N/A	N/A	N/A	150 ton/yr
03-04	Steckel Mill Finishing Stand	N/A	N/A	N/A	227 ton/yr
03-05	Steckel Mill Coiling Furnaces #1 & #2	84 lb/MMscf; 8.07 ton/yr	81.6 lb/MMscf; 7.84 ton/yr	0.6 lb/MMscf; 0.06 ton/yr	11,611 ton/yr
03-06	Coil Sample Plasma Cutter	N/A	0.57 lb/hr; 2.51 ton/yr	N/A	N/A
03-08	Rolling Mill Oxy-Fuel Plate Cutting Torch	84 lb/MMscf; 0.004 ton/yr	100 lb/MMscf; 0.004 ton/yr	0.6 lb/MMscf; 0.00003 ton/yr	5.3 ton/yr
03-09	Rolling Mill Oxy-Fuel Coil Cutting Torch	84 lb/MMscf; 0.004 ton/yr	100 lb/MMscf; 0.004 ton/yr	0.6 lb/MMscf; 0.00003 ton/yr	5.3 ton/yr
03-11	Ingot Grinding Oxy-Fuel Cutting Torch	84 lb/MMscf 0.17 ton/yr	100 lb/MMscf 0.20 ton/yr	0.6 lb/MMscf 0.001 ton/yr	246 ton/yr
04-03	Tempering Furnace	154 lb/MMscf; 28.8 ton/yr	160 lb/MMscf; 29.9 ton/yr	0.6 lb/MMscf; 0.11 ton/yr	22,538 ton/yr
04-04	Continuous Heat Treat Plasma Torch Cutting	N/A	0.93 lb/hr; 4.09 ton/yr	N/A	N/A
05-01	Heavy Plate Car Bottom Furnaces #1 - #4	84 lb/MMscf; 66.36 ton/yr	81.6 lb/MMscf; 64.48 ton/yr	0.6 lb/MMscf; 0.48 ton/yr	95,378 ton/yr

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Emission Point	Description	BACT for CO	BACT for NO_x	BACT for SO_2	BACT for GHG (CO_2e)
05-03	Heavy Plate Cutting Beds #1 - #4	84 lb/MMscf (oxy-fuel); 0.077 ton/yr	1.4 lb/hr (plasma); 100 lb/MMscf (oxy-fuel); 6.22 ton/yr	0.6 lb/MMscf (oxy-fuel); 0.~~0005~~0006 ton/yr	111 ton/yr
12-04	Slag Plant Oxy Fuel-Fired Torches	84 lb/MMscf (oxy-fuel); 3.64 ton/yr	100 lb/MMscf (oxy-fuel); 4.34 ton/yr	0.6 lb/MMscf (oxy-fuel); 0.026 ton/yr	5,234 ton/yr
15-01	Natural Gas Direct-Fired Space Heaters, Process Water Heaters, & Air Makeup Heaters	84 lb/MMscf; 14.43 ton/yr	70 lb/MMscf; 12.02 ton/yr	0.6 lb/MMscf; 0.10 ton/yr	20,734 ton/yr
17-01 A&B	Two (2) Light Plate Cutting Beds #1 - #2 (Plasma Cutters & Oxy-Fuel Torches)	84 lb/MMscf (oxy-fuel); 0.03 ton/yr	1.~~4~~1 lb/hr (plasma); 100 lb/MMscf (oxy-fuel); ~~18.42 ton/yr~~4.63	0.6 lb/MMscf (oxy-fuel); 0.00021 ton/yr	42 ton/yr

Compliance Demonstration Method:
The permittee shall demonstrate compliance with the emission limitations for CO, NO_x, SO_2, and GHGs as follows:

A. For 03-01, 03-02, and 05-01 the permittee shall meet the requirements in **1. Operating Limitations (a) – (c), (g)** and **(h), 3. Testing Requirements (a), 4. Specific Monitoring Requirements (a), 5. Specific Recordkeeping Requirements (a)** and **(b), 6. Specific Reporting Requirements (a)** and **(b)**.

B. For 03-05, 04-03, and 15-01, the permittee shall meet the requirements in **1. Operating Limitations (a) – (c), (g)** and **(h), 4. Specific Monitoring Requirements (a), 5. Specific Recordkeeping Requirements (a)** and **(b), 6. Specific Reporting Requirements (a)** and **(b)**.

C. For 03-03, 03-04, 03-06, 03-08, 03-09, 03-11, 04-04, 05-03, 05-04, 12-04, and 17-01 A&B, the permittee shall meet the requirements in **1. Operating Limitations (f), 4. Specific Monitoring Requirements (a)**, and **5. Specific Recordkeeping Requirements (a)**, and **7. Specific Control Equipment Operating Conditions.**

d. ***VOC Emission Standard***: Emissions of VOC shall not exceed the limits in the following table: [401 KAR 51:017]

Emission Point	Description	BACT for VOC

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

03-01	Walking Beam Reheat Furnace	5.5 lb/MMscf; 8.55 ton/yr

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Emission Point	Description	BACT for VOC
03-02	Ingot Bogie Hearth Furnaces #1 - #3	5.5 lb/MMscf; 2.90 ton/yr
03-03	Roughing Mill Stand with Descaler	1.50 lb/hr; 3.94 ton/yr
03-04	Steckel Mill Finishing Stand	1.70 lb/hr; 5.83 ton/yr
03-05	Steckel Mill Coiling Furnaces #1 & #2	5.5 lb/MMscf; 0.53 ton/yr
03-07	Coil Tagger	0.19 lb/hr; 0.096 ton/yr
03-08	Rolling Mill Oxy-Fuel Plate Cutting Torch	5.5 lb/MMscf; 0.00024 ton/yr
03-09	Rolling Mill Oxy-Fuel Coil Cutting Torch	5.5 lb/MMscf; 0.00024 ton/yr
03-11	Ingot Grinding Oxy-Fuel Cutting Torch	5.5 lb/MMscf; 0.011 ton/yr
04-03	Tempering Furnace	5.5 lb/MMscf; 1.03 ton/yr
04-05	Continuous Heat Treat Entry Tagger	0.03 lb/hr; 0.04 ton/yr
04-06	Continuous Heat Treat Exit Tagger	0.43 lb/hr; 0.6 ton/yr
05-01	Heavy Plate Car Bottom Furnaces #1 - #4	5.5 lb/MMscf; 4.34 ton/yr
05-03	Heavy Plate Cutting Beds	5.5 lb/MMscf (oxy-fuel); 0.005 ton/yr
05-04	Heavy Plate Tagger	0.014 lb/hr; 0.0073 ton/yr
12-04	Slag Plant Oxy Fuel-Fired Torches	5.5 lb/MMscf; 0.238 ton/yr
15-01	Natural Gas Direct-Fired Space Heaters, Process Water Heaters, & Air Makeup Heaters	5.5 lb/MMscf; 0.94 ton/yr
17-01 A&B	Two (2) Light Plate Cutting Beds #1 - #2 (Plasma Cutters & Oxy-Fuel Torches)	5.5 lb/MMscf (oxy-fuel); 0.002 ton/yr
17-02	Light Plate Tagger	0.87 lb/hr; 1.23 ton/yr

Compliance Demonstration Method:
The permittee shall demonstrate compliance with the emission limitations for VOC as follows:

A. For 03-01, 03-02, 03-05, 04-03, 05-01, and 15-01 the permittee shall meet the requirements in **1. Operating Limitations (a) – (c), (g)** and **(h)**, **4. Specific Monitoring Requirements (a), 5. Specific Recordkeeping Requirements (a)** and **(b), 6. Specific Reporting Requirements (a)** and **(b)**.

B. For 03-03, 03-06, 03-07, 03-08, 03-09, 03-11, 04-05, 04-06, 05-03, 05-04, 12-04, 17-01 A&B and 17-02, the permittee shall meet the requirements in **1. Operating Limitations (d) – (f), 4. Specific Monitoring Requirements (a),** and **5. Specific Recordkeeping Requirements (a)**, and **7. Specific Control Equipment Operating Conditions.**

C. For 03-04, the permittee shall meet the requirements in **1. Operating Limitations (d) – (f), 3. Testing Requirements (b), 4. Specific Monitoring Requirements (a),** and **5. Specific Recordkeeping Requirements (a)**, and **7. Specific Control Equipment Operating Conditions.**

e. The permittee shall not allow the emission units listed above to emit potentially hazardous matter or toxic substances in such quantities or duration as to be harmful to the health and welfare of humans, animals, and plants. [401 KAR 63:020, Section 3]

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Compliance Demonstration Method:
The Cabinet has determined that the source is in compliance with 401 KAR 63:020 based on the rate of emissions of airborne toxics determined by the Cabinet using information provided in the application and supplemental information submitted by the source.

f. Refer to **SECTION D**.

3. **Testing Requirements**:
   a. The permittee shall conduct initial performance tests on the Walking Beam Reheat Furnace (EP 03-01) stack, Ingot Bogie Hearth Furnaces #1 - #3 (EP 03-02) stack, and Heavy Plate Car Bottom Furnaces #1 - #4 (EP 05-01) stack within 60 days after achieving the maximum production rate at which each emission point will be operated, but not later than 180 days after initial startup for NOx and CO. [401 KAR 51:017]
      i. The permittee shall use U.S. EPA Method 7 for NOx;
      ii. The permittee shall use U.S. EPA Method 10 for CO;
      iii. The permittee may use an alternate method upon approval from the Division.
      iv. These tests shall demonstrate compliance with **2. Emission Limitations** and establish emission factors for each pollutant in lb/MMscf.

   b. The permittee shall conduct performance tests on the Steckel Mill Finishing Stand (EP 03-04) scrubber stack within 60 days after achieving the maximum production rate at which the Steckel Mill Finishing Stand (EP 03-04) will be operated, but not later than 180 days after initial startup and annually thereafter for PM, PM_{10}, $PM_{2.5}$, and VOC. [401 KAR 51:017]
      i. The permittee shall use U.S. EPA Methods 201A & 202 for PM, PM_{10}, and $PM_{2.5}$;
      ii. The permittee shall use U.S. EPA Method 25 for VOC;
      iii. The permittee may use an alternate method upon approval from the Division.
      iv. These tests shall demonstrate compliance with **2. Emission Limitations**, establish captured and uncaptured emission factors for each pollutant in lb/ton, and establish scrubber operating parameter ranges (scrubber liquid flowrate and pressure drop) at which the scrubber will be operated to demonstrate compliance.

   c. Pursuant to 401 KAR 59:005, Section 2(2) and 401 KAR 50:045, Section 1, performance testing using the Reference Methods specified in 401 KAR 50:015 shall be conducted if required by the Cabinet.

4. **Specific Monitoring Requirements**:
   a. The permittee shall monitor the following: [401 KAR 52:020, Section 10]
      i. Monthly hours of operation for each emission point;
      ii. Monthly and 12-month rolling process weight rate (tons) for each emission point;
      iii. For EP 03-01, 03-02, 03-05, 03-11, 04-03, 05-01, 05-03, 12-04, 15-01, and 17-01A &B, the monthly and 12-month rolling natural gas combusted (MMscf) in each emission point;
      iv. For EP 03-03 and 03-04, the monthly and 12-month rolling oil and grease consumption;
      v. For EP 03-04, continuous pressure drop across the scrubber and the scrubber liquid flow rate.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

vi. For EP 03-06, 03-10, 04-01, 04-04, 05-03, 12-04, 17-01 A&B, and 18-02, daily pressure drop across the baghouses.

b. The permittee shall perform a qualitative visual observation of the opacity of emissions from the stack no less frequently than once every 7 calendar days while the affected facility is operating. If visible emissions from the stack are observed (not including condensed water in the plume), then the permittee shall determine the opacity using U.S. EPA Reference Method 9. In lieu of determining the opacity using U.S. EPA Reference Method 9, the permittee shall immediately perform a corrective action which results in no visible emissions (not including condensed water in the plume). [401 KAR 52:020, Section 10]

c. The permittee shall perform monthly operational status inspections of the affected facilities and control equipment. The observations shall include but not be limited to, the physical appearance of all equipment. [401 KAR 52:020, Section 10]

d. Refer to **SECTION F** for general monitoring requirements.

5. Specific Recordkeeping Requirements:

a. The permittee shall maintain records of the following: [401 KAR 52:020, Section 10]

i. Monthly hours of operation for each emission point;
ii. Monthly and 12-month rolling process weight rate (tons) for each emission point;
iii. For EP 03-01, 03-02, 03-05, 03-11, 04-03, 05-01, 05-03, 12-04, 15-01, and 17-01 A&B, the monthly and 12-month rolling natural gas combusted (MMscf) in each emission point;
iv. For EP 03-03 and 03-04, the monthly and 12-month rolling oil and grease consumption;
v. For EP 03-03 and 03-04, the MSDS for the oil & grease used;
vi. For EP 04-05, 04-06 and 05-04, the MSDS for the ink/paint used;
vii. The monthly and 12-month rolling emissions of PM, PM_{10}, $PM_{2.5}$, NO_x, CO, SO_2, VOC, and GHGs for each emission point;
viii. The qualitative visual observations required by **4. Specific Monitoring Requirements (b),** including the date, time, initials of observer, whether any emissions were observed (yes/no), any Method 9 readings taken, and any corrective action taken including results due to observed emissions.
ix. The GCOP plan required by **1. Operating Limitations (g)** as well as any revisions;
x. The GWP plan required by **1. Operating Limitations (f)** as well as any revisions;
xi. For EP 03-04, continuous pressure drop across the scrubber and the scrubber liquid flow rate;
xii. For EP 03-06, 03-10, 04-01, 04-04, 05-03, 12-04, 17-01 A&B, and 18-02, daily pressure drop across the baghouses;
xiii. Maintenance performed on the control equipment.

b. The permittee shall maintain records of any time that an emission point listed above was not operated according to the GCOP plan or GWP Plan required by **1. Operating Limitations (f)** and **(g)** with a description of the situation and actions taken to remedy the issue. [401 KAR 51:017]

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

c. The permittee shall maintain records documenting all deficiencies noted during the monthly operational status inspections and the resulting maintenance that was performed. [401 KAR 52:020, Section 10]

d. Refer to **SECTION F** for general recordkeeping requirements.

6. Specific Reporting Requirements:

a. The permittee shall include, in the semi-annual report, any time that that an emission point listed above was not operated according to the GCOP plan or GWP Plan in **1. Operating Limitations (f)** and **(g)** with a description of the situation and actions taken to remedy the issue. Refer to **5. Specific Recordkeeping Requirements (b)**. [401 KAR 51:017]

b. The permittee shall submit, within 180 days of startup, certification that the design elements proposed as BACT for the emission points listed above have been implemented in the final construction. [401 KAR 51:017]

c. Refer to **SECTION F** for general reporting requirements.

7. Specific Control Equipment Operating Conditions:

a. For the Steckel Mill Finishing Stand (EP 03-04): The permittee shall install, operate, and maintain a high efficiency venturi scrubber designed to control particulate grain loading to 0.005 gr/dscf at an exhaust flow rate of 40,106 scfm. This scrubber shall be operated within the ranges established by **2. Testing Requirements (b).** [401 KAR 51:017]

b. For the Coil Sample Plasma Cutter (EP 03-06): The permittee shall install, operate, and maintain a baghouse designed to control 99% of particulate emissions. [401 KAR 51:017]

~~b.~~c. For Ingot Grinding Baghouse (EP 03-10): The permittee shall install, operate, and maintain a dust collector designed to control particulate grain loading to 0.005 gr/dscf and the flow rate to 48,327 scf/min [401 KAR 51:017]

~~c.~~d. For the Shot Blaster (EP 04-01): The permittee shall install, operate, and maintain a baghouse designed to control particulate grain loading to 0.003 gr/dscf at an exhaust flow rate of 33,000 scfm. [401 KAR 51:017]

~~d.~~e. For the Continuous Heat Treat Plasma Torches (EP 04-04): The permittee shall install, operate, and maintain a dust collector designed to control 99% of particulate emissions. [401 KAR 51:017]

~~e.~~f. For the Heavy Plate Cutting Beds (EP 05-03), and the Light Plate Cutting Beds (EP 17-01 A&B): the permittee shall install, operate, and maintain baghouses for each cutting bed or a single baghouse that controls emissions from all of the cutting beds, combined, designed to control 99% of particulate emissions. [401 KAR 51:017]

~~f.~~g. For the Slag Plant Oxy Fuel-Fired Torches (EP 12-04): the permittee shall install, operate, and maintain a baghouse design to control 99.9% of particulate emissions. [401 KAR 51:017]

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

~~g.~~h. For the Paint System Shot Blaster (EP 18-02): The permittee shall install, operate, and maintain a baghouse designed to control particulate grain loading to 0.003 gr/dscf at an exhaust flow rate of 12,000 scfm. [401 KAR 51:017]

~~h.~~i. The permittee shall maintain records of the manufacturer's specifications for each control device identified in the table above, identifying the grain loading, control efficiency, and flow rate for which each control device was designed. The fabric filters shall be designed to achieve the BACT limits in **2. Emission Limitations.** [401 KAR 51:017]

~~i.~~j. The permittee shall operate and maintain emission capture equipment, dust collectors, baghouses and the scrubber in accordance with manufacturer's specifications and shall correct any deficiencies noted during monthly operational status inspections. [401 KAR 52:020, Section 10]

~~j.~~k. Refer to **SECTION E.**

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Group 3

Emission Unit 06 (EU 06): Lime, Carbon, Alloy Handling Systems,
Emission Unit 08 (EU 08) – Scrap Handling System, &
Emission Unit 12 (EU 12) – Slag Processing

Emission Point #	Unit Name	Maximum Short-Term Capacity	Maximum Long-Term Capacity	Control Device	Construction Commenced
Emission Unit 06 (EU 06): Lime, Carbon, Alloy Handling Systems					
06-01	EAF Flux and Carbon Handling System (dump station & material transfer)	120 tons/hr	111,000 tons/yr*	Baghouse (C0601)	2022
06-02 A, B & C	Lime Silos A, B & C	120 tons/hr, each	75,000 tons/yr, each*	Passive Bin Vent Filter (C0602A, B & C)	2022
06-03	LMF Flux and Carbon Handling System (dump station & material transfer)	120 tons/hr	35,000 tons/yr*	Baghouse (C0601)	2022
06-04	EAF Carbon Silo	120 tons/hr	30,625 tons/yr*	Passive Bin Vent Filter (C0604)	2022
06-05	LMF Alloy Handling System (dump station & material transfer)	120 tons/hr	62,000 tons/yr*	Baghouse (C0605)	2022
Emission Unit 08 (EU 08) – Scrap Handling System					
08-01	Barge Scrap Unloading	600 tons/hr	962,500 tons/yr*	----	2020
08-02	Rail Scrap Unloading	200 tons/hr	577,500 tons/yr*	----	2020
08-03	Scrap Pile Loading & Unloading (incl. truck unloading)	1000 tons/hr	1,925,000 tons/yr*	----	2020
Emission Unit 12 (EU 12) – Slag Processing					
12-01	Slag Processing Equipment	400 tons/hr	262,500 tons/yr*	Dust Suppression/ Wetting	2022
12-03	Slag Plant Pot Slagger	13.5 tons/hr	118,260 tons/yr	Dust Suppression/ Wetting	2022

*Note: Long-term capacities of these units are bottlenecked by the upstream operational limit on the melt shop.

APPLICABLE REGULATIONS:

401 KAR 51:017, *Prevention of significant deterioration of air quality*
401 KAR 59:010, *New process operations*
401 KAR 63:010, *Fugitive emissions*

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

1. **Operating Limitations:**
   a. For each affected facility that is not subject to the opacity standards in **2. Emission Limitations (a)**, and that emits or may emit any air contaminant into the air outside buildings, structures, and equipment other than from a stack or air pollution control equipment exhaust:
      i. The permittee shall not cause, suffer, or allow any material to be handled, processed, transported, or stored; a building or its appurtenances to be constructed, altered, repaired, or demolished, or a road to be used without taking reasonable precaution to prevent particulate matter from becoming airborne. Such reasonable precautions shall include, as applicable: [401 KAR 63:010, Section 3(1)]
         1) Application and maintenance of asphalt, oil, water, or suitable chemicals on roads, materials stockpiles, and other surfaces which can create airborne dusts; [401 KAR 63:010, Section 3(1)(b)]
         2) Installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty materials, or the use of water sprays or other measures to suppress the dust emissions during handling. Adequate containment methods shall be employed during sandblasting or other similar operations; [401 KAR 63:010, Section 3(1)(c)]
         3) Covering, at all times when in motion, open bodied trucks transporting materials likely to become airborne; [401 KAR 63:010, Section 3(1)(d)]
         4) The maintenance of paved roadways in a clean condition; [401 KAR 63:010, Section 3(1)(e)]
         5) The prompt removal of earth or other material from a paved street which earth or other material has been transported thereto by trucking or earth moving equipment or erosion by water. [401 KAR 63:010, Section 3(1)(f)]

   Compliance Demonstration Method:
   Refer to **4. Specific Monitoring Requirements (b)** and **(c)**, **5. Specific Recordkeeping Requirements (b)** and **(d).**

2. **Emission Limitations:**
   a. ***Opacity Standard:*** The permittee shall not cause, suffer, allow, or permit any continuous emission into the open air from a control device or stack associated with any affected facility which is equal to or greater than twenty (20) percent opacity. [401 KAR 59:010, Section 3(1)(a)]

   Compliance Demonstration Method:
   Refer to **4. Specific Monitoring Requirements (a)** and **5. Specific Recordkeeping Requirements (a).**

   b. ***Particulate Emission Standard:*** The permittee shall not discharge or cause to be discharged into the atmosphere any gases which exceed the following limits:
      i. For emissions from a control device or stack, the permittee shall not cause, suffer, allow or permit the emission into the open air of particulate matter from any affected facility which is in excess of the quantity specified in 401 KAR 59:010, Appendix A: [401 KAR 59:010, Section 3(2), Appendix A]

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

1) For process weight rates of 0.50 ton/hr or less: 2.34 lb/hr
2) For process weight rates > 0.5 ton/hr up to 30.00 tons/hr: $= 3.59\,\square^{0.62}$
3) For process weight rates > 30.00 tons/hr: $= 17.3\,\square^{0.16}$

   Where:
   E = the allowable PM emissions rate (pounds/hr)
   P = the process weight rate (tons/hr)

ii. Emissions of PM, PM_{10}, and $PM_{2.5}$ shall not exceed the limits in the following tables: [401 KAR 51:017]

Emission Point	Description	BACT for PM (filterable)	BACT for PM_{10}	BACT for $PM_{2.5}$
06-01	EAF Flux and Carbon Handling System (dump station & material transfer)	0.28 lb/hr; 0.13 ton/yr	0.13 lb/hr; 0.06 ton/yr	0.02 lb/hr; 0.01 ton/yr
06-02 A, B & C	Lime Silos A, B & C (total)	0.005 gr/dscf; 0.12 lb/hr; 0.52 ton/yr	0.005 gr/dscf; 0.12 lb/hr; 0.52 ton/yr	0.005 gr/dscf; 0.12 lb/hr; 0.52 ton/yr
06-03	LMF Flux and Carbon Handling System (dump station & material transfer)	0.28 lb/hr; 0.033 ton/yr	0.13 lb/hr; 0.015 ton/yr	0.02 lb/hr; 0.002 ton/yr
06-04	EAF Carbon Silo	0.005 gr/dscf; 0.04 lb/hr; 0.17 ton/yr	0.005 gr/dscf; 0.04 lb/hr; 0.17 ton/yr	0.005 gr/dscf; 0.04 lb/hr; 0.17 ton/yr
06-05	LMF Alloy Handling System (dump station & material transfer)	0.28 lb/hr; 0.07 ton/yr	0.13 lb/hr; 0.034 ton/yr	0.02 lb/hr; 0.005 ton/yr
08-01	Barge Scrap Unloading	0.0003 lb/ton; 0.14 ton/yr	0.00015 lb/ton; 0.07 ton/yr	0.00004 lb/ton; 0.02 ton/yr
08-02	Rail Scrap Unloading	0.0003 lb/ton; 0.09 ton/yr	0.00015 lb/ton; 0.04 ton/yr	0.00004 lb/ton; 0.01 ton/yr
08-03	Scrap Pile Loading	0.0009 lb/ton; 0.86 ton/yr	0.0004 lb/ton; 0.40 ton/yr	0.0001 lb/ton; 0.06 ton/yr
12-01	Slag Processing Equipment	2.06 lb/hr; 1.77 ton/yr	0.76 lb/hr; 0.77 ton/yr	0.16 lb/hr; 0.26 tpy
12-03	Slag Plant Pot Slagger	0.01 lb/hr; 0.041 ton/yr	0.003 lb/hr; 0.014 ton/yr	0.001 lb/hr 0.004 ton/yr

Compliance Demonstration Method:
The permittee shall demonstrate compliance with the particulate emission standards listed above as follows:

A. Compliance with **2. <u>Emission Limitations</u> (b)(i)** is assumed when complying with **2. <u>Emission Limitations</u> (b)(ii)**.
B. For EP 06-01 through 06-05, 12-01, and 12-03, compliance with **2. <u>Emission Limitations</u> (b)(ii)** will be demonstrated by meeting the requirements in **1. <u>Operating</u>**

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Conditions (a), **4. Specific Monitoring Requirements (b)** and **(c), 5. Specific Recordkeeping Requirements (b)** through **(d),** and **7. Specific Control Equipment Operating Conditions.**

C. For EP 08-01 through 08-03, compliance with **2. Emission Limitations (b)(ii)** will be demonstrated by meeting the requirements in **1. Operating Conditions (a)** and by comparing the allowable rate to the actual rate using the following equation:

$$PMi = \frac{i \; X \qquad PM}{\square_i}$$

Where:

i = the month,

E_{PMi} = the actual average hourly particulate emissions rate for month i (pounds/hour)
P_i = the actual specific operating parameter for month i (units/month),
EF_{PM} = the overall uncontrolled KYEIS particulate emission factor (pounds/unit),
h_i = the actual total hours of operation for month *i* (hours/month).

c. ***Fugitive Emission Standard***:
The permittee shall not cause, suffer, or allow visible fugitive dust emissions beyond the lot line of the property on which the emissions originate, as determined by Reference Method 22 of Appendix A in 40 C.F.R. Part 60, for: [401 KAR 63:010, Section 3(2)]
i. More than five (5) minutes of emission time during any sixty (60) minute observation period; or
ii. More than twenty (20) minutes of emission time during any twenty-four (24) hour period.

Compliance Demonstration Method:
The permittee shall demonstrate compliance with the fugitive emission standards listed above as follows:

A. Refer to **1. Operating Limitations (a).**
B. The permittee shall monitor the reasonable precautions taken to prevent particulate matter from becoming airborne on a daily basis.
C. If fugitive dust emissions beyond the lot line of the property are observed, the permittee shall conduct Reference Method 22 (visual determination of fugitive emissions) observations per Appendix A of 40 C.F.R. Part 60. In lieu of conducting U.S. EPA Reference Method 22, the permittee shall immediately perform a corrective action which results in no visible fugitive dust emissions beyond the lot line of the property.

d. Refer to **SECTION D**.

3. Testing Requirements:
Pursuant to 401 KAR 59:005, Section 2(2) and 401 KAR 50:045, Section 1, performance testing using the Reference Methods specified in 401 KAR 50:015 shall be conducted if required by the Cabinet.

4. Specific Monitoring Requirements:

a. The permittee shall perform a qualitative visual observation of the opacity of emissions from the stack no less frequently than once every 7 calendar days while the affected facility is operating. If visible emissions from the stack are observed (not including condensed

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

water in the plume), then the permittee shall determine the opacity using U.S. EPA Reference Method 9. In lieu of determining the opacity using U.S. EPA Reference Method 9, the permittee shall immediately perform a corrective action which results in no visible emissions (not including condensed water in the plume). [401 KAR 52:020, Section 10]

b. The permittee shall perform monthly operational status inspections of the affected facilities, dust suppression equipment and control equipment. The observations shall include but not be limited to, the physical appearance of all equipment. [401 KAR 52:020, Section 10]

c. The permittee shall monitor the following: [401 KAR 52:020, Section 10]
   i. Daily and 12-month rolling process weight rate for each emission point in tons;
   ii. Hours of operation.

d. Refer to **SECTION F** for general monitoring requirements.

5. Specific Recordkeeping Requirements:

a. The permittee shall maintain a log of the dates and times of each qualitative visible emission observation and U.S. EPA Reference Method 9 observation performed as required by **4. Specific Monitoring Requirements (a)**, whether any emissions were observed (yes/no), initials of observer, as well as any corrective action taken due to observed emissions. [401 KAR 52:020, Section 10]

b. The permittee shall maintain records documenting all deficiencies noted during the monthly operational status inspections and the resulting maintenance that was performed. [401 KAR 52:020, Section 10]

c. The permittee shall maintain records of the following: [401 KAR 52:020, Section 10]
   i. Daily and 12-month rolling process weight rate for each emission point in tons;
   ii. Hours of operation;
   iii. Monthly and 12-month rolling emissions of PM, PM_{10}, and $PM_{2.5}$;
   iv. Maintenance performed on the control equipment.

d. Refer to **SECTION F** for general recordkeeping requirements.

6. Specific Reporting Requirements:

Refer to **SECTION F** for general reporting requirements.

7. Specific Control Equipment Operating Conditions:

a. For the EAF Flux and Carbon Handling System (dump station & material transfer) (EP 06-01): The permittee shall install, operate, and maintain a baghouse designed to control 99.9% of particulate emissions. [401 KAR 51:017]

b. For Lime Silos A & B & C (EP 06-02A, B & C): The permittee shall install, operate, and maintain a bin vent filter on each silo designed to control particulate grain loading to 0.005 grain/dscf and the flow rate to 920 dscf/min. [401 KAR 51:017]

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

c. For the LMF Flux and Carbon Handling System (dump station & material transfer) (EP 06-03): The permittee shall install, operate, and maintain a baghouse designed to control 99.9% of particulate emissions. [401 KAR 51:017]

d. For EAF Carbon Silo (EP 06-04): The permittee shall install, operate, and maintain a dust collector designed to control particulate grain loading to 0.005 grain/dscf and the flow rate to 920 dscf/min. [401 KAR 51:017]

e. For the LMF Alloy Handling System (dump station & material transfer) (EP 06-05): The permittee shall install, operate, and maintain a baghouse designed to control 99.9% of particulate emissions. [401 KAR 51:017]

f. Slag Processing (EP 12-01) shall only be performed on wetted material. [401 KAR 51:017]

g. The control devices associated with the emission units listed above shall be properly maintained, kept in good operating condition, used in conjunction with operation of the underlying emission units and operated consistent with the manufacturer's specifications. [401 KAR 51:017]

h. The permittee shall maintain records of the manufacturer's specifications for each control device identified in the table above, identifying the grain loading, control efficiency, and flow rate for which each control device was designed. The fabric filters shall be designed to achieve the BACT limits in **2. Emission Limitations.** [401 KAR 51:017]

i. Refer to **SECTION E**.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Group 4

Emission Unit 09 (EU 09) – Cooling Towers

Emission Point #	Unit Name	Maximum Capacity	Drift Loss	Number of Cells	Control Device	Construction Commenced
Emission Unit 09 (EU 09): Cooling Towers						
09-01	Melt Shop ICW Cooling Tower System 100	49~~1~~,2~~0~~00 gal/min*	0.001%*	3	Mist Eliminator	2022
09-02	Melt Shop DCW Cooling Tower System 200	~~14~~16,000 gal/min*	0.001%*	2	Mist Eliminator	2022
09-04	Rolling Mill DCW Cooling Tower System 400	~~41~~55,000 gal/min*	0.001%*	3	Mist Eliminator	2022
09-05	Rolling Mill ACC ICW Cooling Tower System 500	~~27~~35,000 gal/min*	0.001%*	2	Mist Eliminator	2022
09-06	Heavy Plate Quench DCW Cooling Tower System 600	10~~3~~,15~~2~~00 gal/min*	0.001%*	4	Mist Eliminator	2022
09-07	Quench & ACC Laminar DCW Cooling Tower System 700	44~~30~~,000 gal/min*	0.001%*	3	Mist Eliminator	2022
09-08	Heat Treat Cooling Tower System 800	~~7,040~~30,900 gal/min*	0.001%*	8~~4~~	Mist Eliminator	2022
09-09	Air Separation Plant Cooling Tower, System 900	12,800 gal/min*	0.001%*	4~~8~~	Mist Eliminator	2022

*Note: These units have an operational limit in **1. Operating Limitations**, below.

APPLICABLE REGULATIONS:

401 KAR 51:017, *Prevention of significant deterioration of air quality*
401 KAR 59:010, *New process operations*

PRECLUDED REGULATIONS:

401 KAR 63:002, Section 2(4)(j), 40 C.F.R. 63.400 to 63.407, Table 1 (Subpart Q), *National Emission Standards for Hazardous Air Pollutants for Industrial Process Cooling Towers*

1. **Operating Limitations:**
   a. The use of chromium based water treatment chemicals in the cooling towers (EU09) is prohibited. [To preclude 40 CFR 63, Subpart Q]

      Compliance Demonstration Method:
      Refer to **5. Specific Recordkeeping Requirements (f)** and **6. Specific Reporting Requirements**.

   b. For EP 09-01: Water flow rate to Melt Shop ICW Cooling Tower shall not exceed 49~~1~~,~~0~~200 gallons per minute. Total dissolved solids concentration shall not exceed 2,8~~3~~00 ppm. The

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

mist eliminator drift loss shall be maintained at 0.001% or less to total gpm. [401 KAR 51:017]

c. For EP 09-02: Water flow rate to Melt Shop DCW Cooling Tower shall not exceed ~~14~~16,000 gallons per minute. Total dissolved solids concentration shall not exceed 3~~2~~,0~~5~~00 ppm. The mist eliminator drift loss shall be maintained at 0.001% or less to total gpm. [401 KAR 51:017]

d. For EP 09-04: Water flow rate to Rolling Mill DCW Cooling Tower shall not exceed ~~30~~55,000 gallons per minute. Total dissolved solids concentration shall not exceed 3~~2~~,~~5~~000 ppm. The mist eliminator drift loss shall be maintained at 0.001% or less to total gpm. [401 KAR 51:017]

e. For EP 09-05: Water flow rate to Rolling Mill ACC ICW Cooling Tower shall not exceed ~~27~~35,000 gallons per minute. Total dissolved solids concentration shall not exceed 2,~~300~~ 800 ppm. The mist eliminator drift loss shall be maintained at 0.001% or less to total gpm. [401 KAR 51:017]

f. For EP 09-06: Water flow rate to Heavy Plate Quench DCW Cooling Tower shall not exceed ~~3~~10,10~~52~~0 gallons per minute. Total dissolved solids concentration shall not exceed ~~2~~3,~~500~~ 000 ppm. The mist eliminator drift loss shall be maintained at 0.001% or less to total gpm. [401 KAR 51:017]

g. For EP 09-07, Water flow rate to Quench & ACC Laminar DCW Cooling Tower shall not exceed ~~41~~44,000 gallons per minute. Total dissolved solids concentration shall not exceed ~~2~~3,0~~5~~00 ppm. The mist eliminator drift loss shall be maintained at 0.001% or less to total gpm. [401 KAR 51:017]

h. For EP 09-08, Water flow rate to Heat Treat Cooling Tower shall not exceed 30,900~~7,044~~ gallons per minute. Total dissolved solids concentration shall not exceed ~~2~~3,~~500~~ 000 ppm. The mist eliminator drift loss shall be maintained at 0.001% or less to total gpm. [401 KAR 51:017]

i. For EP 09-09, Water flow rate to Air Separation Plant Cooling Tower shall not exceed 12,800 gallons per minute. Total dissolved solids concentration shall not exceed 2,~~300~~ 800 ppm. The mist eliminator drift loss shall be maintained at 0.001% or less to total gpm. [401 KAR 51:017]

Compliance Demonstration Method:
The total flow for each cooling tower system (EP 09-01 through 09-09) will be calculated using the sum of the flow of each pump returning and/or supplying water to each of the specific systems. The flow for individual pumps will be calculated by monitoring the common header pressure each pump is connected to, compensating the header pressure for any losses and/or gains in pressure due to significant pipe fittings, elevation changes, and suction head pressures, that will affect the performance of each pump, and correlating the resulting total dynamic head pressure for each specific pump to the manufacture design flow rate. The resulting flow determined for each pump on a specific cooling tower system

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will be summed together to determine the total return flow for that system back to each of the cooling tower systems (EP 09-01 through 09-09). The permittee shall use the following equations:

$Q_{System} = \sum Q_{Pumps}$ = Total flow for a specific cooling tower system (EP 09-01 through 09-09). This is the sum of all pumps connected to a distinct cooling tower system.

Q_{pumps} = Manufacturers design flow rate at total dynamic head (TDH_P) condition for each pump. This is based on the manufacturers pump curves required to be kept by **5. Specific Recordkeeping Requirements (d).**

Where:

$$TDH_P = P_S * (2.31\ ft_{H2O}/psi) \pm P_{SUC} \pm P_{DIS}$$

And:

P_S = Pressure of the specific system header for the pump (psig)
P_{SUC} = Suction head (+) or suction lift (-)for the pump (ft_{H2O})
P_{DIS} = Discharge head (± based on elevation changes and fittings) (ft_{H2O})

Refer to **4. Specific Monitoring Requirements (a), (b),** and **(c)**, and **5. Specific Recordkeeping Requirements (a)** and **(b)**. Alternatively, the permittee may install, operate, and maintain flow meters to monitor the total return flow from the system back to each of the cooling tower systems.

j. The permittee shall perform regular cooling tower maintenance as recommended by the vendor to assure that the drift loss is maintained at or below the levels specified above at all times. [401 KAR 51:017]

Compliance Demonstration Method:
Refer to **5. Specific Recordkeeping Requirements (c).**

2. Emission Limitations:

a. ***Opacity Standard:*** The permittee shall not cause, suffer, allow, or permit any continuous emission into the open air from a control device or stack associated with any affected facility which is equal to or greater than twenty (20) percent opacity. [401 KAR 59:010, Section 3(1)(a)]

Compliance Demonstration Method:
Refer to **4. Specific Monitoring Requirements (d)** and **5. Specific Recordkeeping Requirements (e).**

b. ***Particulate Emission Standard:*** The permittee shall not discharge or cause to be discharged into the atmosphere any gases which exceed the following limits:
   i. For emissions from a control device or stack, the permittee shall not cause, suffer, allow or permit the emission into the open air of particulate matter from any affected facility which is in excess of the quantity specified in 401 KAR 59:010, Appendix A: [401 KAR 59:010, Section 3(2), Appendix A]
      1) For process weight rates of 0.50 ton/hr or less: 2.34 lb/hr

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

2) For process weight rates > 0.5 ton/hr up to 30.00 tons/hr: = 3.59 ⍰ $^{0.62}$
3) For process weight rates > 30.00 tons/hr: = 17.3 ⍰ $^{0.16}$

Where:
E = the allowable PM emissions rate (pounds/hr)
P = the process weight rate (tons/hr)

ii. Emissions of PM, PM_{10}, and $PM_{2.5}$ shall not exceed the limits in the following tables: [401 KAR 51:017]

Emission Point	Description	BACT for PM (filterable)	BACT for PM_{10}	BACT for $PM_{2.5}$
09-01	Melt Shop ICW Cooling Tower	0.~~47~~ 69 lb/hr 3~~2~~.0~~7~~2 ton/yr	0.51~~35~~ lb/hr 2.25~~1.54~~ ton/yr	0.00~~01~~2 lb/hr 0.007~~46~~ ton/yr
09-02	Melt Shop DCW Cooling Tower System 200	0.24~~18~~ lb/hr ~~0.77~~1.05 ton/yr	0.17~~3~~ lb/hr ~~0.56~~0.76 ton/yr	0.~~0004~~ 0005 lb/hr 0.002~~17~~ ton/yr
09-04	Rolling Mill DCW Cooling Tower System 400	0.83~~38~~ lb/hr; ~~1.64~~3.62 ton/yr	0.~~26~~ 57 lb/hr; ~~1.13~~2.49 ton/yr	0.~~0008~~ 002 lb/hr; 0.~~0036~~ 0078 ton/yr
09-05	Rolling Mill ACC ICW Cooling Tower System 500	0.~~31~~ 49 lb/hr; ~~1.36~~2.15 ton/yr	0.34~~21~~ lb/hr; ~~0.94~~1.48 ton/yr	0.001~~07~~ lb/hr; 0.005~~30~~ ton/yr
09-06	Heavy Plate Quench DCW Cooling Tower System 600	0.15~~04~~ lb/hr; 0.66~~19~~ ton/yr	0.11~~03~~ lb/hr; 0.48~~14~~ ton/yr	0.0003~~1~~ lb/hr; 0.001~~04~~ ton/yr
09-07	Quench & ACC Laminar DCW Cooling Tower System 700	0.66~~51~~ lb/hr; 2.89~~25~~ ton/yr	0.48~~37~~ lb/hr; 2.10~~1.63~~ ton/yr	0.001 lb/hr; 0.00~~5~~6 ton/yr
09-08	Heat Treat Cooling Tower System 800	0.46~~09~~ lb/hr; 2.03~~0.39~~ ton/yr	0.34~~06~~ lb/hr; 1.48~~0.29~~ ton/yr	0.001~~02~~ lb/hr; 0.004~~09~~ ton/yr
09-09	Air Separation Plant Cooling Tower, System 900	0.18~~5~~ lb/hr; 0.79~~64~~ ton/yr	0.13~~1~~ lb/hr; 0.59~~48~~ ton/yr	0.0004~~3~~ lb/hr; 0.002~~1~~ ton/yr

Compliance Demonstration Method:
The permittee shall demonstrate compliance with the particulate emission standards listed above as follows:

A. Compliance **2. Emission Limitations (b)(i)** is assumed when complying with **2. Emission Limitations (b)(ii)**.
B. Compliance with **2. Emission Limitations (b)(ii)** will be demonstrated by meeting the requirements in **1. Operating Conditions (b) – (i), 4. Specific Monitoring**

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Requirements, **5. Specific Recordkeeping Requirements**, and **7. Specific Control Equipment Operating Conditions.**

c. Refer to **SECTION D**.

3. Testing Requirements:

Pursuant to 401 KAR 59:005, Section 2(2) and 401 KAR 50:045, Section 1, performance testing using the Reference Methods specified in 401 KAR 50:015 shall be conducted if required by the Cabinet.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

4. Specific Monitoring Requirements:

a. The permittee shall monitor the total dissolved solids concentration or conductivity in the cooling towers' water weekly. [401 KAR 52:020, Section 10]

b. The permittee shall monitor the gallon per minute throughputs of EPs 09-01 through 09-09 on a daily basis using the method in **1. Operating Limitations (b) – (i) Compliance Demonstration Method**. [401 KAR 52:020, Section 10]

c. The permittee shall monitor the common header pressure each pump is connected to or the total return flow rate for the system. [401 KAR 52:020, Section 10]

d. The permittee shall perform a qualitative visual observation of the opacity of emissions from the stack no less frequently than once every 7 calendar days while the affected facility is operating. If visible emissions from the stack are observed (not including condensed water in the plume), then the permittee shall determine the opacity using U.S. EPA Reference Method 9. In lieu of determining the opacity using U.S. EPA Reference Method 9, the permittee shall immediately perform a corrective action which results in no visible emissions (not including condensed water in the plume). [401 KAR 52:020, Section 10]

e. Refer to **SECTION F** for general monitoring requirements.

5. Specific Recordkeeping Requirements:

a. The permittee shall maintain records of the most current cooling towers' TDS or conductivity. [401 KAR 52:020, Section 10]

b. The permittee shall maintain records of the daily average gallon per minute throughputs for EPs 09-01 through 09-09 calculated using the equation in **1. Operating Limitations (b) - (i) Compliance Demonstration Method**. [401 KAR 52:020, Section 10]

c. The permittee shall maintain records of maintenance performed on the cooling towers and mist eliminators. [401 KAR 52:020, Section 10]

d. The permittee shall maintain records of the manufacturer provided pump curves used for the calculations in **1. Operating Limitations (b) - (i) Compliance Demonstration Method**. [401 KAR 52:020, Section 10]

e. The permittee shall maintain records of the qualitative visual observations required by **4. Specific Monitoring Requirements (d),** including the date, time, initials of observer, whether any emissions were observed (yes/no), any Method 9 readings taken, and any corrective action taken including results due to observed emissions. [401 KAR 52:020, Section 10]

f. The permittee shall maintain records of water treatment chemical purchases, including invoices and other documentation that includes invoices and other documentation that includes date(s) of purchase or shipment, trade name or other information to identify

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

composition of the product, and quantity of the product. [To preclude 40 CFR 63, Subpart Q]

g. The permittee shall maintain records of the monthly and 12-month rolling emissions of PM, PM_{10}, and $PM_{2.5}$. [401 KAR 52:020, Section 10]

h. Refer to **SECTION F** for general recordkeeping requirements.

6. <u>Specific Reporting Requirements</u>:
Refer to **SECTION F** for general reporting requirements.

7. <u>Specific Control Equipment Operating Conditions</u>:

a. The permittee shall install, operate, and maintain high-efficiency mist eliminators capable of controlling emissions to the requirements in **1. <u>Operating Limitations</u> (b)** through **(i)**. The permittee shall verify this by maintaining manufacturer's certifications or performing testing. [401 KAR 51:017]

b. Refer to **SECTION E**.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Group 5

Emission Unit 10 (EU10) – Emergency Generators > 500 HP

Emission Point #	Unit Name	Maximum Rated Capacity	Fuel Used	Control Device	Construction Commenced
Emission Unit 10 (EU 10): Emergency Generators > 500 HP					
10-01	G100-1 Emergency Generator	1,474 HP	Diesel	None	2022
10-02	G100-2 Emergency Generator	2,937~~682~~ HP	Diesel	None	2022
10-03	G100-3 Emergency Generator	2,937~~682~~ HP	Diesel	None	2022
10-04	G200-1 Emergency Generator	1,474 HP	Diesel	None	2022
10-08	G300-1 Emergency Generator	1,474 HP	Diesel	None	2022
10-09	G400-1 Emergency Generator	1,474 HP	Diesel	None	2022
10-10	G500-1 Emergency Generator	1,411 HP	Diesel	None	2022

Description: All of these generators have a displacement of less than 30 liters/cylinder.

APPLICABLE REGULATIONS:

401 KAR 51:017, *Prevention of significant deterioration of air quality*

401 KAR 60:005, Section 2(2)(dddd), 40 C.F.R. 60.4200 to 60.4219, Tables 1 to 8 (Subpart IIII), *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines*

401 KAR 63:002, Section 2(4)(eeee), 40 C.F.R. 63.6580 to 63.6675, Tables 1a to 8, and Appendix A (Subpart ZZZZ), *National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines.*

1. **Operating Limitations:**
   a. The permittee shall meet the requirements of 40 CFR Part 63, Subpart ZZZZ by meeting the requirements of 40 CFR Part 60, Subpart IIII. No further requirements apply for such engines under 40 CFR Part 63. [40 CFR 63.6590(c)(1)]

   b. The permittee shall operate and maintain the stationary CI ICE such that the emission standards required in 40 CFR 60.4205 are achieved over the entire life of the engine. [40 CFR 60.4206]

   c. The permittee shall use diesel fuel that meets the requirements of 40 CFR 1090.305 for nonroad diesel fuel. [40 CFR 60.4207(b)]

   d. The permittee shall install a non-resettable hour meter on each unit prior to the start-up of the engine. [40 CFR 60.4209(a)]

   e. The permittee shall do all of the following, except as permitted under 40 CFR 60.4211(g): [40 CFR 60.4211(a)]
      i. The permittee shall operate and maintain the emergency stationary RICE according to the manufacturer's emission-related written instructions. [40 CFR 60.4211(a)(1)]
      ii. The permittee shall change only those emission-related settings that are permitted by the manufacturer. [40 CFR 60.4211(a)(2)]

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

iii. The permittee shall meet the requirements of 40 CFR part 1068, as they apply. [40 CFR 60.4211(a)(3)]

f. The permittee shall operate the emergency stationary ICE according to the requirements in 40 CFR 60.4211(f)(1) through (3). In order for the engine to be considered an emergency stationary ICE under 40 CFR 60, Subpart IIII, any operation other than emergency operation, maintenance and testing, and operation in non-emergency situations for 50 hours per year, as described in 40 CFR 60.4211(f)(1) through (3), is prohibited. If the permittee does not operate the engine according to the requirements in 40 CFR 60.4211(f)(1) through (3), the engine will not be considered an emergency engine under 40 CFR 60, Subpart IIII and must meet all requirements for non-emergency engines. [40 CFR 60.4211(f)]

i. There is no time limit on the use of emergency stationary RICE in emergency situations. [40 CFR 60.4211(f)(1)]

ii. The permittee may operate the emergency stationary RICE listed above for the purpose specified in 40 CFR 60.4211(f)(2)(i) for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed 40 CFR 60.4211(f)(3) counts as part of the 100 hours per calendar year allowed by this paragraph. [40 CFR 60.4211(f)(2)]

1) Emergency stationary RICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The permittee may petition the Division for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the permittee maintains records indicating that federal, state, or local standards require maintenance and testing of emergency RICE beyond 100 hours per calendar year. [40 CFR 60.4211(f)(2)(i)]

iii. Emergency stationary RICE may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing provided in 40 CFR 60.4211(f)(2). Except as provided in 40 CFR 60.4211(f)(3)(i), the 50 hours per year for nonemergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity. [40 CFR 60.4211(f)(3)]

1) The 50 hours per year for nonemergency situations can be used to supply power as part of a financial arrangement with another entity if all the conditions in 40 CFR 60.4211(f)(3)(i) are met. [40 CFR 60.4211(f)(3)(i)]

g. If the permittee does not install, configure, operate, and maintain the engine and control device according to the manufacturer's emission-related written instructions, or the permittee change emission-related settings in a way that is not permitted by the manufacturer, the permittee shall demonstrate compliance as specified in 40 CFR 60.4211 (g)(3) for EPs 10-01 through 10-09. [40 CFR 60.4211(g)]

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Compliance Demonstration Method:
To ensure compliance with the requirements above, the permittee shall keep records of the hours of operation and purpose of operation. There is no time limit on the use of stationary emergency RICE in emergency situations. Refer to **5. Specific Recordkeeping Requirements**.

h. The permittee shall prepare and maintain for EPs 10-01, 10-02, 10-03, 10-04, 10-08, 10-09, upon initial compliance demonstration but no later than 180 days aofter startup, a good combustion and operation practices (GCOP) plan that defines, measures and verifies the use of operational and design practices determined as BACT for minimizing PM, PM_{10}, $PM_{2.5}$, NO_x, CO, SO_2, VOC, and GHG emissions. Any revisions to the GCOP plan requested by the Division shall be made and the plan shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Division's inspection. The plan shall include, but not be limited to: [401 KAR 51:017]
   i. A list of combustion optimization practices and a means of verifying the practices have occurred.
   ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred.
   iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.

Compliance Demonstration Method:
To ensure compliance with requirements above, the permittee shall keep maintenance records and maintain records of the manufacturer's emission-related written instructions. Refer to **5. Specific Recordkeeping Requirements** and **6. Specific Reporting Requirements**.

2. **Emission Limitations:**
   a. For EPs 10-01, 10-02, 10-03, 10-04, 10-08, and 10-09, the permittee shall comply with the emission standards for new nonroad CI engines in 40 CFR 60.4202, for all pollutants, for the same model year and maximum engine power for their 2007 model year and later emergency stationary CI ICE (with a displacement of less than 30 liters per cylinder). [40 CFR 60.4205(b)]

      Compliance Demonstration Method:
      The permittee shall comply by purchasing an engine certified to the emission standards in 40 CFR 60.4205(b) or (c), as applicable, for the same model year and maximum (or in the case of fire pumps, NFPA nameplate) engine power. The engine shall be installed and configured according to the manufacturer's specifications, except as permitted in 40 CFR 60.4211(g). [40 CFR 60.4211(c)]

   b. Emissions shall not exceed, on an individual basis, the values listed in the table below. [401 KAR 51:017]

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Emission Point	PM (g/hp-hr)	PM_{10} (g/hp-hr)	$PM_{2.5}$ (g/hp-hr)	CO (g/hp-hr)	$NMHC+NO_x$ (g/hp-hr)
EP 10-01	0.15	0.15	0.15	2.61	4.77
EP 10-02	0.15	0.15	0.15	2.61	4.77
EP 10-03	0.15	0.15	0.15	2.61	4.77
EP 10-04	0.15	0.15	0.15	2.61	4.77
EP 10-08	0.15	0.15	0.15	2.61	4.77
EP 10-09	0.15	0.15	0.15	2.61	4.77
EP 10-10	0.15	0.15	0.15	2.61	4.77

Compliance Demonstration Method:
The permittee shall install, operate, and maintain each engine such that it meets or is certified to meet the emission limits in **2. Emission Limitations (b)**. The permittee shall maintain engine certifications onsite and available for inspection by the Division.

c. Refer to **SECTION D**.

3. **Testing Requirements**:
   a. If the permittee conducts performance tests pursuant to 40 CFR 60, Subpart IIII, they shall do so according to 40 CFR 60.4212(a) through (e) for CI engines with a displacement of less than 30 liters per cylinder. [40 CFR 60.4212]

   b. Pursuant to 401 KAR 50:045, Section 1, performance testing using the Reference Methods specified in 401 KAR 50:015 shall be conducted if required by the Cabinet.

4. **Specific Monitoring Requirements**:
   a. For each emission point, monthly hours of operation recorded through the non-resettable hour meter and the purpose of operation for each emission point shall be monitored. [401 KAR 52:020, Section 10]

   b. Refer to **SECTION F** for general monitoring requirements.

5. **Specific Recordkeeping Requirements**:
   a. The permittee shall keep records of the operation of the engine in emergency and non-emergency service that are recorded through the non-resettable hour meter. The permittee shall record the time of operation of the engine and the reason the engine was in operation during that time. [40 CFR 60.4214(b)]

   b. The permittee shall maintain records of the following: [401 KAR 52:020, Section 10]
      i. The monthly and annual fuel usage for each engine;
      ii. The manufacturer's certified emissions certificate, manufacturer's written operating instructions, and any procedures developed by the owner or operator that are approved by the engine manufacturer, over the entire life of the engine;
      iii. The GCOP plan required by **1. Operating Limitations (h)**, as well as any revisions.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

c. The permittee shall maintain records of maintenance conducted on the engine consistent with the operating requirements of 40 CFR 60.4206 and 40 CFR 60.4211(a). [401 KAR 52:020, Section 10]

d. The permittee shall maintain records of fuel purchases to show that the fuel meets the requirements of 40 CFR 80.510(b) for nonroad diesel fuel. [401 KAR 52:020, Section 10]

e. The permittee shall maintain records of any time that an emission point listed above was not operated according to the GCOP plan required by **1. Operating Limitations (h)** with a description of the situation and actions taken to remedy the issue. [401 KAR 51:017]

f. Refer to **SECTION F** for general recordkeeping requirements.

6. Specific Reporting Requirements:

a. For any emergency stationary CI ICE that operates for the purpose specified in 40 CFR 60.4211(f)(3)(i), the permittee shall submit an annual report according to the requirements in 40 CFR 60.4214(d)(1) through (3). [40 CFR 60.4214(d)]

b. Refer to **SECTION F** for general reporting requirements.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Group 6

Emission Unit 11 (EU 11) – Emergency Generators < 500 HP

Emission Point #	Unit Name	Maximum Rated Capacity	Fuel Used	Control Device	Construction Commenced
Emission Unit 11 (EU 11): Emergency Generators < 500 HP					
11-06	Air Separation Plant Emergency Generator	460 HP	Natural Gas	None	2022
11-07	Admin Building Emergency Generator	103 HP	Natural Gas	None	2022

Description: These generators are 4-stroke, rich-burn engines that have a displacement of less than 30 liters per cylinder.

APPLICABLE REGULATIONS:

401 KAR 51:017, *Prevention of significant deterioration of air quality*

401 KAR 60:005, Section 2(2)(eeee), 40 C.F.R. 60.4230 to 60.4248, Tables 1 to 4 (Subpart JJJJ), *Standards of Performance for Stationary Spark Ignition Internal Combustion Engines*

401 KAR 63:002, Section 2(4)(eeee), 40 C.F.R. 63.6580 to 63.6675, Tables 1a to 8, and Appendix A (Subpart ZZZZ), *National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*

1. **Operating Limitations:**
   a. The permittee shall meet the requirements of 40 CFR Part 63, Subpart ZZZZ by meeting the requirements of 40 CFR Part 60, Subpart JJJJ. No further requirements apply for such engines under 40 CFR Part 63. [40 CFR 63.6590(c)(1)]

   b. The permittee shall operate and maintain the stationary SI ICE that achieve the emission standards as required in 40 CFR 60.4233 over the entire life of the engine [40 CFR 60.4234].

   c. For EPs 11-06, and 11-07, the permittee shall install a non-resettable hour meter upon startup of the emergency engine. [40 CFR 60.4237(c)]

   d. The permittee shall operate the emergency stationary ICE according to the requirements in 40 CFR 60.4243(d)(1) through (3). In order for the engine to be considered an emergency stationary ICE under 40 CFR 60, Subpart JJJJ, any operation other than emergency operation, maintenance and testing, and operation in non-emergency situations for 50 hours per year, as described in 40 CFR 60.4243(d)(1) through (3), is prohibited. If the permittee does not operate the engine according to the requirements in 40 CFR 60.4243(d)(1) through (3), the engine will not be considered an emergency engine under 40 CFR 60, Subpart JJJJ and must meet all requirements for non-emergency engines. [40 CFR 60.4243(d)]
      i. There is no time limit on the use of emergency stationary ICE in emergency situations. [40 CFR 60.4243(d)(1)]

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

ii. The permittee may operate the emergency stationary ICE for the purpose specified in 40 CFR 60.4243(d)(2)(i) for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by 40 CFR 60.4243(d)(3) counts as part of the 100 hours per calendar year allowed by 40 CFR 60.4243(d)(2). [40 CFR 60.4243(d)(2)]

1) Emergency stationary ICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The permittee may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the permittee maintains records indicating that federal, state, or local standards require maintenance and testing of emergency ICE beyond 100 hours per calendar year. [40 CFR 60.4243(d)(2)(i)]

iii. Emergency stationary ICE may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing provided in 40 CFR 60.4243(d)(2). Except as provided in 40 CFR 60.4243(d)(3)(i), the 50 hours per year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity. [40 CFR 60.4243(d)(3)]

1) The 50 hours per year for non-emergency situations can be used to supply power as part of a financial arrangement with another entity if all conditions in 40 CFR 60.4243(d)(3)(i) are met. [40 CFR 60.4243(d)(3)(i)]

Compliance Demonstration Method:
To ensure compliance with the requirements above, the permittee shall keep records of the hours of operation and purpose of operation. There is no time limit on the use of stationary emergency RICE in emergency situations. See **5. Specific Recordkeeping Requirements**.

e. The permittee shall prepare and maintain for EPs 11-06 and 11-07, upon initial compliance demonstration but no later than 180 days after startup, a good combustion and operation practices (GCOP) plan that defines, measures and verifies the use of operational and design practices determined as BACT for minimizing PM, PM_{10}, $PM_{2.5}$, NO_x, CO, SO_2, VOC, and GHG emissions. Any revisions to the GCOP plan requested by the Division shall be made and the plan shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Division's inspection. The plan shall include, but not be limited to: [401 KAR 51:017]

i. A list of combustion optimization practices and a means of verifying the practices have occurred.

ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred.

iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Compliance Demonstration Method:
To ensure compliance with requirements above, the permittee shall keep maintenance records and maintain records of the manufacturer's emission-related written instructions. Refer to **5. Specific Recordkeeping Requirements** and **6. Specific Reporting Requirements**.

2. **Emission Limitations**:
   a. The permittee shall comply with the emission standards in Table 1 to 40 CFR Part 60, Subpart JJJJ, for the emergency stationary SI ICE. [40 CFR 60.4233(d); 401 KAR 51:017]

Emission Point	Maximum Engine Power	Emission Standards g/HP-hr (ppmvd at 15% O_2)		
		NO_x	CO	VOC
11-06	HP≥130	2.0 (160)	4.0 (540)	1.0 (86)
		NOx + HC	CO	VOC
11-07	25<HP<130	10 (N/A)	387 (N/A)	N/A

Compliance Demonstration Method:
The permittee shall demonstrate compliance according to one of the methods specified in 40 CFR 63.4243(b)(1) and (2). [40 CFR 60.4243(b)]

A. Purchasing an engine certified according to procedures specified in 40 CFR 60, Subpart JJJJ, for the same model year and demonstrating compliance according to one of the methods specified in 40 CFR 60.4243(a). [40 CFR 60.4243(b)(1)]
B. If the permittee operates and maintains the certified stationary SI internal combustion engine and control device according to the manufacturer's emission-related written instructions, the permittee must keep records of conducted maintenance to demonstrate compliance, but no performance testing is required. The permittee must also meet the requirements as specified in 40 CFR part 1068, subparts A through D, as they apply. If the permittee adjusts engine settings according to and consistent with the manufacturer's instructions, the stationary SI internal combustion engine will not be considered out of compliance. [40 CFR 60.4243(a)(1)]

   b. For each engine, the permittee shall operate and maintain stationary SI ICE that achieve the emission standards as required in 40 CFR 60.4233 over the entire life of the engine. [40 CFR 60.4234]

   c. Refer to **SECTION D**.

3. **Testing Requirements**:
Pursuant to 401 KAR 50:045, Section 1, performance testing using the Reference Methods specified in 401 KAR 50:015 shall be conducted if required by the Cabinet.

4. **Specific Monitoring Requirements**:
   a. For each emission point, the monthly hours of operation recorded through the non-resettable hour meter and the purpose of operation for each emission point shall be monitored. [401 KAR 52:020, Section 10]

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

b. Refer to **SECTION F** for general monitoring requirements.

5. Specific Recordkeeping Requirements:

a. The permittee shall keep records of the information in 40 CFR 63.4245(a)(1) through (4). [40 CFR 60.4245(a)]

i. All notifications submitted to comply with 40 CFR 60, Subpart JJJJ and all documentation supporting any notification. [40 CFR 60.4245(a)(1)]

ii. Maintenance conducted on the engine. [40 CFR 60.4245(a)(2)]

iii. If the stationary SI internal combustion engine is a certified engine, documentation from the manufacturer that the engine is certified to meet the emission standards and information as required in 40 CFR parts 90, 1048, 1054, and 1060, as applicable. [40 CFR 60.4245(a)(3)]

iv. If the stationary SI internal combustion engine is not a certified engine or is a certified engine operating in a non-certified manner and subject to 40 CFR 60.4243(a)(2), documentation that the engine meets the emission standards. [40 CFR 60.4245(a)(4)]

b. The permittee shall maintain records of the following: [401 KAR 52:020, Section 10]

i. The monthly and annual fuel usage for each engine;

ii. The hours of operation for each engine, including the purpose of operation;

iii. The GCOP plan required by **1. Operating Limitations (d)**, as well as any revisions.

c. The permittee shall maintain records of any time that an emission point listed above was not operated according to the GCOP plan required by **1. Operating Limitations (d)** with a description of the situation and actions taken to remedy the issue. [401 KAR 51:017]

d. Refer to **SECTION F** for general recordkeeping requirements.

6. Specific Reporting Requirements:

a. For any emergency stationary SI ICE that operates for the purpose specified in 40 CFR 60.4243(d)(3)(i), the permittee must submit an annual report according to the requirements in 40 CFR 60.4245(e)(1) through (3). [40 CFR 60.4245(e)]1

b. Refer to **SECTION F** for general reporting requirements.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Group 7

Emission Unit 04 (EU 04) – Continuous Heat Treat Line &
Emission Unit 13 (EU 13) – Air Separation Plant

Emission Point #	Unit Name	Burner Maximum Capacity (MMBtu/hr)	Fuel Used	Control Device	Construction Commenced
Emission Unit 04 (EU 04): Continuous Heat Treat Line					
04-02	Austenitizing Furnaces	74.23 MMBtu/hr	Natural Gas	None	2022
Emission Unit 13 (EU 13): Air Separation Plant					
13-01	Water Bath Vaporizer	Two at 14.5 MMBtu/hr, each	Natural Gas	None	2020

Description: These emission points are indirect heat exchangers.

APPLICABLE REGULATIONS:
401 KAR 51:017, *Prevention of significant deterioration of air quality*
401 KAR 59:015, *New indirect heat exchangers*
401 KAR 60:005, Section 2(2)(d), 40 C.F.R. 60.40c to 60.48c (Subpart Dc), *Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units,* applies to EP 13-01

STATE-ORIGIN REQUIREMENTS:
401 KAR 63:020, *Potentially hazardous matter or toxic substances*, applies to 04-02.

1. **Operating Limitations:**
   a. The permittee shall use only natural gas as fuel in EPs 04-02 and 13-01. [401 KAR 51:017]

   b. EP 04-02 shall be equipped with low NO_x burners (burners designed to maintain 0.16 lb/MMBtu in flameless mode and 0.25 lb/MMBtu in flame mode and the standards in **2. Emission Limitations (b)**). [401 KAR 51:017]

   c. EP 13-01 shall be equipped with low NO_x burners (burners designed to maintain 0.05 lb/MMBtu and the standards in **2. Emission Limitations (b)**). [401 KAR 51:017]

   Compliance Demonstration Method:
   Refer to **4. Specific Monitoring Requirements** and **5. Specific Recordkeeping Requirements (a)** and **(b).**

   d. The permittee shall prepare and maintain for EPs 04-02 and 13-01, upon initial compliance demonstration but no later than 180 days after startup, a good combustion and operation practices (GCOP) plan that defines, measures and verifies the use of operational and design practices determined as BACT for minimizing PM, PM_{10}, $PM_{2.5}$, NO_x, CO, SO_2, VOC, and GHG emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

be made available for the Division's inspection. The plan shall include, but not be limited to: [401 KAR 51:017]

i. A list of combustion optimization practices and a means of verifying the practices have occurred.
ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred.
iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction

Compliance Demonstration Method:
Compliance shall be demonstrated according to **5. Specific Recordkeeping Requirements (b)** and **(c)**, and **6. Specific Reporting Requirements (b)**.

e. The permittee shall meet the following design and operational requirements for EPs 04-02 and 13-01 as the BACT determination for GHG: [401 KAR 51:017]
   i. Use only pipeline quality natural gas.
   ii. Install, operate, and maintain a combustion system that includes air-to-fuel ratio control for improved fuel efficiency, adequate temperature for complete combustion, and sufficient gas residence time to complete combustion.
   iii. Conduct periodic calibration of gas supply system in accordance with manufacturer's recommended procedures and schedule.
   iv. Maintain gas supply valves in accordance with the manufacturer's recommended procedures and schedule.

Compliance Demonstration Method:
Compliance shall be demonstrated as follows:

A. The facility construction shall be completed in accordance with the BACT determination for GHGs and incorporating the design elements listed above. Refer to **6. Specific Reporting Requirements (c)**, below.
B. The permittee shall prepare, maintain, and implement the GCOP plan. Refer to **1. Operating Limitations (e)**.

2. Emission Limitations:

a. ***Particulate Emission Standard:***
   i. The permittee shall not cause emissions of particulate matter in excess of 0.35 lb/MMBtu from each emission point listed above. [401 KAR 59:015, Section 4(1)(c)]
   ii. Emissions of PM, PM_{10}, and $PM_{2.5}$ shall not exceed the limits in the following table: [401 KAR 51:017]

Emission Point	Description	BACT for PM (filterable)	BACT for PM_{10}	BACT for $PM_{2.5}$
04-02	Austenitizing Furnace	1.9 lb/MMscf; 0.61 ton/yr	7.6 lb/MMscf; 2.42 ton/yr	7.6 lb/MMscf; 2.42 ton/yr
13-01	Water Bath Vaporizer	1.9 lb/MMscf; 0.24 ton/yr	7.6 lb/MMscf; 0.95 ton/yr	7.6 lb/MMscf; 0.95 ton/yr

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Compliance Demonstration Method:
The permittee shall demonstrate compliance with the particulate emission standards as follows:

A. Compliance with **2. Emission Limitations (a)(i)** is assumed when complying with **2. Emission Limitations (a)(ii)** and when burning natural gas.
B. Compliance with **2. Emission Limitations (a)(ii)** will be demonstrated by meeting the requirements in **1. Operating Limitations**, **4. Specific Monitoring Requirements (b), 5. Specific Recordkeeping Requirements,** and **6. Specific Reporting Requirements (b)** and **(c)**.

b. ***Opacity Standard:*** The permittee shall not cause emissions of particulate matter in excess of twenty (20) percent opacity based on a six-minute average: [401 KAR 59:015, Section 4(2)]

Compliance Demonstration Method:
Compliance with the opacity standard is assumed when burning natural gas.

c. ***CO, NO_x, SO_2, and GHG Emission Standard:***
i. The permittee shall not cause emissions of gases that contain sulfur dioxide in excess of 1.3 lb/MMBtu from each emission point listed above. [401 KAR 59:015, Section 5(1)(c)]
ii. Emissions of CO, NO_x, SO_2, and GHG shall not exceed the limits in the following table: [401 KAR 51:017]

Emission Point	Description	BACT for CO	BACT for NO_x	BACT for SO_2	BACT for GHG (CO_2e)
04-02	Austenitizing Furnace	88.6 lb/MMscf; 28.24 ton/yr	160 lb/MMscf; 51.0 ton/yr	0.6 lb/MMscf; 0.19 ton/yr	38,478 ton/yr
13-01	Water Bath Vaporizer	84 lb/MMscf; 10.46 ton/yr	50 lb/MMscf; 6.23 ton/yr	0.6 lb/MMscf; 0.07 ton/yr	15,032 ton/yr

Compliance Demonstration Method:
The permittee shall demonstrate compliance with the emission limitations for CO, NO_x, SO_2, and GHGs as follows:

A. Compliance with **2. Emission Limitations (d)(i)** is assumed when complying with **2. Emission Limitations (d)(ii)** and when burning natural gas.
B. Compliance with **2. Emission Limitations (d)(ii)** will be demonstrated by meeting the requirements in **1. Operating Limitations**, **2. Testing Requirements, 4. Specific Monitoring Requirements (b), 5. Specific Recordkeeping Requirements,** and **6. Specific Reporting Requirements (b)** and **(c)**.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

d. ***VOC Emission Standard:*** Emissions of VOC shall not exceed the limits in the following table: [401 KAR 51:017]

Emission Point	Description	BACT for VOC
04-02	Austenitizing Furnace	5.5 lb/MMscf; 1.75 ton/yr
13-01	Water Bath Vaporizer	5.5 lb/MMscf; 0.68 ton/yr

Compliance Demonstration Method:
The permittee shall demonstrate compliance with the emission limitations for VOC by meeting the requirements in **1. Operating Limitations**, **4. Specific Monitoring Requirements**, **5. Specific Recordkeeping Requirements**, and **6. Specific Reporting Requirements (b)** and **(c)**.

e. The permittee shall not allow the emission units listed above to emit potentially hazardous matter or toxic substances in such quantities or duration as to be harmful to the health and welfare of humans, animals, and plants. [401 KAR 63:020, Section 3]

Compliance Demonstration Method:
The Cabinet has determined that the source is in compliance with 401 KAR 63:020 based on the rate of emissions of airborne toxics determined by the Cabinet using information provided in the application and supplemental information submitted by the source.

f. Refer to **SECTION D.**

3. Testing Requirements:

a. The permittee shall conduct initial performance tests on the Austenitizing Furnace (EP 04-02) stack within 60 days after achieving the maximum production rate at which the emission point will be operated, but not later than 180 days after initial startup for NOx. [401 KAR 51:017]
   i. The permittee shall use U.S. EPA Method 7 for NOx;
   ii. The permittee may use an alternate method upon approval from the Division.
   iii. These tests shall demonstrate compliance with **2. Emission Limitations** and establish emission factors for NOx in lb/MMscf.

b. Pursuant to 401 KAR 59:005, Section 2(2) and 401 KAR 50:045, Section 1, performance testing using the Reference Methods specified in 401 KAR 50:015 shall be conducted if required by the Cabinet.

4. Specific Monitoring Requirements:

a. The permittee shall monitor the following: [401 KAR 52:020, Section 10]
   i. Monthly hours of operation for each emission point;
   ii. Monthly and 12-month rolling natural gas combusted (MMscf) in each emission point. If the permittee elects not to install a fuel metering device to continuously monitor the amount of natural gas fed to each emission point, the permittee may use a combined

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

meter for multiple emission points, as long as the natural gas apportioned to all emission points sums to 100% of the natural gas used.

b. Refer to **SECTION F** for general monitoring requirements.

5. Specific Recordkeeping Requirements:

a. The permittee shall maintain records of the amount of natural gas (MMscf) combusted in each unit, on a monthly and 12-month rolling basis. [40 CFR 60.48c(g) and 401 KAR 52:020, Section 10]

b. The permittee shall maintain records of the following: [401 KAR 52:020, Section 10]
   i. Monthly hours of operation for each emission point;
   ii. The monthly and 12-month rolling emissions of PM, PM_{10}, $PM_{2.5}$, NO_x, CO, SO_2, VOC, and GHGs for each emission point;
   iii. The GCOP plan required by **1. Operating Limitations (d)** as well as any revisions.

c. The permittee shall maintain records of any time that an emission point listed above was not operated according to the GCOP plan required by **1. Operating Limitations (d)** with a description of the situation and actions taken to remedy the issue. [401 KAR 51:017]

d. Refer to **SECTION F** for general recordkeeping requirements.

6. Specific Reporting Requirements:

a. For EP 13-01, the permittee shall submit notification of the date of construction and actual startup, as provided by 40 CFR 60.7. The notification shall include the design heat input capacity of the affected facility and identification of fuels to be combusted in the affected facility. [40 CFR 60.48c(a)(1)]

b. The permittee shall include, in the semi-annual report, any time that the emission units listed above were not operated according to the GCOP plan required by **1. Operating Limitations (d)** with a description of the situation and actions taken to remedy the issue. Refer to **5. Specific Recordkeeping Requirements (c)**. [401 KAR 51:017]

c. The permittee shall submit, within 180 days of startup, certification that the design elements proposed as BACT for the emission points listed above have been implemented in the final construction. [401 KAR 51:017]

d. Refer to **SECTION F** for general reporting requirements.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Group 8

Emission Unit 01 (EU 01) – Melt Shop,
Emission Unit 14 (EU 14) – Roads &
Emission Unit 12 (EU 12) – Slag Processing

Emission Point #	Unit Name	Maximum Short-Term Capacity	Maximum Long-Term Capacity	Controls	Construction Commenced
Emission Unit 14 (EU 14): Roads					
14-01	Paved Roadways	~~723~~ 940 VMT/day	343,246~~263,910~~ VMT/yr	Sweeping/ Wetting	2020
14-02	Unpaved Roadways	~~327~~ 180 VMT/day	~~119,392~~ 65,751 VMT/yr	Wetting	2020
Emission Unit 12 (EU 12) – Slag Processing					
12-02	Slag Processing Piles	400 tons/hr	328,125 tons/yr*	Dust Suppression	2020
Emission Unit 01 (EU 01) – Melt Shop					
01-08A	Tundish Preparation – Dump Station	2.7 tons refractory/hr	1,800 tons refractory/yr*	None	2022

*Note: Long-term capacity of this unit is limited by an operational limit.

Description: Various paved and unpaved roads and fugitive operations within the PSD-prescribed source boundary.
Unpaved Roads for transporting material between the melt shop and slag processing.

APPLICABLE REGULATIONS:
401 KAR 51:017, *Prevention of significant deterioration of air quality*
401 KAR 63:010, *Fugitive emissions*

1. **Operating Limitations**:
   a. The permittee shall not cause, suffer, or allow a road to be used without taking reasonable precaution to prevent particulate matter from becoming airborne. Such reasonable precautions shall include, as applicable: [401 KAR 63:010, Section 3(1)]
      i. Application and maintenance of asphalt, oil, water, or suitable chemicals on roads, materials stockpiles, and other surfaces which can create airborne dusts; [401 KAR 63:010, Section 3(1)(b)]
      ii. Covering, at all times when in motion, open bodied trucks transporting materials likely to become airborne; [401 KAR 63:010, Section 3(1)(d)]
      iii. The maintenance of paved roadways in a clean condition; [401 KAR 63:010, Section 3(1)(e)]
      iv. The prompt removal of earth or other material from a paved street which earth or other material has been transported thereto by trucking or earth moving equipment or erosion by water. [401 KAR 63:010, Section 3(1)(f)]

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

b. The slag processing storage piles' total weight shall not exceed 328,125 tons at any time. [401 KAR 51:017]

Compliance Demonstration Method:
The permittee shall demonstrate compliance with **1. <u>Operating Limitations</u> (b)**, monthly, by determining the total weight of the slag processing storage piles using the following equation:

$$⍰_{stockpiles} = {}_{total} \times {}_{water} \times {}_{slag}$$

Where:

$⍰_{stockpiles}$ = total weight of slag processing storage piles

${}_{total}$ = total volume of slag processing storage piles

${}_{water}$ = density of water (1,000 $\frac{kg}{m^3}$, 62.4 $\frac{lb}{ft^3}$, or equivalent)

${}_{slag}$ = specific gravity of slag (from SDS)

c. For EP 01-08A, the spent refractory removal shall not exceed 1,800 tons of refractory/year on a rolling 12-month basis. [401 KAR 51:017]

d. For Emission Point 01-08A, the permittee shall prepare and implement, upon initial compliance demonstration but no later than 180 days after startup, a Good Work Practices (GWP) plan that includes written operating instructions and procedures that specify good operating and maintenance practices and includes, at a minimum, the following specific practices targeting PM, PM_{10}, and $PM_{2.5}$, emission minimization, and a means of verifying the practices have occurred: [401 KAR 51:017]
   i. Tracking material usage to ensure that equipment is operated as designed and correcting any operating or design issues as quickly as possible;
   ii. Employing a preventative maintenance program, including a preventative maintenance schedule that is consistent with the manufacturer's instructions for routine and long-term maintenance.

Compliance Demonstration Method:
Refer to **5. <u>Specific Recordkeeping Requirements</u>** and **6. <u>Specific Reporting Requirements</u>**.

2. <u>Emission Limitations</u>:
Fugitive Emission Standard:
a. The permittee shall not cause, suffer, or allow visible fugitive dust emissions beyond the lot line of the property on which the emissions originate, as determined by Reference Method 22 of Appendix A in 40 C.F.R. Part 60, for: [401 KAR 63:010, Section 3(2)]
   i. More than five (5) minutes of emission time during any sixty (60) minute observation period; or
   ii. More than twenty (20) minutes of emission time during any twenty-four (24) hour period.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Compliance Demonstration Method:
The permittee shall demonstrate compliance with the fugitive emission standards listed above as follows:

A. Refer to **1. Operating Limitations (a).**
B. The permittee shall monitor the reasonable precautions taken to prevent particulate matter from becoming airborne on a daily basis.
C. If fugitive dust emissions beyond the lot line of the property are observed, the permittee shall conduct Reference Method 22 (visual determination of fugitive emissions) observations per Appendix A of 40 C.F.R. Part 60. In lieu of conducting U.S. EPA Reference Method 22, the permittee shall immediately perform a corrective action which results in no visible fugitive dust emissions beyond the lot line of the property.

b. Refer to **SECTION D**.

3. Testing Requirements:
Pursuant to 401 KAR 50:045, Section 1, performance testing using the Reference Methods specified in 401 KAR 50:015 shall be conducted if required by the Cabinet.

4. Specific Monitoring Requirements:
Refer to **SECTION F** for general monitoring requirements.

5. Specific Recordkeeping Requirements:

a. The permittee shall keep records of the dates that they swept, and/or applied water/dust suppressants to roadways and slag storage piles according to **7. Specific Control Equipment Operating Conditions**. [401 KAR 52:020, Section 10]

b. The permittee shall maintain records of the slag processing storage piles' total weight on a monthly basis. [401 KAR 52:020, Section 10]

c. The permittee shall maintain records of spent refractory removal rate on a monthly and 12-month rolling basis. [401 KAR 52:020, Section 10]

d. Refer to **SECTION F** for general recordkeeping requirements.

6. Specific Reporting Requirements:
Refer to **SECTION F** for general reporting requirements.

7. Specific Control Equipment Operating Conditions:
The permittee shall employ a combination of the following to control fugitive dust emissions: surface improvements (pavement), sweeping (good work practice) and watering for paved roads, watering and the use of dust suppressants on unpaved roads and slag piles. Refer to **SECTION E**. [401 KAR 51:017]

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Group 9

Emission Unit 15 (EU 15) – Miscellaneous Equipment

EP 15-02 Gasoline Storage Tanks #1 & #2
Description: Two (2) 1000 Gallon Gasoline Storage Tanks
Construction Commenced: 2020
Controls: None

APPLICABLE REGULATIONS:
401 KAR 59:050, *New storage vessels for petroleum liquids*
401 KAR 51:017, *Prevention of significant deterioration of air quality*
401 KAR 63:002, Section 2(4)(ddddd), 40 C.F.R. 63.11110 to 63.11132, Tables 1 to 3, (Subpart CCCCCC), *National emission standards for hazardous air pollutants for Source Category: Gasoline Dispensing Facilities*

1. **Operating Limitations:**
   a. The permittee shall not process more than 10,000 gallons of gasoline per month. [40 CFR 63.11111(b)]

   b. The permittee shall, at all times, operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source. [40 CFR 63.11115(a)]

   c. The permittee shall not allow gasoline to be handled in a manner that would result in vapor releases to the atmosphere for extended periods of time. Measures to be taken include, but are not limited to, the following: [40 CFR 63.11116(a); 401 KAR 51:017]
      i. Minimize gasoline spills; [40 CFR 63.11116(a)(1)]
      ii. Clean up spills as expeditiously as practicable; [40 CFR 63.11116(a)(2)]
      iii. Cover all open gasoline containers and all gasoline storage tank fill-pipes with a gasketed seal when not in use; [40 CFR 63.11116(a)(3)]
      iv. Minimize gasoline sent to open waste collection systems that collect and transport gasoline to reclamation and recycling devices, such as oil/water separators. [40 CFR 63.11116(a)(4)]

   d. The permittee shall comply with the requirements of 40 CFR 63, Subpart CCCCCC upon startup. [40 CFR 63.11116(c)]

   e. Portable gasoline containers that meet the requirements of 40 CFR part 59, subpart F, are considered acceptable for compliance with 40 CFR 63.11116(a)(3). [40 CFR 63.11116(d)]

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

f. The gasoline storage tanks (EP 15-02) shall be equipped with a permanent submerged fill pipe. [401 KAR 59:050, Section 3(2); 401 KAR 51:017]

g. There shall be no visible holes, tears, or other opening in the seal, any seal fabric, shoe, or seal envelope. [401 KAR 59:050, Section 4(1)]

h. All openings, except stub drains, automatic bleeder vents, rim space vents, and leg sleeves, shall be equipped with covers, lids, or seals such that the cover, lid, or seal is in the closed position at all times (i.e., no visible gap). [401 KAR 59:050, Section 4(2)(a)]

2. Emission Limitations:
None

3. Testing Requirements:
Pursuant to 401 KAR 59:005, Section 2(2) and 401 KAR 50:045, Section 1, performance testing using the Reference Methods specified in 401 KAR 50:015 shall be conducted if required by the Cabinet.

4. Specific Monitoring Requirements:
Refer to **SECTION F** for general monitoring requirements.

5. Specific Recordkeeping Requirements:

a. The permittee shall, upon request by the Division, demonstrate that the monthly throughput is less than the 10,000-gallon threshold level. As specified in 40 CFR 63.11112(b) and (c), recordkeeping to document monthly throughput shall begin upon startup of the affected source. Records required under 40 CFR 63.11111(e) shall be kept for a period of 5 years. [40 CFR 63.11111(e)]

b. The permittee shall keep applicable records and submit reports as specified in 40 CFR 63.11125(d) and 40 CFR 63.11126(b). [40 CFR 63.11115(b)]

c. The permittee shall keep records as specified in 40 CFR 63.11125(d)(1) and (2). [40 CFR 63.11125(d)]
   i. Records of the occurrence and duration of each malfunction of operation (i.e., process equipment) or the air pollution control and monitoring equipment. [40 CFR 63.11125(d)(1)]
   ii. Records of actions taken during periods of malfunction to minimize emissions in accordance with 40 CFR 63.11115(a), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation. [40 CFR 63.1125(d)(2)]

d. The permittee shall maintain records of the monthly and 12-month rolling total throughput. [401 KAR 52:010, Section 10]

e. Refer to **SECTION F** for general recordkeeping requirements.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

6. **Specific Reporting Requirements:**
   a. The permittee is not required to submit notifications or reports as specified in 40 CFR 63.11125, 40 CFR 63.11126, or 40 CFR 63, Subpart A, but the permittee shall have records available within 24 hours of a request by the Division to document the gasoline throughput. [40 CFR 63.11116(b)]

   b. Refer to **SECTION F** for general reporting requirements.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Group 10

Emission Unit 16 (EU 16) – Cleaning Tanks

EP 16-01 Cleaning Tanks #1 - #16
Description: 80 Gal cold parts cleaners
Construction Commenced: 2020
Controls: None

APPLICABLE REGULATIONS:
401 KAR 51:017, *Prevention of significant deterioration of air quality*
401 KAR 59:185, *New solvent metal cleaning equipment*

1. **Operating Limitations:**
   a. Each cleaner shall be equipped with a cover. If the solvent volatility is greater than fifteen (15) mm Hg measured at 100°F or if the solvent is agitated or heated, then the cover shall be designed so that it can be easily operated with one (1) hand. [401 KAR 59:185, Section 4(1)(a); 401 KAR 51:017]

   b. The cleaner shall be equipped with a drainage facility so that solvent that drains off parts removed from the cleaner will return to the cleaner. If the solvent volatility is greater than thirty-two (32) mm Hg measured at 100°F then the drainage facility shall be internal so that parts are enclosed under the cover while draining. The drainage facility may be external if the cabinet determines that an internal type cannot fit into the cleaning system. [401 KAR 59:185, Section 4(1)(b)]

   c. A permanent, conspicuous label, summarizing the operating requirements specified in 401 KAR 59:185, Section (4)(2) shall be installed on or near the cleaner. [401 KAR 59:185, Section 4(1)(c)]

   d. If used, the solvent spray shall be a fluid stream, not a fine, atomized or shower type spray, and at a pressure that does not cause excessive splashing. [401 KAR 59:185, Section 4(1)(d); 401 KAR 51:017]

   e. If the solvent volatility is greater than thirty-two (32) mm Hg measured at 100°F or if the solvent is heated above 120°F, then one (1) of the following control devices shall be used: [401 KAR 59:185, Section 4(1)(e)]
      i. Freeboard height that gives a freeboard ratio greater than or equal to seven-tenths (0.7); [401 KAR 59:185, Section 4(1)(e)(1)]
      ii. Water cover, solvent shall be insoluble in and heavier than water; or [401 KAR 59:185, Section 4(1)(e)(2)]
      iii. Other systems of equivalent control, such as a refrigerated chiller or carbon adsorption. [401 KAR 59:185, Section 4(1)(e)(3)]

   f. Waste solvent shall not be disposed of or transferred to another party so that greater than twenty (20) percent by weight of the waste solvent can evaporate into the atmosphere.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Waste solvent shall be stored only in covered containers. [401 KAR 59:185, Section 4(2)(a)]

g. The degreaser cover shall be closed if not handling parts in the cleaner. [401 KAR 59:185, Section 4(2)(b)]

h. Cleaned parts shall be drained for a minimum of fifteen (15) seconds, or until dripping ceases, whichever is longer. [401 KAR 59:185, Section 4(2)(c)]

i. The flushing of parts with a flexible hose or other flushing device shall be performed only within the freeboard area of the cold cleaner. The solvent flow shall be directed downward to avoid turbulence at the air-solvent interface so as to prevent the solvent from splashing outside of the cold cleaner. [401 KAR 59:185, Section 4(2)(d)]

j. Work area fans shall be positioned so that air is not directed across the opening of the cold cleaner. [401 KAR 59:185, Section 4(2)(e)]

k. The use of an air-agitated solvent bath is prohibited. A pump-agitated solvent bath shall be operated so as to produce no observable splashing of the solvent against either the tank wall or the parts that are being cleaned. [401 KAR 59:185, Section 4(2)(f)]

l. The cold cleaner shall be free of all liquid leaks. Auxiliary cleaning equipment such as pumps, water separators, steam traps, or distillation units shall not have any visible leaks, tears, or cracks. [401 KAR 59:185, Section 4(2)(g)]

m. Spills that occur during solvent transfer shall be cleaned immediately. Wipe rags, or other absorbent equipment and materials, used to clean the spill shall be stored in a covered container for disposal unless storage of these items is prohibited by fire protection authorities. [401 KAR 59:185, Section 4(2)(h); 401 KAR 51:017]

n. The operation of a cold cleaner using a solvent with a vapor pressure that exceeds one (1.0) mmHg (0.019 psi) measured at 20° C (68° F) is prohibited. [401 KAR 59:185, Section 4(3)(b)]

2. Emission Limitations:

a. ***VOC Emission Standard***: The permittee shall not cause emissions of VOC from EP 16-01 that exceed 0.52 tons/yr on a 12-month rolling basis. [401 KAR 51:017]

Compliance Demonstration Method:
Compliance with the emission limitation for VOC will be demonstrated by meeting the requirements in **1. Operating Limitations**, **4. Specific Monitoring Requirements (a)** and **(b), 5. Specific Recordkeeping Requirements (a)** and **(b).**

b. Refer to **SECTION D**.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

3. **Testing Requirements:**
Pursuant to 401 KAR 59:005, Section 2(2) and 401 KAR 50:045, Section 1, performance testing using the Reference Methods specified in 401 KAR 50:015 shall be conducted if required by the Cabinet.

4. **Specific Monitoring Requirements:**
   a. The permittee shall monitor the storage and disposal of the waste solvent to ensure minimal loss due to evaporation. [401 KAR 52:020, Section 10]

   b. The permittee shall monitor the amount of makeup solvent added in gallons on a monthly basis. [401 KAR 52:020, Section 10]

   c. Refer to **SECTION F** for general monitoring requirements.

5. **Specific Recordkeeping Requirements:**
   a. The permittee shall maintain records for a minimum of five (5) years that include the following information for each solvent purchase: [401 KAR 59:185, Section 4(4)(b)]
      i. The name and address of the solvent supplier; [401 KAR 59:185, Section 4(4)(b)(1)]
      ii. The date of the purchase; [401 KAR 59:185, Section 4(4)(b)(2)]
      iii. The type of solvent; and [401 KAR 59:185, Section 4(4)(b)(3)]
      iv. The vapor pressure of the solvent measured in mm Hg at 20° C (68°F). [401 KAR 59:185, Section 4(4)(b)(4)]

   b. The permittee shall compile and maintain records of the total amount of solvent consumed in gallons on a monthly and 12-month rolling total basis. [401 KAR 52:020, Section 10]

   c. The permittee shall maintain records of the monthly and 12-month rolling VOC emissions. [401 KAR 52:020, Section 10]

   d. The permittee shall maintain records of the MSDSs for the solvent used. [401 KAR 52:020, Section 10]

   e. Refer to **SECTION F** for general recordkeeping requirements.

6. **Specific Reporting Requirements:**
Refer to **SECTION F** for general reporting requirements.

7. **Specific Control Equipment Operating Conditions:**
The permittee shall operate and maintain the parts cleaning tanks such that they meet the requirements in 401 KAR 59:185 on a continuous basis. Refer to **SECTION E.**

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Group 11

Emission Unit 18 (EU 18) – Blast and Prime Line

Emission Point #	Unit Name	Maximum Short-Term Capacity	Maximum Long-Term Capacity	Burner Maximum Capacity (MMBtu/hr)	Control Device	Construction Commenced
Emission Unit 18 (EU 18) – Blast and Prime Line						
18-03	Plate Painting Operation (Incl. paint prep room)	50.7 gal/hr	444,132 gal/yr	---	Booth Filter; Regenerative thermal oxidizer (RTO)	2022
18-05	Paint System Dryer	----	----	0.000095 MMBtu/hr	Regenerative thermal oxidizer (RTO)	2022

Description: Airless spraying of coating occurs in EP 18-03 and the coating is dried in EP 18-05. These two EPs share an RTO for coating emissions. EP 18-05 natural gas emissions are exhausted through a separate stack shared with EP 18-01. The paint prep room is exhausted to the painting cabinet and controlled by the RTO.

APPLICABLE REGULATIONS:
401 KAR 51:017, *Prevention of significant deterioration of air quality*
401 KAR 59:010, *New process operations*
401 KAR 59:225, *New miscellaneous metal parts and products surface coating operations*

STATE-ORIGIN REQUIREMENTS:
401 KAR 63:020, *Potentially hazardous matter or toxic substances*

1. **Operating Limitations:**
   a. The paint prep room, plate painting operation, and paint system dryer shall be routed to the RTO. [401 KAR 51:017]

   b. The permittee shall, within 90 days of startup, develop and implement a good work practice plan to minimize VOC emissions from the storage, mixing, and conveying of coatings, and cleaning materials used in, and waste materials generated by, all coating operations. The plan shall specify practices and procedures to ensure that, at a minimum, the following elements are implemented: [401 KAR 51:017]
      i. All VOC-containing coatings, cleaning materials, and waste materials shall be stored in closed containers.
      ii. The risk of spills of VOC-containing coatings, cleaning materials, and waste materials shall be minimized.
      iii. VOC-containing coatings, cleaning materials, and waste materials shall be conveyed from one location to another in closed containers or pipes.
      iv. Mixing vessels which contain VOC-containing coatings and other materials shall be closed except when adding to, removing, or mixing the contents.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

v. Emissions of VOC shall be minimized during cleaning of storage, mixing, and conveying equipment.

Compliance Demonstration Method:
Refer to **3. Testing Requirements, 4. Specific Monitoring Requirements, 5. Specific Recordkeeping Requirements, 6. Specific Reporting Requirements**, and **7. Specific Control Equipment Operating Conditions.**

c. The RTO the average combustion temperature in any 3-hour period shall not fall below the combustion temperature limit established during the performance test in **3. Testing Requirements**. [401 KAR 51:017]

Compliance Demonstration Method:
The permittee shall demonstrate continuous compliance with **1. Operating Limitations (d)** by:
A. Collecting temperature data according to **7. Specific Control Equipment Operating Conditions (b)**;
B. Reducing the data to 3-hour block averages; and
C. Maintaining the 3-hour average combustion temperature at or above the temperature limit.
D. The average combustion temperature of RTO in any three (3) hour period must not fall below the combustion temperature limit established during the most recent performance test. If the 3-hour average combustion temperature falls below the operating temperature limit established for the thermal oxidizer, then the permittee shall assume destruction efficiency of zero, during the time period of the deviation for the purpose of demonstrating compliance with emission limitations.

d. The permittee shall ensure that paint booth capture system achieves 100% capture efficiency. The permittee shall demonstrate this by demonstrating that the capture system meets the requirements of section 6 of EPA Method 204 of appendix M to 40 CFR part 51 for a PTE and that all exhaust gases from the enclosure are delivered to a control device. [401 KAR 51:017]
i. The permittee shall ensure all coatings used in the coating operation are applied within the capture system, and coating solvent flash-off and drying occurs within the capture system.
ii. The direction of the air flow at all times shall be into the enclosure; and either
 1) The average facial velocity of air through all natural draft openings in the enclosure shall be at least 200 feet per minute; or
 2) The pressure drop across the enclosure shall be at least 0.007 inches of water, as established in Method 204 of appendix M to 40 CFR part 51.
iii. Alternatives to these standards may be requested with justification in writing to the Division.

e. The permittee shall maintain the facial velocity of air flow through all natural draft openings or the pressure drop at or above the facial velocity limit or pressure drop limit

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

established using Method 204, and maintain the direction of air flow into the enclosure at all times. [401 KAR 51:017]

Compliance Demonstration Method:
Refer to **3. Testing Requirements**, **4. Specific Monitoring Requirements**, **5. Specific Recordkeeping Requirements**, **6. Specific Reporting Requirements**, and **7. Specific Control Equipment Operating Conditions.**

2. **Emission Limitations:**
   a. ***Opacity Standard:*** The permittee shall not cause, suffer, allow, or permit any continuous emission into the open air from a control device or stack associated with any affected facility which is equal to or greater than twenty (20) percent opacity. [401 KAR 59:010, Section 3(1)(a)]

   Compliance Demonstration Method:
   Refer to **4. Specific Monitoring Requirements (b)** and **5. Specific Recordkeeping Requirements (a).**

   b. ***Particulate Emission Standard:*** The permittee shall not discharge or cause to be discharged into the atmosphere any gases which exceed the following limits:
      i. For emissions from a control device or stack, the permittee shall not cause, suffer, allow or permit the emission into the open air of particulate matter from any affected facility which is in excess of the quantity specified in 401 KAR 59:010, Appendix A: [401 KAR 59:010, Section 3(2), Appendix A]
         1) For process weight rates of 0.50 ton/hr or less: 2.34 lb/hr
         2) For process weight rates > 0.5 ton/hr up to 30.00 tons/hr: $= 3.59 P^{0.62}$
         3) For process weight rates > 30.00 tons/hr: $= 17.3 P^{0.16}$
         Where:
         E = the allowable PM emissions rate (pounds/hr)
         P = the process weight rate (tons/hr)
      ii. Emissions of PM, PM_{10}, and $PM_{2.5}$ shall not exceed the limits in the following table: [401 KAR 51:017]

Emission Point	Description	BACT for PM (filterable)	BACT for PM_{10}	BACT for $PM_{2.5}$
18-03	Plate Painting Operation	0.51 lb/hr; 2.24 tons/yr	0.53 lb/hr; 2.30 tons/yr	0.53 lb/hr; 2.30 tons/yr

   Compliance Demonstration Method:
   The permittee shall demonstrate compliance with the particulate emission standards as follows:
   A. Compliance with **2. Emission Limitations (b)(i)** is assumed when complying with **2. Emission Limitations (b)(ii)**.
   B. Compliance with the lb/hr limits in **2. Emission Limitations (b)(ii)** will be demonstrated according to the requirements in **3. Testing Requirements.**
   C. Compliance with the ton/yr limits in **2. Emission Limitations (b)(ii)** will be demonstrated by performing the following calculation monthly:

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

$$_{xi} = [(\frac{x\ 20\%\ x}{2000})\ x\ (1 - \quad)]$$

$$_{x} = \sum_{i=1}^{12} {}_{xi}$$

Where:

= Month;

= Pollutant (PM, PM_{10}, or $PM_{2.5}$)

$_{xi}$ = The actual average monthly emission rate of pollutant *x* during month *i* in tons of *x* per month;

$_{i}$ = The actual throughput during month *i* in gallons of coating used per month;

$_{x}$ = The corresponding solids content of the coating used, as determined according to **3. Testing Requirements (b)** or the emission factor determined by the most recent representative performance test, in pounds per gallon of paint used;

$_{x}$ = Control efficiency (%) of the paint system filter for pollutant *x*;

$_{x}$ = Total 12-month rolling emissions of pollutant x in tons per year;

20% = 1 – Transfer efficiency (80%) of the airless spraying

D. Refer to **1. Operating Limitations**, **3. Testing Requirements**, **4. Specific Monitoring Requirements**, **5. Specific Recordkeeping Requirements**, **6. Specific Reporting Requirements**, and **7. Specific Control Equipment Operating Conditions.**

c. ***VOC Emission Standard:***

i. The permittee shall not cause, allow, or permit a coating line to discharge into the atmosphere more than 15% by weight of the VOCs net input into each coating line (including mixing operations; process storage; applicators; drying operations; cleanup operations; leaks, spills and disposal of VOCs; processing and handling of recovered VOCs). [401 KAR 59:225, Section 3]

ii. The permittee shall not cause, allow, or permit a coating line to discharge into the atmosphere more than 2% by weight of the VOCs net input into each coating line (including mixing operations; process storage; applicators; drying operations; cleanup operations; leaks, spills and disposal of VOCs; processing and handling of recovered VOCs). [401 KAR 51:017]

iii. Emissions of VOC from the RTO stack shall not exceed 5.52 lb/hr, based on a 3-hour average, and 24.20 tons/yr, on a 12-month rolling basis. [401 KAR 51:017]

Compliance Demonstration Method:

The permittee shall demonstrate compliance with the VOC emission standards as follows:

A. Compliance with **2. Emission Limitations (c)(i)** is assumed when complying with **2. Emission Limitations (c)(ii)**.

B. Compliance with **2. Emission Limitations (c)(ii)** will be demonstrated according to **3. Testing Requirements.**

C. Compliance with the lb/hr limit in **2. Emission Limitations (c)(iii)** will be demonstrated according to the requirements in **3. Testing Requirements.**

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

D. Compliance with the ton/yr limit in **2. Emission Limitations (c)(iii)** will be demonstrated by performing the following calculation monthly:

$$_{VOCi} = \left(\frac{x}{2000}\right) x\,(1 - \quad)$$

$$_{VOC} = \sum_{i=1}^{12} {}_{VOCi}$$

Where:

= Month;

$_{VOCi}$ = The actual average monthly emission rate of VOC during month *i* in tons per month;

$_{i}$ = The actual specific throughput of the plate painting operations during month *i* in gallons of coating used per month;

$_{VOC}$ = The corresponding VOC content of the coating used as determined according to **3. Testing Requirements (a)** or the emission factor determined by the most recent representative performance test, in pounds per gallon of paint used;

= The destruction or removal efficiency (DRE) of the RTO as determined according to **3. Testing Requirements** percent**.**

$_{VOC}$ = Total 12-month rolling emissions of VOC in tons per year.

Note: Any additional solvent use in the plate painting operations during the month shall be added to the VOC calculation for the month and included in the total.

E. Refer to **1. Operating Limitations**, **3. Testing Requirements**, **4. Specific Monitoring Requirements**, **5. Specific Recordkeeping Requirements**, **6. Specific Reporting Requirements**, and **7. Specific Control Equipment Operating Conditions.**

d. The permittee shall not allow the emission units listed above to emit potentially hazardous matter or toxic substances in such quantities or duration as to be harmful to the health and welfare of humans, animals, and plants. [401 KAR 63:020, Section 3]

Compliance Demonstration Method:
The Cabinet has determined that the source is in compliance with 401 KAR 63:020 based on the rate of emissions of airborne toxics determined by the Cabinet using information provided in the application and supplemental information submitted by the source.

3. Testing Requirements:

a. For coatings, the permittee shall determine the total volatile matter content as weight fraction of nonaqueous volatile matter using Method 24 in appendix A-7 of part 60. As an alternative to using Method 24, the permittee may use ASTM D2369-10 (2015), "Test Method for Volatile Content of Coatings" (incorporated by reference, see 40 CFR 63.14). The determination of total volatile matter content may be performed by the manufacturer of the coating and the results provided to the permittee. [401 KAR 51:017]

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

b. The permittee must determine the solids content and the density of each coating material applied. The permittee may determine the volume solids content using ASTM D2697-03(2014) Standard Test Method for Volume Nonvolatile Matter in Clear or Pigmented Coatings (incorporated by reference, see 40 CFR 63.14) or ASTM D6093-97 (2016) Standard Test Method for Percent Volume Nonvolatile Matter in Clear or Pigmented Coatings Using a Helium Gas Pycnometer (incorporated by reference, see 40 CFR 63.14), or an EPA approved alternative method. The permittee must determine the density of each coating using ASTM D1475-13 "Standard Test Method for Density of Liquid Coatings, Inks, and Related Products" (incorporated by reference, see 40 CFR 63.14) or ASTM D2111-10 (2015) "Standard Test Methods for Specific Gravity and Density of Halogenated Organic Solvents and Their Admixtures" (incorporated by reference, see 40 CFR 63.14). The solids determination using ASTM D2697-03(2014) or ASTM D6093-97 (2016) and the density determination using ASTM D1475-13 or ASTM 2111-10 (2015) may be performed by the manufacturer of the material and the results provided to the permittee. Alternatively, the permittee may rely on formulation data provided by material providers to determine the volume solids. In the event of any inconsistency between test data obtained with the ASTM test methods specified in this section and formulation data, the test data will govern. [401 KAR 51:017]

c. The permittee shall conduct performance tests to establish the destruction or removal efficiency of the control device and the VOC emissions according to the methods and procedures below. This testing shall be conducted within 60 days after achieving the maximum production rate at which the emission points listed above will be operated, but not later than 180 days after initial startup, and every 5 years thereafter. During performance tests, the permittee must establish the operating limits required by **1. Operating Limitations** according to the methods below. [401 KAR 51:017]
   i. Performance tests conducted to determine the destruction or removal efficiency of the control device must be performed such that control device inlet and outlet testing is conducted simultaneously. The data must be reduced in accordance with the test methods and procedures below.
      1) Method 1 or 1A of 40 CFR part 60, appendix A, is used for sample and velocity traverses to determine sampling locations.
      2) Method 2, 2A, 2C, 2D, 2F, or 2G of 40 CFR part 60, appendix A, is used to determine gas volumetric flow rate.
      3) Method 3, 3A, or 3B of 40 CFR part 60, appendix A, used for gas analysis to determine dry molecular weight. The permittee may also use as an alternative to Method 3B, the manual method for measuring the oxygen, carbon dioxide, and carbon monoxide content of exhaust gas, ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses" (incorporated by reference in 40 CFR 63.14).
      4) Method 4 of 40 CFR part 60, appendix A, is used to determine stack gas moisture.
      5) Methods for determining gas volumetric flow rate, dry molecular weight, and stack gas moisture must be performed, as applicable, during each test run.
      6) Method 25 or 25A in appendix A-7 of 40 CFR part 60 is used to determine total gaseous non-methane organic matter concentration. The permittee may use Method 18 in appendix A-6 of 40 CFR part 60 to subtract methane emissions from measured total gaseous organic mass emissions as carbon. Use the same test method for both

the inlet and outlet measurements, which must be conducted simultaneously. The permittee must use Method 25A if any of the conditions described below apply to the control device.

A. An exhaust gas volatile organic matter concentration of 50 ppmv or less is required to comply with the emission limitations; or
B. The volatile organic matter concentration at the inlet to the control system and the required level of control are such that they result in exhaust gas volatile organic matter concentrations of 50 ppmv or less; or
C. Because of the high efficiency of the control device, the anticipated volatile organic matter concentration at the control device exhaust is 50 ppmv or less, regardless of inlet concentration.

7) Each performance test must consist of three separate runs, except as provided by 40 CFR 63.7(e)(3); each run must be conducted for at least 1 hour under the conditions that exist when the affected source is operating under normal operating conditions. For the purpose of determining volatile organic matter concentrations and mass flow rates, the average of the results of all runs will apply.
8) If the permittee is determining the control device destruction or removal efficiency, for each run, determine the volatile organic matter mass flow rates using the following equation:

$$_f = \quad _{sd} \quad _c(12)(0.0416)(10^{-6})$$

Where:

M_f = total organic volatile matter mass flow rate, kg/per hour (h).
C_c = concentration of organic compounds as carbon in the vent gas, as determined by Method 25 or Method 25A, ppmv, dry basis.
Q_{sd} = volumetric flow rate of gases entering or exiting the control device, as determined by Method 2, 2A, 2C, 2D, 2F, or 2G, dry standard cubic meters (dscm)/h.
0.0416 = conversion factor for molar volume, kg-moles per cubic meter (mol/m^3) (@ 293 Kelvin (K) and 760 millimeters of mercury (mmHg)).

9) For each run, determine the control device destruction or removal efficiency, DRE, using the following equation:

$$= \frac{_{fi} - \quad _{fo}}{_{fi}} x\, 100$$

Where:
DRE = organic emissions destruction or removal efficiency of the add-on control device, percent.
M_{fi} = organic volatile matter mass flow rate at the inlet to the control device, kg/h.
M_{fo} = organic volatile matter mass flow rate at the outlet of the control device, kg/h.

10) The control device destruction or removal efficiency is determined as the average of the efficiencies determined in the three test runs and calculated in the equation above.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

ii. The permittee must record such process information as may be necessary to determine the conditions in existence at the time of the performance test. The permittee must conduct the performance test under representative operating conditions for the coating operation. Operations during periods of start-up, shutdown, or nonoperation do not constitute representative conditions for the purpose of a performance test. The permittee may not conduct performance tests during periods of malfunction. The permittee must record the process information that is necessary to document operating conditions during the test and explain why the conditions represent normal operation. Upon request, the permittee must make available to the Division such records as may be necessary to determine the conditions of performance tests.

iii. *Operating limits.* The permittee must establish the applicable operating limits required by **1. Operating Limitations**. These operating limits apply to each capture system and to each add-on emission control device that is not monitored by CEMS, and the permittee must establish the operating limits during performance tests.

1) *Thermal oxidizer.* For the thermal oxidizer, establish the operating limits according to the following:

A. During performance tests, the permittee must monitor and record the combustion temperature at least once every 15 minutes during each of the three test runs. The permittee must monitor the temperature in the firebox of the thermal oxidizer or immediately downstream of the firebox before any substantial heat exchange occurs.

B. Use the data collected during the performance test to calculate and record the average combustion temperature maintained during the performance test. This average combustion temperature is the minimum operating limit for the thermal oxidizer.

C. If the permittee wishes to monitor an alternative parameter and comply with a different operating limit, the permittee must apply to the Division for approval of alternative monitoring.

d. The permittee must determine capture efficiency using the procedures below, as applicable: [401 KAR 51:017]

i. For an enclosure that meets the criteria for a PTE, the permittee may assume it achieves 100 percent capture efficiency. The permittee must confirm that the capture system is a PTE by demonstrating that it meets the requirements of section 6 of EPA Method 204 of 40 CFR part 51, appendix M (or an EPA approved alternative method), and that all exhaust gases from the enclosure are delivered to a control device.

ii. The permittee may determine capture efficiency, CE, according to the protocols for testing with temporary total enclosures that are specified in Method 204A through F of 40 CFR part 51, appendix M.

iii. As an alternative to the procedures specified above, if the permittee is required to conduct a capture efficiency test, the permittee may use any capture efficiency protocol and test methods that satisfy the criteria of either the Data Quality Objective or the Lower Confidence Limit approach as described in appendix A to 40 CFR 63, Subpart KK.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

e. The permittee shall perform initial performance testing within 60 days after achieving the maximum production rate at which the emission point will be operated, but not later than 180 days after initial startup and every 5 years thereafter for PM, PM_{10}, and $PM_{2.5}$. [401 KAR 51:017]
   i. The permittee shall use U.S. EPA Methods 201A & 202 for PM, PM_{10}, and $PM_{2.5}$;
   ii. The permittee may use an alternate method upon approval from the Division.
   iii. These tests shall demonstrate compliance with **2. Emission Limitations**, establish inlet and outlet emission factors for each pollutant in lb/gal.
   iv. The permittee shall maintain the pressure drop across the paint system filter per manufacturer's recommended operating range.

d. Pursuant to 401 KAR 59:005, Section 2(2) and 401 KAR 50:045, Section 1, performance testing using the Reference Methods specified in 401 KAR 50:015 shall be conducted if required by the Cabinet.

4. **Specific Monitoring Requirements**:
   a. The permittee shall install, calibrate, operate, and maintain a device that continuously records the combustion temperature of any effluent gases incinerated to achieve compliance with **2. Emission Limitations**. This device shall have an accuracy of ±2.5 °C. or ±0.75 percent of the temperature being measured expressed in degrees Celsius, whichever is greater. [401 KAR 52:020, Section 10]

   b. To demonstrate continuing compliance with the standards, the permittee must monitor and inspect each capture system and each control device following the date on which the initial performance test of the capture system and control device is completed. The permittee must install and operate the monitoring equipment as specified below. The permittee must also maintain the monitoring equipment at all times and keep the necessary parts readily available for routine repairs of the monitoring equipment. [401 KAR 52:020, Section 10]

   c. *Temperature monitoring of oxidizers.* The permittee shall: [401 KAR 52:020, Section 10]
      i. Install, calibrate, maintain, and operate temperature monitoring equipment according to manufacturer's specifications. The calibration of the chart recorder, data logger, or temperature indicator must be verified every 3 months; or the chart recorder, data logger, or temperature indicator must be replaced. The permittee must replace the equipment either if the permittee chooses not to perform the calibration, or if the equipment cannot be calibrated properly. Each temperature monitoring device must be equipped with a continuous recorder. The device must have an accuracy of ±1 percent of the temperature being monitored in degrees Celsius, or ±1 °Celsius, whichever is greater.
      ii. Install the thermocouple or temperature sensor in the combustion chamber at a location in the combustion zone of the thermal oxidizer or in the duct immediately downstream of the firebox before any substantial heat exchange occurs.

   d. *Capture system monitoring.* The permittee must develop a capture system monitoring plan containing the information specified below. The permittee must monitor the capture system

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

in accordance with this plan. The permittee must make the monitoring plan available for inspection by the Division upon request. [401 KAR 52:020, Section 10]

i. The monitoring plan must identify the operating parameter to be monitored to ensure that the capture efficiency measured during compliance tests is maintained, explain why this parameter is appropriate for demonstrating ongoing compliance, and identify the specific monitoring procedures.

ii. The plan also must specify operating limits at the capture system operating parameter value, or range of values, that demonstrates compliance with the standards. The operating limits must represent the conditions indicative of proper operation and maintenance of the capture system.

iii. The permittee must conduct monitoring in accordance with the plan.

e. The permittee shall perform a qualitative visual observation of the opacity of emissions from the RTO stack (EP 18-03) no less frequently than once daily while the affected facility is operating. If visible emissions from the stack are observed (not including condensed water in the plume), then the permittee shall determine the opacity using U.S. EPA Reference Method 9. In lieu of determining the opacity using U.S. EPA Reference Method 9, the permittee shall immediately perform a corrective action which results in no visible emissions (not including condensed water in the plume). [401 KAR 52:020, Section 10]

f. The permittee shall monitor the following parameters for EP 18-03: [401 KAR 52:020, Section 10]

i. Monthly hours of operation;
ii. Monthly and 12-month rolling total throughput;
iii. Monthly and 12-month rolling coating usage in gallons;
iv. Monthly and 12-month rolling solvent usage in gallons;
v. Monthly and 12-month rolling total emissions of PM, PM_{10}, $PM_{2.5}$, and VOC in tons;
vi. Monthly natural gas usage in MMscf;
vii. Weekly visual inspection of paint system filter and key control equipment;
viii. Pressure drop across the paint system filter at least once per shift.

g. The permittee shall perform monthly operational status inspections of the affected facilities and control equipment. The observations shall include but not be limited to, the physical appearance of all equipment. [401 KAR 52:020, Section 10]

h. Refer to **SECTION F** for general monitoring requirements.

5. **<u>Specific Recordkeeping Requirements</u>:**

a. Daily records shall be maintained by the source for the most recent two (2) year period. These records shall be made available to the Cabinet or the U.S. EPA upon request. The records shall include, but not be limited to, the following: [401 KAR 59:225, Section 4(8)]

i. Applicable administrative regulation number; [401 KAR 59:225, Section 4(8)(a)]
ii. Application method and substrate type; [401 KAR 59:225, Section 4(8)(b)]
iii. Amount and type of adhesive, coating (including catalyst and reducer for multicomponent coatings), or solvent used at each point of application, including exempt compounds; [401 KAR 59:225, Section 4(8)(c)]

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

iv. The VOC content as applied in each adhesive, coating, or solvent; [401 KAR 59:225, Section 4(8)(d)]
v. The date for each application for adhesive, coating, or solvent; [401 KAR 59:225, Section 4(8)(e)]

b. The net input of VOC and HAP during any specified time period shall be considered to equal the total amount of VOC and HAP purchased and used during that specific time period. If any waste solvent is reclaimed and shipped off-site for disposal or recycling, AND the permittee can verify the VOC content of the reclaimed material through EPA test methods or a Division approved alternative, then the VOC content of the reclaimed material shipped off-site may be subtracted from the VOC purchased and used during the month when calculating emissions. [401 KAR 52:020, Section 10]

c. The permittee shall calculate and record the weight percentage of VOCs emitted. Compliance for one (1) coating line with VOC emission limits shall be based on an averaging period not to exceed twenty-four (24) hours. [401 KAR 59:225, Section 4(5)]

d. The permittee shall maintain a log of daily records required to show continuous compliance with the emission limits including continuous permanent records of the RTO combustion temperature. Refer to **4. Specific Monitoring Requirements (a).** [401 KAR 52:020, Section 10]

e. The permittee shall maintain records of the following information for the regenerative thermal oxidizer (RTO): [401 KAR 52:020, Section 10]
i. The design and/or manufacturer's parameter specifications,
ii. The operational procedures and preventive maintenance records,
iii. The calibration records for the combustion temperature sensor, validation checks and the subsequent accuracy audits,
iv. A log of visual inspections of each temperature sensor if redundant temperature sensors are not used,
v. A record of the average combustion temperature limit established during the most recent performance test and all relevant supporting data,
vi. The continuously recorded combustion temperature of the thermal oxidizer along with the 3-hour averages,
vii. Record all periods (during coating operations), in which the 3-hour average combustion temperature of the thermal oxidizer is below the temperature limit established during the most recent performance test. Each occurrence shall be considered a deviation from permit requirements. Refer to **6. Specific Reporting Requirements**, and
viii. During all periods of operation of the thermal oxidizer in which the 3-hour average combustion temperature is below the combustion temperature limit established by the most recent performance test, a daily log of the following information shall be kept:
1) Whether any emissions were visible from the facilities associated with the thermal oxidizer;
2) Whether visible emissions were normal for the process;
3) The cause of the visible emissions; and
4) Corrective action(s) taken.

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

ix. Whether any deviation occurred during a period of startup, shutdown, or malfunction.

f. The permittee shall maintain records to show capture efficiencies remain constant, including the following information: [401 KAR 52:020, Section 10]
   i. Records of the initial sensor calibrations, validation checks and accuracy audits,
   ii. A log of the monthly leak checks,
   iii. A log of the visual inspections of the sensor systems (monthly for pressure measurements, quarterly for flow measurements),
   iv. Records of all data and documentation used to determine capture efficiency,

g. The permittee shall maintain records of the following for each emission point: [401 KAR 52:020, Section 10]
   i. Monthly hours of operation;
   ii. Monthly and 12-month rolling total throughput;
   iii. Monthly and 12-month rolling coating usage in gallons;
   iv. Monthly and 12-month rolling solvent usage in gallons;
   v. Monthly and 12-month rolling total emissions of PM, PM10, PM2.5, and VOC in tons/yr;
   vi. Monthly natural gas usage in MMscf;
   vii. Pressure drop across the fabric filters, once per shift;
   viii. Weekly visual inspections of paint system filter and key control equipment;
   ix. SDSs for all materials used;
   x. The qualitative visual observations required by **4. Specific Monitoring Requirements (e),** including the date, time, initials of observer, whether any emissions were observed (yes/no), any Method 9 readings taken, and any corrective action taken including results due to observed emissions.
   xi. The GWP plan required by **1. Operating Limitations** as well as any revisions;
   xii. Maintenance performed on the control equipment;

h. The permittee shall maintain records documenting all deficiencies noted during the monthly operational status inspections and the resulting maintenance that was performed. [401 KAR 52:020, Section 10]

i. Refer to **SECTION F** for general recordkeeping requirements.

6. Specific Reporting Requirements:

a. The permittee shall include, in the semi-annual report, any time that that an emission point listed above was not operated according to the GWP Plan in **1. Operating Limitations** with a description of the situation and actions taken to remedy the issue. Refer to **5. Specific Recordkeeping Requirements (g)**. [401 KAR 51:017]

b. The permittee shall identify, record, and submit a written report for each deviation from the permitted conditions. [401 KAR 52:020, Section 10]
   i. For the thermal oxidizer, this is each instance in excess of 3 hours during which the average temperature of the thermal oxidizer remains below the limit established during the most recent performance test; and

SECTION B - EMISSION UNITS, EMISSION POINTS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

ii. For emissions reporting, treat the materials used during a deviation on a controlled coating operation as if they were used on an uncontrolled coating operation for the time period of the deviation.

c. Refer to **SECTION F** for general reporting requirements.

7. **Specific Control Equipment Operating Conditions**:

a. The permittee shall install, operate, and maintain an exhaust spray booth exhaust air filter system in accordance with manufacturer's specifications capable of controlling emissions to the requirements in **1. Operating Limitations (b)**. [401 KAR 51:017]

b. The permittee shall install, calibrate, maintain and operate, in accordance with manufacturer's specifications, a pressure-drop monitoring device for the fabric filters. [401 KAR 52:020, Section 10]

c. The permittee shall install, operate, and maintain a regenerative thermal oxidizer (RTO) that controls VOC emissions from the entire coating operation in accordance with manufacturer's specifications that is capable of controlling emissions to the requirements in **1. Operating Limitations (c)**. [401 KAR 51:017]

d. The RTO must meet the following requirements: [401 KAR 51:017]

i. The permittee shall install, calibrate, maintain, and operate, in accordance with manufacturer's specifications, a temperature-monitoring device equipped with a continuous recorder in the combustion zone of the thermal oxidizer or in the duct immediately downstream of the firebox before any substantial heat exchange occurs;

ii. The permittee shall install, calibrate, maintain, and operate temperature monitoring equipment according to manufacturer's specifications. The calibration of the chart recorder, data logger, or temperature indicator must be verified every 3 months; or the chart recorder, data logger, or temperature indicator must be replaced. The permittee must replace the equipment either if the permittee chooses not to perform the calibration, or if the equipment cannot be calibrated properly. Each temperature monitoring device must be equipped with a continuous recorder. The device must have an accuracy of ±1 percent of the temperature being monitored in degrees Celsius, or ±1 °Celsius, whichever is greater. Before using the sensor for the first time or when relocating or replacing the sensor, the permittee shall perform a validation check by comparing the sensor output to a calibrated temperature measurement device or by comparing the sensor output to a simulated temperature;

iii. The permittee shall conduct an accuracy audit every quarter and after every deviation. Accuracy audit methods include comparisons of sensor output to redundant temperature sensors, to calibrated temperature measurement devices, or to temperature simulation devices; and

iv. The permittee shall conduct a visual inspection of each sensor every quarter if redundant temperature sensors are not used.

e. Refer to **SECTION E.**

SECTION C - INSIGNIFICANT ACTIVITIES

The following listed activities have been determined to be insignificant activities for this source pursuant to 401 KAR 52:020, Section 6. Although these activities are designated as insignificant the permittee must comply with the applicable regulation. Process and emission control equipment at each insignificant activity subject to an opacity standard shall be inspected monthly and a qualitative visible emissions evaluation made. Results of the inspection, evaluation, and any corrective action shall be recorded in a log.

Description	Generally Applicable Regulation

No Insignificant Activities at this facility as of permit V-20-001 R1.

SECTION D - SOURCE EMISSION LIMITATIONS AND TESTING REQUIREMENTS

1. As required by Section 1b of the *Cabinet Provisions and Procedures for Issuing Title V Permits* incorporated by reference in 401 KAR 52:020, Section 26; compliance with annual emissions and processing limitations contained in this permit, shall be based on emissions and processing rates for any twelve (12) consecutive months.

2. PM, PM_{10}, $PM_{2.5}$, CO, NO_X, SO_2, VOC, and GHG, emissions, measured by applicable reference methods, or an equivalent or alternative method specified in 40 C.F.R. Chapter I, or by a test method specified in the state implementation plan shall not exceed the respective limitations specified herein.

SECTION E - SOURCE CONTROL EQUIPMENT REQUIREMENTS

Pursuant to 401 KAR 50:055, Section 2(5), at all times, including periods of startup, shutdown and malfunction, owners and operators shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Division which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.

SECTION F - MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS

1. Pursuant to Section 1b-IV-1 of the *Cabinet Provisions and Procedures for Issuing Title V Permits* incorporated by reference in 401 KAR 52:020, Section 26, when continuing compliance is demonstrated by periodic testing or instrumental monitoring, the permittee shall compile records of required monitoring information that include:
   a. Date, place as defined in this permit, and time of sampling or measurements;
   b. Analyses performance dates;
   c. Company or entity that performed analyses;
   d. Analytical techniques or methods used;
   e. Analyses results; and
   f. Operating conditions during time of sampling or measurement.

2. Records of all required monitoring data and support information, including calibrations, maintenance records, and original strip chart recordings, and copies of all reports required by the Division for Air Quality, shall be retained by the permittee for a period of five (5) years and shall be made available for inspection upon request by any duly authorized representative of the Division for Air Quality [Sections 1b-IV-2 and 1a-8 of the *Cabinet Provisions and Procedures for Issuing Title V Permits* incorporated by reference in 401 KAR 52:020, Section 26].

3. In accordance with the requirements of 401 KAR 52:020, Section 3(1)h, the permittee shall allow authorized representatives of the Cabinet to perform the following during reasonable times:
   a. Enter upon the premises to inspect any facility, equipment (including air pollution control equipment), practice, or operation;
   b. To access and copy any records required by the permit:
   c. Sample or monitor, at reasonable times, substances or parameters to assure compliance with the permit or any applicable requirements.

   Reasonable times are defined as during all hours of operation, during normal office hours; or during an emergency.

4. No person shall obstruct, hamper, or interfere with any Cabinet employee or authorized representative while in the process of carrying out official duties. Refusal of entry or access may constitute grounds for permit revocation and assessment of civil penalties.

5. Summary reports of any monitoring required by this permit shall be submitted to the Regional Office listed on the front of this permit at least every six (6) months during the life of this permit, unless otherwise stated in this permit. For emission units that were still under construction or which had not commenced operation at the end of the 6-month period covered by the report and are subject to monitoring requirements in this permit, the report shall indicate that no monitoring was performed during the previous six months because the emission unit was not in operation [Sections 1b-V-1 of the *Cabinet Provisions and Procedures for Issuing Title V Permits* incorporated by reference in 401 KAR 52:020, Section 26].

SECTION F - MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS (CONTINUED)

6. The semi-annual reports are due by January 30th and July 30th of each year. All reports shall be certified by a responsible official pursuant to 401 KAR 52:020, Section 23. Data from the continuous emission and opacity monitors shall be reported in accordance with the requirements of 401 KAR 59:005, General Provisions, Section 3(3). All deviations from permit requirements shall be clearly identified in the reports.

7. In accordance with the provisions of 401 KAR 50:055, Section 1, the owner or operator shall notify the Regional Office listed on the front of this permit concerning startups, shutdowns, or malfunctions as follows:
   a. When emissions during any planned shutdowns and ensuing startups will exceed the standards, notification shall be made no later than three (3) days before the planned shutdown, or immediately following the decision to shut down, if the shutdown is due to events which could not have been foreseen three (3) days before the shutdown.
   b. When emissions due to malfunctions, unplanned shutdowns and ensuing startups are or may be in excess of the standards, notification shall be made as promptly as possible by telephone (or other electronic media) and shall be submitted in writing upon request.

8. The permittee shall promptly report deviations from permit requirements, including those attributable to upset conditions as defined in the permit, the probable cause of such deviations, and any corrective actions or preventive measures taken shall be submitted to the Regional Office listed on the front of this permit. Where the underlying applicable requirement contains a definition of prompt or otherwise specifies a time frame for reporting deviations, that definition or time frame shall govern. Where the underlying applicable requirement does not identify a specific time frame for reporting deviations, prompt reporting, as required by Sections 1b-V, 3 and 4 of the *Cabinet Provisions and Procedures for Issuing Title V Permits* incorporated by reference in 401 KAR 52:020, Section 26, shall be defined as follows:
   a. For emissions of a hazardous air pollutant or a toxic air pollutant (as identified in an applicable regulation) that continue for more than an hour in excess of permit requirements, the report must be made within 24 hours of the occurrence.
   b. For emissions of any regulated air pollutant, excluding those listed in F.8.a., that continue for more than two hours in excess of permit requirements, the report must be made within 48 hours.
   c. All deviations from permit requirements, including those previously reported, shall be included in the semiannual report required by F.6.

9. Pursuant to 401 KAR 52:020, Title V permits, Section 21, the permittee shall annually certify compliance with the terms and conditions contained in this permit, by completing and returning a Compliance Certification Form (DEP 7007CC) (or an alternative approved by the regional office) to the Regional Office listed on the front of this permit and the U.S. EPA in accordance with the following requirements:
   a. Identification of the term or condition;
   b. Compliance status of each term or condition of the permit;
   c. Whether compliance was continuous or intermittent;
   d. The method used for determining the compliance status for the source, currently and over the reporting period.

SECTION F - MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS (CONTINUED)

e. For an emissions unit that was still under construction or which has not commenced operation at the end of the 12-month period covered by the annual compliance certification, the permittee shall indicate that the unit is under construction and that compliance with any applicable requirements will be demonstrated within the timeframes specified in the permit.

f. The certification shall be submitted by January 30th of each year. Annual compliance certifications shall be sent to the following addresses:

Division for Air Quality
Owensboro Regional Office
3032 Alvey Park Drive
West, Suite 700
Owensboro, KY 42303

U.S. EPA Region IV
Air Enforcement Branch
Atlanta Federal Center
61 Forsyth St.
Atlanta GA 30303-8960

10. In accordance with 401 KAR 52:020, Section 22, the permittee shall provide the Division with all information necessary to determine its subject emissions within 30 days of the date the Kentucky Emissions Inventory System (KYEIS) emissions survey is mailed to the permittee.

SECTION G - GENERAL PROVISIONS

1. **General Compliance Requirements**

a. The permittee shall comply with all conditions of this permit. Noncompliance shall be a violation of 401 KAR 52:020, Section 3(1)(b), and a violation of Federal Statute 42 USC 7401 through 7671q (the Clean Air Act). Noncompliance with this permit is grounds for enforcement action including but not limited to termination, revocation and reissuance, revision or denial of a permit [Section 1a-3 of the *Cabinet Provisions and Procedures for Issuing Title V Permits* incorporated by reference in 401 KAR 52:020, Section 26].

b. The filing of a request by the permittee for any permit revision, revocation, reissuance, or termination, or of a notification of a planned change or anticipated noncompliance, shall not stay any permit condition [Section 1a-6 of the *Cabinet Provisions and Procedures for Issuing Title V Permits* incorporated by reference in 401 KAR 52:020, Section 26].

c. This permit may be revised, revoked, reopened and reissued, or terminated for cause in accordance with 401 KAR 52:020, Section 19. The permit will be reopened for cause and revised accordingly under the following circumstances:
(1) If additional applicable requirements become applicable to the source and the remaining permit term is three (3) years or longer. In this case, the reopening shall be completed no later than eighteen (18) months after promulgation of the applicable requirement. A reopening shall not be required if compliance with the applicable requirement is not required until after the date on which the permit is due to expire, unless this permit or any of its terms and conditions have been extended pursuant to 401 KAR 52:020, Section 12;
(2) The Cabinet or the United States Environmental Protection Agency (U. S. EPA) determines that the permit must be revised or revoked to assure compliance with the applicable requirements;
(3) The Cabinet or the U. S. EPA determines that the permit contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of the permit;
(4) New requirements become applicable to a source subject to the Acid Rain Program.

Proceedings to reopen and reissue a permit shall follow the same procedures as apply to initial permit issuance and shall affect only those parts of the permit for which cause to reopen exists. Reopenings shall be made as expeditiously as practicable. Reopenings shall not be initiated before a notice of intent to reopen is provided to the source by the Division, at least thirty (30) days in advance of the date the permit is to be reopened, except that the Division may provide a shorter time period in the case of an emergency.

d. The permittee shall furnish information upon request of the Cabinet to determine if cause exists for modifying, revoking and reissuing, or terminating the permit; or to determine compliance with the conditions of this permit [Sections 1a- 7 and 8 of the *Cabinet Provisions and Procedures for Issuing Title V Permits* incorporated by reference in 401 KAR 52:020, Section 26].

e. Emission units described in this permit shall demonstrate compliance with applicable requirements if requested by the Division [401 KAR 52:020, Section 3(1)(c)].

SECTION G - GENERAL PROVISIONS (CONTINUED)

f. The permittee, upon becoming aware that any relevant facts were omitted or incorrect information was submitted in the permit application, shall promptly submit such supplementary facts or corrected information to the permitting authority [401 KAR 52:020, Section 7(1)].

g. Any condition or portion of this permit which becomes suspended or is ruled invalid as a result of any legal or other action shall not invalidate any other portion or condition of this permit [Section 1a-14 of the *Cabinet Provisions and Procedures for Issuing Title V Permits* incorporated by reference in 401 KAR 52:020, Section 26].

h. The permittee shall not use as a defense in an enforcement action the contention that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance [Section 1a-4 of the *Cabinet Provisions and Procedures for Issuing Title V Permits* incorporated by reference in 401 KAR 52:020, Section 26].

i. All emission limitations and standards contained in this permit shall be enforceable as a practical matter. All emission limitations and standards contained in this permit are enforceable by the U.S. EPA and citizens except for those specifically identified in this permit as state-origin requirements. [Section 1a-15 of the *Cabinet Provisions and Procedures for Issuing Title V Permits* incorporated by reference in 401 KAR 52:020, Section 26].

j. This permit shall be subject to suspension if the permittee fails to pay all emissions fees within 90 days after the date of notice as specified in 401 KAR 50:038, Section 3(6) [Section 1a-10 of the *Cabinet Provisions and Procedures for Issuing Title V Permits* incorporated by reference in 401 KAR 52:020, Section 26].

k. Nothing in this 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 [401 KAR 52:020, Section 11(3) 2].

l. This permit does not convey property rights or exclusive privileges [Section 1a-9 of the *Cabinet Provisions and Procedures for Issuing Title V Permits* incorporated by reference in 401 KAR 52:020, Section 26].

m. Issuance of this permit does not relieve the permittee from the responsibility of obtaining any other permits, licenses, or approvals required by the Cabinet or any other federal, state, or local agency.

n. Nothing in this permit shall alter or affect the authority of U.S. EPA to obtain information pursuant to Federal Statute 42 USC 7414, Inspections, monitoring, and entry [401 KAR 52:020, Section 11(3) 4.].

o. Nothing in this permit shall alter or affect the authority of U.S. EPA to impose emergency orders pursuant to Federal Statute 42 USC 7603, Emergency orders [401 KAR 52:020, Section 11(3) 1.].

SECTION G - GENERAL PROVISIONS (CONTINUED)

p. This permit consolidates the authority of any previously issued PSD, NSR, or Synthetic Minor source preconstruction permit terms and conditions for various emission units and incorporates all requirements of those existing permits into one single permit for this source.

q. Pursuant to 401 KAR 52:020, Section 11, a permit shield shall not protect the owner or operator from enforcement actions for violating an applicable requirement prior to or at the time of permit issuance. Compliance with the conditions of this permit shall be considered compliance with:
(1) Applicable requirements that are included and specifically identified in this permit; and
(2) Non-applicable requirements expressly identified in this permit.

2. **Permit Expiration and Reapplication Requirements**

a. This permit shall remain in effect for a fixed term of five (5) years following the original date of issue. Permit expiration shall terminate the source's right to operate unless a timely and complete renewal application has been submitted to the Division at least six (6) months prior to the expiration date of the permit. Upon a timely and complete submittal, the authorization to operate within the terms and conditions of this permit, including any permit shield, shall remain in effect beyond the expiration date, until the renewal permit is issued or denied by the Division [401 KAR 52:020, Section 12].

b. The authority to operate granted shall cease to apply if the source fails to submit additional information requested by the Division after the completeness determination has been made on any application, by whatever deadline the Division sets [401 KAR 52:020, Section 8(2)].

3. **Permit Revisions**

a. A minor permit revision procedure may be used for permit revisions involving the use of economic incentive, marketable permit, emission trading, and other similar approaches, to the extent that these minor permit revision procedures are explicitly provided for in the State Implementation Plan (SIP) or in applicable requirements and meet the relevant requirements of 401 KAR 52:020, Section 14(2).

b. This permit is not transferable by the permittee. Future owners and operators shall obtain a new permit from the Division for Air Quality. The new permit may be processed as an administrative amendment if no other change in this permit is necessary, and provided that a written agreement containing a specific date for transfer of permit responsibility coverage and liability between the current and new permittee has been submitted to the permitting authority within ten (10) days following the transfer.

SECTION G - GENERAL PROVISIONS (CONTINUED)

4. **Construction, Start-Up, and Initial Compliance Demonstration Requirements**

Pursuant to a duly submitted application the Kentucky Division for Air Quality hereby authorizes the construction of the equipment described herein, emission units EPs 01-08A, 01-11, 01-12, 03-06, through 03-09, EPs 04-02, through 04-06, EP 05-03, EPs 06-01 through 06-05, EPs 09-01 through 09-09, EPs 10-01 through 10-04, EP 10-08, EP 10-09, EP 11-06, EP 11-07, EP 12-01, EP 12-03, EP 12-04, EP 17-01 A&B, EP 17-02, EPs 18-01 through 18-03, and EP 18-05 in accordance with the terms and conditions of the Proposed permit V-20-001 R1.

Pursuant to a duly submitted application the Kentucky Division for Air Quality hereby authorizes the construction of the equipment described herein, emission units EPs 01-01 through 01-10, EPs 02-01 through 02-06, EPs 03-01 through 03-05, EP 04-01, EP 05-01, EP 05-02, EP 05-04, EPs 08-01 through 08-04, EP 12-02, EP 13-01, EPs 14-01 and 14-02, EPs 15-01 and 15-02, and EP 16-01 in accordance with the terms and conditions of the Proposed permit V-20-001.

a. Construction of any process and/or air pollution control equipment authorized by this permit shall be conducted and completed only in compliance with the conditions of this permit.

b. Within thirty (30) days following commencement of construction and within fifteen (15) days following start-up and attainment of the maximum production rate specified in the permit application, or within fifteen (15) days following the issuance date of this permit, whichever is later, the permittee shall furnish to the Regional Office listed on the front of this permit in writing, notification of the following:
   (1) The date when construction commenced.
   (2) The date of start-up of the affected facilities listed in this permit.
   (3) The date when the maximum production rate specified in the permit application was achieved.

c. Pursuant to 401 KAR 52:020, Section 3(2), unless construction is commenced within eighteen (18) months after the permit is issued, or begins is discontinued for a period of eighteen (18) months or is not completed within a reasonable timeframe then the construction and operating authority granted by this permit for those affected facilities for which construction was not completed shall immediately become invalid. Upon written request, the Cabinet may extend these time periods if the source shows good cause.

d. Pursuant to 401 KAR 50:055, Section 2(1)(a), an owner or operator of any affected facility subject to any standard within the administrative regulations of the Division for Air Quality shall demonstrate compliance with the applicable standard(s) within sixty (60) days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial start-up of such facility. Pursuant to 401 KAR 52:020, Section 3(3)(c), sources that have not demonstrated compliance within the timeframes prescribed in 401 KAR 50:055, Section 2(1)(a), shall operate the affected facility only for purposes of demonstrating compliance unless authorized under an approved compliance plan or an order of the cabinet.

SECTION G - GENERAL PROVISIONS (CONTINUED)

e. This permit shall allow time for the initial start-up, operation, and compliance demonstration of the affected facilities listed herein. However, within sixty (60) days after achieving the maximum production rate at which the affected facilities will be operated but not later than 180 days after initial start-up of such facilities, the permittee shall conduct a performance demonstration on the affected facilities in accordance with 401 KAR 50:055, General compliance requirements. Testing must also be conducted in accordance with General Provisions G.5 of this permit.

f. Terms and conditions in this permit established pursuant to the construction authority of 401 KAR 51:017 or 401 KAR 51:052 shall not expire.

5. **Testing Requirements**

a. Pursuant to 401 KAR 50:045, Section 2, a source required to conduct a performance test shall submit a completed Compliance Test Protocol form, DEP form 6028, or a test protocol a source has developed for submission to other regulatory agencies, in a format approved by the cabinet, to the Division's Frankfort Central Office a minimum of sixty (60) days prior to the scheduled test date. Pursuant to 401 KAR 50:045, Section 7, the Division shall be notified of the actual test date at least thirty (30) days prior to the test.

b. Pursuant to 401 KAR 50:045, Section 5, in order to demonstrate that a source is capable of complying with a standard at all times, any required performance test shall be conducted under normal conditions that are representative of the source's operations and create the highest rate of emissions. If [When] the maximum production rate represents a source's highest emissions rate and a performance test is conducted at less than the maximum production rate, a source shall be limited to a production rate of no greater than 110 percent of the average production rate during the performance tests. If and when the facility is capable of operation at the rate specified in the application, the source may retest to demonstrate compliance at the new production rate. The Division for Air Quality may waive these requirements on a case-by-case basis if the source demonstrates to the Division's satisfaction that the source is in compliance with all applicable requirements.

c. Results of performance test(s) required by the permit shall be submitted to the Division by the source or its representative within forty-five days or sooner if required by an applicable standard, after the completion of the fieldwork.

6. **Acid Rain Program Requirements**

a. If an applicable requirement of 42 USC 7401 through 7671q (the Clean Air Act) is more stringent than an applicable requirement promulgated pursuant to Federal Statute 42 USC 7651 through 7651o (Title IV of the Act), both provisions shall apply, and both shall be state and federally enforceable.

b. The permittee shall comply with all applicable requirements and conditions of the Acid Rain Permit and the Phase II permit application (including the Phase II NOx compliance plan and averaging plan, if applicable) incorporated into the Title V permit issued for this

SECTION G - GENERAL PROVISIONS (CONTINUED)

source. The source shall also comply with all requirements of any revised or future acid rain permit(s) issued to this source.

7. **Emergency Provisions**

   a. Pursuant to 401 KAR 52:020, Section 24(1), an emergency shall constitute an affirmative defense to an action brought for the noncompliance with the technology-based emission limitations if the permittee demonstrates through properly signed contemporaneous operating logs or relevant evidence that:
      (1) An emergency occurred and the permittee can identify the cause of the emergency;
      (2) The permitted facility was at the time being properly operated;
      (3) During an emergency, the permittee took all reasonable steps to minimize levels of emissions that exceeded the emissions standards or other requirements in the permit; and
      (4) Pursuant to 401 KAR 52:020, 401 KAR 50:055, and KRS 224.1-400, the permittee notified the Division as promptly as possible and submitted written notice of the emergency to the Division when emission limitations were exceeded due to an emergency. The notice shall include a description of the emergency, steps taken to mitigate emissions, and corrective actions taken.
      (5) This requirement does not relieve the source of other local, state or federal notification requirements.

   b. Emergency conditions listed in General Condition G.7.a above are in addition to any emergency or upset provision(s) contained in an applicable requirement [401 KAR 52:020, Section 24(3)].

   c. In an enforcement proceeding, the permittee seeking to establish the occurrence of an emergency shall have the burden of proof [401 KAR 52:020, Section 24(2)].

8. **Ozone Depleting Substances**

   a. The permittee shall comply with the standards for recycling and emissions reduction pursuant to 40 CFR 82, Subpart F, except as provided for Motor Vehicle Air Conditioners (MVACs) in Subpart B:
      (1) Persons opening appliances for maintenance, service, repair, or disposal shall comply with the required practices contained in 40 CFR 82.156.
      (2) Equipment used during the maintenance, service, repair, or disposal of appliances shall comply with the standards for recycling and recovery equipment contained in 40 CFR 82.158.
      (3) Persons performing maintenance, service, repair, or disposal of appliances shall be certified by an approved technician certification program pursuant to 40 CFR 82.161.
      (4) Persons disposing of small appliances, MVACs, and MVAC-like appliances (as defined at 40 CFR 82.152) shall comply with the recordkeeping requirements pursuant to 40 CFR 82.155
      (5) Persons owning commercial or industrial process refrigeration equipment shall comply with the leak repair requirements pursuant to 40 CFR 82.157.

SECTION G - GENERAL PROVISIONS (CONTINUED)

(6) Owners/operators of appliances normally containing 50 or more pounds of refrigerant shall keep records of refrigerant purchased and added to such appliances pursuant to 40 CFR 82.166.

b. If the permittee performs service on motor (fleet) vehicle air conditioners containing ozone-depleting substances, the source shall comply with all applicable requirements as specified in 40 CFR 82, Subpart B, *Servicing of Motor Vehicle Air Conditioners*.

9. **Risk Management Provisions**

a. The permittee shall comply with all applicable requirements of 401 KAR Chapter 68, Chemical Accident Prevention, which incorporates by reference 40 CFR Part 68, Risk Management Plan provisions. If required, the permittee shall comply with the Risk Management Program and submit a Risk Management Plan to U.S. EPA using the RMP* eSubmit software.

b. If requested, submit additional relevant information to the Division or the U.S. EPA.

SECTION H - ALTERNATE OPERATING SCENARIOS

N/A

SECTION I - COMPLIANCE SCHEDULE

N/A

ATTACHMENT A

COMPLIANCE ASSURANCE MONITORING PLAN (CAM) 40 CFR 64

Pollution Control System for PM Emissions from the Electric Arc Furnace (EAF)

COMPLIANCE ASSURANCE MONITORING PLAN (CAM)

I. Applicability

On December 28, 2007, the U.S. EPA issued a National Emission Standards for Hazardous Air Pollutants for the electric arc furnace (EAF) steel industry. This NESHAP was codified as 40 CFR 63, Subpart YYYYY. Pursuant to 40 CFR 63.10686(e), Nucor Steel Brandenburg is required to submit a Compliance Assurance Monitoring (CAM) plan as part of the Initial Title V permit application. This CAM plan addresses the negative pressure baghouse (C0101) that controls particulate emissions from the melt shop, emission unit EU 01.

The melt shop building is evacuated to a negative pressure fabric filter baghouse with a capacity of 1,652,094 dscfm. The Melt Shop Baghouse provides control of particulate emissions from the EAF (EP 01-01), LMF (EP 01-02), Continuous Caster (EP 01-04), and auxiliary emission units located within the melt shop including preheaters/dryers and refractory handling activities. The EAF is equipped with a direct-shell evacuation control (DEC) system and an overhead roof exhaust system consisting of canopy hoods. The DEC system and canopy hoods is vented to the Melt Shop Baghouse (C0101). Baghouse uses PTFE coated fiberglass bags and utilizes pulse jet airflow to clean the bags.

II. Monitoring Approach

The key elements of the monitoring approach for particulate matter, including parameters to be monitored, parameter ranges and performance criteria are presented in the Table 1.

III. Rationale for Selection of Performance Indicators

a. Visible emissions (opacity) were selected as a performance indicator because it is an indicator of proper operation and maintenance of the baghouse. When the baghouse is operating optimally, there will be no visible emissions. In general, an increase in visible emissions indicates reduced performance of the baghouse (e.g., loose or torn bags). The emission unit has an opacity standard of less than 3 percent. A 6-minute Method 9 observation is performed daily.

b. The pressure drop through the baghouse is monitored continuously. An increase in pressure drop can indicate that the cleaning cycle is not frequent enough or the cleaning equipment is damaged. Decrease in pressure drop may indicate significant holes and tears or missing bags.

c. Bag leak detection system is capable of continuously monitoring relative particulate matter (dust) loadings in the exhaust of a baghouse to detect bag leaks and other conditions that result in increases in particulate loadings. A bag leak detection system includes, but is not limited to, an instrument that operates on triboelectric, electrodynamic, light scattering, light transmittance, or other effect to continuously monitor relative particulate matter loadings.

d. Inspection and preventative maintenance was selected as a performance indicator. Qualified maintenance personnel will conduct the inspection and preventative maintenance in accordance to work practices and scheduling. Visual inspections of the baghouse and key control equipment, such as damper actuators, pressure sensors, fan blades, housing and motors, ductwork, and bag conditions, will be logged into Nucor Steel Brandenburg maintenance tracking system.

e. Emission testing for particulate matter using approved EPA Methods will confirm compliance performance of the baghouse. A performance test on the baghouse is conducted on an annual basis. Testing parameters are consistent with daily operating conditions.

IV. Justification

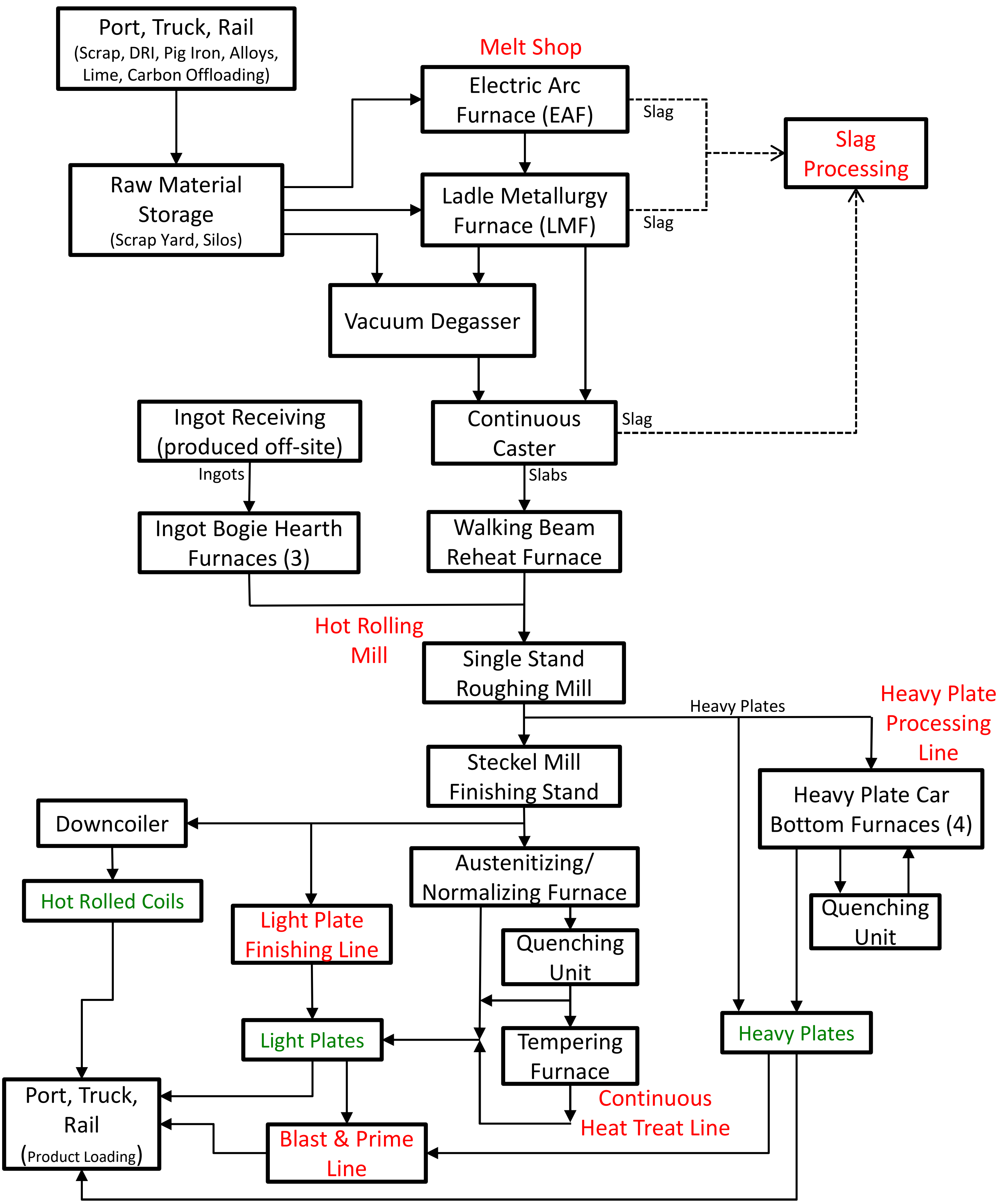
The operation of the Melt Shop Baghouse (C0101) control systems within the ranges specified below in addition to component inspections and maintenance according to manufacturer's recommendations ensures compliance with the particulate matter limits. The BLDS shall be operated in accordance with the requirements of NSPS Subpart AAa.

Table 1. Monitoring Approach for Melt Shop Baghouse System (C0101)

CAM Monitoring Approach		Indicator No. 1	Indicator No. 2	Indicator No. 3	Indicator No. 4
I	**Indicator**	*Visible Emissions*	*Pressure Drop*	*Inspection/ Maintenance*	*Performance Test Results*
A.	Measurement Approach	Visible emissions from the baghouse exhaust will be monitored daily using EPA Method 9.	Continuous pressure drop across the baghouse	Weekly inspection according to PM checklist; maintenance performed routinely.	PM emissions will be measured (Method 5 and Method 202) during an annual compliance test ensure permit limits are not exceeded.
II	**Indicator Range**	An excursion is defined as the presence of visible emissions greater than 3% opacity. Excursions trigger an inspection, corrective action, and a reporting requirement. BLDS – An excursion is defined as a triboelectric signal greater than [40 for both detectors for two minutes].	An excursion is defined as a pressure drop outside the range recommended by the Baghouse manufacturer or defined from the most recent stack test	An excursion is defined as the observation of visible emissions greater than 3% opacity.	An excursion is defined as particulate grain loading greater than 0.0050 grain/dscf measured during a compliance test. An excursion results in a repeated test and triggers a reporting requirement.
III	**Performance Criteria**				
A.	Data Representativeness	Visual inspection logs will be maintained and audited to ensure VE readings are conducted.	BLDS - 40 CFR 60.273a(e)	Inspections are performed at the baghouse.	The permittee shall comply with the requirements of 40 CFR 60.275a, Test methods and procedures and Appendix M to 40 CFR 51

CAM Monitoring Approach		Indicator No. 1	Indicator No. 2	Indicator No. 3	Indicator No. 4
I	**Indicator**	*Visible Emissions*	*Pressure Drop*	*Inspection/ Maintenance*	*Performance Test Results*
III	**Performance Criteria**				
B	Verification of Operational Status	Records of the readings (i.e. gas flow rate) will be maintained by the environmental department. Representativeness validated by testing.		Operation in accordance with manufacturer's recommendations.	NA
C	QA/QC Practices & Criteria	Use of a certified visible emission observer. BLDS – BLDS monitoring plan as approved by the Administrator	Periodic calibration of pressure gauges.	Qualified personnel perform inspection.	Measurements are being taken in accordance to Reference Method 5D, 40 CFR 60, Appendix A and Reference Method 202 and 201A, 40 CFR 51, Appendix M.
D	Monitoring Frequency	Daily Continuous (BLDS)	Continuous (recorded once every 15 minutes)	Weekly	Annually
IV	**Data Collection Procedures**	The VE observer will be familiar with baghouse operations and be a certified VE reader. BLDS logged electronically.	Pressure drop for each compartment is logged electronically, once every 15 minutes	Records are maintained to document daily inspections and any required maintenance.	Compliance test results are reported within 45 day of the completion of the field work.
V	**Averaging Period**	6 minute average	15 minute average	NA	3 heats and 240 minutes
VI	**Recordkeeping**	Maintain records for a period of 5 years.	Maintain records for a period of 5 years.	Maintain records for a period of 5 years.	Maintain test results for a period of 5 years.
VII	**Reporting**	Number, duration, cause of excursion, and corrective action taken.	Number, duration, cause of any excursion and the corrective action taken.	Number, duration, cause of any excursion and the corrective action taken.	Submit test protocol and final test results to the Division for Air Quality.

APPENDIX F PROCESS FLOW DIAGRAMS



Environmental Resources Management		
DESIGN: M. RECTANUS	DRAWN: M. RECTANUS	CHKD.: J. TWADDLE
SCALE: NONE	DATE: December 2021	REVISION: 2.1

Facility Overview

Process Flow Diagram

Nucor Steel Brandenburg

Brandenburg, KY

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PSD Construction Permit Application (As-Built Changes) – Air Dispersion Modeling Report

Nucor Steel Company Brandenburg, Meade County, Kentucky

PREPARED FOR
Nucor Steel Brandenburg

DATE
6 March 2024

REFERENCE
0499476

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Client name	Nucor Steel Brandenburg

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PSD Construction Permit Application (As-Built Changes) – Air Dispersion Modeling Report

Nucor Steel Company Brandenburg, Meade County, Kentucky

0499476

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LIST OF TABLES

LIST OF FIGURES

1. INTRODUCTION

On behalf of Nucor Steel Brandenburg (NSBB, Nucor, or the facility), a subsidiary of Nucor Corporation, Environmental Resources Management, Inc. (ERM) submits this air quality modeling report to support the Prevention of Significant Deterioration (PSD)/Title V modification application that was submitted to the Kentucky Division for Air Quality (KDAQ) on March 5, 2024.

Figure 1-1 presents a general area map showing the location of the NSBB steel mill.

This modeling report describes the modeling methodology that was used to evaluate potential impacts on ambient air quality from the following criteria pollutants: particulate matter with an aerodynamic diameter of 10 micrometers (μm) or smaller ("PM_{10}"), particulate matter with an aerodynamic diameter of 2.5 μm or smaller ("$PM_{2.5}$"), carbon monoxide ("CO"), sulfur dioxide ("SO_2"), lead (Pb), and nitrogen dioxide ("NO_2"). Model predicted impacts from NSBB were compared to the National Ambient Air Quality Standards (NAAQS) and PSD increments for all criteria pollutants. The modeling presented in this report followed the methodology presented in the air dispersion modeling protocol and presentation dated March 17, 2023.

Copies of all files related to the modeling are provided in Appendix A, the Electronic Modeling Archive.

The modeling results demonstrate compliance with all applicable NAAQS and PSD increments; therefore, no further analysis is required.

1.1 PROJECT OVERVIEW

The NSBB plate mill recycles scrap steel and scrap substitutes using the EAF process. Scrap steel and scrap substitutes are delivered to the facility by barge, rail, and truck. Scrap steel, scrap substitutes, carbon, and flux are charged to the EAF and melted by applying electric current through the feed mixture. Molten metal is tapped to a ladle and transferred to the LMF, where the chemistry and temperature of the steel is adjusted to customer specifications. From the LMF, the molten metal may be transferred to a vacuum degasser prior to being cast as slabs. The slabs are heated to a consistent temperature in a reheat furnace and car bottom furnaces prior to being rolled and shaped to its final form as hot rolled plate coils, light plates, or heavy plates. These processes are described in full in the original application. The proposed permit revisions included in the modification application include updates for final equipment design specifications. These revisions are described in full in Section 3 of the modification application.

The potential emissions of each regulated NSR pollutant emitted from the proposed plate mill emission units were evaluated against the PSD major source threshold [40 CFR 51.166(b)(1)(i)]. The plate mill is a steel mill, one of the 28 source categories with a PSD major source threshold of 100 tons per year (ton/yr), except greenhouse gases (GHG) which is 100,000 ton/yr of carbon dioxide equivalents (CO_2e). The potential emissions from the original project exceeds the PSD major source threshold for NO_X, CO, SO_2, PM_{10}, $PM_{2.5}$ volatile organic compounds (VOC), and GHG. As such, the facility is a new major stationary source with respect to PSD and subject to Kentucky Administrative Regulations, Title 401, Chapter 51:017 (401 KAR 51:017), which was adopted pursuant to the federal requirements for PSD.

1.2 OVERVIEW OF METHODOLOGY

The effects on ambient pollutant concentrations are estimated through the use of an air dispersion model applied in conformance to applicable guidelines. The methodology utilized in this modeling analysis was based on policies and procedures contained in the United States Environmental Protection Agency (USEPA) Guideline on Air Quality Models (GAQM, 40CFR Appendix W, May 2017) and other applicable guidance, and followed the methodology presented in the Air Dispersion Modeling Protocol.

Key elements of the air quality impact analysis were as follows:

- Use of the latest version of AERMOD (v.22112) with the regulatory default option in the rural mode.
- Use of surface meteorological data collected at the National Weather Service (NWS) station at Bowman Regional Airport (WBAN 13810) in Louisville, KY, and upper air data from Nashville Metropolitan Airport (WBAN 13897), in Nashville, TN for the period 2018 through 2022. These data are provided by KDAQ on their website[1] for use in AERMOD modeling exercises and will be downloaded and utilized on this project.
- Conducted air quality modeling to quantify the magnitude and location of model-predicted concentrations due to regulated air emissions from NSB sources. The criteria pollutants to be addressed are CO, NO_2, SO_2, Pb, PM_{10}, and $PM_{2.5}$.
- Employed the Tier-2 Ambient Ratio Method (ARM2) method to convert NO_X to NO_2;
- Compared maximum predicted impacts to relevant Significant Impact Levels (SILs) to assess whether cumulative multi-source modeling is required, and at which receptors.
- Requested cumulative modeling inventories from KDAQ, Indiana Department of Environmental Management (IDEM), and Louisville Air Pollution Control District (LAPCD) for any pollutants where modeled impacts were above the applicable SIL, and performed cumulative modeling for comparison to the appropriate NAAQS and PSD Increments at those receptors at which a SIL was exceeded.
- In accordance with PSD requirements, determined whether emissions from the project that are subject to PSD will have an effect on growth, soils, vegetation, and visibility in the vicinity of the Project.
- Evaluation the secondary formation of ozone and $PM_{2.5}$ utilizing the KDAQ Modeled Emission Rates for Precursors (MERPs) guidance.[2]
- Performed analyses to demonstrate compliance with Kentucky Air Regulation Title 401, Chapters 53, 57, and 63.
- Performed analyses to demonstrate that NSB will not impact the existing nearby Louisville, KY-IN Nonattainment Area per Kentucky Air Regulation Title 401, KAR 51:052.
- Performed a Class I analysis on the Mammoth Cave National Park (NP) to demonstrate compliance with the Class I air quality standards.

[1] https://eec.ky.gov/Environmental-Protection/Air/Pages/Modeling%20and%20Meteorology.aspx
[2] https://eec.ky.gov/Environmental-Protection/Air/Documents/KY%20MERPs.pdf

Section 2 of this report provides a description of the facility. Section 3 describes the emission sources that were included in the dispersion modeling analysis. Section 4 contains a description of the modeling methodology that was followed. Section 5 presents the results of the air modeling. Section 6 presents the analyses performed to demonstrate compliance with Kentucky Air Regulation Title 401 for KYAAQS, Kentucky air toxics, and proximity to a nonattainment area. Section 7 presents the results of the additional analyses required by the NSR/PSD Program performed as part of this air quality impact analysis. Section 8 contains applicable document references.

1.3 PROJECT CONTACT INFORMATION

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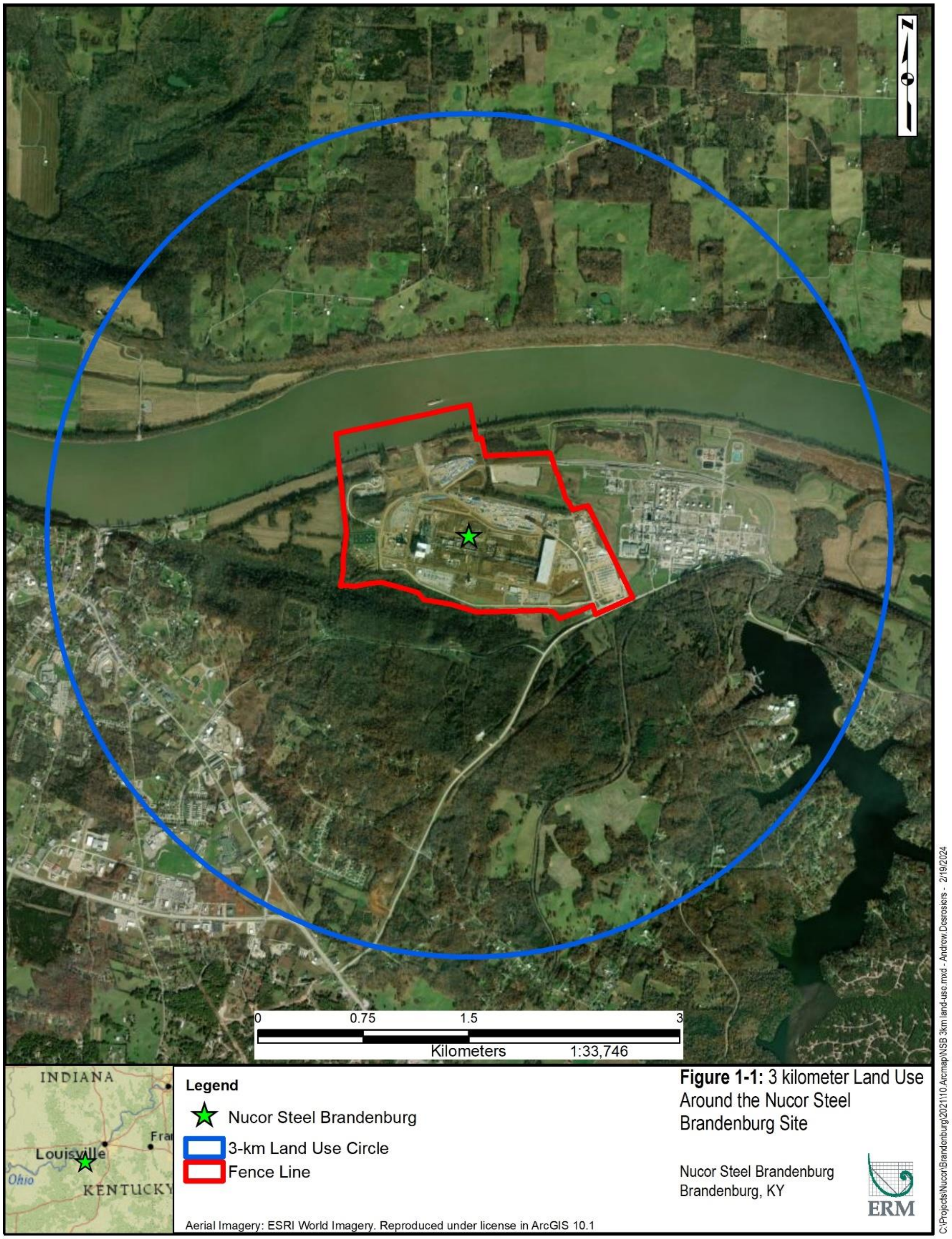
FIGURE 1-1 NUCOR BRANDENBURG STEEL SITE LOCATION



2. FACILITY DESCRIPTION AND REGULATORY SETTING

2.1 FACILITY LOCATION

The NSBB plate mill is located near the town of Brandenburg, Meade County, Kentucky, along the south bank of the Ohio River. NSBB will be located east of Brandenburg, off Highway 1683. The facility is approximately 25 miles southwest of Louisville, Kentucky and 120 miles south of Indianapolis, Indiana. Approximate site coordinates are 38.0035° North Latitude, 86.1382° West Longitude. The Universal Transverse Mercator (UTM) coordinates of the facility are 575,660 Easting, and 4,206,550 Northing (NAD83) in UTM Zone 16. Figure 2.1 provides a scale plot plan of NSBB, and Figure 2.2 shows the site location marked on a United States Geological Survey (USGS) 7.5 minute topographic map. The air dispersion modeling analysis used the most up to date design and ambient air barrier data available at the time the study was performed.

2.2 ATTAINMENT STATUS

Table 2-1 provides a summary of the attainment status of Meade County, Kentucky. The attainment status determines which regulatory programs existing sources must address in the context of demonstrating compliance with the applicable ambient air quality standards.

TABLE 2-1 ATTAINMENT STATUS OF MEADE COUNTY, KENTUCKY

Pollutant	Attainment Status of Meade County
PM_{10}	Attainment
$PM_{2.5}$	Attainment
SO_2	Unclassifiable / Attainment
Ozone	Attainment
NO_X	Attainment
CO	Attainment

FIGURE 2-1 NUCOR STEEL BRANDENBURG SITE LAYOUT MAP

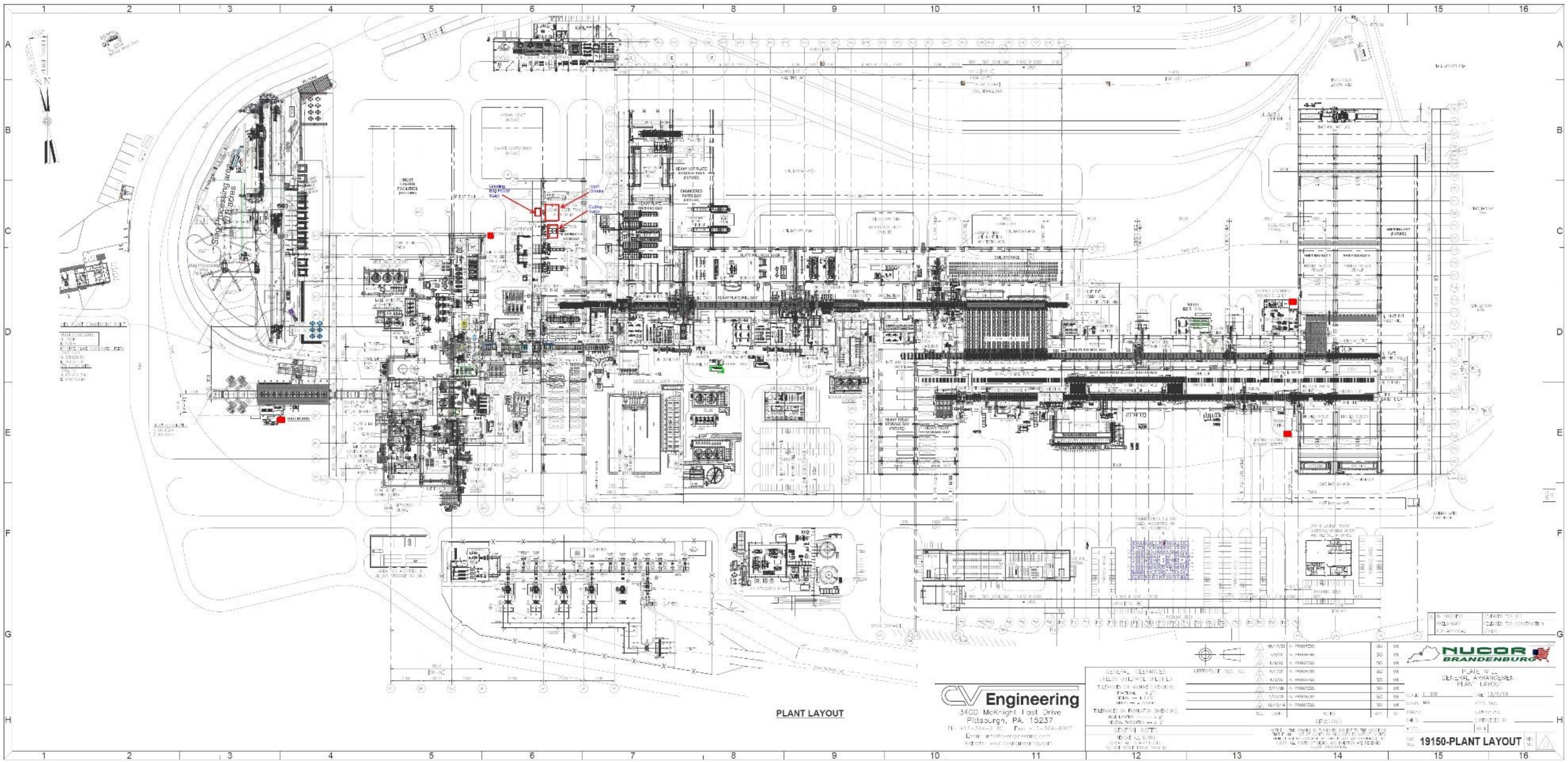
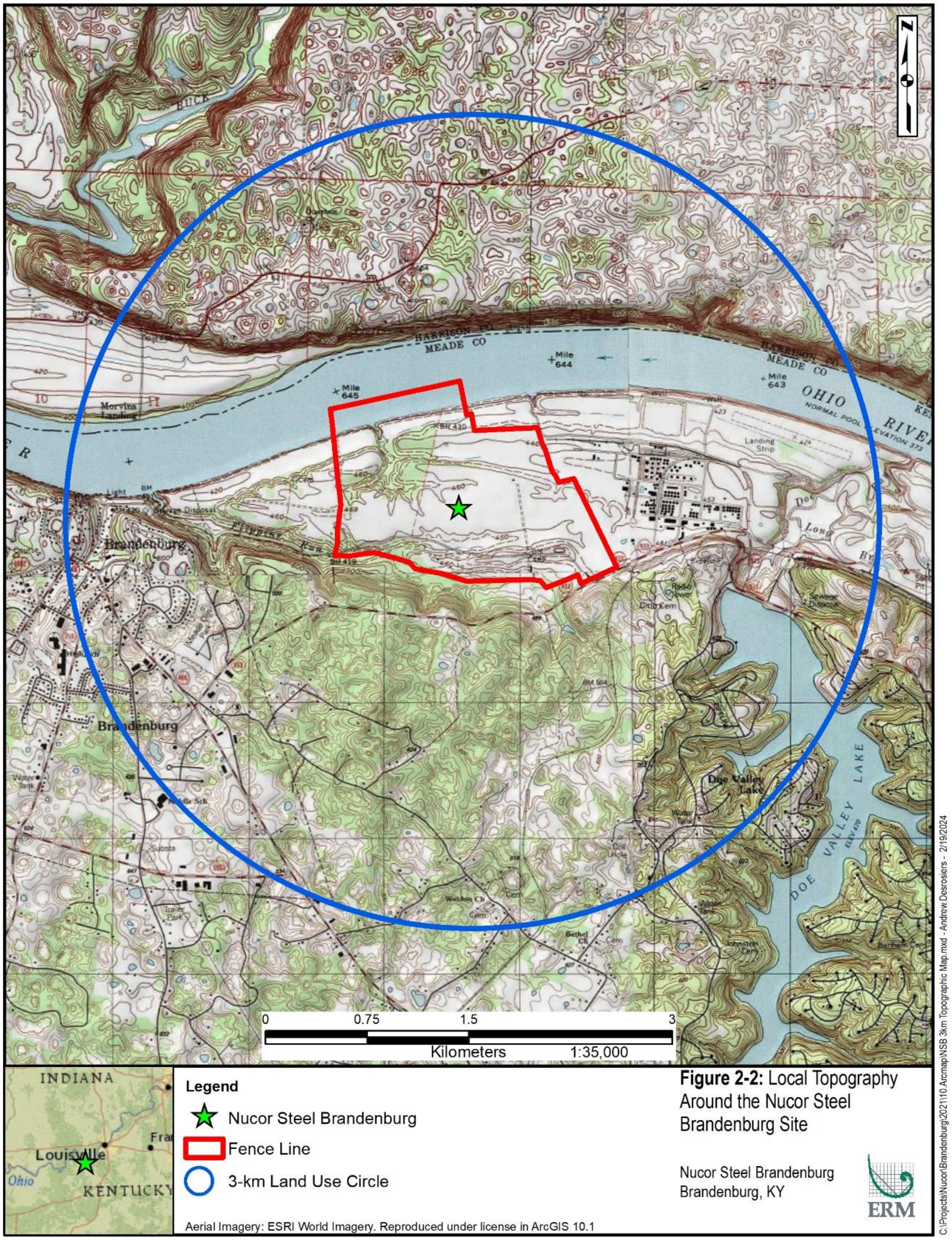


FIGURE 2-2 NUCOR STEEL BRANDENBURG LOCAL TOPOGRAPHY



3. PROJECT EMISSIONS AND SOURCE CHARACTERIZATION

3.1 SOURCE CHARACTERIZATION

NSBB holds a PSD/Title V Permit V-20-001 R1, which authorizes construction and operation of the NSBB plate mill. All emissions at the facility and their potential air quality impacts will be assessed, including those addressed in the following proposed permit changes:

- Addition of four sources: Ingot Grinding (EP 03-10), Ingot Grinding Oxy-Fuel Torch (EP 03-11), Emergency Generator Engine (EP 10-10), and Paved Road Segment 23;
- Paving unpaved road segments 20 and 21;
- Updates to cooling tower circulating water rate and total dissolved solids (TDS) content (EP 09-01 through 09-09);
- Updates to emergency generator engine horsepower (HP) (EP 10-02 and 10-03);
- Changes to stack parameters for several sources and road design and reallocation of emissions to associated release points (EU01-MSFUG, EP 03-01, EP 03-04, EP 06-01, EP 06-03, EP 06-05);
- Emissions calculations updates for Walking Beam Reheat Furnace (EP 03-01), Coil Sample Plasma Cutter (EP 03-06), Continuous Heat Treat Plasma Cutter (EP 04-04), Light Plate Burning Beds #1 and #2 (EP 17-01), Heavy Plate Burning Beds #1 - #3 (EP 05-03), and Slag Plant Oxy Fuel-Fired Torches (EP 12-04);
- Increased throughput for the Caster [Includes Melt Shop Fugitives (EU01-MSFUG), Caster Spray Vent (EP 01-05), Primary Caster Torch Cut Off (EP 01-06), Secondary Caster Torch Cut Off (EP 01-12), and Caster Quench Box (EP 01-11)]; and
- Increased Best Available Control Technology (BACT) limit for volatile organic compounds (VOC) for the Caster Spray Vent (EP 01-05) from 0.40 lb/hr to 4.4 lb/hr.

For those pollutants for which model-predicted impacts exceeded their respective SILs, cumulative modeling, including all NSBB sources, other large off-site sources, and an ambient background concentration representing minor sources not explicitly included in the modeling was performed for comparison to the NAAQS and PSD increments.

3.1.1 CALCULATION OF PROJECT EMISSIONS UNDER NSR/PSD

The proposed permit changes are considered part of the original PSD project. Therefore, based on the potential emissions, NSBB is subject to PSD review for NO_X, CO, SO_2, VOC, PM, PM_{10}, $PM_{2.5}$, and GHG.

To quantify the expected PTE for each source, NSBB used the following approach:

For each source, PTE was based on the unit's projected capacity or limits included in Permit V-20-001 R1 or proposed to be modified and added with this application. Where data for a specific source is not yet available, data from similar sources at other Nucor mills or similar facilities was used to represent the source. For each source, an annual potential emission rate in tons per year was determined based 8,760 hours of operation, or if the source will operate for less than the full year (e.g., emergency generators), based on the maximum number of hours it is projected to operate. If a source has the potential to emit at a higher emission rate for short periods, a worst-case hourly emission rate in pounds per hour (lb/hr) was developed for use in the short-term (24-hours or less) modeling periods.

3.1.2 NSBB EMISSION SOURCES

The following sections describe all proposed emission sources at NSBB. Tables summarizing the characteristics and emissions of the point, volume, area, and roadway emissions sources that were included in the modeling are provided in Appendix B. All source and emissions data are also available in the spreadsheet "Modeling emissions and parameters.xlsx", included in Appendix A, the Electronic Modeling Archive (Emissions folder). For each source, the source ID in the modeling runs is listed, along with any unique characteristics related to the source.

3.1.2.1 POINT SOURCES

- Melt Shop – Baghouse and Fugitives (EU01 and EU01F): These sources represent emissions from all sources located inside the melt shop that do not have a dedicated stack and have emissions captured and controlled by the Melt Shop Baghouse. These sources include the EAF, LMF, caster, and tundish, mandrel, SEN, and ladle preheaters, dryers, and preparation operations. The fugitive emission source represents those emissions not captured by the baghouse that escape out of the main openings of the melt shop, such as the scrap charging doorway. The baghouse stack itself is a vertical emission while the fugitives were modeled as a horizontal release. This source also includes numerous natural gas-fired burners, dryers, and preheaters within the melt shop that are captured and ducted through the melt shop baghouse.
- Vacuum Degasser (EP0103): This source represents the vacuum degasser exhaust. While these systems often require a flare to control CO generated during decarborization, this will not be the case at the NSBB mill, because the vacuum degasser will not be used to decarborize the steel.
- Caster Spray Vents (EP0105_1 and EP0105_2): These sources represent the caster spray vents at discharge above the roof of the melt shop. Other emissions related to the caster are either captured by the caster canopy hood and vented to the melt shop baghouse (EU01), or emitted through the two (2) dedicated vertical stacks. These sources emit PM_{10}, $PM_{2.5}$, and air toxics.
- Melt Shop Baghouse Dust Silo and Loadout (EP0107): This source represents emissions from the vents on the melt shop baghouse dust silo. This source emits only PM_{10}, $PM_{2.5}$, and air toxics.
- Caster Quench Box (EP0111): This source represents steam generated from slab cooling in the caster quench box and is a potential source of PM_{10} and $PM_{2.5}$ emitted through a dedicated stack.
- Ingot Grinding Baghouse (EP0113): Emissions from this source are generated from grinding steel ingots which results in emissions of PM_{10}, $PM_{2.5}$, and air toxics.
- Walking Beam Reheat Furnace (EP0301): Emissions from this source emanate from a single stack out of the hot rolling mill.
- Ingot Car Bottom Furnaces (EP0302): This source represents emissions from the 3 ingot car bottom furnaces, which are then vented through a single stack at the hot rolling mill.

- Steckel Mill Finishing Stand Scrubber (EP0304): This source represents emissions generated as a result of oil and grease consumption at the mill stand, which are included in the PM_{10}, $PM_{2.5}$, and air toxic modeling.
- Steckel Mill Coiling Furnaces (EP0305): Emissions from the 2 coil mandrel furnaces are vented through a single stack out of the hot rolling mill.
- Coil Sample Plasma Cutter Baghouse (EP0306): Emissions from the coil sample plasma cutter are vented to a dust collector for PM control and discharge to atmosphere through a dedicated stack.
- Shot Blaster (EP0401): This source emits only PM_{10}, $PM_{2.5}$, and air toxics.
- Austenitizing and Tempering Furnaces (EP0402 and EP0403): These sources related to continuous heat treat line are each vented through their own dedicated stack.
- Heavy Plate Car Bottom Furnaces (EP0501): These sources represent 4 car bottom furnaces related to heavy plate processing vented through a single stack.
- Heavy Plate Burning Beds (EP0503_1 through EP0503_3): The Heavy Plate Processing Line includes three (3) burning beds, each equipped with a baghouse discharging to atmosphere through the three (3)dedicated stacks.
- EAF Flux & Carbon Handling Systems Baghouse (EP0601): Lime (flux) and carbon charged to the EAF will be unloaded from trucks or railcar in dump stations and transferred to storage bins prior to being fed to the EAF. The systems include a single baghouse that emit only PM10 and PM2.5 through a stack.
- Lime Silos 1, 2 and 3 (EP0602_1 through EP0602_3): These sources are related to the EAF lime handling system and emit only PM_{10} and $PM_{2.5}$ through dedicated bin vents.
- Carbon Silo 1 (EP0604): This sources is related to the EAF carbon handling system and will emit only PM_{10} and $PM_{2.5}$.
- LMF Flux & Carbon Handling and LMF Alloy Handling Baghouse (EP0605): This source is related to the alloy handling system as well as lime (flux) and carbon changed to the LMF, which will be unloaded from trucks or railcar in dump stations and transferred to storage bins prior to being fed to the LMF. The source emits only PM_{10} and $PM_{2.5}$.
- Cooling Towers (EP0901, EP0902,and EP0904 through EP0909, multiple cells each): There will be 8 cooling towers located at NSBB mill providing direct cooling and indirect cooling water for various processes around mill. These are multiple-cell towers with a point emission source representing each cell fan. These sources emit only PM_{10} and $PM_{2.5}$.
- Emergency Generators (EP1001 though EP1004, EP1101 through EP1102, and EP1008 through EP1010): There will be 9 emergency generators located at the NSBB mill. These sources are all emergency use only, except for intermittent testing, and are modeled according to EPA's guidance memorandum on intermittent emission sources as described in Section 3.1.3.
- Water Bath Vaporizer (EP1301): This source is related to the air separation plant and is vented through its own dedicated stack.
- Light Plate Burning Beds (EP1701A through EP1701D): The Light Plate Processing Line includes two (2) burning beds, each equipped with two baghouses discharging to atmosphere through four (4) horizontal dedicated stacks.
- Blast and Prime Line Combustion Sources (EP1801): The Blast and Prime Line includes a preheater and dryer that emit products of natural gas combustion out a dedicated stack.

- Blast and Prime Line Shot Blaster (EP1802): The Blast and Prime Line includes a shot blaster that emits PM_{10}, $PM_{2.5}$, and air toxics through a dedicated stack.
- Blast and Prime Line Painting Operations (EP1803): The Blast and Prime Line painting emissions are captured and vented to an RTO for VOC control prior to emitting to atmosphere through a dedicated stack.

3.1.2.2 PM_{10}, $PM_{2.5}$FUGITIVE VOLUME SOURCES

- Dump Station Fugitives (EP0601F, EP0603F, and EP0605F): These sources represent fugitive emissions at the LMF and EAF flux and carbon handling systems and the alloy handling system dump stations. The sources emit only PM_{10} and $PM_{2.5.}$
- Barge Scrap Unloading (EP0801): This source represents fugitives occurring during the barge unloading process located at the dock. This source emits only PM_{10} and $PM_{2.5}$.
- Slag Feed, Magnet, Screener, and Crusher (EP1201_2 through EP1201_5): These sources represent fugitive emissions resulting from the slag processing equipment and emit PM_{10}, $PM_{2.5}$, and air toxics.
- Pot Slagging (EP1203): This source represents fugitive emissions from the pot slagging operations and includes emissions of PM_{10}, $PM_{2.5}$, and air toxics.
- Scrap Cutting (EP1204): This source represents fugitive emissions from the scrap cutting operations and includes emissions of PM_{10}, $PM_{2.5}$, and air toxics.
- Roof Labyrinth Vents (PSVENT1 and PSVENT2): These sources represent emissions from the continuous heat treat line and light plate processing line that emit within the building and exhaust to atmosphere through two labyrinth roof vents.
- Heavy Plate Roof Vents (HPVENT): This source represents emissions from the heavy plate process line that emits within the building and exhaust to atmosphere through a roof vent.

3.1.2.3 FUGITIVE AREA SOURCES

- Slag Dump, Ball Drop, and Tundish Dump (EP1201_1): These sources represent fugitive emissions occurring at the dump area of the slag processing plant and emit only PM_{10} and $PM_{2.5.}$
- Slag Storage Piles (EP1202_1 through EP1202_4): These sources represent fugitive emissions occurring from the temporary slag storage piles due to loading and unloading of material as well as emissions from wind erosion. These sources emit only PM_{10} and $PM_{2.5.}$
- Scrap Yard North and South Piles (EP0803N and EP0803S): These sources represent fugitive emissions occurring during the loading and unloading of scrap from truck and rail at various locations. These sources emit only PM_{10} and $PM_{2.5}$.

3.1.2.4 BUOYANT LINE SOURCE

- Rolling Mill Monovent (RMMV): This source represents emissions related to the hot rolling mill exhausting to the atmosphere through the roof monovent. Emissions from the primary and secondary caster torch cut off, roughing mill stand, Steckel Mill finishing stand, coil sample plasma cutter, coil tagger, rolling mill oxy-fuel plate and coil cutting torches, ingot grinding, ingot grinding oxy-fuel cutting, and miscellaneous heaters located in the rolling mill are included in this source.

3.1.2.5 FUGITIVE ROAD EMISSIONS

There are two types of roads maintained at the facility – paved and unpaved. The paved roads represent relatively smaller fraction of the total road emissions – approximately 22% of the PM_{10} emissions and approximately 47% of the $PM_{2.5}$. In addition, all roads will be regularly maintained with water and/or chemical spraying, which provides 90% emission control. Both types of roads were included in the modeling.

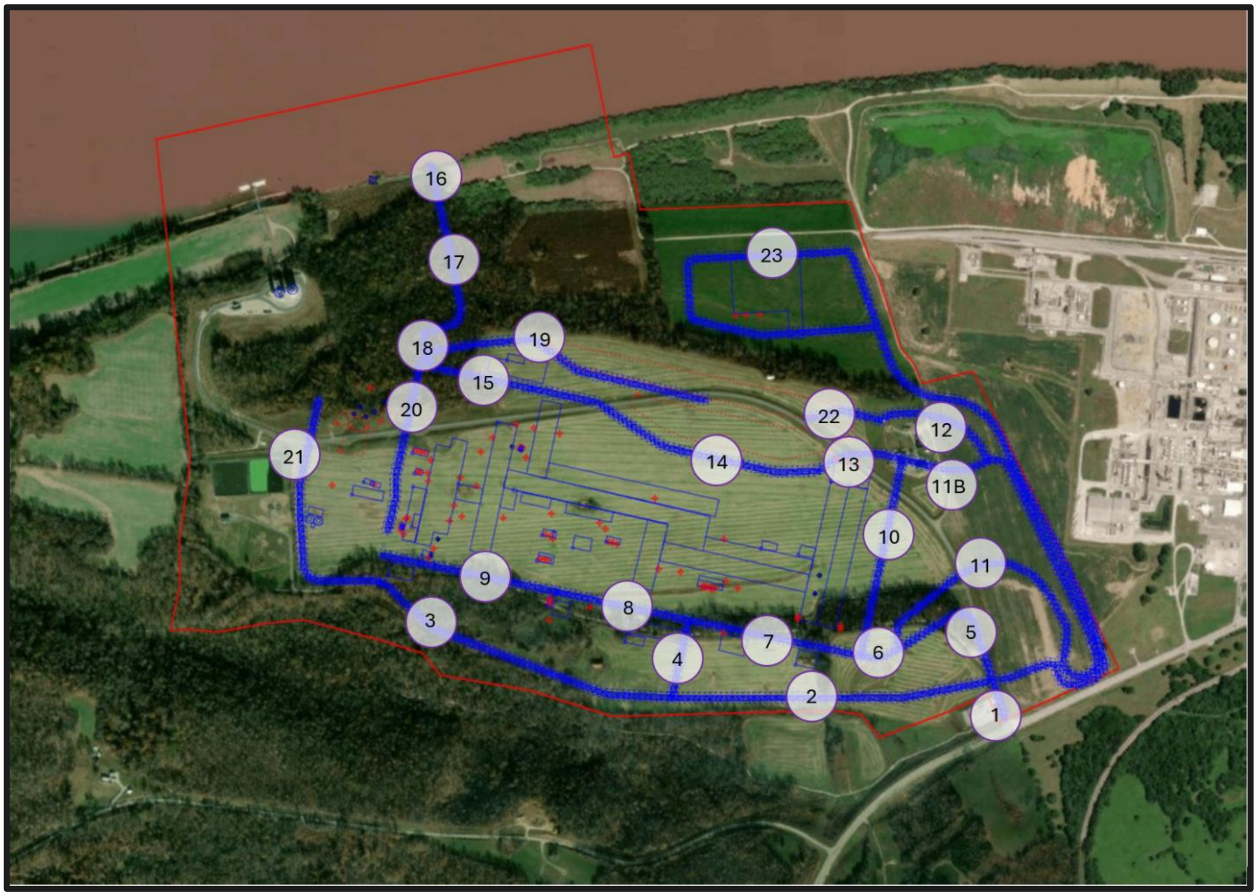
Emission rates for the volume sources were defined based on specific road segments. Each modeled road segment represents various vehicle types that could be use that segment of roadway. Each vehicle type is represented by a travel path through the facility, which includes multiple road segments and may include travel on both paved and unpaved roads. The emission rate for the road segments were calculated based on the various types of vehicles that would use that segment, the estimated number of vehicles per day, and the road segment distance. The estimated PM_{10} and $PM_{2.5}$ emission rates for each segment were then evenly distributed across the volume sources representing that road segment (i.e., the total road segment emission rate divided by the number of volume sources assigned to the road segment).

3.1.3 INTERMITTENT EMISSION SOURCES

There will be 9 emergency generator engines at NSBB that will operate only for maintenance and readiness testing or during an actual emergency situation. In accordance with the National Fire Protection Association Standard for Emergency and Standby Power Systems, diesel and spark-ignited generator sets must be exercised once per month for a minimum of 30 minutes. To conservatively account for the required readiness testing, the modeled emission rates are based on the assumption that the engines will operate for no more than 1 hour/week and 52 hours per year for testing and maintenance purposes. Therefore, in accordance with USEPA guidance for intermittent sources, these emergency engines will not be included in the modeling for 1-hour NO_2 and SO_2 NAAQS. They will, however, be included in the modeling for all other pollutants and averaging periods as well as annual NO_2 and 3-hour, 24-hour, and annual SO_2. For the 3-hour and 24-hour SO_2 and 8-hour CO, the modeled emission rate was based on the maximum hourly emission rate. For the 24-hour PM_{10} and $PM_{2.5}$ standards, the maximum hourly emission rates were divided by 24 to conservatively simulate that the engine would only be online for 1 hour per day for the monthly readiness testing. All annual averaging periods were conservatively based on 500 hours of operation per year, according to the USEPA guidance on potential emissions for emergency engines.[3]

[3] February 14, 2006 letter from Steven C. Riva, Chief Permitting Section, Air Programs Branch, Region 2, U.S. Environmental Protection Agency to William O'Sullivan, Director Division of Air Quality, New Jersey Department of Environmental Protection.

FIGURE 3-1 ROAD SEGMENTS INCLUDED IN NUCOR BRANDENBURG MODELING



4. MODELING METHODOLOGY

4.1 MODEL SELECTION AND APPLICATION

USEPA's AERMOD model (version 22112) was used for predicting ambient impacts for each modeled pollutant. Regulatory default options were used in the analysis. The highest predicted impacts (H1H) were used as the design concentrations in the SIL analyses while the design concentrations for the NAAQS and PSD increment analyses followed the form of the NAAQS and PSD increment for each applicable pollutant and averaging time.

4.2 AMBIENT AIR QUALITY STANDARDS

The forms of the ambient air quality standards that were addressed are different for each criteria pollutant. Table 4-1 presents a summary of the federal air quality standards that were modeled for CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and Pb. The primary and secondary NAAQS and Class II PSD increments are presented, along with the SILs for the pollutants and modeling periods that were considered. Based on the expected emissions at the mill, PSD review was required for NO_X, CO, SO_2, PM_{10}, $PM_{2.5}$, VOC, and GHG. If the initial modeling of NSBB emission sources showed model-predicted impacts to be less than their respective SILs, no further analysis was required. If the SILs were exceeded, additional modeling was necessary, including the development of a background source inventory and inclusion of measured ambient background concentrations. While the SILs for $PM_{2.5}$ were remanded on January 22, 2012, EPA finalized guidance on revised $PM_{2.5}$ SIL's on April 17, 2018[4]. The use of the $PM_{2.5}$ SIL's was discussed and accepted as part of the air dispersion modeling protocol approved by KDAQ and EPA Region 4. Section 4.4.2 discusses the special $PM_{2.5}$ considerations related to the SIL and Significant Monitoring Concentration (SMC).

Should the SILs be exceeded for pollutants and periods for which there are Class II PSD Increments, a cumulative increment analysis is also required. NSBB is located in Meade County, KY. The Minor Source Baseline Dates for each pollutant for which PSD review was triggered were previously set in Meade County for all pollutants other than $PM_{2.5}$. The original application for this project submitted on September 9, 2019 set the Minor Source Baseline Date for $PM_{2.5}$ in Meade County.

A pre-construction ambient air monitoring waiver must be requested in order for a facility subject to PSD review to be exempt from preconstruction ambient air monitoring requirements. A waiver may be considered based on the modeled impacts of the project when compared to the SMCs in 40 CFR Part 52.21. The applicable SMCs are summarized in Table 4-1. If a project cannot be exempted from preconstruction monitoring based on modeling results, the applicant may propose for the reviewing authority's consideration use of existing monitoring data if appropriate justification is provided. As with the original application, NSBB used representative regional background data to satisfy this requirement as necessary.

[4] https://www.epa.gov/sites/production/files/2018-04/documents/sils_policy_guidance_document_final_signed_4-17-18.pdf

TABLE 4-1 AMBIENT STANDARDS AND PSD INCREMENTS FOR CRITERIA POLLUTANTS ($\mu G/M^3$)

Pollutant	Averaging Period	Significant Impact Level (SIL)	NAAQS		PSD	Significant Monitoring Concentration (SMC)
			Primary	Secondary	Class II Increment	
SO_2 (1)	1-hour	7.8	196	--	--	--
	3-hour	25	--	1300	512	--
	24-hour	5	365	--	91	13
	Annual	1	80	--	20	--
CO	1-hour	2,000	40,000	--	--	--
	8-hour	500	10,000	--	--	575
NO_2	1-hour	7.5	188	--	--	--
	Annual	1	100	100	25	14
PM_{10}	24-hour	5	150	150	30	10
	Annual	1	Revoked	--	17	--
$PM_{2.5}$ (2)	24-hour	1.2	35	35	9	4
	Annual	0.2	12	12	4	--

(1) The 24-hour and annual SO_2 Standards were revoked on June 22, 2010. However, they are still considered active until 1-year after the area being studied has been designated for the 1-hour SO_2 standard. Meade County has not yet been designated; therefore, 24-hour and Annual SO_2 will be included in the analysis.

(2) The SIL and SMC for $PM_{2.5}$ were vacated by the DC Circuit Court in January 2013. See Section 4.5 for a discussion of $PM_{2.5}$ modeling considerations.

4.3 METEOROLOGICAL DATA

EPA air quality modeling guidance recommends the use of one year of onsite meteorological data or five years of representative off-site meteorological data. Since onsite data are not available for the NSBB site, meteorological data available from the National Weather Service (NWS) was used in this analysis.

KDAQ provides meteorological data for use in AERMOD modeling on their website. For each county in Kentucky, a specific combination of surface observation data and upper air data sites are identified. For Meade County, KDAQ recommends surface meteorological data collected at the National Weather Service (NWS) station at Bowman Regional Airport (WBAN 13810) in Louisville, Kentucky, and upper air data from Nashville Metropolitan Airport (WBAN 13897), in Nashville, Tennessee for the period 2018 through 2022. ERM downloaded the specified data set from the KDAQ website for use in this modeling study.

The relative locations of NSBB and the Bowman Regional Airport are shown in Figure 4-1 provided at the end of Section 4. Table 4-2 shows the data characteristics of the surface observation site. The 5-year wind rose for the Louisville International Airport is shown in Figure 4-2 provided at the end of Section 4. As shown in the figure, the predominant wind directions at this airport are from the south.

TABLE 4-2 DATA CHARACTERISTICS OF THE BOWMAN REGIONAL AIRPORT

Distance from Nucor Steel Brandenburg	**30 miles**
Average Wind Speed	**3.20 m/s**
Percent Calm Hours	**1.23%**
Data Completeness	**99.58%**

Representativeness is an especially important issue when selecting meteorological data where terrain influences can affect wind patterns. The project site and the Louisville airport are located in close proximity in relatively flat terrain and nearly identical base elevations. There is no significant terrain elevation difference between the airport and NSBB, and both sites are located near the south bank of the Ohio River. The terrain around both the airport and facility are a combination of open and some areas of increased surface roughness: scattered residential buildings in the case of the airport, scattered woodlands in the case of the mill in the predominant wind directions. Thus, the surface roughness of the two sites is similar. Due to the close proximity of the two sites, it is expected that the albedo and Bowen Ratio of the two sites, along with winds at stack height, would be nearly identical.

Therefore, ERM concluded that the Bowman Regional Airport surface meteorological data are suitably representative of conditions at the Nucor Steel Brandenburg site.

4.4 RECEPTOR GRIDS

A comprehensive Cartesian receptor grid extending out to approximately 50 kilometers (km) from NSBB was used in the AERMOD modeling analysis to assess maximum ground-level pollutant concentrations. The 50km receptor grid was used in all SIL demonstrations for determination of receptor significance. The near-field (within 3 km) and far-field (full 50 km grid) receptor grids are shown in Figures 4-3 and 4-4, respectively, provided at the end of Section 4.

The Cartesian receptor grid consisted of the following receptor spacing:

- 100-meter spacing along the facility fence line;
- 100-meter spacing extending from an on-site anchor point to 3 km;
- 250-meter spacing extending from 3 to 6 km;
- 500-meter spacing extending from 6 to 10; and
- 1,000-meter spacing extending 10 to 50 km.

Terrain elevations from USGS's National Elevation Data (NED) were processed using the most recent version of AERMAP (v.18081) to develop the receptor terrain elevations required by AERMOD.

4.5 GOOD ENGINEERING PRACTICE (GEP) STACK HEIGHT ANALYSIS

Good engineering practice ("GEP") stack height is defined as the stack height necessary to ensure that emissions from the stack do not result in excessive concentrations of any air pollutant as a result of atmospheric downwash, wakes, or eddy effects created by the source, nearby structures, or terrain features.

A GEP stack height analysis was performed for all proposed point sources at NSBB using the Building Profile Input Program (BPIP) version 04274 in accordance with EPA's guidelines (USEPA 1985). Per the guidelines, the physical GEP height, (H_{GEP}), is determined from the dimensions of all buildings which are within the region of influence using the following equation:

$$H_{GEP} = H + 1.5L$$

where:

H = height of the structure within 5L of the stack which maximizes H_{GEP}; and

L = lesser dimension (height or projected width) of the structure.

For a squat structure, i.e., height less than projected width, the formula reduces to:

$$H_{GEP} = 2.5H$$

In the absence of influencing structures or in the case where the calculated formula height is less than 65 meters, a *de minimis* GEP stack height of 65 m (213') is allowed.

A summary of the GEP stack height analyses is presented in Table 4-3. All sources were found to be below their respective GEP heights. Therefore, the full height of each stack was used in the modeling, and output from BPIP were included as input into the AERMOD runs to account for aerodynamic downwash effects. The location of all point sources included in the GEP analysis is shown in Figure 4-5.

TABLE 4-3 SUMMARY OF NSBB GEP ANALYSIS

Source Description	Model Source	Stack Height (m)	Controlling Building / Structures	Building Height (m)	Projected Width (m)	GEP Formula Height (m)
Melt Shop - Baghouse	EU01	54.86	Melt Shop	46.86	213.9	117.15
Melt Shop - Fugitives	EU01F	6.1	Melt Shop	46.86	96.41	117.15
Vacuum Degasser	EP0103	47	Melt Shop	46.86	64.77	117.15
Caster Spray Vent	EP0105_1	49.99	Melt Shop	46.86	67.22	117.15
Caster Spray Vent	EP0105_2	49.99	Melt Shop	46.86	67.22	117.15
Melt Shop Baghouse Silo and Loadout	EP0107	25.91	Melt Shop	46.86	181.78	117.15
Caster Quench Box	EP0111	24.38	Melt Shop	46.86	121.73	117.15
Ingot Grinding (Baghouse)	EP0113	9.14	Melt Shop, Caster	46.86	95.65	117.15
Walking Beam Reheat Furnace	EP0301	87	Melt Shop	46.86	196.99	117.15
Ingot Car Bottom Furnaces	EP0302	29.99	Melt Shop, Caster	46.86	95.65	117.15
Steckel Mill Finishing Stand	EP0304	25.91	Rolling Mill	30.28	138.01	75.7
Steckel Mill Coiling Furnaces	EP0305_1	20	Rolling Mill	30.28	113.02	75.7
Coil Sample Plasma Cutter	EP0306	6.01	Rolling Mill	30.28	454.11	75.7
Shot Blaster	EP0401	30.48	Rolling Mill	30.28	312.7	75.7
Austenitizing Furnace	EP0402	30.48	Rolling Mill	30.28	305.32	75.7
Tempering Furnace	EP0403	30.48	Rolling Mill	30.28	166.3	75.7

Source Description	Model Source	Stack Height (m)	Controlling Building / Structures	Building Height (m)	Projected Width (m)	GEP Formula Height (m)
Heavy Plate Car Bottom Furnaces	EP0501	29.99	Melt Shop	46.86	159.8	117.15
Heavy Plate Burning Beds #1	EP0503_1	4.57	Melt Shop	46.86	161.84	117.15
Heavy Plate Burning Beds #2	EP0503_2	4.57	Melt Shop	46.86	201.96	117.15
Heavy Plate Burning Beds #3	EP0503_3	4.57	Melt Shop	46.86	135.59	117.15
Light Plate Burning Beds #1 & #2	EP1701A	4.57	Shipping Bay	19.38	161.16	48.45
Light Plate Burning Beds #1 & #2	EP1701B	4.57	Shipping Bay	19.38	201.74	48.45
Light Plate Burning Beds #1 & #2	EP1701C	4.57	Shipping Bay	19.38	187.61	48.45
Light Plate Burning Beds #1 & #2	EP1701D	4.57	Shipping Bay	19.38	188.72	48.45
EAF Flux & Carbon Handling	P0601	15.24	Melt Shop	46.86	64.77	117.15
EAF Lime Silo 1	EP0602_1	26.52	Melt Shop	46.86	98.68	117.15
EAF Lime Silo 2	EP0602_2	26.52	Melt Shop	46.86	97.93	117.15
EAF Lime Silo 3	EP0602_3	26.52	Melt Shop	46.86	97.17	117.15
EAF Carbon Silo	EP0604	26.52	Melt Shop	46.86	96.41	117.15
LMF Alloy Handling	EP0605	12.19	Melt Shop	46.86	64.77	117.15
Melt Shop ICW Cooling Tower, System 100	EP0901_1-3	11.73	Melt Shop	46.86	86.89 - 113.08	117.15
Melt Shop DCW Cooling Tower, System 200	EP0902_1-2	11.73	Melt Shop	46.86	103.68 & 91.37	117.15
Rolling Mill DCW Cooling Tower, System 400	EP0904_1-3	13.87	Melt Shop	46.86	244.61	117.15

Source Description	Model Source	Stack Height (m)	Controlling Building / Structures	Building Height (m)	Projected Width (m)	GEP Formula Height (m)
Rolling Mill ACC ICW Cooling Tower, System 500	EP0905_1-2	11.43	Melt Shop	46.86	238.18 & 238.57	117.15
Heavy Plate Quench DCW Cooling Tower, System 600	EP0906_1-4	3.75	Melt Shop	46.86	149.47 & 152.29	117.15
Quench & ACC Laminar DCW Cooling Tower, System 700	EP0907_1-3	13.87	Rolling Mill	30.28	218.86	75.7
Heat Treat Cooling Tower, System 800	EP0908_1-8	3.73	Rolling Mill	30.28	239.6 - 277.56	75.7
Air Separation Plant Cooling Tower, System 900	EP0909_1-4	3.51	Cooling Tower Structure	9.14	42.96 - 43.99	22.85
G100-1 Emergency Generator	EP1001	2.17	Melt Shop	46.86	73.19	117.15
G100-2 Emergency Generator	EP1002	3	Melt Shop	46.86	75.29	117.15
G100-3 Emergency Generator	EP1003	3	Melt Shop	46.86	97.89	117.15
G200-1 Emergency Generator	EP1004	2.17	Melt Shop	46.86	223.87	117.15
G300-1 Emergency Generator	EP1005	2.17	Melt Shop	46.86	213.33	117.15
G400-1 Emergency Generator	EP1006	2.17	Heat Treatment	30.28	199.29	75.7
G500-1 Emergency Generator	EP1010	3.76	Melt Shop	46.86	238.18 & 238.57	117.4
ASU Emergency Generator	EP1101	1.98	ASU Building	9.14	39.72	22.85
Admin Building Emergency Generator	EP1102	1.52	Admin Building	6.1	62.87	15.25

Source Description	Model Source	Stack Height (m)	Controlling Building / Structures	Building Height (m)	Projected Width (m)	GEP Formula Height (m)
Slag Plant Oxy Fuel-Fired Torches	EP1204	12.19	Melt Shop	46.86	218.9	118.06
Water Bath Vaporizer	EP1301	6.1	Air Separation Plant	20.57	142.99	51.42
B&P Line Preheater/Dryer Combustion	EP1801	21.34	Shipping Bay	19.38	264.88	48.45
B&P Line Shot Blaster	EP1802	21.34	Shipping Bay	19.38	257.09	48.45
B&P Line Painting Operations/RTO	EP1803	21.34	Shipping Bay	19.38	187.59	48.45
Kloeckner Source 1	KLOCK1	6.1	Kloeckner Building	13.56	219.29	65
Kloeckner Source 2	KLOCK2	6.1	Kloeckner Building	13.56	219.29	65
Kloeckner Source 3	KLOCK3	6.1	Kloeckner Building	13.56	219.29	65

4.6 AMBIENT BACKGROUND DATA FOR CUMULATIVE MODELING

As discussed in earlier sections, if the modeled impacts from the NSBB sources exceeded the SILs for any pollutant, a cumulative modeling analysis is required for comparison to the applicable NAAQS and PSD increments. As part of the cumulative modeling analysis, the impacts from the NSBB facility were added to those from major sources in the area that are not located at the facility, and an ambient background concentration representing minor sources in the region not explicitly included in the modeling.

An inventory of the ambient monitors located in the United States for use in modeling analyses is available at the EPA Air Quality System Data Mart[5]. The monitoring data used included the three most recent years (2019-2021) of ambient air data, shown in Table 4-4, and were determined to be the most representative for use in the modeling analysis. The selection of each monitor is discussed below and the locations of the selected ambient monitors relative to NSBB are shown in Figure 4-1.

CO: The CO monitoring network is relatively sparse compared to other pollutants and most of the monitors are located in large metropolitan areas. For the Brandenburg area, the monitoring site is located in Edmonson County, KY, in the Mammoth Cave NP (AQS ID 21-061-0501), operated and maintained by the National Park Services. While the monitor is approximately 100 km south of the proposed site, it is a regional scale monitor, located in a rural environment similar to the Brandenburg site. Closer monitors sited in Louisville, KY, and Evansville, IN, are of neighborhood or micro scale and are sited in more urban areas near large industrial complexes or airports and thus would not be representative of the proposed project site.

NO_2 and SO_2: For NO_2 and SO_2, the Owensboro, KY (AQS ID 21-059-0005) monitor was used for developing ambient background concentrations for use in cumulative modeling. The monitor is located 88 km to the west-southwest of the proposed site, in the outskirts of the city of Owensboro, and is sited in an area similar to the region around the proposed project. Closer monitors sited in Louisville, KY, are sited in more urban areas, near large industrial complexes or airports, and thus are not representative of proposed project area.

Seasonal-diurnal background concentrations were used for 1-hour NO_2 analysis and an annual average concentration was used for annual NO_2 analysis. The USEPA 2011 Modeling Clarification Memo allows simulation of background values that vary by season and hour of the day. Specifically, the most recent three year average of the 98th percentile monitor values by season and hour-of-day were derived by Nucor. The clarification memo suggests that the season and hour-of-day combinations be based on the 3rd highest values to represent the 98th percentile. The modeling for 1-hour impacts was performed with a set of seasonal diurnal values developed using this methodology described in the clarification memo. Table 4-5 provides the seasonal diurnal lookup table used in the 1-hour NO_2 NAAQS modeling.

5 https://www.epa.gov/outdoor-air-quality-data

PM_{10}: For PM_{10}, the Evansville-Buena Vista, Indiana (AQS ID 18-163-0021) monitor was used for developing ambient background concentrations for use in cumulative modeling. The monitor is located 125 km to the west of the proposed site in the town of Smithland, Livingston County, KY, and it is sited in a semi-urban area similar to the region around the project. Closer monitors sited in Louisville, KY, are sited in more urban areas, near large industrial complexes or airports, and thus are not representative of proposed project area or does not meet the data completion requirements.

$PM_{2.5}$: For $PM_{2.5}$, the Charlestown, IN (AQS ID 18-019-0008) monitor was used for developing ambient background concentrations. The monitor is located 60 km to the northeast of the proposed site in Charlestown State Park, Charlestown, IN, and it is sited in a rural area similar to the region around the proposed project. It is an urban scale monitor designed to represent up to 50 km areas. Closer monitors sited in Louisville, KY, are a neighborhood scale type, situated in more urban areas near large industrial complexes or airports, and thus are not representative of proposed project area.

O_3: For ozone, the Leopold, IN (AQS ID 18-123-0009) monitor was used for developing ambient background concentrations for use, as needed in the PSD/NSR ozone analysis. The monitor is located 43 km to the west-northwest of the Project in near Leopold, Perry County, IN, and it is sited in a rural area similar to the region around the proposed project. It is an urban scale monitor designed to represent up to 50 km areas. Closer monitors sited in Louisville, KY are a neighborhood scale type, situated in more urban areas near large industrial complexes or airports, and thus are not representative of proposed project area.

TABLE 4-4 AMBIENT BACKGROUND CONCENTRATIONS FOR MODELING

Pollutant	Averaging Period	Concentration (μg/m³)			Background Conc. (μg/m³)	Monitor
		2019	2020	2021		
CO	1 hour	344	229	458	458	Mammoth Cave NP (AQS ID 21-061-0501)
	8 hour	344	229	458	458	
NO_2	1 hour	See Table 4-5				Owensboro, Daviess Co., KY (AQS ID 21-059-0005)
	Annual	7.62	7.58	8.62	8.62	
PM_{10}	24 hour	27.0	25.0	29.0	29.0	Evansville-Buena Vista, IN (AQS ID 18-163-0021)
$PM_{2.5}$	24 hour	14.0	16.0	22.0	17.33	Charlestown State Park, Clark Co., IN (AQS ID 18-019-0008)
	Annual	7.2	7.1	8.2	7.50	
SO_2	1 hour	109.9	34.0	19.6	54.53	Owensboro, Daviess Co., KY (AQS ID21-059-0005)
O_3 (ppb)	8 hour	63	65	64	64	Leopold, Perry Co., IN (AQS ID 18-123-0009)

TABLE 4-5 REPRESENTATIVE NO_2 BACKGROUND CONCENTRATIONS

Hour of Day	Winter (ppb)	Spring (ppb)	Summer (ppb)	Fall (ppb)
1	18.67	18.33	9.67	13
2	15.67	13.33	8.67	11.67
3	14.33	13.67	8.67	11.67
4	15.67	14.33	9	11.67
5	15	14.67	10.33	12
6	18.33	20.67	12.67	15.33
7	17	22.33	10.67	16.33
8	18.33	14.67	11	14.67
9	14.33	8	9.33	9.67
10	11	7.33	8	8
11	9.33	6.67	7	7.67
12	9.67	6.67	5.67	8
13	10	5.67	6.67	7.67
14	10.33	4.67	5	7.67
15	11.33	5	4.67	7.33
16	12	6.33	5.67	9
17	15	7.33	4.33	12
18	21	7.33	4	20
19	25.33	12.33	6.67	21
20	24.67	21.67	9	20
21	25	18.67	12.67	20
22	23.33	21	16.67	18
23	22	20	14	17.67
24	21.33	17	11.33	15.33

4.7 $PM_{2.5}$ MODELING CONSIDERATIONS

4.7.1 $PM_{2.5}$ SIGNIFICANT MONITORING CONCENTRATIONS (SMC)

A preconstruction ambient air monitoring waiver must be requested in order for a facility subject to PSD review to be exempt from preconstruction ambient air monitoring requirements. A waiver may be considered based on the modeled impacts of the Project when compared to the SMCs in 40 CFR Part 52.21. The applicable SMCs were summarized in Table 4-1. If a project cannot be exempted from preconstruction monitoring based on modeling results, the applicant may propose the use of existing monitoring data if appropriate justification is provided. Based on the results of the Significant Impact Analysis (Section 5.1) NSBB requests to use existing data from representative monitors in the region in lieu of on-site preconstruction monitoring for all pollutants that exceeded their respective SMC's. Justification of the representativeness of these background data for use in the modeling analysis is provided in Section 4.6.

It should be noted that in January 2013, the SMCs for $PM_{2.5}$ were vacated by the District of Columbia (DC) Circuit Court. As a result, a project that triggers PSD review for $PM_{2.5}$, as is the case for this Project, cannot rely on the SMC's to request a waiver of the preconstruction modeling requirement. Instead, NSBB used existing monitor data from the Charlestown, IN (AQS ID 18-019-0008) monitor to address this requirement. The monitor is located 60 km to the northeast of the NSBB site in Charlestown State Park, Charlestown, IN, and it is sited in a rural area similar to the region around the proposed project. It is an urban scale monitor designed to represent up to 50 km areas. Closer monitors sited in Louisburg, KY are of the neighborhood scale type, situated in more urban areas near large industrial complexes or airports, and thus are not representative of proposed project area. Table 4-4 shows that the monitored concentrations of 24-hour $PM_{2.5}$ are well below the NAAQS, and in fact the vacated SMC value of 4 $\mu g/m^3$ would fit beneath the NAAQS (35 $\mu g/m^3$) if added to the ambient concentration of 17.3 $\mu g/m^3$. Therefore, NSBB requests that the use of the Charlestown State Park monitor be allowed to satisfy the requirement and that a waiver for preconstruction monitoring for 24-hour $PM_{2.5}$ be granted.

4.7.2 $PM_{2.5}$ SIGNIFICANT IMPACT LEVELS (SIL)

In addition to the SMC vacatur in January 2013, USEPA also remanded the SIL for $PM_{2.5}$. EPA has since finalized guidance on revised $PM_{2.5}$ SIL's on April 17, 2018.

To further support the justification to use of $PM_{2.5}$ SILs in the NAAQS analysis, the differences between the NAAQS and background concentrations determined to be representative of the Project impact area (see Section 4.6) were quantified and compared with the SIL. As discussed in Section 4.6, the monitor selected for $PM_{2.5}$ is located in Charlestown, IN (AQS ID 18-019-0008). The comparison, summarized in Table 4-5, shows that the differences between the NAAQS and existing ambient background concentrations are larger than the corresponding SILs. These differences demonstrate that a modeled impact of less than the $PM_{2.5}$ SILs would indicate that emissions from the proposed project will not cause or contribute to a violation of the NAAQS.

TABLE 4-6 COMPARISON OF $PM_{2.5}$ NAAQS, MONITORED CONCENTRATIONS (2019-2021) AND SILS ($\mu G/M^3$)

Pollutant	Averaging Period	NAAQS	Monitored Design Value	Difference Between NAAQS and Design Value	SIL
$PM_{2.5}$	24-Hour	35	17.3	17.7	1.2
	Annual	12	7.5	4.5	0.3

4.8 NO_X TO NO_2 CONVERSION

For this modeling study, the USEPA ARM2 Tier-2 methodology was used to account for the formation of NO_2 from the emissions of NO_X from NSBB sources as a first step. ARM2 became the regulatory default Tier-2 NO_X to NO_2 conversion methodology in the recent revision to Appendix W (May 2017). ARM2 was used with all default values for this analysis.

FIGURE 4-1 LOCATION OF FACILITY, AIRPORT, AND AMBIENT MONITORS

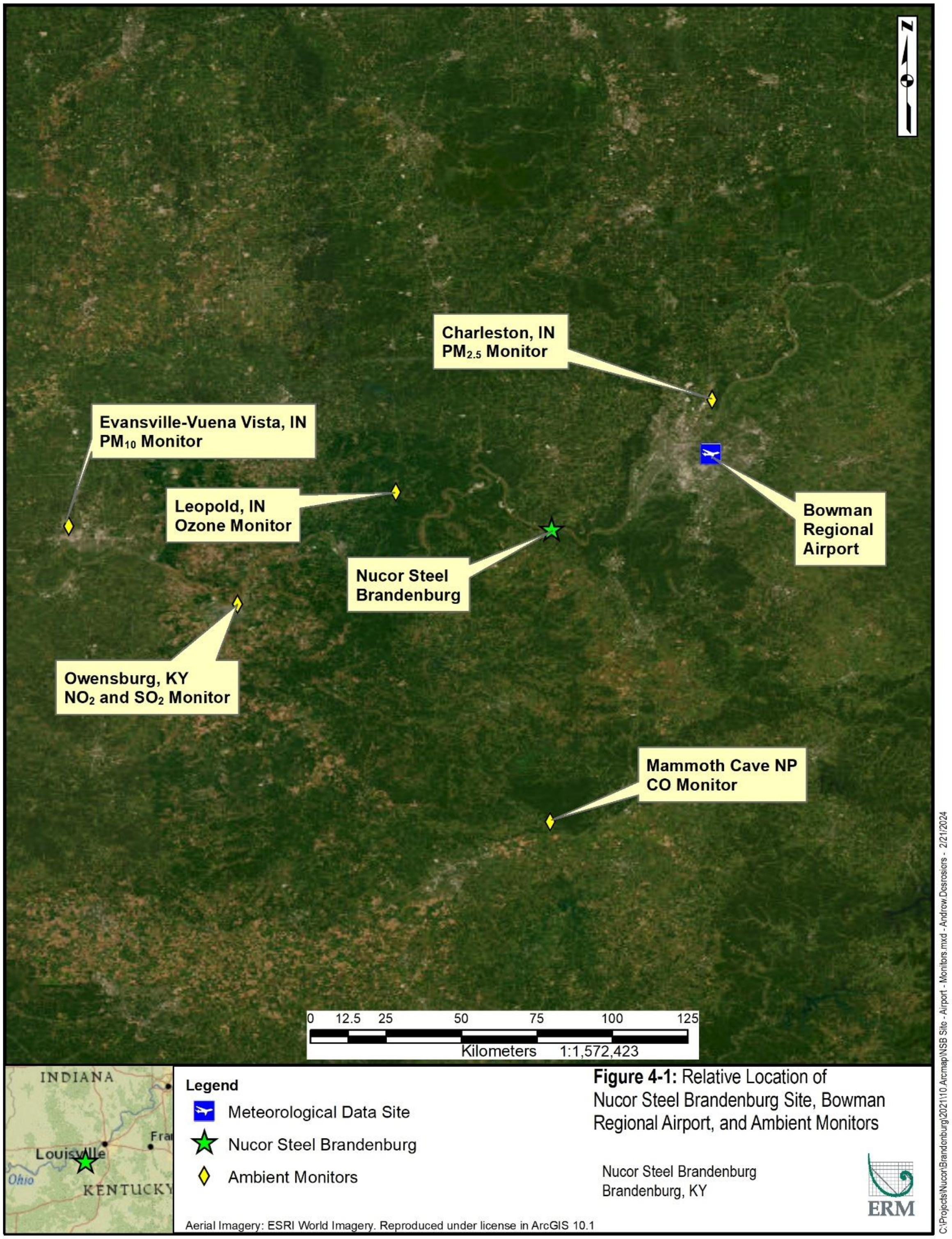


FIGURE 4-2 5-YEAR WIND ROSE (2018-2022): BOWMAN REGIONAL AIRPORT

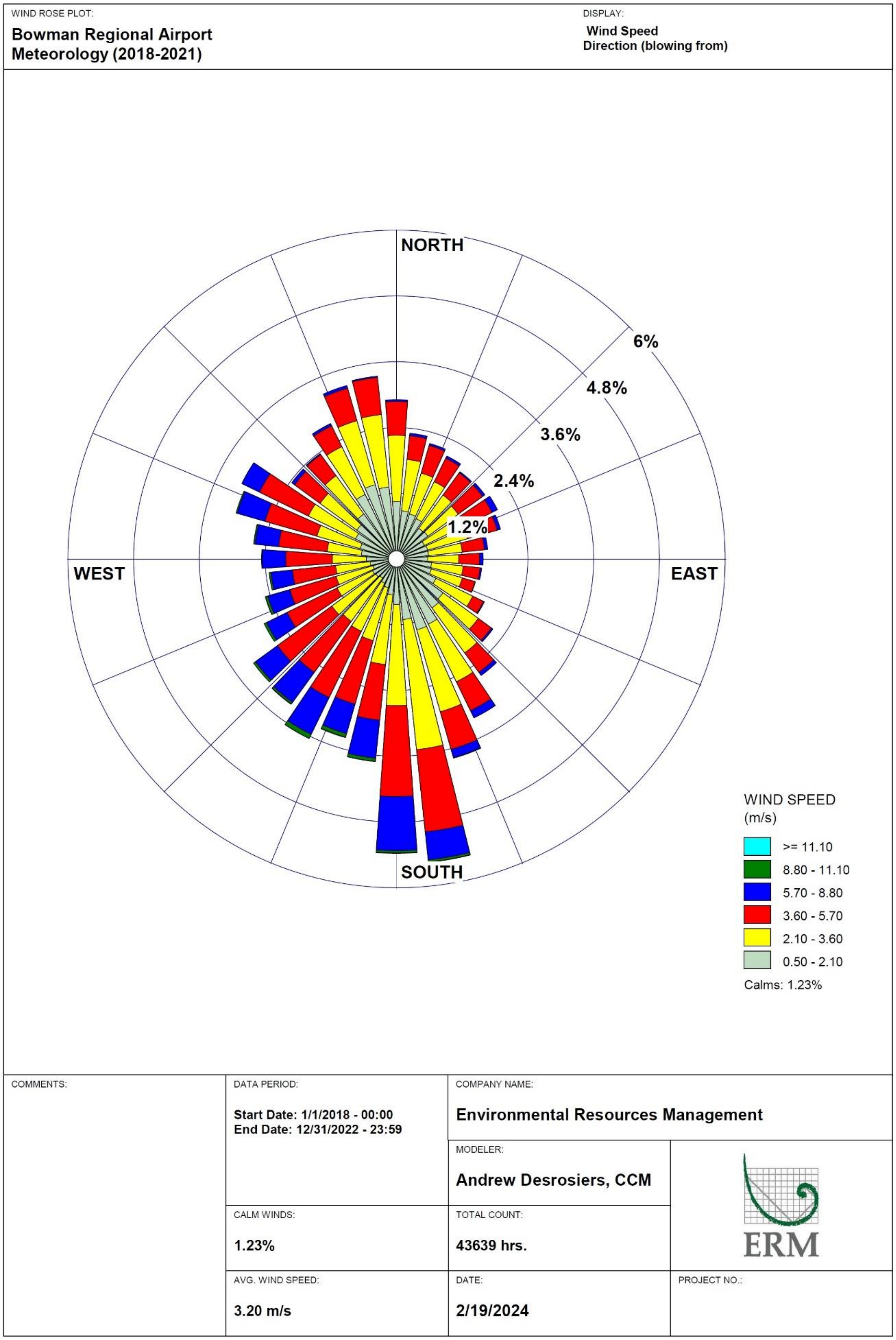


FIGURE 4-3 NEAR-FIELD MODEL RECEPTORS

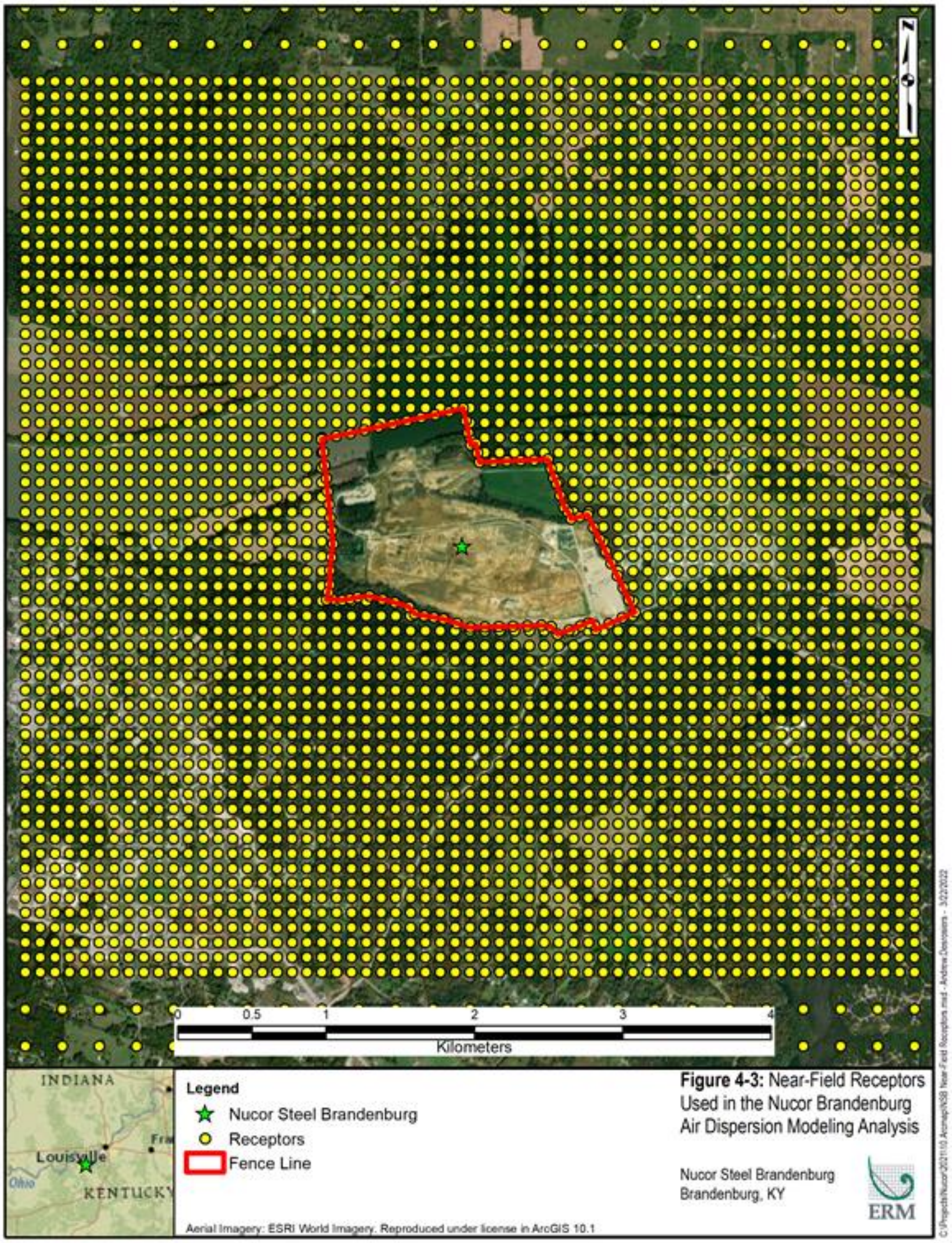


FIGURE 4-4 FAR-FIELD MODEL RECEPTORS

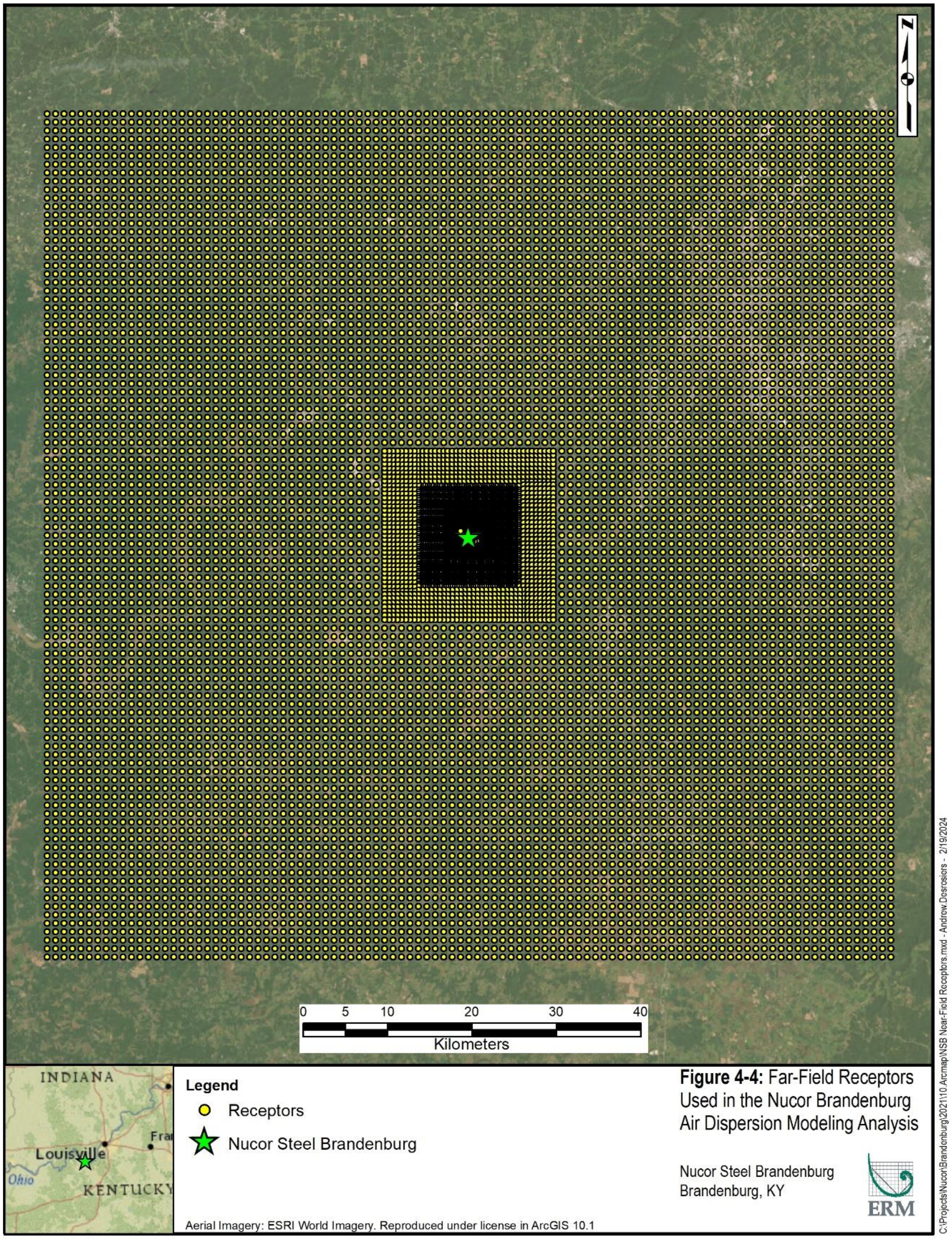
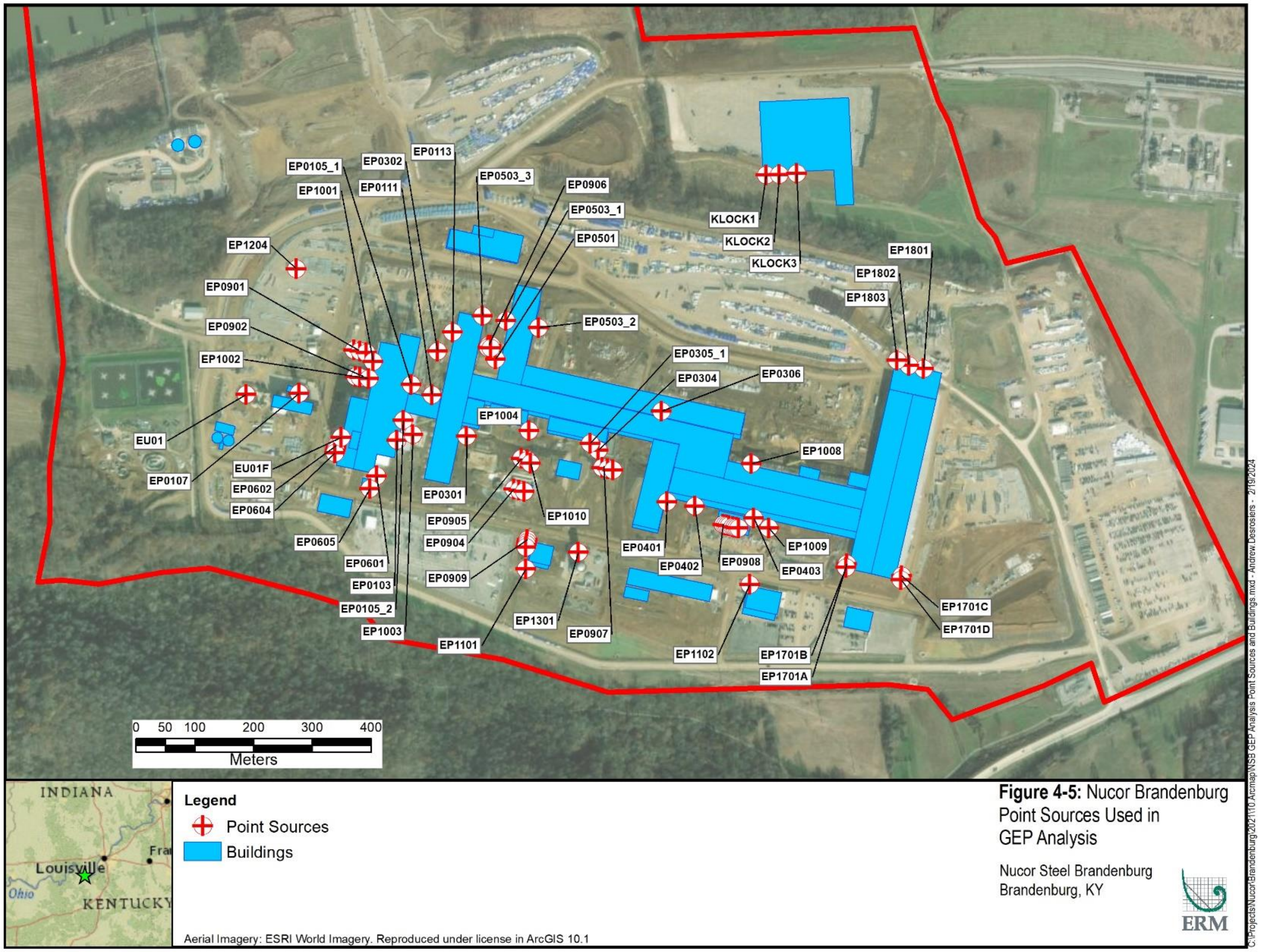


FIGURE 4-5 POINT SOURCES INCLUDED IN NSBB GEP ANALYSIS



5. MODELING RESULTS

The criteria pollutants that were modeled as part of this study include: NO_2, SO_2, CO, Pb, PM_{10}, and $PM_{2.5}$. Maximum ground level model design values were identified for the appropriate averaging periods and compliance with SILs, and subsequently the NAAQS and PSD increments, as necessary. Results are presented in a tabular format. All files associated with the modeling are provided in Appendix A, the Electronic Modeling Archive.

5.1 SIGNIFICANT IMPACT ANALYSIS

AERMOD was applied with five years of meteorological data to predict the maximum impacts from the proposed NSBB emission sources. As shown in Table 5-1, the maximum model-predicted impacts exceed the SILs for all pollutants except 1-hour and 8-hour CO and short term and annual SO_2. Thus compliance with the NAAQS and PSD Increments is demonstrated for 1-hour and 8-hour CO and short term and annual $SO_{2,}$ and no further analysis is warranted. For all other pollutants and periods, the SIL's were exceeded and cumulative modeling against all applicable NAAQS and PSD increments was completed.

TABLE 5-1 NUCOR BRANDENBURG SIGNIFICANT IMPACT ANALYSIS

Pollutant	Averaging Period	Maximum Modeled Concentrations (µg/m³)	SIL (µg/m³)	Significant Impact Area (km)	Cumulative Modeling Required?	Significant Monitoring Concentration (SMC) (µg/m³)	SMC Exceeded?
CO	1-hour	725.9	2000	N/A	No	-	N/A
	8-hour	344.7	500	N/A	No	575	No
NO_2	1-hour	112.41	7.5	47.17	Yes	-	N/A
	Annual	6.57	1	3.85	Yes	14	No
SO_2	1-hour	27.64	7.9	9.34	Yes	-	N/A
	3-hour	17.90	25	N/A	No	-	N/A
	24-hour	5.58	5	0.55	Yes	13	No
	Annual	0.579	1	N/A	No	-	N/A
PM_{10}	24-hour	26.63	5	5.94	Yes	10	Yes
	Annual	4.47	1	2.28	Yes	-	N/A
$PM_{2.5}$ (NAAQS)	24-hour	7.97	1.2	19.28	Yes	4(1)	Yes
	Annual	1.57	0.2	5.61	Yes	-	N/A
$PM_{2.5}$ (PSDI)	24-hour	9.52	1.2	32.32	Yes	4(1)	Yes
	Annual	1.59	0.2	5.61	Yes	-	N/A

(1) The SMC for 24-hour PM2.5 was vacated in 2013; therefore, a waiver must be requested for exemption from preconstruction modeling in all cases.

Additionally, the SMCs were exceeded for 24-hour $PM_{2.5}$ and 24-hour PM_{10}. As described in Section 4.7 as pertains to $PM_{2.5}$, a preconstruction ambient air monitoring waiver must be requested in order for a facility subject to PSD review to be exempt from preconstruction ambient air monitoring requirements. A waiver may be considered based on the modeled impacts of the Project when compared to the SMCs in 40 CFR Par 52.21. Section 4.7 described the request for a waiver for $PM_{2.5}$. For 24-hour PM_{10}, NSBB also requests to use existing data from representative monitors in the region in lieu of on-site preconstruction monitoring. Justification of the representativeness of these background data for use in the modeling analysis is provided in Section 4.6. Table 4-4 shows that the monitored concentrations of 24-hour PM_{10} are well below the NAAQS, and the SMC for 24-hour PM_{10} of 10 $\mu g/m^3$ would easily fit beneath the NAAQS (150 $\mu g/m^3$) if added to the ambient concentration of 29 $\mu g/m^3$.

Therefore, NSBB requests that the use of the Smithland, KY monitor be allowed to satisfy the requirement for 24-hour PM_{10} preconstruction monitoring, and therefore that a waiver for preconstruction monitoring for 24-hour PM_{10} be granted.

5.2 CUMULATIVE IMPACT ANALYSIS

For those pollutants and modeling periods for which the predicted impacts exceeded the SIL, a cumulative modeling analysis is required to assess the compliance status of those pollutants against the applicable NAAQS and PSD increments. Cumulative modeling requires that modeled impacts from the project be added to the impacts of the following additional sources:

- Other major sources in the vicinity; and
- In the case of NAAQS compliance, an ambient background concentration representing minor sources not explicitly included in the modeling analysis.

For the NAAQS and increment cumulative modeling analysis, all proposed emission sources at the NSBB mill were included in the modeling. The ambient background concentrations for use in the cumulative modeling were presented in Table 4-4 in the previous section of this report.

5.2.1 REVIEW OF OFF-SITE FACILITY SOURCES FOR CUMULATIVE MODELING INVENTORY

Cumulative air quality modeling analyses were necessary for 1-hour and annual NO_2, 24-hour and annual $PM_{2.5}$, 24-hour and annual PM_{10}, and 1-hour SO_2 as the model-predicted impacts for the NSBB emission sources exceeded the applicable SILs. The cumulative analysis included impacts from all NSBB sources, other emissions sources within the region, and representative background concentrations from regional monitors to represent air quality impacts from minor sources not explicitly included in the modeling.

In developing the cumulative inventory, consideration for the inclusion or exclusion of sources was taken by applying the so-called 20D procedure, which selects all off-site facilities within the SIA plus any facilities for which the ratios of the total emissions Q (tpy) to the distance D (km) to the Project site is equal or greater than 20. The screening region is determined as the SIA plus 50km. Separate inventories were developed for each pollutant and averaging period.

The following general procedures were used in the compilation and refinement of the inventory for each applicable pollutant and averaging period:

1. Emission inventories were obtained from KDAQ, LAPCD, and IDEM in the initial permit:
    a. The KDAQ inventories included all facilities from Breckinridge, Bullitt, Hardin, and Meade Counties. The facilities were represented with their 2017 emissions. For modeling purposes the Estimated Emissions provided by KDAQ were used;
    b. LAPCD inventories were obtained from the USEPA National Emission Inventories (NEI) from 2016 and included all facilities within Jefferson County, KY;
    c. IDEM inventories included all facilities within 100 km from the project site from Clark, Dubois, Harrison, Floyd, Jackson, Lawrence, Martin, Orange, Perry, Scott, and Spencer Counties. The sources were represented with the latest available emissions from 2015, 2016, or 2017.
2. Emissions inventories were obtained from KDAQ, LAPCD, and IDEM for this recent air quality analysis. In the event any new source was found utilizing the above methodologies, they were appended to the original permit inventory.
3. Lists of all included facilities are provided in Appendix C.
4. Source parameters for each source were used as provided in the inventories. For those sources that were missing parameters, the following procedures were used to complete the missing data:
    a. When any POINT parameters were missing, these were filled with a stack height of 10 m, exit velocity of 10 m/s, and a stack diameter of 0.1 m. Sources with provided plume height and exit temperatures from the KDAQ inventory were modeled as point sources with a stack height equal to the plume height, temperature as provided, an exit velocity of 10 m/s and stack diameter of 0.1 m.
    b. When any VOLUME source parameters were missing, these were filled with a release height of 10 m, initial vertical dimension (Sigma z) equal to the release height, and initial lateral dimension (Sigma y) equal to 10 m. If a fugitive release height was provided in the inventories, then it was used as the release height.
    c. A detailed list of all inventory sources for each pollutant, with modeling inputs, are provided in Appendix C.
5. Conservatively, all sources included in the NAAQS inventories were used in the PSD increment analysis as well.
6. In the case of $PM_{2.5}$, the minor source baseline date for Meade County was triggered by the original NSBB PSD permit application. Therefore, off-site sources were included in the PSD increment analysis for $PM_{2.5}$.

5.3 CUMULATIVE NAAQS MODELING RESULTS

The model-predicted impacts from NSBB were added to the impacts from the sources in the cumulative inventory along with the ambient background concentration representing the impact of minor sources not explicitly included in the modeling, for each pollutant that exceeded the SIL as indicated in Table 5-1, and compared to their respective NAAQS to assess compliance. The results of the cumulative modeling are provided in Table 5-2. As shown in the table, all cumulative concentrations were found to be less than their respective. Therefore, compliance with the NAAQS is demonstrated and no further analysis is necessary.

5.4 CUMULATIVE PSD INCREMENT MODELING RESULTS

The model-predicted impacts from NSBB were added to the impacts from the sources in the cumulative inventory for each pollutant that exceeded the SIL as indicated in Table 5-1, and compared to their respective PSD increments to assess compliance. As discussed in Section 5.2.1, the full cumulative inventories for NAAQS were conservatively assumed to be increment consuming and were used in the cumulative PSD increment modeling. The results of the cumulative increment modeling are provided in Table 5-3. As shown in the table, all cumulative concentrations were found to be less than their respective PSD increments. Therefore, compliance with the PSD increments is demonstrated and no further analysis is required.

TABLE 5-2 NSBB CUMULATIVE NAAQS ANALYSIS

Pollutant	Averaging Period	Modeled Concentration	Background	Total	NAAQS
		(µg/m³)	(µg/m³)	(µg/m³)	(µg/m³)
NO_2	1-hour	182.29	INCLD	182.29	188
	Annual	12.91	8.62	21.53	100
SO_2	1-hour	21.68	54.53	76.21	196
PM_{10}	24-hour	20.38	29.00	49.38	150
$PM_{2.5}$	24-hour	6.21	17.33	23.54	35
	Annual	2.54	7.50	10.04	12
$PM_{2.5}$ (secondary)	24-hour	6.21	17.96	24.17	35
	Annual	2.54	7.52	10.06	12
Pb	3-month	0.0125	NA	0.0125	0.15

24-hour SO_2 NAAQS revoked in 2010

TABLE 5-3 NSBB CUMULATIVE PSD INCREMENT ANALYSIS

Pollutant	Averaging Period	Modeled Concentration (µg/m³)	PSD INC Class II (µg/m³)
NO_2	Annual	12.91	25
SO_2	24-hour	4.88	91
PM_{10}	24-hour	25.97	30
	Annual	5.11	17
$PM_{2.5}$	24-hour	8.19	9
	Annual	2.67	4
$PM_{2.5}$ (secondary)	24-hour	8.82	9
	Annual	2.69	4

(1) Secondary $PM_{2.5}$ concentrations estimated using the default KDAQ MERP values. See Section 5.5 for details.

5.5 SECONDARY FORMATION OF $PM_{2.5}$ AND OZONE

The May 2017 revisions to the Appendix W Modeling Guidelines included a provision that requires major sources subject to NSR/PSD review to assess a project's impacts on the formation of ozone and secondary $PM_{2.5}$. EPA proposed a two-tiered approach for assessing the impacts of these pollutants:

- Tier 1 involves using known relationships between precursor emissions and a source's impacts to qualitatively assess the impact on secondary $PM_{2.5}$ and ozone formation.
- Tier 2 involves a more detailed analysis and could involve application of a photochemical grid model to determine the secondary $PM_{2.5}$ and ozone impacts.

In order to aid in the determination of which Tier an application would fall under, EPA has published draft guidance to establish SILs for ozone and $PM_{2.5}$, and also establishing Modeled Emission Rates for Precursors (MERPs) as a potential Tier-1 demonstration tool. A MERP represents a level of precursor emissions that is not expected to contribute significantly to concentrations of ozone or secondarily-formed $PM_{2.5}$. Impacts in excess of the MERPs would require an alternative Tier-1 approach or potentially a Tier-2 analysis.

KDAQ provides state-specific guidance on the application of USEPA's MERPs[6]. This guidance was used to assess secondary formation of ozone and $PM_{2.5}$ for this project.

[66] https://eec.ky.gov/Environmental-Protection/Air/Documents/KY%20MERPs.pdf

5.5.1 MERP SILS ANALYSIS FOR OZONE AND $PM_{2.5}$

The following equation is used in the ozone SIL analysis:

$$\frac{\text{NOx Emission Rate}}{\text{NOx MERP}} + \frac{\text{VOC Emission Rate}}{\text{VOC MERP}} < 1$$

If the project emissions of NO_X and VOC are below the Significant Emission Rate (SER), this analysis is not required. When the sum of the ratios is less than 1, the impact for secondary ozone are determined to be below the ozone SIL and no further analysis is required. When the sum of the ratios is greater than or equal to 1, a cumulative analysis for ozone is required.

The following equation is used for annual and daily $PM_{2.5}$ in the SILs analysis:

$$\frac{\text{Max PM}_{2.5}\text{ Modeled Conc.}}{\text{PM}_{2.5}\text{ SIL}} + \frac{\text{SO}_2\text{ Emission Rate}}{\text{SO}_2\text{ MERP}} + \frac{\text{NOx Emission Rate}}{\text{NOx MERP}} < 1$$

If the primary $PM_{2.5}$ project emissions are below the $PM_{2.5}$ SER of 10 tpy, this analysis is not required. When the sum of the ratios is less than 1, the impact for secondary $PM_{2.5}$ are determined to be below the $PM_{2.5}$ SIL and no further analysis is required. When the sum of the ratios is greater than or equal to 1, a cumulative analysis for $PM_{2.5}$ is required.

A cumulative analysis is performed for any precursor for which the sum of the ratios is greater than or equal to 1 in the SILs analysis. The cumulative analysis is the last step of a Tier 1 demonstration of secondarily formed pollutants.

The following equation is used for ozone (O_3) in the cumulative analysis:

$$\text{O}_3\text{ Background} + \left(\frac{\text{NOx Emission Rate}}{\text{NOx MERP}} + \frac{\text{VOC Emission Rate}}{\text{VOC MERP}}\right) * \text{O}_3\text{ SIL} \leq \text{O}_3\text{ NAAQS}$$

The ozone NAAQS value is 70 ppb. If the sum of the equation is less than or equal to 70 ppb, then the proposed project emissions will not contribute to a violation of the ozone NAAQS. If the sum is greater than 70 ppb, a then a Tier 2 demonstration is required.

The following equation is used for annual and daily $PM_{2.5}$ in the cumulative analysis:

$$PM_{2.5}\ \text{Background} + PM_{2.5}\ \text{DV} + \left(\frac{SO_2\ \text{Emission Rate}}{SO_2\ \text{MERP}} + \frac{\text{NOx Emission Rate}}{\text{NOx MERP}}\right) * PM_{2.5}\ \text{SIL} \leq PM_{2.5}\ \text{NAAQS}$$

The $PM_{2.5}$ DV is the AERMOD modeled design value from the direct $PM_{2.5}$ emission increases from the Project, as well as $PM_{2.5}$ emissions from nearby sources. The annual $PM_{2.5}$ NAAQS value is 12 $\mu g/m^3$. If the sum of the equation is less than or equal to 12 $\mu g/m^3$, then the proposed project emissions will not contribute to a violation of the annual $PM_{2.5}$ NAAQS. If the sum is greater than 12 $\mu g/m^3$, a Tier 2 demonstration is required. The daily $PM_{2.5}$ NAAQS value is 35 $\mu g/m^3$. If the sum of the equation is less than or equal to 35 $\mu g/m^3$, then the proposed project emissions will not contribute to a violation of the daily $PM_{2.5}$ NAAQS. If the sum is greater than 35 $\mu g/m^3$, a Tier 2 demonstration is required.

Similarly, the equation for comparison to the PSD Increment values is:

$$PM_{2.5}\ \text{DV} + \left(\frac{SO_2\ \text{Emission Rate}}{SO_2\ \text{MERP}} + \frac{\text{NOx Emission Rate}}{\text{NOx MERP}}\right) * PM_{2.5}\ \text{SIL} \leq PM_{2.5}\ \text{PSDI}$$

The daily and annual $PM_{2.5}$ Class II PSD increments (PSDI) values are 9 and 4 $\mu g/m^3$, respectively. If the sum of the equation is less than or equal to the respective limits, then the proposed project emissions will not contribute to a violation of the $PM_{2.5}$ allowable increment. If the sum is greater than any of the respective limits, a Tier 2 demonstration is required.

The following tables use the methods described in the guidance to assess the potential for secondary formation of ozone and $PM_{2.5}$ from project emissions.

TABLE 5-4 NSBB EMISSIONS FOR MERPS ANALYSIS

Precursor	Emissions (tpy)	SER (tpy)
NO_X	775.0	40
SO_2	313.0	40
$PM_{2.5}$	271.7	10
VOC	161.1	40

As shown in the table above, all relevant emissions are above their respective SERs; therefore, a SILs analysis is required for ozone, annual $PM_{2.5}$, and daily $PM_{2.5}$.

Table 5-5 shows the highest modeled concentration for all Project sources for annual and 24-hour $PM_{2.5}$ SIL. The values represent the maximum predicted concentrations over the 5 modeling years and are later used in the PSD Increment analysis. In the NAAQS analysis of the direct model-predicted concentrations, the average over 5 years ware used.

TABLE 5-5 SIL MODELING RESULTS FOR $PM_{2.5}$ MERPS ANALYSIS

Pollutant	Project Modeled Concentration (µg/m3)
Annual $PM_{2.5}$	1.59
Daily $PM_{2.5}$	9.52

Table 5-6 shows the highest modeled concentration for all sources, including nearby sources, for annual and 24-hour primary $PM_{2.5}$ NAAQS.

TABLE 5-6 NAAQS AND PSD INCREMENT MODELING RESULTS FOR MERPS ANALYSIS

Pollutant	Project + Nearby NAAQS Source Impacts (µg/m^3)	Project + Nearby PSD Increment Source Impacts (µg/m^3)
Annual $PM_{2.5}$	2.54	2.67
Daily $PM_{2.5}$	6.21	8.19

Table 5-7 shows the background concentrations for ozone and annual and 24-hour $PM_{2.5}$.

TABLE 5-7 BACKGROUND CONCENTRATIONS FOR MERPS ANALYSIS

Pollutant	Background Concentrations	Monitor ID
ozone (O_3)	68.6 ppb	18-123-0009, Perry Co. IN
annual $PM_{2.5}$	7.5 µg/m^3	18-019-0008, Clark, Co. IN
daily $PM_{2.5}$	17.3 µg/m^3	

These background concentrations represent the 2018-2021 average concentrations from the selected monitoring sites.

Table 5-8 shows the KDAQ default MERPs as described in the KY MERPs guidance. The default MERPs provided by KDAQ are used in the analysis for the Project.

TABLE 5-8 KDAQ DEFAULT MERPS

Precursor	8-Hour Ozone (tons/year)	Daily $PM_{2.5}$ (tons/year)	Annual $PM_{2.5}$ (tons/year)
NO_X	169	2,449	8,333
SO_2	-	1,500	10,000
VOC	3,333	-	-

Table 5-9 shows the SIL analysis for ozone and $PM_{2.5}$. If the result of the SIL Analysis is greater than 1, a cumulative analysis is required for that precursor. If the result is less than 1, a cumulative analysis is not required.

TABLE 5-9 MERPS SIL ANALYSES

Pollutant	Analysis Results	Less than 1?
Ozone	4.63	No
Annual $PM_{2.5}$	8.10	No
Daily $PM_{2.5}$	8.46	No

The MERPs SIL analysis calculations are as follows:

$$\text{Ozone} = \frac{775.0}{169} + \frac{161.1}{3{,}333} = 4.63$$

$$\text{Annual PM}_{2.5} = \frac{1.59}{0.2} + \frac{775.0}{8.333} + \frac{313.0}{10{,}000} = 8.10$$

$$\text{Daily PM}_{2.5} = \frac{9.52}{1.2} + \frac{775.0}{2{,}449} + \frac{313.0}{1{,}500} = 8.46$$

Because the MERP SILs analysis results are greater than 1, a cumulative analysis is required for ozone, annual $PM_{2.5}$, and daily $PM_{2.5}$.

5.5.2 MERP CUMULATIVE ANALYSIS FOR OZONE AND $PM_{2.5}$

Table 5-10 shows the cumulative NAAQS analysis for ozone and $PM_{2.5}$.

TABLE 5-10 MERPS CUMULATIVE NAAQS ANALYSIS

Pollutant	Analysis	NAAQS	Below NAAQS?
Ozone	68.68 ppb	70 ppb	Yes
Annual $PM_{2.5}$	10.06 μg/m^3	12 μg/m^3	Yes
Daily $PM_{2.5}$	24.17 μg/m^3	35 μg/m^3	Yes

The following provides the MERP cumulative analysis calculations:

$$\text{Ozone} = 64.0 + \left(\frac{775.0}{169} + \frac{161.1}{3{,}333}\right) * 1 = 68.68\ \text{ppb}.$$

$$\text{Annual PM}_{2.5} = 2.54 + 7.5 + \left(\frac{775.0}{8{,}333} + \frac{313.0}{10{,}000}\right) * 0.2 = 10.06\ \mu\text{g/m3}.$$

$$\text{Daily PM}_{2.5} = 6.21 + 17.3 + \left(\frac{775.0}{2{,}449} + \frac{313.0}{1{,}500}\right) * 1.2 = 24.17\ \mu\text{g/m3}.$$

Similarly, Table 5-11 summarizes the results for the PSD Increment analysis.

TABLE 5-11 MERPS PSD INCREMENT ANALYSIS

Pollutant	Analysis	PSD INC	Below PSD INC?
Annual $PM_{2.5}$	2.67 μg/m^3	4 μg/m^3	Yes
Daily $PM_{2.5}$	8.19 μg/m^3	9 μg/m^3	Yes

$$\text{Annual PM}_{2.5} = 2.67 + \left(\frac{775.0}{8{,}333} + \frac{313.0}{10{,}000}\right) * 0.2 = 2.69\ \mu\text{g/m3}.$$

$$\text{Daily PM}_{2.5} = 8.19 + \left(\frac{775.0}{2{,}449} + \frac{313.0}{1{,}500}\right) * 1.2 = 8.82\ \mu\text{g/m3}.$$

As identified in Tables 5-10 and 5-11 and the above calculations, the cumulative analysis results are all below the respective NAAQS and allowable PSD increment. Therefore, no further analysis is required.

5.5.3 CLASS I MERPS ANALYSIS

In order to assess the total $PM_{2.5}$ impacts (primary and secondary) at the Mammoth Cave NP Class I area, the USEPA approved distance-dependent technique was used. In this case, the MERPs values were calculated based on the concentrations from a representative hypothetical stack at a specific distance representative of the distance between the Project and the Class I area.

USEPA has provided photochemical modeling results for the $PM_{2.5}$ concentrations levels from a network of hypothetical stacks across the United States. These results provide the peak $PM_{2.5}$ impacts at series of distances separately for each of the $PM_{2.5}$ precursors: NO_X and SO_2. The hypothetical stacks included in the photochemical simulations were modeled with emission rates of 500 tpy, 1,000 tpy, and 3,000 tpy for stack heights of 1 and 90 meters, stack diameter of 5 meters, an exit velocity of 27 m/s, and an exit temperature of 311 K. The most representative stack for a project is then selected from these options for use in the MERPs analysis.

Source 2 from the Central US domain (CUS2) from the USEPA MERPs guidance, located in Dubois County, Indiana, was selected for the Class I MERPs analysis. CUS2 is located approximately 58 km west-northwest of NSBB. The hypothetical stack location (38.2549N, -86.7241W) and the NSBB site both:

- Are situated in rural environment;
- Have similar base elevations: The NSBB base elevation is 141 m; the CUS2 source base elevation is 177 m;
- Have no major terrain features between them that could significantly change the air flow; and
- Are surrounded by only a few major sources within 10km distance.

Due to the close regional proximity of the hypothetical stack to the Project site and the similarities in their surroundings, CUS2 was selected as the most representative source for the development of the appropriate MERPs. For the Class I analysis, the Class I $PM_{2.5}$ SILs were considered to be the appropriate "critical air quality thresholds". Distance-dependent modeled concentrations for CUS2 were provided by KDAQ. For this analysis, the most conservative concentrations, assuming a distance of 50 km, were used, even though the Project will be located approximately 80 km from Mammoth Cave NP.

The MERPs were derived from the modeling results for CUS2 based on the 1,000 tpy NO_X emissions and the 500 tpy SO_2 emissions, as these are the closest conservative approximations of the Project emission rates. Table 5-12 presents the modeled secondary $PM_{2.5}$ concentrations at distance 50 km as listed in Tables A-1 for Source 2, provided in the KDAQ MERPs guidance.

TABLE 5-12 USEPA $PM_{2.5}$ MODELING RESULTS: SOURCE 2 DUBOIS, IN, CENTRAL US

Precursor	Emissions (tpy)	Stack Height	Distance (km)	Max. Modeled 24-hour Concentration (µg/m3)	Max. Modeled Annual Concentration (µg/m3)
NO_X	1000	High (90 m)	≥ 50	0.0821	0.0034
SO_2	500	High (90 m)	≥ 50	0.0337	0.0011

The following critical thresholds representing the Class I SILs were used: for 24-hour $PM_{2.5}$, 0.27 µg/m^3 and for annual $PM_{2.5}$, 0.05 µg/m^3. The 2016 EPA guideline procedure (EPA 2016a)[7] was applied in the development of the secondary $PM_{2.5}$ concentration:

- Stack-specific MERPs were calculated for each precursor emission rate;
- Pollutant-specific ratios were developed to evaluate the impacts of Project emissions;
- The cumulative Project fraction (%) of the MERPs was calculated as the sum of the NO_X and SO_2 ratios;
- The amount of secondary $PM_{2.5}$ was calculated by multiplying the fraction of the total Project contribution by the appropriate SIL.
- The secondary $PM_{2.5}$ amounts were added to the model-predicted direct concentrations.

The resulting MERPs values are as follows:

24-hour $PM_{2.5}$

NO_X MERP = 0.27 **µ**g/m^3 * 1000 tpy / 0.0821 **µ**g/m^3 = 3,289 tpy

SO_2 MERP = 0.27 **µ**g/m^3 * 500 tpy / 0.0337 **µ**g/m^3 = 4,006 tpy

The potential emissions of NO_X (785.1 tpy) and SO_2 (313.0 tpy) were then used to calculate the amount of secondary 24-hour $PM_{2.5}$ to be added to the primary $PM_{2.5}$ concentrations. The following equations show the Project's cumulative MERP consumption.

[Project NOx emissions (775.0 tpy) / NO_X MERP (3,289 tpy)] +

[Project SO_2 emissions (313.0 tpy) / SO_2 MERP (4,006 tpy)] = 31.38%

[7] https://www3.epa.gov/ttn/scram/guidance/guide/EPA454_R_16_006.pdf

Therefore, the amount added to the primary $PM_{2.5}$ impacts to account for the contribution of 24-hour secondary $PM_{2.5}$ is (0.27 µg/m^3 * 0.3138) = **0.085 µg/m^3**

Annual $PM_{2.5}$

NO_X MERP = 0.05 µg/m^3 * 1000 tpy / 0.0034 µg/m^3 = 14,706 tpy

SO_2 MERP = 0.05 µg/m^3 * 500 tpy / 0.0011 µg/m^3 = 22,727 tpy

The potential emissions of NO_X (785.1 tpy) and SO_2 (313.0 tpy) were then used to calculate the amount of secondary annual $PM_{2.5}$ to be added to the primary $PM_{2.5}$ concentrations. The following equations show the Project's cumulative MERP consumption.

[Project NOx emissions (775.0 tpy) / NO_X MERP (14,706 tpy)] +

[Project SO_2 emissions (313.0 tpy) / SO_2 MERP (22,727 tpy)] = 6.65%

Therefore, the amount added to the primary $PM_{2.5}$ impacts to account for the contribution of annual secondary $PM_{2.5}$ is (0.05 µg/m^3 * 0.0672) = **0.003 µg/m^3**

Table 5-13 summarizes the combined primary and secondary $PM_{2.5}$ impacts and compares them to their respective SILs. The 24-hour and the annual $PM_{2.5}$ total concentrations are below the SIL standards. Therefore, it is not expected that the Project will contribute significantly to $PM_{2.5}$ levels at Mammoth Cave NP, and no further analysis is necessary.

TABLE 5-13 CLASS I PRIMARY AND SECONDARY PM $_{2.5}$ MODELING RESULTS

Period	AERMOD $PM_{2.5}$ Concentrations (µg/m3) at 50 km			Class I SIL
	Primary	Secondary	Total	
24-hour	0.165	0.085	0.250	0.27
Annual	0.013	0.003	0.017	0.05

6. ADDITIONAL KENTUCKY AIR REGULATION ANALYSES

6.1 KENTUCKY ADMINISTRATIVE REGULATION TITLE 401, CHAPTER 53, AMBIENT AIR QUALITY STANDARDS (KYAAQS)

Chapter 53 contains primary and secondary ambient air quality standards for the State of Kentucky. Compliance with this regulation is demonstrated by conducting an air quality assessment when there is a change in emission rates, source locations, and source parameters, which could change dispersion characteristics.

For those pollutants which triggered PSD review and have applicable NAAQS and KYAAQS standards, Compliance with the KYAAQS is accomplished by demonstrating compliance with the NAAQS. If the proposed project does not have a significant air quality impact for a particular pollutant and averaging period (see the significant impact levels in Table 4-1), additional dispersion modeling analyses are not required.

Since compliance with all applicable NAAQS was demonstrated in Section 5.3, compliance with the KYAAQS is also demonstrated and no further analysis is required.

Under Chapter 53, additional consideration applies to hydrogen fluoride (HF) and lead (Pb). Refined AERMOD modeling was conducted on a 20-km receptor grid, sufficient enough to model any significant concentrations, with source specific emission rates. The modeling results are summarized in Table 6-1. These indicated that the predicted impacts are substantially below the primary and secondary state air quality standards.

TABLE 6-1 NSBB MODELING RESULTS.

Pollutant	Period	Primary Standard ($\mu g/m^3$)	Secondary Standard ($\mu g/m^3$)	Rank	Modeled Concentration ($\mu g/m^3$)
HF	12 hour	--	3.68	H2H	0.0370
	24 hour	800	2.86	H2H	0.0273
	1 Week [(a)]	--	0.8	H1H	0.0273
	1 Month	--	0.5	H1H	0.0087
	Annual	400	--	MAX	0.0043
LEAD [(b)]	3-mo running	0.15	0.15	MAX	0.0125

[(a)] The 24-hour average were used as a surrogate for the 1 week averages; AERMOD doesn't allow for an averaging period of 168 hours.
[(b)] Same as NAAQS.

6.2 KENTUCKY ADMINISTRATIVE REGULATION TITLE 401, CHAPTER 63:020, POTENTIALLY HAZARDOUS MATTER OR TOXIC SUBSTANCES

The Kentucky regulations provide that no owner or operator shall allow any affected facility to emit potentially hazardous matter or toxic substances in such quantities or duration as to be harmful to the health and welfare of humans, animals, and plants. Evaluation of emissions of potentially hazardous matter or toxic substances must be made to demonstrate no adverse impact to human health or the environment. This demonstration consists of dispersion modeling to show that the annual average concentration of hazardous air pollutants in the ambient air at the nearest residential location is below the hazardous air pollutant-specific risk screening levels (RSL) for resident air concentrations[8].

Pursuant to 401 KAR 63:020, emissions of toxic air contaminants from sources not otherwise covered by MACT standards were evaluated for potentially hazardous impacts. Based on guidance from KY DAQ, the potential toxic air contaminants from these sources were compared to the USEPA Regional Screening Level (RSL) table, last updated November 2021. Any compound for which the RSL table identified a specific screening level for either carcinogenic or non-carcinogenic impacts was included in this analysis. Further, based on KY DAQ guidance, simulation of potential impacts for toxic air contaminants is considered 'potentially hazardous' only if the concentrations are predicted to be above the USEPA RSL table thresholds at discrete residential locations.

A review of emissions from all NSBB sources not otherwise covered by MACT standards in comparison to the RSL table identified 38 compounds, from 43 egress points that must be evaluated per 401 KAR 63:020. These emissions were modeled using AERMOD to estimate annual concentrations for comparison with the applicable RSL table thresholds. The modeling analysis for these additional compounds was conducted using a conservative unit-response screening approach, as follows:

- The detailed emission rates for each process and source (emission point) were compiled in an Excel spreadsheet.
- The AERMOD model database was setup to include each emission point, and a "unit-response" emission rate (1 gram/second). The results obtained when using unit-response emission rates are commonly referred to as "Chi/Q" results – in units of "µg/m^3 per gram/second."
- The AERMOD model (v.22112) was run to calculate predicted concentration at a large grid of receptors (the same grid used for SIL modeling), and the maximum annual impacts were estimated for EACH SOURCE, for the five years' met data simulated (2018-2022).
- The maximum Chi/Q results for each emission point were then included in the Excel spreadsheet with the corresponding emission rates for the source. The maximum Chi/Q results were multiplied by the emission rate (in grams/second) for each toxic air contaminant to calculate the source-specific, pollutant-specific annual concentration. The resulting source-specific concentrations were then summed for each toxic air contaminant to estimate a total concentration for each pollutant. This sum result is a conservative

[8] Regional Screening Level (RSL) Summary Table (TR=1E-06, HQ=1) November 2018. (https://semspub.epa.gov/work/HQ/197233.pdf).

over-estimate, because it is an artificial total concentration from all source without regard for the predicted location of maximum impact for each source.

- The conservative total concentration for each pollutant was then compared to the US EPA RSL Table thresholds for each pollutant. If the model predicted concentration is less than the applicable RSL Table thresholds, it can be concluded that the facility is not expected to have a potentially hazardous impact for that pollutant.

Table 6-2 provides the conservative worst-case predicted impacts for each compound compared to the applicable USEPA RSL Table thresholds. As identified in this table, the simulated worst-case conservative concentration for each of the 38 toxic air contaminants were predicted to be less than each applicable USEPA RSL table threshold.

It can therefore be concluded that the emissions of toxic air contaminants from NSBB sources do not cause potentially hazardous impacts to surrounding residential areas. As such, the NSBB facility demonstrates compliance with 401 KAR 63:020. Details of the toxics modeling and results are located in the spreadsheet "Air Toxic Analysis.xlsx" included in Appendix A, the Electronic Modeling Archive.

6.3 KENTUCKY ADMINISTRATIVE REGULATION TITLE 401, CHAPTER 51:052, REVIEW OF NEW SOURCES IN OR IMPACTING UPON NONATTAINMENT AREAS

Although Meade County, where the NSBB mill will be located is in attainment or unclassifiable status for all criteria pollutants, nearby Jefferson County is designated nonattainment for ozone. Because the NSBB site is relatively close to the nonattainment area (approximately 25 km), the potential impact of the project on the nonattainment area must be reviewed. Because ozone is the affected pollutant, per 401 KAR 51:052, NSBB must demonstrate that the model-predicted impacts from NSBB will be below the annual NO_2 SIL in the nonattainment area. As shown in Table 5-1, the SIA for annual NO_2 extends only 3.85 km from the NSBB site, and thus does not extend into Jefferson County at any point. Therefore, all model-predicted impacts for annual NO_2 within Jefferson County are below the SIL, and compliance with 401 KAR Chapter 51:052 is demonstrated.

TABLE 6-2 NSBB AIR TOXICS MODELING RESULTS.

Compound	CAS#	Carcinogenic Target Risk (TR) = 1E-06 (µg/m3)	Non-carcinogenic Target Risk (HI) = 1 (µg/m3)	Worst-case Max. Concentration (µg/m3)
1,3-Butadiene	106-99-0	0.094	2.1	0.00056
1,4-Dioxane	123-91-1	0.56	31	0.00030
Acetaldehyde	75-07-0	1.3	9.4	0.01515
Acetonitrile	75-05-8	NA	63	0.00088
Acrolein	107-02-8	NA	0.021	0.00705
Arsenic	7440-38-2	0.00065	0.016	0.00009
Benzene	71-43-2	0.36	31	0.00360
Beryllium	7440-41-7	0.0012	0.021	0.00000
Bromoform	75-25-2	2.6	NA	0.00105
Cadmium	7440-43-9	0.0016	0.01	0.00038
Carbon Disulfide	75-15-0	NA	730	0.00705
Carbon Tetrachloride	56-23-5	0.47	100	0.00056
Chlorine	7782-50-5	NA	0.15	0.01170
Chloroethane	75-00-3	NA	4200	0.00032
Chloroform	67-66-3	0.12	100	0.00077
Chloromethane	74-87-3	NA	94	0.00099
Chromium	7440-47-3	NA	NA	0.00725
Cobalt	7440-48-4	0.00031	0.0063	0.00004
Dichlorobenzene	106-46-7	0.26	830	0.00008
Ethyl Benzene	100-41-4	1.1	1000	0.13132
Fluoride	16984-48-8	NA	14	0.01380
Formaldehyde	50-00-0	0.22	10	0.01528
Hexane	110-54-3	NA	730	0.13011
Hydrogen Fluoride	7664-39-3	NA	15	0.00250
Lead	7439-92-1	NA	0.15	0.00760
Manganese Compounds	7439-96-5	NA	0.052	0.04052
Mercury	7439-97-6	NA	0.31	0.00002
Methanol	67-56-1	NA	21000	0.00934
Methyl Ethyl Ketone	78-93-3	NA	5200	0.00939

Compound	CAS#	Carcinogenic Target Risk (TR) = 1E-06 (μg/m3)	Non-carcinogenic Target Risk (HI) = 1 (μg/m3)	Worst-case Max. Concentration (μg/m3)
Methyl Isobutyl Ketone	108-10-1	NA	3100	0.00050
Methylene Chloride	75-09-2	100	630	0.01090
Naphthalene	91-20-3	0.083	3.1	0.00085
Nickel	1313-99-1	0.011	0.021	0.00174
Selenium	7782-49-2	NA	21	0.00000
Styrene	100-42-5	NA	1000	0.00038
Toluene	108-88-3	NA	5200	0.00414
Trichloroethene	79-01-6	0.48	2.1	0.00048
Xylenes	108-38-3 106-42-3 95-47-6	NA	100	0.13134

7. ADDITIONAL PSD AIR QUALITY ANALYSES

As required by PSD regulations, this section addresses impacts on visibility impairment, PSD Class I areas, vegetation and soils, associated growth, and nonattainment areas.

Analyses of the impact of the proposed plant's air pollutant emissions associated with construction and related growth are presented in this section. Assessment of the plant's impact on soil, vegetation, and visibility are also presented in this section. A qualitative approach to these analyses was necessary for those areas in which analytical techniques are not well established.

7.1 ADDITIONAL GROWTH ANALYSIS

Commercial growth is anticipated to occur at a gradual rate in the future. Each major new source may be required to undergo PSD review; however, commercial growth will add to the background pollutant concentrations. Based on the maximum predicted concentrations associated with the plant, there is sufficient air resource available for future development in the Meade County area.

The operation of the facility will result in growth in the local area. Based on the limited information available at this time, it is difficult to accurately predict the effects of growth associated with the facility on the air quality of the area.

With respect to industrial growth, Nucor anticipates using their established network of parts and material suppliers to support the Brandenburg facility. At this time, Nucor expects that some of these suppliers will locate in the vicinity of the Brandenburg facility in order to provide services and delivery. A limited number of suppliers are anticipated to directly locate on the Nucor mill grounds, while additional suppliers are anticipated to locate nearby. The PSD application and associated air quality analyses included emissions for on-site slag processing and an air separation plant. These suppliers primarily will conduct assembly operations that have relatively small emissions**.**

With respect to residential growth, Nucor anticipates that employment at the facility will be over 400 full time personnel, working on one of three shifts. Nucor plans to follow their normal practice of hiring from the existing workforce in the local area. A relatively small number of Nucor employees are expected to transfer to the Brandenburg facility from other Nucor locations; however, it is anticipated that the majority of new employees will be hired from residents living in surrounding communities. As a result, there should not be a large, immediate increase in the development of housing in the area.

Anticipated long-term growth within the region is expected to have a positive economic impact on the Meade County area and the surrounding communities. Over time, it is likely that a higher standard of living could produce a demand for additional housing in the surrounding counties. This residential growth, along with additional automobile traffic and home furnace emissions, could have a small impact on regional air quality in the future. It is estimated that these future emissions will be widely dispersed throughout the region with only an insignificant impact on regional air quality.

With respect to economic growth, moderate commercial growth (restaurants and shopping areas) is also expected to accompany the construction and operation of the facility. Similar to residential growth, this increase in commercial growth is expected to result in only an insignificant impact on regional air quality.

7.2 IMPACTS ON SOIL AND VEGETATION

PSD regulations require an analysis of air quality impacts on sensitive vegetation types with significant commercial or recreational value, or sensitive types of soil. Evaluation of potential impacts on sensitive vegetation was performed by comparison of maximum modeled impacts from the Project to AQRV screening concentrations provided in the USEPA document "A Screening Procedure for the Impacts of Air Pollution Sources on Plants, Soils, and Animals"[9] and to NAAQS secondary standards. The screening levels represent the minimum concentrations in either plant tissue or soils at which adverse growth effects or tissue injury was reported in the literature. The NAAQS secondary standards were set to protect public welfare, including protection against damage to crops and vegetation. Therefore, comparing the modeled emissions to the AQRV screening concentrations and the NAAQS secondary standards provides an indication as to whether potential impacts are likely to be significant for vegetation and soils.

As shown in Table 7-1, the maximum model-predicted impacts from NSBB will not exceed any of the applicable air quality related values (AQRVs) screening concentrations or NAAQS secondary standards. This analysis demonstrates that emissions from NSBB will not cause or contribute to air pollution that would adversely impact vegetation or soils in the area.

[9] USEPA, A Screening Procedure for the Impacts of Air Pollution Sources on Plants, Soils, and Animals, EPA 450/2-81-078, December 12, 1980.

TABLE 7-1 NSBB SOILS AND VEGETATION ANALYSIS

Pollutant	Averaging Period	Maximum Impacts (µg/m3)	AQRV Screening Levels (µg/m3)	Secondary NAAQS (µg/m3)
PM_{10}	24-hour	26.63	--	150
	Annual	4.47	--	50
$PM_{2.5}$	24-hour	7.97	--	35
	Annual	1.57	--	12
NO_2[1]	4-hour	112.41	3760	--
	8 hour	112.41	3760	--
	1-month	112.41	564	--
	Annual	6.57	100	100
SO_2	1-hour	27.64	917	--
	3-hour	17.90	786	1300
	24-hour	5.58	--	260
	Annual	0.579	18	60
CO[2]	Weekly	725.9	1,800,000	--

1. For 4-hour, 8-hour, and 1-month NO_2, the maximum model-predicted 1-hour NO_2 concentration for all NSBB sources was conservatively used.
2. For weekly CO, the maximum model-predicted 1-hour CO concentration for all NSBB sources was conservatively used.

7.3 CLASS I IMPACTS

Any facility emitting significant amounts of TSP/PM_{10} and/or NO_X has the potential for adverse impacts on visibility through atmospheric discoloration or reduction of visual range due to increased haze. The Clean Air Act Amendments of 1977 require evaluation of visibility impairment in the vicinity of PSD Class I areas due to emissions from new or modified air pollution sources.

The proposed Project is located within 300 km of one federally protected Class I area, Mammoth Cave National Park in Kentucky, located approximately 80 km to the south of the proposed NSBB site.

7.3.1 VISIBILITY ANALYSIS

The Federal Land Managers (FLMs) have recommended an emissions over distance screening threshold that can be used to preliminarily assess a project's significance with respect to AQRVs, namely visibility and deposition in Class I areas (NPS 2010). This ratio is represented by total annualized maximum 24-hour emissions of NO_X, SO_2, PM_{10}, and H_2SO_4 in tons/year divided by the distance to a Class I area in km and is referred to as the Q/D ratio. FLM guidance suggests that projects with a Q/D ratio of less than 10 would not be expected to have significant impacts with respect to AQRVs in Class I areas. The Q/D ratio in this analysis was calculated to be 19.1, which is above the FLM screening level of 10. Therefore, an addition AQRV analysis was conducted and included CALPUFF modeling. The Q/D ratio calculations are provided in Table 7-2. The CALPUFF modeling analysis is provided in Appendix D.

TABLE 7-2 NSBB CLASS I Q/D CALCULATION

Distance to Mammoth Cave (D) (km)	80
SO_2 (TPY)	313.0
NO_X (TPY)	775.0
PM_{10} (TPY)	432.93
H_2SO_4 (TPY)	0
Total Project Emissions (Q) (TPY)	1,521
Q/D	19.0

7.3.2 CLASS I SIL ANALYSIS

The emissions of NO_2, PM_{10}, $PM_{2.5}$, and SO_2 related to the proposed NSBB mill were evaluated against the Class I SILs by applying AERMOD at a distance of 50 km from the NSBB site. This analysis represented the maximum spatial extent (50 km from source to receptor) approved by USEPA for regulatory applications of AERMOD. The receptors were placed at 1° intervals on an arc that represents the angular distance of the Class I area at 50 km from the project site. The angular distance was determined to extend approximately 20°. The maximum modeled concentrations at the 50 km receptors are less than the Class I SILs for all pollutants and averaging periods except for 24-hour PM_{10}, for which a further analysis was performed using CALPUFF. The AERMOD screening results are summarized in Table 7-3.

Because the Class I SIL for 24-hour PM_{10} was exceeded in the AERMOD screening run, a refined CALPUFF analysis was performed to evaluate the impacts from NSBB emission sources within the park proper. CALPUFF was executed with the VISTAS meteorological data set provided by EPA and was run conservatively without any chemical transformations. The results from the CALPUFF simulation are presented in Table 7-4. The CALPUFF modeling inputs and options are detailed in Appendix D.

As evident from the AERMOD and CALPUFF modeling results, model-predicted impacts from NSBB emission sources are below the Class I SILs for all pollutants and averaging periods; therefore, compliance is demonstrated and no further analysis is required.

TABLE 7-3 CLASS I SIL ANALYSIS WITH AERMOD AT 50 KM

Pollutant	Averaging Period	Modeled Concentration (µg/m³)	Class I SIL (µg/m³)	% of SIL
NO_2	Annual	0.045	0.1	45.2%
SO_2	3-hour	0.714	1	71.4%
	24-hour	0.180	0.2	90.2%
	Annual	0.012	0.1	11.9%
PM_{10}	24-hour	0.522	0.3	**174.0%**
	Annual	0.024	0.2	11.9%
$PM_{2.5}$	24-hour	0.165	0.27	61.1%
	Annual	0.013	0.05	26.9%
$PM_{2.5}$[1] (secondary)	24-hour	0.250	0.27	92.5%
	Annual	0.017	0.05	33.5%

(1) The $PM_{2.5}$ peak concentrations represent the sum of the AERMOD predicted concentrations and the fraction accounting for the secondary $PM_{2.5}$ formations. See Section 5.5 for details.

TABLE 7-4 CLASS I SIL ANALYSIS WITH CALPUFF

Pollutant	Averaging Period	Modeled Concentration (µg/m³)	Class I SIL (µg/m³)	% of SIL
PM_{10}	24-hour	0.124	0.3	41.3%

7.4 CLASS II VISIBILITY

Any facility emitting significant amounts of TSP/PM_{10} and/or NO_X has the potential for adverse impacts on visibility through atmospheric discoloration or reduction of visual range due to increased haze.

A review of land uses within the 24-hour significant impact area, 5.9 km for 24-hour PM_{10}, verified that there are no airports, state or federal parks, or other land uses that could be impeded due to emissions from the facility. Therefore, it is unlikely that the modification will cause any impairment to visibility at any location.

7.5 IMPACTS ON ENDANGERED SPECIES

The maximum air quality impact of the proposed plant is generally located close to the plant fence line. The maximum pollutant concentrations are in compliance with PSD increments and NAAQS. In this regard, it is highly unlikely that the impact from the plant would affect the habitats of endangered species.

8. REFERENCES

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APPENDIX A ELECTRONIC MODELING ARCHIVE

APPENDIX B EMISSION SOURCE TABLES

TABLE B-1 NSBB POINT SOURCES – STACK PARAMETERS

Description	Modeling ID	Base Elevation	Stack Height		Exit Temperature		Exit Velocity		Stack Diameter	
		(ft)	(ft)	(m)	(F)	(K)	(ft/s)	(m/s)	(ft)	(m)
Melt Shop - Baghouse	EU01	462.0	180.0	54.9	180.0	355.4	62.8	19.1	26.0	7.9
Melt Shop – Fugitives	EU01F	462.0	20.0	6.1	100.0	310.9	0.7	0.2	35.7	10.9
Vacuum Degasser	EP0103	462.0	154.2	47.0	219.0	377.0	16.7	5.1	1.3	0.4
Caster Spray Vent	EP0105_1	462.0	164.0	50.0	131.0	328.2	52.3	16.0	6.7	2.0
Caster Spray Vent	EP0105_2	462.0	164.0	50.0	131.0	328.2	52.3	16.0	6.7	2.0
Melt Shop Baghouse Dust Silo and Loadout	EP0107	462.0	85.0	25.9	120.0	322.0	67.9	20.7	0.8	0.2
Caster Quench Box	EP0111	462.0	73.0	22.3	131.0	328.2	61.7	18.8	4.5	1.4
Walking Beam Reheat Furnace	EP0301	462.0	285.4	87.0	520.0	544.3	32.1	9.8	9.2	2.8

Description	Modeling ID	Base Elevation	Stack Height		Exit Temperature		Exit Velocity		Stack Diameter	
		(ft)	(ft)	(m)	(F)	(K)	(ft/s)	(m/s)	(ft)	(m)
Ingot Bogie Hearth Furnaces	EP0302	462.0	98.4	30.0	590.0	583.2	66.8	20.3	5.2	1.6
Steckel Mill Finishing Stand	EP0304	462.0	85.0	25.9	120.0	322.0	58.4	17.8	4.0	1.2
Steckel Mill Coiling Furnaces	EP0305_1	462.0	65.6	20.0	752.0	673.2	30.6	9.3	3.3	1.0
Coil Sample Plasma Cutter	EP0306	462.0	20.0	6.1	120.0	322.0	52.3	15.9	3.5	1.1
Shot Blaster	EP0401	462.0	100.0	30.5	90.0	305.4	59.5	18.2	3.5	1.1
Austenitizing Furnace	EP0402	462.0	100.0	30.5	662.0	623.2	61.1	18.6	5.2	1.6
Tempering Furnace	EP0403	462.0	100.0	30.5	662.0	623.2	58.8	17.9	3.0	0.9
Heavy Plate Car Bottom Furnaces #1-#4	EP0501	462.0	98.4	30.0	1200.0	922.0	24.7	7.5	9.5	2.9
Heavy Plate Burning Beds #1	EP0503_1	462.0	35.0	10.7	140.0	333.2	63.6	19.4	1.5	0.5

Description	Modeling ID	Base Elevation	Stack Height		Exit Temperature		Exit Velocity		Stack Diameter	
		(ft)	(ft)	(m)	(F)	(K)	(ft/s)	(m/s)	(ft)	(m)
Heavy Plate Burning Beds #2	EP0503_2	462.0	35.0	10.7	140.0	333.2	63.6	19.4	1.5	0.5
Heavy Plate Burning Beds #3	EP0503_3	462.0	35.0	10.7	140.0	333.2	63.6	19.4	1.5	0.5
Light Plate Burning Beds #1A	EP1701A	462.0	35.0	10.7	140.0	333.2	63.6	19.4	1.5	0.5
Light Plate Burning Beds #1B	EP1701B	462.0	35.0	10.7	140.0	333.2	63.6	19.4	1.5	0.5
Light Plate Burning Beds #2C	EP1701C	462.0	35.0	10.7	140.0	333.2	63.6	19.4	1.5	0.5
Light Plate Burning Beds #2D	EP1701D	462.0	35.0	10.7	140.0	333.2	63.6	19.4	1.5	0.5
EAF Flux & Carbon Handling	EP0601	462.0	50.0	15.2	Ambient		57.3	17.5	0.7	0.2
Lime Silo 1	EP0602_1	462.0	87.0	26.5	Ambient		43.0	13.1	0.7	0.2
Lime Silo 2	EP0602_2	462.0	87.0	26.5	Ambient		43.0	13.1	0.7	0.2

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Description	Modeling ID	Base Elevation	Stack Height		Exit Temperature		Exit Velocity		Stack Diameter	
		(ft)	(ft)	(m)	(F)	(K)	(ft/s)	(m/s)	(ft)	(m)
Lime Silo 3	EP0602_3	462.0	87.0	26.5	Ambient		43.0	13.1	0.7	0.2
Carbon Silo 1	EP0604	462.0	87.0	26.5	Ambient		31.8	9.7	1.0	0.3
LMF Alloy Handling	EP0605	462.0	144.4	44.0	Ambient		2.0	0.6	3.3	1.0
Melt Shop ICW Cooling Tower, System 100 [1]	EP0901_1-3	462.0	38.5	11.7	120.0	322.0	27.7	8.5	26.0	7.9
Melt Shop DCW Cooling Tower, System 200 [1]	EP0902_1-2	462.0	38.5	11.7	120.0	322.0	29.3	8.9	18.0	5.5
Rolling Mill DCW Cooling Tower, System 400 [1]	EP0904_1-3	462.0	45.5	13.9	120.0	322.0	22.5	6.9	26.0	7.9
Rolling Mill ACC ICW Cooling Tower, System 500 [1]	EP0905_1-2	462.0	37.5	11.4	120.0	322.0	27.4	8.4	26.0	7.9
HP Quench DCW Cooling Tower, System 600 [1]	EP0906_1-4	462.0	24.6	7.5	120.0	322.0	42.5	12.9	6.0	1.8

Description	Modeling ID	Base Elevation	Stack Height		Exit Temperature		Exit Velocity		Stack Diameter	
		(ft)	(ft)	(m)	(F)	(K)	(ft/s)	(m/s)	(ft)	(m)
Laminar DCW Cooling Tower, System 700 [1]	EP0907_1-3	462.0	45.5	13.9	120.0	322.0	25.1	7.6	26.0	7.9
Heat Treat Cooling Tower, System 800 [1]	EP0908_1-8	462.0	29.7	9.1	120.0	322.0	83.7	25.5	6.5	2.0
Air Separation Plant Cooling Tower [1]	EP0909_1-4	462.0	25.3	7.7	120.0	322.0	35.0	10.7	6.0	1.8
G100-1 Emergency Generator	EP1001	462.0	7.1	2.2	889.5	749.5	109.5	33.4	1.2	0.4
G100-2 Emergency Generator	EP1002	462.0	9.8	3.0	752.0	673.2	144.2	44.0	1.5	0.5
G100-3 Emergency Generator	EP1003	462.0	9.8	3.0	752.0	673.2	144.2	44.0	1.5	0.5
G200-1 Emergency Generator	EP1004	462.0	7.1	2.2	889.5	749.5	109.5	33.4	1.2	0.4
ASU Emergency Generator	EP1101	462.0	6.5	2.0	1350.0	1005.4	127.7	38.9	0.7	0.2

Description	Modeling ID	Base Elevation	Stack Height		Exit Temperature		Exit Velocity		Stack Diameter	
		(ft)	(ft)	(m)	(F)	(K)	(ft/s)	(m/s)	(ft)	(m)
Admin Building Emergency Generator	EP1102	462.0	5.0	1.5	1274.0	963.2	91.3	27.8	0.3	0.1
Slag Plant Oxy Fuel-Fired Torches - Baghouse	EP1204	459.0	40.0	12.2	140.0	333.2	58.5	17.8	4.7	1.4
Water Bath Vaporizer	EP1301	462.0	20.0	6.1	400.0	477.6	57.8	17.6	1.0	0.3
B&P Line Preheater/Dryer Combustion	EP1801	462.0	70.0	21.3	250.0	394.3	55.0	16.8	1.0	0.3
B&P Line Shot Blaster	EP1802	462.0	70.0	21.3	90.0	305.4	66.3	20.2	2.0	0.6
B&P Line Painting Operations/RTO	EP1803	462.0	70.0	21.3	120.0	322.0	46.2	14.1	2.5	0.8
Ingot Grinding (Baghouse)	EP0113	462.0	20.0	6.1	Ambient		69.4	21.2	3.9	1.2
G300-1 Emergency Generator	EP1008	462.0	7.1	2.2	889.5	749.5	109.5	33.4	1.2	0.4
G400-1 Emergency Generator	EP1009	462.0	7.1	2.2	889.5	749.5	109.5	33.4	1.2	0.4

Description	Modeling ID	Base Elevation	Stack Height		Exit Temperature		Exit Velocity		Stack Diameter	
		(ft)	(ft)	(m)	(F)	(K)	(ft/s)	(m/s)	(ft)	(m)
G500-1 Emergency Generator	EP1010	462.0	12.3	3.8	975.2	797.2	201.1	61.3	0.9	0.3

(1) Each cooling tower has multiple fans, each of which is modeled as a separate point source with the same stack parameters for each cell of that cooling tower.

TABLE B-2 NSBB POINT SOURCES – PTE EMISSION RATES – SHORT TERM

Description	Modeling ID	NO_x		SO_2		CO		Pb		PM_{10}		$PM_{2.5}$	
		(lb/hr)	(g/s)	(lb/hr)	(g/s)	(lb/hr)	(g/s)	(lb/hr)	(g/s)	(lb/hr)	(g/s)	(lb/hr)	(g/s)
Melt Shop - Baghouse	EU01	113.10	14.25	94.29	11.88	538.58	67.86	0.12	0.02	73.64	9.28	48.14	6.07
Melt Shop - Fugitives	EU01F	1.14	0.14	0.95	0.12	5.44	0.69	1.22E-03	1.54E-04	0.80	0.10	0.59	0.07
Vacuum Degasser	EP0103	1.36	0.17	1.36	0.17	20.40	2.57	2.35E-04	2.96E-05	0.06	0.01	0.06	0.01
Caster Spray Vent	EP0105_1									1.00	0.13	0.13	0.02
Caster Spray Vent	EP0105_2									1.00	0.13	0.13	0.02
Melt Shop Baghouse Dust	EP0107							3.89E-06	4.90E-07	0.08	0.01	0.08	0.01

Description	Modeling ID	NO_x		SO_2		CO		Pb		PM_{10}		$PM_{2.5}$	
		(lb/hr)	(g/s)	(lb/hr)	(g/s)	(lb/hr)	(g/s)	(lb/hr)	(g/s)	(lb/hr)	(g/s)	(lb/hr)	(g/s)
Silo and Loadout													
Caster Quench Box	EP0111									0.54	0.07	0.07	0.01
Walking Beam Reheat Furnace	EP0301	25.20	3.18	0.21	0.03	29.64	3.74	1.76E-04	2.22E-05	2.68	0.34	4.68	0.59
Ingot Bogie Hearth Furnaces	EP0302	14.76	1.86	0.07	0.01	10.13	1.28	6.03E-05	7.60E-06	0.92	0.12	0.92	0.12
Steckel Mill Finishing Stand	EP0304									1.72	0.22	0.86	0.11
Steckel Mill Coiling Furnaces	EP0305_1	1.79	0.23	0.01	0.00	1.84	0.23	1.10E-05	1.38E-06	0.17	0.02	0.17	0.02
Coil Sample Plasma Cutter	EP0306	0.55	0.07							0.04	0.01	0.04	0.01
Shot Blaster	EP0401									0.85	0.11	0.85	0.11
Austenitizing Furnace	EP0402	11.64	1.47	0.04	0.01	6.45	0.81	3.64E-05	4.59E-06	0.55	0.07	0.55	0.07
Tempering Furnace	EP0403	6.82	0.86	0.03	0.00	6.56	0.83	2.13E-05	2.69E-06	0.32	0.04	0.32	0.04
Heavy Plate Car Bottom	EP0501	14.72	1.86	0.11	0.01	15.15	1.91	9.02E-05	1.14E-05	1.37	0.17	1.37	0.17

Description	Modeling ID	NOx		SO2		CO		Pb		PM10		PM2.5	
		(lb/hr)	(g/s)	(lb/hr)	(g/s)	(lb/hr)	(g/s)	(lb/hr)	(g/s)	(lb/hr)	(g/s)	(lb/hr)	(g/s)
Furnaces #1-#4													
Heavy Plate Burning Beds #1	EP0503_1	0.45	0.06	3.99E-05	5.03E-06	0.01	7.04E-04			0.02	2.12E-03	0.02	2.12E-03
Heavy Plate Burning Beds #2	EP0503_2	0.45	0.06	3.99E-05	5.03E-06	0.01	7.04E-04			0.02	2.12E-03	0.02	2.12E-03
Heavy Plate Burning Beds #3	EP0503_3	0.45	0.06	3.99E-05	5.03E-06	0.01	7.04E-04			0.02	2.12E-03	0.02	2.12E-03
Light Plate Burning Beds #1A	EP1701A	0.25	0.03	1.14E-05	1.44E-06	1.60E-03	2.01E-04			0.03	4.08E-03	0.03	4.08E-03
Light Plate Burning Beds #1B	EP1701B	0.25	0.03	1.14E-05	1.44E-06	1.60E-03	2.01E-04			0.03	4.08E-03	0.03	4.08E-03
Light Plate Burning Beds #2C	EP1701C	0.25	0.03	1.14E-05	1.44E-06	1.60E-03	2.01E-04			0.03	4.08E-03	0.03	4.08E-03
Light Plate Burning Beds #2D	EP1701D	0.25	0.03	1.14E-05	1.44E-06	1.60E-03	2.01E-04			0.03	4.08E-03	0.03	4.08E-03

Description	Modeling ID	NO_x		SO_2		CO		Pb		PM_{10}		$PM_{2.5}$	
		(lb/hr)	(g/s)	(lb/hr)	(g/s)	(lb/hr)	(g/s)	(lb/hr)	(g/s)	(lb/hr)	(g/s)	(lb/hr)	(g/s)
EAF Flux & Carbon Handling	EP0601									0.03	3.84E-03	0.00	5.81E-04
Lime Silo 1	EP0602_1									0.04	4.97E-03	0.04	4.97E-03
Lime Silo 2	EP0602_2									0.04	4.97E-03	0.04	4.97E-03
Lime Silo 3	EP0602_3									0.04	4.97E-03	0.04	4.97E-03
Carbon Silo 1	EP0604									0.04	4.97E-03	0.04	4.97E-03
LMF Alloy Handling	EP0605									0.06	0.01	0.01	1.07E-03
Melt Shop ICW Cooling Tower, System 100 [1]	EP0901_1-3									0.17	0.02	5.15E-04	6.49E-05
Melt Shop DCW Cooling Tower, System 200 [1]	EP0902_1-2									0.09	0.01	2.65E-04	3.34E-05
Rolling Mill DCW Cooling Tower, System 400 [1]	EP0904_1-3									0.19	0.02	5.97E-04	7.53E-05

Description	Modeling ID	NO_x		SO_2		CO		Pb		PM_{10}		$PM_{2.5}$	
		(lb/hr)	(g/s)	(lb/hr)	(g/s)	(lb/hr)	(g/s)	(lb/hr)	(g/s)	(lb/hr)	(g/s)	(lb/hr)	(g/s)
Rolling Mill ACC ICW Cooling Tower, System 500 [1]	EP0905_1-2									0.17	0.02	5.32E-04	6.70E-05
HP Quench DCW Cooling Tower, System 600 [1]	EP0906_1-4									0.03	3.47E-03	8.37E-05	1.06E-05
Laminar DCW Cooling Tower, System 700 [1]	EP0907_1-3									0.16	0.02	4.87E-04	6.13E-05
Heat Treat Cooling Tower, System 800 [1]	EP0908_1-8									0.02	2.11E-03	5.02E-05	6.33E-06
Air Separation Plant Cooling Tower [1]	EP0909_1-4									0.03	4.22E-03	1.00E-04	1.27E-05
G100-1 Emergency Generator	EP1001					2.18	0.27			0.01	7.63E-04	0.01	7.63E-04
G100-2 Emergency Generator	EP1002					4.35	0.55			0.02	3.04E-03	0.02	3.04E-03

Description	Modeling ID	NO_x		SO_2		CO		Pb		PM_{10}		$PM_{2.5}$	
		(lb/hr)	(g/s)	(lb/hr)	(g/s)	(lb/hr)	(g/s)	(lb/hr)	(g/s)	(lb/hr)	(g/s)	(lb/hr)	(g/s)
G100-3 Emergency Generator	EP1003					4.35	0.55			0.02	3.04E-03	0.02	3.04E-03
G200-1 Emergency Generator	EP1004					2.18	0.27			0.01	7.63E-04	0.01	7.63E-04
ASU Emergency Generator	EP1101					4.06	0.51			2.83E-03	3.56E-04	2.83E-03	3.56E-04
Admin Building Emergency Generator	EP1102					3.39	0.43			8.04E-04	1.01E-04	8.04E-04	1.01E-04
Slag Plant Oxy Fuel-Fired Torches - Baghouse	EP1204	0.99	0.12	0.01	0.00	0.83	0.10	0.00	0.00	0.08	0.01	0.08	0.01
Water Bath Vaporizer	EP1301	1.42	0.18	0.02	0.00	2.39	0.30	0.00	0.00	0.22	0.03	0.22	0.03
B&P Line Preheater/Dryer Combustion	EP1801	7.40E-05	9.33E-06	4.44E-07	5.60E-08	6.22E-05	7.83E-06	3.70E-10	4.66E-11	5.63E-06	7.09E-07	5.63E-06	7.09E-07
B&P Line Shot Blaster	EP1802									0.31	0.04	0.31	0.04

Description	Modeling ID	NO_x		SO_2		CO		Pb		PM_{10}		$PM_{2.5}$	
		(lb/hr)	(g/s)	(lb/hr)	(g/s)	(lb/hr)	(g/s)	(lb/hr)	(g/s)	(lb/hr)	(g/s)	(lb/hr)	(g/s)
B&P Line Painting Operations/RTO	EP1803	0.58	0.07	1.41E-03	1.78E-04	0.40	0.05	1.18E-06	1.48E-07	0.53	0.07	0.53	0.07
Ingot Grinding (Baghouse)	EP0113							0.01	1.82E-03	2.07	0.26	1.04	0.13
G300-1 Emergency Generator	EP1008					2.18	0.27			0.01	7.63E-04	0.01	7.63E-04
G400-1 Emergency Generator	EP1009					2.18	0.27			0.01	7.63E-04	0.01	7.63E-04
G500-1 Emergency Generator	EP1010					3.02	0.38			0.01	9.74E-04	0.01	9.74E-04

(1) For the cooling towers, each row represents either 2 or 3 cells associated with that tower. The emissions given are for the each cell associated with the tower.

TABLE B-3 NSBB POINT SOURCES – PTE EMISSION RATES – ANNUAL

Description	Modeling ID	NO_x		SO_2		Pb		PM_{10}		$PM_{2.5}$	
		(tpy)	(g/s)	(tpy)	(g/s)	(tpy)	(g/s)	(tpy)	(g/s)	(tpy)	(g/s)
Melt Shop - Baghouse	EU01	363.96	10.47	303.20	8.72			322.53	9.28	210.87	6.07
Melt Shop - Fugitives	EU01F	3.67	0.11	3.06	0.09			2.46	0.07	1.82	0.05
Vacuum Degasser	EP0103	4.38	0.13	4.38	0.13			0.27	0.01	0.27	0.01
Caster Spray Vent	EP0105_1							4.38	0.13	0.55	0.02
Caster Spray Vent	EP0105_2							4.38	0.13	0.55	0.02
Melt Shop Baghouse Dust Silo and Loadout	EP0107							0.34	0.01	0.34	0.01
Caster Quench Box	EP0111							2.35	0.07	0.29	0.01
Walking Beam Reheat Furnace	EP0301	111.03	3.19	0.93	0.03			20.62	0.59	20.62	0.59
Ingot Bogie Hearth Furnaces	EP0302	64.66	1.86	0.32	0.01			4.02	0.12	4.02	0.12
Steckel Mill Finishing Stand	EP0304							7.53	0.22	3.76	0.11
Steckel Mill Coiling Furnaces	EP0305_1	7.84	0.23	0.06	1.66E-03			0.73	0.02	0.73	0.02
Coil Sample Plasma Cutter	EP0306	2.39	0.07					0.02	6.34E-04	0.02	6.34E-04
Shot Blaster	EP0401							3.72	0.11	3.72	0.11
Austenitizing Furnace	EP0402	51.00	1.47	0.19	0.01			2.42	0.07	2.42	0.07
Tempering Furnace	EP0403	29.87	0.86	0.11	3.22E-03			1.42	0.04	1.42	0.04

ERM

Description	Modeling ID	NO_x		SO_2		Pb		PM_{10}		$PM_{2.5}$	
		(tpy)	(g/s)	(tpy)	(g/s)	(tpy)	(g/s)	(tpy)	(g/s)	(tpy)	(g/s)
Heavy Plate Car Bottom Furnaces #1-#4	EP0501	64.48	1.86	0.47	0.01			6.00	0.17	6.00	0.17
Heavy Plate Burning Beds #1	EP0503_1	1.97	0.06	1.75E-04	5.03E-06			0.07	2.12E-03	0.07	2.12E-03
Heavy Plate Burning Beds #2	EP0503_2	1.97	0.06	1.75E-04	5.03E-06			0.07	2.12E-03	0.07	2.12E-03
Heavy Plate Burning Beds #3	EP0503_3	1.97	0.06	1.75E-04	5.03E-06			0.07	2.12E-03	0.07	2.12E-03
Light Plate Burning Beds #1A	EP1701A	1.10	0.03	4.99E-05	1.44E-06			0.14	4.08E-03	0.14	4.08E-03
Light Plate Burning Beds #1B	EP1701B	1.10	0.03	4.99E-05	1.44E-06			0.14	4.08E-03	0.14	4.08E-03
Light Plate Burning Beds #2C	EP1701C	1.10	0.03	4.99E-05	1.44E-06			0.14	4.08E-03	0.14	4.08E-03
Light Plate Burning Beds #2D	EP1701D	1.10	0.03	4.99E-05	1.44E-06			0.14	4.08E-03	0.14	4.08E-03
EAF Flux & Carbon Handling	EP0601							0.01	4.02E-04	0.00	6.08E-05
Lime Silo 1	EP0602_1							0.17	4.97E-03	0.17	4.97E-03
Lime Silo 2	EP0602_2							0.17	4.97E-03	0.17	4.97E-03
Lime Silo 3	EP0602_3							0.17	4.97E-03	0.17	4.97E-03
Carbon Silo 1	EP0604							0.17	4.97E-03	0.17	4.97E-03
LMF Alloy Handling	EP0605							0.01	2.91E-04	1.53E-03	4.40E-05
Melt Shop ICW Cooling Tower, System 100 [1]	EP0901_1-3							0.75	0.02	2.25E-03	6.49E-05
Melt Shop DCW Cooling Tower, System 200 [1]	EP0902_1-2							0.38	0.01	1.16E-03	3.34E-05

Description	Modeling ID	NO_x		SO_2		Pb		PM_{10}		$PM_{2.5}$	
		(tpy)	(g/s)	(tpy)	(g/s)	(tpy)	(g/s)	(tpy)	(g/s)	(tpy)	(g/s)
Rolling Mill DCW Cooling Tower, System 400 [1]	EP0904_1-3							0.83	0.02	2.62E-03	7.53E-05
Rolling Mill ACC ICW Cooling Tower, System 500 [1]	EP0905_1-2							0.74	0.02	2.33E-03	6.70E-05
HP Quench DCW Cooling Tower, System 600 [1]	EP0906_1-4							0.12	3.47E-03	3.67E-04	1.06E-05
Laminar DCW Cooling Tower, System 700 [1]	EP0907_1-3							0.70	0.02	2.13E-03	6.13E-05
Heat Treat Cooling Tower, System 800 [1]	EP0908_1-8							0.07	2.11E-03	2.20E-04	6.33E-06
Air Separation Plant Cooling Tower [1]	EP0909_1-4							0.15	4.22E-03	4.40E-04	1.27E-05
G100-1 Emergency Generator	EP1001	3.38	0.10	4.47E-03	1.29E-04			0.04	1.05E-03	0.04	1.05E-03
G100-2 Emergency Generator	EP1002	6.12	0.18	0.01	2.56E-04			0.14	4.17E-03	0.14	4.17E-03
G100-3 Emergency Generator	EP1003	6.12	0.18	0.01	2.56E-04			0.14	4.17E-03	0.14	4.17E-03
G200-1 Emergency Generator	EP1004	3.38	0.10	4.47E-03	1.29E-04			0.04	1.05E-03	0.04	1.05E-03
ASU Emergency Generator	EP1101	0.51	0.01	5.14E-04	1.48E-05			0.02	4.88E-04	0.02	4.88E-04
Admin Building Emergency Generator	EP1102	0.29	0.01	1.46E-04	4.21E-06			4.83E-03	1.39E-04	4.83E-03	1.39E-04
Slag Plant Oxy Fuel-Fired Torches - Baghouse	EP1204	4.33	0.12	0.03	7.48E-04			0.33	0.01	0.33	0.01

Description	Modeling ID	NOx		SO_2		Pb		PM_{10}		$PM_{2.5}$	
		(tpy)	(g/s)	(tpy)	(g/s)	(tpy)	(g/s)	(tpy)	(g/s)	(tpy)	(g/s)
Water Bath Vaporizer	EP1301	6.23	0.18	0.07	2.15E-03			0.95	0.03	0.95	0.03
B&P Line Preheater/Dryer Combustion	EP1801	3.24E-04	9.33E-06	1.95E-06	5.60E-08			2.46E-05	7.09E-07	2.46E-05	7.09E-07
B&P Line Shot Blaster	EP1802							1.35	0.04	1.35	0.04
B&P Line Painting Operations/RTO	EP1803	2.56	0.07	0.01	1.78E-04			2.30	0.07	2.30	0.07
Ingot Grinding (Baghouse)	EP0113							9.07	0.26	4.54	0.13
G300-1 Emergency Generator	EP1008	3.38	0.10	4.47E-03	1.29E-04			0.04	1.05E-03	0.04	1.05E-03
G400-1 Emergency Generator	EP1009	3.38	0.10	4.47E-03	1.29E-04			0.04	1.05E-03	0.04	1.05E-03
G500-1 Emergency Generator	EP1010	3.26	0.09	4.28E-03	1.23E-04			0.05	1.34E-03	0.05	1.34E-03

(1) For the cooling towers, each row represents either 2 or 3 cells associated with that tower. The emissions given are for each cell associated with the tower.

TABLE B-4 NSBB VOLUME SOURCES – SOURCE PARAMETERS

Description	Model Source	Base Elev.	Release Height		Sigma-y	Sigma-z
		(ft.)	(ft.)	(m)	(m)	(m)
Plate Storage Labyrinth Vent #1	PSVENT1	462.0	71.10	21.67	1.42	9.01
Plate Storage Labyrinth Vent #2	PSVENT2	462.0	71.10	21.67	1.42	9.01
Heavy Plate Roof Vent	HPVENT	462.0	97.60	29.75	0.71	12.77
EAF Flux & Carbon Dump Fugitive Emissions	EP0601F	462.0	14.99	4.57	1.06	2.13
LMF Flux & Carbon Dump Fugitive Emissions	EP0603F	462.0	14.99	4.57	1.06	2.13
LMF Alloy Dump Fugitive Emissions	EP0605F	462.0	14.99	4.57	1.06	2.13
Barge Scrap Unloading	EP0801	412.7	32.81	10.00	3.49	6.98
Slag Feed	EP1201_2	459.0	16.40	5.00	1.42	2.84
Slag Magnet	EP1201_3	459.0	9.84	3.00	1.42	2.13
Slag Screener	EP1201_4	459.0	9.84	3.00	1.42	2.13
Slag Crushing	EP1201_5	459.0	9.84	3.00	1.42	2.13
Pot Slagging	EP1203	459.0	16.40	5.00	1.42	2.84
Scrap Cutting	EP1204_F	462.0	9.84	3.00	0.71	2.13

TABLE B-5 NSBB VOLUME SOURCES – PTE EMISSION RATES – SHORT TERM AND ANNUAL

Description	Model Source	PM_{10}				$PM_{2.5}$			
		tpy	lb/hr	g/s (short term)	g/s (annual)	tpy	lb/hr	g/s (short term)	g/s (annual)
Plate Storage Labyrinth Vent #1	PSVENT1	0.91	0.21	0.03	2.61E-02	0.91	0.21	0.03	2.61E-02
Plate Storage Labyrinth Vent #2	PSVENT2	0.91	0.21	0.03	2.61E-02	0.91	0.21	0.03	2.61E-02
Heavy Plate Roof Vent	HPVENT	0.00	2.71E-05	3.42E-06	5.23E-07	0.00	2.71E-05	3.42E-06	5.23E-07
EAF Flux & Carbon Dump Fugitive Emissions	EP0601F	0.45	0.10	0.01	1.34E-03	0.07	0.02	1.94E-03	2.04E-04
LMF Flux & Carbon Dump Fugitive Emissions	EP0603F	0.45	0.10	0.01	3.42E-04	0.07	0.02	1.94E-03	5.18E-05
LMF Alloy Dump Fugitive Emissions	EP0605F	0.45	0.10	0.01	7.57E-04	0.07	0.02	1.94E-03	1.15E-04
Barge Scrap Unloading	EP0801	0.39	0.09	0.01	2.08E-03	0.11	0.03	3.25E-03	5.95E-04
Slag Feed	EP1201_2	0.36	0.08	0.01	7.79E-04	0.10	0.02	2.94E-03	2.20E-04
Slag Magnet	EP1201_3	0.10	0.02	2.85E-03	2.13E-04	0.03	0.01	8.04E-04	6.03E-05
Slag Screener	EP1201_4	1.73	0.39	0.05	3.73E-03	0.18	0.04	0.01	3.88E-04
Slag Crushing	EP1201_5	0.33	0.08	0.01	7.11E-04	0.07	0.02	1.99E-03	1.49E-04
Pot Slagging	EP1203	0.01	3.12E-03	3.93E-04	3.93E-04	0.00	8.81E-04	1.11E-04	1.11E-04
Scrap Cutting	EP1204_F	0.12	0.03	3.38E-03	3.38E-03	0.12	0.03	3.38E-03	3.38E-03

TABLE B-6 NSBB AREA AND AREA POLYGON SOURCES – SOURCE PARAMETERS

Model Parameters						
Description	Source Type	Model Source	Base Elev.	Release Height		Area
			(ft.)	(ft.)	(m)	(m^2)
Slag Dump/Ball Drop/Tundish Dump	AREA	EP1201_1	459.0	8.00	2.44	809
1.25 Minus Slag Storage Pile	AREA	EP1202_1	459.0	30.00	9.14	809
2.75 Minus Slag Storage Pile	AREA	EP1202_2	459.0	30.00	9.14	607
Overflow Storage Pile	AREA	EP1202_3	459.0	10.00	3.05	2,428
In-Process Slag Storage Pile	AREA	EP1202_4	459.0	10.00	3.05	445
Scrap Pile North	AREAPOLY	EP0803N	458.0	16.40	5.00	29,542
Scrap Pile South	AREAPOLY	EP0803S	459.0	16.40	5.00	26,709

TABLE B-7 NSBB AREA AND AREA POLYGON SOURCES – PTE EMISSION RATES

Description	Model Source	PM_{10}		$PM_{2.5}$		PM_{10} (Annual)		$PM_{2.5}$ (Annual)	
		lb/hr	g/s/m²	lb/hr	g/s/m²	tpy	g/s/m²	tpy	g/s/m²
Slag Dump/Ball Drop/Tundish Dump	EP1201_1	0.197	3.06E-05	0.075	1.17E-05	0.646	2.30E-05	0.247	8.79E-06
1.25 Minus Slag Storage Pile	EP1202_1	0.025	3.85E-06	0.004	5.77E-07	0.089	3.17E-06	0.013	4.76E-07
2.75 Minus Slag Storage Pile	EP1202_2	0.014	2.97E-06	0.002	4.46E-7	0.052	2.46E-06	0.008	3.70E-07
Overflow Storage Pile	EP1202_3	0.010	5.34E-07	0.002	8.04E-08	0.039	4.65E-07	0.006	6.99E-08
In-Process Slag Storage Pile	EP1202_4	0.011	3.08E-06	0.002	4.62E-07	0.040	2.59E-06	0.006	3.89E-07
Scrap Pile North	EP0803N	0.288	1.23E-06	0.046	1.95E-07	0.427	4.15E-07	0.068	6.58E-08
Scrap Pile South	EP0803S	0.288	1.36E-06	0.046	2.16E-07	0.427	4.60E-07	0.068	7.27E-08

TABLE B-8 NSBB BUOYANT LINE SOURCES – PTE EMISSION RATES – SHORT TERM

Description	Model Source	NOx		SO_2		CO		PM_{10}		$PM_{2.5}$	
		lb/hr	g/s	lb/hr	g/s	lb/hr	g/s	lb/hr	g/s	lb/hr	g/s
Rolling Mill Monovent	RMMV	3.122	0.393	0.026	0.003	3.611	0.455	3.140	0.396	1.555	0.196

TABLE B-9 NSBB BUOYANT LINE SOURCES – PTE EMISSION RATES – ANNUAL

Description	Model Source	NOx		SO_2		PM_{10}		$PM_{2.5}$	
		tpy	g/s	tpy	g/s	tpy	g/s	tpy	g/s
Rolling Mill Monovent	RMMV	13.675	0.393	0.113	0.003	13.699	0.394	6.757	0.194

Monovent RMMV combines the emissions from the following units: EP01-06, EP01-12, EP03-03, EP03-04Fug, EP03-07, EP03-08, EP03-09, and EP1501.

BLP Source Parameters:

Length (m): 344.96

Building Height (m): 30.27

Building Width (m): 42.67

Line Width (m): 3.66

Buoyancy (FPRIME) (m^4/s^3): 813.37

TABLE B-10 NSBB ROAD SOURCE PARAMETERS AND EMISSIONS

Model Parameters						Sources
Road Segment	Number of Volumes	Release Height		Sigma -y	Sigma - z	Volumes Included in Segment
		(ft.)	(m)	(m)	(m)	
RD1	7	8.37	2.55	5.58	2.37	RD1_1 to RD1_7
RD2	58	8.37	2.55	5.58	2.37	RD2_1 to RD2_58
RD3	60	8.37	2.55	5.58	2.37	RD3_1 to RD3_60
RD4	14	8.37	2.55	5.58	2.37	RD4_1 to RD4_14
RD5	27	10.96	3.34	5.58	2.37	RD5_1 to RD5_27
RD6	8	9.91	3.02	5.58	2.37	RD6_1 to RD6_8
RD7	31	10.70	3.26	5.58	2.37	RD7_1 to RD7_31
RD8	26	8.37	2.55	5.58	2.37	RD8_1 to RD8_26
RD9	33	10.70	3.26	5.58	2.37	RD9_1 to RD9_33
RD10	37	11.22	3.42	5.58	2.37	RD10_1 to RD10_37
RD11	104	11.32	3.45	5.58	2.37	RD11_1 to RD11_104
RD11b	16	11.09	3.38	5.58	2.37	RD11b_1 to RD11b_16
RD12	24	11.22	3.42	5.58	2.37	RD12_1 to RD12_24
RD13	16	11.22	3.42	5.58	2.37	RD13_1 to RD13_16
RD14	56	11.22	3.42	5.58	2.37	RD14_1 to RD14_56
RD15	19	10.89	3.32	5.58	2.37	RD15_1 to RD15_19
RD16	15	11.81	3.60	5.58	2.37	RD16_1 to RD16_15
RD17	21	11.81	3.60	5.58	2.37	RD17_1 to RD17_21

Model Parameters						Sources
RD18	6	12.24	3.73	5.58	2.37	RD18_1 to RD18_6
RD19	54	12.17	3.71	5.58	2.37	RD19_1 to RD19_54
RD20	34	11.61	3.54	5.58	2.37	RD20_1 to RD20_34
RD21	47	8.37	2.55	5.58	2.37	RD21_1 to RD21_47
RD22	14	11.22	3.42	5.58	2.37	RD22_1 to RD22_14
RD23	191	11.48	3.50	5.58	2.37	RD23_1 to RD23_191

TABLE B-11 NSBB ROAD SOURCES – PTE EMISSION RATES

Road Segment	Number of Volumes	PM_{10}		$PM_{2.5}$		Source Range
		g/s/volume (24hr)	g/s/volume (Annual)	g/s/volume (24hr)	g/s/volume (Annual)	
RD1	7	4.570E-04	4.200E-04	1.120E-04	1.030E-04	RD1_1 to RD1_7
RD2	58	1.510E-04	1.390E-04	3.700E-05	3.400E-05	RD2_1 to RD2_58
RD3	60	3.770E-05	3.460E-05	9.250E-06	8.490E-06	RD3_1 to RD3_60
RD4	14	1.300E-04	1.190E-04	3.190E-05	2.930E-05	RD4_1 to RD4_14
RD5	27	1.610E-04	1.480E-04	3.960E-05	3.640E-05	RD5_1 to RD5_27
RD6	8	1.420E-04	1.300E-04	3.470E-05	3.190E-05	RD6_1 to RD6_8
RD7	31	2.740E-05	2.520E-05	6.730E-06	6.180E-06	RD7_1 to RD7_31
RD8	26	7.630E-05	7.000E-05	1.870E-05	1.720E-05	RD8_1 to RD8_26
RD9	33	2.688E+00	2.467E-05	2.805E-05	2.575E-05	RD9_1 to RD9_33
RD10	37	1.020E-04	9.350E-05	2.500E-05	2.300E-05	RD10_1 to RD10_37
RD11	104	2.040E-04	1.870E-04	5.000E-05	4.590E-05	RD11_1 to RD11_104
RD11b	16	9.210E-05	8.450E-05	2.260E-05	2.080E-05	RD11b_1 to RD11b_16
RD12	24	1.310E-04	1.200E-04	3.200E-05	2.940E-05	RD12_1 to RD12_24
RD13	16	1.190E-03	1.090E-03	1.190E-04	1.090E-04	RD13_1 to RD13_16
RD14	56	1.790E-03	1.640E-03	1.790E-04	1.640E-04	RD14_1 to RD14_56
RD15	19	1.090E-03	9.960E-04	1.090E-04	9.960E-05	RD15_1 to RD15_19
RD16	15	4.060E-04	3.730E-04	9.980E-05	9.160E-05	RD16_1 to RD16_15
RD17	21	2.060E-03	1.890E-03	2.060E-04	1.890E-04	RD17_1 to RD17_21
RD18	6	4.490E-03	4.120E-03	4.490E-04	4.120E-04	RD18_1 to RD18_6

Road Segment	Number of Volumes	PM_{10}		$PM_{2.5}$		Source Range
		g/s/volume (24hr)	g/s/volume (Annual)	g/s/volume (24hr)	g/s/volume (Annual)	
RD19	54	1.140E-03	1.050E-03	1.140E-04	1.050E-04	RD19_1 to RD19_54
RD20	34	5.742E+00	5.270E-04	1.409E-04	1.294E-04	RD20_1 to RD20_34
RD21	47	2.945E+00	1.726E-05	7.230E-06	6.634E-06	RD21_1 to RD21_47
RD22	14	1.258E+00	1.155E-03	1.258E-04	1.155E-04	RD22_1 to RD22_14
RD23	191	1.880E-05	1.726E-05	4.620E-06	4.240E-06	RD23_1 to RD23_191

ERM

APPENDIX C CUMULATIVE MODELING INVENTORIES

APPENDIX D CLASS I CALPUFF MODELING ANALYSIS

ERM HAS OVER 160 OFFICES ACROSS THE FOLLOWING COUNTRIES AND TERRITORIES WORLDWIDE

Argentina

Australia

Belgium

Brazil

Canada

China

Colombia

France

Germany

Ghana

Guyana

Hong Kong

India

Indonesia

Ireland

Italy

Japan

Kazakhstan

Kenya

Malaysia

Mexico

Mozambique

The Netherlands

New Zealand

Peru

Poland

Portugal

Puerto Rico

Romania

Senegal

Singapore

South Africa

South Korea

Spain

Switzerland

Taiwan

Tanzania

Thailand

UAE

UK

US

Vietnam

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Table C-1
Kentucky Offsite Inventory
NO_X Facilities

SIA (km)	5.3	55.2

Facility ID	Facility Name	County	Prefix	UTM16e	UTM16n	NO_X Estimated Emissions (TPY) 2020	Distance (km)	Q/D	Annual List	1hr List
2102700004	Mago Construction Co LLC - Hardinsburg Asphalt Plant	Breckinridge	MCH	542494.94	4180282.87	2.67	42.40	0.06	Excluded	Included
2102900005	Jim Beam Brands Co - Clermont Plant	Bullitt	JBC	618473.06	4198751.09	28.50	43.52	0.65	Excluded	Included
2102900002	Arcosa LW KY LLC	Bullitt	ARC	612864.02	4210602.20	507.78	37.37	13.59	Excluded	Included
2102900010	Mago Construction Co LLC - Shepherdsville Asphalt Facility	Bullitt	MCS	615679.74	4209778.42	1.24	40.10	0.03	Excluded	Included
2102900038	Speyside Cooperage Kentucky Inc	Bullitt	SPC	613050.01	4206608.25	0.28	37.36	0.01	Excluded	Included
2102900019	Distinct Packabilities	Bullitt	DPA	612836.35	4205546.11	1.44	37.17	0.04	Excluded	Included
2102900032	LSC Communications Lebanon Junction	Bullitt	LSC	614172.03	4186698.25	4.78	43.43	0.11	Excluded	Included
2109300022	US Army Garrison - Fort Knox	Hardin	AFK	606232.21	4201442.69	37.07	31.02	1.19	Excluded	Included
2109300054	Akebono Brake Corp	Hardin	ABC	595448.92	4171263.18	11.85	40.73	0.29	Excluded	Included
2109300090	AGC Automotive Americas	Hardin	AGC	594910.56	4169801.44	4.81	41.77	0.12	Excluded	Included
2109300046	Flint Group Pigments	Hardin	FLT	595908.60	4171761.74	7.33	40.52	0.18	Excluded	Included
2109300005	Dow Silicones Corporation - Elizabethtown Plant	Hardin	DSE	602835.69	4169625.68	4.78	46.10	0.10	Excluded	Included
2109300021	The Gates Corp	Hardin	GAT	598421.78	4171212.94	1.29	42.30	0.03	Excluded	Included
2109300085	Hardin Co Contained Landfill	Hardin	HCL	612012.26	4174677.02	0.62	48.53	0.01	Excluded	Included
2109300032	Baptist Health Hardin	Hardin	HMH	598989.21	4174294.85	4.45	40.05	0.11	Excluded	Included
2109300068	Modern Plating Coatings & Finishes	Hardin	MPC	595574.97	4170956.37	0.30	41.06	0.01	Excluded	Included
2116300001	Monument Chemical Kentucky LLC	Meade	MCK	577136.95	4206548.99	54.00	1.54	35.06	Included	Included
2102700006	Mago Construction Co LLC	Breckinridge	MCB	561082.66	4194300.19	0.49	19.15	0.03	Excluded	Included
2109300063	Metalsa Structural Products Inc	Hardin	MSP	595140.10	4170427.37	18.27	41.32	0.44	Excluded	Included
2109300080	Modern Welding Company of Kentucky Inc - Elizabethtown	Hardin	MWE	602018.82	4170786.72	0.01	44.67	0.00	Excluded	Included
2109300026	Scottys Contracting & Stone LLC - Fort Knox Plant 4	Hardin	SCF	598865.60	4182554.32	2.06	33.59	0.06	Excluded	Included
2116300017	Louisville Gas & Electric - Muldraugh Transmission Station	Meade	LGM	588240.00	4199586.79	16.50	14.52	1.14	Excluded	Included
2109300043	Mouser Cabinetry LLC	Hardin	MCC	597542.51	4177838.58	0.55	36.34	0.02	Excluded	Included
2109300086	Richard & Emma Cook Residence	Hardin	REC	572296.12	4174572.73	0.83	32.45	0.03	Excluded	Included
2102909043	Louisville Paving Company Inc - Bullitt County Portable Asphalt Plant	Bullitt	LPB	612543.44	4203784.82	0.56	36.98	0.02	Excluded	Included
2102700022	Texas Gas Transmission LLC - Hardinsburg Transmission Station	Breckinridge	TGT	545248.96	4182208.36	403.62	39.05	10.34	Excluded	Included
2102700028	Endeavor Energy Resources LP	Breckinridge	EER	545152.32	4181992.14	21.29	39.26	0.54	Excluded	Included
2102700039	Crist Propane Services LLC	Breckinridge	CPS	561402.48	4190959.64	0.00	21.27	0.00	Excluded	Included
2102900043	Gordons Food Service	Bullitt	GFS	615151.83	4203907.48	0.20	39.56	0.01	Excluded	Included
2102900044	Astra Zeneca Pharmaceuticals LP	Bullitt	AZP	616498.72	4202601.44	6.90	41.02	0.17	Excluded	Included
2102900045	Marrillia Environmental LLC	Bullitt	MEL	627183.88	4214515.00	0.79	52.04	0.02	Excluded	Included
2109300094	East KY Power Coop - Hardin Co Landfill Gas to Electric Plant	Hardin	EPC	612286.00	4176160.36	1.55	47.76	0.03	Excluded	Included
2102900046	Sabert Corp	Bullitt	SAB	613631.67	4211506.92	0.41	38.23	0.01	Excluded	Included
2102909186	Flynn Brothers Contracting - Portable	Bullitt	FBC	613292.07	4214893.23	0.24	38.47	0.01	Excluded	Included
2109300097	Ky Dept of Military Affairs - KY MATES	Hardin	DMA	592402.27	4198199.76	0.02	18.84	0.00	Excluded	Included
2102909201	Mago Construction Co LLC - HMA Portable RAP Plant 1	Bullitt	MCT	615780.31	4209564.09	0.06	40.18	0.00	Excluded	Included
2102900048	On Site Electrostatic Painting Co	Bullitt	OEP	615044.96	4215090.15	0.01	40.22	0.00	Excluded	Included
2109309230	Scottys Contracting & Stone LLC - Portable Asphalt Plant	Hardin	SCL	590126.70	4187545.26	4.02	24.11	0.17	Excluded	Included
2109309249	Mink Bros Quarry LLC - Portable Processing Plant	Hardin	MBQ	586610.62	4161425.83	1.51	46.76	0.03	Excluded	Included
2102700031	KY RSA #3 Cellular GP - Stephensport (COW3)	Breckinridge	RSA05	541124.40	4195038.72	0.01	36.37	0.00	Excluded	Included
2102700032	KY RSA #3 Cellular GP - Kingswood Cell Tower Engine	Breckinridge	RSA03	551279.24	4172227.10	0.01	42.29	0.00	Excluded	Included
2102700033	KY RSA #3 Cellular GP - Garfield Cell Tower Engine	Breckinridge	RSA02	558912.15	4183620.15	0.00	28.57	0.00	Excluded	Included
2102700034	KY RSA #3 Cellular GP - McQuady Cell Tower Engine	Breckinridge	RSA04	541744.65	4173837.67	0.01	47.25	0.00	Excluded	Included
2109300102	KY RSA #4 Cellular GP - Elizabethtown West Cell Tower Engine	Hardin	RSA06	591793.05	4173995.87	0.01	36.61	0.00	Excluded	Included
2109300105	KY RSA #4 Cellular GP - Howe Valley	Hardin	RSA10	583426.63	4170732.37	0.01	36.96	0.00	Excluded	Included
2109300106	KY RSA #4 Cellular GP - Stephensburg	Hardin	RSA13	583239.97	4162500.89	0.00	45.03	0.00	Excluded	Included
2109300107	KY RSA #4 Cellular GP - Ft Knox	Hardin	RSA07	592994.23	4193366.98	0.00	21.95	0.00	Excluded	Included
2109300108	KY RSA #4 Cellular GP - Vertrees	Hardin	RSA14	570004.69	4173381.71	0.00	33.94	0.00	Excluded	Included
2109300109	KY RSA #4 Cellular GP - Ft Knox II	Hardin	RSA08	589861.69	4193856.06	0.01	19.24	0.00	Excluded	Included
2112300020	KY RSA #4 Cellular GP - Sonora	Hardin	RSA12	599463.11	4153155.25	0.01	58.78	0.00	Excluded	Excluded
2102900050	Louisville Seating Division of Magna	Bullitt	SDM	616227.99	4202825.32	0.91	40.72	0.02	Excluded	Included
2109300110	KY RSA #4 Cellular GP - Ft Knox III	Hardin	RSA09	594665.41	4195050.63	0.01	22.36	0.00	Excluded	Included
2109300112	KY RSA #4 Cellular GP - Longview	Hardin	RSA11	595851.92	4184002.00	0.00	30.48	0.00	Excluded	Included
2116300026	KY RSA #3 Cellular GP - Ft Knox Cell Tower Engine	Meade	RSA01	588740.64	4196182.16	0.00	16.87	0.00	Excluded	Included
2109300120	Flex Films USA	Hardin	FLX	594843.93	4170373.70	14.14	41.23	0.34	Excluded	Included
2102909326	Hall Contracting of Kentucky Inc - Portable Asphalt Plant	Bullitt	HCK	612969.83	4215051.57	2.92	38.19	0.08	Excluded	Included
2109300131	Quest Industries LLC	Hardin	QUI	598065.51	4171560.69	0.29	41.81	0.01	Excluded	Included

Table C-2
Kentucky Offsite Inventory
NO_X Sources

Facility ID	Facility Name	NO_X Estimated Emissions (TPY) 2020	Prefix	SRCID	UTMe16	UTMn16	Elev (m)	TYPE	Q (g/s)	Hs (m)	Ts (K)	Vs (m/s)	Ds (m)
2102700004	Mago Construction Co LLC - Hardinsburg Asphalt Plant	2.669E+00	MCH	MCH01	542494.94	4180282.87	156.11	POINT	7.678E-02	9.14	408.15	7.76	1.37
2102900005	Jim Beam Brands Co - Clermont Plant	1.551E+01	JBC	JBC01	618473.06	4198751.09	146.85	POINT	4.462E-01	17.98	533.15	25.91	3.51
2102900005	Jim Beam Brands Co - Clermont Plant	1.299E+01	JBC	JBC02	618473.06	4198751.09	146.85	POINT	3.738E-01	7.01	449.82	32.00	2.01
2102900002	Arcosa LW KY LLC	2.508E+02	ARC	ARC01	612864.02	4210602.20	160.79	POINT	7.215E+00	32.00	338.71	5.52	3.35
2102900002	Arcosa LW KY LLC	2.558E+02	ARC	ARC02	612864.02	4210602.20	160.79	POINT	7.360E+00	32.00	338.71	5.52	3.35
2102900002	Arcosa LW KY LLC	1.171E+00	ARC	ARC03	612864.02	4210602.20	160.79	POINT	3.369E-02	32.00	338.71	5.52	3.35
2102900010	Mago Construction Co LLC - Shepherdsville Asphalt Facility	1.033E+00	MCS	MCS01	615679.74	4209778.42	143.06	POINT	2.972E-02	11.73	422.04	14.42	1.65
2102900010	Mago Construction Co LLC - Shepherdsville Asphalt Facility	2.100E-01	MCS	MCS02	615679.74	4209778.42	143.06	POINT	6.042E-03	10.00	298.15	10.00	0.10
2102900038	Speyside Cooperage Kentucky Inc	2.760E-01	SPC	SPC01	613050.01	4206608.25	135.98	POINT	7.941E-03	5.79	293.15	0.70	0.23
2102900019	Distinct Packabilities	1.030E-01	DPA	DPA01	612836.35	4205546.11	134.11	POINT	2.963E-03	6.40	329.26	15.97	0.03
2102900019	Distinct Packabilities	1.095E-01	DPA	DPA02	612836.35	4205546.11	134.11	POINT	3.150E-03	7.62	408.15	15.97	0.03
2102900019	Distinct Packabilities	1.650E-03	DPA	DPA03	612836.35	4205546.11	134.11	POINT	4.747E-05	10.00	323.15	10.00	0.10
2102900019	Distinct Packabilities	1.095E+00	DPA	DPA04	612836.35	4205546.11	134.11	POINT	3.150E-02	9.14	477.59	6.31	1.19
2102900019	Distinct Packabilities	1.260E-01	DPA	DPA05	612836.35	4205546.11	134.11	POINT	3.625E-03	10.00	418.15	10.00	0.10
2102900032	LSC Communications Lebanon Junction	1.560E+00	LSC	LSC01	614172.03	4186698.25	136.03	POINT	4.488E-02	10.00	295.37	10.00	0.10
2102900032	LSC Communications Lebanon Junction	2.500E-01	LSC	LSC02	614172.03	4186698.25	136.03	POINT	7.193E-03	9.14	491.48	2.18	3.84
2102900032	LSC Communications Lebanon Junction	2.100E-01	LSC	LSC03	614172.03	4186698.25	136.03	POINT	6.042E-03	9.14	491.48	2.18	3.84
2102900032	LSC Communications Lebanon Junction	2.100E-01	LSC	LSC04	614172.03	4186698.25	136.03	POINT	6.042E-03	9.14	491.48	2.18	3.84
2102900032	LSC Communications Lebanon Junction	3.350E-01	LSC	LSC05	614172.03	4186698.25	136.03	POINT	9.638E-03	9.14	491.48	2.18	3.84
2102900032	LSC Communications Lebanon Junction	3.400E-01	LSC	LSC06	614172.03	4186698.25	136.03	POINT	9.782E-03	9.14	491.48	2.18	3.84
2102900032	LSC Communications Lebanon Junction	7.500E-02	LSC	LSC07	614172.03	4186698.25	136.03	POINT	2.158E-03	9.14	491.48	1.45	3.78
2102900032	LSC Communications Lebanon Junction	2.100E-01	LSC	LSC08	614172.03	4186698.25	136.03	POINT	6.042E-03	9.14	491.48	1.45	3.78
2102900032	LSC Communications Lebanon Junction	2.100E-01	LSC	LSC09	614172.03	4186698.25	136.03	POINT	6.042E-03	9.14	491.48	1.45	3.78
2102900032	LSC Communications Lebanon Junction	9.500E-02	LSC	LSC10	614172.03	4186698.25	136.03	POINT	2.733E-03	9.14	491.48	1.45	3.78
2102900032	LSC Communications Lebanon Junction	1.600E-01	LSC	LSC11	614172.03	4186698.25	136.03	POINT	4.603E-03	9.14	491.48	1.45	3.78
2102900032	LSC Communications Lebanon Junction	2.125E-01	LSC	LSC12	614172.03	4186698.25	136.03	POINT	6.114E-03	9.14	491.48	1.45	3.78
2102900032	LSC Communications Lebanon Junction	2.530E-01	LSC	LSC13	614172.03	4186698.25	136.03	POINT	7.279E-03	9.14	491.48	2.18	3.84
2102900032	LSC Communications Lebanon Junction	1.600E-01	LSC	LSC14	614172.03	4186698.25	136.03	POINT	4.603E-03	9.14	491.48	2.18	3.84
2102900032	LSC Communications Lebanon Junction	1.600E-01	LSC	LSC15	614172.03	4186698.25	136.03	POINT	4.603E-03	9.14	491.48	2.18	3.84
2102900032	LSC Communications Lebanon Junction	1.063E-02	LSC	LSC16	614172.03	4186698.25	136.03	POINT	3.059E-04	2.44	810.93	24.77	0.10
2102900032	LSC Communications Lebanon Junction	5.151E-02	LSC	LSC17	614172.03	4186698.25	136.03	POINT	1.482E-03	3.05	810.93	34.41	0.15
2102900032	LSC Communications Lebanon Junction	2.302E-02	LSC	LSC18	614172.03	4186698.25	136.03	POINT	6.622E-04	3.05	810.93	22.09	0.18
2102900032	LSC Communications Lebanon Junction	4.773E-02	LSC	LSC19	614172.03	4186698.25	136.03	POINT	1.373E-03	2.13	810.93	30.32	0.08
2102900032	LSC Communications Lebanon Junction	2.100E-01	LSC	LSC20	614172.03	4186698.25	136.03	POINT	6.042E-03	9.14	491.48	2.18	3.84
2109300022	US Army Garrison - Fort Knox	2.580E+00	AFK	AFK01	606232.21	4201442.69	134.72	POINT	7.423E-02	13.11	569.26	0.52	5.00
2109300022	US Army Garrison - Fort Knox	1.677E-01	AFK	AFK02	606232.21	4201442.69	134.72	POINT	4.824E-03	4.88	785.93	97.79	0.30
2109300022	US Army Garrison - Fort Knox	1.697E-01	AFK	AFK03	606232.21	4201442.69	134.72	POINT	4.881E-03	4.88	785.93	97.79	0.30
2109300022	US Army Garrison - Fort Knox	4.662E-01	AFK	AFK04	606232.21	4201442.69	134.72	POINT	1.341E-02	38.10	745.65	47.26	0.30
2109300022	US Army Garrison - Fort Knox	2.230E-01	AFK	AFK05	606232.21	4201442.69	134.72	POINT	6.416E-03	38.10	745.65	47.26	0.30
2109300022	US Army Garrison - Fort Knox	1.609E-01	AFK	AFK06	606232.21	4201442.69	134.72	POINT	4.629E-03	38.10	745.65	47.26	0.30
2109300022	US Army Garrison - Fort Knox	4.627E-01	AFK	AFK07	606232.21	4201442.69	134.72	POINT	1.331E-02	38.10	745.65	47.26	0.30
2109300022	US Army Garrison - Fort Knox	4.489E-01	AFK	AFK08	606232.21	4201442.69	134.72	POINT	1.292E-02	38.10	745.65	47.26	0.30
2109300022	US Army Garrison - Fort Knox	1.260E+00	AFK	AFK09	606232.21	4201442.69	134.72	POINT	3.626E-02	4.57	668.93	47.72	0.30
2109300022	US Army Garrison - Fort Knox	1.126E+00	AFK	AFK10	606232.21	4201442.69	134.72	POINT	3.240E-02	4.57	668.93	47.72	0.30
2109300022	US Army Garrison - Fort Knox	1.934E+00	AFK	AFK11	606232.21	4201442.69	134.72	POINT	5.564E-02	7.92	533.15	9.03	0.46
2109300022	US Army Garrison - Fort Knox	3.259E-01	AFK	AFK12	606232.21	4201442.69	134.72	POINT	9.378E-03	2.91	769.82	32.92	0.10
2109300022	US Army Garrison - Fort Knox	1.272E-01	AFK	AFK13	606232.21	4201442.69	134.72	POINT	3.661E-03	2.74	477.59	1.79	0.29
2109300022	US Army Garrison - Fort Knox	9.679E-02	AFK	AFK14	606232.21	4201442.69	134.72	POINT	2.785E-03	2.74	477.59	1.79	0.29
2109300022	US Army Garrison - Fort Knox	5.725E-01	AFK	AFK15	606232.21	4201442.69	134.72	POINT	1.647E-02	3.26	677.59	1.65	0.29
2109300022	US Army Garrison - Fort Knox	6.888E-02	AFK	AFK16	606232.21	4201442.69	134.72	POINT	1.982E-03	2.90	902.59	36.51	0.12
2109300022	US Army Garrison - Fort Knox	4.199E-02	AFK	AFK17	606232.21	4201442.69	134.72	POINT	1.208E-03	2.74	844.26	2.15	0.27
2109300022	US Army Garrison - Fort Knox	5.202E-02	AFK	AFK18	606232.21	4201442.69	134.72	POINT	1.497E-03	2.64	477.59	11.00	0.13
2109300022	US Army Garrison - Fort Knox	1.577E-01	AFK	AFK19	606232.21	4201442.69	134.72	POINT	4.537E-03	1.52	588.71	3.58	0.29

2109300022	US Army Garrison - Fort Knox	2.665E-01	AFK	AFK20	606232.21	4201442.69	134.72	POINT	7.669E-03	2.80	858.15	48.09	0.09
2109300022	US Army Garrison - Fort Knox	3.939E-01	AFK	AFK21	606232.21	4201442.69	134.72	POINT	1.133E-02	1.52	713.71	167.64	0.10
2109300022	US Army Garrison - Fort Knox	9.769E+00	AFK	AFK22	606232.21	4201442.69	134.72	POINT	2.811E-01	1.52	415.93	88.09	0.20
2109300022	US Army Garrison - Fort Knox	3.152E-01	AFK	AFK23	606232.21	4201442.69	134.72	POINT	9.069E-03	1.83	341.48	12.42	0.23
2109300022	US Army Garrison - Fort Knox	6.912E+00	AFK	AFK24	606232.21	4201442.69	134.72	POINT	1.988E-01	10.00	298.15	10.00	0.10
2109300022	US Army Garrison - Fort Knox	3.128E-01	AFK	AFK25	606232.21	4201442.69	134.72	POINT	8.998E-03	1.83	341.48	12.42	0.23
2109300022	US Army Garrison - Fort Knox	1.559E-01	AFK	AFK26	606232.21	4201442.69	134.72	POINT	4.484E-03	10.00	298.15	10.00	0.10
2109300022	US Army Garrison - Fort Knox	7.075E-02	AFK	AFK27	606232.21	4201442.69	134.72	POINT	2.035E-03	10.00	298.15	10.00	0.10
2109300022	US Army Garrison - Fort Knox	1.070E-01	AFK	AFK28	606232.21	4201442.69	134.72	POINT	3.078E-03	10.00	298.15	10.00	0.10
2109300022	US Army Garrison - Fort Knox	8.214E+00	AFK	AFK29	606232.21	4201442.69	134.72	POINT	2.363E-01	10.00	298.15	10.00	0.10
2109300022	US Army Garrison - Fort Knox	5.566E-02	AFK	AFK30	606232.21	4201442.69	134.72	POINT	1.601E-03	10.00	255.37	10.00	0.10
2109300022	US Army Garrison - Fort Knox	5.367E-02	AFK	AFK31	606232.21	4201442.69	134.72	POINT	1.544E-03	10.00	505.37	10.00	0.10
2109300054	Akebono Brake Corp	4.000E-01	ABC	ABC01	595448.92	4171263.18	228.60	POINT	1.151E-02	10.00	322.04	10.00	0.10
2109300054	Akebono Brake Corp	3.000E-01	ABC	ABC02	595448.92	4171263.18	228.60	POINT	8.631E-03	10.00	322.04	10.00	0.10
2109300054	Akebono Brake Corp	3.000E-01	ABC	ABC03	595448.92	4171263.18	228.60	POINT	8.631E-03	10.00	322.04	10.00	0.10
2109300054	Akebono Brake Corp	3.000E-01	ABC	ABC04	595448.92	4171263.18	228.60	POINT	8.631E-03	10.00	322.04	10.00	0.10
2109300054	Akebono Brake Corp	1.500E-01	ABC	ABC05	595448.92	4171263.18	228.60	POINT	4.316E-03	10.06	473.15	27.83	0.51
2109300054	Akebono Brake Corp	7.500E-01	ABC	ABC06	595448.92	4171263.18	228.60	POINT	2.158E-02	10.06	673.15	9.60	0.49
2109300054	Akebono Brake Corp	3.000E-01	ABC	ABC07	595448.92	4171263.18	228.60	POINT	8.631E-03	10.00	294.26	10.00	0.10
2109300054	Akebono Brake Corp	4.650E+00	ABC	ABC08	595448.92	4171263.18	228.60	POINT	1.338E-01	10.00	294.26	10.00	0.10
2109300054	Akebono Brake Corp	4.650E+00	ABC	ABC09	595448.92	4171263.18	228.60	POINT	1.338E-01	10.00	294.26	10.00	0.10
2109300054	Akebono Brake Corp	4.650E-02	ABC	ABC10	595448.92	4171263.18	228.60	POINT	1.338E-03	10.00	294.26	10.00	0.10
2109300090	AGC Automotive Americas	4.725E+00	AGC	AGC01	594910.56	4169801.44	219.06	POINT	1.359E-01	10.67	295.37	6.47	0.30
2109300090	AGC Automotive Americas	8.550E-02	AGC	AGC02	594910.56	4169801.44	219.06	POINT	2.460E-03	10.67	295.37	6.47	0.30
2109300090	AGC Automotive Americas	2.500E-04	AGC	AGC03	594910.56	4169801.44	219.06	POINT	7.193E-06	10.67	295.37	6.47	0.30
2109300090	AGC Automotive Americas	2.500E-04	AGC	AGC04	594910.56	4169801.44	219.06	POINT	7.193E-06	10.67	295.37	6.47	0.30
2109300046	Flint Group Pigments	3.800E-01	FLT	FLT01	595908.60	4171761.74	224.87	POINT	1.093E-02	14.94	294.26	1.07	0.91
2109300046	Flint Group Pigments	3.330E+00	FLT	FLT02	595908.60	4171761.74	224.87	POINT	9.580E-02	13.72	477.59	7.38	0.79
2109300046	Flint Group Pigments	2.850E-01	FLT	FLT03	595908.60	4171761.74	224.87	POINT	8.199E-03	11.89	477.04	258.87	0.09
2109300046	Flint Group Pigments	3.330E+00	FLT	FLT04	595908.60	4171761.74	224.87	POINT	9.580E-02	13.72	477.59	7.38	0.79
2109300005	Dow Silicones Corporation - Elizabethtown Plant	4.307E-01	DSE	DSE01	602835.69	4169625.68	250.26	POINT	1.239E-02	19.51	589.26	0.02	6.40
2109300005	Dow Silicones Corporation - Elizabethtown Plant	1.723E+00	DSE	DSE02	602835.69	4169625.68	250.26	POINT	4.956E-02	9.14	588.71	0.04	4.88
2109300005	Dow Silicones Corporation - Elizabethtown Plant	1.723E+00	DSE	DSE03	602835.69	4169625.68	250.26	POINT	4.956E-02	9.14	588.71	0.04	4.88
2109300005	Dow Silicones Corporation - Elizabethtown Plant	8.614E-01	DSE	DSE04	602835.69	4169625.68	250.26	POINT	2.478E-02	9.14	588.71	0.04	4.88
2109300005	Dow Silicones Corporation - Elizabethtown Plant	1.106E-02	DSE	DSE05	602835.69	4169625.68	250.26	POINT	3.182E-04	0.15	804.26	34.91	0.13
2109300005	Dow Silicones Corporation - Elizabethtown Plant	1.802E-02	DSE	DSE06	602835.69	4169625.68	250.26	POINT	5.186E-04	0.15	804.26	34.91	0.13
2109300005	Dow Silicones Corporation - Elizabethtown Plant	1.512E-02	DSE	DSE07	602835.69	4169625.68	250.26	POINT	4.351E-04	0.15	803.15	43.60	0.13
2109300021	The Gates Corp	1.287E+00	GAT	GAT01	598421.78	4171212.94	215.82	POINT	3.703E-02	6.10	490.93	16.16	0.61
2109300085	Hardin Co Contained Landfill	6.200E-01	HCL	HCL01	612012.26	4174677.02	234.40	POINT	1.784E-02	9.14	1033.15	1.66	0.25
2109300032	Baptist Health Hardin	4.410E+00	HMH	HMH01	598989.21	4174294.85	235.63	POINT	1.269E-01	9.14	410.93	15.85	0.61
2109300032	Baptist Health Hardin	4.000E-02	HMH	HMH02	598989.21	4174294.85	235.63	POINT	1.151E-03	9.14	410.93	15.85	0.61
2109300068	Modern Plating Coatings & Finishes	5.000E-02	MPC	MPC01	595574.97	4170956.37	224.95	POINT	1.439E-03	7.92	449.82	78.07	0.49
2109300068	Modern Plating Coatings & Finishes	5.000E-02	MPC	MPC02	595574.97	4170956.37	224.95	POINT	1.439E-03	7.92	589.26	44.61	0.49
2109300068	Modern Plating Coatings & Finishes	5.000E-02	MPC	MPC03	595574.97	4170956.37	224.95	POINT	1.439E-03	7.92	449.82	78.07	0.49
2109300068	Modern Plating Coatings & Finishes	5.000E-02	MPC	MPC04	595574.97	4170956.37	224.95	POINT	1.439E-03	7.92	589.26	44.61	0.49
2109300068	Modern Plating Coatings & Finishes	5.000E-02	MPC	MPC05	595574.97	4170956.37	224.95	POINT	1.439E-03	7.92	338.71	22.64	0.61
2109300068	Modern Plating Coatings & Finishes	5.000E-02	MPC	MPC06	595574.97	4170956.37	224.95	POINT	1.439E-03	7.92	338.71	22.64	0.61
2116300001	Monument Chemical Kentucky LLC	1.835E+01	MCK	MCK01	577136.95	4206548.99	139.89	POINT	5.279E-01	14.94	422.04	7.92	1.40
2116300001	Monument Chemical Kentucky LLC	1.730E+01	MCK	MCK02	577136.95	4206548.99	139.89	POINT	4.977E-01	14.94	422.04	7.92	1.40
2116300001	Monument Chemical Kentucky LLC	1.835E+01	MCK	MCK03	577136.95	4206548.99	139.89	POINT	5.279E-01	14.94	422.04	7.92	1.40
2102700006	Mago Construction Co LLC	3.412E-01	MCB	MCB01	561082.66	4194300.19	209.30	POINT	9.816E-03	9.45	422.04	22.86	1.22
2102700006	Mago Construction Co LLC	1.500E-01	MCB	MCB02	561082.66	4194300.19	209.30	POINT	4.316E-03	4.57	755.37	3.99	0.27
2109300063	Metalsa Structural Products Inc	4.670E+00	MSP	MSP01	595140.10	4170427.37	220.11	POINT	1.344E-01	21.34	505.37	10.35	0.30
2109300063	Metalsa Structural Products Inc	3.485E+00	MSP	MSP02	595140.10	4170427.37	220.11	POINT	1.003E-01	21.34	505.37	10.35	0.30
2109300063	Metalsa Structural Products Inc	1.581E+00	MSP	MSP03	595140.10	4170427.37	220.11	POINT	4.549E-02	21.34	505.37	10.35	0.30
2109300063	Metalsa Structural Products Inc	4.200E-01	MSP	MSP04	595140.10	4170427.37	220.11	POINT	1.208E-02	21.34	460.93	17.97	0.61
2109300063	Metalsa Structural Products Inc	8.500E-01	MSP	MSP05	595140.10	4170427.37	220.11	POINT	2.445E-02	21.34	394.26	4.36	0.61
2109300063	Metalsa Structural Products Inc	2.550E+00	MSP	MSP06	595140.10	4170427.37	220.11	POINT	7.336E-02	7.62	394.26	4.36	0.61
2109300063	Metalsa Structural Products Inc	4.700E+00	MSP	MSP07	595140.10	4170427.37	220.11	POINT	1.352E-01	21.34	394.26	4.36	0.61
2109300063	Metalsa Structural Products Inc	4.531E-03	MSP	MSP08	595140.10	4170427.37	220.11	POINT	1.304E-04	10.00	560.93	10.00	0.10
2109300063	Metalsa Structural Products Inc	1.057E-02	MSP	MSP09	595140.10	4170427.37	220.11	POINT	3.042E-04	10.00	560.93	10.00	0.10

2109300063	Metalsa Structural Products Inc	3.060E-06	MSP	MSP10	595140.10	4170427.37	220.11	POINT	8.804E-08	3.05	299.82	16.17	0.30
2109300080	Modern Welding Company of Kentucky Inc - Elizabethtown	1.408E-02	MWE	MWE01	602018.82	4170786.72	234.73	POINT	4.050E-04	0.61	293.15	51.74	0.15
2109300026	Scottys Contracting & Stone LLC - Fort Knox Plant 4	2.056E+00	SCF	SCF01	598865.60	4182554.32	236.96	POINT	5.915E-02	7.62	435.93	43.13	0.91
2116300017	Louisville Gas & Electric - Muldraugh Transmission Station	1.039E+00	LGM	LGM01	588240.00	4199586.79	225.20	POINT	2.989E-02	6.10	449.82	10.52	0.52
2116300017	Louisville Gas & Electric - Muldraugh Transmission Station	2.575E-01	LGM	LGM02	588240.00	4199586.79	225.20	POINT	7.408E-03	6.10	588.71	1.21	0.76
2116300017	Louisville Gas & Electric - Muldraugh Transmission Station	1.297E+00	LGM	LGM03	588240.00	4199586.79	225.20	POINT	3.730E-02	7.01	729.26	39.96	0.63
2116300017	Louisville Gas & Electric - Muldraugh Transmission Station	1.363E-02	LGM	LGM04	588240.00	4199586.79	225.20	POINT	3.923E-04	7.92	740.37	2.04	0.41
2116300017	Louisville Gas & Electric - Muldraugh Transmission Station	9.890E-01	LGM	LGM05	588240.00	4199586.79	225.20	POINT	2.845E-02	9.14	698.71	2.36	0.64
2116300017	Louisville Gas & Electric - Muldraugh Transmission Station	1.177E+00	LGM	LGM06	588240.00	4199586.79	225.20	POINT	3.386E-02	6.10	698.71	3.74	0.51
2116300017	Louisville Gas & Electric - Muldraugh Transmission Station	1.160E-06	LGM	LGM07	588240.00	4199586.79	225.20	POINT	3.337E-08	3.46	945.37	77.78	0.22
2116300017	Louisville Gas & Electric - Muldraugh Transmission Station	7.083E-01	LGM	LGM08	588240.00	4199586.79	225.20	POINT	2.038E-02	6.40	588.71	28.47	0.27
2116300017	Louisville Gas & Electric - Muldraugh Transmission Station	1.032E+00	LGM	LGM09	588240.00	4199586.79	225.20	POINT	2.968E-02	7.01	588.71	33.13	0.36
2116300017	Louisville Gas & Electric - Muldraugh Transmission Station	2.145E-01	LGM	LGM10	588240.00	4199586.79	225.20	POINT	6.170E-03	7.01	588.71	33.13	0.36
2116300017	Louisville Gas & Electric - Muldraugh Transmission Station	1.163E+00	LGM	LGM11	588240.00	4199586.79	225.20	POINT	3.347E-02	7.01	588.71	33.13	0.36
2116300017	Louisville Gas & Electric - Muldraugh Transmission Station	1.283E+00	LGM	LGM12	588240.00	4199586.79	225.20	POINT	3.692E-02	7.01	588.71	33.13	0.36
2116300017	Louisville Gas & Electric - Muldraugh Transmission Station	1.977E+00	LGM	LGM13	588240.00	4199586.79	225.20	POINT	5.688E-02	7.01	588.71	33.13	0.36
2116300017	Louisville Gas & Electric - Muldraugh Transmission Station	4.741E+00	LGM	LGM14	588240.00	4199586.79	225.20	POINT	1.364E-01	7.01	588.71	33.13	0.36
2116300017	Louisville Gas & Electric - Muldraugh Transmission Station	1.814E-01	LGM	LGM15	588240.00	4199586.79	225.20	POINT	5.218E-03	7.01	729.26	39.96	0.63
2116300017	Louisville Gas & Electric - Muldraugh Transmission Station	1.640E-03	LGM	LGM16	588240.00	4199586.79	225.20	POINT	4.718E-05	7.01	729.26	39.96	0.63
2116300017	Louisville Gas & Electric - Muldraugh Transmission Station	4.335E-02	LGM	LGM17	588240.00	4199586.79	225.20	POINT	1.247E-03	6.10	1088.71	0.38	0.66
2116300017	Louisville Gas & Electric - Muldraugh Transmission Station	3.781E-01	LGM	LGM18	588240.00	4199586.79	225.20	POINT	1.088E-02	6.10	1088.71	0.38	0.66
2109300043	Mouser Cabinetry LLC	8.150E-02	MCC	MCC01	597542.51	4177838.58	265.79	POINT	2.345E-03	6.10	449.82	0.52	1.01
2109300043	Mouser Cabinetry LLC	2.930E-01	MCC	MCC02	597542.51	4177838.58	265.79	POINT	8.430E-03	6.10	449.82	0.52	1.01
2109300043	Mouser Cabinetry LLC	7.650E-02	MCC	MCC03	597542.51	4177838.58	265.79	POINT	2.201E-03	6.10	449.82	0.52	1.01
2109300043	Mouser Cabinetry LLC	9.750E-02	MCC	MCC04	597542.51	4177838.58	265.79	POINT	2.805E-03	6.10	449.82	0.52	1.01
2109300086	Richard & Emma Cook Residence	8.322E-01	REC	REC01	572296.12	4174572.73	261.11	POINT	2.394E-02	3.05	255.37	0.00	1.22
2102909043	Louisville Paving Company Inc - Bullitt County Portable Asphalt Plant	5.583E-01	LPB	LPB01	612543.44	4203784.82	138.11	POINT	1.606E-02	12.80	394.26	25.87	1.22
2102700022	Texas Gas Transmission LLC - Hardinsburg Transmission Station	7.395E+01	TGT	TGT01	545248.96	4182208.36	197.86	POINT	2.127E+00	8.84	605.93	35.05	0.52
2102700022	Texas Gas Transmission LLC - Hardinsburg Transmission Station	3.832E-01	TGT	TGT02	545248.96	4182208.36	197.86	POINT	1.103E-02	12.19	592.04	34.38	1.83
2102700022	Texas Gas Transmission LLC - Hardinsburg Transmission Station	2.976E+00	TGT	TGT03	545248.96	4182208.36	197.86	POINT	8.562E-02	9.45	605.93	20.24	3.38
2102700022	Texas Gas Transmission LLC - Hardinsburg Transmission Station	7.857E+01	TGT	TGT04	545248.96	4182208.36	197.86	POINT	2.260E+00	8.84	605.93	35.05	0.52
2102700022	Texas Gas Transmission LLC - Hardinsburg Transmission Station	4.756E+01	TGT	TGT05	545248.96	4182208.36	197.86	POINT	1.368E+00	8.84	605.93	35.05	0.52
2102700022	Texas Gas Transmission LLC - Hardinsburg Transmission Station	7.156E+01	TGT	TGT06	545248.96	4182208.36	197.86	POINT	2.059E+00	8.84	605.93	35.05	0.52
2102700022	Texas Gas Transmission LLC - Hardinsburg Transmission Station	6.679E+01	TGT	TGT07	545248.96	4182208.36	197.86	POINT	1.922E+00	8.84	605.93	35.05	0.52
2102700022	Texas Gas Transmission LLC - Hardinsburg Transmission Station	4.324E+01	TGT	TGT08	545248.96	4182208.36	197.86	POINT	1.244E+00	8.84	605.93	35.05	0.52
2102700022	Texas Gas Transmission LLC - Hardinsburg Transmission Station	1.845E+01	TGT	TGT09	545248.96	4182208.36	197.86	POINT	5.308E-01	8.84	605.93	35.05	0.52
2102700022	Texas Gas Transmission LLC - Hardinsburg Transmission Station	1.460E-01	TGT	TGT10	545248.96	4182208.36	197.86	POINT	4.200E-03	3.05	755.37	50.99	0.15
2102700028	Endeavor Energy Resources LP	1.220E+00	EER	EER01	545152.32	4181992.14	195.69	POINT	3.510E-02	10.00	294.26	10.00	0.10
2102700028	Endeavor Energy Resources LP	2.007E+01	EER	EER02	545152.32	4181992.14	195.69	POINT	5.775E-01	10.00	294.26	10.00	0.10
2102900043	Gordons Food Service	1.021E-01	GFS	GFS01	615151.83	4203907.48	138.09	POINT	2.938E-03	1.52	770.37	112.43	0.30
2102900043	Gordons Food Service	1.021E-01	GFS	GFS02	615151.83	4203907.48	138.09	POINT	2.938E-03	1.52	770.37	112.43	0.30
2102900044	Astra Zeneca Pharmaceuticals LP	2.786E+00	AZP	AZP01	616498.72	4202601.44	154.29	POINT	8.016E-02	3.66	763.71	64.38	0.24
2102900044	Astra Zeneca Pharmaceuticals LP	2.786E+00	AZP	AZP02	616498.72	4202601.44	154.29	POINT	8.016E-02	3.66	763.71	64.38	0.24
2102900044	Astra Zeneca Pharmaceuticals LP	6.651E-01	AZP	AZP03	616498.72	4202601.44	154.29	POINT	1.913E-02	4.27	879.82	37.35	0.12
2102900044	Astra Zeneca Pharmaceuticals LP	6.651E-01	AZP	AZP04	616498.72	4202601.44	154.29	POINT	1.913E-02	4.27	879.82	37.35	0.12
2102900045	Marrillia Environmental LLC	1.652E-01	MEL	MEL01	627183.88	4214515.00	180.17	POINT	4.753E-03	10.00	294.26	10.00	0.10
2102900045	Marrillia Environmental LLC	6.286E-01	MEL	MEL02	627183.88	4214515.00	180.17	POINT	1.808E-02	10.00	294.26	10.00	0.10
2109300094	East KY Power Coop - Hardin Co Landfill Gas to Electric Plant	1.547E+00	EPC	EPC01	612286.00	4176160.36	139.93	POINT	4.449E-02	7.62	748.15	156.15	0.15
2102900046	Sabert Corp	1.978E-01	SAB	SAB01	613631.67	4211506.92	152.70	POINT	5.692E-03	12.88	505.37	7.31	0.41
2102900046	Sabert Corp	1.979E-01	SAB	SAB02	613631.67	4211506.92	152.70	POINT	5.692E-03	12.88	505.37	7.31	0.41
2102900046	Sabert Corp	1.876E-02	SAB	SAB03	613631.67	4211506.92	152.70	POINT	5.398E-04	10.00	294.26	10.00	0.10
2102909186	Flynn Brothers Contracting - Portable	2.399E-01	FBC	FBC01	613292.07	4214893.23	169.53	POINT	6.903E-03	10.97	422.04	21.96	1.43
2109300097	Ky Dept of Military Affairs - KY MATES	1.784E-02	DMA	DMA01	592402.27	4198199.76	233.24	POINT	5.133E-04	7.32	293.15	34.89	0.86
2102909201	Mago Construction Co LLC - HMA Portable RAP Plant 1	6.264E-02	MCT	MCT01	615780.31	4209564.09	161.26	POINT	1.802E-03	10.00	298.15	10.00	0.10
2102900048	On Site Electrostatic Painting Co	6.500E-03	OEP	OEP01	615044.96	4215090.15	160.93	POINT	1.870E-04	1.22	297.04	97.02	0.30
2102900048	On Site Electrostatic Painting Co	6.500E-03	OEP	OEP02	615044.96	4215090.15	160.93	POINT	1.870E-04	1.52	297.04	97.02	0.30
2109309230	Scottys Contracting & Stone LLC - Portable Asphalt Plant	3.718E+00	SCL	SCL01	590126.70	4187545.26	218.52	POINT	1.070E-01	9.14	430.37	13.29	2.02
2109309230	Scottys Contracting & Stone LLC - Portable Asphalt Plant	3.010E-01	SCL	SCL02	590126.70	4187545.26	218.52	POINT	8.660E-03	10.00	298.15	10.00	0.10
2109309249	Mink Bros Quarry LLC - Portable Processing Plant	1.513E-01	MBQ	MBQ01	586610.62	4161425.83	220.29	POINT	4.353E-03	10.00	366.48	10.00	0.10
2109309249	Mink Bros Quarry LLC - Portable Processing Plant	4.539E-01	MBQ	MBQ02	586610.62	4161425.83	220.29	POINT	1.306E-02	10.00	366.48	10.00	0.10
2109309249	Mink Bros Quarry LLC - Portable Processing Plant	6.067E-01	MBQ	MBQ03	586610.62	4161425.83	220.29	POINT	1.746E-02	10.00	366.48	10.00	0.10

2109309249	Mink Bros Quarry LLC - Portable Processing Plant	3.026E-01	MBQ	MBQ04	586610.62	4161425.83	220.29	POINT	8.705E-03	10.00	366.48	10.00	0.10
2102700031	KY RSA #3 Cellular GP - Stephensport (COW3)	5.320E-03	RSA05	RSA0501	541124.40	4195038.72	187.08	POINT	1.531E-04	10.00	422.04	10.00	0.10
2102700032	KY RSA #3 Cellular GP - Kingswood Cell Tower Engine	6.547E-03	RSA03	RSA0301	551279.24	4172227.10	209.59	POINT	1.884E-04	10.00	422.04	10.00	0.10
2102700033	KY RSA #3 Cellular GP - Garfield Cell Tower Engine	4.199E-03	RSA02	RSA0201	558912.15	4183620.15	253.47	POINT	1.208E-04	10.00	422.04	10.00	0.10
2102700034	KY RSA #3 Cellular GP - McQuady Cell Tower Engine	6.319E-03	RSA04	RSA0401	541744.65	4173837.67	218.65	POINT	1.818E-04	10.00	422.04	10.00	0.10
2109300102	KY RSA #4 Cellular GP - Elizabethtown West Cell Tower Engine	1.026E-02	RSA06	RSA0601	591793.05	4173995.87	254.36	POINT	2.953E-04	10.00	422.04	10.00	0.10
2109300105	KY RSA #4 Cellular GP - Howe Valley	5.081E-03	RSA10	RSA1001	583426.63	4170732.37	257.50	POINT	1.462E-04	10.00	422.04	10.00	0.10
2109300106	KY RSA #4 Cellular GP - Stephensburg	3.950E-03	RSA13	RSA1301	583239.97	4162500.89	262.48	POINT	1.136E-04	10.00	422.04	10.00	0.10
2109300107	KY RSA #4 Cellular GP - Ft Knox	3.847E-03	RSA07	RSA0701	592994.23	4193366.98	218.03	POINT	1.107E-04	10.00	422.04	10.00	0.10
2109300108	KY RSA #4 Cellular GP - Vertrees	4.706E-03	RSA14	RSA1401	570004.69	4173381.71	253.96	POINT	1.354E-04	10.00	422.04	10.00	0.10
2109300109	KY RSA #4 Cellular GP - Ft Knox II	5.076E-03	RSA08	RSA0801	589861.69	4193856.06	216.94	POINT	1.460E-04	10.00	422.04	10.00	0.10
2102900050	Louisville Seating Division of Magna	1.070E-01	SDM	SDM01	616227.99	4202825.32	155.02	POINT	3.078E-03	10.00	302.59	10.00	0.10
2102900050	Louisville Seating Division of Magna	8.064E-01	SDM	SDM02	616227.99	4202825.32	155.02	POINT	2.320E-02	4.57	713.71	153.98	0.25
2109300110	KY RSA #4 Cellular GP - Ft Knox III	7.280E-03	RSA09	RSA0901	594665.41	4195050.63	201.22	POINT	2.095E-04	10.00	422.04	10.00	0.10
2109300112	KY RSA #4 Cellular GP - Longview	4.652E-03	RSA11	RSA1101	595851.92	4184002.00	262.28	POINT	1.338E-04	10.00	298.15	10.00	0.10
2116300026	KY RSA #3 Cellular GP - Ft Knox Cell Tower Engine	3.053E-03	RSA01	RSA0101	588740.64	4196182.16	237.78	POINT	8.785E-05	10.00	298.15	10.00	0.10
2109300120	Flex Films USA	6.476E+00	FLX	FLX01	594843.93	4170373.70	221.87	POINT	1.863E-01	12.19	508.15	11.22	0.50
2109300120	Flex Films USA	6.476E+00	FLX	FLX02	594843.93	4170373.70	221.87	POINT	1.863E-01	12.19	508.15	11.22	0.50
2109300120	Flex Films USA	2.319E-01	FLX	FLX03	594843.93	4170373.70	221.87	POINT	6.671E-03	10.00	310.93	10.00	0.10
2109300120	Flex Films USA	1.718E-01	FLX	FLX04	594843.93	4170373.70	221.87	POINT	4.942E-03	10.00	310.93	10.00	0.10
2109300120	Flex Films USA	1.074E-01	FLX	FLX05	594843.93	4170373.70	221.87	POINT	3.089E-03	10.00	310.93	10.00	0.10
2109300120	Flex Films USA	2.319E-01	FLX	FLX06	594843.93	4170373.70	221.87	POINT	6.671E-03	10.00	310.93	10.00	0.10
2109300120	Flex Films USA	1.718E-01	FLX	FLX07	594843.93	4170373.70	221.87	POINT	4.942E-03	10.00	310.93	10.00	0.10
2109300120	Flex Films USA	1.718E-01	FLX	FLX08	594843.93	4170373.70	221.87	POINT	4.942E-03	10.00	310.93	10.00	0.10
2109300120	Flex Films USA	1.074E-01	FLX	FLX09	594843.93	4170373.70	221.87	POINT	3.089E-03	10.00	310.93	10.00	0.10
2102909326	Hall Contracting of Kentucky Inc - Portable Asphalt Plant	2.482E+00	HCK	HCK01	612969.83	4215051.57	159.88	POINT	7.141E-02	6.40	394.26	15.70	1.64
2102909326	Hall Contracting of Kentucky Inc - Portable Asphalt Plant	4.410E-01	HCK	HCK02	612969.83	4215051.57	159.88	POINT	1.269E-02	10.00	298.15	10.00	0.10
2109300131	Quest Industries LLC	9.135E-02	QUI	QUI01	598065.51	4171560.69	223.43	POINT	2.628E-03	9.14	338.71	13.80	0.46
2109300131	Quest Industries LLC	1.987E-01	QUI	QUI02	598065.51	4171560.69	223.43	POINT	5.715E-03	9.14	338.71	13.80	0.46
2102700039	Crist Propane Services LLC	1.000E+01	CPS	CPS01	561402.48	4190959.64	188.22	POINT	6.100E-01	10.00	295.37	10.00	0.10

Table C-3
Kentucky Offsite Inventory
PM_{10} Sources

SIA (km)	2.8	6.3

Facility ID	Facility Name	County	Prefix	UTM16e	UTM16n	PM_{10} Estimated Emissions (TPY) 2017	Distance (km)	Q/D	Annual List	24hr List
2102700007	Liters Inc	Breckinridge	LTR	561078.76	4194824.11	19.13	18.81	1.02	Excluded	Excluded
2102700004	Mago Construction Co LLC - Hardinsburg Asphalt Plant	Breckinridge	MCH	542494.94	4180282.87	0.59	42.40	0.01	Excluded	Excluded
2102700005	White Stone Co Inc	Breckinridge	WSH	542985.40	4180069.61	3.63	42.15	0.09	Excluded	Excluded
2102900005	Jim Beam Brands Co - Clermont Plant	Bullitt	JBC	618473.06	4198751.09	90.53	43.52	2.08	Excluded	Excluded
2102900002	Arcosa LW KY LLC	Bullitt	ARC	612864.02	4210602.20	66.97	37.37	1.79	Excluded	Excluded
2102900010	Mago Construction Co LLC - Shepherdsville Asphalt Facility	Bullitt	MCS	615679.74	4209778.42	0.80	40.10	0.02	Excluded	Excluded
2102900038	Speyside Cooperage Kentucky Inc	Bullitt	SPC	613050.01	4206608.25	0.02	37.36	0.00	Excluded	Excluded
2102900019	Distinct Packabilities	Bullitt	DPA	612836.35	4205546.11	0.11	37.17	0.00	Excluded	Excluded
2102900032	LSC Communications Lebanon Junction	Bullitt	LSC	614172.03	4186698.25	0.36	43.43	0.01	Excluded	Excluded
2102900012	Rogers Group Inc - Bullitt Co Stone	Bullitt	RGB	615841.18	4210428.18	7.98	40.31	0.20	Excluded	Excluded
2109300022	US Army Garrison - Fort Knox	Hardin	AFK	606232.21	4201442.69	4.96	31.02	0.16	Excluded	Excluded
2109300054	Akebono Brake Corp	Hardin	ABC	595448.92	4171263.18	8.35	40.73	0.20	Excluded	Excluded
2109300090	AGC Automotive Americas	Hardin	AGC	594910.56	4169801.44	0.28	41.77	0.01	Excluded	Excluded
2109300046	Flint Group Pigments	Hardin	FLT	595908.60	4171761.74	3.45	40.52	0.09	Excluded	Excluded
2109300001	IMI South LLC - Elizabethtown 871	Hardin	IME	600157.03	4170368.68	0.48	43.95	0.01	Excluded	Excluded
2109300057	Cytech Products Inc	Hardin	CPI	595817.86	4171259.46	0.00	40.91	0.00	Excluded	Excluded
2109300005	Dow Silicones Corporation - Elizabethtown Plant	Hardin	DSE	602835.69	4169625.68	3.79	46.10	0.08	Excluded	Excluded
2109300089	Smyrna Ready Mix Concrete Inc Plant 201	Hardin	SMY	602286.00	4169094.76	1.01	46.21	0.02	Excluded	Excluded
2109300021	The Gates Corp	Hardin	GAT	598421.78	4171212.94	1.86	42.30	0.04	Excluded	Excluded
2109300009	Hanson Aggregates Midwest LLC - Upton Quarry	Hardin	HAU	597710.60	4145582.76	0.90	65.18	0.01	Excluded	Excluded
2109300085	Hardin Co Contained Landfill	Hardin	HCL	612012.26	4174677.02	0.26	48.53	0.01	Excluded	Excluded
2109300032	Baptist Health Hardin	Hardin	HMH	598989.21	4174294.85	0.10	40.05	0.00	Excluded	Excluded
2109300068	Modern Plating Coatings & Finishes	Hardin	MPC	595574.97	4170956.37	0.02	41.06	0.00	Excluded	Excluded
2109300062	Vulcan Construction Materials LLC - Hardin County Quarry	Hardin	VCH	591886.51	4165582.16	3.91	44.37	0.09	Excluded	Excluded
2109300007	Vulcan Construction Materials LLC - Fort Knox Quarry	Hardin	VFK	598450.53	4182487.65	2.80	33.35	0.08	Excluded	Excluded
2116300001	Monument Chemical Kentucky LLC	Meade	MCK	577136.95	4206548.99	4.96	1.54	3.22	Included	Included
2116300003	Kosmos Cement Company LLC	Meade	KCC	563038.05	4214368.00	50.54	14.67	3.44	Excluded	Excluded
2116300020	Hilltop Big Bend Quarry LLC	Meade	HBQ	561598.76	4222968.91	10.58	21.42	0.49	Excluded	Excluded
2116300005	Riverside Stone Co	Meade	RSC	554779.51	4219533.20	15.45	24.40	0.63	Excluded	Excluded
2102700006	Mago Construction Co LLC	Breckinridge	MCB	561082.66	4194300.19	0.32	19.15	0.02	Excluded	Excluded
2109300063	Metalsa Structural Products Inc	Hardin	MSP	595140.10	4170427.37	6.74	41.32	0.16	Excluded	Excluded
2109300080	Modern Welding Company of Kentucky Inc - Elizabethtown	Hardin	MWE	602018.82	4170786.72	0.21	44.67	0.00	Excluded	Excluded
2109300026	Scottys Contracting & Stone LLC - Fort Knox Plant 4	Hardin	SCF	598865.60	4182554.32	2.32	33.59	0.07	Excluded	Excluded
2116300017	Louisville Gas & Electric - Muldraugh Transmission Station	Meade	LGM	588240.00	4199586.79	0.41	14.52	0.03	Excluded	Excluded
2109300043	Mouser Cabinetry LLC	Hardin	MCC	597542.51	4177838.58	2.21	36.34	0.06	Excluded	Excluded
2102700002	Breck Co Ready Mix Co	Breckinridge	BRM	561302.89	4190973.10	0.05	21.33	0.00	Excluded	Excluded
2102700009	Indiana Hardwoods	Breckinridge	IHB	535382.31	4187363.99	3.00	44.62	0.07	Excluded	Excluded
2102700024	Mago Construction Co LLC	Breckinridge	MAG	531091.47	4187474.57	1.15	48.46	0.02	Excluded	Excluded
2102900037	Horner Industrial Group Inc	Bullitt	HIG	614979.86	4214636.98	10.88	40.07	0.27	Excluded	Excluded
2109300086	Richard & Emma Cook Residence	Hardin	REC	572296.12	4174572.73	0.03	32.45	0.00	Excluded	Excluded
2109300084	Summit Polymers Inc	Hardin	SPI	594885.21	4171287.53	1.07	40.44	0.03	Excluded	Excluded
2102909043	Louisville Paving Company Inc - Bullitt County Portable Asphalt Plant	Bullitt	LPB	612543.44	4203784.82	0.65	36.98	0.02	Excluded	Excluded
2102909066	E & B Paving Inc - Portable Plant	Bullitt	EBP	549360.50	4182039.92	0.03	36.07	0.00	Excluded	Excluded
2109309081	Scottys Contracting & Stone LLC - Portable Power Screen	Hardin	SCH	598816.27	4182584.58	0.14	33.53	0.00	Excluded	Excluded
2109300088	KY Concrete Inc	Hardin	KYC	600192.58	4165925.09	33.56	47.73	0.70	Excluded	Excluded
2102900009	Quality Stone & Ready Mix Inc Quarry	Bullitt	QCR	614919.34	4210002.62	17.19	39.36	0.44	Excluded	Excluded
2102700022	Texas Gas Transmission LLC - Hardinsburg Transmission Station	Breckinridge	TGT	545248.96	4182208.36	6.51	39.05	0.17	Excluded	Excluded
2102700039	Crist Propane Services LLC	Breckinridge	CPS	561402.48	4190959.64	1.03	21.27	0.05	Excluded	Excluded
2102900043	Gordons Food Service	Bullitt	GFS	615151.83	4203907.48	0.01	39.56	0.00	Excluded	Excluded
2102900044	Astra Zeneca Pharmaceuticals LP	Bullitt	AZP	616498.72	4202601.44	0.11	41.02	0.00	Excluded	Excluded
2102900045	Marrillia Environmental LLC	Bullitt	MEL	627183.88	4214515.00	0.87	52.04	0.02	Excluded	Excluded
2109300094	East KY Power Coop - Hardin Co Landfill Gas to Electric Plant	Hardin	EPC	612286.00	4176160.36	0.13	47.76	0.00	Excluded	Excluded
2102900046	Sabert Corp	Bullitt	SAB	613631.67	4211506.92	4.40	38.23	0.12	Excluded	Excluded
2116309172	Haydon Materials LLC - Metso LT105 Portable Plant	Meade	HAY	562738.25	4214069.75	0.52	14.78	0.04	Excluded	Excluded
2102909186	Flynn Brothers Contracting - Portable	Bullitt	FBC	613292.07	4214893.23	0.22	38.47	0.01	Excluded	Excluded
2109300097	Ky Dept of Military Affairs - KY MATES	Hardin	DMA	592402.27	4198199.76	0.06	18.84	0.00	Excluded	Excluded
2102909199	Mago Construction Co LLC - Portable Screening Unit	Bullitt	MCT	615780.31	4209564.09	0.01	40.18	0.00	Excluded	Excluded
2102909201	Mago Construction Co LLC - HMA Portable RAP Plant 1	Bullitt	MCT	615780.31	4209564.09	0.01	40.18	0.00	Excluded	Excluded
2102900048	On Site Electrostatic Painting Co	Bullitt	OEP	615044.96	4215090.15	0.05	40.22	0.00	Excluded	Excluded
2109309230	Scottys Contracting & Stone LLC - Portable Asphalt Plant	Hardin	SCL	590126.70	4187545.26	2.28	24.11	0.09	Excluded	Excluded
2102900049	IQL Corp	Bullitt	IQL	614966.16	4214861.64	9.57	40.10	0.24	Excluded	Excluded
2109309249	Mink Bros Quarry LLC - Portable Processing Plant	Hardin	MBQ	586610.62	4161425.83	0.75	46.76	0.02	Excluded	Excluded
2102700031	KY RSA #3 Cellular GP - Stephensport (COW3)	Breckinridge	RSA05	541124.40	4195038.72	0.00	36.37	0.00	Excluded	Excluded
2102700032	KY RSA #3 Cellular GP - Kingswood Cell Tower Engine	Breckinridge	RSA03	551279.24	4172227.10	0.00	42.29	0.00	Excluded	Excluded
2102700033	KY RSA #3 Cellular GP - Garfield Cell Tower Engine	Breckinridge	RSA02	558912.15	4183620.15	0.00	28.57	0.00	Excluded	Excluded
2102700034	KY RSA #3 Cellular GP - McQuady Cell Tower Engine	Breckinridge	RSA04	541744.65	4173837.67	0.00	47.25	0.00	Excluded	Excluded
2109300102	KY RSA #4 Cellular GP - Elizabethtown West Cell Tower Engine	Hardin	RSA06	591793.05	4173995.87	0.00	36.61	0.00	Excluded	Excluded
2109300105	KY RSA #4 Cellular GP - Howe Valley	Hardin	RSA10	583426.63	4170732.37	0.00	36.96	0.00	Excluded	Excluded
2109300106	KY RSA #4 Cellular GP - Stephensburg	Hardin	RSA13	583239.97	4162500.89	0.00	45.03	0.00	Excluded	Excluded
2109300107	KY RSA #4 Cellular GP - Ft Knox	Hardin	RSA07	592994.23	4193366.98	0.00	21.95	0.00	Excluded	Excluded
2109300108	KY RSA #4 Cellular GP - Vertrees	Hardin	RSA14	570004.69	4173381.71	0.00	33.94	0.00	Excluded	Excluded
2109300109	KY RSA #4 Cellular GP - Ft Knox II	Hardin	RSA08	589861.69	4193856.06	0.00	19.24	0.00	Excluded	Excluded
2112300020	KY RSA #4 Cellular GP - Sonora	Hardin	RSA12	599463.11	4153155.25	0.00	58.78	0.00	Excluded	Excluded
2102900050	Louisville Seating Division of Magna	Bullitt	SDM	616227.99	4202825.32	0.03	40.72	0.00	Excluded	Excluded
2109300110	KY RSA #4 Cellular GP - Ft Knox III	Hardin	RSA09	594665.41	4195050.63	0.00	22.36	0.00	Excluded	Excluded
2109300112	KY RSA #4 Cellular GP - Longview	Hardin	RSA11	595851.92	4184002.00	0.00	30.48	0.00	Excluded	Excluded
2116300026	KY RSA #3 Cellular GP - Ft Knox Cell Tower Engine	Meade	RSA01	588740.64	4196182.16	0.00	16.87	0.00	Excluded	Excluded
2109300120	Flex Films USA	Hardin	FLX	594843.93	4170373.70	1.08	41.23	0.03	Excluded	Excluded
2102909326	Hall Contracting of Kentucky Inc - Portable Asphalt Plant	Bullitt	HCK	612969.83	4215051.57	2.32	38.19	0.06	Excluded	Excluded
2109300131	Quest Industries LLC	Hardin	QUI	598065.51	4171560.69	5.86	41.81	0.14	Excluded	Excluded
2102900061	Santa Rosa Systems Corp Office & Assembly Plant	Bullitt	SRS	615097.59	4214718.21	0.32	40.20	0.01	Excluded	Excluded
2116309430	Haydon Materials Battletown LLC - Battletown Portable Plant	Meade	HMB	562738.25	4214069.75	3.69	14.78	0.25	Excluded	Excluded

Table C-4
Kentucky Offsite Inventory
$PM_{2.5}$ Sources

Facility ID	Facility Name	PM10 Estimated Emissions (TPY) 2020	Prefix	SRCID	UTMe	UTMn	Elev (m)	TYPE	Qs (g/s)	Hs (m)	Ts (K)	Vs (m/s)	Ds (m)
2116300001	Monument Chemical Kentucky LLC	1.395E+00	MCK	MCK01	577136.95	4206548.99	139.89	POINT	4.012E-02	14.94	422.04	7.92	1.40
2116300001	Monument Chemical Kentucky LLC	1.315E+00	MCK	MCK02	577136.95	4206548.99	139.89	POINT	3.783E-02	14.94	422.04	7.92	1.40
2116300001	Monument Chemical Kentucky LLC	1.395E+00	MCK	MCK03	577136.95	4206548.99	139.89	POINT	4.012E-02	14.94	422.04	7.92	1.40
2116300001	Monument Chemical Kentucky LLC	2.116E-02	MCK	MCK04	577136.95	4206548.99	139.89	POINT	6.088E-04	11.89	293.15	5.10	0.09
2116300001	Monument Chemical Kentucky LLC	3.080E-05	MCK	MCK05	577136.95	4206548.99	139.89	POINT	8.861E-07	5.03	293.15	12.12	0.57
2116300001	Monument Chemical Kentucky LLC	2.902E-01	MCK	MCK06	577136.95	4206548.99	139.89	POINT	8.348E-03	4.27	293.15	2.48	0.08
2116300001	Monument Chemical Kentucky LLC	2.719E-01	MCK	MCK07	577136.95	4206548.99	139.89	POINT	7.822E-03	21.64	293.15	6.51	0.20
2116300001	Monument Chemical Kentucky LLC	2.719E-01	MCK	MCK08	577136.95	4206548.99	139.89	POINT	7.822E-03	19.20	293.15	12.65	0.20

Table C-5
Kentucky Offsite Inventory
$PM_{2.5}$ Sources

SIA (km)	5	7.7

Facility ID	Facility Name	County	Prefix	UTM16e	UTM16n	PM2.5 Estimated Emissions (TPY) 2020	Distance (km)	Q/D	Annual List	24hr List
2102700007	Liters Inc	Breckinridge	LTR	561078.76	4194824.11	5.365E+00	18.81	0.29	Excluded	Excluded
2102700004	Mago Construction Co LLC - Hardinsburg Asphalt Plant	Breckinridge	MCH	542494.94	4180282.87	2.390E-01	42.40	0.01	Excluded	Excluded
2102700005	White Stone Co Inc	Breckinridge	WSH	542985.40	4180069.61	2.675E+00	42.15	0.06	Excluded	Excluded
2102900005	Jim Beam Brands Co - Clermont Plant	Bullitt	JBC	618473.06	4198751.09	1.063E+01	43.52	0.24	Excluded	Excluded
2102900002	Arcosa LW KY LLC	Bullitt	ARC	612864.02	4210602.20	4.737E+01	37.37	1.27	Excluded	Excluded
2102900010	Mago Construction Co LLC - Shepherdsville Asphalt Facility	Bullitt	MCS	615679.74	4209778.42	2.646E-01	40.10	0.01	Excluded	Excluded
2102900038	Speyside Cooperage Kentucky Inc	Bullitt	SPC	613050.01	4206608.25	2.103E-02	37.36	0.00	Excluded	Excluded
2102900019	Distinct Packabilities	Bullitt	DPA	612836.35	4205546.11	4.305E-02	37.17	0.00	Excluded	Excluded
2102900032	LSC Communications Lebanon Junction	Bullitt	LSC	614172.03	4186698.25	3.545E-01	43.43	0.01	Excluded	Excluded
2102900012	Rogers Group Inc - Bullitt Co Stone	Bullitt	RGB	615841.18	4210428.18	2.170E+00	40.31	0.05	Excluded	Excluded
2109300022	US Army Garrison - Fort Knox	Hardin	AFK	606232.21	4201442.69	4.939E+00	31.02	0.16	Excluded	Excluded
2109300054	Akebono Brake Corp	Hardin	ABC	595448.92	4171263.18	3.989E+00	40.73	0.10	Excluded	Excluded
2109300090	AGC Automotive Americas	Hardin	AGC	594910.56	4169801.44	9.181E-02	41.77	0.00	Excluded	Excluded
2109300046	Flint Group Pigments	Hardin	FLT	595908.60	4171761.74	1.322E+00	40.52	0.03	Excluded	Excluded
2109300001	IMI South LLC - Elizabethtown 871	Hardin	IME	600157.03	4170368.68	1.599E-01	43.95	0.00	Excluded	Excluded
2109300057	Cytech Products Inc	Hardin	CPI	595817.86	4171259.46	6.648E-04	40.91	0.00	Excluded	Excluded
2109300005	Dow Silicones Corporation - Elizabethtown Plant	Hardin	DSE	602835.69	4169625.68	3.764E+00	46.10	0.08	Excluded	Excluded
2109300089	Smyrna Ready Mix Concrete Inc Plant 201	Hardin	SMY	602286.00	4169094.76	4.024E-01	46.21	0.01	Excluded	Excluded
2109300021	The Gates Corp	Hardin	GAT	598421.78	4171212.94	5.954E-01	42.30	0.01	Excluded	Excluded
2109300009	Hanson Aggregates Midwest LLC - Upton Quarry	Hardin	HAU	597710.60	4145582.76	3.778E-01	65.18	0.01	Excluded	Excluded
2109300085	Hardin Co Contained Landfill	Hardin	HCL	612012.26	4174677.02	1.186E-01	48.53	0.00	Excluded	Excluded
2109300032	Baptist Health Hardin	Hardin	HMH	598989.21	4174294.85	6.035E-02	40.05	0.00	Excluded	Excluded
2109300068	Modern Plating Coatings & Finishes	Hardin	MPC	595574.97	4170956.37	6.460E-03	41.06	0.00	Excluded	Excluded
2109300062	Vulcan Construction Materials LLC - Hardin County Quarry	Hardin	VCH	591886.51	4165582.16	2.358E+00	44.37	0.05	Excluded	Excluded
2109300007	Vulcan Construction Materials LLC - Fort Knox Quarry	Hardin	VFK	598450.53	4182487.65	1.476E+00	33.35	0.04	Excluded	Excluded
2116300001	Monument Chemical Kentucky LLC	Meade	MCK	577136.95	4206548.99	1.796E+00	1.54	1.17	Included	Included
2116300003	Kosmos Cement Company LLC	Meade	KCC	563038.05	4214368.00	3.358E+01	14.67	2.29	Excluded	Excluded
2116300020	Hilltop Big Bend Quarry LLC	Meade	HBQ	561598.76	4222968.91	2.346E+00	21.42	0.11	Excluded	Excluded
2116300005	Riverside Stone Co	Meade	RSC	554779.51	4219533.20	9.663E+00	24.40	0.40	Excluded	Excluded
2102700006	Mago Construction Co LLC	Breckinridge	MCB	561082.66	4194300.19	1.188E-01	19.15	0.01	Excluded	Excluded
2109300063	Metalsa Structural Products Inc	Hardin	MSP	595140.10	4170427.37	5.948E+00	41.32	0.14	Excluded	Excluded
2109300080	Modern Welding Company of Kentucky Inc - Elizabethtown	Hardin	MWE	602018.82	4170786.72	2.003E-01	44.67	0.00	Excluded	Excluded
2109300026	Scottys Contracting & Stone LLC - Fort Knox Plant 4	Hardin	SCF	598865.60	4182554.32	6.323E-01	33.59	0.02	Excluded	Excluded
2116300017	Louisville Gas & Electric - Muldraugh Transmission Station	Meade	LGM	588240.00	4199586.79	3.192E-01	14.52	0.02	Excluded	Excluded
2109300043	Mouser Cabinetry LLC	Hardin	MCC	597542.51	4177838.58	1.691E+00	36.34	0.05	Excluded	Excluded
2102700002	Breck Co Ready Mix Co	Breckinridge	BRM	561302.89	4190973.10	2.479E-02	21.33	0.00	Excluded	Excluded
2102700009	Indiana Hardwoods	Breckinridge	IHB	535382.31	4187363.99	4.500E-01	44.62	0.01	Excluded	Excluded
2102700024	Mago Construction Co LLC	Breckinridge	MAG	531091.47	4187474.57	1.045E-01	48.46	0.00	Excluded	Excluded
2102900037	Horner Industrial Group Inc	Bullitt	HIG	614979.86	4214636.98	3.482E+00	40.07	0.09	Excluded	Excluded
2109300086	Richard & Emma Cook Residence	Hardin	REC	572296.12	4174572.73	2.628E-02	32.45	0.00	Excluded	Excluded
2109300084	Summit Polymers Inc	Hardin	SPI	594885.21	4171287.53	3.778E-01	40.44	0.01	Excluded	Excluded
2102909043	Louisville Paving Company Inc - Bullitt County Portable Asphalt Plant	Bullitt	LPB	612543.44	4203784.82	1.887E-01	36.98	0.01	Excluded	Excluded
2102909066	E & B Paving Inc - Portable Plant	Bullitt	EBP	549360.50	4182039.92	1.195E-02	36.07	0.00	Excluded	Excluded
2109309081	Scottys Contracting & Stone LLC - Portable Power Screen	Hardin	SCH	598816.27	4182584.58	3.686E-02	33.53	0.00	Excluded	Excluded
2109300088	KY Concrete Inc	Hardin	KYC	600192.58	4165925.09	1.333E+01	47.73	0.28	Excluded	Excluded
2102900009	Quality Stone & Ready Mix Inc Quarry	Bullitt	QCR	614919.34	4210002.62	1.274E+01	39.36	0.32	Excluded	Excluded
2102700022	Texas Gas Transmission LLC - Hardinsburg Transmission Station	Breckinridge	TGT	545248.96	4182208.36	6.511E+00	39.05	0.17	Excluded	Excluded
2102700039	Crist Propane Services LLC	Breckinridge	CPS	561402.48	4190959.64	1.030E+00	21.27	0.05	Excluded	Excluded
2102900043	Gordons Food Service	Bullitt	GFS	615151.83	4203907.48	1.188E-04	39.56	0.00	Excluded	Excluded
2102900044	Astra Zeneca Pharmaceuticals LP	Bullitt	AZP	616498.72	4202601.44	1.113E-01	41.02	0.00	Excluded	Excluded
2102900045	Marrillia Environmental LLC	Bullitt	MEL	627183.88	4214515.00	7.581E-01	52.04	0.01	Excluded	Excluded
2109300094	East KY Power Coop - Hardin Co Landfill Gas to Electric Plant	Hardin	EPC	612286.00	4176160.36	1.320E-01	47.76	0.00	Excluded	Excluded
2102900046	Sabert Corp	Bullitt	SAB	613631.67	4211506.92	4.403E+00	38.23	0.12	Excluded	Excluded

2116309172	Haydon Materials LLC - Metso LT105 Portable Plant	Meade	HAY	562738.25	4214069.75	1.320E-01	14.78	0.01	Excluded	Excluded
2102909186	Flynn Brothers Contracting - Portable	Bullitt	FBC	613292.07	4214893.23	7.011E-02	38.47	0.00	Excluded	Excluded
2109300097	Ky Dept of Military Affairs - KY MATES	Hardin	DMA	592402.27	4198199.76	5.093E-02	18.84	0.00	Excluded	Excluded
2102909199	Mago Construction Co LLC - Portable Screening Unit	Bullitt	MCT	615780.31	4209564.09	2.389E-03	40.18	0.00	Excluded	Excluded
2102909201	Mago Construction Co LLC - HMA Portable RAP Plant 1	Bullitt	MCT	615780.31	4209564.09	9.178E-03	40.18	0.00	Excluded	Excluded
2102900048	On Site Electrostatic Painting Co	Bullitt	OEP	615044.96	4215090.15	3.764E-02	40.22	0.00	Excluded	Excluded
2109309230	Scottys Contracting & Stone LLC - Portable Asphalt Plant	Hardin	SCL	590126.70	4187545.26	7.671E-01	24.11	0.03	Excluded	Excluded
2102900049	IQL Corp	Bullitt	IQL	614966.16	4214861.64	1.508E-03	40.10	0.00	Excluded	Excluded
2109309249	Mink Bros Quarry LLC - Portable Processing Plant	Hardin	MBQ	586610.62	4161425.83	3.448E-01	46.76	0.01	Excluded	Excluded
2102700031	KY RSA #3 Cellular GP - Stephensport (COW3)	Breckinridge	RSA05	541124.40	4195038.72	5.751E-05	36.37	0.00	Excluded	Excluded
2102700032	KY RSA #3 Cellular GP - Kingswood Cell Tower Engine	Breckinridge	RSA03	551279.24	4172227.10	2.815E-05	42.29	0.00	Excluded	Excluded
2102700033	KY RSA #3 Cellular GP - Garfield Cell Tower Engine	Breckinridge	RSA02	558912.15	4183620.15	1.805E-05	28.57	0.00	Excluded	Excluded
2102700034	KY RSA #3 Cellular GP - McQuady Cell Tower Engine	Breckinridge	RSA04	541744.65	4173837.67	2.716E-05	47.25	0.00	Excluded	Excluded
2109300102	KY RSA #4 Cellular GP - Elizabethtown West Cell Tower Engine	Hardin	RSA06	591793.05	4173995.87	1.110E-04	36.61	0.00	Excluded	Excluded
2109300105	KY RSA #4 Cellular GP - Howe Valley	Hardin	RSA10	583426.63	4170732.37	2.184E-05	36.96	0.00	Excluded	Excluded
2109300106	KY RSA #4 Cellular GP - Stephensburg	Hardin	RSA13	583239.97	4162500.89	1.698E-05	45.03	0.00	Excluded	Excluded
2109300107	KY RSA #4 Cellular GP - Ft Knox	Hardin	RSA07	592994.23	4193366.98	1.654E-05	21.95	0.00	Excluded	Excluded
2109300108	KY RSA #4 Cellular GP - Vertrees	Hardin	RSA14	570004.69	4173381.71	2.023E-05	33.94	0.00	Excluded	Excluded
2109300109	KY RSA #4 Cellular GP - Ft Knox II	Hardin	RSA08	589861.69	4193856.06	2.182E-05	19.24	0.00	Excluded	Excluded
2112300020	KY RSA #4 Cellular GP - Sonora	Hardin	RSA12	599463.11	4153155.25	8.220E-05	58.78	0.00	Excluded	Excluded
2102900050	Louisville Seating Division of Magna	Bullitt	SDM	616227.99	4202825.32	2.169E-02	40.72	0.00	Excluded	Excluded
2109300110	KY RSA #4 Cellular GP - Ft Knox III	Hardin	RSA09	594665.41	4195050.63	8.819E-05	22.36	0.00	Excluded	Excluded
2109300112	KY RSA #4 Cellular GP - Longview	Hardin	RSA11	595851.92	4184002.00	5.032E-05	30.48	0.00	Excluded	Excluded
2116300026	KY RSA #3 Cellular GP - Ft Knox Cell Tower Engine	Meade	RSA01	588740.64	4196182.16	3.699E-05	16.87	0.00	Excluded	Excluded
2109300120	Flex Films USA	Hardin	FLX	594843.96	4170373.70	1.075E+00	41.23	0.03	Excluded	Excluded
2102909326	Hall Contracting of Kentucky Inc - Portable Asphalt Plant	Bullitt	HCK	612969.83	4215051.57	7.149E-01	38.19	0.02	Excluded	Excluded
2109300131	Quest Industries LLC	Hardin	QUI	598065.51	4171560.69	4.572E+00	41.81	0.11	Excluded	Excluded
2102900061	Santa Rosa Systems Corp Office & Assembly Plant	Bullitt	SRS	615097.59	4214718.21	3.181E-01	40.20	0.01	Excluded	Excluded
2116309430	Haydon Materials Battletown LLC - Battletown Portable Plant	Meade	HMB	562738.25	4214069.75	2.314E+00	14.78	0.16	Excluded	Excluded

Table C-6
Kentucky Offsite Inventory
$PM_{2.5}$ Sources

Facility ID	Facility Name	PM25 Estimated Emissions (TPY) 2020	Prefix	SRCID	UTMe	UTMn	Elev (m)	TYPE	Qs (g/s)	Hs (m)	Ts (K)	Vs (m/s)	Ds (m)
2116300001	Monument Chemical Kentucky LLC	3.487E-01	MCK	MCK01	577136.95	4206548.99	139.89	POINT	1.003E-02	14.94	422.04	7.92	1.40
2116300001	Monument Chemical Kentucky LLC	3.287E-01	MCK	MCK02	577136.95	4206548.99	139.89	POINT	9.457E-03	14.94	422.04	7.92	1.40
2116300001	Monument Chemical Kentucky LLC	3.487E-01	MCK	MCK03	577136.95	4206548.99	139.89	POINT	1.003E-02	14.94	422.04	7.92	1.40
2116300001	Monument Chemical Kentucky LLC	1.904E-02	MCK	MCK04	577136.95	4206548.99	139.89	POINT	5.479E-04	11.89	293.15	5.10	0.09
2116300001	Monument Chemical Kentucky LLC	1.386E-05	MCK	MCK05	577136.95	4206548.99	139.89	POINT	3.988E-07	5.03	293.15	12.12	0.57
2116300001	Monument Chemical Kentucky LLC	2.612E-01	MCK	MCK06	577136.95	4206548.99	139.89	POINT	7.514E-03	4.27	293.15	2.48	0.08
2116300001	Monument Chemical Kentucky LLC	2.447E-01	MCK	MCK07	577136.95	4206548.99	139.89	POINT	7.040E-03	21.64	293.15	6.51	0.20
2116300001	Monument Chemical Kentucky LLC	2.447E-01	MCK	MCK08	577136.95	4206548.99	139.89	POINT	7.040E-03	19.20	293.15	12.65	0.20

Table C-7
Kentucky Offsite Inventory
SO_2 Sources

SIA (km)	17	6

Facility ID	Facility Name	County	Prefix	UTM16e	UTM16n	SO_2 Estimated Emissions (TPY) 2017	Distance (km)	Q/D	1hr List	3, 24hr List
2102700004	Mago Construction Co LLC - Hardinsburg Asphalt Plant	Breckinridge	MCH	542494.94	4180282.87	1.96	42.40	0.05	Excluded	Excluded
2102900005	Jim Beam Brands Co - Clermont Plant	Bullitt	JBC	618473.06	4198751.09	0.17	43.52	0.00	Excluded	Excluded
2102900002	Arcosa LW KY LLC	Bullitt	ARC	612864.02	4210602.20	711.52	37.37	19.04	Excluded	Excluded
2102900010	Mago Construction Co LLC - Shepherdsville Asphalt Facility	Bullitt	MCS	615679.74	4209778.42	0.14	40.10	0.00	Excluded	Excluded
2102900038	Speyside Cooperage Kentucky Inc	Bullitt	SPC	613050.01	4206608.25	0.00	37.36	0.00	Excluded	Excluded
2102900019	Distinct Packabilities	Bullitt	DPA	612836.35	4205546.11	0.01	37.17	0.00	Excluded	Excluded
2102900032	LSC Communications Lebanon Junction	Bullitt	LSC	614172.03	4186698.25	0.04	43.43	0.00	Excluded	Excluded
2109300022	US Army Garrison - Fort Knox	Hardin	AFK	606232.21	4201442.69	0.58	31.02	0.02	Excluded	Excluded
2109300054	Akebono Brake Corp	Hardin	ABC	595448.92	4171263.18	0.63	40.73	0.02	Excluded	Excluded
2109300090	AGC Automotive Americas	Hardin	AGC	594910.56	4169801.44	0.03	41.77	0.00	Excluded	Excluded
2109300046	Flint Group Pigments	Hardin	FLT	595908.60	4171761.74	0.04	40.52	0.00	Excluded	Excluded
2109300005	Dow Silicones Corporation - Elizabethtown Plant	Hardin	DSE	602835.69	4169625.68	0.03	46.10	0.00	Excluded	Excluded
2109300021	The Gates Corp	Hardin	GAT	598421.78	4171212.94	0.01	42.30	0.00	Excluded	Excluded
2109300085	Hardin Co Contained Landfill	Hardin	HCL	612012.26	4174677.02	0.01	48.53	0.00	Excluded	Excluded
2109300032	Baptist Health Hardin	Hardin	HMH	598989.21	4174294.85	0.03	40.05	0.00	Excluded	Excluded
2109300068	Modern Plating Coatings & Finishes	Hardin	MPC	595574.97	4170956.37	0.00	41.06	0.00	Excluded	Excluded
2116300001	Monument Chemical Kentucky LLC	Meade	MCK	577136.95	4206548.99	0.36	1.54	0.24	Included	Included
2102700006	Mago Construction Co LLC	Breckinridge	MCB	595140.10	4170427.37	0.05	19.15	0.00	Excluded	Excluded
2109300063	Metalsa Structural Products Inc	Hardin	MSP	595140.10	4170427.37	0.13	41.32	0.00	Excluded	Excluded
2109300080	Modern Welding Company of Kentucky Inc - Elizabethtown	Hardin	MWE	598865.60	4182554.32	0.00	44.67	0.00	Excluded	Excluded
2109300026	Scottys Contracting & Stone LLC - Fort Knox Plant 4	Hardin	SCF	588240.00	4199586.79	0.27	33.59	0.01	Excluded	Excluded
2116300017	Louisville Gas & Electric - Muldraugh Transmission Station	Meade	LGM	588240.00	4199586.79	63.11	14.52	4.35	Included	Excluded
2109300043	Mouser Cabinetry LLC	Hardin	MCC	597542.51	4177838.58	0.00	36.34	0.00	Excluded	Excluded
2102900037	Horner Industrial Group Inc	Bullitt	HIG	545248.96	4182208.36	0.00	40.07	0.00	Excluded	Excluded
2102909043	Louisville Paving Company Inc - Bullitt County Portable Asphalt Plant	Bullitt	LPB	545248.96	4182208.36	0.07	36.98	0.00	Excluded	Excluded
2102700022	Texas Gas Transmission LLC - Hardinsburg Transmission Station	Breckinridge	TGT	545248.96	4182208.36	0.10	39.05	0.00	Excluded	Excluded
2102700039	Crist Propane Services LLC	Breckinridge	CPS	576306.94	4206633.74	0.00	21.27	0.00	Excluded	Excluded
2102900043	Gordons Food Service	Bullitt	GFS	616498.72	4202601.44	0.02	39.56	0.00	Excluded	Excluded
2102900044	Astra Zeneca Pharmaceuticals LP	Bullitt	AZP	616498.72	4202601.44	0.23	41.02	0.01	Excluded	Excluded
2102900045	Marrillia Environmental LLC	Bullitt	MEL	613631.67	4211506.92	0.08	52.04	0.00	Excluded	Excluded
2109300094	East KY Power Coop - Hardin Co Landfill Gas to Electric Plant	Hardin	EPC	613631.67	4211506.92	0.64	47.76	0.01	Excluded	Excluded
2102900046	Sabert Corp	Bullitt	SAB	613292.07	4214893.23	0.00	38.23	0.00	Excluded	Excluded
2102909186	Flynn Brothers Contracting - Portable	Bullitt	FBC	615044.96	4215090.15	0.03	38.47	0.00	Excluded	Excluded
2109300097	Ky Dept of Military Affairs - KY MATES	Hardin	DMA	615044.96	4215090.15	0.45	18.84	0.02	Excluded	Excluded
2102909201	Mago Construction Co LLC - HMA Portable RAP Plant 1	Bullitt	MCT	590126.70	4187545.26	0.01	40.18	0.00	Excluded	Excluded
2102900048	On Site Electrostatic Painting Co	Bullitt	OEP	590126.70	4187545.26	0.00	40.22	0.00	Excluded	Excluded
2109309230	Scottys Contracting & Stone LLC - Portable Asphalt Plant	Hardin	SCL	586610.62	4161425.83	0.49	24.11	0.02	Excluded	Excluded
2109309249	Mink Bros Quarry LLC - Portable Processing Plant	Hardin	MBQ	586610.62	4161425.83	0.28	46.76	0.01	Excluded	Excluded
2102700031	KY RSA #3 Cellular GP - Stephensport (COW3)	Breckinridge	RSA05	541744.65	4173837.67	0.00	36.37	0.00	Excluded	Excluded
2102700032	KY RSA #3 Cellular GP - Kingswood Cell Tower Engine	Breckinridge	RSA03	591793.05	4173995.87	0.00	42.29	0.00	Excluded	Excluded
2102700033	KY RSA #3 Cellular GP - Garfield Cell Tower Engine	Breckinridge	RSA02	583426.63	4170732.37	0.00	28.57	0.00	Excluded	Excluded
2102700034	KY RSA #3 Cellular GP - McQuady Cell Tower Engine	Breckinridge	RSA04	583239.97	4162500.89	0.00	47.25	0.00	Excluded	Excluded
2109300102	KY RSA #4 Cellular GP - Elizabethtown West Cell Tower Engine	Hardin	RSA06	592994.23	4193366.98	0.00	36.61	0.00	Excluded	Excluded
2109300105	KY RSA #4 Cellular GP - Howe Valley	Hardin	RSA10	570004.69	4173381.71	0.00	36.96	0.00	Excluded	Excluded
2109300106	KY RSA #4 Cellular GP - Stephensburg	Hardin	RSA13	589861.69	4193856.06	0.00	45.03	0.00	Excluded	Excluded
2109300107	KY RSA #4 Cellular GP - Ft Knox	Hardin	RSA07	599463.11	4153155.25	0.00	21.95	0.00	Excluded	Excluded
2109300108	KY RSA #4 Cellular GP - Vertrees	Hardin	RSA14	616227.99	4202825.32	0.00	33.94	0.00	Excluded	Excluded
2109300109	KY RSA #4 Cellular GP - Ft Knox II	Hardin	RSA08	616227.99	4202825.32	0.00	19.24	0.00	Excluded	Excluded
2112300020	KY RSA #4 Cellular GP - Sonora	Hardin	RSA12	594665.41	4195050.63	0.00	58.78	0.00	Excluded	Excluded
2102900050	Louisville Seating Division of Magna	Bullitt	SDM	595851.92	4184002.00	0.00	40.72	0.00	Excluded	Excluded
2109300110	KY RSA #4 Cellular GP - Ft Knox III	Hardin	RSA09	594843.93	4170373.70	0.00	22.36	0.00	Excluded	Excluded
2109300112	KY RSA #4 Cellular GP - Longview	Hardin	RSA11	594843.93	4170373.70	0.00	30.48	0.00	Excluded	Excluded
2116300026	KY RSA #3 Cellular GP - Ft Knox Cell Tower Engine	Meade	RSA01	594843.93	4170373.70	0.00	16.87	0.00	Included	Excluded
2109300120	Flex Films USA	Hardin	FLX	594843.93	4170373.70	0.08	41.23	0.00	Excluded	Excluded
2102909326	Hall Contracting of Kentucky Inc - Portable Asphalt Plant	Bullitt	HCK	612969.83	4215051.57	0.33	38.19	0.01	Excluded	Excluded
2109300131	Quest Industries LLC	Hardin	QUI	598065.51	4171560.69	0.00	41.81	0.00	Excluded	Excluded

Table C-8
Kentucky Offsite Inventory
SO_2 Sources

Facility ID	Facility Name	SO2 Estimated Emissions (TPY) 2020	Prefix	SRCID	UTMe16	UTMn16	Elev (m)	TYPE	Q (g/s)	Hs (m)	Ts (K)	Vs (m/s)	Ds (m)
2116300026	KY RSA #3 Cellular GP - Ft Knox Cell Tower Engine	5.700E-07	RSA01	RSA0101	594843.93	4170373.70	237.78	POINT	1.640E-08	10.00	298.15	10.00	0.10
2116300017	Louisville Gas & Electric - Muldraugh Transmission Station	6.233E-03	LGM	LGM01	588240.00	4199586.79	225.20	POINT	1.793E-04	6.10	449.82	10.52	0.52
2116300017	Louisville Gas & Electric - Muldraugh Transmission Station	1.545E-03	LGM	LGM02	588240.00	4199586.79	225.20	POINT	4.445E-05	6.10	588.71	1.21	0.76
2116300017	Louisville Gas & Electric - Muldraugh Transmission Station	7.780E-03	LGM	LGM03	588240.00	4199586.79	225.20	POINT	2.238E-04	7.01	729.26	39.96	0.63
2116300017	Louisville Gas & Electric - Muldraugh Transmission Station	6.307E+01	LGM	LGM04	588240.00	4199586.79	225.20	POINT	1.815E+00	7.01	729.26	39.96	0.63
2116300017	Louisville Gas & Electric - Muldraugh Transmission Station	1.469E-05	LGM	LGM05	588240.00	4199586.79	225.20	POINT	4.226E-07	7.92	740.37	2.04	0.41
2116300017	Louisville Gas & Electric - Muldraugh Transmission Station	7.154E-03	LGM	LGM06	588240.00	4199586.79	225.20	POINT	2.058E-04	9.14	698.71	2.36	0.64
2116300017	Louisville Gas & Electric - Muldraugh Transmission Station	7.061E-03	LGM	LGM07	588240.00	4199586.79	225.20	POINT	2.031E-04	6.10	698.71	3.74	0.51
2116300017	Louisville Gas & Electric - Muldraugh Transmission Station	9.000E-07	LGM	LGM08	588240.00	4199586.79	225.20	POINT	2.589E-08	3.46	945.37	77.78	0.22
2116300017	Louisville Gas & Electric - Muldraugh Transmission Station	1.314E-04	LGM	LGM09	588240.00	4199586.79	225.20	POINT	3.780E-06	6.40	588.71	28.47	0.27
2116300017	Louisville Gas & Electric - Muldraugh Transmission Station	1.914E-04	LGM	LGM10	588240.00	4199586.79	225.20	POINT	5.505E-06	7.01	588.71	33.13	0.36
2116300017	Louisville Gas & Electric - Muldraugh Transmission Station	3.978E-05	LGM	LGM11	588240.00	4199586.79	225.20	POINT	1.144E-06	7.01	588.71	33.13	0.36
2116300017	Louisville Gas & Electric - Muldraugh Transmission Station	2.158E-04	LGM	LGM12	588240.00	4199586.79	225.20	POINT	6.208E-06	7.01	588.71	33.13	0.36
2116300017	Louisville Gas & Electric - Muldraugh Transmission Station	2.381E-04	LGM	LGM13	588240.00	4199586.79	225.20	POINT	6.849E-06	7.01	588.71	33.13	0.36
2116300017	Louisville Gas & Electric - Muldraugh Transmission Station	3.667E-04	LGM	LGM14	588240.00	4199586.79	225.20	POINT	1.055E-05	7.01	588.71	33.13	0.36
2116300017	Louisville Gas & Electric - Muldraugh Transmission Station	8.793E-04	LGM	LGM15	588240.00	4199586.79	225.20	POINT	2.530E-05	7.01	588.71	33.13	0.36
2116300017	Louisville Gas & Electric - Muldraugh Transmission Station	1.918E-03	LGM	LGM16	588240.00	4199586.79	225.20	POINT	5.518E-05	7.01	729.26	39.96	0.63
2116300017	Louisville Gas & Electric - Muldraugh Transmission Station	1.734E-05	LGM	LGM17	588240.00	4199586.79	225.20	POINT	4.989E-07	7.01	729.26	39.96	0.63
2116300017	Louisville Gas & Electric - Muldraugh Transmission Station	2.601E-04	LGM	LGM18	597542.51	4177838.58	225.20	POINT	7.483E-06	6.10	1088.71	0.38	0.66
2116300017	Louisville Gas & Electric - Muldraugh Transmission Station	2.269E-03	LGM	LGM19	597542.51	4177838.58	265.79	POINT	6.527E-05	6.10	1088.71	0.38	0.66
2116300001	Monument Chemical Kentucky LLC	1.101E-01	MCK	MCK01	577136.95	4206548.99	139.89	POINT	3.168E-03	14.94	422.04	7.92	1.40
2116300001	Monument Chemical Kentucky LLC	1.038E-01	MCK	MCK02	577136.95	4206548.99	139.89	POINT	2.986E-03	14.94	422.04	7.92	1.40
2116300001	Monument Chemical Kentucky LLC	1.101E-01	MCK	MCK03	577136.95	4206548.99	139.89	POINT	3.168E-03	14.94	422.04	7.92	1.40
2116300001	Monument Chemical Kentucky LLC	1.054E-03	MCK	MCK04	561082.66	4194300.19	139.89	POINT	3.033E-05	10.00	288.15	10.00	0.10
2116300001	Monument Chemical Kentucky LLC	3.894E-02	MCK	MCK05	561082.66	4194300.19	139.89	POINT	1.120E-03	10.00	305.37	10.00	0.10

Table C-9
Louisville Offsite Inventory
NOX Facilities

SIA (km)	5.3	55.2

Facility ID	Facility Name	Prefix	UTM16e	UTM16n	DIST (km)	NOX (TPY) 2020	Q/D	Annual List	1hr List
1	Carbide Industries LLC	CBD	601964.17	4231089.30	36.10	9.05	0.25	Excluded	Included
2	Industrial Container Services	ICS	608039.00	4230789.55	40.58	0.88	0.02	Excluded	Included
11	American Synthetic Rubber Company	ASR	600764.48	4229912.35	34.42	240.62	6.99	Excluded	Included
15	LLFlex, LLC	LLF	607158.59	4232016.42	40.64	0.58	0.01	Excluded	Included
16	Anderson Wood Products	AWP	601819.32	4231120.77	36.01	125.29	3.48	Excluded	Included
26	Brown-Forman Cooperage	BAE	609401.32	4225858.02	39.02	5.43	0.14	Excluded	Included
28	Hexion Inc.	HEX	598766.47	4228174.27	31.77	19.79	0.62	Excluded	Included
34	Caldwell Tanks	CWT	614922.09	4223418.27	42.88	1.94	0.05	Excluded	Included
36	Clariant Corporation, Louisville West Plant	CLW	607217.49	4232593.20	41.05	43.32	1.06	Excluded	Included
42	Clariant Corporation, Louisville South Plant	CLS	609565.11	4225861.33	39.16	13.25	0.34	Excluded	Included
47	Conco Inc.	CNC	615163.72	4223065.43	42.97	0.83	0.02	Excluded	Included
60	Kosmos Cement Company	KOS	595201.78	4210285.89	20.05	1339.35	66.78	Included	Included
62	Chemours Company	CMR	601574.72	4230588.33	35.47	14.47	0.41	Excluded	Included
72	Ford Motor Company, Louisville Assembly Plant	FMC	611577.36	4223768.97	39.98	42.65	1.07	Excluded	Included
73	Ford Motor Company, Kentucky Truck Plant	FMT	628073.16	4239641.15	62.13	47.05	0.76	Excluded	Excluded
82	Lubrizol Advanced Materials	LUB	602451.56	4231041.07	36.42	0.70	0.02	Excluded	Included
84	Buckeye Terminals	BUK	602058.65	4232276.86	36.98	0.01	0.00	Excluded	Included
125	Louisville Gas & Electric Co., Paddy's Run Station	LGP	601224.32	4230953.51	35.46	18.15	0.51	Excluded	Included
126	Louisville Gas & Electric Co., Cane Run Station	LGC	597828.58	4226496.04	29.95	411.30	13.73	Excluded	Included
127	Louisville Gas & Electric Co., Mill Creek Station	LGJ	595833.90	4212437.29	21.17	5259.66	248.43	Included	Included
143	MPLX Terminals LLC - Kramers Lane Terminal	MPK	631016.55	4220405.34	57.22	0.00	0.00	Excluded	Excluded
148	Louisville Medical Center Steam & Chilled Water Plant	LMC	609349.59	4234236.50	43.74	84.53	1.93	Excluded	Included
149	Metropolitan Sewer District, Morris Forman WWTP	MSD	602117.48	4232123.34	36.92	13.35	0.36	Excluded	Included
167	The Bulleit Distilling Co. (Diageo Americas Supply, Inc.)	BDC	604236.06	4229799.75	36.97	4.35	0.12	Excluded	Included
186	Reynolds Consumer Products, Foil Plant	RCP	604772.91	4233314.77	39.67	4.60	0.12	Excluded	Included
187	Eckart America Corporation	EAC	601758.19	4230480.76	35.53	2.42	0.07	Excluded	Included
189	Rohm & Haas Kentucky, Inc.	RHK	600912.30	4229925.29	34.53	166.45	4.82	Excluded	Included
191	Kindred Hospital - Louisville	KHL	602029.88	4231085.69	36.14	1.45	0.04	Excluded	Included
223	Texas Gas Transmission LLC	TGT	625500.08	4230813.57	55.58	0.83	0.01	Excluded	Excluded
232	Angel's Envy Distillery (Louisville Distilling Co.)	AED	609949.15	4234812.86	44.57	1.37	0.03	Excluded	Included
243	Heaven Hill Distilleries, Inc.	HHD	606685.09	4233670.46	41.33	27.31	0.66	Excluded	Included
244	Brown-Forman Distillery Co., Early Times	BFD	605597.63	4229468.89	37.84	18.55	0.49	Excluded	Included
283	Zeon Chemicals LP	ZCH	602598.08	4231155.01	36.61	2.38	0.07	Excluded	Included
290	Louisville Paving Company, Inc. Avoca Asphalt Plant	LPC	630895.22	4235953.58	62.72	1.53	0.02	Excluded	Excluded

415	Flynn Brothers Contracting	ECK	614360.66	4227748.72	44.27	3.73	0.08	Excluded	Included
461	Mizkan America, Inc.	MZA	606000.46	4228999.15	37.88	0.13	0.00	Excluded	Included
532	Outer Loop Recycling & Disposal Facility (Waste Management of KY)	OLR	611917.50	4222742.62	39.86	28.50	0.72	Excluded	Included
564	United Parcel Service, WorldPort	UPW	596085.37	4210308.45	20.93	4.13	0.20	Excluded	Included
626	Cardinal Aluminum Company	CAC	601983.49	4231015.19	36.06	3.09	0.09	Excluded	Included
741	MPLX Terminals LLC - Algonquin Terminal	MPA	602466.18	4232031.19	37.11	0.04	0.00	Excluded	Included
852	University of Louisville, Belknap Campus	ULB	608710.45	4230471.13	40.93	6.83	0.17	Excluded	Included
870	GE Appliances (Haier US Appliance Solutions)	4HT	618366.63	4226165.79	47.15	28.65	0.61	Excluded	Included
1128	Multi Packaging Solutions - Kentucky	MPS	609920.82	4234836.89	44.56	1.14	0.03	Excluded	Included
1248	Louisville Gas & Electric Co., Zorn Station	LGZ	613503.95	4237686.50	49.14	0.05	0.00	Excluded	Included
1294	Arkema dba Altuglas	ADA	601097.23	4229841.03	34.61	0.93	0.03	Excluded	Included
1333	Recast Energy Louisville, LLC	REL	602528.99	4230872.25	36.37	111.67	3.07	Excluded	Included
1334	UPS Supply Chain Solutions	UPS	602029.88	4231085.69	36.14	0.73	0.02	Excluded	Included
1553	Republic Conduit Manufacturing	RCM	597494.75	4225482.13	29.03	0.12	0.00	Excluded	Included
1568	NHK Spring Precision of America, Inc.	NHK	597912.91	4221023.71	26.69	0.23	0.01	Excluded	Included
1610	The Keebler Company	TKC	604775.62	4229583.64	37.26	3.17	0.09	Excluded	Included
1641	University of Louisville Shelby Campus	ULS	601949.07	4231106.87	36.10	0.90	0.02	Excluded	Included
1668	Sealed Air Corporation	SAC	609700.74	4222499.31	37.74	0.68	0.02	Excluded	Included
1734	Kentucky Trailer	KYT	597493.65	4224844.01	28.61	0.55	0.02	Excluded	Included
1785	Flexential Louisville Downtown	FLD	601819.32	4231120.77	36.01	0.15	0.00	Excluded	Included
1789	Norton Audubon Hospital	NAH	631699.67	4206876.52	56.20	13.77	0.24	Excluded	Excluded
1826	Michter's Distillery LLC	MDY	602093.00	4231078.71	36.18	1.87	0.05	Excluded	Included
1912	E.I. du Pont	DUP	601640.25	4230738.98	35.62	1.57	0.04	Excluded	Included

Table C-10
Louisville Offsite Inventory
NO_X Sources

Release Point	Facility ID	Facility Name	Percent	NOx (TPY) 2020	SRCID	Type	UTMe16	UTMn16	Height (m)	Q (g/s)	Hs (m)	Ts (K)	Vs (m/s)	Ds (m)
198	11	American Synthetic Rubber Company	67.0%	1.45	ASR01	POINT	600764.48	4229912.35	139.89	4.164E-02	64.01	1272.59	10.00	0.46
24	11	American Synthetic Rubber Company	89.0%	16.49	ASR02	POINT	600978.64	4229519.93	139.89	4.744E-01	53.34	449.82	10.00	1.43
25	11	American Synthetic Rubber Company	100.0%	213.23	ASR03	POINT	600933.87	4229529.36	139.89	6.135E+00	53.34	341.48	10.00	2.21
4619	11	American Synthetic Rubber Company	100.0%	6.70	ASR04	VOLUME	600695.66	4229954.78	139.89	1.928E-01	1.83	10.00	1.83	
23	11	American Synthetic Rubber Company	33.0%	0.71	ASR05	POINT	600782.09	4229904.80	139.89	2.051E-02	18.59	1088.71	10.00	1.83
27	11	American Synthetic Rubber Company	11.0%	2.04	ASR06	POINT	600905.53	4229554.53	139.89	5.863E-02	15.24	372.59	10.00	2.44
1	16	Anderson Wood Products	100.0%	62.65	AWP01	VOLUME	601819.32	4231120.77	139.89	1.802E+00	3.05	10.00	3.05	
1	16	Anderson Wood Products	100.0%	62.65	AWP02	VOLUME	601819.32	4231120.77	139.89	1.802E+00	3.05	10.00	3.05	
4419	232	Angel's Envy Distillery (Louisville Distilling Co.)	100.0%	1.37	AED01	POINTCAP	609928.67	4234774.84	139.89	3.930E-02	5.79	405.37	10.00	0.61
4135	1294	Arkema dba Altuglas	37.0%	0.34	ADA01	POINT	601097.23	4229841.03	139.89	9.870E-03	24.08	719.26	10.00	0.57
4147	1294	Arkema dba Altuglas	12.0%	0.11	ADA02	POINTCAP	601073.83	4229891.78	139.89	3.201E-03	20.42	505.37	10.00	0.36
4162	1294	Arkema dba Altuglas	51.0%	0.47	ADA03	POINT	601097.23	4229841.03	139.89	1.361E-02	24.08	719.26	10.00	0.57
2810	26	Brown-Forman Cooperage	100.0%	1.67	BAE01	POINT	609283.67	4225941.89	139.89	4.808E-02	12.80	294.26	10.00	1.13
2813	26	Brown-Forman Cooperage	100.0%	0.54	BAE02	POINT	609343.34	4225934.92	139.89	1.549E-02	11.58	340.93	10.00	1.01
3372	26	Brown-Forman Cooperage	100.0%	0.60	BAE03	POINTCAP	609383.18	4225904.38	139.89	1.737E-02	11.28	420.37	632.96	0.61
3373	26	Brown-Forman Cooperage	100.0%	0.61	BAE04	POINTCAP	609382.29	4225905.48	139.89	1.762E-02	11.28	420.37	632.96	0.61
3374	26	Brown-Forman Cooperage	100.0%	1.80	BAE05	POINTCAP	609390.15	4225906.70	139.89	5.188E-02	11.28	420.37	632.96	0.61
2818	26	Brown-Forman Cooperage	33.0%	0.07	BAE06	POINTCAP	609291.69	4225932.01	139.89	1.891E-03	12.19	310.93	10.00	0.61
2819	26	Brown-Forman Cooperage	33.0%	0.07	BAE07	POINTCAP	609292.67	4225924.25	139.89	1.891E-03	12.19	365.93	10.00	0.30
2820	26	Brown-Forman Cooperage	34.0%	0.07	BAE08	POINTCAP	609297.23	4225911.00	139.89	1.948E-03	12.19	295.37	10.00	0.61
253	244	Brown-Forman Distillery Co., Early Times	100.0%	16.89	BFD01	POINT	605538.53	4229434.83	139.89	4.858E-01	27.43	472.59	10.00	1.52
252	244	Brown-Forman Distillery Co., Early Times	100.0%	1.61	BFD02	POINT	605548.10	4229439.39	139.89	4.635E-02	27.43	439.26	10.00	1.52
4587	244	Brown-Forman Distillery Co., Early Times	100.0%	0.04	BFD03	POINTHOR	601296.53	4231011.01	139.89	1.219E-03	4.57	533.15	986.51	0.30
258	244	Brown-Forman Distillery Co., Early Times	100.0%	0.01	BFD04	VOLUME	605595.15	4229390.06	139.89	1.995E-04	0.91	10.00	0.91	
4585	244	Brown-Forman Distillery Co., Early Times	100.0%	0.01	BFD05	VOLUME	605565.64	4229437.40	139.89	2.268E-04	1.52	10.00	1.52	
3630	84	Buckeye Terminals	100.0%	0.01	BUK01	VOLUME	602058.65	4232276.86	139.89	3.567E-04	4.57	10.00	4.57	
3098	34	Caldwell Tanks	100.0%	0.93	CWT01	VOLUME	614922.09	4223418.27	139.89	2.673E-02	3.05	10.00	3.05	
3367	34	Caldwell Tanks	100.0%	0.15	CWT02	VOLUME	614922.29	4223403.85	139.89	4.276E-03	3.05	10.00	3.05	
810	34	Caldwell Tanks	100.0%	0.27	CWT03	VOLUME	614989.86	4223460.30	139.89	7.871E-03	3.05	10.00	3.05	
1827	34	Caldwell Tanks	100.0%	0.59	CWT04	VOLUME	614922.09	4223418.27	139.89	1.695E-02	9.14	10.00	9.14	
3426	1	Carbide Industries LLC	100.0%	0.06	CBD01	VOLUME	601964.17	4231089.30	139.89	1.702E-03	4.57	10.00	4.57	
923	1	Carbide Industries LLC	100.0%	0.39	CBD02	POINT	602090.29	4231085.34	139.89	1.119E-02	15.85	366.48	10.00	0.40
882	1	Carbide Industries LLC	100.0%	1.21	CBD03	POINTHOR	602181.14	4231032.10	139.89	3.490E-02	7.32	287.04	10.00	1.16
6	1	Carbide Industries LLC	100.0%	7.34	CBD04	POINT	602093.00	4231078.71	139.89	2.113E-01	30.78	1255.37	10.00	0.52
884	1	Carbide Industries LLC	6.0%	0.00	CBD05	POINT	601720.41	4231188.34	139.89	8.196E-05	10.06	1269.82	10.00	0.09
1830	1	Carbide Industries LLC	94.0%	0.04	CBD06	VOLUME	601853.11	4231148.94	139.89	1.284E-03	0.30	10.00	0.30	
7	626	Cardinal Aluminum Company	50.0%	1.27	CAC01	POINT	601983.49	4231015.19	139.89	3.666E-02	15.24	422.04	19.40	0.30
2	626	Cardinal Aluminum Company	100.0%	0.55	CAC02	POINT	602029.88	4231085.69	139.89	1.571E-02	15.24	422.04	15.52	0.30
8	626	Cardinal Aluminum Company	50.0%	1.27	CAC03	VOLUME	602122.48	4231032.47	139.89	3.666E-02	15.24	10.00	15.24	
673	62	Chemours Company	100.0%	13.90	CMR01	POINT	601574.72	4230588.33	139.89	3.999E-01	45.11	447.04	10.00	2.13
2878	62	Chemours Company	100.0%	0.57	CMR02	VOLUME	601413.76	4230507.52	139.89	1.646E-02	8.53	10.00	8.53	
359	42	Clariant Corporation, Louisville South Plant	66.0%	0.00	CLS01	POINT	609585.06	4225876.03	139.89	7.781E-05	14.33	293.15	10.00	0.30
4772	42	Clariant Corporation, Louisville South Plant	100.0%	0.00	CLS02	POINT	609532.92	4225844.25	139.89	1.158E-05	13.72	449.82	345.07	0.66
390	42	Clariant Corporation, Louisville South Plant	50.0%	2.75	CLS03	POINTCAP	609588.00	4225852.77	139.89	7.905E-02	10.36	519.26	10.00	0.76
401	42	Clariant Corporation, Louisville South Plant	100.0%	2.64	CLS04	VOLUME	609531.46	4225887.52	139.89	7.588E-02	6.10	10.00	6.10	
359	42	Clariant Corporation, Louisville South Plant	76.0%	0.76	CLS05	POINT	609585.06	4225876.03	139.89	2.182E-02	14.33	293.15	10.00	0.30

359	42	Clariant Corporation, Louisville South Plant	79.0%	0.57	CLS06	POINT	609585.06	4225876.03	139.89	1.631E-02	14.33	293.15	10.00	0.30
817	42	Clariant Corporation, Louisville South Plant	100.0%	0.02	CLS07	POINT	609563.08	4225816.91	139.89	4.441E-04	13.11	380.37	10.00	0.15
426	42	Clariant Corporation, Louisville South Plant	100.0%	0.32	CLS08	POINT	609567.95	4225845.84	139.89	9.220E-03	11.28	322.04	10.00	0.66
359	42	Clariant Corporation, Louisville South Plant	89.0%	1.43	CLS09	POINT	609585.06	4225876.03	139.89	4.102E-02	14.33	293.15	10.00	0.30
359	42	Clariant Corporation, Louisville South Plant	100.0%	1.16	CLS10	POINT	609585.06	4225876.03	139.89	3.343E-02	14.33	293.15	10.00	0.30
4748	42	Clariant Corporation, Louisville South Plant	100.0%	0.30	CLS11	VOLUME	609712.58	4225840.02	139.89	8.696E-03	0.91	10.00	0.91	
4772	42	Clariant Corporation, Louisville South Plant	34.0%	0.00	CLS12	POINT	609532.92	4225844.25	139.89	4.008E-05	13.72	449.82	345.07	0.66
452	42	Clariant Corporation, Louisville South Plant	50.0%	2.75	CLS13	POINTCAP	609590.68	4225849.47	139.89	7.905E-02	10.67	519.26	10.00	0.76
4772	42	Clariant Corporation, Louisville South Plant	24.0%	0.24	CLS14	POINT	609532.92	4225844.25	139.89	6.889E-03	13.72	449.82	345.07	0.66
4772	42	Clariant Corporation, Louisville South Plant	21.0%	0.15	CLS15	POINT	609532.92	4225844.25	139.89	4.336E-03	13.72	449.82	345.07	0.66
4772	42	Clariant Corporation, Louisville South Plant	11.0%	0.18	CLS16	POINT	609532.92	4225844.25	139.89	5.070E-03	13.72	449.82	345.07	0.66
534	36	Clariant Corporation, Louisville West Plant	100.0%	5.57	CLW01	POINT	607299.92	4232582.08	139.89	1.603E-01	18.59	310.93	10.00	0.41
497	36	Clariant Corporation, Louisville West Plant	100.0%	10.76	CLW02	VOLUME	607175.22	4232612.61	139.89	3.097E-01	6.10	10.00	6.10	
549	36	Clariant Corporation, Louisville West Plant	100.0%	6.66	CLW03	POINT	607210.41	4232665.24	139.89	1.917E-01	10.06	733.15	10.00	0.71
556	36	Clariant Corporation, Louisville West Plant	100.0%	0.24	CLW04	POINTHOR	607261.92	4232675.91	139.89	6.800E-03	12.19	293.15	10.00	0.56
1982	36	Clariant Corporation, Louisville West Plant	100.0%	2.16	CLW05	POINTHOR	607268.06	4232674.88	139.89	6.212E-02	12.19	293.15	10.00	0.56
1998	36	Clariant Corporation, Louisville West Plant	100.0%	1.87	CLW06	POINT	607137.48	4232619.88	139.89	5.389E-02	19.81	293.15	10.00	0.41
664	36	Clariant Corporation, Louisville West Plant	100.0%	7.72	CLW07	POINT	607087.05	4232262.97	139.89	2.222E-01	20.27	293.15	10.00	0.25
3190	36	Clariant Corporation, Louisville West Plant	100.0%	5.16	CLW08	POINT	607170.94	4232472.72	139.89	1.483E-01	9.75	466.48	10.00	1.22
3188	36	Clariant Corporation, Louisville West Plant	30.0%	0.93	CLW09	POINT	607165.59	4232480.42	139.89	2.684E-02	10.67	466.48	10.00	0.61
3545	36	Clariant Corporation, Louisville West Plant	100.0%	0.01	CLW10	POINT	607377.60	4232421.08	139.89	2.212E-04	3.81	744.26	2862.50	0.08
3542	36	Clariant Corporation, Louisville West Plant	100.0%	0.03	CLW11	POINT	607343.76	4232378.45	139.89	7.511E-04	1.98	898.15	7242.46	0.10
3529	36	Clariant Corporation, Louisville West Plant	100.0%	0.03	CLW12	POINT	607243.65	4232666.79	139.89	7.641E-04	8.47	755.37	10.00	0.61
3189	36	Clariant Corporation, Louisville West Plant	70.0%	2.18	CLW13	POINT	607172.77	4232467.20	139.89	6.263E-02	10.67	466.48	10.00	1.22
271	47	Conco Inc.	100.0%	0.20	CNC01	POINT	615163.72	4223065.43	139.89	5.754E-03	7.92	449.82	10.00	0.30
271	47	Conco Inc.	33.0%	0.07	CNC02	POINT	615163.72	4223065.43	139.89	1.899E-03	7.92	449.82	10.00	0.30
3463	47	Conco Inc.	100.0%	0.13	CNC03	POINT	615137.42	4223066.17	139.89	3.798E-03	9.91	422.04	10.00	0.40
288	47	Conco Inc.	61.0%	0.16	CNC04	POINT	615125.68	4223028.27	139.89	4.475E-03	8.84	449.82	10.00	0.18
287	47	Conco Inc.	100.0%	0.01	CNC05	POINT	615133.54	4223030.60	139.89	3.021E-04	9.91	422.04	10.00	0.46
3558	47	Conco Inc.	100.0%	0.04	CNC06	VOLUME	615169.85	4223065.52	139.89	1.079E-03	1.22	10.00	1.22	
272	47	Conco Inc.	33.0%	0.07	CNC07	POINT	615148.85	4223063.00	139.89	1.899E-03	8.84	449.82	10.00	0.40
289	47	Conco Inc.	39.0%	0.10	CNC08	POINT	615115.17	4223028.12	139.89	2.861E-03	8.78	449.82	10.00	0.91
274	47	Conco Inc.	34.0%	0.07	CNC09	POINT	615126.88	4223067.13	139.89	1.956E-03	8.23	449.82	10.00	0.15
3459	1912	E.I. du Pont	100.0%	1.57	DUP01	POINT	601640.25	4230738.98	139.89	4.521E-02	34.44	294.26	10.00	0.24
2728	187	Eckart America Corporation	100.0%	1.34	EAC01	POINT	601758.19	4230480.76	139.89	3.859E-02	9.75	533.15	10.00	0.77
4212	187	Eckart America Corporation	50.0%	0.11	EAC02	POINT	601530.76	4230183.82	139.89	3.278E-03	3.05	344.26	10.00	0.84
2726	187	Eckart America Corporation	50.0%	0.42	EAC03	POINT	601691.52	4230351.19	139.89	1.217E-02	4.57	435.93	10.00	0.51
4213	187	Eckart America Corporation	50.0%	0.11	EAC04	POINTHOR	601530.76	4230183.82	139.89	3.278E-03	1.83	505.37	10.00	0.20
2727	187	Eckart America Corporation	50.0%	0.42	EAC05	POINT	601695.87	4230353.47	139.89	1.217E-02	4.57	435.93	10.00	0.51
1	1785	Flexential Louisville Downtown	100.0%	0.03	FLD01	VOLUME	601819.32	4231120.77	139.89	8.957E-04	3.66	10.00	3.66	
2	1785	Flexential Louisville Downtown	100.0%	0.04	FLD02	POINT	602029.88	4231085.69	139.89	1.028E-03	3.66	977.59	2058.77	0.34
3	1785	Flexential Louisville Downtown	100.0%	0.03	FLD03	POINT	601488.27	4231199.85	139.89	8.957E-04	3.66	977.59	2058.77	0.34
4	1785	Flexential Louisville Downtown	100.0%	0.03	FLD04	POINT	602013.40	4231073.27	139.89	7.569E-04	3.66	977.59	2058.77	0.34
5	1785	Flexential Louisville Downtown	100.0%	0.01	FLD05	POINT	601949.07	4231106.87	139.89	4.163E-04	4.57	764.26	3454.93	0.43
6	1785	Flexential Louisville Downtown	100.0%	0.01	FLD06	POINT	602093.00	4231078.71	139.89	4.163E-04	3.66	897.04	1630.91	0.34
4024	415	Flynn Brothers Contracting	100.0%	1.76	ECK01	POINT	614360.66	4227748.72	139.89	5.053E-02	11.03	373.15	10.00	1.44
4028	415	Flynn Brothers Contracting	100.0%	1.97	ECK02	POINT	614352.84	4227744.17	139.89	5.677E-02	6.10	295.93	10.00	0.06
3109	72	Ford Motor Company, Louisville Assembly Plant	100.0%	0.23	FMC01	VOLUME	611577.36	4223768.97	139.89	6.617E-03	7.62	10.00	7.62	
4672	72	Ford Motor Company, Louisville Assembly Plant	4.0%	1.70	FMC02	POINT	611473.14	4223636.58	139.89	4.882E-02	15.85	294.26	10.00	1.16
4674	72	Ford Motor Company, Louisville Assembly Plant	90.0%	38.18	FMC03	VOLUME	611577.36	4223768.97	139.89	1.098E+00	7.62	10.00	7.62	
4675	72	Ford Motor Company, Louisville Assembly Plant	6.0%	2.55	FMC04	VOLUME	611756.82	4223910.17	139.89	7.323E-02	6.10	10.00	6.10	
1071	870	GE Appliances (Haier US Appliance Solutions)	100.0%	0.76	4HT01	POINT	618509.25	4226298.84	139.89	2.195E-02	19.81	788.71	10.00	0.15
872	870	GE Appliances (Haier US Appliance Solutions)	100.0%	1.40	4HT02	POINT	618464.11	4225249.36	139.89	4.033E-02	5.18	743.15	10.00	0.51

873	870	GE Appliances (Haier US Appliance Solutions)	100.0%	1.38	4HT03	POINT	618456.23	4225249.24	139.89	3.968E-02	5.18	743.15	10.00	0.51
2699	870	GE Appliances (Haier US Appliance Solutions)	100.0%	0.03	4HT04	POINTHOR	618399.20	4225194.03	139.89	7.887E-04	13.72	710.37	10.00	0.15
2700	870	GE Appliances (Haier US Appliance Solutions)	100.0%	0.00	4HT05	POINT	617946.40	4226084.21	139.89	6.824E-05	3.05	699.82	10.00	0.15
4264	870	GE Appliances (Haier US Appliance Solutions)	50.0%	0.04	4HT06	POINT	618471.55	4225460.34	139.89	1.222E-03	3.96	745.93	10.00	0.30
177	870	GE Appliances (Haier US Appliance Solutions)	100.0%	23.67	4HT07	VOLUME	618011.30	4225417.01	139.89	6.809E-01	12.19	10.00	12.19	
174	870	GE Appliances (Haier US Appliance Solutions)	100.0%	1.33	4HT08	POINT	617981.37	4225607.48	139.89	3.816E-02	44.20	458.71	10.00	3.66
4265	870	GE Appliances (Haier US Appliance Solutions)	50.0%	0.04	4HT09	POINT	618471.55	4225460.34	139.89	1.222E-03	3.96	745.93	10.00	0.30
963	243	Heaven Hill Distilleries, Inc.	100.0%	27.31	HHD01	POINTCAP	606660.18	4233701.21	139.89	7.857E-01	13.87	410.37	10.00	1.37
1897	28	Hexion Inc.	100.0%	1.35	HEX01	POINT	598703.02	4228206.79	139.89	3.893E-02	9.14	310.93	10.00	0.51
460	28	Hexion Inc.	100.0%	12.21	HEX02	POINT	598610.56	4228247.84	139.89	3.513E-01	9.75	488.71	10.00	0.91
1944	28	Hexion Inc.	100.0%	0.68	HEX03	POINT	598585.02	4228259.74	139.89	1.952E-02	4.27	783.15	10.00	0.15
3363	28	Hexion Inc.	100.0%	1.26	HEX04	POINT	598895.53	4228220.24	139.89	3.613E-02	12.80	310.93	10.00	0.51
476	28	Hexion Inc.	100.0%	0.01	HEX05	POINT	598783.82	4228259.94	139.89	3.281E-04	14.33	534.82	10.00	0.81
2876	28	Hexion Inc.	100.0%	0.62	HEX06	POINT	598622.90	4228241.33	139.89	1.777E-02	8.99	310.93	10.00	0.51
1970	28	Hexion Inc.	100.0%	0.43	HEX07	POINT	598877.63	4228107.93	139.89	1.226E-02	12.19	310.93	10.00	0.51
1971	28	Hexion Inc.	100.0%	0.03	HEX08	POINT	598940.02	4228090.93	139.89	9.644E-04	1.52	298.15	10.00	0.15
595	28	Hexion Inc.	100.0%	0.04	HEX09	POINTHOR	598753.05	4228197.41	139.89	1.027E-03	1.52	298.15	10.00	0.20
1972	28	Hexion Inc.	100.0%	0.06	HEX10	POINTHOR	598862.85	4228243.14	139.89	1.697E-03	1.52	298.15	10.00	0.15
593	28	Hexion Inc.	100.0%	1.68	HEX11	POINT	598741.70	4228195.06	139.89	4.834E-02	22.56	298.15	10.00	0.91
594	28	Hexion Inc.	100.0%	1.43	HEX12	POINT	598746.09	4228194.00	139.89	4.114E-02	22.56	298.15	10.00	0.91
879	2	Industrial Container Services	100.0%	0.04	ICS01	VOLUME	608039.00	4230789.55	139.89	1.149E-03	3.05	10.00	3.05	
14	2	Industrial Container Services	100.0%	0.38	ICS02	POINT	607987.36	4230722.27	139.89	1.106E-02	16.76	577.04	10.00	0.49
1838	2	Industrial Container Services	100.0%	0.11	ICS03	POINT	608039.00	4230789.55	139.89	3.064E-03	6.40	491.48	10.00	0.76
15	2	Industrial Container Services	100.0%	0.35	ICS04	POINTCAP	608073.87	4230801.12	139.89	1.013E-02	6.40	421.48	10.00	0.76
2238	1734	Kentucky Trailer	25.0%	0.14	KYT01	VOLUME	597838.61	4225154.45	139.89	3.977E-03	6.10	10.00	6.10	
2239	1734	Kentucky Trailer	25.0%	0.14	KYT02	VOLUME	597998.98	4225151.95	139.89	3.977E-03	6.10	10.00	6.10	
2240	1734	Kentucky Trailer	25.0%	0.14	KYT03	VOLUME	597879.79	4225227.08	139.89	3.977E-03	6.10	10.00	6.10	
848	1734	Kentucky Trailer	25.0%	0.14	KYT04	VOLUME	597948.28	4225069.21	139.89	3.977E-03	6.10	10.00	6.10	
2	191	Kindred Hospital - Louisville	100.0%	0.37	KHL01	POINT	602029.88	4231085.69	139.89	1.055E-02	30.48	294.26	12.94	0.91
1	191	Kindred Hospital - Louisville	100.0%	1.08	KHL02	VOLUME	601819.32	4231120.77	139.89	3.110E-02	12.19	10.00	12.19	
3001	60	Kosmos Cement Company	100.0%	2.54	KOS01	POINT	595993.86	4210327.35	139.89	7.294E-02	13.72	416.48	10.00	0.98
564	60	Kosmos Cement Company	100.0%	1320.00	KOS02	POINT	595929.00	4210245.58	139.89	3.798E+01	22.86	422.04	10.00	3.20
591	60	Kosmos Cement Company	100.0%	1.38	KOS03	POINT	596056.38	4210310.33	139.89	3.981E-02	33.53	408.15	10.00	0.52
606	60	Kosmos Cement Company	100.0%	0.62	KOS04	POINT	596055.44	4210315.87	139.89	1.783E-02	33.53	344.26	10.00	0.52
605	60	Kosmos Cement Company	100.0%	0.62	KOS05	POINT	596058.02	4210320.34	139.89	1.783E-02	33.53	344.26	10.00	0.52
4477	60	Kosmos Cement Company	100.0%	13.80	KOS06	POINT	595913.40	4210078.93	139.89	3.970E-01	3.51	785.93	10.00	0.06
4478	60	Kosmos Cement Company	100.0%	0.06	KOS07	POINT	595223.38	4210239.53	139.89	1.766E-03	1.62	810.93	10.00	0.08
4479	60	Kosmos Cement Company	100.0%	0.31	KOS08	POINT	595995.93	4210375.09	139.89	8.900E-03	4.11	845.93	10.00	0.14
4480	60	Kosmos Cement Company	100.0%	0.01	KOS09	POINT	595952.09	4210296.90	139.89	2.945E-04	2.53	727.59	10.00	0.12
4481	60	Kosmos Cement Company	100.0%	0.01	KOS10	POINT	596007.13	4210392.98	139.89	3.769E-04	1.68	810.93	10.00	0.08
34	15	LLFlex, LLC	100.0%	0.02	LLF01	VOLUME	607158.59	4232016.42	139.89	4.591E-04	9.14	10.00	9.14	
496	15	LLFlex, LLC	100.0%	0.56	LLF02	POINTCAP	607102.68	4232007.91	139.89	1.609E-02	9.60	527.59	10.00	0.91
3437	126	Louisville Gas & Electric Co., Cane Run Station	100.0%	207.80	LGC01	POINT	597828.58	4226496.04	139.89	5.978E+00	54.86	355.37	10.00	6.10
3438	126	Louisville Gas & Electric Co., Cane Run Station	100.0%	203.50	LGC02	POINT	597765.10	4226529.67	139.89	5.855E+00	54.86	355.37	10.00	6.10
4610	126	Louisville Gas & Electric Co., Cane Run Station	100.0%	0.00	LGC03	VOLUME	597577.26	4226416.44	139.89	3.452E-06	0.91	10.00	0.91	
3446	127	Louisville Gas & Electric Co., Mill Creek Station	100.0%	3688.00	LGJ01	POINT	595833.90	4212437.29	139.89	1.061E+02	187.45	327.59	10.00	8.53
529	127	Louisville Gas & Electric Co., Mill Creek Station	100.0%	695.60	LGJ02	POINT	595642.04	4212186.46	139.89	2.001E+01	182.88	327.04	10.00	5.52
3447	127	Louisville Gas & Electric Co., Mill Creek Station	100.0%	869.70	LGJ03	POINT	595635.48	4211923.37	139.89	2.502E+01	182.88	327.59	10.00	7.62
583	127	Louisville Gas & Electric Co., Mill Creek Station	100.0%	0.04	LGJ04	POINT	595494.94	4212159.21	139.89	1.111E-03	8.84	807.59	10.00	0.21
584	127	Louisville Gas & Electric Co., Mill Creek Station	100.0%	0.01	LGJ05	POINT	595511.87	4211537.96	139.89	2.425E-04	2.74	795.37	10.00	0.24
3583	127	Louisville Gas & Electric Co., Mill Creek Station	100.0%	0.25	LGJ06	VOLUME	595659.29	4211988.02	139.89	7.268E-03	1.22	10.00	1.22	
3400	127	Louisville Gas & Electric Co., Mill Creek Station	50.0%	2.64	LGJ07	POINT	595533.92	4211453.87	139.89	7.595E-02	8.84	322.04	10.00	0.71
710	127	Louisville Gas & Electric Co., Mill Creek Station	100.0%	0.78	LGJ08	VOLUME	595566.31	4212358.69	139.89	2.244E-02	1.22	10.00	1.22	

711	127	Louisville Gas & Electric Co., Mill Creek Station	100.0%	0.00	LGJ09	VOLUME	595566.31	4212358.69	139.89	1.381E-07	1.22	10.00	1.22	
4297	127	Louisville Gas & Electric Co., Mill Creek Station	100.0%	0.00	LGJ10	VOLUME	595635.48	4211923.37	139.89	4.324E-05	1.22	10.00	1.22	
3401	127	Louisville Gas & Electric Co., Mill Creek Station	50.0%	2.64	LGJ11	POINT	595538.16	4211466.13	139.89	7.595E-02	13.72	310.93	10.00	0.85
4586	125	Louisville Gas & Electric Co., Paddy's Run Station	100.0%	0.02	LGP01	POINT	601224.32	4230953.51	139.89	5.962E-04	1.22	755.93	10.00	0.15
4587	125	Louisville Gas & Electric Co., Paddy's Run Station	100.0%	0.00	LGP02	POINTHOR	601296.53	4231011.01	139.89	1.113E-05	1.22	922.04	1924.89	0.08
305	125	Louisville Gas & Electric Co., Paddy's Run Station	100.0%	0.00	LGP03	POINT	601159.15	4230913.85	139.89	6.942E-05	7.01	822.04	10.00	0.15
303	125	Louisville Gas & Electric Co., Paddy's Run Station	100.0%	0.08	LGP04	POINT	601159.15	4230913.85	139.89	2.294E-03	8.84	802.59	10.00	3.61
306	125	Louisville Gas & Electric Co., Paddy's Run Station	100.0%	0.01	LGP05	POINT	601201.34	4230970.98	139.89	4.292E-04	4.88	807.59	10.00	0.24
304	125	Louisville Gas & Electric Co., Paddy's Run Station	100.0%	0.14	LGP06	POINT	601201.34	4230970.98	139.89	3.905E-03	10.97	744.26	10.00	4.27
96	125	Louisville Gas & Electric Co., Paddy's Run Station	100.0%	17.90	LGP07	POINT	601195.60	4231079.67	139.89	5.150E-01	27.43	817.59	10.00	6.10
183	1248	Louisville Gas & Electric Co., Zorn Station	100.0%	0.03	LGZ01	POINT	613503.95	4237686.50	139.89	9.578E-04	11.89	810.93	485.34	6.40
307	1248	Louisville Gas & Electric Co., Zorn Station	100.0%	0.00	LGZ02	POINTHOR	613501.33	4237686.47	139.89	1.005E-04	7.01	822.04	3259.90	0.15
308	1248	Louisville Gas & Electric Co., Zorn Station	100.0%	0.01	LGZ03	POINTHOR	613501.33	4237686.47	139.89	3.333E-04	1.22	738.15	241.29	0.61
2660	148	Louisville Medical Center Steam & Chilled Water Plant	100.0%	17.28	LMC01	POINT	609349.59	4234236.50	139.89	4.970E-01	53.34	547.04	10.00	1.98
2661	148	Louisville Medical Center Steam & Chilled Water Plant	100.0%	67.10	LMC02	POINT	609349.29	4234258.69	139.89	1.930E+00	53.34	435.93	10.00	3.05
2662	148	Louisville Medical Center Steam & Chilled Water Plant	31.0%	0.05	LMC03	POINTHOR	609366.79	4234258.93	139.89	1.379E-03	13.72	755.37	10.00	0.30
4200	148	Louisville Medical Center Steam & Chilled Water Plant	69.0%	0.11	LMC04	POINTHOR	609366.79	4234258.93	139.89	3.070E-03	13.72	755.37	10.00	0.30
90	82	Lubrizol Advanced Materials	100.0%	0.61	LUB01	VOLUME	602542.28	4231067.74	139.89	1.751E-02	0.91	10.00	0.91	
3513	82	Lubrizol Advanced Materials	1.0%	0.00	LUB02	VOLUME	602681.02	4231035.09	139.89	2.495E-05	7.62	10.00	7.62	
978	82	Lubrizol Advanced Materials	99.0%	0.09	LUB03	POINT	602668.86	4231027.17	139.89	2.470E-03	15.85	349.82	10.00	0.30
3816	149	Metropolitan Sewer District, Morris Forman WWTP	100.0%	5.38	MSD01	POINT	602117.48	4232123.34	139.89	1.548E-01	10.97	1060.93	10.00	2.74
3822	149	Metropolitan Sewer District, Morris Forman WWTP	100.0%	0.91	MSD02	POINT	601928.79	4232092.11	139.89	2.615E-02	9.14	394.26	10.00	0.49
3826	149	Metropolitan Sewer District, Morris Forman WWTP	100.0%	1.48	MSD03	POINT	601952.90	4232054.68	139.89	4.269E-02	19.81	505.37	10.00	0.61
4459	149	Metropolitan Sewer District, Morris Forman WWTP	100.0%	0.81	MSD04	POINT	601942.96	4232078.97	139.89	2.322E-02	4.88	505.37	10.00	0.30
3828	149	Metropolitan Sewer District, Morris Forman WWTP	100.0%	0.17	MSD05	POINT	602208.60	4232047.91	139.89	4.833E-03	5.18	344.26	10.00	0.20
3833	149	Metropolitan Sewer District, Morris Forman WWTP	100.0%	3.98	MSD06	POINT	601936.83	4232010.08	139.89	1.145E-01	22.86	324.26	10.00	0.17
4466	149	Metropolitan Sewer District, Morris Forman WWTP	100.0%	0.17	MSD07	POINT	602139.48	4231976.01	139.89	4.920E-03	7.62	324.26	18288.00	0.17
3831	149	Metropolitan Sewer District, Morris Forman WWTP	100.0%	0.06	MSD08	POINT	602189.70	4232019.93	139.89	1.736E-03	1.83	744.26	10.00	0.08
3832	149	Metropolitan Sewer District, Morris Forman WWTP	100.0%	0.01	MSD09	POINT	601990.54	4231985.23	139.89	2.395E-04	0.61	866.48	10.00	0.04
4460	149	Metropolitan Sewer District, Morris Forman WWTP	100.0%	0.39	MSD10	POINT	601805.81	4232091.23	139.89	1.111E-02	7.62	750.93	15523.34	0.15
6	1826	Michter's Distillery LLC	100.0%	1.87	MDY01	POINT	602093.00	4231078.71	139.89	5.380E-02	8.84	463.71	346.13	0.91
3796	461	Mizkan America, Inc.	100.0%	0.13	MZA01	POINT	606000.46	4228999.15	139.89	3.681E-03	3.05	766.48	10.00	0.15
769	741	MPLX Terminals LLC - Algonquin Terminal	39.0%	0.00	MPA01	POINT	602517.95	4232021.86	139.89	6.844E-06	3.81	299.82	10.00	0.24
769	741	MPLX Terminals LLC - Algonquin Terminal	40.0%	0.00	MPA02	POINT	602517.95	4232021.86	139.89	1.151E-08	3.81	299.82	10.00	0.24
770	741	MPLX Terminals LLC - Algonquin Terminal	100.0%	0.04	MPA03	POINT	601660.80	4232032.14	139.89	1.017E-03	13.72	672.04	10.00	2.44
4180	741	MPLX Terminals LLC - Algonquin Terminal	61.0%	0.00	MPA04	VOLUME	602466.18	4232031.19	139.89	1.071E-05	2.13	10.00	2.13	
4180	741	MPLX Terminals LLC - Algonquin Terminal	60.0%	0.00	MPA05	VOLUME	602466.18	4232031.19	139.89	1.726E-08	2.13	10.00	2.13	
4439	1128	Multi Packaging Solutions - Kentucky	100.0%	1.14	MPS01	VOLUME	609920.82	4234836.89	139.89	3.291E-02	3.05	10.00	3.05	
4114	1568	NHK Spring Precision of America, Inc.	100.0%	0.23	NHK01	POINTCAP	597912.91	4221023.71	139.89	6.492E-03	5.03	294.26	10.00	0.15
2792	532	Outer Loop Recycling & Disposal Facility (Waste Management of KY)	50.0%	10.19	OLR01	POINT	611893.36	4222713.43	139.89	2.932E-01	13.99	1033.15	10.00	0.41
3369	532	Outer Loop Recycling & Disposal Facility (Waste Management of KY)	100.0%	0.90	OLR02	VOLUME	609401.32	4225858.02	139.89	2.591E-02	3.05	10.00	3.05	
3370	532	Outer Loop Recycling & Disposal Facility (Waste Management of KY)	100.0%	4.57	OLR03	VOLUME	609312.23	4225967.80	139.89	1.316E-01	3.05	10.00	3.05	
3371	532	Outer Loop Recycling & Disposal Facility (Waste Management of KY)	100.0%	2.25	OLR04	VOLUME	609356.78	4225912.91	139.89	6.478E-02	3.05	10.00	3.05	
2795	532	Outer Loop Recycling & Disposal Facility (Waste Management of KY)	100.0%	0.16	OLR05	POINT	610948.77	4221476.35	139.89	4.682E-03	0.91	922.04	10.00	0.08
3374	532	Outer Loop Recycling & Disposal Facility (Waste Management of KY)	100.0%	0.23	OLR06	VOLUME	609390.15	4225906.70	139.89	6.668E-03	3.05	10.00	3.05	
3373	532	Outer Loop Recycling & Disposal Facility (Waste Management of KY)	50.0%	10.19	OLR07	POINT	609382.29	4225905.48	139.89	2.932E-01	12.19	256.48	921.70	1.22
188	1333	Recast Energy Louisville, LLC	100.0%	110.99	REL01	POINT	602528.99	4230872.25	139.89	3.193E+00	53.34	502.04	10.00	1.52
3364	1333	Recast Energy Louisville, LLC	100.0%	0.30	REL02	POINT	602586.51	4230892.95	139.89	8.752E-03	15.24	505.37	10.00	1.07
3365	1333	Recast Energy Louisville, LLC	100.0%	0.38	REL03	POINT	602586.54	4230890.73	139.89	1.098E-02	15.24	505.37	10.00	1.07
3911	1553	Republic Conduit Manufacturing	100.0%	0.12	RCM01	POINT	597437.34	4225520.29	139.89	3.507E-03	3.05	588.71	1552.33	0.15
2493	186	Reynolds Consumer Products, Foil Plant	3.0%	0.07	RCP01	VOLUME	604832.69	4233159.06	139.89	2.154E-03	9.14	10.00	9.14	
774	186	Reynolds Consumer Products, Foil Plant	100.0%	0.32	RCP02	POINT	604969.90	4233175.27	139.89	9.313E-03	10.67	338.71	10.00	0.61
2499	186	Reynolds Consumer Products, Foil Plant	100.0%	1.78	RCP03	VOLUME	604832.69	4233159.06	139.89	5.118E-02	0.91	10.00	0.91	

773	186	Reynolds Consumer Products, Foil Plant	75.0%	1.87	RCP04	POINT	604774.16	4233150.54	139.89	5.384E-02	12.50	422.04	10.00	0.61
945	186	Reynolds Consumer Products, Foil Plant	22.0%	0.55	RCP05	POINT	604634.61	4233179.81	139.89	1.579E-02	30.48	505.37	10.00	1.31
125	189	Rohm & Haas Kentucky, Inc.	100.0%	7.15	RHK01	POINT	601088.17	4230006.27	139.89	2.057E-01	26.52	288.15	10.00	0.61
130	189	Rohm & Haas Kentucky, Inc.	100.0%	6.18	RHK02	POINT	601102.83	4229954.29	139.89	1.779E-01	28.96	472.59	10.00	0.36
120	189	Rohm & Haas Kentucky, Inc.	100.0%	147.46	RHK03	POINT	601150.88	4230173.52	139.89	4.242E+00	64.62	502.04	10.00	1.96
121	189	Rohm & Haas Kentucky, Inc.	99.0%	4.69	RHK04	POINT	600849.78	4230024.39	139.89	1.349E-01	19.20	366.48	10.00	1.98
232	189	Rohm & Haas Kentucky, Inc.	100.0%	0.93	RHK05	VOLUME	600770.00	4230173.22	139.89	2.662E-02	3.05	10.00	3.05	
127	189	Rohm & Haas Kentucky, Inc.	1.0%	0.05	RHK06	POINT	600835.80	4230021.99	139.89	1.362E-03	15.24	366.48	10.00	1.52
3804	1668	Sealed Air Corporation	100.0%	0.68	SAC01	POINT	609700.74	4222499.31	139.89	1.964E-02	15.54	383.15	10.00	1.52
3567	167	The Bulleit Distilling Co. (Diageo Americas Supply, Inc.)	20.0%	0.86	BDC01	POINTCAP	604236.06	4229799.75	139.89	2.482E-02	6.71	463.71	10.00	0.20
3570	167	The Bulleit Distilling Co. (Diageo Americas Supply, Inc.)	100.0%	0.04	BDC02	POINTHOR	604138.05	4229930.56	139.89	1.144E-03	2.74	463.71	10.00	0.08
3568	167	The Bulleit Distilling Co. (Diageo Americas Supply, Inc.)	40.0%	1.73	BDC03	POINTCAP	604079.13	4229814.39	139.89	4.964E-02	7.62	463.71	10.00	0.25
3569	167	The Bulleit Distilling Co. (Diageo Americas Supply, Inc.)	40.0%	1.73	BDC04	POINTCAP	604083.52	4229813.33	139.89	4.964E-02	7.62	463.71	10.00	0.25
3943	1610	The Keebler Company	50.0%	1.59	TKC01	POINT	604775.62	4229583.64	139.89	4.567E-02	2.29	449.82	10.00	0.30
3944	1610	The Keebler Company	50.0%	1.59	TKC02	POINT	604775.62	4229583.64	139.89	4.567E-02	2.29	366.48	10.00	0.08
3171	564	United Parcel Service, WorldPort	100.0%	0.40	UPW01	VOLUME	610833.30	4224029.58	139.89	1.151E-02	0.91	10.00	0.91	
3129	564	United Parcel Service, WorldPort	100.0%	0.12	UPW02	VOLUME	610848.23	4224477.04	139.89	3.589E-03	3.05	10.00	3.05	
3130	564	United Parcel Service, WorldPort	100.0%	0.17	UPW03	POINT	610735.36	4224528.78	139.89	4.969E-03	5.03	760.93	10.00	0.15
3148	564	United Parcel Service, WorldPort	100.0%	0.03	UPW04	POINT	611370.27	4224364.33	139.89	8.630E-04	6.71	727.59	10.00	0.15
3135	564	United Parcel Service, WorldPort	100.0%	0.72	UPW05	POINTHOR	611404.87	4225163.87	139.89	2.070E-02	9.14	810.93	10.00	0.61
3136	564	United Parcel Service, WorldPort	100.0%	0.14	UPW06	POINTHOR	611384.68	4225166.93	139.89	3.893E-03	3.66	727.59	10.00	0.15
3137	564	United Parcel Service, WorldPort	50.0%	1.06	UPW07	POINT	610769.65	4225933.17	139.89	3.056E-02	4.57	755.37	10.00	0.20
3139	564	United Parcel Service, WorldPort	100.0%	0.07	UPW08	POINT	610744.01	4225950.58	139.89	2.079E-03	4.57	707.59	10.00	0.20
3144	564	United Parcel Service, WorldPort	100.0%	0.31	UPW09	VOLUME	612412.23	4224865.89	139.89	8.936E-03	3.05	10.00	3.05	
3147	564	United Parcel Service, WorldPort	100.0%	0.01	UPW10	VOLUME	611523.86	4225048.98	139.89	1.914E-04	3.05	10.00	3.05	
3153	564	United Parcel Service, WorldPort	100.0%	0.03	UPW11	VOLUME	610791.29	4224668.27	139.89	8.007E-04	0.91	10.00	0.91	
3146	564	United Parcel Service, WorldPort	100.0%	0.00	UPW12	VOLUME	611680.26	4224379.68	139.89	8.906E-05	3.05	10.00	3.05	
3140	564	United Parcel Service, WorldPort	100.0%	0.01	UPW13	VOLUME	612129.69	4224704.39	139.89	1.447E-04	3.05	10.00	3.05	
3138	564	United Parcel Service, WorldPort	50.0%	1.06	UPW14	POINT	610775.81	4225931.04	139.89	3.056E-02	4.57	755.37	10.00	0.20
5	1641	University of Louisville Shelby Campus	100.0%	0.07	ULS01	POINT	601949.07	4231106.87	139.89	1.914E-03	7.62	477.59	232.85	0.30
6	1641	University of Louisville Shelby Campus	100.0%	0.02	ULS02	POINT	602093.00	4231078.71	139.89	7.128E-04	7.62	477.59	77.62	0.30
7	1641	University of Louisville Shelby Campus	100.0%	0.01	ULS03	POINT	601983.49	4231015.19	139.89	3.906E-04	3.05	477.59	155.23	0.15
1	1641	University of Louisville Shelby Campus	100.0%	0.48	ULS04	VOLUME	601819.32	4231120.77	139.89	1.371E-02	7.62	10.00	7.62	
4	1641	University of Louisville Shelby Campus	100.0%	0.32	ULS05	POINT	602013.40	4231073.27	139.89	9.160E-03	3.05	477.59	776.17	0.15
4211	852	University of Louisville, Belknap Campus	100.0%	4.57	ULB01	VOLUME	608710.45	4230471.13	139.89	1.314E-01	3.66	10.00	3.66	
164	852	University of Louisville, Belknap Campus	100.0%	1.63	ULB02	POINT	608849.58	4230216.63	139.89	4.681E-02	19.81	532.59	10.00	1.07
847	852	University of Louisville, Belknap Campus	100.0%	0.63	ULB03	POINT	608832.59	4230308.52	140.89	1.820E-02	17.37	422.04	10.00	1.07
2	1334	UPS Supply Chain Solutions	100.0%	0.73	UPS01	POINT	602029.88	4231085.69	141.89	2.114E-02	0.00	700.00	10.00	0.10
144	283	Zeon Chemicals LP	100.0%	1.28	ZCH01	POINT	602668.09	4231088.20	142.89	3.672E-02	30.48	1060.93	10.00	1.22
800	283	Zeon Chemicals LP	100.0%	0.14	ZCH02	POINT	602681.94	4231169.39	143.89	4.126E-03	25.79	789.82	10.00	0.81
800	283	Zeon Chemicals LP	25.0%	0.18	ZCH03	POINT	602681.94	4231169.39	144.89	5.207E-03	25.79	789.82	10.00	0.81
809	283	Zeon Chemicals LP	100.0%	0.02	ZCH04	POINT	602657.22	4231185.72	145.89	6.272E-04	4.75	751.48	10.00	0.25
4631	283	Zeon Chemicals LP	100.0%	0.22	ZCH05	VOLUME	602828.74	4231192.34	146.89	6.307E-03	3.05	10.00	3.05	
801	283	Zeon Chemicals LP	44.0%	0.32	ZCH06	POINT	602681.85	4231177.16	147.89	9.164E-03	25.63	1060.93	10.00	0.61
144	283	Zeon Chemicals LP	31.0%	0.22	ZCH07	POINT	602668.09	4231088.20	148.89	6.456E-03	30.48	1060.93	10.00	1.22

Table C-11
Louisville Offsite Inventory
PM_{10} Facilities

SIA (km)	2.8	6.3

Facility ID	Facility Name	Prefix	UTM16e	UTM16n	Dist (km)	PM10 (TPY) 2020	Q/D	Annual List	24hr List
1	Carbide Industries LLC	CBD	601964.17	4231089.30	36.10	74.87	2.07	Excluded	Excluded
1	Carbide Industries LLC	CBD	601964.17	4231089.30	36.10	74.87	2.07	Excluded	Excluded
2	Industrial Container Services	ICS	608039.00	4230789.55	40.58	16.32	0.40	Excluded	Excluded
11	American Synthetic Rubber Company	ASR	600764.48	4229912.35	34.42	32.81	0.95	Excluded	Excluded
15	LLFlex, LLC	LLF	607158.59	4232016.42	40.64	0.25	0.01	Excluded	Excluded
26	Brown-Forman Cooperage	BAE	609401.32	4225858.02	39.02	6.20	0.16	Excluded	Excluded
28	Hexion Inc.	HEX	598766.47	4228174.27	31.77	19.94	0.63	Excluded	Excluded
34	Caldwell Tanks	CWT	614922.09	4223418.27	42.88	1.40	0.03	Excluded	Excluded
36	Clariant Corporation, Louisville West Plant	CLW	607217.49	4232593.20	41.05	45.34	1.10	Excluded	Excluded
42	Clariant Corporation, Louisville South Plant	CLS	609565.11	4225861.33	39.16	11.70	0.30	Excluded	Excluded
47	Conco Inc.	CNC	615163.72	4223065.43	42.97	1.07	0.03	Excluded	Excluded
60	Kosmos Cement Company	KOS	595201.78	4210285.89	20.05	116.89	5.83	Excluded	Excluded
62	Chemours Company	CMR	601574.72	4230588.33	35.47	0.26	0.01	Excluded	Excluded
72	Ford Motor Company, Louisville Assembly Plant	FMC	611577.36	4223768.97	39.98	4.34	0.11	Excluded	Excluded
73	Ford Motor Company, Kentucky Truck Plant	FMT	628073.16	4239641.15	62.13	13.29	0.21	Excluded	Excluded
82	Lubrizol Advanced Materials	LUB	602451.56	4231041.07	36.42	0.57	0.02	Excluded	Excluded
84	Buckeye Terminals	BUK	602058.65	4232276.86	36.98	0.00	0.00	Excluded	Excluded
115	Swift Pork Company (JBS Swift & Company)	SPC	611257.83	4234788.56	45.57	3.67	0.08	Excluded	Excluded
125	Louisville Gas & Electric Co., Paddy's Run Station	LGP	601224.32	4230953.51	35.46	0.16	0.00	Excluded	Excluded
126	Louisville Gas & Electric Co., Cane Run Station	LGC	597828.58	4226496.04	29.95	9.05	0.30	Excluded	Excluded
127	Louisville Gas & Electric Co., Mill Creek Station	LGJ	595833.90	4212437.29	21.17	842.01	39.77	Included	Included
148	Louisville Medical Center Steam & Chilled Water Plant	LMC	609349.59	4234236.50	43.74	9.89	0.23	Excluded	Excluded
167	The Bulleit Distilling Co. (Diageo Americas Supply, Inc.)	BDC	604236.06	4229799.75	36.97	0.02	0.00	Excluded	Excluded
185	Allnex USA Inc. (was Nuplex Resins, LLC)	ALL	609181.54	4226565.34	39.18	0.00	0.00	Excluded	Excluded
186	Reynolds Consumer Products, Foil Plant	RCP	604772.91	4233314.77	39.67	0.22	0.01	Excluded	Excluded
187	Eckart America Corporation	EAC	601758.19	4230480.76	35.53	20.93	0.59	Excluded	Excluded
189	Rohm & Haas Kentucky, Inc.	RHK	600912.30	4229925.29	34.53	2.62	0.08	Excluded	Excluded
223	Texas Gas Transmission LLC	TGT	625500.08	4230813.57	55.58	0.03	0.00	Excluded	Excluded
232	Angel's Envy Distillery (Louisville Distilling Co.)	AED	609949.15	4234812.86	44.57	2.15	0.05	Excluded	Excluded
243	Heaven Hill Distilleries, Inc.	HHD	606685.09	4233670.46	41.33	1.48	0.04	Excluded	Excluded
244	Brown-Forman Distillery Co., Early Times	BFD	605597.63	4229468.89	37.84	9.34	0.25	Excluded	Excluded
283	Zeon Chemicals LP	ZCH	602598.08	4231155.01	36.61	1.71	0.05	Excluded	Excluded
290	Louisville Paving Company, Inc. Avoca Asphalt Plant	LPC	630895.22	4235953.58	62.72	0.09	0.00	Excluded	Excluded
461	Mizkan America, Inc.	MZA	606000.46	4228999.15	37.88	0.01	0.00	Excluded	Excluded

532	Outer Loop Recycling & Disposal Facility (Waste Management of KY)	OLR	611917.50	4222742.62	39.86	63.97	1.60	Excluded	Excluded
564	United Parcel Service, WorldPort	UPW	596085.37	4210308.45	20.93	14.37	0.69	Excluded	Excluded
852	University of Louisville, Belknap Campus	ULB	608710.45	4230471.13	40.93	2.97	0.07	Excluded	Excluded
870	GE Appliances (Haier US Appliance Solutions)	4HT	618366.63	4226165.79	47.15	10.85	0.23	Excluded	Excluded
1128	Multi Packaging Solutions - Kentucky	MPS	609920.82	4234836.89	44.56	3.24	0.07	Excluded	Excluded
1248	Louisville Gas & Electric Co., Zorn Station	LGZ	613503.95	4237686.50	49.14	0.00	0.00	Excluded	Excluded
1294	Arkema dba Altuglas	ADA	601097.23	4229841.03	34.61	0.00	0.00	Excluded	Excluded
1333	Recast Energy Louisville, LLC	REL	602528.99	4230872.25	36.37	11.59	0.32	Excluded	Excluded
1553	Republic Conduit Manufacturing	RCM	597494.75	4225482.13	29.03	9.80	0.34	Excluded	Excluded
1610	The Keebler Company	TKC	604775.62	4229583.64	37.26	0.02	0.00	Excluded	Excluded
1734	Kentucky Trailer	KYT	597493.65	4224844.01	28.61	0.04	0.00	Excluded	Excluded
1912	E.I. du Pont	DUP	601640.25	4230738.98	35.62	0.01	0.00	Excluded	Excluded

Table C-12
Louisville Offsite Inventory
PM_{10} Sources

Release Point	Facility ID	Facility Name	Percent	PM10 (TPY) 2020	SRCID	Type	UTMe16	UTMn16	Height (m)	Q (g/s)	Hs (m)	Ts (K)	Vs (m/s)	Ds (m)
3446	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	313.49	LGJ01	POINT	595833.90	4212437.29	139.89	9.019E+00	187.45	327.59	10.00	8.53
520	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.01	LGJ02	POINT	595552.87	4212307.48	139.89	2.121E-04	32.61	293.15	10.00	0.30
523	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.00	LGJ03	POINT	595553.74	4212308.60	139.89	1.182E-04	32.61	293.15	10.00	0.30
529	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	192.67	LGJ04	POINT	595642.04	4212186.46	139.89	5.543E+00	182.88	327.04	10.00	5.52
538	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.01	LGJ05	POINT	595541.83	4212201.93	139.89	2.167E-04	31.70	293.15	10.00	0.37
3447	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	310.25	LGJ06	POINT	595635.48	4211923.37	139.89	8.926E+00	182.88	327.59	10.00	7.62
563	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.01	LGJ07	POINT	595535.60	4212134.16	139.89	2.881E-04	31.70	293.15	10.00	0.40
568	127	Louisville Gas & Electric Co., Mill Creek Station	50.00%	0.41	LGJ08	POINT	595621.75	4211522.60	139.89	1.169E-02	34.44	293.15	10.00	0.61
3397	127	Louisville Gas & Electric Co., Mill Creek Station	50.00%	0.08	LGJ09	POINT	595621.75	4211522.60	139.89	2.158E-03	5.18	293.15	10.00	0.46
570	127	Louisville Gas & Electric Co., Mill Creek Station	50.00%	0.01	LGJ10	POINT	595679.12	4211868.40	139.89	1.985E-04	5.27	310.93	10.00	0.18
677	127	Louisville Gas & Electric Co., Mill Creek Station	50.00%	0.03	LGJ11	VOLUME	595621.75	4211522.60	139.89	8.057E-04	4.88	10.00	4.88	
572	127	Louisville Gas & Electric Co., Mill Creek Station	86.00%	0.25	LGJ12	POINT	595610.24	4212279.30	139.89	7.215E-03	14.48	293.15	10.00	0.30
576	127	Louisville Gas & Electric Co., Mill Creek Station	86.00%	0.17	LGJ13	POINT	595632.81	4212225.19	139.89	4.802E-03	10.97	293.15	10.00	0.30
579	127	Louisville Gas & Electric Co., Mill Creek Station	86.00%	0.22	LGJ14	POINT	595627.41	4212087.52	139.89	6.301E-03	5.79	293.15	10.00	0.30
681	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	1.31	LGJ15	VOLUME	595365.03	4212087.77	139.89	3.760E-02	4.27	10.00	4.27	
682	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	1.36	LGJ16	VOLUME	595538.76	4212014.35	139.89	3.914E-02	19.81	10.00	19.81	
683	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	1.36	LGJ17	VOLUME	595365.03	4212087.77	139.89	3.914E-02	4.27	10.00	4.27	
684	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	1.36	LGJ18	VOLUME	595365.03	4212087.77	139.89	3.914E-02	4.27	10.00	4.27	
685	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.08	LGJ19	VOLUME	595643.09	4212022.23	139.89	2.211E-03	3.05	10.00	3.05	
3387	127	Louisville Gas & Electric Co., Mill Creek Station	47.00%	5.33	LGJ20	VOLUME	595515.20	4211853.16	139.89	1.535E-01	17.98	10.00	17.98	
4293	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.03	LGJ21	POINT	595622.85	4212401.52	139.89	9.620E-04	16.25	293.15	10.00	4.27
4294	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.00	LGJ22	POINT	595593.06	4212397.84	139.89	2.729E-05	25.63	293.15	10.00	4.27
4295	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.17	LGJ23	POINT	595718.01	4212368.23	139.89	4.875E-03	32.92	293.15	10.00	12.19
3399	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.53	LGJ24	POINT	595471.39	4211397.66	139.89	1.525E-02	3.96	293.15	10.00	3.92
713	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	4.75	LGJ25	VOLUME	595552.87	4212307.48	139.89	1.367E-01	19.81	10.00	19.81	
714	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.87	LGJ26	VOLUME	595566.55	4211140.20	139.89	2.499E-02	30.48	10.00	30.48	
583	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.00	LGJ27	POINT	595494.94	4212159.21	139.89	6.646E-06	8.84	807.59	10.00	0.21
584	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.00	LGJ28	POINT	595511.87	4211537.96	139.89	1.703E-05	2.74	795.37	10.00	0.24
3583	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.00	LGJ29	VOLUME	595659.29	4211988.02	139.89	1.584E-06	1.22	10.00	1.22	
3400	127	Louisville Gas & Electric Co., Mill Creek Station	50.00%	0.01	LGJ30	POINT	595533.92	4211453.87	139.89	1.519E-04	8.84	322.04	10.00	0.71
3388	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.09	LGJ31	VOLUME	595703.26	4211979.65	139.89	2.589E-03	13.72	10.00	13.72	
710	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.00	LGJ32	VOLUME	595566.31	4212358.69	139.89	1.167E-04	1.22	10.00	1.22	
711	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.00	LGJ33	VOLUME	595566.31	4212358.69	139.89	2.223E-08	1.22	10.00	1.22	
4300	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.01	LGJ34	POINT	595635.48	4211923.37	139.89	3.015E-04	45.72	293.15	0.04	0.30
4301	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.01	LGJ35	POINT	595635.48	4211923.37	139.89	2.293E-04	45.72	293.15	0.04	0.30
4298	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.50	LGJ36	VOLUME	595635.48	4211923.37	139.89	1.444E-02	1.22	10.00	1.22	
4299	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.01	LGJ37	VOLUME	595635.48	4211923.37	139.89	1.879E-04	0.00	10.00	0.00	
4297	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.00	LGJ38	VOLUME	595635.48	4211923.37	139.89	9.782E-09	1.22	10.00	1.22	
569	127	Louisville Gas & Electric Co., Mill Creek Station	50.00%	0.41	LGJ39	POINT	595621.75	4211522.60	139.89	1.169E-02	34.44	293.15	10.00	0.61
3398	127	Louisville Gas & Electric Co., Mill Creek Station	50.00%	0.08	LGJ40	POINT	595621.75	4211522.60	139.89	2.158E-03	6.10	293.15	10.00	0.46
571	127	Louisville Gas & Electric Co., Mill Creek Station	50.00%	0.01	LGJ41	POINT	595679.12	4211868.40	139.89	1.985E-04	5.27	310.93	10.00	0.18
678	127	Louisville Gas & Electric Co., Mill Creek Station	50.00%	0.03	LGJ42	VOLUME	595621.75	4211522.60	139.89	8.057E-04	4.88	10.00	4.88	
574	127	Louisville Gas & Electric Co., Mill Creek Station	7.00%	0.02	LGJ43	POINT	595610.24	4212279.30	139.89	5.873E-04	14.48	293.15	10.00	0.30
577	127	Louisville Gas & Electric Co., Mill Creek Station	7.00%	0.01	LGJ44	POINT	595632.81	4212225.19	139.89	3.908E-04	10.97	293.15	10.00	0.30
580	127	Louisville Gas & Electric Co., Mill Creek Station	7.00%	0.02	LGJ45	POINT	595627.41	4212087.52	139.89	5.128E-04	5.79	293.15	10.00	0.30
585	127	Louisville Gas & Electric Co., Mill Creek Station	53.00%	6.02	LGJ46	POINT	595495.65	4211724.20	139.89	1.731E-01	18.14	305.37	10.00	9.14

3401	127	Louisville Gas & Electric Co., Mill Creek Station	50.00%	0.01	LGJ47	POINT	595538.16	4211466.13	139.89	1.519E-04	13.72	310.93	10.00	0.85
575	127	Louisville Gas & Electric Co., Mill Creek Station	7.00%	0.02	LGJ48	POINT	595610.24	4212279.30	139.89	5.873E-04	14.48	293.15	10.00	0.30
578	127	Louisville Gas & Electric Co., Mill Creek Station	7.00%	0.01	LGJ49	POINT	595632.81	4212225.19	139.89	3.908E-04	10.97	293.15	10.00	0.30
581	127	Louisville Gas & Electric Co., Mill Creek Station	7.00%	0.02	LGJ50	POINT	595627.41	4212087.52	139.89	5.128E-04	5.79	293.15	10.00	0.30

Table C-13
Louisville Offsite Inventory
PM_{10} Facilities

SIA (km)	5	7.7

Facility ID	Facility Name	Prefix	UTM16e	UTM16n	Dist (km)	PM25 (TPY) 2020	Q/D	Annual List	24hr List
1	Carbide Industries LLC	CBD	601964.17	4231089.30	36.10	24.99	0.69	Excluded	Excluded
2	Industrial Container Services	ICS	608039.00	4230789.55	40.58	4.32	0.11	Excluded	Excluded
11	American Synthetic Rubber Company	ASR	600764.48	4229912.35	34.42	31.94	0.93	Excluded	Excluded
15	LLFlex, LLC	LLF	607158.59	4232016.42	40.64	0.13	0.00	Excluded	Excluded
26	Brown-Forman Cooperage	BAE	609401.32	4225858.02	39.02	1.08	0.03	Excluded	Excluded
28	Hexion Inc.	HEX	598766.47	4228174.27	31.77	19.92	0.63	Excluded	Excluded
34	Caldwell Tanks	CWT	614922.09	4223418.27	42.88	0.63	0.01	Excluded	Excluded
36	Clariant Corporation, Louisville West Plant	CLW	607217.49	4232593.20	41.05	45.32	1.10	Excluded	Excluded
42	Clariant Corporation, Louisville South Plant	CLS	609565.11	4225861.33	39.16	11.70	0.30	Excluded	Excluded
47	Conco Inc.	CNC	615163.72	4223065.43	42.97	1.07	0.02	Excluded	Excluded
60	Kosmos Cement Company	KOS	595201.78	4210285.89	20.05	60.38	3.01	Excluded	Excluded
62	Chemours Company	CMR	601574.72	4230588.33	35.47	0.24	0.01	Excluded	Excluded
72	Ford Motor Company, Louisville Assembly Plant	FMC	611577.36	4223768.97	39.98	4.18	0.10	Excluded	Excluded
73	Ford Motor Company, Kentucky Truck Plant	FMT	628073.16	4239641.15	62.13	11.06	0.18	Excluded	Excluded
82	Lubrizol Advanced Materials	LUB	602451.56	4231041.07	36.42	0.39	0.01	Excluded	Excluded
84	Buckeye Terminals	BFD	602058.65	4232276.86	36.98	0.00	0.00	Excluded	Excluded
115	Swift Pork Company (JBS Swift & Company)	RHK	611257.83	4234788.56	45.57	3.67	0.08	Excluded	Excluded
125	Louisville Gas & Electric Co., Paddy's Run Station	LGP	601224.32	4230953.51	35.46	0.14	0.00	Excluded	Excluded
126	Louisville Gas & Electric Co., Cane Run Station	LGC	597828.58	4226496.04	29.95	7.06	0.24	Excluded	Excluded
127	Louisville Gas & Electric Co., Mill Creek Station	LGJ	595833.90	4212437.29	21.17	775.09	36.61	Included	Included
148	Louisville Medical Center Steam & Chilled Water Plant	LGZ	609349.59	4234236.50	43.74	9.83	0.22	Excluded	Excluded
167	The Bulleit Distilling Co. (Diageo Americas Supply, Inc.)	RHK	604236.06	4229799.75	36.97	0.02	0.00	Excluded	Excluded
185	Allnex USA Inc. (was Nuplex Resins, LLC)	ALL	609181.54	4226565.34	39.18	0.00	0.00	Excluded	Excluded
186	Reynolds Consumer Products, Foil Plant	REL	604772.91	4233314.77	39.67	0.22	0.01	Excluded	Excluded
187	Eckart America Corporation	DUP	601758.19	4230480.76	35.53	3.73	0.10	Excluded	Excluded
189	Rohm & Haas Kentucky, Inc.	RHK	600912.30	4229925.29	34.53	2.59	0.07	Excluded	Excluded
223	Texas Gas Transmission LLC	RHK	625500.08	4230813.57	55.58	0.03	0.00	Excluded	Excluded
232	Angel's Envy Distillery (Louisville Distilling Co.)	AED	609949.15	4234812.86	44.57	1.55	0.03	Excluded	Excluded
243	Heaven Hill Distilleries, Inc.	HHD	606685.09	4233670.46	41.33	0.68	0.02	Excluded	Excluded
244	Brown-Forman Distillery Co., Early Times	BFD	605597.63	4229468.89	37.84	5.95	0.16	Excluded	Excluded
283	Zeon Chemicals LP	ZCH	602598.08	4231155.01	36.61	1.54	0.04	Excluded	Excluded
290	Louisville Paving Company, Inc. Avoca Asphalt Plant	LMC	630895.22	4235953.58	62.72	0.09	0.00	Excluded	Excluded
461	Mizkan America, Inc.	LUB	606000.46	4228999.15	37.88	0.01	0.00	Excluded	Excluded
532	Outer Loop Recycling & Disposal Facility (Waste Management of KY)	OLR	611917.50	4222742.62	39.86	16.51	0.41	Excluded	Excluded

564	United Parcel Service, WorldPort	UPS	596085.37	4210308.45	20.93	13.59	0.65	Excluded	Excluded
852	University of Louisville, Belknap Campus	ULB	608710.45	4230471.13	40.93	2.96	0.07	Excluded	Excluded
870	GE Appliances (Haier US Appliance Solutions)	4HT	618366.63	4226165.79	47.15	10.82	0.23	Excluded	Excluded
1248	Louisville Gas & Electric Co., Zorn Station	LGZ	613503.95	4237686.50	49.14	0.00	0.00	Excluded	Excluded
1294	Arkema dba Altuglas	AED	601097.23	4229841.03	34.61	0.00	0.00	Excluded	Excluded
1333	Recast Energy Louisville, LLC	REL	602528.99	4230872.25	36.37	11.59	0.32	Excluded	Excluded
1553	Republic Conduit Manufacturing	REL	597494.75	4225482.13	29.03	9.80	0.34	Excluded	Excluded
1610	The Keebler Company	RHK	604775.62	4229583.64	37.26	0.01	0.00	Excluded	Excluded
1734	Kentucky Trailer	KYT	597493.65	4224844.01	28.61	0.01	0.00	Excluded	Excluded
1912	E.I. du Pont	DUP	601640.25	4230738.98	35.62	0.01	0.00	Excluded	Excluded

Table C-14
Louisville Offsite Inventory
$PM_{2.5}$ Sources

Release Point	Facility ID	Facility Name	Percent	PM25 (TPY) 2020	SRCID	Type	UTMe16	UTMn16	Height (m)	Q (g/s)	Hs (m)	Ts (K)	Vs (m/s)	Ds (m)
3446	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	290.70	LGJ01	POINT	595833.90	4212437.29	139.89	8.363E+00	187.45	327.59	10.00	8.53
520	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.01	LGJ02	POINT	595552.87	4212307.48	139.89	1.542E-04	32.61	293.15	10.00	0.30
523	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.00	LGJ03	POINT	595553.74	4212308.60	139.89	8.625E-05	32.61	293.15	10.00	0.30
529	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	188.40	LGJ04	POINT	595642.04	4212186.46	139.89	5.420E+00	182.88	327.04	10.00	5.52
538	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.01	LGJ05	POINT	595541.83	4212201.93	139.89	1.573E-04	31.70	293.15	10.00	0.37
3447	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	280.70	LGJ06	POINT	595635.48	4211923.37	139.89	8.076E+00	182.88	327.59	10.00	7.62
563	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.01	LGJ07	POINT	595535.60	4212134.16	139.89	2.096E-04	31.70	293.15	10.00	0.40
568	127	Louisville Gas & Electric Co., Mill Creek Station	50.00%	0.41	LGJ08	POINT	595621.75	4211522.60	139.89	1.169E-02	34.44	293.15	10.00	0.61
3397	127	Louisville Gas & Electric Co., Mill Creek Station	50.00%	0.08	LGJ09	POINT	595621.75	4211522.60	139.89	2.158E-03	5.18	293.15	10.00	0.46
570	127	Louisville Gas & Electric Co., Mill Creek Station	50.00%	0.01	LGJ10	POINT	595679.12	4211868.40	139.89	1.985E-04	5.27	310.93	10.00	0.18
677	127	Louisville Gas & Electric Co., Mill Creek Station	50.00%	0.03	LGJ11	VOLUME	595621.75	4211522.60	139.89	8.057E-04	4.88	10.00	4.88	
572	127	Louisville Gas & Electric Co., Mill Creek Station	86.00%	0.25	LGJ12	POINT	595610.24	4212279.30	139.89	7.215E-03	14.48	293.15	10.00	0.30
576	127	Louisville Gas & Electric Co., Mill Creek Station	86.00%	0.17	LGJ13	POINT	595632.81	4212225.19	139.89	4.802E-03	10.97	293.15	10.00	0.30
579	127	Louisville Gas & Electric Co., Mill Creek Station	86.00%	0.22	LGJ14	POINT	595627.41	4212087.52	139.89	6.301E-03	5.79	293.15	10.00	0.30
681	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.20	LGJ15	VOLUME	595365.03	4212087.77	139.89	5.694E-03	4.27	10.00	4.27	
682	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.21	LGJ16	VOLUME	595538.76	4212014.35	139.89	5.926E-03	19.81	10.00	19.81	
683	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.21	LGJ17	VOLUME	595365.03	4212087.77	139.89	5.926E-03	4.27	10.00	4.27	
684	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.21	LGJ18	VOLUME	595365.03	4212087.77	139.89	5.926E-03	4.27	10.00	4.27	
685	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.01	LGJ19	VOLUME	595643.09	4212022.23	139.89	4.094E-04	3.05	10.00	3.05	
3387	127	Louisville Gas & Electric Co., Mill Creek Station	47.00%	5.33	LGJ20	VOLUME	595515.20	4211853.16	139.89	1.535E-01	17.98	10.00	17.98	
4293	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.03	LGJ21	POINT	595622.85	4212401.52	139.89	9.620E-04	16.25	293.15	10.00	4.27
4294	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.00	LGJ22	POINT	595593.06	4212397.84	139.89	2.729E-05	25.63	293.15	10.00	4.27
4295	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.17	LGJ23	POINT	595718.01	4212368.23	139.89	4.875E-03	32.92	293.15	10.00	12.19
3399	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.18	LGJ24	POINT	595471.39	4211397.66	139.89	5.179E-03	3.96	293.15	10.00	3.92
713	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.72	LGJ25	VOLUME	595552.87	4212307.48	139.89	2.068E-02	19.81	10.00	19.81	
714	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.12	LGJ26	VOLUME	595566.55	4211140.20	139.89	3.453E-03	30.48	10.00	30.48	
583	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.00	LGJ27	POINT	595494.94	4212159.21	139.89	6.646E-06	8.84	807.59	10.00	0.21
584	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.00	LGJ28	POINT	595511.87	4211537.96	139.89	1.703E-05	2.74	795.37	10.00	0.24
3583	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.00	LGJ29	VOLUME	595659.29	4211988.02	139.89	1.584E-06	1.22	10.00	1.22	
3400	127	Louisville Gas & Electric Co., Mill Creek Station	50.00%	0.00	LGJ30	POINT	595533.92	4211453.87	139.89	8.355E-05	8.84	322.04	10.00	0.71
3388	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.01	LGJ31	VOLUME	595703.26	4211979.65	139.89	2.877E-04	13.72	10.00	13.72	
710	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.00	LGJ32	VOLUME	595566.31	4212358.69	139.89	9.649E-05	1.22	10.00	1.22	
711	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.00	LGJ33	VOLUME	595566.31	4212358.69	139.89	1.809E-08	1.22	10.00	1.22	
4300	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.01	LGJ34	POINT	595635.48	4211923.37	139.89	3.015E-04	45.72	293.15	0.04	0.30
4301	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.01	LGJ35	POINT	595635.48	4211923.37	139.89	2.293E-04	45.72	293.15	0.04	0.30
4298	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.05	LGJ36	VOLUME	595635.48	4211923.37	139.89	1.486E-03	1.22	10.00	1.22	
4299	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.00	LGJ37	VOLUME	595635.48	4211923.37	139.89	2.891E-05	0.00	10.00	0.00	
4297	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.00	LGJ38	VOLUME	595635.48	4211923.37	139.89	9.782E-09	1.22	10.00	1.22	
569	127	Louisville Gas & Electric Co., Mill Creek Station	50.00%	0.41	LGJ39	POINT	595621.75	4211522.60	139.89	1.169E-02	34.44	293.15	10.00	0.61
3398	127	Louisville Gas & Electric Co., Mill Creek Station	50.00%	0.08	LGJ40	POINT	595621.75	4211522.60	139.89	2.158E-03	6.10	293.15	10.00	0.46
571	127	Louisville Gas & Electric Co., Mill Creek Station	50.00%	0.01	LGJ41	POINT	595679.12	4211868.40	139.89	1.985E-04	5.27	310.93	10.00	0.18
678	127	Louisville Gas & Electric Co., Mill Creek Station	50.00%	0.03	LGJ42	VOLUME	595621.75	4211522.60	139.89	8.057E-04	4.88	10.00	4.88	
574	127	Louisville Gas & Electric Co., Mill Creek Station	7.00%	0.02	LGJ43	POINT	595610.24	4212279.30	139.89	5.873E-04	14.48	293.15	10.00	0.30
577	127	Louisville Gas & Electric Co., Mill Creek Station	7.00%	0.01	LGJ44	POINT	595632.81	4212225.19	139.89	3.908E-04	10.97	293.15	10.00	0.30
580	127	Louisville Gas & Electric Co., Mill Creek Station	7.00%	0.02	LGJ45	POINT	595627.41	4212087.52	139.89	5.128E-04	5.79	293.15	10.00	0.30
585	127	Louisville Gas & Electric Co., Mill Creek Station	53.00%	6.02	LGJ46	POINT	595495.65	4211724.20	139.89	1.731E-01	18.14	305.37	10.00	9.14

3401	127	Louisville Gas & Electric Co., Mill Creek Station	50.00%	0.00	LGJ47	POINT	595538.16	4211466.13	139.89	8.355E-05	13.72	310.93	10.00	0.85
575	127	Louisville Gas & Electric Co., Mill Creek Station	7.00%	0.02	LGJ48	POINT	595610.24	4212279.30	139.89	5.873E-04	14.48	293.15	10.00	0.30
578	127	Louisville Gas & Electric Co., Mill Creek Station	7.00%	0.01	LGJ49	POINT	595632.81	4212225.19	139.89	3.908E-04	10.97	293.15	10.00	0.30
581	127	Louisville Gas & Electric Co., Mill Creek Station	7.00%	0.02	LGJ50	POINT	595627.41	4212087.52	139.89	5.128E-04	5.79	293.15	10.00	0.30

Table C-15
Louisville Offsite Inventory
PM10 Facilities

SIA (km)	17	0.5

Facility ID	Facility Name	Prefix	UTM16e	UTM16n	Dist (km)	SO2 (TPY) 2020	Q/D	1hr List	3,24hr List
1	Carbide Industries LLC	CBD	601964.17	4231089.30	36.10	6.88	0.19	Excluded	Excluded
2	Industrial Container Services	ICS	608039.00	4230789.55	40.58	0.02	0.00	Excluded	Excluded
11	American Synthetic Rubber Company	ASR	600764.48	4229912.35	34.42	33.46	0.97	Excluded	Excluded
15	LLFlex, LLC	LLF	607158.59	4232016.42	40.64	0.00	0.00	Excluded	Excluded
26	Brown-Forman Cooperage	BAE	609401.32	4225858.02	39.02	0.24	0.01	Excluded	Excluded
28	Hexion Inc.	HEX	598766.47	4228174.27	31.77	0.15	0.00	Excluded	Excluded
34	Caldwell Tanks	CWT	614922.09	4223418.27	42.88	0.02	0.00	Excluded	Excluded
36	Clariant Corporation, Louisville West Plant	CLW	607217.49	4232593.20	41.05	5.15	0.13	Excluded	Excluded
42	Clariant Corporation, Louisville South Plant	CLS	609565.11	4225861.33	39.16	0.07	0.00	Excluded	Excluded
47	Conco Inc.	CNC	615163.72	4223065.43	42.97	0.01	0.00	Excluded	Excluded
60	Kosmos Cement Company	KOS	595201.78	4210285.89	20.05	259.97	12.96	Excluded	Excluded
62	Chemours Company	CMR	601574.72	4230588.33	35.47	0.16	0.00	Excluded	Excluded
72	Ford Motor Company, Louisville Assembly Plant	FMC	611577.36	4223768.97	39.98	0.27	0.01	Excluded	Excluded
73	Ford Motor Company, Kentucky Truck Plant	FMT	628073.16	4239641.15	62.13	0.42	0.01	Excluded	Excluded
82	Lubrizol Advanced Materials	LUB	602451.56	4231041.07	36.42	0.07	0.00	Excluded	Excluded
84	Buckeye Terminals	BUK	602058.65	4232276.86	36.98	0.02	0.00	Excluded	Excluded
125	Louisville Gas & Electric Co., Paddy's Run Station	LGP	601224.32	4230953.51	35.46	0.13	0.00	Excluded	Excluded
126	Louisville Gas & Electric Co., Cane Run Station	LGC	597828.58	4226496.04	29.95	9.40	0.31	Excluded	Excluded
127	Louisville Gas & Electric Co., Mill Creek Station	LGJ	595833.90	4212437.29	21.17	2889.36	136.47	Included	Included
148	Louisville Medical Center Steam & Chilled Water Plant	LMC	609349.59	4234236.50	43.74	225.19	5.15	Excluded	Excluded
167	The Bulleit Distilling Co. (Diageo Americas Supply, Inc.)	BDC	604236.06	4229799.75	36.97	0.03	0.00	Excluded	Excluded
186	Reynolds Consumer Products, Foil Plant	RCP	604772.91	4233314.77	39.67	0.13	0.00	Excluded	Excluded
187	Eckart America Corporation	EAC	601758.19	4230480.76	35.53	0.01	0.00	Excluded	Excluded
189	Rohm & Haas Kentucky, Inc.	RHK	600912.30	4229925.29	34.53	36.08	1.04	Excluded	Excluded
223	Texas Gas Transmission LLC	TGT	625500.08	4230813.57	55.58	0.00	0.00	Excluded	Excluded
232	Angel's Envy Distillery (Louisville Distilling Co.)	AED	609949.15	4234812.86	44.57	0.02	0.00	Excluded	Excluded
243	Heaven Hill Distilleries, Inc.	HHD	606685.09	4233670.46	41.33	0.16	0.00	Excluded	Excluded
244	Brown-Forman Distillery Co., Early Times	BFD	605597.63	4229468.89	37.84	0.14	0.00	Excluded	Excluded
283	Zeon Chemicals LP	ZCH	602598.08	4231155.01	36.61	0.02	0.00	Excluded	Excluded
290	Louisville Paving Company, Inc. Avoca Asphalt Plant	LPC	630895.22	4235953.58	62.72	0.01	0.00	Excluded	Excluded
461	Mizkan America, Inc.	MZA	606000.46	4228999.15	37.88	0.01	0.00	Excluded	Excluded
532	Outer Loop Recycling & Disposal Facility (Waste Management of KY)	OLR	611917.50	4222742.62	39.86	1.48	0.04	Excluded	Excluded
564	United Parcel Service, WorldPort	UPW	596085.37	4210308.45	20.93	1.13	0.05	Excluded	Excluded
852	University of Louisville, Belknap Campus	ULB	608710.45	4230471.13	40.93	0.07	0.00	Excluded	Excluded

870	GE Appliances (Haier US Appliance Solutions)	4HT	618366.63	4226165.79	47.15	0.16	0.00	Excluded	Excluded
1248	Louisville Gas & Electric Co., Zorn Station	LGZ	613503.95	4237686.50	49.14	0.00	0.00	Excluded	Excluded
1294	Arkema dba Altuglas	ADA	601097.23	4229841.03	34.61	0.01	0.00	Excluded	Excluded
1333	Recast Energy Louisville, LLC	REL	602528.99	4230872.25	36.37	11.06	0.30	Excluded	Excluded
1553	Republic Conduit Manufacturing	RCM	597494.75	4225482.13	29.03	0.01	0.00	Excluded	Excluded
1610	The Keebler Company	TKC	604775.62	4229583.64	37.26	0.02	0.00	Excluded	Excluded
1734	Kentucky Trailer	KYT	597493.65	4224844.01	28.61	0.00	0.00	Excluded	Excluded
1912	E.I. du Pont	DUP	601640.25	4230738.98	35.62	0.01	0.00	Excluded	Excluded

Table C-16
Louisville Offsite Inventory
SO2 Sources

Release Point	FacilityID	Facility Name	Percent	SO2 (TPY) 2020	SRCID	Type	UTMe16	UTMn16	Height (m)	Q (g/s)	Hs (m)	Ts (K)	Vs (m/s)	Ds (m)
3446	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	960	LGJ01	POINT	595833.9	4212437.29	139.89	2.762E+01	187.45	327.59	10.00	8.53
529	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	474.2	LGJ02	POINT	595642.04	4212186.46	139.89	1.364E+01	182.88	327.04	10.00	5.52
3447	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	1455.1	LGJ03	POINT	595635.48	4211923.37	139.89	4.186E+01	182.88	327.59	10.00	7.62
583	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.00413	LGJ04	POINT	595494.94	4212159.21	139.89	1.188E-04	8.84	807.59	10.00	0.21
584	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.000816	LGJ05	POINT	595511.87	4211537.96	139.89	2.348E-05	2.74	795.37	10.00	0.24
3583	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.016704823	LGJ06	VOLUME	595659.29	4211988.02	139.89	4.806E-04	1.22	10.00	1.22	
3400	127	Louisville Gas & Electric Co., Mill Creek Station	50.00%	0.01584	LGJ07	POINT	595533.92	4211453.87	139.89	4.557E-04	8.84	322.04	10.00	0.71
710	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	0.00468	LGJ08	VOLUME	595566.31	4212358.69	139.89	1.346E-04	1.22	10.00	1.22	
711	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	3.408E-05	LGJ09	VOLUME	595566.31	4212358.69	139.89	9.805E-07	1.22	10.00	1.22	
4297	127	Louisville Gas & Electric Co., Mill Creek Station	100.00%	3.9984E-07	LGJ10	VOLUME	595635.48	4211923.37	139.89	1.150E-08	1.22	10.00	1.22	
3401	127	Louisville Gas & Electric Co., Mill Creek Station	50.00%	0.01584	LGJ11	POINT	595538.16	4211466.13	139.89	4.557E-04	13.72	310.93	10.00	0.85

Table C-17
Indiana Offsite Inventory
NOX Facilities

SEARCH DOMAIN (km)	55.3	105.2
SIA (km)	5.3	55.2

FIPS	Facility Name	County	UTM16e (m)	UTM16n (m)	Distance (km)	NOX (TPY) 2020	Q/D NOX	Annual List	1hr List
1814700041	AK STEEL CORPORATION	Spencer	497042.58	4203750.95	78.63	60.40	0.77	Excluded	Excluded
1803700031	ANR PIPELINE CO CELESTINE COMPRESSOR ST	Dubois	519289.45	4248260.42	69.94	688.47	9.84	Excluded	Excluded
1801900124	Clark Floyd Landfill Gas Generating Sta	Clark	600334.05	4255716.17	54.82	17.65	0.32	Excluded	Included
1801900097	Clark-Floyd Landfill	Clark	601106.18	4256166.99	55.57	2.66	0.05	Excluded	Excluded
1806100012	Daramic LLC	Harrison	575649.99	4233613.64	26.83	3.35	0.12	Excluded	Included
1803700023	Dubois Wood Products, Inc-Plt. 1& White	Dubois	504700.50	4238937.70	77.86	0.50	0.01	Excluded	Excluded
1804300004	Duke Energy Indiana, LLC-Gallagher Gene	Floyd	601824.64	4236524.85	39.64	84.11	2.12	Excluded	Included
1803700028	INDIANA DESK COMPANY	Dubois	516312.87	4255484.33	76.73	0.40	0.01	Excluded	Excluded
1803700104	Indiana Furniture Industries	Dubois	506241.18	4249749.16	81.60	0.35	0.00	Excluded	Excluded
1814700020	INDIANA MICHIGAN POWER DBA AEP ROCKPO	Spencer	498269.04	4199025.06	77.73	6099.62	78.47	Excluded	Included
1803700089	JASPER ENGINE EXCHANGE INC	Dubois	504891.91	4247822.74	81.76	48.74	0.60	Excluded	Excluded
1803700010	JASPER SEATING CO INC	Dubois	506237.27	4249636.56	81.54	0.57	0.01	Excluded	Excluded
1803700107	Jasper Seating Co Inc Plant 70	Dubois	506274.51	4249718.28	81.55	0.21	0.00	Excluded	Excluded
1811700014	Jasper Seating Company Incorporated	Orange	547793.81	4277543.51	76.03	0.09	0.00	Excluded	Excluded
1803700007	Jasper Seating Company Incorporated Pla	Dubois	506384.81	4249246.84	81.21	0.16	0.00	Excluded	Excluded
1803700100	Kimball International, Inc.	Dubois	507108.82	4250259.50	81.13	6.12	0.08	Excluded	Excluded
1801900079	KOETTER WOODWORKING INC	Clark	593207.14	4252016.23	48.53	3.67	0.08	Excluded	Included
1809300028	Lawrence Generating Station	Lawrence	546041.90	4287259.33	85.73	14.80	0.17	Excluded	Excluded
1801900008	Lehigh Cement Company LLC	Clark	608949.66	4252240.15	56.37	537.60	9.54	Excluded	Excluded
1809300002	Lehigh Cement Company LLC	Lawrence	546925.52	4287771.21	85.91	1858.46	21.63	Excluded	Included
1803700052	MASTERBRAND CABINETS INC DECORA NO 3	Dubois	507891.74	4246695.82	78.61	1.65	0.02	Excluded	Excluded
1803700051	MasterBrand Cabinets, Inc-# 4/22	Dubois	511333.21	4230193.62	68.41	5.20	0.08	Excluded	Excluded
1814300007	MULTI COLOR CORPORATION	Scott	606673.44	4279799.07	79.34	5.24	0.07	Excluded	Excluded
1803700048	National Office Furniture NOF Jasper 11	Dubois	505334.08	4247289.27	81.11	1.05	0.01	Excluded	Excluded
1803700102	OFS Brands, Inc	Dubois	503390.07	4239444.54	79.26	5.30	0.07	Excluded	Excluded
1801900018	PQ CORP	Clark	609479.76	4237314.91	45.60	53.59	1.18	Excluded	Included
1814700050	PVS Steel Services Inc	Spencer	498470.50	4204457.38	77.18	18.03	0.23	Excluded	Excluded
1807100038	RUMPKE OF INDIANA L L C MEDORA SANITAR	Jackson	569371.86	4302398.91	95.82	2.16	0.02	Excluded	Excluded
1811700010	TEXAS EASTERN TRANSMISSION LP	Orange	528752.94	4263739.07	73.75	30.60	0.41	Excluded	Excluded
1810100001	United States Gypsum Company	Martin	524980.68	4281372.43	90.15	53.42	0.59	Excluded	Excluded
1812300019	Waupaca Foundry Inc	Perry	520295.67	4204156.10	55.38	94.57	1.71	Excluded	Excluded

Table C-18
Indiana Offsite Inventory
NO_X Sources

FIPS	Facility Name	County	UTM16e (m)	UTM16n (m)	Distance (Km)	NOx (TPY) 2020	SRCID	TYPE	ELV (m)	Q (g/s)	Hs (m)	Ts (K)	Vs (m/s)	Ds (m)
1806100012	Daramic LLC	Harrison	575649.99	4233613.64	26.83	0.84	DRM01	POINT	217.083	2.408E-02	8.84	483.15	2.77	0.51
1806100012	Daramic LLC	Harrison	575649.99	4233613.64	26.83	2.51	DRM02	POINT	217.083	7.225E-02	8.84	405.37	2.26	0.61
1804300004	Duke Energy Indiana, LLC-Gallagher Gene	Floyd	601824.64	4236524.85	39.64	40.68	DUK03	POINT	132.012	2.420E+00	167.64	413.71	50.44	3.73
1814700020	INDIANA MICHIGAN POWER DBA AEP ROCKPO	Spencer	498269.04	4199025.06	77.73	6093.39	IMP01	POINT	120	1.753E+02	316.38	429.82	33.58	12.95
1814700020	INDIANA MICHIGAN POWER DBA AEP ROCKPO	Spencer	498269.04	4199025.06	77.73	4.62	IMP02	POINT	120	1.330E-01	91.44	650.37	34.44	3.35
1814700020	INDIANA MICHIGAN POWER DBA AEP ROCKPO	Spencer	498269.04	4199025.06	77.73	0.34	IMP06	POINT	120	4.605E-02	6.10	616.48	17.62	0.56
1801900079	KOETTER WOODWORKING INC	Clark	593207.14	4252016.23	48.53	3.67	KOE01	POINT	266.322	1.055E-01	18.90	477.59	13.73	0.48
1801900008	Lehigh Cement Company LLC	Clark	608949.66	4252240.15	56.37	447.40	LEH01	POINT	145.643	1.287E+01	65.53	422.04	16.31	2.97
1801900008	Lehigh Cement Company LLC	Clark	608949.66	4252240.15	56.37	90.10	LEH02	POINT	145.643	2.592E+00	36.58	513.71	22.16	2.44
1801900008	Lehigh Cement Company LLC	Clark	608949.66	4252240.15	56.37	0.10	LEH03	POINT	145.643	2.893E-03	29.57	353.15	13.96	1.01
1809300002	LEHIGH CEMENT COMPANY LLC	Lawrence	546925.52	4287771.21	85.91	2.99	LEH08	POINT	201.055	1.697E-01	0.00	298.15	0.00	0.00
1809300002	LEHIGH CEMENT COMPANY LLC	Lawrence	546925.52	4287771.21	85.91	1389.41	LEH06	POINT	201.055	3.997E+01	60.96	470.93	1.13	5.49
1809300002	LEHIGH CEMENT COMPANY LLC	Lawrence	546925.52	4287771.21	85.91	463.15	LEH07	POINT	201.055	1.332E+01	30.48	470.93	12.12	1.68
1801900018	PQ CORP	Clark	609479.76	4237314.91	45.60	49.92	PQC01	POINT	136.348	1.436E+00	13.72	505.37	19.40	0.61
1801900018	PQ CORP	Clark	609479.76	4237314.91	45.60	3.00	PQC02	POINT	136.348	8.616E-02	13.72	477.59	15.75	0.61
1801900018	PQ CORP	Clark	609479.76	4237314.91	45.60	0.67	PQC03	POINT	136.348	1.922E-02	27.43	349.82	12.94	0.61
1801900124	Clark Floyd Landfill Gas Generating Sta	Clark	600334.05	4255716.17	54.82	23.11	CFL01	POINT	155.452	6.647E-01	5.79	755.37	24.22	0.25
1801900124	Clark Floyd Landfill Gas Generating Sta	Clark	600334.05	4255716.17	54.82	10.08	CFL02	POINT	155.452	2.898E-01	5.79	755.37	24.22	0.25

Table C-19
Indiana Offsite Inventory
PM10 Facilities

SEARCH DOMAIN (km)	50.0	50.0
SIA (km)	2.5	6.1

FIPS	Facility Name	County	UTM16e (m)	UTM16n (m)	Distance (Km)	PM10 (TPY) 2020	Q/D PM10	Annual List	24hr List
1801900124	Clark Floyd Landfill Gas Generating Sta	Clark	600334.05	4255716.17	54.82	3.39	0.06	Excluded	Excluded
1803700023	Dubois Wood Products, Inc-Plt. 1& White	Dubois	504700.50	4238937.70	77.86	0.04	0.00	Excluded	Excluded
1803700028	INDIANA DESK COMPANY	Dubois	516312.87	4255484.33	76.73	0.03	0.00	Excluded	Excluded
1803700010	JASPER SEATING CO INC	Dubois	506237.27	4249636.56	81.54	4.48	0.05	Excluded	Excluded
1803700007	Jasper Seating Company Incorporated Pla	Dubois	506384.81	4249246.84	81.21	1.87	0.02	Excluded	Excluded
1801900079	KOETTER WOODWORKING INC	Clark	593207.14	4252016.23	48.53	18.94	0.39	Excluded	Excluded
1801900008	Lehigh Cement Company LLC	Clark	608949.66	4252240.15	56.37	401.40	7.12	Excluded	Excluded
1809300002	Lehigh Cement Company LLC	Lawrence	546925.52	4287771.21	85.91	309.56	3.60	Excluded	Excluded
1801900018	PQ CORP	Clark	609479.76	4237314.91	45.60	18.99	0.42	Excluded	Excluded
1801900007	Kitchen Kompact Inc	Clark	610506.73	4238262.41	46.99	1.26	0.03	Excluded	Excluded
1802500002	Mulzer Crushed Stone Inc (Cape Sandy Fa	Crawford	556499.61	4220934.38	23.78	134.38	5.65	Excluded	Excluded
1803700031	ANR PIPELINE CO CELESTINE COMPRESSOR ST	Dubois	519289.45	4248260.42	69.94	19.72	0.28	Excluded	Excluded
1803700048	National Office Furniture NOF Jasper 11	Dubois	505334.08	4247289.27	81.11	2.01	0.02	Excluded	Excluded
1803700051	MasterBrand Cabinets, Inc-# 4/22	Dubois	511333.21	4230193.62	68.41	57.00	0.83	Excluded	Excluded
1803700052	MASTERBRAND CABINETS INC DECORA NO 3	Dubois	507891.74	4246695.82	78.61	18.68	0.24	Excluded	Excluded
1803700054	OFS BRANDS INC PLNT NO 1	Dubois	501710.85	4240381.13	81.18	0.68	0.01	Excluded	Excluded
1803700089	JASPER ENGINE EXCHANGE INC	Dubois	504891.91	4247822.74	81.76	0.74	0.01	Excluded	Excluded
1803700100	Kimball International, Inc.	Dubois	507108.82	4250259.50	81.13	1.08	0.01	Excluded	Excluded
1803700102	OFS Brands, Inc	Dubois	503390.07	4239444.54	79.26	1.39	0.02	Excluded	Excluded
1803700104	Indiana Furniture Industries	Dubois	506241.18	4249749.16	81.60	0.03	0.00	Excluded	Excluded
1803700107	Jasper Seating Co Inc Plant 70	Dubois	506274.51	4249718.28	81.55	0.02	0.00	Excluded	Excluded
1804300004	Duke Energy Indiana, LLC-Gallagher Gene	Floyd	601824.64	4236524.85	39.64	11.54	0.29	Excluded	Excluded
1806100012	Daramic LLC	Harrison	575649.99	4233613.64	26.83	13.48	0.50	Excluded	Excluded
1807100038	RUMPKE OF INDIANA L L C MEDORA SANITAR	Jackson	569371.86	4302398.91	95.82	6.63	0.07	Excluded	Excluded
1809300028	Lawrence Generating Station	Lawrence	546041.90	4287259.33	85.73	1.50	0.02	Excluded	Excluded
1810100001	United States Gypsum Company	Martin	524980.68	4281372.43	90.15	54.66	0.61	Excluded	Excluded
1811700010	TEXAS EASTERN TRANSMISSION LP	Orange	528752.94	4263739.07	73.75	0.47	0.01	Excluded	Excluded
1811700014	Jasper Seating Company Incorporated	Orange	547793.81	4277543.51	76.03	2.57	0.03	Excluded	Excluded
1812300019	Waupaca Foundry Inc	Perry	520295.67	4204156.10	55.38	158.16	2.86	Excluded	Excluded
1814300007	MULTI COLOR CORPORATION	Scott	606673.44	4279799.07	79.34	0.40	0.01	Excluded	Excluded
1814700020	INDIANA MICHIGAN POWER DBA AEP ROCKPO	Spencer	498269.04	4199025.06	77.73	770.73	9.92	Excluded	Excluded
1814700041	AK STEEL CORPORATION	Spencer	497042.58	4203750.95	78.63	40.59	0.52	Excluded	Excluded
1814700044	NATIONAL OFFICE FURNITURE NOF SANTA CL	Spencer	504662.67	4217678.00	71.78	0.14	0.00	Excluded	Excluded
1814700050	PVS Steel Services Inc	Spencer	498470.50	4204457.38	77.18	4.39	0.06	Excluded	Excluded
1817500007	KIMBALL OFFICE SALEM	Washington	579606.35	4274089.22	67.42	0.45	0.01	Excluded	Excluded

Table C-20
Indiana Offsite Inventory
PM2.5 Facilities

SEARCH DOMAIN (km)	50.0	50.0
SIA (km)	4.8	7.7

FIPS	Facility Name	County	UTM16e (m)	UTM16n (m)	Distance (km)	PM25 (TPY) 2020	Q/D PM25	Annual List	24hr List
1801900124	Clark Floyd Landfill Gas Generating Sta	Clark	600334.05	4255716.17	54.82	3.39	0.06	Excluded	Excluded
1801900097	Clark-Floyd Landfill	Clark	601106.18	4256166.99	55.57	0.66	0.01	Excluded	Excluded
1803700023	Dubois Wood Products, Inc-Plt. 1& White	Dubois	504700.50	4238937.70	77.86	0.01	0.00	Excluded	Excluded
1803700028	INDIANA DESK COMPANY	Dubois	516312.87	4255484.33	76.73	0.01	0.00	Excluded	Excluded
1803700010	JASPER SEATING CO INC	Dubois	506237.27	4249636.56	81.54	3.77	0.05	Excluded	Excluded
1803700007	Jasper Seating Company Incorporated Pla	Dubois	506384.81	4249246.84	81.21	1.45	0.02	Excluded	Excluded
1801900079	KOETTER WOODWORKING INC	Clark	593207.14	4252016.23	48.53	8.71	0.18	Excluded	Excluded
1801900008	Lehigh Cement Company LLC	Clark	608949.66	4252240.15	56.37	199.67	3.54	Excluded	Excluded
1809300002	Lehigh Cement Company LLC	Lawrence	546925.52	4287771.21	85.91	121.01	1.41	Excluded	Excluded
1801900018	PQ CORP	Clark	609479.76	4237314.91	45.60	17.15	0.38	Excluded	Excluded
1801900007	Kitchen Kompact Inc	Clark	610506.73	4238262.41	46.99	0.22	0.00	Excluded	Excluded
1802500002	Mulzer Crushed Stone Inc (Cape Sandy Fa	Crawford	556499.61	4220934.38	23.78	7.85	0.33	Excluded	Excluded
1803700031	ANR PIPELINE CO CELESTINE COMPRESSOR ST	Dubois	519289.45	4248260.42	69.94	15.65	0.22	Excluded	Excluded
1803700048	National Office Furniture NOF Jasper 11	Dubois	505334.08	4247289.27	81.11	1.65	0.02	Excluded	Excluded
1803700051	MasterBrand Cabinets, Inc-# 4/22	Dubois	511333.21	4230193.62	68.41	56.70	0.83	Excluded	Excluded
1803700052	MASTERBRAND CABINETS INC DECORA NO 3	Dubois	507891.74	4246695.82	78.61	18.58	0.24	Excluded	Excluded
1803700054	OFS BRANDS INC PLNT NO 1	Dubois	501710.85	4240381.13	81.18	0.68	0.01	Excluded	Excluded
1803700089	JASPER ENGINE EXCHANGE INC	Dubois	504891.91	4247822.74	81.76	0.63	0.01	Excluded	Excluded
1803700100	Kimball International, Inc.	Dubois	507108.82	4250259.50	81.13	0.62	0.01	Excluded	Excluded
1803700102	OFS Brands, Inc	Dubois	503390.07	4239444.54	79.26	1.11	0.01	Excluded	Excluded
1803700104	Indiana Furniture Industries	Dubois	506241.18	4249749.16	81.60	0.01	0.00	Excluded	Excluded
1803700107	Jasper Seating Co Inc Plant 70	Dubois	506274.51	4249718.28	81.55	0.02	0.00	Excluded	Excluded
1804300004	Duke Energy Indiana, LLC-Gallagher Gene	Floyd	601824.64	4236524.85	39.64	1.63	0.04	Excluded	Excluded
1806100012	Daramic LLC	Harrison	575649.99	4233613.64	26.83	7.60	0.28	Excluded	Excluded
1807100038	RUMPKE OF INDIANA L L C MEDORA SANITAR	Jackson	569371.86	4302398.91	95.82	1.54	0.02	Excluded	Excluded
1809300028	Lawrence Generating Station	Lawrence	546041.90	4287259.33	85.73	0.42	0.00	Excluded	Excluded
1810100001	United States Gypsum Company	Martin	524980.68	4281372.43	90.15	20.84	0.23	Excluded	Excluded
1811700010	TEXAS EASTERN TRANSMISSION LP	Orange	528752.94	4263739.07	73.75	0.37	0.01	Excluded	Excluded
1811700014	Jasper Seating Company Incorporated	Orange	547793.81	4277543.51	76.03	1.28	0.02	Excluded	Excluded
1812300019	Waupaca Foundry Inc	Perry	520295.67	4204156.10	55.38	71.08	1.28	Excluded	Excluded
1814300007	MULTI COLOR CORPORATION	Scott	606673.44	4279799.07	79.34	0.10	0.00	Excluded	Excluded
1814700020	INDIANA MICHIGAN POWER DBA AEP ROCKPO	Spencer	498269.04	4199025.06	77.73	93.53	1.20	Excluded	Excluded
1814700041	AK STEEL CORPORATION	Spencer	497042.58	4203750.95	78.63	38.45	0.49	Excluded	Excluded
1814700044	NATIONAL OFFICE FURNITURE NOF SANTA CL	Spencer	504662.67	4217678.00	71.78	0.11	0.00	Excluded	Excluded
1814700050	PVS Steel Services Inc	Spencer	498470.50	4204457.38	77.18	1.97	0.03	Excluded	Excluded
1817500007	KIMBALL OFFICE SALEM	Washington	579606.35	4274089.22	67.42	0.38	0.01	Excluded	Excluded

Table C-21
Indiana Offsite Inventory
SO2 Facilities

SEARCH DOMAIN (km)	59.3	52
SIA (km)	17.0	0.5

FIPS	Facility Name	County	UTM16e (m)	UTM16n (m)	Distance (km)	SO2 (TPY) 2020	Q/D SO2	Annual List	24hr List
1801900124	Clark Floyd Landfill Gas Generating Sta	Clark	600334.05	4255716.17	54.82	4.34	0.08	Excluded	Excluded
1801900097	Clark-Floyd Landfill	Clark	601106.18	4256166.99	55.57	0.69	0.01	Excluded	Excluded
1803700023	Dubois Wood Products, Inc-Plt. 1& White	Dubois	504700.50	4238937.70	77.86	0.00	0.00	Excluded	Excluded
1803700028	INDIANA DESK COMPANY	Dubois	516312.87	4255484.33	76.73	0.00	0.00	Excluded	Excluded
1803700010	JASPER SEATING CO INC	Dubois	506237.27	4249636.56	81.54	0.09	0.00	Excluded	Excluded
1803700007	Jasper Seating Company Incorporated Pla	Dubois	506384.81	4249246.84	81.21	0.03	0.00	Excluded	Excluded
1801900079	KOETTER WOODWORKING INC	Clark	593207.14	4252016.23	48.53	0.42	0.01	Excluded	Excluded
1801900008	Lehigh Cement Company LLC	Clark	608949.66	4252240.15	56.37	245.87	4.36	Excluded	Excluded
1809300002	Lehigh Cement Company LLC	Lawrence	546925.52	4287771.21	85.91	739.07	8.60	Excluded	Excluded
1801900018	PQ CORP	Clark	609479.76	4237314.91	45.60	0.05	0.00	Excluded	Excluded
1803700031	ANR PIPELINE CO CELESTINE COMPRESSOR ST	Dubois	519289.45	4248260.42	69.94	0.24	0.00	Excluded	Excluded
1803700048	National Office Furniture NOF Jasper 11	Dubois	505334.08	4247289.27	81.11	0.04	0.00	Excluded	Excluded
1803700051	National Office Furniture NOF Jasper 11	Dubois	511333.21	4230193.62	68.41	0.03	0.00	Excluded	Excluded
1803700052	MASTERBRAND CABINETS INC DECORA NO 3	Dubois	507891.74	4246695.82	78.61	0.01	0.00	Excluded	Excluded
1803700089	JASPER ENGINE EXCHANGE INC	Dubois	504891.91	4247822.74	81.76	0.20	0.00	Excluded	Excluded
1803700100	Kimball International, Inc.	Dubois	507108.82	4250259.50	81.13	0.48	0.01	Excluded	Excluded
1803700102	OFS Brands, Inc	Dubois	503390.07	4239444.54	79.26	0.27	0.00	Excluded	Excluded
1803700104	Indiana Furniture Industries	Dubois	506241.18	4249749.16	81.60	0.00	0.00	Excluded	Excluded
1803700107	Jasper Seating Co Inc Plant 70	Dubois	506274.51	4249718.28	81.55	0.05	0.00	Excluded	Excluded
1804300004	Duke Energy Indiana, LLC-Gallagher Gene	Floyd	601824.64	4236524.85	39.64	170.25	4.29	Excluded	Excluded
1806100012	Daramic LLC	Harrison	575649.99	4233613.64	26.83	0.02	0.00	Excluded	Excluded
1807100038	RUMPKE OF INDIANA L L C MEDORA SANITAR	Jackson	569371.86	4302398.91	95.82	0.71	0.01	Excluded	Excluded
1809300028	Lawrence Generating Station	Lawrence	546041.90	4287259.33	85.73	0.13	0.00	Excluded	Excluded
1810100001	United States Gypsum Company	Martin	524980.68	4281372.43	90.15	0.32	0.00	Excluded	Excluded
1811700010	TEXAS EASTERN TRANSMISSION LP	Orange	528752.94	4263739.07	73.75	0.01	0.00	Excluded	Excluded
1811700014	Jasper Seating Company Incorporated	Orange	547793.81	4277543.51	76.03	0.00	0.00	Excluded	Excluded
1812300019	Waupaca Foundry Inc	Perry	520295.67	4204156.10	55.38	8.90	0.16	Excluded	Excluded
1814300007	MULTI COLOR CORPORATION	Scott	606673.44	4279799.07	79.34	0.03	0.00	Excluded	Excluded
1814700020	INDIANA MICHIGAN POWER DBA AEP ROCKPO	Spencer	498269.04	4199025.06	77.73	14341.74	184.50	Excluded	Excluded
1814700041	AK STEEL CORPORATION	Spencer	497042.58	4203750.95	78.63	0.67	0.01	Excluded	Excluded
1814700050	PVS Steel Services Inc	Spencer	498470.50	4204457.38	77.18	0.05	0.00	Excluded	Excluded

Table C-7
Kentucky Offsite Inventory
SO_2 Sources

Facility ID	Facility Name	County	Estimated Emissions SO_2 (TPY)	Distance (km)	SIA (km) Q/D	10.31 1hr List	0.73 3, 24hr List
2109300090	AGC Automotive Americas	Hardin	0.14	41.77	0.00	Excluded	Excluded
2116300028	Agrium Advanced Technologies Inc -	Meade	0.00	0.92	0.00	Excluded	Excluded
2109300054	Akebono Brake Corp	Hardin	0.04	40.73	0.00	Excluded	Excluded
2109300095	Alabama Wire Products	Hardin	0.00	41.82	0.00	Excluded	Excluded
2109300081	Altec Industries Inc	Hardin	0.00	41.32	0.00	Excluded	Excluded
2116300031	American Tower Corp - Doe Valley Cell Tower	Meade	0.00	7.90	0.00	Excluded	Excluded
2102900051	American Tower Corp - Shepherdsville Cell	Bullitt	0.00	37.83	0.00	Excluded	Excluded
2109300167	American Towers LLC - Tunnel Hill Elizabethtown Cell Tower Engine	Hardin	0.00	40.37	0.00	Excluded	Excluded
2102900053	AmerisourceBergen Specialty Group - ASD	Bullitt	0.00	38.34	0.00	Excluded	Excluded
2102900002	Arcosa LW KY LLC	Bullitt	720.98	37.27	19.35	Excluded	Excluded
2102900044	Astra Zeneca Pharmaceuticals LP	Bullitt	0.23	41.02	0.01	Excluded	Excluded
2109300123	AT&T Mobility - 10th Street Cell Tower Engine	Hardin	0.00	16.48	0.00	Excluded	Excluded
2116300032	AT&T Mobility - Bee Knob Hill Cell Tower Engine	Meade	0.00	17.18	0.00	Excluded	Excluded
2109300178	AT&T Mobility - Billy Creek Cell Tower Engine	Hardin	0.00	41.94	0.00	Excluded	Excluded
2116300045	AT&T Mobility - Brandenburg Cell Tower Engine	Meade	0.00	2.96	0.00	Excluded	Excluded
2109300125	AT&T Mobility - Braves Rifle Cell Tower Engine	Hardin	0.00	19.14	0.00	Excluded	Excluded
2109300129	AT&T Mobility - Cavalry Cell Tower Engine	Hardin	0.00	22.00	0.00	Excluded	Excluded
2102900060	AT&T Mobility - Cedar Grove Cell Tower Engine	Bullitt	0.00	49.29	0.00	Excluded	Excluded
2102900079	AT&T Mobility - Cell Tower Engine	Bullitt	0.00	30.94	0.00	Excluded	Excluded
2102700043	AT&T Mobility - Cloverport Cell Tower Engine	Breckinridge	0.00	49.05	0.00	Excluded	Excluded
2109300177	AT&T Mobility - Elizabethtown Cell Tower Engine	Hardin	0.00	39.21	0.00	Excluded	Excluded
2109300115	AT&T Mobility - Elizabethtown Pear Orchard Cell	Hardin	0.00	36.33	0.00	Excluded	Excluded
2109300117	AT&T Mobility - Elizabethtown Springfield Cell	Hardin	0.00	44.85	0.00	Excluded	Excluded
2109300116	AT&T Mobility - Elizabethtown West Dixie Cell	Hardin	0.00	42.15	0.00	Excluded	Excluded
2109300119	AT&T Mobility - Fort Knox Dixie Cell Tower	Hardin	0.00	20.46	0.00	Excluded	Excluded
2109300168	AT&T Mobility - Frazier Cell Tower Engine	Hardin	0.00	18.92	0.00	Excluded	Excluded
2102900052	AT&T Mobility - Hammond Property Cell Tower	Bullitt	0.00	54.17	0.00	Excluded	Excluded
2102700035	AT&T Mobility - Hardinsburg Finley Dowell Cell	Breckinridge	0.00	36.79	0.00	Excluded	Excluded
2102700040	AT&T Mobility - Harned Cell Tower Engine	Breckinridge	0.00	34.70	0.00	Excluded	Excluded
2102900062	AT&T Mobility - Holsclaw Cell Tower Engine	Bullitt	0.00	35.48	0.00	Excluded	Excluded
2102700042	AT&T Mobility - Irvington Cell Tower Engine	Breckinridge	0.00	18.72	0.00	Excluded	Excluded
2102700036	AT&T Mobility - Jake Horsley Cell Tower Engine	Breckinridge	0.00	30.85	0.00	Excluded	Excluded
2109300130	AT&T Mobility - Jamison Cell Tower Engine	Hardin	0.00	16.83	0.00	Excluded	Excluded
2102900063	AT&T Mobility - KY Turnpike Cell Tower Engine	Bullitt	0.00	39.23	0.00	Excluded	Excluded
2102900070	AT&T Mobility - KY Turnpike Water District Cell	Bullitt	0.00	45.13	0.00	Excluded	Excluded
2102900078	AT&T Mobility - Mt Washington Cell Tower	Bullitt	0.00	47.81	0.00	Excluded	Excluded
2102900086	AT&T Mobility - Mt Washington West Cell Tower	Bullitt	0.00	50.94	0.00	Excluded	Excluded
2109300124	AT&T Mobility - Otter Creek Cell Tower Engine	Hardin	0.00	25.30	0.00	Excluded	Excluded
2109300122	AT&T Mobility - Radcliff Facility Cell Tower	Hardin	0.00	24.02	0.00	Excluded	Excluded
2102900080	AT&T Mobility - Rising Sun Cell Tower Engine	Bullitt	0.00	25.95	0.00	Excluded	Excluded
2102700047	AT&T Mobility - Sink Cell Tower Engine	Breckinridge	0.00	44.89	0.00	Excluded	Excluded
2109300126	AT&T Mobility - South Wilson Cell Tower Engine	Hardin	0.00	28.46	0.00	Excluded	Excluded
2109300165	AT&T Mobility - Spearhead Relo Cell Tower	Hardin	0.00	22.03	0.00	Excluded	Excluded
2116300030	AT&T Mobility - Timber Court Cell Tower Engine	Meade	0.00	14.28	0.00	Excluded	Excluded
2109300159	AT&T Mobility - Tunnel Hills Cell Tower Engine	Hardin	0.00	42.07	0.00	Excluded	Excluded
2109300118	AT&T Mobility - Upton South Dixie Cell Tower	Hardin	0.00	62.28	0.00	Excluded	Excluded
2116300047	AT&T Mobility - Van Voorhis Relo Cell Tower	Hardin	0.00	16.87	0.00	Excluded	Excluded
2109300179	AT&T Mobility - Ventress Cell Tower Engine	Hardin	0.00	33.38	0.00	Excluded	Excluded
2109300032	Baptist Health Hardin	Hardin	0.03	40.05	0.00	Excluded	Excluded
2102700027	Bedrock Products LLC	Breckinridge	0.00	48.12	0.00	Excluded	Excluded
2102900081	Best Buy - Geek Squad City	Bullitt	0.00	38.13	0.00	Excluded	Excluded
2102900082	Best Buy Distribution Center	Bullitt	0.00	41.19	0.00	Excluded	Excluded
2102900042	Blackrock Trailers	Bullitt	0.00	37.41	0.00	Excluded	Excluded
2109300121	Bluegrass Cellular Inc - Williams Street Office	Hardin	0.00	42.26	0.00	Excluded	Excluded
2109300150	Bluegrass Cellular Inc LLC - Fort Knox VII Cell	Hardin	0.00	19.20	0.00	Excluded	Excluded
2109300158	Bluegrass Cellular LLC - Elizabethtown Data	Hardin	0.00	42.06	0.00	Excluded	Excluded
2102709378	Bramco-MPS - Kleemann MR 110 ZS EVO	Breckinridge	0.00	38.11	0.00	Excluded	Excluded
2109300131	By Quest	Hardin	0.04	41.81	0.00	Excluded	Excluded
2109300065	Central KY Powder Coating	Hardin	0.00	44.62	0.00	Excluded	Excluded
2109300096	Certified Construction Co	Hardin	0.00	21.88	0.00	Excluded	Excluded
2116300043	Charter Communications - Brandenburg Cell	Meade	0.00	4.49	0.00	Excluded	Excluded
2109300160	Charter Communications - Radcliff Cell Tower	Hardin	0.00	25.45	0.00	Excluded	Excluded
2109300138	Comcast of the South - Elizabethtown Office	Hardin	0.00	41.43	0.00	Excluded	Excluded
2116300029	Consolidated Grain & Barge Co	Meade	0.00	0.74	0.00	Excluded	Excluded
2102700039	Crist Propane Services LLC	Breckinridge	0.00	21.27	0.00	Excluded	Excluded
2109300057	Cytech Products Inc	Hardin	0.00	40.91	0.00	Excluded	Excluded
2102900019	Distinct Packabilities	Bullitt	0.00	37.17	0.00	Excluded	Excluded
2109300005	Dow Silicones Corporation - Elizabethtown Plant	Hardin	0.04	46.10	0.00	Excluded	Excluded
2109300094	East KY Power Coop - Hardin Co Landfill Gas to	Hardin	16.68	47.76	0.35	Excluded	Excluded
2109300166	Elizabethtown Box Plant	Hardin	0.00	41.05	0.00	Excluded	Excluded
2102700037	Farmers Recycling LLC Property	Breckinridge	0.00	46.12	0.00	Excluded	Excluded
2109300120	Flex Films USA	Hardin	0.08	41.09	0.00	Excluded	Excluded
2109300046	Flint Group Pigments	Hardin	0.04	40.52	0.00	Excluded	Excluded
2102909186	Flynn Brothers Contracting - Portable	Bullitt	0.02	38.47	0.00	Excluded	Excluded
2102900043	Gordon Food Service	Bullitt	0.01	40.52	0.00	Excluded	Excluded
2102909326	Hall Contracting of Kentucky Inc - Portable	Bullitt	0.00	38.19	0.00	Excluded	Excluded
2109300085	Hardin Co Contained Landfill	Hardin	1.02	48.53	0.02	Excluded	Excluded
2109300601	Hawthorne Services Inc - COCO Fuel 9th Armor	Hardin	0.00	21.51	0.00	Excluded	Excluded
2109300602	Hawthorne Services Inc - COCO Fuel Frazier	Hardin	0.00	19.11	0.00	Excluded	Excluded
2109300137	Hendrickson Trailer Commercial Vehicle Systems	Hardin	0.00	41.04	0.00	Excluded	Excluded
2102900037	Horner Industrial Group Inc	Bullitt	0.00	40.07	0.00	Excluded	Excluded
2109300002	IMI South LLC - Radcliff 872	Hardin	0.00	26.77	0.00	Excluded	Excluded
2109300111	Insight KY Partners II LP - Radcliff Engine	Hardin	0.00	25.44	0.00	Excluded	Excluded
2102900056	Integrated Commercialization Solutions	Bullitt	0.00	38.15	0.00	Excluded	Excluded
2102900005	Jim Beam Brands Co - Clermont Plant	Bullitt	0.03	43.52	0.00	Excluded	Excluded
2102900069	JOM Pharmaceutical Services Inc	Bullitt	0.00	37.88	0.00	Excluded	Excluded
2109300097	Ky Dept of Military Affairs - KY MATES	Hardin	0.00	18.84	0.00	Excluded	Excluded
2109300145	KY Dept of Veterans Affairs - 4th State Veterans	Hardin	0.00	21.39	0.00	Excluded	Excluded
2109300136	KY Utilities Co - Elizabethtown	Hardin	0.00	42.70	0.00	Excluded	Excluded
2116300017	Louisville Gas & Electric - Muldraugh	Meade	7.52	14.52	0.52	Excluded	Excluded
2102900083	Louisville Gas & Electric (LG&E) - Holsclaw Cell	Bullitt	0.00	35.35	0.00	Excluded	Excluded
2116300046	Louisville Gas & Electric (LG&E) - Muldraugh Cell	Meade	0.00	13.49	0.00	Excluded	Excluded
2116300034	Louisville Gas & Electric Co - Doe Run	Meade	0.00	3.66	0.00	Excluded	Excluded
2116300036	Louisville Gas & Electric Co - Doe Run KY NG Compressor Station	Meade	0.00	4.56	0.00	Excluded	Excluded
2102900064	Louisville Gas & Electric Co - Mt Washington	Bullitt	0.00	51.97	0.00	Excluded	Excluded
2109300135	Louisville Gas & Electric Co Emergency	Hardin	0.00	32.58	0.00	Excluded	Excluded

2109309294	Louisville Paving Co - Portable	Hardin	0.00	21.83	0.00	Excluded	Excluded
2102909043	Louisville Paving Company Inc - Bullitt County Portable Asphalt Plant	Bullitt	0.21	36.98	0.01	Excluded	Excluded
2102900050	Louisville Seating Division of Magna	Bullitt	0.00	40.72	0.00	Excluded	Excluded
2102900071	Louisville Water Co Cedar Grove Generator	Bullitt	0.00	38.74	0.00	Excluded	Excluded
2102900072	Louisville Water Co Chapeze Generator	Bullitt	0.00	40.02	0.00	Excluded	Excluded
2102900032	LSC Communications	Bullitt	0.04	43.43	0.00	Excluded	Excluded
2109300033	Magna/Robert Bosch Tool Corp - Elizabethtown	Hardin	0.00	41.78	0.00	Excluded	Excluded
2102700006	Mago Construction Co LLC	Breckinridge	0.05	19.15	0.00	Excluded	Excluded
2102700004	Mago Construction Co LLC - Hardinsburg Asphalt	Breckinridge	1.68	42.40	0.04	Excluded	Excluded
2102909201	Mago Construction Co LLC - HMA Portable RAP	Bullitt	0.01	40.18	0.00	Excluded	Excluded
2102909202	Mago Construction Co LLC - HMA Portable RAP	Bullitt	0.00	39.36	0.00	Excluded	Excluded
2102900010	Mago Construction Co LLC - Shepherdsville	Bullitt	0.15	40.10	0.00	Excluded	Excluded
2102900045	Marrillia Environmental LLC	Bullitt	0.07	52.04	0.00	Excluded	Excluded
2102900073	Marrillia Environmental LLC	Bullitt	0.00	50.88	0.00	Excluded	Excluded
2116300038	Meade Co Water District Engine	Meade	0.00	22.50	0.00	Excluded	Excluded
2109300003	Metalsa	Hardin	0.00	42.53	0.00	Excluded	Excluded
2109300063	Metalsa Structural Products Inc	Hardin	0.09	41.32	0.00	Excluded	Excluded
2109309249	Mink Bros Quarry LLC - Portable Processing	Hardin	0.40	46.76	0.01	Excluded	Excluded
2109300068	Modern Plating Coatings & Finishes	Hardin	0.00	41.06	0.00	Excluded	Excluded
2109300080	Modern Welding Company of Kentucky Inc -	Hardin	0.00	44.67	0.00	Excluded	Excluded
2116300001	Monument Chemical Kentucky LLC	Meade	0.38	1.54	0.25	Included	Excluded
2109300043	Mouser Custom Cabinetry	Hardin	0.00	36.34	0.00	Excluded	Excluded
2102900075	New Flyer of America	Bullitt	0.00	40.68	0.00	Excluded	Excluded
2102900048	On Site Electrostatic Painting Co	Bullitt	0.00	40.22	0.00	Excluded	Excluded
2116309192	PAC Recycling LLC	Meade	0.00	3.50	0.00	Excluded	Excluded
2109300147	Peaceful Pets USA LLC	Hardin	0.00	43.00	0.00	Excluded	Excluded
2102900046	Sabert Corp	Bullitt	0.01	38.23	0.00	Excluded	Excluded
2102900068	Santa Rosa Systems	Bullitt	0.00	39.63	0.00	Excluded	Excluded
2109300026	Scottys Contracting & Stone LLC - Fort Knox	Hardin	0.27	33.59	0.01	Excluded	Excluded
2109309230	Scottys Contracting & Stone LLC - Portable	Hardin	0.29	24.11	0.01	Excluded	Excluded
2109309056	Scottys Contracting & Stone LLC - Portable Plant	Hardin	0.05	65.29	0.00	Excluded	Excluded
2109300015	Scottys Contracting & Stone LLC - Upton	Hardin	0.00	65.06	0.00	Excluded	Excluded
2109309233	Scottys Contracting & Stone LLC - Upton Portable	Hardin	0.00	65.43	0.00	Excluded	Excluded
2102900038	Speyside Cooperage Kentucky Inc	Bullitt	0.00	37.36	0.00	Excluded	Excluded
2109300163	Structures USA LLC	Hardin	0.00	40.95	0.00	Excluded	Excluded
2102700022	Texas Gas Transmission LLC - Hardinsburg Transmission Station	Breckinridge	0.09	39.05	0.00	Excluded	Excluded
2109300021	The Gates Corp	Hardin	0.01	42.30	0.00	Excluded	Excluded
2102700049	T-Mobile - Cell Tower Engine	Breckinridge	0.00	36.77	0.00	Excluded	Excluded
2102900087	T-Mobile - Cell Tower Engine	Bullitt	0.00	41.19	0.00	Excluded	Excluded
2109300173	T-Mobile - Cell Tower Engine	Hardin	0.00	62.28	0.00	Excluded	Excluded
2109300174	T-Mobile - Cell Tower Engine	Hardin	0.00	24.05	0.00	Excluded	Excluded
2109300175	T-Mobile - Cell Tower Engine	Hardin	0.00	50.93	0.00	Excluded	Excluded
2102700046	T-Mobile - Cloverport Cell Tower Engine	Breckinridge	0.00	44.29	0.00	Excluded	Excluded
2116300039	T-Mobile - Guston Cell Tower Engine	Meade	0.00	15.18	0.00	Excluded	Excluded
2102700044	T-Mobile - Hardinsburg Cell Tower Engine	Breckinridge	0.00	36.87	0.00	Excluded	Excluded
2102900076	T-Mobile - Lebanon Junction Cell Tower Engine	Bullitt	0.00	40.63	0.00	Excluded	Excluded
2116300040	T-Mobile - Vine Grove Cell Tower Engine	Hardin	0.00	14.97	0.00	Excluded	Excluded
2109300052	Trinity Industries Inc	Hardin	0.00	44.16	0.00	Excluded	Excluded
2109300022	US Army Garrison - Fort Knox	Hardin	0.47	31.02	0.02	Excluded	Excluded
2109300127	Verizon Wireless - Battle Training Rd Cell Tower	Hardin	0.00	35.04	0.00	Excluded	Excluded
2102900058	Verizon Wireless - Belmont Cell Tower Engine	Bullitt	0.00	40.60	0.00	Excluded	Excluded
2109300161	Verizon Wireless - Bland Rd Cell Tower Engine	Hardin	0.00	46.12	0.00	Excluded	Excluded
2116300042	Verizon Wireless - Brandenburg Capacity Cell	Meade	0.00	0.92	0.00	Excluded	Excluded
2116300035	Verizon Wireless - Brandenburg Cell Tower	Meade	0.00	2.11	0.00	Excluded	Excluded
2102900054	Verizon Wireless - Brooks Cell Tower Engine	Bullitt	0.00	35.37	0.00	Excluded	Excluded
2109300149	Verizon Wireless - Colesburg Cell Tower Engine	Hardin	0.00	37.81	0.00	Excluded	Excluded
2116300041	Verizon Wireless - Doe Valley Cell Tower Engine	Meade	0.00	3.51	0.00	Excluded	Excluded
2109300098	Verizon Wireless - Elizabethtown DT Cell Tower	Hardin	0.00	43.28	0.00	Excluded	Excluded
2109300156	Verizon Wireless - Elizabethtown High School Cell Tower Engine	Hardin	0.00	42.11	0.00	Excluded	Excluded
2109300128	Verizon Wireless - Elizabethtown North Cell	Hardin	0.00	36.32	0.00	Excluded	Excluded
2109300102	Verizon Wireless - Elizabethtown West Cell	Hardin	0.00	36.61	0.00	Excluded	Excluded
2102900084	Verizon Wireless - Ferguson Cell Tower Engine	Bullitt	0.00	38.72	0.00	Excluded	Excluded
2109300152	Verizon Wireless - Fort Knox VI Cell Tower	Hardin	0.00	20.41	0.00	Excluded	Excluded
2116300037	Verizon Wireless - Fort Knox West Cell Tower	Meade	0.00	14.96	0.00	Excluded	Excluded
2109300107	Verizon Wireless - Ft Knox Cell Tower Engine	Hardin	0.00	21.95	0.00	Excluded	Excluded
2109300109	Verizon Wireless - Ft Knox II Cell Tower Engine	Hardin	0.00	19.24	0.00	Excluded	Excluded
2109300110	Verizon Wireless - Ft Knox III Cell Tower Engine	Hardin	0.00	22.36	0.00	Excluded	Excluded
2116300026	Verizon Wireless - Ft Knox IV Cell Tower Engine	Meade	0.00	16.87	0.00	Excluded	Excluded
2102700033	Verizon Wireless - Garfield Cell Tower Engine	Breckinridge	0.00	28.57	0.00	Excluded	Excluded
2109300134	Verizon Wireless - Glendale Cell Tower Engine	Hardin	0.00	50.93	0.00	Excluded	Excluded
2109300164	Verizon Wireless - Glendale DT Cell Tower	Hardin	0.00	49.78	0.00	Excluded	Excluded
2109300153	Verizon Wireless - Gray Street Cell Tower Engine	Hardin	0.00	38.57	0.00	Excluded	Excluded
2102700038	Verizon Wireless - Hardinsburg Cell Tower	Breckinridge	0.00	37.17	0.00	Excluded	Excluded
2102700029	Verizon Wireless - Hardinsburg North Cell Tower	Breckinridge	0.00	36.79	0.00	Excluded	Excluded
2102900074	Verizon Wireless - Harper Hwy Cell Tower	Bullitt	0.00	38.61	0.00	Excluded	Excluded
2109300154	Verizon Wireless - Helmwood Cell Tower Engine	Hardin	0.00	41.00	0.00	Excluded	Excluded
2102900065	Verizon Wireless - Highway 44 Cell Tower Engine	Bullitt	0.00	23.39	0.00	Excluded	Excluded
2109300105	Verizon Wireless - Howe Valley Cell Tower	Hardin	0.00	36.96	0.00	Excluded	Excluded
2109300099	Verizon Wireless - I65 Rock Cut Cell Tower	Hardin	0.00	40.68	0.00	Excluded	Excluded
2102700032	Verizon Wireless - Kingswood Cell Tower Engine	Breckinridge	0.00	42.29	0.00	Excluded	Excluded
2102900059	Verizon Wireless - KY 44 & Tammy Ln Cell Tower	Bullitt	0.00	45.71	0.00	Excluded	Excluded
2109300101	Verizon Wireless - Lincoln Parkway Cell Tower	Hardin	0.00	49.16	0.00	Excluded	Excluded
2109300112	Verizon Wireless - Longview Cell Tower Engine	Hardin	0.00	30.48	0.00	Excluded	Excluded
2102700034	Verizon Wireless - McQuady Cell Tower Engine	Breckinridge	0.00	47.25	0.00	Excluded	Excluded
2102700041	Verizon Wireless - Mooleyville Cell Tower Engine	Breckinridge	0.00	31.20	0.00	Excluded	Excluded
2116300033	Verizon Wireless - Muldraugh Cell Tower Engine	Meade	0.00	14.30	0.00	Excluded	Excluded
2109300144	Verizon Wireless - Peterson Dr Cell Tower	Hardin	0.00	41.94	0.00	Excluded	Excluded
2109300100	Verizon Wireless - Prather Cell Tower Engine	Hardin	0.00	33.63	0.00	Excluded	Excluded
2109300162	Verizon Wireless - Radcliff Capacity Cell Tower	Hardin	0.00	25.04	0.00	Excluded	Excluded
2109300151	Verizon Wireless - Severns Valley Cell Tower	Hardin	0.00	38.26	0.00	Excluded	Excluded
2102900055	Verizon Wireless - Shepherdsville Cell Tower	Bullitt	0.00	37.83	0.00	Excluded	Excluded
2102900057	Verizon Wireless - Shepherdsville Cell Tower	Bullitt	0.00	43.88	0.00	Excluded	Excluded
2102900066	Verizon Wireless - Shepherdsville Rd Cell Tower	Bullitt	0.00	30.94	0.00	Excluded	Excluded
2112300020	Verizon Wireless - Sonora Cell Tower Engine	Hardin	0.00	58.78	0.00	Excluded	Excluded
2109300106	Verizon Wireless - Stephensburg Cell Tower	Hardin	0.00	45.03	0.00	Excluded	Excluded
2102700031	Verizon Wireless - Stephensport Cell Tower	Breckinridge	0.00	36.37	0.00	Excluded	Excluded
2109300157	Verizon Wireless - Tunnel Hill Cell Tower Engine	Hardin	0.00	40.37	0.00	Excluded	Excluded
2102700030	Verizon Wireless - Union Star Cell Tower Engine	Breckinridge	0.00	24.57	0.00	Excluded	Excluded
2109300108	Verizon Wireless - Vertrees Cell Tower Engine	Hardin	0.00	33.94	0.00	Excluded	Excluded
2109300140	Verizon Wireless - West Point Cell Tower Engine	Hardin	0.00	16.54	0.00	Excluded	Excluded
2109300104	Verizon Wirelss - Head Quarters Cell Tower	Hardin	0.00	41.31	0.00	Excluded	Excluded
2116309160	Vulcan Construction Material LP - Brandenburg	Meade	0.00	3.97	0.00	Excluded	Excluded

Table C-2
Kentucky Offsite Inventory
SO2 Sources

Facility ID	Facility Name	SO2 Estimated Emissions (TPY) 2021	Prefix	Prefix Index	SRCID	UTMe16	UTMn16	Elev (m)	County	Longitude	Latitude	TYPE	Q (g/s)	Hs (m)	Ts (K)	Vs (m/s)	Ds (m)
2116300001	Monument Chemical Kentucky LLC	1.047E-01	MCK	1	MCK01	577136.95	4206548.99		Meade	-86.121389	38.003333		3.012E-03	14.94	422.04	7.92	1.40
2116300001	Monument Chemical Kentucky LLC	1.110E-01	MCK	2	MCK02	577136.95	4206548.99		Meade	-86.121389	38.003333		3.193E-03	14.94	422.04	7.92	1.40
2116300001	Monument Chemical Kentucky LLC	1.017E-01	MCK	3	MCK03	577136.95	4206548.99		Meade	-86.121389	38.003333		2.926E-03	14.94	422.04	7.92	1.40
2116300001	Monument Chemical Kentucky LLC	5.145E-05	MCK	4	MCK04	577136.95	4206548.99		Meade	-86.121389	38.003333		1.480E-06	1.83	599.82	87.67	0.10
2116300001	Monument Chemical Kentucky LLC	5.145E-05	MCK	5	MCK05	577136.95	4206548.99		Meade	-86.121389	38.003333		1.480E-06	1.83	802.59	75.49	0.10
2116300001	Monument Chemical Kentucky LLC	5.145E-05	MCK	6	MCK06	577136.95	4206548.99		Meade	-86.121389	38.003333		1.480E-06	1.83	802.59	75.49	0.10
2116300001	Monument Chemical Kentucky LLC	3.465E-05	MCK	7	MCK07	577136.95	4206548.99		Meade	-86.121389	38.003333		9.968E-07	1.83	727.59	59.87	0.10
2116300001	Monument Chemical Kentucky LLC	3.465E-05	MCK	8	MCK08	577136.95	4206548.99		Meade	-86.121389	38.003333		9.968E-07	1.83	727.59	59.87	0.10
2116300001	Monument Chemical Kentucky LLC	5.145E-05	MCK	9	MCK09	577136.95	4206548.99		Meade	-86.121389	38.003333		1.480E-06	1.83	727.59	59.87	0.10
2116300001	Monument Chemical Kentucky LLC	3.465E-05	MCK	10	MCK10	577136.95	4206548.99		Meade	-86.121389	38.003333		9.968E-07	1.83	727.59	59.87	0.10
2116300001	Monument Chemical Kentucky LLC	2.415E-05	MCK	11	MCK11	577136.95	4206548.99		Meade	-86.121389	38.003333		6.947E-07	1.83	727.59	75.49	0.10
2116300001	Monument Chemical Kentucky LLC	1.029E-05	MCK	12	MCK12	577136.95	4206548.99		Meade	-86.121389	38.003333		2.960E-07	1.83	727.59	75.49	0.10
2116300001	Monument Chemical Kentucky LLC	3.697E-04	MCK	13	MCK13	577136.95	4206548.99		Meade	-86.121389	38.003333		1.064E-05	0.00	288.15	0.00	0.00
2116300001	Monument Chemical Kentucky LLC	6.254E-02	MCK	14	MCK14	577136.95	4206548.99		Meade	-86.121389	38.003333		1.799E-03	0.00	305.37	0.00	0.00

Table C-4
Kentucky Offsite Inventory
PM_{10} Sources

								SIA (km)	2.06	6.75
Facility ID	**Facility Name**	**County**	**Prefix**	**UTM16e**	**UTM16n**	**PM_{10} Estimated Emissions (TPY)**	**Distance (km)**	**Q/D**	**Annual List**	**1hr List**
2109300133	Accumetric LLC - Packaging Plant	Hardin				0.00	40.27	0.00	Excluded	Excluded
2109300090	AGC Automotive Americas	Hardin				0.49	41.77	0.01	Excluded	Excluded
2116300028	Agrium Advanced Technologies Inc - Brandenburg	Meade				0.00	0.92	0.00	Excluded	Excluded
2109300054	Akebono Brake Corp	Hardin				1.60	40.73	0.04	Excluded	Excluded
2109300095	Alabama Wire Products	Hardin				0.00	41.82	0.00	Excluded	Excluded
2109300081	Altec Industries Inc	Hardin				0.00	41.32	0.00	Excluded	Excluded
2116300023	Alternative Ready Mix	Meade				0.00	3.49	0.00	Excluded	Excluded
2116300031	American Tower Corp - Doe Valley Cell Tower Engine	Meade				0.00	7.90	0.00	Excluded	Excluded
2102900051	American Tower Corp - Shepherdsville Cell Tower	Bullitt				0.00	37.83	0.00	Excluded	Excluded
2109300167	American Towers LLC - Tunnel Hill Elizabethtown Cell Tower Engine	Hardin				0.00	40.37	0.00	Excluded	Excluded
2102900053	AmerisourceBergen Specialty Group - ASD	Bullitt				0.00	38.34	0.00	Excluded	Excluded
2102900002	Arcosa LW KY LLC	Bullitt				84.32	37.27	2.26	Excluded	Excluded
2102900044	Astra Zeneca Pharmaceuticals LP	Bullitt				0.11	41.02	0.00	Excluded	Excluded
2109300123	AT&T Mobility - 10th Street Cell Tower Engine	Hardin				0.00	16.48	0.00	Excluded	Excluded
2116300032	AT&T Mobility - Bee Knob Hill Cell Tower Engine	Meade				0.00	17.18	0.00	Excluded	Excluded
2109300178	AT&T Mobility - Billy Creek Cell Tower Engine	Hardin				0.00	41.94	0.00	Excluded	Excluded
2116300045	AT&T Mobility - Brandenburg Cell Tower Engine	Meade				0.00	2.96	0.00	Excluded	Excluded
2109300125	AT&T Mobility - Braves Rifle Cell Tower Engine	Hardin				0.00	19.14	0.00	Excluded	Excluded
2109300129	AT&T Mobility - Cavalry Cell Tower Engine	Hardin				0.00	22.00	0.00	Excluded	Excluded
2102900060	AT&T Mobility - Cedar Grove Cell Tower Engine	Bullitt				0.00	49.29	0.00	Excluded	Excluded
2102900079	AT&T Mobility - Cell Tower Engine	Bullitt				0.00	30.94	0.00	Excluded	Excluded
2102700043	AT&T Mobility - Cloverport Cell Tower Engine	Breckinridge				0.00	49.05	0.00	Excluded	Excluded
2109300177	AT&T Mobility - Elizabethtown Cell Tower Engine	Hardin				0.00	39.21	0.00	Excluded	Excluded
2109300115	AT&T Mobility - Elizabethtown Pear Orchard Cell Tower Engine	Hardin				0.00	36.33	0.00	Excluded	Excluded
2109300117	AT&T Mobility - Elizabethtown Springfield Cell Tower Engine	Hardin				0.00	44.85	0.00	Excluded	Excluded
2109300116	AT&T Mobility - Elizabethtown West Dixie Cell Tower Engine	Hardin				0.00	42.15	0.00	Excluded	Excluded
2109300119	AT&T Mobility - Fort Knox Dixie Cell Tower Engine	Hardin				0.00	20.46	0.00	Excluded	Excluded
2109300168	AT&T Mobility - Frazier Cell Tower Engine	Hardin				0.00	18.92	0.00	Excluded	Excluded
2102900052	AT&T Mobility - Hammond Property Cell Tower Engine	Bullitt				0.00	54.17	0.00	Excluded	Excluded
2102700035	AT&T Mobility - Hardinsburg Finley Dowell Cell Tower Engine	Breckinridge				0.00	36.79	0.00	Excluded	Excluded
2102700040	AT&T Mobility - Harned Cell Tower Engine	Breckinridge				0.00	34.70	0.00	Excluded	Excluded
2102900062	AT&T Mobility - Holsclaw Cell Tower Engine	Bullitt				0.00	35.48	0.00	Excluded	Excluded
2102700042	AT&T Mobility - Irvington Cell Tower Engine	Breckinridge				0.00	18.72	0.00	Excluded	Excluded
2102700036	AT&T Mobility - Jake Horsley Cell Tower Engine	Breckinridge				0.00	30.85	0.00	Excluded	Excluded
2109300130	AT&T Mobility - Jamison Cell Tower Engine	Hardin				0.00	16.83	0.00	Excluded	Excluded
2102900063	AT&T Mobility - KY Turnpike Cell Tower Engine	Bullitt				0.00	39.23	0.00	Excluded	Excluded
2102900070	AT&T Mobility - KY Turnpike Water District Cell Tower Engine	Bullitt				0.00	45.13	0.00	Excluded	Excluded
2102900078	AT&T Mobility - Mt Washington Cell Tower Engine	Bullitt				0.00	47.81	0.00	Excluded	Excluded
2102900086	AT&T Mobility - Mt Washington West Cell Tower Engine	Bullitt				0.00	50.94	0.00	Excluded	Excluded
2109300124	AT&T Mobility - Otter Creek Cell Tower Engine	Hardin				0.00	25.30	0.00	Excluded	Excluded
2109300122	AT&T Mobility - Radcliff Facility Cell Tower Engine	Hardin				0.00	24.02	0.00	Excluded	Excluded
2102900080	AT&T Mobility - Rising Sun Cell Tower Engine	Bullitt				0.00	25.95	0.00	Excluded	Excluded
2102700047	AT&T Mobility - Sink Cell Tower Engine	Breckinridge				0.00	44.89	0.00	Excluded	Excluded
2109300126	AT&T Mobility - South Wilson Cell Tower Engine	Hardin				0.00	28.46	0.00	Excluded	Excluded
2109300165	AT&T Mobility - Spearhead Relo Cell Tower Engine	Hardin				0.00	22.03	0.00	Excluded	Excluded
2116300030	AT&T Mobility - Timber Court Cell Tower Engine	Meade				0.00	14.28	0.00	Excluded	Excluded
2109300159	AT&T Mobility - Tunnel Hills Cell Tower Engine	Hardin				0.00	42.07	0.00	Excluded	Excluded
2109300118	AT&T Mobility - Upton South Dixie Cell Tower Engine	Hardin				0.00	62.28	0.00	Excluded	Excluded
2116300047	AT&T Mobility - Van Voorhis Relo Cell Tower Engine	Hardin				0.00	16.87	0.00	Excluded	Excluded
2109300179	AT&T Mobility - Ventress Cell Tower Engine	Hardin				0.00	33.38	0.00	Excluded	Excluded
2109300032	Baptist Health Hardin	Hardin				0.10	40.05	0.00	Excluded	Excluded
2102700027	Bedrock Products LLC	Breckinridge				0.00	48.12	0.00	Excluded	Excluded
2102900081	Best Buy - Geek Squad City	Bullitt				0.00	38.13	0.00	Excluded	Excluded
2102900082	Best Buy Distribution Center	Bullitt				0.00	41.19	0.00	Excluded	Excluded
2102900042	Blackrock Trailers	Bullitt				0.00	37.41	0.00	Excluded	Excluded
2109300121	Bluegrass Cellular Inc - Williams Street Office Building Engine	Hardin				0.00	42.26	0.00	Excluded	Excluded
2109300150	Bluegrass Cellular Inc LLC - Fort Knox VII Cell Tower Engine	Hardin				0.00	19.20	0.00	Excluded	Excluded
2109300158	Bluegrass Cellular LLC - Elizabethtown Data Center	Hardin				0.00	42.06	0.00	Excluded	Excluded
2102709378	Bramco-MPS - Kleemann MR 110 ZS EVO Portable Crusher	Breckinridge				0.00	38.11	0.00	Excluded	Excluded
2102700002	Breck Co Ready Mix Co	Breckinridge				0.05	21.33	0.00	Excluded	Excluded
2102700010	Breck Co Ready Mix Co	Breckinridge				0.00	39.58	0.00	Excluded	Excluded
2109300131	By Quest	Hardin				0.34	41.81	0.01	Excluded	Excluded
2109300065	Central KY Powder Coating	Hardin				0.00	44.62	0.00	Excluded	Excluded
2109300096	Certified Construction Co	Hardin				0.00	21.88	0.00	Excluded	Excluded
2116300043	Charter Communications - Brandenburg Cell Tower Engine	Meade				0.00	4.49	0.00	Excluded	Excluded
2109300160	Charter Communications - Radcliff Cell Tower Engine	Hardin				0.00	25.45	0.00	Excluded	Excluded
2102900040	Clark & Associates LLC	Bullitt				0.00	38.57	0.00	Excluded	Excluded
2109300138	Comcast of the South - Elizabethtown Office	Hardin				0.00	41.43	0.00	Excluded	Excluded
2102909222	Concrete Industries Inc - Portable Batch Plant	Bullitt				0.00	40.04	0.00	Excluded	Excluded
2116300029	Consolidated Grain & Barge Co	Meade				0.00	0.74	0.00	Excluded	Excluded
2109300017	Cooper Industries - Bussman Division	Hardin				0.00	42.34	0.00	Excluded	Excluded
2102700039	Crist Propane Services LLC	Breckinridge				1.03	21.27	0.05	Excluded	Excluded
2109300057	Cytech Products Inc	Hardin				0.26	40.91	0.01	Excluded	Excluded
2116309467	Dawkins On-Site LLC - Nucor Portable Plant	Meade				0.00	0.89	0.00	Excluded	Excluded
2102900019	Distinct Packabilities	Bullitt				0.04	37.17	0.00	Excluded	Excluded
2109300005	Dow Silicones Corporation - Elizabethtown Plant	Hardin				3.59	46.10	0.08	Excluded	Excluded
2109309150	E & B Paving Inc - Portable Plant	Hardin				0.00	41.08	0.00	Excluded	Excluded
2109300094	East KY Power Coop - Hardin Co Landfill Gas to Electric Plant	Hardin				3.46	47.76	0.07	Excluded	Excluded
2109300166	Elizabethtown Box Plant	Hardin				0.00	41.05	0.00	Excluded	Excluded
2102700037	Farmers Recycling LLC Property	Breckinridge				0.00	46.12	0.00	Excluded	Excluded
2109300120	Flex Films USA	Hardin				1.08	41.09	0.03	Excluded	Excluded
2109300046	Flint Group Pigments	Hardin				3.45	40.52	0.09	Excluded	Excluded
2102909186	Flynn Brothers Contracting - Portable	Bullitt				0.12	38.47	0.00	Excluded	Excluded
2109300092	Forterra Pipe & Precast	Hardin				0.00	44.64	0.00	Excluded	Excluded
2102900043	Gordon Food Service	Bullitt				0.00	40.52	0.00	Excluded	Excluded
2109300091	Greenbrier Rail Services	Hardin				0.00	42.24	0.00	Excluded	Excluded
2102909326	Hall Contracting of Kentucky Inc - Portable Asphalt Plant	Bullitt				1.46	38.19	0.04	Excluded	Excluded
2102709040	Hanson Aggregates Midwest Inc - Irvington Quarry - Portable	Breckinridge				0.00	19.14	0.00	Excluded	Excluded
2109309471	Hanson Aggregates Midwest LLC - Air Separator #2	Hardin				1.61	65.29	0.02	Excluded	Excluded
2109300085	Hardin Co Contained Landfill	Hardin				6.71	48.53	0.14	Excluded	Excluded
2109300601	Hawthorne Services Inc - COCO Fuel 9th Armor	Hardin				0.00	21.51	0.00	Excluded	Excluded
2109300602	Hawthorne Services Inc - COCO Fuel Frazier Road	Hardin				0.00	19.11	0.00	Excluded	Excluded
2116309430	Haydon Materials Battletown LLC - Battletown Portable Plant	Meade				1.96	14.78	0.13	Excluded	Excluded
2116309172	Haydon Materials LLC - Metso LT105 Portable Plant	Meade				0.00	14.78	0.00	Excluded	Excluded

2109300009	Heidelberg Materials Midwest Aggregates Inc - Upton Quarry	Hardin				1.05	65.18	0.02	Excluded	Excluded
2109300137	Hendrickson Trailer Commercial Vehicle Systems	Hardin				0.00	41.04	0.00	Excluded	Excluded
2116300020	Hilltop Big Bend Quarry LLC	Meade				6.39	21.42	0.30	Excluded	Excluded
2116309017	Hilltop Big Bend Quarry Plant LLC-Portable	Meade				0.00	21.42	0.00	Excluded	Excluded
2102900037	Horner Industrial Group Inc	Bullitt				10.88	40.07	0.27	Excluded	Excluded
2102900036	IMI Kentucky LLC	Bullitt				0.00	40.85	0.00	Excluded	Excluded
2116300002	IMI Kentucky LLC - Brandenburg	Meade				0.00	2.43	0.00	Excluded	Excluded
2109309221	IMI Kentucky LLC - Portable Plant	Hardin				0.00	26.66	0.00	Excluded	Excluded
2116309463	IMI South LLC - Brandenburg Portable Plant	Meade				0.00	0.51	0.00	Excluded	Excluded
2109300001	IMI South LLC - Elizabethtown 871	Hardin				0.48	43.82	0.01	Excluded	Excluded
2109300002	IMI South LLC - Radcliff 872	Hardin				0.00	26.77	0.00	Excluded	Excluded
2102700009	Indiana Hardwoods	Breckinridge				3.00	44.62	0.07	Excluded	Excluded
2109300111	Insight KY Partners II LP - Radcliff Engine	Hardin				0.00	25.44	0.00	Excluded	Excluded
2102900056	Integrated Commercialization Solutions	Bullitt				0.00	38.15	0.00	Excluded	Excluded
2102900005	Jim Beam Brands Co - Clermont Plant	Bullitt				79.58	43.52	1.83	Excluded	Excluded
2102900069	JOM Pharmaceutical Services Inc	Bullitt				0.00	37.88	0.00	Excluded	Excluded
2116300003	Kosmos Cement Company LLC	Meade				43.31	14.67	2.95	Excluded	Excluded
2109300088	KY Concrete Inc	Hardin				33.56	47.73	0.70	Excluded	Excluded
2109300087	KY Dept of Military Affairs	Hardin				0.00	18.80	0.00	Excluded	Excluded
2109300097	Ky Dept of Military Affairs - KY MATES	Hardin				0.00	18.84	0.00	Excluded	Excluded
2109300145	KY Dept of Veterans Affairs - 4th State Veterans Home	Hardin				0.00	21.39	0.00	Excluded	Excluded
2109300136	KY Utilities Co - Elizabethtown	Hardin				0.00	42.70	0.00	Excluded	Excluded
2109300035	L K Tapp & Sons Building Supplies	Hardin				0.00	36.68	0.00	Excluded	Excluded
2109309002	Larry T Glass Construction Co Inc - Portable Plant 2	Hardin				0.00	46.15	0.00	Excluded	Excluded
2102700007	Liters Inc	Breckinridge				19.13	18.81	1.02	Excluded	Excluded
2116300017	Louisville Gas & Electric - Muldraugh Transmission Station	Meade				0.39	14.52	0.03	Excluded	Excluded
2102900083	Louisville Gas & Electric (LG&E) - Holsclaw Cell Tower Engine	Bullitt				0.00	35.35	0.00	Excluded	Excluded
2116300046	Louisville Gas & Electric (LG&E) - Muldraugh Cell Tower Engine	Meade				0.00	13.49	0.00	Excluded	Excluded
2116300034	Louisville Gas & Electric Co - Doe Run	Meade				0.00	3.66	0.00	Excluded	Excluded
2116300036	Louisville Gas & Electric Co - Doe Run KY NG Compressor Station	Meade				0.00	4.56	0.00	Excluded	Excluded
2102900064	Louisville Gas & Electric Co - Mt Washington	Bullitt				0.00	51.97	0.00	Excluded	Excluded
2109300135	Louisville Gas & Electric Co Emergency Generators	Hardin				0.00	32.58	0.00	Excluded	Excluded
2109309294	Louisville Paving Co - Portable	Hardin				0.00	21.83	0.00	Excluded	Excluded
2102909043	Louisville Paving Company Inc - Bullitt County Portable Asphalt Plant	Bullitt				1.82	36.98	0.05	Excluded	Excluded
2102900050	Louisville Seating Division of Magna	Bullitt				0.01	40.72	0.00	Excluded	Excluded
2102900071	Louisville Water Co Cedar Grove Generator	Bullitt				0.00	38.74	0.00	Excluded	Excluded
2102900072	Louisville Water Co Chapeze Generator	Bullitt				0.00	40.02	0.00	Excluded	Excluded
2102900032	LSC Communications	Bullitt				0.31	43.43	0.01	Excluded	Excluded
2109300033	Magna/Robert Bosch Tool Corp - Elizabethtown Plant	Hardin				0.00	41.78	0.00	Excluded	Excluded
2102700006	Mago Construction Co LLC	Breckinridge				0.38	19.15	0.02	Excluded	Excluded
2102700024	Mago Construction Co LLC	Breckinridge				1.15	48.46	0.02	Excluded	Excluded
2102700004	Mago Construction Co LLC - Hardinsburg Asphalt Plant	Breckinridge				0.56	42.40	0.01	Excluded	Excluded
2102909201	Mago Construction Co LLC - HMA Portable RAP Plant 1	Bullitt				0.07	40.18	0.00	Excluded	Excluded
2102909202	Mago Construction Co LLC - HMA Portable RAP Plant 2	Bullitt				0.00	39.36	0.00	Excluded	Excluded
2102909199	Mago Construction Co LLC - Portable Screening Unit	Bullitt				0.20	40.18	0.00	Excluded	Excluded
2102900010	Mago Construction Co LLC - Shepherdsville Asphalt Facility	Bullitt				0.94	40.10	0.02	Excluded	Excluded
2102900045	Marrillia Environmental LLC	Bullitt				0.73	52.04	0.01	Excluded	Excluded
2102900049	Material Handling Systems Inc	Bullitt				9.57	40.12	0.24	Excluded	Excluded
2102900073	Material Handling Systems Inc	Bullitt				23.89	50.88	0.47	Excluded	Excluded
2116300038	Meade Co Water District Engine	Meade				0.00	22.50	0.00	Excluded	Excluded
2109300003	Metalsa	Hardin				0.00	42.53	0.00	Excluded	Excluded
2109300063	Metalsa Structural Products Inc	Hardin				5.21	41.32	0.13	Excluded	Excluded
2109309249	Mink Bros Quarry LLC - Portable Processing Plant	Hardin				1.06	46.76	0.02	Excluded	Excluded
2109300068	Modern Plating Coatings & Finishes	Hardin				0.02	41.06	0.00	Excluded	Excluded
2109300080	Modern Welding Company of Kentucky Inc - Elizabethtown	Hardin				0.07	44.67	0.00	Excluded	Excluded
2116300001	Monument Chemical Kentucky LLC	Meade				5.06	1.54	3.28	Included	Included
2109300043	Mouser Custom Cabinetry	Hardin				1.41	36.34	0.04	Excluded	Excluded
2116300025	Myers Concrete Products	Meade				0.00	2.34	0.00	Excluded	Excluded
2102900075	New Flyer of America	Bullitt				0.00	40.68	0.00	Excluded	Excluded
2102900048	On Site Electrostatic Painting Co	Bullitt				0.04	40.22	0.00	Excluded	Excluded
2116309192	PAC Recycling LLC	Meade				0.00	3.50	0.00	Excluded	Excluded
2109300147	Peaceful Pets USA LLC	Hardin				0.00	43.00	0.00	Excluded	Excluded
2109309093	Powerscreen - Portable Plant	Hardin				0.00	46.76	0.00	Excluded	Excluded
2102900003	Quality Stone & Ready Mix Inc	Bullitt				0.00	39.98	0.00	Excluded	Excluded
2102900009	Quality Stone & Ready Mix Inc Quarry	Bullitt				24.21	39.36	0.62	Excluded	Excluded
2109300086	Richard & Emma Cook Residence	Hardin				0.03	32.45	0.00	Excluded	Excluded
2116300005	Riverside Stone Co	Meade				10.83	24.40	0.44	Excluded	Excluded
2102909111	RMS Gravel - Portable Plant	Bullitt				0.00	28.48	0.00	Excluded	Excluded
2102900012	Rogers Group Inc - Bullitt Co Stone	Bullitt				7.02	40.31	0.17	Excluded	Excluded
2102909062	Rogers Group Inc - Portable Brooks Crushed Stone	Bullitt				0.00	38.05	0.00	Excluded	Excluded
2102909084	Rogers Group Inc - Portable Crusher Plant 1	Bullitt				0.00	40.33	0.00	Excluded	Excluded
2109300069	Rogers Group Inc - West Point Quarry	Hardin				0.00	16.71	0.00	Excluded	Excluded
2102900046	Sabert Corp	Bullitt				7.32	38.23	0.19	Excluded	Excluded
2109300114	Saint Matthews Imports	Hardin				0.00	35.93	0.00	Excluded	Excluded
2102900068	Santa Rosa Systems	Bullitt				0.24	39.63	0.01	Excluded	Excluded
2109300026	Scottys Contracting & Stone LLC - Fort Knox Plant 4	Hardin				2.32	33.59	0.07	Excluded	Excluded
2109309230	Scottys Contracting & Stone LLC - Portable Asphalt Plant	Hardin				1.41	24.11	0.06	Excluded	Excluded
2109309080	Scottys Contracting & Stone LLC - Portable Grinder	Hardin				0.00	33.53	0.00	Excluded	Excluded
2109309056	Scottys Contracting & Stone LLC - Portable Plant	Hardin				0.51	65.29	0.01	Excluded	Excluded
2109300015	Scottys Contracting & Stone LLC - Upton	Hardin				0.00	65.06	0.00	Excluded	Excluded
2109309233	Scottys Contracting & Stone LLC - Upton Portable	Hardin				0.00	65.43	0.00	Excluded	Excluded
2109300089	Smyrna Ready Mix Concrete Inc Plant 201	Hardin				1.01	46.21	0.02	Excluded	Excluded
2109300042	Smyrna Ready Mix Concrete LLC - Plant 202	Hardin				0.00	21.81	0.00	Excluded	Excluded
2109309044	Smyrna Ready Mix Concrete LLC - Portable Plant	Hardin				0.00	41.61	0.00	Excluded	Excluded
2102909266	Smyrna Ready Mix Concrete LLC - Portable Plant 203	Bullitt				0.00	38.05	0.00	Excluded	Excluded
2102900041	Smyrna Ready Mix Concrete LLC Plant 233	Bullitt				0.00	37.49	0.00	Excluded	Excluded
2102900038	Speyside Cooperage Kentucky Inc	Bullitt				0.02	37.36	0.00	Excluded	Excluded
2109300163	Structures USA LLC	Hardin				0.00	40.95	0.00	Excluded	Excluded
2109300093	Stucki Roller Bearing Co	Hardin				0.00	46.66	0.00	Excluded	Excluded
2109300084	Summit Polymers Inc	Hardin				1.89	40.44	0.05	Excluded	Excluded
2102700022	Texas Gas Transmission LLC - Hardinsburg Transmission Station	Breckinridge				6.11	39.05	0.16	Excluded	Excluded
2109300055	The Dow Chemical Co	Hardin				0.00	41.81	0.00	Excluded	Excluded
2109300021	The Gates Corp	Hardin				1.10	42.30	0.03	Excluded	Excluded
2102700049	T-Mobile - Cell Tower Engine	Breckinridge				0.00	36.77	0.00	Excluded	Excluded
2102900087	T-Mobile - Cell Tower Engine	Bullitt				0.00	41.19	0.00	Excluded	Excluded
2109300173	T-Mobile - Cell Tower Engine	Hardin				0.00	62.28	0.00	Excluded	Excluded
2109300174	T-Mobile - Cell Tower Engine	Hardin				0.00	24.05	0.00	Excluded	Excluded
2109300175	T-Mobile - Cell Tower Engine	Hardin				0.00	50.93	0.00	Excluded	Excluded
2102700046	T-Mobile - Cloverport Cell Tower Engine	Breckinridge				0.00	44.29	0.00	Excluded	Excluded
2116300039	T-Mobile - Guston Cell Tower Engine	Meade				0.00	15.18	0.00	Excluded	Excluded

2102700044	T-Mobile - Hardinsburg Cell Tower Engine	Breckinridge				0.00	36.87	0.00	Excluded	Excluded
2102900076	T-Mobile - Lebanon Junction Cell Tower Engine	Bullitt				0.00	40.63	0.00	Excluded	Excluded
2116300040	T-Mobile - Vine Grove Cell Tower Engine	Hardin				0.00	14.97	0.00	Excluded	Excluded
2109300052	Trinity Industries Inc	Hardin				0.00	44.16	0.00	Excluded	Excluded
2109300022	US Army Garrison - Fort Knox	Hardin				4.07	31.02	0.13	Excluded	Excluded
2109300127	Verizon Wireless - Battle Training Rd Cell Tower Engine	Hardin				0.00	35.04	0.00	Excluded	Excluded
2102900058	Verizon Wireless - Belmont Cell Tower Engine	Bullitt				0.00	40.60	0.00	Excluded	Excluded
2109300161	Verizon Wireless - Bland Rd Cell Tower Engine	Hardin				0.00	46.12	0.00	Excluded	Excluded
2116300042	Verizon Wireless - Brandenburg Capacity Cell Tower Engine	Meade				0.00	0.92	0.00	Excluded	Excluded
2116300035	Verizon Wireless - Brandenburg Cell Tower Engine	Meade				0.00	2.11	0.00	Excluded	Excluded
2102900054	Verizon Wireless - Brooks Cell Tower Engine	Bullitt				0.00	35.37	0.00	Excluded	Excluded
2109300149	Verizon Wireless - Colesburg Cell Tower Engine	Hardin				0.00	37.81	0.00	Excluded	Excluded
2116300041	Verizon Wireless - Doe Valley Cell Tower Engine	Meade				0.00	3.51	0.00	Excluded	Excluded
2109300098	Verizon Wireless - Elizabethtown DT Cell Tower Engine	Hardin				0.00	43.28	0.00	Excluded	Excluded
2109300156	Verizon Wireless - Elizabethtown High School Cell Tower Engine	Hardin				0.00	42.11	0.00	Excluded	Excluded
2109300128	Verizon Wireless - Elizabethtown North Cell Tower Engine	Hardin				0.00	36.32	0.00	Excluded	Excluded
2109300102	Verizon Wireless - Elizabethtown West Cell Tower Engine	Hardin				0.00	36.61	0.00	Excluded	Excluded
2102900084	Verizon Wireless - Ferguson Cell Tower Engine	Bullitt				0.00	38.72	0.00	Excluded	Excluded
2109300152	Verizon Wireless - Fort Knox VI Cell Tower Engine	Hardin				0.00	20.41	0.00	Excluded	Excluded
2116300037	Verizon Wireless - Fort Knox West Cell Tower Engine	Meade				0.00	14.96	0.00	Excluded	Excluded
2109300107	Verizon Wireless - Ft Knox Cell Tower Engine	Hardin				0.00	21.95	0.00	Excluded	Excluded
2109300109	Verizon Wireless - Ft Knox II Cell Tower Engine	Hardin				0.00	19.24	0.00	Excluded	Excluded
2109300110	Verizon Wireless - Ft Knox III Cell Tower Engine	Hardin				0.00	22.36	0.00	Excluded	Excluded
2116300026	Verizon Wireless - Ft Knox IV Cell Tower Engine	Meade				0.00	16.87	0.00	Excluded	Excluded
2102700033	Verizon Wireless - Garfield Cell Tower Engine	Breckinridge				0.00	28.57	0.00	Excluded	Excluded
2109300134	Verizon Wireless - Glendale Cell Tower Engine	Hardin				0.00	50.93	0.00	Excluded	Excluded
2109300164	Verizon Wireless - Glendale DT Cell Tower Engine	Hardin				0.00	49.78	0.00	Excluded	Excluded
2109300153	Verizon Wireless - Gray Street Cell Tower Engine	Hardin				0.00	38.57	0.00	Excluded	Excluded
2102700038	Verizon Wireless - Hardinsburg Cell Tower Engine	Breckinridge				0.00	37.17	0.00	Excluded	Excluded
2102700029	Verizon Wireless - Hardinsburg North Cell Tower Engine	Breckinridge				0.00	36.79	0.00	Excluded	Excluded
2102900074	Verizon Wireless - Harper Hwy Cell Tower Engine	Bullitt				0.00	38.61	0.00	Excluded	Excluded
2109300154	Verizon Wireless - Helmwood Cell Tower Engine	Hardin				0.00	41.00	0.00	Excluded	Excluded
2102900065	Verizon Wireless - Highway 44 Cell Tower Engine	Bullitt				0.00	23.39	0.00	Excluded	Excluded
2109300105	Verizon Wireless - Howe Valley Cell Tower Engine	Hardin				0.00	36.96	0.00	Excluded	Excluded
2109300099	Verizon Wireless - I65 Rock Cut Cell Tower Engine	Hardin				0.00	40.68	0.00	Excluded	Excluded
2102700032	Verizon Wireless - Kingswood Cell Tower Engine	Breckinridge				0.00	42.29	0.00	Excluded	Excluded
2102900059	Verizon Wireless - KY 44 & Tammy Ln Cell Tower Engine	Bullitt				0.00	45.71	0.00	Excluded	Excluded
2109300101	Verizon Wireless - Lincoln Parkway Cell Tower Engine	Hardin				0.00	49.16	0.00	Excluded	Excluded
2109300112	Verizon Wireless - Longview Cell Tower Engine	Hardin				0.00	30.48	0.00	Excluded	Excluded
2102700034	Verizon Wireless - McQuady Cell Tower Engine	Breckinridge				0.00	47.25	0.00	Excluded	Excluded
2102700041	Verizon Wireless - Mooleyville Cell Tower Engine	Breckinridge				0.00	31.20	0.00	Excluded	Excluded
2116300033	Verizon Wireless - Muldraugh Cell Tower Engine	Meade				0.00	14.30	0.00	Excluded	Excluded
2109300144	Verizon Wireless - Peterson Dr Cell Tower Engine	Hardin				0.00	41.94	0.00	Excluded	Excluded
2109300100	Verizon Wireless - Prather Cell Tower Engine	Hardin				0.00	33.63	0.00	Excluded	Excluded
2109300162	Verizon Wireless - Radcliff Capacity Cell Tower Engine	Hardin				0.00	25.04	0.00	Excluded	Excluded
2109300151	Verizon Wireless - Severns Valley Cell Tower Engine	Hardin				0.00	38.26	0.00	Excluded	Excluded
2102900055	Verizon Wireless - Shepherdsville Cell Tower Engine	Bullitt				0.00	37.83	0.00	Excluded	Excluded
2102900057	Verizon Wireless - Shepherdsville Cell Tower Engine	Bullitt				0.00	43.88	0.00	Excluded	Excluded
2102900066	Verizon Wireless - Shepherdsville Rd Cell Tower Engine	Bullitt				0.00	30.94	0.00	Excluded	Excluded
2112300020	Verizon Wireless - Sonora Cell Tower Engine	Hardin				0.00	58.78	0.00	Excluded	Excluded
2109300106	Verizon Wireless - Stephensburg Cell Tower Engine	Hardin				0.00	45.03	0.00	Excluded	Excluded
2102700031	Verizon Wireless - Stephensport Cell Tower Engine	Breckinridge				0.00	36.37	0.00	Excluded	Excluded
2109300157	Verizon Wireless - Tunnel Hill Cell Tower Engine	Hardin				0.00	40.37	0.00	Excluded	Excluded
2102700030	Verizon Wireless - Union Star Cell Tower Engine	Breckinridge				0.00	24.57	0.00	Excluded	Excluded
2109300108	Verizon Wireless - Vertrees Cell Tower Engine	Hardin				0.00	33.94	0.00	Excluded	Excluded
2109300140	Verizon Wireless - West Point Cell Tower Engine	Hardin				0.00	16.54	0.00	Excluded	Excluded
2109300104	Verizon Wirelss - Head Quarters Cell Tower Engine	Hardin				0.00	41.31	0.00	Excluded	Excluded
2116300004	Vulcan Construction Material LLC - Brandenburg Quarry	Meade				0.00	4.06	0.00	Excluded	Excluded
2116309160	Vulcan Construction Material LP - Brandenburg Quarry Portable	Meade				0.00	3.97	0.00	Excluded	Excluded
2109300067	Vulcan Construction Materials LLC - Elizabethtown Quarry	Hardin				0.00	46.17	0.00	Excluded	Excluded
2109300007	Vulcan Construction Materials LLC - Fort Knox Quarry	Hardin				4.59	33.35	0.14	Excluded	Excluded
2109300062	Vulcan Construction Materials LLC - Hardin County Quarry	Hardin				7.23	44.37	0.16	Excluded	Excluded
2109300010	Vulcan Materials Co - Elizabethtown Quarry	Hardin				0.00	33.35	0.00	Excluded	Excluded
2102700005	White Stone Co Inc	Breckinridge				4.06	42.15	0.10	Excluded	Excluded

Table C-2
Kentucky Offsite Inventory
PM10 Sources

Facility ID	Facility Name	PM10 Estimated Emissions (TPY) 2021	Prefix	Prefix Index	SRCID	UTMe16	UTMn16	County	Q (g/s)	Hs (m)	Ts (K)	Vs (m/s)	Ds (m)
2116300001	Monument Chemical Kentucky LLC	1.32620000	MCK	1	MCK01	577136.95	4206548.99	Meade	0.03815033	14.94	422.04	7.92	1.40
2116300001	Monument Chemical Kentucky LLC	1.40600000	MCK	2	MCK02	577136.95	4206548.99	Meade	0.04044591	14.94	422.04	7.92	1.40
2116300001	Monument Chemical Kentucky LLC	1.28820000	MCK	3	MCK03	577136.95	4206548.99	Meade	0.03705720	14.94	422.04	7.92	1.40
2116300001	Monument Chemical Kentucky LLC	0.01078000	MCK	4	MCK04	577136.95	4206548.99	Meade	0.00031010	1.83	599.82	87.67	0.10
2116300001	Monument Chemical Kentucky LLC	0.01078000	MCK	5	MCK05	577136.95	4206548.99	Meade	0.00031010	1.83	802.59	75.49	0.10
2116300001	Monument Chemical Kentucky LLC	0.01078000	MCK	6	MCK06	577136.95	4206548.99	Meade	0.00031010	1.83	802.59	75.49	0.10
2116300001	Monument Chemical Kentucky LLC	0.00726000	MCK	7	MCK07	577136.95	4206548.99	Meade	0.00020885	1.83	727.59	59.87	0.10
2116300001	Monument Chemical Kentucky LLC	0.00726000	MCK	8	MCK08	577136.95	4206548.99	Meade	0.00020885	1.83	727.59	59.87	0.10
2116300001	Monument Chemical Kentucky LLC	0.01078000	MCK	9	MCK09	577136.95	4206548.99	Meade	0.00031010	1.83	727.59	59.87	0.10
2116300001	Monument Chemical Kentucky LLC	0.00726000	MCK	10	MCK10	577136.95	4206548.99	Meade	0.00020885	1.83	727.59	59.87	0.10
2116300001	Monument Chemical Kentucky LLC	0.00506000	MCK	11	MCK11	577136.95	4206548.99	Meade	0.00014556	1.83	727.59	75.49	0.10
2116300001	Monument Chemical Kentucky LLC	0.00215600	MCK	12	MCK12	577136.95	4206548.99	Meade	0.00006202	1.83	727.59	75.49	0.10
2116300001	Monument Chemical Kentucky LLC	0.02321448	MCK	13	MCK13	577136.95	4206548.99	Meade	0.00066780	11.89	293.15	5.10	0.09
2116300001	Monument Chemical Kentucky LLC	0.00001080	MCK	14	MCK14	577136.95	4206548.99	Meade	0.00000031	5.03	293.15	12.12	0.57
2116300001	Monument Chemical Kentucky LLC	0.31836341	MCK	15	MCK15	577136.95	4206548.99	Meade	0.00915825	4.27	293.15	2.48	0.08
2116300001	Monument Chemical Kentucky LLC	0.31122000	MCK	16	MCK16	577136.95	4206548.99	Meade	0.00895276	21.64	293.15	6.51	0.20
2116300001	Monument Chemical Kentucky LLC	0.31122000	MCK	17	MCK17	577136.95	4206548.99	Meade	0.00895276	19.20	293.15	12.65	0.20

Table C-6
Kentucky Offsite Inventory
$PM_{2.5}$ Sources

Facility ID	Facility Name	County	PM2.5 PTE (TPY)	Distance (km)	Q/D	Annual List	24hr List
					SIA (km)	5.59	10.63
2109300133	Accumetric LLC - Packaging Plant	Hardin	0.000E+00	40.27	0.00	Excluded	Excluded
2109300090	AGC Automotive Americas	Hardin	7.631E-01	41.77	0.02	Excluded	Excluded
2116300028	Agrium Advanced Technologies Inc - Brandenburg	Meade	0.000E+00	0.92	0.00	Excluded	Excluded
2109300054	Akebono Brake Corp	Hardin	9.509E-01	40.73	0.02	Excluded	Excluded
2109300095	Alabama Wire Products	Hardin	0.000E+00	41.82	0.00	Excluded	Excluded
2109300081	Altec Industries Inc	Hardin	0.000E+00	41.32	0.00	Excluded	Excluded
2116300023	Alternative Ready Mix	Meade	0.000E+00	3.49	0.00	Excluded	Excluded
2116300031	American Tower Corp - Doe Valley Cell Tower Engine	Meade	0.000E+00	7.90	0.00	Excluded	Excluded
2102900051	American Tower Corp - Shepherdsville Cell Tower	Bullitt	0.000E+00	37.83	0.00	Excluded	Excluded
2109300167	American Towers LLC - Tunnel Hill Elizabethtown Cell Tower Engine	Hardin	0.000E+00	40.37	0.00	Excluded	Excluded
2102900053	AmerisourceBergen Specialty Group - ASD	Bullitt	0.000E+00	38.34	0.00	Excluded	Excluded
2102900002	Arcosa LW KY LLC	Bullitt	6.962E+01	37.27	1.87	Excluded	Excluded
2102900044	Astra Zeneca Pharmaceuticals LP	Bullitt	1.113E-01	41.02	0.00	Excluded	Excluded
2109300123	AT&T Mobility - 10th Street Cell Tower Engine	Hardin	0.000E+00	16.48	0.00	Excluded	Excluded
2116300032	AT&T Mobility - Bee Knob Hill Cell Tower Engine	Meade	0.000E+00	17.18	0.00	Excluded	Excluded
2109300178	AT&T Mobility - Billy Creek Cell Tower Engine	Hardin	0.000E+00	41.94	0.00	Excluded	Excluded
2116300045	AT&T Mobility - Brandenburg Cell Tower Engine	Meade	0.000E+00	2.96	0.00	Excluded	Excluded
2109300125	AT&T Mobility - Braves Rifle Cell Tower Engine	Hardin	0.000E+00	19.14	0.00	Excluded	Excluded
2109300129	AT&T Mobility - Cavalry Cell Tower Engine	Hardin	0.000E+00	22.00	0.00	Excluded	Excluded
2102900060	AT&T Mobility - Cedar Grove Cell Tower Engine	Bullitt	0.000E+00	49.29	0.00	Excluded	Excluded
2102900079	AT&T Mobility - Cell Tower Engine	Bullitt	0.000E+00	30.94	0.00	Excluded	Excluded
2102700043	AT&T Mobility - Cloverport Cell Tower Engine	Breckinridge	0.000E+00	49.05	0.00	Excluded	Excluded
2109300177	AT&T Mobility - Elizabethtown Cell Tower Engine	Hardin	0.000E+00	39.21	0.00	Excluded	Excluded
2109300115	AT&T Mobility - Elizabethtown Pear Orchard Cell Tower Engine	Hardin	0.000E+00	36.33	0.00	Excluded	Excluded
2109300117	AT&T Mobility - Elizabethtown Springfield Cell Tower Engine	Hardin	0.000E+00	44.85	0.00	Excluded	Excluded
2109300116	AT&T Mobility - Elizabethtown West Dixie Cell Tower Engine	Hardin	0.000E+00	42.15	0.00	Excluded	Excluded
2109300119	AT&T Mobility - Fort Knox Dixie Cell Tower Engine	Hardin	0.000E+00	20.46	0.00	Excluded	Excluded
2109300168	AT&T Mobility - Frazier Cell Tower Engine	Hardin	0.000E+00	18.92	0.00	Excluded	Excluded
2102900052	AT&T Mobility - Hammond Property Cell Tower Engine	Bullitt	0.000E+00	54.17	0.00	Excluded	Excluded
2102700035	AT&T Mobility - Hardinsburg Finley Dowell Cell Tower Engine	Breckinridge	0.000E+00	36.79	0.00	Excluded	Excluded
2102700040	AT&T Mobility - Harned Cell Tower Engine	Breckinridge	0.000E+00	34.70	0.00	Excluded	Excluded
2102900062	AT&T Mobility - Holsclaw Cell Tower Engine	Bullitt	0.000E+00	35.48	0.00	Excluded	Excluded
2102700042	AT&T Mobility - Irvington Cell Tower Engine	Breckinridge	0.000E+00	18.72	0.00	Excluded	Excluded
2102700036	AT&T Mobility - Jake Horsley Cell Tower Engine	Breckinridge	0.000E+00	30.85	0.00	Excluded	Excluded
2109300130	AT&T Mobility - Jamison Cell Tower Engine	Hardin	0.000E+00	16.83	0.00	Excluded	Excluded
2102900063	AT&T Mobility - KY Turnpike Cell Tower Engine	Bullitt	0.000E+00	39.23	0.00	Excluded	Excluded
2102900070	AT&T Mobility - KY Turnpike Water District Cell Tower Engine	Bullitt	0.000E+00	45.13	0.00	Excluded	Excluded
2102900078	AT&T Mobility - Mt Washington Cell Tower Engine	Bullitt	0.000E+00	47.81	0.00	Excluded	Excluded
2102900086	AT&T Mobility - Mt Washington West Cell Tower Engine	Bullitt	0.000E+00	50.94	0.00	Excluded	Excluded
2109300124	AT&T Mobility - Otter Creek Cell Tower Engine	Hardin	0.000E+00	25.30	0.00	Excluded	Excluded
2109300122	AT&T Mobility - Radcliff Facility Cell Tower Engine	Hardin	0.000E+00	24.02	0.00	Excluded	Excluded
2102900080	AT&T Mobility - Rising Sun Cell Tower Engine	Bullitt	0.000E+00	25.95	0.00	Excluded	Excluded
2102700047	AT&T Mobility - Sink Cell Tower Engine	Breckinridge	0.000E+00	44.89	0.00	Excluded	Excluded
2109300126	AT&T Mobility - South Wilson Cell Tower Engine	Hardin	0.000E+00	28.46	0.00	Excluded	Excluded
2109300165	AT&T Mobility - Spearhead Relo Cell Tower Engine	Hardin	0.000E+00	22.03	0.00	Excluded	Excluded
2116300030	AT&T Mobility - Timber Court Cell Tower Engine	Meade	0.000E+00	14.28	0.00	Excluded	Excluded
2109300159	AT&T Mobility - Tunnel Hills Cell Tower Engine	Hardin	0.000E+00	42.07	0.00	Excluded	Excluded
2109300118	AT&T Mobility - Upton South Dixie Cell Tower Engine	Hardin	0.000E+00	62.28	0.00	Excluded	Excluded
2116300047	AT&T Mobility - Van Voorhis Relo Cell Tower Engine	Hardin	0.000E+00	16.87	0.00	Excluded	Excluded
2109300179	AT&T Mobility - Ventress Cell Tower Engine	Hardin	0.000E+00	33.38	0.00	Excluded	Excluded
2109300032	Baptist Health Hardin	Hardin	6.035E-02	40.05	0.00	Excluded	Excluded
2102700027	Bedrock Products LLC	Breckinridge	0.000E+00	48.12	0.00	Excluded	Excluded
2102900081	Best Buy - Geek Squad City	Bullitt	0.000E+00	38.13	0.00	Excluded	Excluded
2102900082	Best Buy Distribution Center	Bullitt	0.000E+00	41.19	0.00	Excluded	Excluded
2102900042	Blackrock Trailers	Bullitt	0.000E+00	37.41	0.00	Excluded	Excluded

2109300121	Bluegrass Cellular Inc - Williams Street Office Building Engine	Hardin	0.000E+00	42.26	0.00	Excluded	Excluded
2109300150	Bluegrass Cellular Inc LLC - Fort Knox VII Cell Tower Engine	Hardin	0.000E+00	19.20	0.00	Excluded	Excluded
2109300158	Bluegrass Cellular LLC - Elizabethtown Data Center	Hardin	0.000E+00	42.06	0.00	Excluded	Excluded
2102709378	Bramco-MPS - Kleemann MR 110 ZS EVO Portable Crusher	Breckinridge	0.000E+00	38.11	0.00	Excluded	Excluded
2102700002	Breck Co Ready Mix Co	Breckinridge	2.479E-02	21.33	0.00	Excluded	Excluded
2102700010	Breck Co Ready Mix Co	Breckinridge	0.000E+00	39.58	0.00	Excluded	Excluded
2109300131	By Quest	Hardin	3.447E-01	41.81	0.01	Excluded	Excluded
2109300065	Central KY Powder Coating	Hardin	0.000E+00	44.62	0.00	Excluded	Excluded
2109300096	Certified Construction Co	Hardin	0.000E+00	21.88	0.00	Excluded	Excluded
2116300043	Charter Communications - Brandenburg Cell Tower Engine	Meade	0.000E+00	4.49	0.00	Excluded	Excluded
2109300160	Charter Communications - Radcliff Cell Tower Engine	Hardin	0.000E+00	25.45	0.00	Excluded	Excluded
2102900040	Clark & Associates LLC	Bullitt	0.000E+00	38.57	0.00	Excluded	Excluded
2109300138	Comcast of the South - Elizabethtown Office	Hardin	0.000E+00	41.43	0.00	Excluded	Excluded
2102909222	Concrete Industries Inc - Portable Batch Plant	Bullitt	0.000E+00	40.04	0.00	Excluded	Excluded
2116300029	Consolidated Grain & Barge Co	Meade	0.000E+00	0.74	0.00	Excluded	Excluded
2109300017	Cooper Industries - Bussman Division	Hardin	0.000E+00	42.34	0.00	Excluded	Excluded
2102700039	Crist Propane Services LLC	Breckinridge	1.027E+00	21.27	0.05	Excluded	Excluded
2109300057	Cytech Products Inc	Hardin	2.619E-01	40.91	0.01	Excluded	Excluded
2116309467	Dawkins On-Site LLC - Nucor Portable Plant	Meade	0.000E+00	0.89	0.00	Excluded	Excluded
2102900019	Distinct Packabilities	Bullitt	1.685E-02	37.17	0.00	Excluded	Excluded
2109300005	Dow Silicones Corporation - Elizabethtown Plant	Hardin	3.563E+00	46.10	0.08	Excluded	Excluded
2109309150	E & B Paving Inc - Portable Plant	Hardin	0.000E+00	41.08	0.00	Excluded	Excluded
2109300094	East KY Power Coop - Hardin Co Landfill Gas to Electric Plant	Hardin	3.458E+00	47.76	0.07	Excluded	Excluded
2109300166	Elizabethtown Box Plant	Hardin	0.000E+00	41.05	0.00	Excluded	Excluded

2102700037	Farmers Recycling LLC Property	Breckinridge	0.000E+00	46.12	0.00	Excluded	Excluded
2109300120	Flex Films USA	Hardin	1.075E+00	41.09	0.03	Excluded	Excluded
2109300046	Flint Group Pigments	Hardin	1.322E+00	40.52	0.03	Excluded	Excluded
2102909186	Flynn Brothers Contracting - Portable	Bullitt	3.681E-02	38.47	0.00	Excluded	Excluded
2109300092	Forterra Pipe & Precast	Hardin	0.000E+00	44.64	0.00	Excluded	Excluded
2102900043	Gordon Food Service	Bullitt	8.750E-05	40.52	0.00	Excluded	Excluded
2109300091	Greenbrier Rail Services	Hardin	0.000E+00	42.24	0.00	Excluded	Excluded
2102909326	Hall Contracting of Kentucky Inc - Portable Asphalt Plant	Bullitt	4.900E-01	38.19	0.01	Excluded	Excluded
2102709040	Hanson Aggregates Midwest Inc - Irvington Quarry - Portable	Breckinridge	0.000E+00	19.14	0.00	Excluded	Excluded
2109309471	Hanson Aggregates Midwest LLC - Air Separator #2	Hardin	9.346E-01	65.29	0.01	Excluded	Excluded
2109300085	Hardin Co Contained Landfill	Hardin	2.429E+00	48.53	0.05	Excluded	Excluded
2109300601	Hawthorne Services Inc - COCO Fuel 9th Armor	Hardin	0.000E+00	21.51	0.00	Excluded	Excluded
2109300602	Hawthorne Services Inc - COCO Fuel Frazier Road	Hardin	0.000E+00	19.11	0.00	Excluded	Excluded
2116309430	Haydon Materials Battletown LLC - Battletown Portable Plant	Meade	1.189E+00	14.78	0.08	Excluded	Excluded
2116309172	Haydon Materials LLC - Metso LT105 Portable Plant	Meade	0.000E+00	14.78	0.00	Excluded	Excluded
2109300009	Heidelberg Materials Midwest Aggregates Inc - Upton Quarry	Hardin	5.907E-01	65.18	0.01	Excluded	Excluded
2109300137	Hendrickson Trailer Commercial Vehicle Systems	Hardin	0.000E+00	41.04	0.00	Excluded	Excluded
2116300020	Hilltop Big Bend Quarry LLC	Meade	1.513E+00	21.42	0.07	Excluded	Excluded
2116309017	Hilltop Big Bend Quarry Plant LLC-Portable	Meade	0.000E+00	21.42	0.00	Excluded	Excluded
2102900037	Horner Industrial Group Inc	Bullitt	3.482E+00	40.07	0.09	Excluded	Excluded
2102900036	IMI Kentucky LLC	Bullitt	0.000E+00	40.85	0.00	Excluded	Excluded
2116300002	IMI Kentucky LLC - Brandenburg	Meade	0.000E+00	2.43	0.00	Excluded	Excluded
2109309221	IMI Kentucky LLC - Portable Plant	Hardin	0.000E+00	26.66	0.00	Excluded	Excluded
2116309463	IMI South LLC - Brandenburg Portable Plant	Meade	0.000E+00	0.51	0.00	Excluded	Excluded
2109300001	IMI South LLC - Elizabethtown 871	Hardin	1.599E-01	43.82	0.00	Excluded	Excluded
2109300002	IMI South LLC - Radcliff 872	Hardin	0.000E+00	26.77	0.00	Excluded	Excluded
2102700009	Indiana Hardwoods	Breckinridge	4.500E-01	44.62	0.01	Excluded	Excluded
2109300111	Insight KY Partners II LP - Radcliff Engine	Hardin	0.000E+00	25.44	0.00	Excluded	Excluded
2102900056	Integrated Commercialization Solutions	Bullitt	0.000E+00	38.15	0.00	Excluded	Excluded
2102900005	Jim Beam Brands Co - Clermont Plant	Bullitt	7.937E+00	43.52	0.18	Excluded	Excluded
2102900069	JOM Pharmaceutical Services Inc	Bullitt	0.000E+00	37.88	0.00	Excluded	Excluded
2116300003	Kosmos Cement Company LLC	Meade	4.545E+00	14.67	0.31	Excluded	Excluded
2109300088	KY Concrete Inc	Hardin	1.333E+01	47.73	0.28	Excluded	Excluded
2109300087	KY Dept of Military Affairs	Hardin	0.000E+00	18.80	0.00	Excluded	Excluded
2109300097	Ky Dept of Military Affairs - KY MATES	Hardin	1.949E-04	18.84	0.00	Excluded	Excluded
2109300145	KY Dept of Veterans Affairs - 4th State Veterans Home	Hardin	0.000E+00	21.39	0.00	Excluded	Excluded
2109300136	KY Utilities Co - Elizabethtown	Hardin	0.000E+00	42.70	0.00	Excluded	Excluded
2109300035	L K Tapp & Sons Building Supplies	Hardin	0.000E+00	36.68	0.00	Excluded	Excluded
2109309002	Larry T Glass Construction Co Inc - Portable Plant 2	Hardin	0.000E+00	46.15	0.00	Excluded	Excluded
2102700007	Liters Inc	Breckinridge	5.365E+00	18.81	0.29	Excluded	Excluded
2116300017	Louisville Gas & Electric - Muldraugh Transmission Station	Meade	3.244E-01	14.52	0.02	Excluded	Excluded
2102900083	Louisville Gas & Electric (LG&E) - Holsclaw Cell Tower Engine	Bullitt	0.000E+00	35.35	0.00	Excluded	Excluded
2116300046	Louisville Gas & Electric (LG&E) - Muldraugh Cell Tower Engine	Meade	0.000E+00	13.49	0.00	Excluded	Excluded
2116300034	Louisville Gas & Electric Co - Doe Run	Meade	0.000E+00	3.66	0.00	Excluded	Excluded
2116300036	Louisville Gas & Electric Co - Doe Run KY NG Compressor Station	Meade	0.000E+00	4.56	0.00	Excluded	Excluded
2102900064	Louisville Gas & Electric Co - Mt Washington	Bullitt	0.000E+00	51.97	0.00	Excluded	Excluded
2109300135	Louisville Gas & Electric Co Emergency Generators	Hardin	0.000E+00	32.58	0.00	Excluded	Excluded
2109309294	Louisville Paving Co - Portable	Hardin	0.000E+00	21.83	0.00	Excluded	Excluded
2102909043	Louisville Paving Company Inc - Bullitt County Portable Asphalt Plant	Bullitt	5.116E-01	36.98	0.01	Excluded	Excluded
2102900050	Louisville Seating Division of Magna	Bullitt	4.257E-03	40.72	0.00	Excluded	Excluded
2102900071	Louisville Water Co Cedar Grove Generator	Bullitt	0.000E+00	38.74	0.00	Excluded	Excluded
2102900072	Louisville Water Co Chapeze Generator	Bullitt	0.000E+00	40.02	0.00	Excluded	Excluded
2102900032	LSC Communications	Bullitt	3.009E-01	43.43	0.01	Excluded	Excluded
2109300033	Magna/Robert Bosch Tool Corp - Elizabethtown Plant	Hardin	0.000E+00	41.78	0.00	Excluded	Excluded
2102700006	Mago Construction Co LLC	Breckinridge	1.360E-01	19.15	0.01	Excluded	Excluded
2102700024	Mago Construction Co LLC	Breckinridge	1.045E-01	48.46	0.00	Excluded	Excluded
2102700004	Mago Construction Co LLC - Hardinsburg Asphalt Plant	Breckinridge	2.067E-01	42.40	0.00	Excluded	Excluded
2102909201	Mago Construction Co LLC - HMA Portable RAP Plant 1	Bullitt	1.924E-02	40.18	0.00	Excluded	Excluded
2102909202	Mago Construction Co LLC - HMA Portable RAP Plant 2	Bullitt	2.355E-03	39.36	0.00	Excluded	Excluded
2102909199	Mago Construction Co LLC - Portable Screening Unit	Bullitt	2.654E-02	40.18	0.00	Excluded	Excluded
2102900010	Mago Construction Co LLC - Shepherdsville Asphalt Facility	Bullitt	3.026E-01	40.10	0.01	Excluded	Excluded
2102900045	Marrillia Environmental LLC	Bullitt	6.343E-01	52.04	0.01	Excluded	Excluded
2102900049	Material Handling Systems Inc	Bullitt	1.508E-03	40.12	0.00	Excluded	Excluded
2102900073	Material Handling Systems Inc	Bullitt	2.389E+01	50.88	0.47	Excluded	Excluded
2116300038	Meade Co Water District Engine	Meade	0.000E+00	22.50	0.00	Excluded	Excluded
2109300003	Metalsa	Hardin	0.000E+00	42.53	0.00	Excluded	Excluded
2109300063	Metalsa Structural Products Inc	Hardin	4.642E+00	41.32	0.11	Excluded	Excluded

2109309249	Mink Bros Quarry LLC - Portable Processing Plant	Hardin	4.799E-01	46.76	0.01	Excluded	Excluded
2109300068	Modern Plating Coatings & Finishes	Hardin	6.460E-03	41.06	0.00	Excluded	Excluded
2109300080	Modern Welding Company of Kentucky Inc - Elizabethtown	Hardin	4.080E-02	44.67	0.00	Excluded	Excluded
2116300001	Monument Chemical Kentucky LLC	Meade	1.945E+00	1.54	1.26	Included	Included
2109300043	Mouser Custom Cabinetry	Hardin	9.066E-01	36.34	0.02	Excluded	Excluded
2116300025	Myers Concrete Products	Meade	0.000E+00	2.34	0.00	Excluded	Excluded
2102900075	New Flyer of America	Bullitt	0.000E+00	40.68	0.00	Excluded	Excluded
2116300044	Nucor Steel Brandenburg	Meade	0.000E+00	0.29	0.00	Excluded	Excluded
2102900048	On Site Electrostatic Painting Co	Bullitt	3.501E-02	40.22	0.00	Excluded	Excluded
2116309192	PAC Recycling LLC	Meade	0.000E+00	3.50	0.00	Excluded	Excluded
2109300147	Peaceful Pets USA LLC	Hardin	0.000E+00	43.00	0.00	Excluded	Excluded
2109309093	Powerscreen - Portable Plant	Hardin	0.000E+00	46.76	0.00	Excluded	Excluded
2102900003	Quality Stone & Ready Mix Inc	Bullitt	0.000E+00	39.98	0.00	Excluded	Excluded
2102900009	Quality Stone & Ready Mix Inc Quarry	Bullitt	1.815E+01	39.36	0.46	Excluded	Excluded
2109300086	Richard & Emma Cook Residence	Hardin	2.628E-02	32.45	0.00	Excluded	Excluded
2116300005	Riverside Stone Co	Meade	6.944E+00	24.40	0.28	Excluded	Excluded
2102909111	RMS Gravel - Portable Plant	Bullitt	0.000E+00	28.48	0.00	Excluded	Excluded
2102900012	Rogers Group Inc - Bullitt Co Stone	Bullitt	2.499E+00	40.31	0.06	Excluded	Excluded
2102909062	Rogers Group Inc - Portable Brooks Crushed Stone	Bullitt	0.000E+00	38.05	0.00	Excluded	Excluded
2102909084	Rogers Group Inc - Portable Crusher Plant 1	Bullitt	0.000E+00	40.33	0.00	Excluded	Excluded
2109300069	Rogers Group Inc - West Point Quarry	Hardin	0.000E+00	16.71	0.00	Excluded	Excluded
2102900046	Sabert Corp	Bullitt	7.323E+00	38.23	0.19	Excluded	Excluded
2109300114	Saint Matthews Imports	Hardin	0.000E+00	35.93	0.00	Excluded	Excluded
2102900068	Santa Rosa Systems	Bullitt	1.810E-01	39.63	0.00	Excluded	Excluded
2109300026	Scottys Contracting & Stone LLC - Fort Knox Plant 4	Hardin	6.323E-01	33.59	0.02	Excluded	Excluded
2109309230	Scottys Contracting & Stone LLC - Portable Asphalt Plant	Hardin	5.164E-01	24.11	0.02	Excluded	Excluded
2109309080	Scottys Contracting & Stone LLC - Portable Grinder	Hardin	0.000E+00	33.53	0.00	Excluded	Excluded

2109309056	Scottys Contracting & Stone LLC - Portable Plant	Hardin	1.547E-01	65.29	0.00	Excluded	Excluded
2109300015	Scottys Contracting & Stone LLC - Upton	Hardin	0.000E+00	65.06	0.00	Excluded	Excluded
2109309233	Scottys Contracting & Stone LLC - Upton Portable	Hardin	0.000E+00	65.43	0.00	Excluded	Excluded
2109300089	Smyrna Ready Mix Concrete Inc Plant 201	Hardin	4.024E-01	46.21	0.01	Excluded	Excluded
2109300042	Smyrna Ready Mix Concrete LLC - Plant 202	Hardin	0.000E+00	21.81	0.00	Excluded	Excluded
2109309044	Smyrna Ready Mix Concrete LLC - Portable Plant	Hardin	0.000E+00	41.61	0.00	Excluded	Excluded
2102909266	Smyrna Ready Mix Concrete LLC - Portable Plant 203	Bullitt	0.000E+00	38.05	0.00	Excluded	Excluded
2102900041	Smyrna Ready Mix Concrete LLC Plant 233	Bullitt	0.000E+00	37.49	0.00	Excluded	Excluded
2102900038	Speyside Cooperage Kentucky Inc	Bullitt	2.103E-02	37.36	0.00	Excluded	Excluded
2109300163	Structures USA LLC	Hardin	0.000E+00	40.95	0.00	Excluded	Excluded
2109300093	Stucki Roller Bearing Co	Hardin	0.000E+00	46.66	0.00	Excluded	Excluded
2109300084	Summit Polymers Inc	Hardin	7.888E-01	40.44	0.02	Excluded	Excluded
2102700022	Texas Gas Transmission LLC - Hardinsburg Transmission Station	Breckinridge	6.105E+00	39.05	0.16	Excluded	Excluded
2109300055	The Dow Chemical Co	Hardin	0.000E+00	41.81	0.00	Excluded	Excluded
2109300021	The Gates Corp	Hardin	4.090E-01	42.30	0.01	Excluded	Excluded
2102700049	T-Mobile - Cell Tower Engine	Breckinridge	0.000E+00	36.77	0.00	Excluded	Excluded
2102900087	T-Mobile - Cell Tower Engine	Bullitt	0.000E+00	41.19	0.00	Excluded	Excluded
2109300173	T-Mobile - Cell Tower Engine	Hardin	0.000E+00	62.28	0.00	Excluded	Excluded
2109300174	T-Mobile - Cell Tower Engine	Hardin	0.000E+00	24.05	0.00	Excluded	Excluded
2109300175	T-Mobile - Cell Tower Engine	Hardin	0.000E+00	50.93	0.00	Excluded	Excluded
2102700046	T-Mobile - Cloverport Cell Tower Engine	Breckinridge	0.000E+00	44.29	0.00	Excluded	Excluded
2116300039	T-Mobile - Guston Cell Tower Engine	Meade	0.000E+00	15.18	0.00	Excluded	Excluded
2102700044	T-Mobile - Hardinsburg Cell Tower Engine	Breckinridge	0.000E+00	36.87	0.00	Excluded	Excluded
2102900076	T-Mobile - Lebanon Junction Cell Tower Engine	Bullitt	0.000E+00	40.63	0.00	Excluded	Excluded
2116300040	T-Mobile - Vine Grove Cell Tower Engine	Hardin	0.000E+00	14.97	0.00	Excluded	Excluded
2109300052	Trinity Industries Inc	Hardin	0.000E+00	44.16	0.00	Excluded	Excluded
2109300022	US Army Garrison - Fort Knox	Hardin	4.066E+00	31.02	0.13	Excluded	Excluded
2109300127	Verizon Wireless - Battle Training Rd Cell Tower Engine	Hardin	0.000E+00	35.04	0.00	Excluded	Excluded
2102900058	Verizon Wireless - Belmont Cell Tower Engine	Bullitt	0.000E+00	40.60	0.00	Excluded	Excluded
2109300161	Verizon Wireless - Bland Rd Cell Tower Engine	Hardin	0.000E+00	46.12	0.00	Excluded	Excluded
2116300042	Verizon Wireless - Brandenburg Capacity Cell Tower Engine	Meade	0.000E+00	0.92	0.00	Excluded	Excluded
2116300035	Verizon Wireless - Brandenburg Cell Tower Engine	Meade	0.000E+00	2.11	0.00	Excluded	Excluded
2102900054	Verizon Wireless - Brooks Cell Tower Engine	Bullitt	0.000E+00	35.37	0.00	Excluded	Excluded
2109300149	Verizon Wireless - Colesburg Cell Tower Engine	Hardin	0.000E+00	37.81	0.00	Excluded	Excluded
2116300041	Verizon Wireless - Doe Valley Cell Tower Engine	Meade	0.000E+00	3.51	0.00	Excluded	Excluded
2109300098	Verizon Wireless - Elizabethtown DT Cell Tower Engine	Hardin	0.000E+00	43.28	0.00	Excluded	Excluded
2109300156	Verizon Wireless - Elizabethtown High School Cell Tower Engine	Hardin	0.000E+00	42.11	0.00	Excluded	Excluded
2109300128	Verizon Wireless - Elizabethtown North Cell Tower Engine	Hardin	0.000E+00	36.32	0.00	Excluded	Excluded
2109300102	Verizon Wireless - Elizabethtown West Cell Tower Engine	Hardin	1.110E-04	36.61	0.00	Excluded	Excluded
2102900084	Verizon Wireless - Ferguson Cell Tower Engine	Bullitt	0.000E+00	38.72	0.00	Excluded	Excluded
2109300152	Verizon Wireless - Fort Knox VI Cell Tower Engine	Hardin	0.000E+00	20.41	0.00	Excluded	Excluded
2116300037	Verizon Wireless - Fort Knox West Cell Tower Engine	Meade	0.000E+00	14.96	0.00	Excluded	Excluded
2109300107	Verizon Wireless - Ft Knox Cell Tower Engine	Hardin	0.000E+00	21.95	0.00	Excluded	Excluded
2109300109	Verizon Wireless - Ft Knox II Cell Tower Engine	Hardin	2.182E-05	19.24	0.00	Excluded	Excluded
2109300110	Verizon Wireless - Ft Knox III Cell Tower Engine	Hardin	0.000E+00	22.36	0.00	Excluded	Excluded
2116300026	Verizon Wireless - Ft Knox IV Cell Tower Engine	Meade	3.699E-05	16.87	0.00	Excluded	Excluded
2102700033	Verizon Wireless - Garfield Cell Tower Engine	Breckinridge	1.805E-05	28.57	0.00	Excluded	Excluded
2109300134	Verizon Wireless - Glendale Cell Tower Engine	Hardin	0.000E+00	50.93	0.00	Excluded	Excluded
2109300164	Verizon Wireless - Glendale DT Cell Tower Engine	Hardin	0.000E+00	49.78	0.00	Excluded	Excluded
2109300153	Verizon Wireless - Gray Street Cell Tower Engine	Hardin	0.000E+00	38.57	0.00	Excluded	Excluded
2102700038	Verizon Wireless - Hardinsburg Cell Tower Engine	Breckinridge	0.000E+00	37.17	0.00	Excluded	Excluded
2102700029	Verizon Wireless - Hardinsburg North Cell Tower Engine	Breckinridge	0.000E+00	36.79	0.00	Excluded	Excluded
2102900074	Verizon Wireless - Harper Hwy Cell Tower Engine	Bullitt	0.000E+00	38.61	0.00	Excluded	Excluded
2109300154	Verizon Wireless - Helmwood Cell Tower Engine	Hardin	0.000E+00	41.00	0.00	Excluded	Excluded
2102900065	Verizon Wireless - Highway 44 Cell Tower Engine	Bullitt	0.000E+00	23.39	0.00	Excluded	Excluded
2109300105	Verizon Wireless - Howe Valley Cell Tower Engine	Hardin	2.184E-05	36.96	0.00	Excluded	Excluded
2109300099	Verizon Wireless - I65 Rock Cut Cell Tower Engine	Hardin	0.000E+00	40.68	0.00	Excluded	Excluded

2102700032	Verizon Wireless - Kingswood Cell Tower Engine	Breckinridge	2.815E-05	42.29	0.00	Excluded	Excluded
2102900059	Verizon Wireless - KY 44 & Tammy Ln Cell Tower Engine	Bullitt	0.000E+00	45.71	0.00	Excluded	Excluded
2109300101	Verizon Wireless - Lincoln Parkway Cell Tower Engine	Hardin	0.000E+00	49.16	0.00	Excluded	Excluded
2109300112	Verizon Wireless - Longview Cell Tower Engine	Hardin	5.032E-05	30.48	0.00	Excluded	Excluded
2102700034	Verizon Wireless - McQuady Cell Tower Engine	Breckinridge	2.716E-05	47.25	0.00	Excluded	Excluded
2102700041	Verizon Wireless - Mooleyville Cell Tower Engine	Breckinridge	0.000E+00	31.20	0.00	Excluded	Excluded
2116300033	Verizon Wireless - Muldraugh Cell Tower Engine	Meade	0.000E+00	14.30	0.00	Excluded	Excluded
2109300144	Verizon Wireless - Peterson Dr Cell Tower Engine	Hardin	0.000E+00	41.94	0.00	Excluded	Excluded
2109300100	Verizon Wireless - Prather Cell Tower Engine	Hardin	0.000E+00	33.63	0.00	Excluded	Excluded
2109300162	Verizon Wireless - Radcliff Capacity Cell Tower Engine	Hardin	0.000E+00	25.04	0.00	Excluded	Excluded
2109300151	Verizon Wireless - Severns Valley Cell Tower Engine	Hardin	0.000E+00	38.26	0.00	Excluded	Excluded
2102900055	Verizon Wireless - Shepherdsville Cell Tower Engine	Bullitt	0.000E+00	37.83	0.00	Excluded	Excluded
2102900057	Verizon Wireless - Shepherdsville Cell Tower Engine	Bullitt	0.000E+00	43.88	0.00	Excluded	Excluded
2102900066	Verizon Wireless - Shepherdsville Rd Cell Tower Engine	Bullitt	0.000E+00	30.94	0.00	Excluded	Excluded
2112300020	Verizon Wireless - Sonora Cell Tower Engine	Hardin	8.220E-05	58.78	0.00	Excluded	Excluded
2109300106	Verizon Wireless - Stephensburg Cell Tower Engine	Hardin	1.698E-05	45.03	0.00	Excluded	Excluded
2102700031	Verizon Wireless - Stephensport Cell Tower Engine	Breckinridge	5.751E-05	36.37	0.00	Excluded	Excluded
2109300157	Verizon Wireless - Tunnel Hill Cell Tower Engine	Hardin	0.000E+00	40.37	0.00	Excluded	Excluded
2102700030	Verizon Wireless - Union Star Cell Tower Engine	Breckinridge	0.000E+00	24.57	0.00	Excluded	Excluded
2109300108	Verizon Wireless - Vertrees Cell Tower Engine	Hardin	2.023E-05	33.94	0.00	Excluded	Excluded
2109300140	Verizon Wireless - West Point Cell Tower Engine	Hardin	0.000E+00	16.54	0.00	Excluded	Excluded
2109300104	Verizon Wirelss - Head Quarters Cell Tower Engine	Hardin	0.000E+00	41.31	0.00	Excluded	Excluded
2116300004	Vulcan Construction Material LLC - Brandenburg Quarry	Meade	0.000E+00	4.06	0.00	Excluded	Excluded
2116309160	Vulcan Construction Material LP - Brandenburg Quarry Portable	Meade	0.000E+00	3.97	0.00	Excluded	Excluded
2109300067	Vulcan Construction Materials LLC - Elizabethtown Quarry	Hardin	0.000E+00	46.17	0.00	Excluded	Excluded
2109300007	Vulcan Construction Materials LLC - Fort Knox Quarry	Hardin	2.391E+00	33.35	0.07	Excluded	Excluded
2109300062	Vulcan Construction Materials LLC - Hardin County Quarry	Hardin	3.138E+00	44.37	0.07	Excluded	Excluded
2109300010	Vulcan Materials Co - Elizabethtown Quarry	Hardin	0.000E+00	33.35	0.00	Excluded	Excluded
2102700005	White Stone Co Inc	Breckinridge	2.990E+00	42.15	0.07	Excluded	Excluded

Table C-2
Kentucky Offsite Inventory
PM2.5 Sources

Facility ID	Facility Name	PM2.5 Estimated Emissions (TPY) 2021	Prefix	Prefix Index	SRCID	UTMe16	UTMn16	Q (g/s)	Hs (m)	Ts (K)	Vs (m/s)	Ds (m)
2116300001	Monument Chemical Kentucky LLC	0.3315500	MCK	1	MCK01	577136.95	4206548.99	9.538E-03	14.94	422.04	7.92	1.40
2116300001	Monument Chemical Kentucky LLC	0.3515000	MCK	2	MCK02	577136.95	4206548.99	1.011E-02	14.94	422.04	7.92	1.40
2116300001	Monument Chemical Kentucky LLC	0.3220500	MCK	3	MCK03	577136.95	4206548.99	9.264E-03	14.94	422.04	7.92	1.40
2116300001	Monument Chemical Kentucky LLC	0.0107800	MCK	4	MCK04	577136.95	4206548.99	3.101E-04	1.83	599.82	87.67	0.10
2116300001	Monument Chemical Kentucky LLC	0.0107800	MCK	5	MCK05	577136.95	4206548.99	3.101E-04	1.83	802.59	75.49	0.10
2116300001	Monument Chemical Kentucky LLC	0.0107800	MCK	6	MCK06	577136.95	4206548.99	3.101E-04	1.83	802.59	75.49	0.10
2116300001	Monument Chemical Kentucky LLC	0.0072600	MCK	7	MCK07	577136.95	4206548.99	2.088E-04	1.83	727.59	59.87	0.10
2116300001	Monument Chemical Kentucky LLC	0.0072600	MCK	8	MCK08	577136.95	4206548.99	2.088E-04	1.83	727.59	59.87	0.10
2116300001	Monument Chemical Kentucky LLC	0.0107800	MCK	9	MCK09	577136.95	4206548.99	3.101E-04	1.83	727.59	59.87	0.10
2116300001	Monument Chemical Kentucky LLC	0.0072600	MCK	10	MCK10	577136.95	4206548.99	2.088E-04	1.83	727.59	59.87	0.10
2116300001	Monument Chemical Kentucky LLC	0.0050600	MCK	11	MCK11	577136.95	4206548.99	1.456E-04	1.83	727.59	75.49	0.10
2116300001	Monument Chemical Kentucky LLC	0.0021560	MCK	12	MCK12	577136.95	4206548.99	6.202E-05	1.83	727.59	75.49	0.10
2116300001	Monument Chemical Kentucky LLC	0.0208930	MCK	13	MCK13	577136.95	4206548.99	6.010E-04	11.89	293.15	5.10	0.09
2116300001	Monument Chemical Kentucky LLC	0.0000049	MCK	14	MCK14	577136.95	4206548.99	1.398E-07	5.03	293.15	12.12	0.57
2116300001	Monument Chemical Kentucky LLC	0.2865271	MCK	15	MCK15	577136.95	4206548.99	8.242E-03	4.27	293.15	2.48	0.08
2116300001	Monument Chemical Kentucky LLC	0.2800980	MCK	16	MCK16	577136.95	4206548.99	8.057E-03	21.64	293.15	6.51	0.20
2116300001	Monument Chemical Kentucky LLC	0.2800980	MCK	17	MCK17	577136.95	4206548.99	8.057E-03	19.20	293.15	12.65	0.20

Table C-1
Kentucky Offsite Inventory
NO_X Facilities

Facility ID	Facility Name	County	NO_X Estimated Emissions (TPY)	Distance (km)	Q/D	Annual List	1hr List
					SIA (km)	3.72	28.28
2109300090	AGC Automotive Americas	Hardin	4.41	41.77	0.11	Excluded	Excluded
2116300028	Agrium Advanced Technologies Inc - Brandenburg	Meade	0.00	0.92	0.00	Excluded	Excluded
2109300054	Akebono Brake Corp	Hardin	5.98	40.73	0.15	Excluded	Excluded
2109300095	Alabama Wire Products	Hardin	0.00	41.82	0.00	Excluded	Excluded
2109300081	Altec Industries Inc	Hardin	0.00	41.32	0.00	Excluded	Excluded
2116300031	American Tower Corp - Doe Valley Cell Tower Engine	Meade	0.00	7.90	0.00	Excluded	Excluded
2102900051	American Tower Corp - Shepherdsville Cell Tower	Bullitt	0.00	37.83	0.00	Excluded	Excluded
2109300167	American Towers LLC - Tunnel Hill Elizabethtown Cell Tower Engine	Hardin	0.00	40.37	0.00	Excluded	Excluded
2102900053	AmerisourceBergen Specialty Group - ASD	Bullitt	0.00	38.34	0.00	Excluded	Excluded
2102900002	Arcosa LW KY LLC	Bullitt	443.82	37.27	11.91	Excluded	Excluded
2102900044	Astra Zeneca Pharmaceuticals LP	Bullitt	6.90	41.02	0.17	Excluded	Excluded
2109300123	AT&T Mobility - 10th Street Cell Tower Engine	Hardin	0.00	16.48	0.00	Excluded	Excluded
2116300032	AT&T Mobility - Bee Knob Hill Cell Tower Engine	Meade	0.00	17.18	0.00	Excluded	Excluded
2109300178	AT&T Mobility - Billy Creek Cell Tower Engine	Hardin	0.00	41.94	0.00	Excluded	Excluded
2116300045	AT&T Mobility - Brandenburg Cell Tower Engine	Meade	0.00	2.96	0.00	Excluded	Excluded
2109300125	AT&T Mobility - Braves Rifle Cell Tower Engine	Hardin	0.00	19.14	0.00	Excluded	Excluded
2109300129	AT&T Mobility - Cavalry Cell Tower Engine	Hardin	0.00	22.00	0.00	Excluded	Excluded
2102900060	AT&T Mobility - Cedar Grove Cell Tower Engine	Bullitt	0.00	49.29	0.00	Excluded	Excluded
2102900079	AT&T Mobility - Cell Tower Engine	Bullitt	0.00	30.94	0.00	Excluded	Excluded
2102700043	AT&T Mobility - Cloverport Cell Tower Engine	Breckinridge	0.00	49.05	0.00	Excluded	Excluded
2109300177	AT&T Mobility - Elizabethtown Cell Tower Engine	Hardin	0.00	39.21	0.00	Excluded	Excluded
2109300115	AT&T Mobility - Elizabethtown Pear Orchard Cell Tower Engine	Hardin	0.00	36.33	0.00	Excluded	Excluded
2109300117	AT&T Mobility - Elizabethtown Springfield Cell Tower Engine	Hardin	0.00	44.85	0.00	Excluded	Excluded
2109300116	AT&T Mobility - Elizabethtown West Dixie Cell Tower Engine	Hardin	0.00	42.15	0.00	Excluded	Excluded
2109300119	AT&T Mobility - Fort Knox Dixie Cell Tower Engine	Hardin	0.00	20.46	0.00	Excluded	Excluded
2109300168	AT&T Mobility - Frazier Cell Tower Engine	Hardin	0.00	18.92	0.00	Excluded	Excluded
2102900052	AT&T Mobility - Hammond Property Cell Tower Engine	Bullitt	0.00	54.17	0.00	Excluded	Excluded
2102700035	AT&T Mobility - Hardinsburg Finley Dowell Cell Tower Engine	Breckinridge	0.00	36.79	0.00	Excluded	Excluded
2102700040	AT&T Mobility - Harned Cell Tower Engine	Breckinridge	0.00	34.70	0.00	Excluded	Excluded
2102900062	AT&T Mobility - Holsclaw Cell Tower Engine	Bullitt	0.00	35.48	0.00	Excluded	Excluded
2102700042	AT&T Mobility - Irvington Cell Tower Engine	Breckinridge	0.00	18.72	0.00	Excluded	Excluded
2102700036	AT&T Mobility - Jake Horsley Cell Tower Engine	Breckinridge	0.00	30.85	0.00	Excluded	Excluded
2109300130	AT&T Mobility - Jamison Cell Tower Engine	Hardin	0.00	16.83	0.00	Excluded	Excluded
2102900063	AT&T Mobility - KY Turnpike Cell Tower Engine	Bullitt	0.00	39.23	0.00	Excluded	Excluded
2102900070	AT&T Mobility - KY Turnpike Water District Cell Tower Engine	Bullitt	0.00	45.13	0.00	Excluded	Excluded
2102900078	AT&T Mobility - Mt Washington Cell Tower Engine	Bullitt	0.00	47.81	0.00	Excluded	Excluded
2102900086	AT&T Mobility - Mt Washington West Cell Tower Engine	Bullitt	0.00	50.94	0.00	Excluded	Excluded
2109300124	AT&T Mobility - Otter Creek Cell Tower Engine	Hardin	0.00	25.30	0.00	Excluded	Excluded
2109300122	AT&T Mobility - Radcliff Facility Cell Tower Engine	Hardin	0.00	24.02	0.00	Excluded	Excluded
2102900080	AT&T Mobility - Rising Sun Cell Tower Engine	Bullitt	0.00	25.95	0.00	Excluded	Excluded
2102700047	AT&T Mobility - Sink Cell Tower Engine	Breckinridge	0.00	44.89	0.00	Excluded	Excluded
2109300126	AT&T Mobility - South Wilson Cell Tower Engine	Hardin	0.00	28.46	0.00	Excluded	Excluded
2109300165	AT&T Mobility - Spearhead Relo Cell Tower Engine	Hardin	0.00	22.03	0.00	Excluded	Excluded
2116300030	AT&T Mobility - Timber Court Cell Tower Engine	Meade	0.00	14.28	0.00	Excluded	Excluded
2109300159	AT&T Mobility - Tunnel Hills Cell Tower Engine	Hardin	0.00	42.07	0.00	Excluded	Excluded
2109300118	AT&T Mobility - Upton South Dixie Cell Tower Engine	Hardin	0.00	62.28	0.00	Excluded	Excluded
2116300047	AT&T Mobility - Van Voorhis Relo Cell Tower Engine	Hardin	0.00	16.87	0.00	Excluded	Excluded
2109300179	AT&T Mobility - Ventress Cell Tower Engine	Hardin	0.00	33.38	0.00	Excluded	Excluded
2109300032	Baptist Health Hardin	Hardin	4.45	40.05	0.11	Excluded	Excluded
2102700027	Bedrock Products LLC	Breckinridge	0.00	48.12	0.00	Excluded	Excluded
2102900081	Best Buy - Geek Squad City	Bullitt	0.00	38.13	0.00	Excluded	Excluded
2102900082	Best Buy Distribution Center	Bullitt	0.00	41.19	0.00	Excluded	Excluded
2102900042	Blackrock Trailers	Bullitt	0.00	37.41	0.00	Excluded	Excluded
2109300121	Bluegrass Cellular Inc - Williams Street Office Building Engine	Hardin	0.00	42.26	0.00	Excluded	Excluded
2109300150	Bluegrass Cellular Inc LLC - Fort Knox VII Cell Tower Engine	Hardin	0.00	19.20	0.00	Excluded	Excluded
2109300158	Bluegrass Cellular LLC - Elizabethtown Data Center	Hardin	0.00	42.06	0.00	Excluded	Excluded
2102709378	Bramco-MPS - Kleemann MR 110 ZS EVO Portable Crusher	Breckinridge	0.00	38.11	0.00	Excluded	Excluded
2109300131	By Quest	Hardin	5.92	41.81	0.14	Excluded	Excluded
2109300065	Central KY Powder Coating	Hardin	0.00	44.62	0.00	Excluded	Excluded
2109300096	Certified Construction Co	Hardin	0.00	21.88	0.00	Excluded	Excluded
2116300043	Charter Communications - Brandenburg Cell Tower Engine	Meade	0.00	4.49	0.00	Excluded	Excluded
2109300160	Charter Communications - Radcliff Cell Tower Engine	Hardin	0.00	25.45	0.00	Excluded	Excluded
2109300138	Comcast of the South - Elizabethtown Office	Hardin	0.00	41.43	0.00	Excluded	Excluded
2116300029	Consolidated Grain & Barge Co	Meade	0.00	0.74	0.00	Excluded	Excluded
2102700039	Crist Propane Services LLC	Breckinridge	0.04	21.27	0.00	Excluded	Included
2109300057	Cytech Products Inc	Hardin	0.00	40.91	0.00	Excluded	Excluded
2116300022	Devx Operating Co - Guston Transmission Station	Meade	0.00	15.52	0.00	Excluded	Excluded
2116300021	Devx Operating Co - Swan Compressor Station	Meade	0.00	18.01	0.00	Excluded	Excluded
2102900019	Distinct Packabilities	Bullitt	0.56	37.17	0.02	Excluded	Excluded
2109300005	Dow Silicones Corporation - Elizabethtown Plant	Hardin	5.12	46.10	0.11	Excluded	Excluded
2109300094	East KY Power Coop - Hardin Co Landfill Gas to Electric Plant	Hardin	40.52	47.76	0.85	Excluded	Excluded
2109300166	Elizabethtown Box Plant	Hardin	0.00	41.05	0.00	Excluded	Excluded
2102700028	Endeavor Energy Resources LP	Breckinridge	21.29	39.26	0.54	Excluded	Excluded
2102700037	Farmers Recycling LLC Property	Breckinridge	0.00	46.12	0.00	Excluded	Excluded
2109300120	Flex Films USA	Hardin	14.14	41.09	0.34	Excluded	Excluded
2109300046	Flint Group Pigments	Hardin	7.33	40.52	0.18	Excluded	Excluded
2102909186	Flynn Brothers Contracting - Portable	Bullitt	0.13	38.47	0.00	Excluded	Excluded
2102900043	Gordon Food Service	Bullitt	0.15	40.52	0.00	Excluded	Excluded
2102909326	Hall Contracting of Kentucky Inc - Portable Asphalt Plant	Bullitt	0.54	38.19	0.01	Excluded	Excluded
2109300085	Hardin Co Contained Landfill	Hardin	2.62	48.53	0.05	Excluded	Excluded
2109300601	Hawthorne Services Inc - COCO Fuel 9th Armor	Hardin	0.00	21.51	0.00	Excluded	Excluded
2109300602	Hawthorne Services Inc - COCO Fuel Frazier Road	Hardin	0.00	19.11	0.00	Excluded	Excluded
2109300137	Hendrickson Trailer Commercial Vehicle Systems	Hardin	0.00	41.04	0.00	Excluded	Excluded
2109300002	IMI South LLC - Radcliff 872	Hardin	0.00	26.77	0.00	Excluded	Excluded
2109300111	Insight KY Partners II LP - Radcliff Engine	Hardin	0.00	25.44	0.00	Excluded	Excluded
2102900056	Integrated Commercialization Solutions	Bullitt	0.00	38.15	0.00	Excluded	Excluded
2102900005	Jim Beam Brands Co - Clermont Plant	Bullitt	5.30	43.52	0.12	Excluded	Excluded
2102900069	JOM Pharmaceutical Services Inc	Bullitt	0.00	37.88	0.00	Excluded	Excluded
2109300097	Ky Dept of Military Affairs - KY MATES	Hardin	0.00	18.84	0.00	Excluded	Excluded
2109300145	KY Dept of Veterans Affairs - 4th State Veterans Home	Hardin	0.00	21.39	0.00	Excluded	Excluded
2109300136	KY Utilities Co - Elizabethtown	Hardin	0.00	42.70	0.00	Excluded	Excluded
2116300017	Louisville Gas & Electric - Muldraugh Transmission Station	Meade	21.37	14.52	1.47	Excluded	Included
2102900083	Louisville Gas & Electric (LG&E) - Holsclaw Cell Tower Engine	Bullitt	0.00	35.35	0.00	Excluded	Excluded
2116300046	Louisville Gas & Electric (LG&E) - Muldraugh Cell Tower Engine	Meade	0.00	13.49	0.00	Excluded	Excluded
2116300034	Louisville Gas & Electric Co - Doe Run	Meade	0.00	3.66	0.00	Excluded	Excluded
2116300036	Louisville Gas & Electric Co - Doe Run KY NG Compressor Station	Meade	0.00	4.56	0.00	Excluded	Excluded
2102900064	Louisville Gas & Electric Co - Mt Washington	Bullitt	0.00	51.97	0.00	Excluded	Excluded
2109300135	Louisville Gas & Electric Co Emergency Generators	Hardin	0.00	32.58	0.00	Excluded	Excluded
2109309294	Louisville Paving Co - Portable	Hardin	0.00	21.83	0.00	Excluded	Excluded
2102909043	Louisville Paving Company Inc - Bullitt County Portable Asphalt Plant	Bullitt	1.60	36.98	0.04	Excluded	Excluded
2102900050	Louisville Seating Division of Magna	Bullitt	0.20	40.72	0.01	Excluded	Excluded
2102900071	Louisville Water Co Cedar Grove Generator	Bullitt	0.00	38.74	0.00	Excluded	Excluded
2102900072	Louisville Water Co Chapeze Generator	Bullitt	0.00	40.02	0.00	Excluded	Excluded
2102900032	LSC Communications	Bullitt	4.18	43.43	0.10	Excluded	Excluded
2109300033	Magna/Robert Bosch Tool Corp - Elizabethtown Plant	Hardin	0.00	41.78	0.00	Excluded	Excluded
2102700006	Mago Construction Co LLC	Breckinridge	0.40	19.15	0.02	Excluded	Included
2102700004	Mago Construction Co LLC - Hardinsburg Asphalt Plant	Breckinridge	2.29	42.40	0.05	Excluded	Excluded
2102909201	Mago Construction Co LLC - HMA Portable RAP Plant 1	Bullitt	0.09	40.18	0.00	Excluded	Excluded
2102909202	Mago Construction Co LLC - HMA Portable RAP Plant 2	Bullitt	0.01	39.36	0.00	Excluded	Excluded
2102900010	Mago Construction Co LLC - Shepherdsville Asphalt Facility	Bullitt	1.17	40.10	0.03	Excluded	Excluded
2102900045	Marrillia Environmental LLC	Bullitt	0.66	52.04	0.01	Excluded	Excluded
2102900073	Marrillia Environmental LLC	Bullitt	1.14	50.88	0.02	Excluded	Excluded
2116300038	Meade Co Water District Engine	Meade	0.00	22.50	0.00	Excluded	Excluded
2109300003	Metalsa	Hardin	0.00	42.53	0.00	Excluded	Excluded
2109300063	Metalsa Structural Products Inc	Hardin	13.82	41.32	0.33	Excluded	Excluded
2109309249	Mink Bros Quarry LLC - Portable Processing Plant	Hardin	2.64	46.76	0.06	Excluded	Excluded
2109300068	Modern Plating Coatings & Finishes	Hardin	0.30	41.06	0.01	Excluded	Excluded
2109300080	Modern Welding Company of Kentucky Inc - Elizabethtown	Hardin	0.35	44.67	0.01	Excluded	Excluded
2116300001	Monument Chemical Kentucky LLC	Meade	53.92	1.54	35.01	Included	Included
2109300043	Mouser Custom Cabinetry	Hardin	0.48	36.34	0.01	Excluded	Excluded
2102900075	New Flyer of America	Bullitt	0.00	40.68	0.00	Excluded	Excluded
2102900048	On Site Electrostatic Painting Co	Bullitt	0.01	40.22	0.00	Excluded	Excluded
2116309192	PAC Recycling LLC	Meade	0.00	3.50	0.00	Excluded	Excluded
2109300147	Peaceful Pets USA LLC	Hardin	0.00	43.00	0.00	Excluded	Excluded
2109300086	Richard & Emma Cook Residence	Hardin	0.83	32.45	0.03	Excluded	Excluded
2102900046	Sabert Corp	Bullitt	0.68	38.23	0.02	Excluded	Excluded
2102900068	Santa Rosa Systems	Bullitt	0.00	39.63	0.00	Excluded	Excluded
2109300026	Scottys Contracting & Stone LLC - Fort Knox Plant 4	Hardin	2.06	33.59	0.06	Excluded	Excluded
2109309230	Scottys Contracting & Stone LLC - Portable Asphalt Plant	Hardin	2.23	24.11	0.09	Excluded	Included
2109309056	Scottys Contracting & Stone LLC - Portable Plant	Hardin	0.37	65.29	0.01	Excluded	Excluded
2109300015	Scottys Contracting & Stone LLC - Upton	Hardin	0.00	65.06	0.00	Excluded	Excluded
2109309233	Scottys Contracting & Stone LLC - Upton Portable	Hardin	0.00	65.43	0.00	Excluded	Excluded
2102900038	Speyside Cooperage Kentucky Inc	Bullitt	0.28	37.36	0.01	Excluded	Excluded
2109300163	Structures USA LLC	Hardin	0.00	40.95	0.00	Excluded	Excluded
2102700022	Texas Gas Transmission LLC - Hardinsburg Transmission Station	Breckinridge	403.81	39.05	10.34	Excluded	Excluded
2109300021	The Gates Corp	Hardin	1.28	42.30	0.03	Excluded	Excluded

2102700049	T-Mobile - Cell Tower Engine	Breckinridge	0.00	36.77	0.00	Excluded	Excluded
2102900087	T-Mobile - Cell Tower Engine	Bullitt	0.00	41.19	0.00	Excluded	Excluded
2109300173	T-Mobile - Cell Tower Engine	Hardin	0.00	62.28	0.00	Excluded	Excluded
2109300174	T-Mobile - Cell Tower Engine	Hardin	0.00	24.05	0.00	Excluded	Excluded
2109300175	T-Mobile - Cell Tower Engine	Hardin	0.00	50.93	0.00	Excluded	Excluded
2102700046	T-Mobile - Cloverport Cell Tower Engine	Breckinridge	0.00	44.29	0.00	Excluded	Excluded
2116300039	T-Mobile - Guston Cell Tower Engine	Meade	0.00	15.18	0.00	Excluded	Excluded
2102700044	T-Mobile - Hardinsburg Cell Tower Engine	Breckinridge	0.00	36.87	0.00	Excluded	Excluded
2102900076	T-Mobile - Lebanon Junction Cell Tower Engine	Bullitt	0.00	40.63	0.00	Excluded	Excluded
2116300040	T-Mobile - Vine Grove Cell Tower Engine	Hardin	0.00	14.97	0.00	Excluded	Excluded
2109300052	Trinity Industries Inc	Hardin	0.00	44.16	0.00	Excluded	Excluded
2109300022	US Army Garrison - Fort Knox	Hardin	29.08	31.02	0.94	Excluded	Excluded
2109300127	Verizon Wireless - Battle Training Rd Cell Tower Engine	Hardin	0.00	35.04	0.00	Excluded	Excluded
2102900058	Verizon Wireless - Belmont Cell Tower Engine	Bullitt	0.00	40.60	0.00	Excluded	Excluded
2109300161	Verizon Wireless - Bland Rd Cell Tower Engine	Hardin	0.00	46.12	0.00	Excluded	Excluded
2116300042	Verizon Wireless - Brandenburg Capacity Cell Tower Engine	Meade	0.00	0.92	0.00	Excluded	Excluded
2116300035	Verizon Wireless - Brandenburg Cell Tower Engine	Meade	0.00	2.11	0.00	Excluded	Excluded
2109300149	Verizon Wireless - Colesburg Cell Tower Engine	Hardin	0.00	37.81	0.00	Excluded	Excluded
2116300041	Verizon Wireless - Doe Valley Cell Tower Engine	Meade	0.00	3.51	0.00	Excluded	Excluded
2109300098	Verizon Wireless - Elizabethtown DT Cell Tower Engine	Hardin	0.00	43.28	0.00	Excluded	Excluded
2109300156	Verizon Wireless - Elizabethtown High School Cell Tower Engine	Hardin	0.00	42.11	0.00	Excluded	Excluded
2109300102	Verizon Wireless - Elizabethtown West Cell Tower Engine	Hardin	0.01	36.61	0.00	Excluded	Excluded
2102900084	Verizon Wireless - Ferguson Cell Tower Engine	Bullitt	0.00	38.72	0.00	Excluded	Excluded
2109300152	Verizon Wireless - Fort Knox VI Cell Tower Engine	Hardin	0.00	20.41	0.00	Excluded	Excluded
2116300037	Verizon Wireless - Fort Knox West Cell Tower Engine	Meade	0.00	14.96	0.00	Excluded	Excluded
2109300107	Verizon Wireless - Ft Knox Cell Tower Engine	Hardin	0.00	21.95	0.00	Excluded	Excluded
2109300109	Verizon Wireless - Ft Knox II Cell Tower Engine	Hardin	0.01	19.24	0.00	Excluded	Included
2109300110	Verizon Wireless - Ft Knox III Cell Tower Engine	Hardin	0.00	22.36	0.00	Excluded	Excluded
2116300026	Verizon Wireless - Ft Knox IV Cell Tower Engine	Meade	0.00	16.87	0.00	Excluded	Included
2102700033	Verizon Wireless - Garfield Cell Tower Engine	Breckinridge	0.00	28.57	0.00	Excluded	Excluded
2109300134	Verizon Wireless - Glendale Cell Tower Engine	Hardin	0.00	50.93	0.00	Excluded	Excluded
2109300164	Verizon Wireless - Glendale DT Cell Tower Engine	Hardin	0.00	49.78	0.00	Excluded	Excluded
2109300153	Verizon Wireless - Gray Street Cell Tower Engine	Hardin	0.00	38.57	0.00	Excluded	Excluded
2102700038	Verizon Wireless - Hardinsburg Cell Tower Engine	Breckinridge	0.00	37.17	0.00	Excluded	Excluded
2102700029	Verizon Wireless - Hardinsburg North Cell Tower Engine	Breckinridge	0.00	36.79	0.00	Excluded	Excluded
2102900074	Verizon Wireless - Harper Hwy Cell Tower Engine	Bullitt	0.00	38.61	0.00	Excluded	Excluded
2109300154	Verizon Wireless - Helmwood Cell Tower Engine	Hardin	0.00	41.00	0.00	Excluded	Excluded
2102900065	Verizon Wireless - Highway 44 Cell Tower Engine	Bullitt	0.00	23.39	0.00	Excluded	Excluded
2109300105	Verizon Wireless - Howe Valley Cell Tower Engine	Hardin	0.01	36.96	0.00	Excluded	Excluded
2109300099	Verizon Wireless - I65 Rock Cut Cell Tower Engine	Hardin	0.00	40.68	0.00	Excluded	Excluded
2102700032	Verizon Wireless - Kingswood Cell Tower Engine	Breckinridge	0.01	42.29	0.00	Excluded	Excluded
2102900059	Verizon Wireless - KY 44 & Tammy Ln Cell Tower Engine	Bullitt	0.00	45.71	0.00	Excluded	Excluded
2109300101	Verizon Wireless - Lincoln Parkway Cell Tower Engine	Hardin	0.00	49.16	0.00	Excluded	Excluded
2109300112	Verizon Wireless - Longview Cell Tower Engine	Hardin	0.00	30.48	0.00	Excluded	Excluded
2102700034	Verizon Wireless - McQuady Cell Tower Engine	Breckinridge	0.01	47.25	0.00	Excluded	Excluded
2102700041	Verizon Wireless - Mooleyville Cell Tower Engine	Breckinridge	0.00	31.20	0.00	Excluded	Excluded
2116300033	Verizon Wireless - Muldraugh Cell Tower Engine	Meade	0.00	14.30	0.00	Excluded	Excluded
2109300144	Verizon Wireless - Peterson Dr Cell Tower Engine	Hardin	0.00	41.94	0.00	Excluded	Excluded
2109300100	Verizon Wireless - Prather Cell Tower Engine	Hardin	0.00	33.63	0.00	Excluded	Excluded
2109300162	Verizon Wireless - Radcliff Capacity Cell Tower Engine	Hardin	0.00	25.04	0.00	Excluded	Excluded
2109300151	Verizon Wireless - Severns Valley Cell Tower Engine	Hardin	0.00	38.26	0.00	Excluded	Excluded
2102900066	Verizon Wireless - Shepherdsville Rd Cell Tower Engine	Bullitt	0.00	30.94	0.00	Excluded	Excluded
2112300020	Verizon Wireless - Sonora Cell Tower Engine	Hardin	0.01	58.78	0.00	Excluded	Excluded
2109300106	Verizon Wireless - Stephensburg Cell Tower Engine	Hardin	0.00	45.03	0.00	Excluded	Excluded
2102700031	Verizon Wireless - Stephensport Cell Tower Engine	Breckinridge	0.01	36.37	0.00	Excluded	Excluded
2109300157	Verizon Wireless - Tunnel Hill Cell Tower Engine	Hardin	0.00	40.37	0.00	Excluded	Excluded
2102700030	Verizon Wireless - Union Star Cell Tower Engine	Breckinridge	0.00	24.57	0.00	Excluded	Excluded
2109300108	Verizon Wireless - Vertrees Cell Tower Engine	Hardin	0.00	33.94	0.00	Excluded	Excluded
2109300140	Verizon Wireless - West Point Cell Tower Engine	Hardin	0.00	16.54	0.00	Excluded	Excluded
2109300104	Verizon Wirelss - Head Quarters Cell Tower Engine	Hardin	0.00	41.31	0.00	Excluded	Excluded
2116309160	Vulcan Construction Material LP - Brandenburg Quarry Portable	Meade	0.00	3.97	0.00	Excluded	Excluded

Table C-2
Kentucky Offsite Inventory
NO_X Sources

Facility ID	Facility Name	NO_X Estimated Emissions (TPY) 2021	Prefix	Prefix Index	SRCID	UTMe16	UTMn16	Q (g/s)	Hs (m)	Ts (K)	Vs (m/s)	Ds (m)
2116300001	Monument Chemical Kentucky LLC	1.745E+01	MCK	1	MCK01	577136.95	4206548.99	5.020E-01	14.94	422.04	7.92	1.40
2116300001	Monument Chemical Kentucky LLC	1.850E+01	MCK	2	MCK02	577136.95	4206548.99	5.322E-01	14.94	422.04	7.92	1.40
2116300001	Monument Chemical Kentucky LLC	1.695E+01	MCK	3	MCK03	577136.95	4206548.99	4.876E-01	14.94	422.04	7.92	1.40
2116300001	Monument Chemical Kentucky LLC	1.519E-01	MCK	4	MCK04	577136.95	4206548.99	4.370E-03	1.83	599.82	87.67	0.10
2116300001	Monument Chemical Kentucky LLC	1.519E-01	MCK	5	MCK05	577136.95	4206548.99	4.370E-03	1.83	802.59	75.49	0.10
2116300001	Monument Chemical Kentucky LLC	1.519E-01	MCK	6	MCK06	577136.95	4206548.99	4.370E-03	1.83	802.59	75.49	0.10
2116300001	Monument Chemical Kentucky LLC	1.023E-01	MCK	7	MCK07	577136.95	4206548.99	2.943E-03	1.83	727.59	59.87	0.10
2116300001	Monument Chemical Kentucky LLC	1.023E-01	MCK	8	MCK08	577136.95	4206548.99	2.943E-03	1.83	727.59	59.87	0.10
2116300001	Monument Chemical Kentucky LLC	1.519E-01	MCK	9	MCK09	577136.95	4206548.99	4.370E-03	1.83	727.59	59.87	0.10
2116300001	Monument Chemical Kentucky LLC	1.023E-01	MCK	10	MCK10	577136.95	4206548.99	2.943E-03	1.83	727.59	59.87	0.10
2116300001	Monument Chemical Kentucky LLC	7.130E-02	MCK	11	MCK11	577136.95	4206548.99	2.051E-03	1.83	727.59	75.49	0.10
2116300001	Monument Chemical Kentucky LLC	3.038E-02	MCK	12	MCK12	577136.95	4206548.99	8.739E-04	1.83	727.59	75.49	0.10
2102700006	Mago Construction Co LLC	3.967E-01	MCB	1	MCB01	561082.66	4194300.19	1.141E-02	9.45	422.04	22.86	1.22
2102700006	Mago Construction Co LLC	1.450E-03	MCB	2	MCB02	561082.66	4194300.19	4.171E-05	0.00	435.93	0.00	0.00
2116300017	Louisville Gas & Electric - Muldraugh	3.424E-01	LGM	1	LGM01	588240.00	4199586.79	9.850E-03	6.10	449.82	10.52	0.52
2116300017	Louisville Gas & Electric - Muldraugh	5.821E-01	LGM	2	LGM02	588240.00	4199586.79	1.674E-02	6.10	588.71	1.21	0.76
2116300017	Louisville Gas & Electric - Muldraugh	4.939E-01	LGM	3	LGM03	588240.00	4199586.79	1.421E-02	7.01	729.26	39.96	0.63
2116300017	Louisville Gas & Electric - Muldraugh	5.025E-01	LGM	4	LGM04	588240.00	4199586.79	1.446E-02	7.92	740.37	2.04	0.41
2116300017	Louisville Gas & Electric - Muldraugh	9.708E-01	LGM	5	LGM05	588240.00	4199586.79	2.793E-02	9.14	698.71	2.36	0.64
2116300017	Louisville Gas & Electric - Muldraugh	1.855E-05	LGM	6	LGM06	588240.00	4199586.79	5.336E-07	3.46	945.37	77.78	0.22
2116300017	Louisville Gas & Electric - Muldraugh	2.551E-01	LGM	7	LGM07	588240.00	4199586.79	7.337E-03	6.40	588.71	28.47	0.27
2116300017	Louisville Gas & Electric - Muldraugh	9.796E+00	LGM	8	LGM08	588240.00	4199586.79	2.818E-01	7.01	588.71	33.13	0.36
2116300017	Louisville Gas & Electric - Muldraugh	2.177E-01	LGM	9	LGM09	588240.00	4199586.79	6.262E-03	7.01	588.71	33.13	0.36
2116300017	Louisville Gas & Electric - Muldraugh	1.969E+00	LGM	10	LGM10	588240.00	4199586.79	5.664E-02	7.01	588.71	33.13	0.36
2116300017	Louisville Gas & Electric - Muldraugh	1.397E-01	LGM	11	LGM11	588240.00	4199586.79	4.019E-03	7.01	588.71	33.13	0.36
2116300017	Louisville Gas & Electric - Muldraugh	3.579E+00	LGM	12	LGM12	588240.00	4199586.79	1.030E-01	7.01	588.71	33.13	0.36
2116300017	Louisville Gas & Electric - Muldraugh	2.240E+00	LGM	13	LGM13	588240.00	4199586.79	6.443E-02	7.01	588.71	33.13	0.36
2116300017	Louisville Gas & Electric - Muldraugh	6.380E-03	LGM	14	LGM14	588240.00	4199586.79	1.835E-04	7.01	729.26	39.96	0.63
2116300017	Louisville Gas & Electric - Muldraugh	1.115E-01	LGM	15	LGM15	588240.00	4199586.79	3.209E-03	7.01	729.26	39.96	0.63
2116300017	Louisville Gas & Electric - Muldraugh	1.426E-01	LGM	16	LGM16	588240.00	4199586.79	4.101E-03	6.10	1088.71	0.38	0.66
2116300017	Louisville Gas & Electric - Muldraugh	1.684E-02	LGM	17	LGM17	588240.00	4199586.79	4.844E-04	6.10	1088.71	0.38	0.66
2102700039	Crist Propane Services LLC	4.444E-02	CPS	1	CPS01	561402.48	4190959.64	1.278E-03	0.00	295.37	0.00	0.00
2109309230	Scottys Contracting & Stone LLC - Portable	2.197E+00	SCL	1	SCL01	590126.70	4187545.26	6.319E-02	9.14	430.37	13.29	2.02
2109309230	Scottys Contracting & Stone LLC - Portable Asphalt Plant	3.542E-02	SCL	2	SCL02	590126.70	4187545.26	1.019E-03	0.00	298.15	0.00	0.00

Table C-20
Indiana Offsite Inventory
PM2.5 Facilities

SEARCH DOMAIN (km)	55.6	60.6
SIA (km)	5.6	10.6

FIPS	Facility Name	County	UTM16e (m)	UTM16n (m)	Distance (km)	PM25 (TPY) 2020	Q/D PM25	Annual List	24hr List
1803700031	ANR Pipeline Co Celestine Compressor St	Dubois	519289.4731	4248260.457	69.9448	13.3320192	0.1906077	Excluded	Excluded
1801900097	Clark-Floyd Landfill	Clark	601106.1758	4256166.993	55.5724	1.87691	0.0337741	Excluded	Excluded
1814700041	Cleveland-Cliffs Steel Corporation, Roc	Spencer	497042.4005	4203750.915	78.6285	38.430221	0.4887569	Excluded	Excluded
1803700023	Dubois Wood Products, Inc	Dubois	504393.6742	4238980.409	78.1568	0.00951506	0.0001217	Excluded	Excluded
1805100013	Duke Energy Indiana LLC - Gibson Genera	Gibson	560527.4468	4242535.031	38.8001	167.364567	4.3135069	Excluded	Excluded
1804300004	Duke Energy Indiana, LLC-Gallagher Gene	Floyd	601824.6418	4236524.849	39.641	1.74441481	0.0440053	Excluded	Excluded
1814700020	Indiana Michigan Power DBA AEP Rockport	Spencer	498268.9562	4199024.966	77.7318	77.3835598	0.9955195	Excluded	Excluded
1803700010	JASPER SEATING CO INC	Dubois	506237.2675	4249636.563	81.5411	2.39833145	0.0294126	Excluded	Excluded
1803700107	Jasper Seating Co Inc Plant 70	Dubois	506274.5128	4249718.285	81.5524	0.0090759	0.0001113	Excluded	Excluded
1811700014	Jasper Seating Plant 15	Orange	547793.8058	4277543.505	76.0283	0.083391	0.0010968	Excluded	Excluded
1803700007	Jasper Seating Plant 80	Dubois	506384.8138	4249246.84	81.2111	1.135174	0.0139781	Excluded	Excluded
1803700100	Kimball International Inc. - 15th Stree	Dubois	507108.6699	4250259.663	81.1331	7.6471349	0.0942542	Excluded	Excluded
1817500007	KIMBALL OFFICE SALEM	Washington	579606.1022	4274089.341	67.4204	0.38009192	0.0056376	Excluded	Excluded
1801900007	Kitchen Kompact Inc	Clark	610506.8684	4238262.284	46.9926	1.19	0.0253231	Excluded	Excluded
1801900079	KOETTER WOODWORKING INC	Clark	593207.1388	4252016.233	48.5307	6.949251	0.1431927	Excluded	Excluded
1809300028	Lawrence Generating Station	Lawrence	546041.9032	4287259.332	85.733	1.73553734	0.0202435	Excluded	Excluded
1801900008	Lehigh Cement Company LLC	Clark	608949.5503	4252239.975	56.3677	214.2615	3.8011393	Excluded	Excluded
1809300002	Lehigh Cement Company LLC	Lawrence	546925.3908	4287771.254	85.9147	131.048291	1.5253308	Excluded	Excluded
1803700052	Masterbrand Cabinets Inc Decora No 3	Dubois	507891.7382	4246695.818	78.6051	26.24135	0.333838	Excluded	Excluded
1803700051	MasterBrand Cabinets, Inc-# 4/22	Dubois	511333.2071	4230193.624	68.408	71.057	1.0387241	Excluded	Excluded
1814300007	MULTI COLOR CORPORATION	Scott	606673.444	4279799.072	79.3443	0.0852055	0.0010739	Excluded	Excluded
1802500002	Mulzer Crushed Stone Inc (Cape Sandy Fa	Crawford	556499.6094	4220934.378	23.7788	8.19694822	0.3447165	Excluded	Excluded
1803700048	National Office Furniture NOF Jasper 11	Dubois	505333.832	4247289.139	81.1138	1.08977275	0.0134351	Excluded	Excluded
1814700044	NATIONAL OFFICE FURNITURE NOF SANTA CL	Spencer	504662.6711	4217678.001	71.7806	0.11474079	0.0015985	Excluded	Excluded
1803700054	OFS BRANDS INC PLNT NO 1	Dubois	501710.8805	4240381.075	81.1785	0.748885	0.0092252	Excluded	Excluded
1803700102	OFS Brands, Inc	Dubois	503390.1297	4239444.403	79.2623	0.75963	0.0095837	Excluded	Excluded
1801900018	PQ CORP	Clark	609479.7579	4237314.906	45.5954	1.12700036	0.0247174	Excluded	Excluded
1807100038	RUMPKE OF INDIANA L L C MEDORA SANITAR	Jackson	569371.8648	4302398.915	95.815	2.10495336	0.0219689	Excluded	Excluded
1811700010	TEXAS EASTERN TRANSMISSION LP	Orange	528752.9414	4263739.071	73.7516	0.82753464	0.0112206	Excluded	Excluded
1810100001	United States Gypsum Company	Martin	524980.6766	4281372.431	90.1471	108.285535	1.2012098	Excluded	Excluded
1812300019	Waupaca Foundry Inc Plant 5	Perry	520295.8505	4204156.065	55.3789	70.3216274	1.2698261	Excluded	Excluded

Table C-21
Indiana Offsite Inventory
SO2 Facilities

FIPS	Facility Name	County	UTM16e (m)	UTM16n (m)	Distance (km)	SO2 (TPY) 2020	Q/D SO2	1hr List	3, 24hr List
						SEARCH DOMAIN (km)		53.7	56.75
							SIA (km)	3.7	6.75
1803700031	ANR Pipeline Co Celestine Compressor St	Dubois	519289.473	4248260.46	69.9448	0.20743808	0.0029657	Excluded	Excluded
1801900097	Clark-Floyd Landfill	Clark	601106.176	4256166.99	55.5724	2.07534	0.0373448	Excluded	Excluded
1814700041	Cleveland-Cliffs Steel Corporation, Roc	Spencer	497042.4	4203750.91	78.6285	0.67040293	0.0085262	Excluded	Excluded
1803700023	Dubois Wood Products, Inc	Dubois	504393.674	4238980.41	78.1568	0.003	3.838E-05	Excluded	Excluded
1805100013	Duke Energy Indiana LLC - Gibson Genera	Gibson	560527.447	4242535.03	38.8001	9110.17	234.7975	Included	Included
1804300004	Duke Energy Indiana, LLC-Gallagher Gene	Floyd	601824.642	4236524.85	39.641	246.06	6.2072089	Excluded	Excluded
1814700020	Indiana Michigan Power DBA AEP Rockport	Spencer	498268.956	4199024.97	77.7318	2814.44807	36.207146	Excluded	Excluded
1803700010	JASPER SEATING CO INC	Dubois	506237.267	4249636.56	81.5411	0.0540588	0.000663	Excluded	Excluded
1803700107	Jasper Seating Co Inc Plant 70	Dubois	506274.513	4249718.28	81.5524	0.019725	0.0002419	Excluded	Excluded
1811700014	Jasper Seating Plant 15	Orange	547793.806	4277543.51	76.0283	0.021528	0.0002832	Excluded	Excluded
1803700007	Jasper Seating Plant 80	Dubois	506384.814	4249246.84	81.2111	0.02533125	0.0003119	Excluded	Excluded
1803700100	Kimball International Inc. - 15th Stree	Dubois	507108.67	4250259.66	81.1331	0.324123	0.003995	Excluded	Excluded
1801900079	KOETTER WOODWORKING INC	Clark	593207.139	4252016.23	48.5307	0.27119462	0.0055881	Excluded	Excluded
1809300028	Lawrence Generating Station	Lawrence	546041.903	4287259.33	85.733	8.85843345	0.1033258	Excluded	Excluded
1801900008	Lehigh Cement Company LLC	Clark	608949.55	4252239.98	56.3677	345.7	6.1329444	Excluded	Excluded
1809300002	Lehigh Cement Company LLC	Lawrence	546925.391	4287771.25	85.9147	764.084065	8.8935225	Excluded	Excluded
1803700052	Masterbrand Cabinets Inc Decora No 3	Dubois	507891.738	4246695.82	78.6051	0.0099	0.0001259	Excluded	Excluded
1803700051	MasterBrand Cabinets, Inc-# 4/22	Dubois	511333.207	4230193.62	68.408	0.018	0.0002631	Excluded	Excluded
1814300007	MULTI COLOR CORPORATION	Scott	606673.444	4279799.07	79.3443	0.026907	0.0003391	Excluded	Excluded
1803700048	National Office Furniture NOF Jasper 11	Dubois	505333.832	4247289.14	81.1138	0.028215	0.0003478	Excluded	Excluded
1803700102	OFS Brands, Inc	Dubois	503390.13	4239444.4	79.2623	0.2265	0.0028576	Excluded	Excluded
1801900018	PQ CORP	Clark	609479.758	4237314.91	45.5954	0.045402	0.0009958	Excluded	Excluded
1807100038	RUMPKE OF INDIANA L L C MEDORA SANITAR	Jackson	569371.865	4302398.91	95.815	0.84	0.0087669	Excluded	Excluded
1811700010	TEXAS EASTERN TRANSMISSION LP	Orange	528752.941	4263739.07	73.7516	0.056583	0.0007672	Excluded	Excluded
1810100001	United States Gypsum Company	Martin	524980.677	4281372.43	90.1471	170.73128	1.8939196	Excluded	Excluded
1812300019	Waupaca Foundry Inc Plant 5	Perry	520295.85	4204156.06	55.3789	54.0430324	0.9758769	Excluded	Excluded

Table C-2
Indiana Offsite Inventory
SO2 Sources

Facility ID	Facility Name	SO2 Estimated Emissions (TPY) 2021	Prefix	Prefix Index	SRCID	UTMe16	UTMn16	TYPE	Q (g/s)	Hs (m)	Ts (K)	Vs (m/s)	Ds (m)
1805100013	Duke Energy Indiana LLC - Gibson Genera	2.303E+03	DEI	1	DEI01	560527.45	4242535.03	Vertical	6.626E+01	188.98	327.59	21.34	7.62
1805100013	Duke Energy Indiana LLC - Gibson Genera	9.026E+02	DEI	2	DEI02	560527.45	4242535.03	Vertical	2.596E+01	188.98	327.59	22.56	7.62
1805100013	Duke Energy Indiana LLC - Gibson Genera	4.018E+03	DEI	3	DEI03	560527.45	4242535.03	Vertical	1.156E+02	152.40	335.93	21.34	7.16
1805100013	Duke Energy Indiana LLC - Gibson Genera	1.886E+03	DEI	4	DEI04	560527.45	4242535.03	Vertical	5.427E+01	152.40	327.59	21.34	7.16

Table C-17
Indiana Offsite Inventory
NOX Facilities

						SEARCH DOMAIN (km)		78.3	78.28
							SIA (km)	28.3	28.28

FIPS	Facility Name	County	UTM16e (m)	UTM16n (m)	Distance (km)	NOX (TPY) 2020	Q/D NOX	Annual List	1hr List
1803700031	ANR Pipeline Co Celestine Compressor St	Dubois	519289.47	4248260.46	69.94	676.52	9.67	Excluded	Excluded
1801900097	Clark-Floyd Landfill	Clark	601106.18	4256166.99	55.57	0.89	0.02	Excluded	Excluded
1814700041	Cleveland-Cliffs Steel Corporation, Roc	Spencer	497042.40	4203750.91	78.63	60.72	0.77	Excluded	Excluded
1803700023	Dubois Wood Products, Inc	Dubois	504393.67	4238980.41	78.16	0.50	0.01	Excluded	Excluded
1805100013	Duke Energy Indiana LLC - Gibson Genera	Gibson	560527.45	4242535.03	38.80	4770.06	122.94	Included	Included
1804300004	Duke Energy Indiana, LLC-Gallagher Gene	Floyd	601824.64	4236524.85	39.64	115.44	2.91	Excluded	Excluded
1814700020	Indiana Michigan Power DBA AEP Rockport	Spencer	498268.96	4199024.97	77.73	1875.36	24.13	Included	Included
1803700010	JASPER SEATING CO INC	Dubois	506237.27	4249636.56	81.54	0.29	0.00	Excluded	Excluded
1803700107	Jasper Seating Co Inc Plant 70	Dubois	506274.51	4249718.28	81.55	0.09	0.00	Excluded	Excluded
1811700014	Jasper Seating Plant 15	Orange	547793.81	4277543.51	76.03	3.59	0.05	Excluded	Excluded
1803700007	Jasper Seating Plant 80	Dubois	506384.81	4249246.84	81.21	0.14	0.00	Excluded	Excluded
1803700100	Kimball International Inc. - 15th Stree	Dubois	507108.67	4250259.66	81.13	4.35	0.05	Excluded	Excluded
1801900079	KOETTER WOODWORKING INC	Clark	593207.14	4252016.23	48.53	2.39	0.05	Excluded	Excluded
1809300028	Lawrence Generating Station	Lawrence	546041.90	4287259.33	85.73	131.29	1.53	Excluded	Excluded
1801900008	Lehigh Cement Company LLC	Clark	608949.55	4252239.98	56.37	475.87	8.44	Excluded	Excluded
1809300002	Lehigh Cement Company LLC	Lawrence	546925.39	4287771.25	85.91	1777.79	20.69	Excluded	Excluded
1803700052	Masterbrand Cabinets Inc Decora No 3	Dubois	507891.74	4246695.82	78.61	1.65	0.02	Excluded	Excluded
1803700051	MasterBrand Cabinets, Inc-# 4/22	Dubois	511333.21	4230193.62	68.41	3.00	0.04	Excluded	Excluded
1814300007	MULTI COLOR CORPORATION	Scott	606673.44	4279799.07	79.34	4.48	0.06	Excluded	Excluded
1803700048	National Office Furniture NOF Jasper 11	Dubois	505333.83	4247289.14	81.11	1.06	0.01	Excluded	Excluded
1803700102	OFS Brands, Inc	Dubois	503390.13	4239444.40	79.26	4.44	0.06	Excluded	Excluded
1801900018	PQ CORP	Clark	609479.76	4237314.91	45.60	57.16	1.25	Excluded	Excluded
1807100038	RUMPKE OF INDIANA L L C MEDORA SANITAR	Jackson	569371.86	4302398.91	95.82	2.49	0.03	Excluded	Excluded
1811700010	TEXAS EASTERN TRANSMISSION LP	Orange	528752.94	4263739.07	73.75	47.67	0.65	Excluded	Excluded
1810100001	United States Gypsum Company	Martin	524980.68	4281372.43	90.15	189.06	2.10	Excluded	Excluded
1812300019	Waupaca Foundry Inc Plant 5	Perry	520295.85	4204156.06	55.38	90.81	1.64	Excluded	Excluded

Table C-2
Indiana Offsite Inventory
NO_X Sources

Facility ID	Facility Name	NO_X Estimated Emissions (TPY) 2021	Prefix	Prefix Index	SRCID	UTMe16	UTMn16	County	TYPE	Q (g/s)	Hs (m)	Ts (K)	Vs (m/s)	Ds (m)
1805100013	Duke Energy Indiana LLC - Gibson Genera	2.135E+03	DEI	1	DEI01	560527.45	4242535.03	Gibson	Vertical	6.143E+01	188.98	327.59	21.34	7.62
1805100013	Duke Energy Indiana LLC - Gibson Genera	7.135E+02	DEI	2	DEI02	560527.45	4242535.03	Gibson	Vertical	2.052E+01	188.98	327.59	22.56	7.62
1805100013	Duke Energy Indiana LLC - Gibson Genera	9.877E+02	DEI	3	DEI03	560527.45	4242535.03	Gibson	Vertical	2.841E+01	152.40	335.93	21.34	7.16
1805100013	Duke Energy Indiana LLC - Gibson Genera	9.335E+02	DEI	4	DEI04	560527.45	4242535.03	Gibson	Vertical	2.685E+01	152.40	327.59	21.34	7.16
1814700020	Indiana Michigan Power DBA AEP Rockport	1.861E+03	IMP	1	IMP01	498268.96	4199024.97	Spencer	Vertical	5.352E+01	316.38	429.82	33.58	12.95
1814700020	Indiana Michigan Power DBA AEP Rockport	1.362E+01	IMP	2	IMP02	498268.96	4199024.97	Spencer	Vertical	3.919E-01	91.44	650.37	34.44	3.35
1814700020	Indiana Michigan Power DBA AEP Rockport	2.545E-01	IMP	3	IMP03	498268.96	4199024.97	Spencer	Vertical	7.320E-03	6.10	616.48	17.62	0.56
1814700020	Indiana Michigan Power DBA AEP Rockport	4.444E-01	IMP	4	IMP04	498268.96	4199024.97	Spencer	Vertical	1.278E-02	6.10	616.48	17.62	0.56
1814700020	Indiana Michigan Power DBA AEP Rockport	4.242E-01	IMP	5	IMP05	498268.96	4199024.97	Spencer	Vertical	1.220E-02	6.10	616.48	17.62	0.56

Table C-19
Indiana Offsite Inventory
PM10 Facilities

						SEARCH DOMAIN (km)		52.1	56.8
							SIA (km)	2.1	6.8
FIPS	**Facility Name**	**County**	**UTM16e (m)**	**UTM16n (m)**	**Distance (Km)**	**PM10 (TPY) 2020**	**Q/D PM10**	**Annual List**	**24hr List**
1803700031	ANR Pipeline Co Celestine Compressor St	Dubois	519289.4731	4248260.457	69.9448	16.8019434	0.2402172	Excluded	Excluded
1801900097	Clark-Floyd Landfill	Clark	601106.1758	4256166.993	55.5724	0.06764	0.0012172	Excluded	Excluded
1814700041	Cleveland-Cliffs Steel Corporation, Roc	Spencer	497042.4005	4203750.915	78.6285	40.5205339	0.5153416	Excluded	Excluded
1803700023	Dubois Wood Products, Inc	Dubois	504393.6742	4238980.409	78.1568	0.0380493	0.0004868	Excluded	Excluded
1805100013	Duke Energy Indiana LLC - Gibson Genera	Gibson	560527.4468	4242535.031	38.8001	1480.3067	38.152121	Included	Included
1804300004	Duke Energy Indiana, LLC-Gallagher Gene	Floyd	601824.6418	4236524.849	39.641	12.826125	0.323557	Excluded	Excluded
1814700020	Indiana Michigan Power DBA AEP Rockport	Spencer	498268.9562	4199024.966	77.7318	276.442588	3.5563623	Excluded	Excluded
1803700010	JASPER SEATING CO INC	Dubois	506237.2675	4249636.563	81.5411	2.8420118	0.0348538	Excluded	Excluded
1803700107	Jasper Seating Co Inc Plant 70	Dubois	506274.5128	4249718.285	81.5524	0.0109363	0.0001341	Excluded	Excluded
1811700014	Jasper Seating Plant 15	Orange	547793.8058	4277543.505	76.0283	0.319146	0.0041977	Excluded	Excluded
1803700007	Jasper Seating Plant 80	Dubois	506384.8138	4249246.84	81.2111	1.3695175	0.0168637	Excluded	Excluded
1803700100	Kimball International Inc. - 15th Stree	Dubois	507108.6699	4250259.663	81.1331	9.3806911	0.115621	Excluded	Excluded
1817500007	KIMBALL OFFICE SALEM	Washington	579606.1022	4274089.341	67.4204	0.45011691	0.0066763	Excluded	Excluded
1801900007	Kitchen Kompact Inc	Clark	610506.8684	4238262.284	46.9926	1.65	0.0351119	Excluded	Excluded
1801900079	KOETTER WOODWORKING INC	Clark	593207.1388	4252016.233	48.5307	16.2211303	0.3342444	Excluded	Excluded
1809300028	Lawrence Generating Station	Lawrence	546041.9032	4287259.332	85.733	2.83754631	0.0330975	Excluded	Excluded
1801900008	Lehigh Cement Company LLC	Clark	608949.5503	4252239.975	56.3677	432.055815	7.6649531	Excluded	Excluded
1809300002	Lehigh Cement Company LLC	Lawrence	546925.3908	4287771.254	85.9147	336.658769	3.9185248	Excluded	Excluded
1803700052	Masterbrand Cabinets Inc Decora No 3	Dubois	507891.7382	4246695.818	78.6051	26.3354	0.3350344	Excluded	Excluded
1803700051	MasterBrand Cabinets, Inc-# 4/22	Dubois	511333.2071	4230193.624	68.408	71.228	1.0412238	Excluded	Excluded
1814300007	MULTI COLOR CORPORATION	Scott	606673.444	4279799.072	79.3443	0.340822	0.0042955	Excluded	Excluded
1802500002	Mulzer Crushed Stone Inc (Cape Sandy Fa	Crawford	556499.6094	4220934.378	23.7788	136.646617	5.7465712	Excluded	Excluded
1803700048	National Office Furniture NOF Jasper 11	Dubois	505333.832	4247289.139	81.1138	1.34862375	0.0166263	Excluded	Excluded
1814700044	NATIONAL OFFICE FURNITURE NOF SANTA CL	Spencer	504662.6711	4217678.001	71.7806	0.13603	0.0018951	Excluded	Excluded
1803700054	OFS BRANDS INC PLNT NO 1	Dubois	501710.8805	4240381.075	81.1785	0.748885	0.0092252	Excluded	Excluded
1803700102	OFS Brands, Inc	Dubois	503390.1297	4239444.403	79.2623	0.99498	0.012553	Excluded	Excluded
1801900018	PQ CORP	Clark	609479.7579	4237314.906	45.5954	1.97041936	0.0432153	Excluded	Excluded
1807100038	RUMPKE OF INDIANA L L C MEDORA SANITAR	Jackson	569371.8648	4302398.915	95.815	12.0100222	0.1253459	Excluded	Excluded
1811700010	TEXAS EASTERN TRANSMISSION LP	Orange	528752.9414	4263739.071	73.7516	2.10368318	0.0285239	Excluded	Excluded
1810100001	United States Gypsum Company	Martin	524980.6766	4281372.431	90.1471	245.919194	2.727978	Excluded	Excluded
1812300019	Waupaca Foundry Inc Plant 5	Perry	520295.8505	4204156.065	55.3789	153.291775	2.7680516	Excluded	Excluded

Table C-2
Kentucky Offsite Inventory
PM10 Sources

Facility ID	Facility Name	PM10 Estimated Emissions (TPY) 2020	Prefix	Prefix Index	SRCID	UTMe16	UTMn16	TYPE	Q (g/s)	Hs (m)	Ts (K)	Vs (m/s)	Ds (m)
1805100013	Duke Energy Indiana LLC - Gibson Genera	657.900537	DEI	1	DEI01	560527.45	4242535.03	Vertical	18.925593	188.98	327.59	21.336	7.62
1805100013	Duke Energy Indiana LLC - Gibson Genera	265.920223	DEI	2	DEI02	560527.45	4242535.03	Vertical	7.6496334	188.98	327.59	22.5552	7.62
1805100013	Duke Energy Indiana LLC - Gibson Genera	273.939592	DEI	3	DEI03	560527.45	4242535.03	Vertical	7.8803237	152.40	335.93	21.336	7.16
1805100013	Duke Energy Indiana LLC - Gibson Genera	234.066842	DEI	4	DEI04	560527.45	4242535.03	Vertical	6.7333184	152.40	327.59	21.336	7.16

Appendix D: Class I Visibility Analysis

The most commonly used model for analyzing long-range pollutant transport (i.e., distances greater than 50 km) is the CALPUFF modeling system. The most recent EPA-approved version (Version 5.8.5, level 151214) of the CALPUFF model was used to determine the possible impacts of the Project on Class I area AQRVs at the Mammoth Cave National Park.

CALPUFF is a multi-layer, multi-species, non-steady-state Lagrangian puff model, which can simulate the effects of time and space varying meteorological conditions on pollutant transport, transformation, and removal. For this analysis, meteorological fields generated by CALMET were used as inputs to the CALPUFF model. CALMET is the meteorological preprocessor for the CALPUFF model.

The modeling analysis was performed using CALPUFF default options as specified in the 2010 report by the Federal Land Managers' Air Quality Related Values Work Group (FLAG) report and the Interagency Workgroup on Air Quality Modeling (IWAQM) report of 1998. The following sections describe the modeling domain, meteorological data, background concentrations, and model implementation that were used for the analysis of the Project.

1. Modeling Domain

The Class I area modeling analysis was performed using a Lambert Conformal Conic (LCC) coordinate system based on the CALMET simulations that were developed to support the Best Available Retrofit Technology (BART) air quality modeling efforts for the Visibility Improvement State and Tribal Association of the Southeast (VISTAS). VISTAS Domain 3 was utilized as the CALMET meteorological domain.

For the Class I area AQRV analyses, the CALPUFF computational domain encompassed the Project sources and Mammoth Cave with a minimum of 50 km buffer distance to the edge of the domain. The horizontal domain resolution was set to 4 km. The vertical domain was composed of terrain-following grid cells, the number and size of which are chosen so as to constrain the boundary layer in which the atmospheric dispersion and chemical transformations take place. Based on information available in the VISTAS BART Air Quality Modeling Protocol[1] and the IWAQM guidance document, the vertical grid structure selected for this analysis consisted of eleven (11) layers based at the following heights: surface, 20, 40, 80, 160, 320, 640, 1200, 2000, 3000, and 4000m, which provided sufficient resolution of the boundary layer.

2. Emission Sources

The emission rates for the AQRV analysis were based on the 24-hour maximum potential emissions and include all Project sources as described in Appendix B. Tables D-1 to D-8 summarize the CALPUFF source inputs. The AREA sources were modified from their AERMOD representations to accommodate CALPUFF modeling needs in that they were represented with polygons of 4 corners. The slag processing area sources were combined into a single area source. In all cases, the total area of the sources was identical to each source as modeled in

[1] http://www.weblakes.com/products/calpuff/resources/docs/BARTProtocolDraft_20050322.pdf

AERMOD. The road emissions in CALPUFF were represented with a single volume source centered at the facility with a characteristic dimension of the overall source area (500 m), divided by 4.3. The emissions from the three buoyant line sources were combined into a single monovent emission source (RMMV). Point sources with ambient exhaust temperatures were modeled with a constant exhaust temperature of 273.15 K.

Table D-1: Point Source Locations

Modeling ID	Source Description	LCC-X (km)	LCC-Y (m)	ELV (m)
EU01	Melt Shop - Baghouse	943.59	-164.27	140.82
EU01F	Melt Shop - Fugitives	943.76	-164.33	140.82
EP0103	Vacuum Degasser	943.85	-164.32	140.82
EP0105_1	Caster Spray Vent	943.86	-164.23	140.82
EP0105_2	Caster Spray Vent	943.86	-164.29	140.82
EP0107	Melt Shop Baghouse Dust Silo and Loadout	943.68	-164.26	140.82
EP0111	Caster Quench Box	943.90	-164.24	140.82
EP0113	Ingot Grinding (Baghouse)	943.92	-164.13	140.82
EP0301	Walking Beam Reheat Furnace	943.96	-164.31	140.82
EP0302	Ingot Bogie Hearth Furnaces	943.90	-164.17	140.82
EP0304	Steckel Mill Finishing Stand	944.19	-164.30	140.82
EP0305_1	Steckel Mill Coiling Furnaces	944.17	-164.29	140.82
EP0306	Coil Sample Plasma Cutter - Baghouse	944.29	-164.22	140.82
EP0401	Shot Blaster	944.31	-164.38	140.82
EP0402	Austenitizing Furnace	944.36	-164.38	140.82
EP0403	Tempering Furnace	944.46	-164.39	140.82
EP0501	Heavy Plate Car Bottom Furnaces #1-#4	944.00	-164.17	140.82
EP0503_1	Heavy Plate Burning Beds #1	944.01	-164.10	140.82
EP0503_2	Heavy Plate Burning Beds #2	944.07	-164.11	140.82
EP0503_3	Heavy Plate Burning Beds #3	943.97	-164.10	140.82
EP1701A	Light Plate Burning Beds #1A	944.63	-164.45	140.82
EP1701B	Light Plate Burning Beds #1B	944.63	-164.45	140.82
EP1701C	Light Plate Burning Beds #2C	944.72	-164.46	140.82
EP1701D	Light Plate Burning Beds #2D	944.72	-164.47	140.82
EP0601	EAF Flux & Carbon Handling	943.82	-164.39	140.82
EP0602_1	Lime Silo 1	943.75	-164.34	140.82
EP0602_2	Lime Silo 2	943.75	-164.35	140.82
EP0602_3	Lime Silo 3	943.75	-164.35	140.82
EP0604	Carbon Silo 1	943.75	-164.36	140.82
EP0605	LMF Alloy Handling	943.81	-164.41	140.82
EP0901_1	Melt Shop ICW Cooling Tower, System 100 - Cell 1	943.76	-164.18	140.82

Table D-1: Point Source Locations (continued)

Modeling ID	Source Description	LCC-X (km)	LCC-Y (m)	ELV (m)
EP0901_2	Melt Shop ICW Cooling Tower, System 100 - Cell 2	943.77	-164.18	140.82
EP0901_3	Melt Shop ICW Cooling Tower, System 100 - Cell 3	943.78	-164.18	140.82
EP0902_1	Melt Shop DCW Cooling Tower, System 200 - Cell 1	943.77	-164.22	140.82
EP0902_2	Melt Shop DCW Cooling Tower, System 200 - Cell 2	943.77	-164.22	140.82
EP0904_1	Rolling Mill DCW Cooling Tower, System 400 - Cell 1	944.05	-164.38	140.82
EP0904_2	Rolling Mill DCW Cooling Tower, System 400 - Cell 2	944.06	-164.38	140.82
EP0904_3	Rolling Mill DCW Cooling Tower, System 400 - Cell 3	944.07	-164.39	140.82
EP0905_1	Rolling Mill ACC ICW Cooling Tower, System 500	944.06	-164.33	140.82
EP0905_2	Rolling Mill ACC ICW Cooling Tower, System 500	944.07	-164.33	140.82
EP0906_1	HP Quench DCW Cooling Tower, System 600 - Cell 1	943.99	-164.15	140.82
EP0906_2	HP Quench DCW Cooling Tower, System 600 - Cell 2	943.99	-164.15	140.82
EP0906_3	HP Quench DCW Cooling Tower, System 600 - Cell 3	943.98	-164.15	140.82
EP0906_4	HP Quench DCW Cooling Tower, System 600 - Cell 4	943.99	-164.15	140.82
EP0907_1	Laminar DCW Cooling Tower, System 700 - Cell 1	944.20	-164.33	140.82
EP0907_2	Laminar DCW Cooling Tower, System 700 - Cell 2	944.21	-164.33	140.82
EP0907_3	Laminar DCW Cooling Tower, System 700 - Cell 3	944.22	-164.33	140.82
EP0908_1	Heat Treat Cooling Tower, System 800 - Cell 1	944.41	-164.40	140.82
EP0908_2	Heat Treat Cooling Tower, System 800 - Cell 2	944.42	-164.41	140.82
EP0908_3	Heat Treat Cooling Tower, System 800 - Cell 3	944.42	-164.41	140.82
EP0908_4	Heat Treat Cooling Tower, System 800 - Cell 4	944.42	-164.41	140.82
EP0908_5	Heat Treat Cooling Tower, System 800 - Cell 5	944.43	-164.41	140.82
EP0908_6	Heat Treat Cooling Tower, System 800 - Cell 6	944.43	-164.41	140.82
EP0908_7	Heat Treat Cooling Tower, System 800 - Cell 7	944.44	-164.41	140.82
EP0908_8	Heat Treat Cooling Tower, System 800 - Cell 8	944.44	-164.41	140.82
EP0909_1	Air Separation Plant Cooling Tower - Cell 1	944.09	-164.47	140.82
EP0909_2	Air Separation Plant Cooling Tower - Cell 2	944.09	-164.47	140.82
EP0909_3	Air Separation Plant Cooling Tower - Cell 3	944.09	-164.48	140.82
EP0909_4	Air Separation Plant Cooling Tower - Cell 4	944.09	-164.48	140.82
EP1001	G100-1 Emergency Generator	943.79	-164.19	140.82
EP1002	G100-2 Emergency Generator	943.79	-164.22	140.82
EP1003	G100-3 Emergency Generator	943.87	-164.31	140.82
EP1004	G200-1 Emergency Generator	944.07	-164.28	140.82
EP1008	G300-1 Emergency Generator	944.46	-164.30	140.82
EP1009	G400-1 Emergency Generator	944.49	-164.40	140.82
EP1010	G500-1 Emergency Generator	944.08	-164.34	140.82
EP1101	ASU Emergency Generator	944.09	-164.52	140.82
EP1102	Admin Building Emergency Generator	944.49	-164.51	140.82
EP1204	Slag Plant Oxy Fuel-Fired Torches - Baghouse	943.65	-164.05	139.90

Table D-1: Point Source Locations (continued)

Modeling ID	Source Description	LCC-X (km)	LCC-Y (m)	ELV (m)
EP1301	Water Bath Vaporizer	944.17	-164.48	140.82
EP1801	B&P Line Preheater/Dryer Combustion	944.73	-164.11	140.82
EP1802	B&P Line Shot Blaster	944.72	-164.11	140.82
EP1803	B&P Line Painting Operations/RTO	944.70	-164.11	140.82
EP1301	Water Bath Vaporizer	944.17	-164.48	140.82

Table D-2: Point Sources Parameters and Emission Rates (g/s)

Modeling ID	H_S (m)	T_S (K)	V_S (m/s)	D_S (m)	PM_{10}	$PM_{2.5}$	NO_X	SO_2
EU01	54.86	355.37	19.14	7.92	9.28E+00	6.07E+00	1.43E+01	1.19E+01
EU01F	6.10	310.93	0.22	10.88	1.01E-01	7.45E-02	1.44E-01	1.20E-01
EP0103	47.00	377.04	5.10	0.40	7.83E-03	7.83E-03	1.71E-01	1.71E-01
EP0105_1	49.99	328.15	15.95	2.03	1.26E-01	1.58E-02	---	---
EP0105_2	49.99	328.15	15.95	2.03	1.26E-01	1.58E-02	---	---
EP0107	25.91	322.04	20.70	0.23	9.72E-03	9.72E-03	---	---
EP0111	22.25	328.15	18.80	1.37	6.76E-02	8.45E-03	---	---
EP0113	6.10	273.15	21.17	1.19	2.61E-01	1.31E-01	---	---
EP0301	87.00	544.26	9.79	2.80	5.90E-01	5.90E-01	3.18E+00	2.67E-02
EP0302	29.99	583.15	20.35	1.60	1.16E-01	1.16E-01	1.86E+00	9.12E-03
EP0304	25.91	322.04	17.79	1.22	2.17E-01	1.08E-01	---	---
EP0305_1	20.00	673.15	9.32	1.00	2.10E-02	2.10E-02	2.26E-01	1.66E-03
EP0306	6.10	322.04	15.95	1.06	5.55E-03	5.55E-03	6.87E-02	0.00E+00
EP0401	30.48	305.37	18.15	1.07	1.07E-01	1.07E-01	---	---
EP0402	30.48	623.15	18.63	1.58	6.97E-02	6.97E-02	1.47E+00	5.50E-03
EP0403	30.48	623.15	17.93	0.90	4.08E-02	4.08E-02	8.59E-01	3.22E-03
EP0501	29.99	922.04	7.53	2.90	1.73E-01	1.73E-01	1.86E+00	1.36E-02
EP0503_1	10.67	333.15	19.38	0.46	2.12E-03	2.12E-03	5.67E-02	5.03E-06
EP0503_2	10.67	333.15	19.38	0.46	2.12E-03	2.12E-03	5.67E-02	5.03E-06
EP0503_3	10.67	333.15	19.38	0.46	2.12E-03	2.12E-03	5.67E-02	5.03E-06
EP1701A	10.67	333.15	19.38	0.46	4.08E-03	4.08E-03	3.16E-02	1.44E-06
EP1701B	10.67	333.15	19.38	0.46	4.08E-03	4.08E-03	3.16E-02	1.44E-06
EP1701C	10.67	333.15	19.38	0.46	4.08E-03	4.08E-03	3.16E-02	1.44E-06
EP1701D	10.67	333.15	19.38	0.46	4.08E-03	4.08E-03	3.16E-02	1.44E-06
EP0601	15.24	273.15	17.46	0.20	3.84E-03	5.81E-04	---	---
EP0602_1	26.52	273.15	13.10	0.20	4.97E-03	4.97E-03	---	---
EP0602_2	26.52	273.15	13.10	0.20	4.97E-03	4.97E-03	---	---
EP0602_3	26.52	273.15	13.10	0.20	4.97E-03	4.97E-03	---	---
EP0604	26.52	273.15	9.70	0.30	4.97E-03	4.97E-03	---	---
EP0605	44.00	273.15	0.62	1.00	7.04E-03	1.07E-03	---	---
EP0901_1	11.74	322.04	8.46	7.92	2.16E-02	6.49E-05	---	---
EP0901_2	11.74	322.04	8.46	7.92	2.16E-02	6.49E-05	---	---
EP0901_3	11.74	322.04	8.46	7.92	2.16E-02	6.49E-05	---	---
EP0902_1	11.74	322.04	8.94	5.49	1.10E-02	3.34E-05	---	---
EP0902_2	11.74	322.04	8.94	5.49	1.10E-02	3.34E-05	---	---
EP0904_1	13.87	322.04	6.87	7.92	2.39E-02	7.53E-05	---	---
EP0904_2	13.87	322.04	6.87	7.92	2.39E-02	7.53E-05	---	---
EP0904_3	13.87	322.04	6.87	7.92	2.39E-02	7.53E-05	---	---

Table D-2: Point Sources Parameters and Emission Rates (g/s) (continued)

Modeling ID	H_S (m)	T_S (K)	V_S (m/s)	D_S (m)	PM_{10}	$PM_{2.5}$	NO_X	SO_2
EP0906_4	7.49	322.04	12.94	1.83	3.47E-03	1.06E-05	---	---
EP0907_1	13.87	322.04	7.65	7.92	2.02E-02	6.13E-05	---	---
EP0907_2	13.87	322.04	7.65	7.92	2.02E-02	6.13E-05	---	---
EP0907_3	13.87	322.04	7.65	7.92	2.02E-02	6.13E-05	---	---
EP0908_1	9.05	322.04	25.51	1.98	2.11E-03	6.33E-06	---	---
EP0908_2	9.05	322.04	25.51	1.98	2.11E-03	6.33E-06	---	---
EP0908_3	9.05	322.04	25.51	1.98	2.11E-03	6.33E-06	---	---
EP0908_4	9.05	322.04	25.51	1.98	2.11E-03	6.33E-06	---	---
EP0908_5	9.05	322.04	25.51	1.98	2.11E-03	6.33E-06	---	---
EP0908_6	9.05	322.04	25.51	1.98	2.11E-03	6.33E-06	---	---
EP0908_7	9.05	322.04	25.51	1.98	2.11E-03	6.33E-06	---	---
EP0908_8	9.05	322.04	25.51	1.98	2.11E-03	6.33E-06	---	---
EP0909_1	7.72	322.04	10.66	1.83	4.22E-03	1.27E-05	---	---
EP0909_2	7.72	322.04	10.66	1.83	4.22E-03	1.27E-05	---	---
EP0909_3	7.72	322.04	10.66	1.83	4.22E-03	1.27E-05	---	---
EP0909_4	7.72	322.04	10.66	1.83	4.22E-03	1.27E-05	---	---
EP1001	2.17	749.54	33.39	0.38	7.63E-04	7.63E-04	---	2.25E-03
EP1002	3.00	673.15	43.96	0.46	3.04E-03	3.04E-03	---	4.49E-03
EP1003	3.00	673.15	43.96	0.46	3.04E-03	3.04E-03	---	4.49E-03
EP1004	2.17	749.54	33.39	0.38	7.63E-04	7.63E-04	---	2.25E-03
EP1008	2.17	749.54	33.39	0.38	7.63E-04	7.63E-04	---	2.25E-03
EP1009	2.17	749.54	33.39	0.38	7.63E-04	7.63E-04	---	2.25E-03
EP1010	3.76	797.15	61.30	0.27	9.74E-04	9.74E-04	---	2.16E-03
EP1101	1.98	1005.37	38.92	0.20	3.56E-04	3.56E-04	---	2.59E-04
EP1102	1.52	963.15	27.83	0.10	1.01E-04	1.01E-04	---	7.37E-05
EP1204	12.19	333.15	17.82	1.42	9.54E-03	9.54E-03	1.25E-01	7.48E-04
EP1301	6.10	477.59	17.63	0.30	2.72E-02	2.72E-02	1.79E-01	2.15E-03
EP1801	21.34	394.26	16.77	0.30	7.09E-07	7.09E-07	9.33E-06	5.60E-08
EP1802	21.34	305.37	20.21	0.61	3.89E-02	3.89E-02	---	---
EP1803	21.34	322.04	14.10	0.76	6.62E-02	6.62E-02	7.36E-02	1.78E-04

Table D-3: Volume Source Locations

Modeling ID	Source Description	LCC-X (km)	LCC-Y (km)	ELV (m)
PSVENT1	Plate Storage Labyrinth Vent #1	944.66	-164.35	140.82
PSVENT2	Plate Storage Labyrinth Vent #2	944.66	-164.39	140.82
HPVENT	Heavy Plate Roof Vent	943.97	-164.15	140.82
EP0601F	EAF Flux & Carbon Dump Fugitive Emissions	943.82	-164.40	140.82
EP0603F	LMF Flux & Carbon Dump Fugitive Emissions	943.82	-164.40	140.82
EP0605F	LMF Alloy Dump Fugitive Emissions	943.83	-164.37	140.82
EP0801	Barge Scrap Unloading	943.60	-163.60	125.80
EP1201_2	Slag Feed	943.66	-164.10	139.90
EP1201_3	Slag Magnet	943.63	-164.10	139.90
EP1201_4	Slag Screener	943.62	-164.11	139.90
EP1201_5	Slag Crushing	943.64	-164.12	139.90
EP1203	Pot Slagging	943.68	-164.08	139.90
Roads	Paved and Unpaved	944.27	-164.26	141.49

Table D-4: Volume Source Parameters and Emission Rates (g/s)

Modeling ID	H_S (m)	S_{Y0}(m)	S_{Z0}(m)	PM_{10}	$PM_{2.5}$	NO_X	SO_2
PSVENT1	21.67	1.42	9.01	2.63E-02	2.63E-02	6.21E-02	1.79E-07
PSVENT2	21.67	1.42	9.01	2.63E-02	2.63E-02	6.21E-02	1.79E-07
HPVENT	29.75	0.71	12.77	3.42E-06	3.42E-06	---	---
EP0601F	4.57	1.06	2.13	1.28E-02	1.94E-03	---	---
EP0603F	4.57	1.06	2.13	1.28E-02	1.94E-03	---	---
EP0605F	4.57	1.06	2.13	1.28E-02	1.94E-03	---	---
EP0801	10.00	3.49	6.98	1.13E-02	3.25E-03	---	---
EP1201_2	5.00	1.42	2.84	1.04E-02	2.94E-03	---	---
EP1201_3	3.00	1.42	2.13	2.85E-03	8.04E-04	---	---
EP1201_4	3.00	1.42	2.13	4.98E-02	5.18E-03	---	---
EP1201_5	3.00	1.42	2.13	9.49E-03	1.99E-03	---	---
EP1203	5.00	1.42	2.84	3.93E-04	1.11E-04	---	---
Roads	2.55	116.28	2.37	4.49E-01	5.50E-02	---	---

Table D-5: Area Source Locations

Modeling ID	Source Description	LCC-X (km)	LCC-Y (km)	ELV (m)
EP1201_1	Slag Dump/Ball Drop/Tundish Dump	943.68	-164.12	139.90
EP1202_1	1.25 Minus Slag Storage Pile	943.61	-164.15	139.90
EP1202_2	2.75 Minus Slag Storage Pile	943.58	-164.14	139.90
EP1202_3	Overflow Storage Pile	943.60	-164.20	139.90

Table D-6: Area Source Parameters and Emission Rates (g/s/m²)

Modeling ID	H_S (m)	L_X(m)	L_Y(m)	S_{Z0}(m)	PM_{10}	$PM_{2.5}$	NO_X	SO_2
EP1201_1	2.44	28.45	28.45	1.13	3.06E-05	1.17E-05	---	---
EP1202_1	9.14	28.45	28.45	4.25	3.85E-06	5.77E-07	---	---
EP1202_2	9.14	24.64	24.64	4.25	2.97E-06	4.46E-07	---	---
EP1202_3	3.05	49.28	49.28	1.42	5.34E-07	8.04E-08	---	---

Table D-7: Buoyant Line Source Locations

Modeling ID	Source Description	LCC-X (km)	LCC-Y (km)	ELV (m)
BLINE	Combined Monovent	943.988	-164.248	140.82
		944.368	-164.288	

Table D-8: Buoyant Line Source Parameters and Emission Rates (g/s)

Modeling ID	H (m)	F'(m^4/s^3)	L_M(m)	W_M(m)	PM_{10}	$PM_{2.5}$	NO_X	SO_2
RMMV	30.2	813.37	344.96	3.66	5.14E-01	3.14E-01	4.03E-01	3.29E-03
	H_B = 30.27 m; W_B = 42.67 m; dX = 0 m							

3. AQRV particulate emissions speciation

Modeling of visibility impairment due to particulate matter (PM) emissions requires that the PM emissions be speciated since different sizes and species of particulate matter affect visibility to varying extents. The amount by which a certain species scatters or absorbs light is termed the “extinction efficiency” or “extinction coefficient”, and varies considerably based on both size and composition. Fine particulate matter and organic aerosols scatter light with intermediate efficiencies, while ammonium sulfate and ammonium nitrate, potential precursors to SO_2 and NOx, are hygroscopic species that scatter light more efficiently in the presence of ambient water vapor. For the modeled natural gas combustion sources, the PM speciation was based on guidance provided by the National Park Service for speciating PM from natural gas-fired combustion turbines.[2] The distribution and geometric mass mean diameter is presented in Table D-9. It was assumed that all filterable mass was in the fine ($PM_{2.5}$) size category.

The average particle diameter for each non-default speciated PM category was taken as the geometric mass mean diameter for that category. The geometric standard deviation was assumed to be zero. Default CALPUFF values for geometric mass mean diameter and geometric standard deviation were used for sulfate and nitrate particles.

The PM emissions were categorized into different light extinction species; Coarse Particulate (PMC, all particulate between 2.5 and 10 microns in diameter), Inorganic Fine Particulate (SOIL, inorganic particulate less than 2.5 microns in diameter), Secondary Organic Aerosol (SOA, particulate less than 2.5 microns in diameter), and Elemental Carbon (EC, particulate less than 2.5 microns in diameter). Table D-10 lists the proportion of each of these extinction species for the above particle size species. As a conservative approach, at the POSTUTIL stage, the light extinction of diesel’s PM0100 was assumed to be the same as natural gas PM0100 extinction.

Table D-9 Geometric Dimensions for PM Species for Natural Gas Combustion

Species	Mass Fraction	Cumulative Mass %	Geometric Mass Mean Diameter (microns)
PM0005	15	15	0.05
PM0010	25	40	0.10
PM0015	23	63	0.15
PM0020	15	78	0.20
PM0025	11	89	0.25
PM0100	11	100	1.00

[2] PM speciation for Gas Fired Turbines from National Parks Service http://nature.nps.gov/air/permits/ect/index.cfm

Table D-10: Light Extinction Species in Natural Gas Combustion

Species	PMC (Extinction Coefficient: 0.6 Mm^{-1} per $\mu g/m^3$)	SOIL (Extinction Coefficient: 1.0 Mm^{-1} per $\mu g/m^3$)	SOA (Extinction Coefficient: 4 Mm^{-1} per $\mu g/m^3$)	EC (Extinction Coefficient: 10 Mm^{-1} per $\mu g/m^3$)
PM0005	0%	0%	75%	25%
PM0010	0%	0%	75%	25%
PM0015	0%	0%	75%	25%
PM0020	0%	0%	75%	25%
PM0025	0%	0%	75%	25%
PM0100	0%	0%	75%	25%

4. Receptor Locations

The National Park Service (NPS) Air Resources Division (ARD) has developed a database of modeling receptors for all of the Class I areas in the United States. The database provides the location coordinates and elevation information for receptors for each Class I area. The applicable Class I area receptors were used for the Project modeling.

5. *CALMET Meteorological Processing*

CALMET compiles meteorological data from raw observations of surface and upper air conditions, precipitation measurements, mesoscale model output, and geophysical parameters into single hourly, gridded data set for input to CALPUFF. In this analysis, CALMET data developed for BART modeling analyses on behalf of VISTAS was used, specifically, the VISTAS Domain 3. The CALMET data were processed with the EPA-approved CALMET Version 5.8 for the years 2001 – 2003.

6. *CALPUFF Model Processing*

Using the meteorological data generated with CALMET, CALPUFF simulates the dispersion, deposition, and chemical transformation of discrete puffs of mass from emission sources. Each puff contains concentrations of NO_X, SO_2, nitrates, sulfates, and particulates and is advanced throughout the domain while deposition and chemical transformation processes take place. CALPUFF is a Lagrangian puff model, the principal advantages of which are that puffs can evolve dynamically and chemically over time and can respond to complex winds caused by terrain effects, stagnation, or recirculation.

The emissions data inputs for sources modeled with CALPUFF were discussed previously in the modeling report with respect to the Class II analysis. Downwash effects were determined for each emission source by using the EPA's BPIPPRIM downwash program. The AQRV analyses were performed with the deposition algorithms enabled.

A full resistance module is provided in CALPUFF for the computation of dry deposition rates of gases and particulate matter as a function of geophysical parameters, meteorological conditions, and pollutant species. An empirical scavenging coefficient approach using default options was enabled in CALPUFF to compute the depletion and wet deposition fluxes resulting from precipitation scavenging.

The CALPUFF model is capable of simulating linear chemical transformation effects by using pseudo-first-order chemical reaction mechanisms for the conversions of SO_2 to SO_4, and the conversion of NO_X, which consists of nitric oxide (NO) and nitrogen dioxide (NO_2), to NO_3 and nitric acid (HNO_3). In this analysis, chemical transformations involving five species (SO_2, SO_4, NO_X, HNO_3, and NO_3) were modeled.

7. *Ozone*

Ambient ozone concentrations can be input to the model as a background level or using hourly, spatially varying observations. For this modeling analysis, hourly ozone data were used. These hourly data were originally compiled by VISTAS for use in regional haze analysis. The data specific to VISTAS Domain 3 was used.

8. *Ammonia*

IWAQM Phase 2 recommends the use of spatially constant background ammonia concentrations to participate in the MESOPUFF II chemical transformation mechanism. In the absence of an extensive monitoring network for ammonia and because of the limitation of CALPUFF to simulate only a single, domain-average background ammonia level for each month of analysis, a single value was used. The default monthly values of 10 ppb for background ammonia were used in this analysis.

9. CALPUFF Processing Control

CALPUFF modeling was conducted using the recommended regulatory default options through the use of the MREG=1 option in CALPUFF. The integrated puff representation was used and puff splitting was conservatively disabled. Similarly, the most recent EPA-approved version of CALPOST (Version 7.2.0) was used to post-process the output from CALPUFF. The following is a summary of the major CALPUFF options that were used in this analysis:

- Pasquill-Gifford stability class-based dispersion was used.
- The Mesopuff II Chemical Transformation Mechanism (MCHEM=1) was used.
- Hourly ozone concentrations as reflected in the VISTAS data set were used for the chemistry mechanism. A value of 65 ppb was used to fill any missing hourly ozone data.
- A background ammonia concentration of 3 ppb was used.
- Wet removal and dry deposition were included.

10. CALPOST Post-processing

The CALPOST (Version 7.2.0) post-processor was used to compute the total deposition of nitrogen and sulfur within the Mammoth Cave NP for comparison with the Deposition Assessment Threshold (DAT), and the 24-hour average change in light extinction using CALPOST Method 8.

For estimating the extent of nitrogen and sulfur deposition, POSTUTIL was first used to combine the appropriate wet and dry fluxes of nitrogen-bearing species deposited as particles and gases. These combined fluxes were then processed using CALPOST to obtain the nitrogen deposition values.

CALPOST Method 8 was used to determine 24-hr changes in visibility. The 98^{th} percentile value for each year (i.e., the eighth highest value) was compared to the FLM recommended visibility level of 5% daily change.

11. Class I Visibility Modeling Results

A visibility impairment analysis was performed to determine if the proposed facility would have a significant impact on visibility at the Class I area. CALPOST Method 8 (Mode 5) was used to determine the potential impacts on visibility. The worst-case 98^{th} percentile 24-hour change in visibility (i.e., the 8^{th} high value) due to emissions from the Project impacts on Mammoth Cave was used to compare to a daily visibility significance level of 5% visibility change. The results of visibility analyses conducted are shown in Table D-11.

Table D-11 Visibility Analysis for Mammoth Cave NP

YEAR	DAY	RANK	BEXT(Model)	BEXT(BKG)	BEXT(Total)	%CHANGE
2001	280	8th	0.257	21.840	22.097	**1.18**
2002	303	8th	0.255	21.840	22.095	**1.17**
2003	218	8th	0.267	22.121	22.388	**1.21**

The daily change in visibility level is less than the 5% visibility change threshold. Therefore no further analysis will be necessary.

AQRV Analysis – Sulfur and Nitrogen Deposition

Sulfur and nitrogen deposition analyses were performed to determine if the proposed facility could have a potential significant impact on sulfur and nitrogen deposition in the Mammoth Cave Class I area. The total deposition (wet and dry fluxes) of sulfur dioxide (SO_2) and sulfate (SO_4) were used to determine the project S loading for comparison to the deposition analysis threshold (DAT)[3]. Similarly, the total deposition (wet and dry fluxes) of nitrogen oxides (NO_X – dry deposition only), nitrate (NO_3), and nitric acid (HNO_3) were used to determine the project N loading for comparison to the DAT. Using the hourly CALPUFF flux model output for SO_2, SO_4, NO_X, NO_3, and HNO_3 and the POSTUTIL program to sum the wet and dry deposition values, the total S and N deposition flux (“loading”), in terms of kilogram/(hectare-year) were calculated through the CALPOST post-processing program. The results of sulfur and nitrogen DATs for eastern Class I areas are shown in Table D-12.

Table D-12 Summary of Deposition Analysis

Class I Area	Model Year	Species	Modeled Flux Rate (kg/ha/yr)	Threshold Value (kg/ha/yr)	Species	Modeled Flux Rate (kg/ha/yr)	Threshold Value (kg/ha/yr)
Mammoth Cave NP	2001	Sulfate	3.02E-03	0.01	Nitrate	2.83E-03	0.01
	2002		2.81E-03			3.01E-03	
	2003		3.60E-03			3.08E-03	

The maximum modeled DAT values for both nitrate and sulfate are less than the DAT threshold. Therefore no further analysis is required.

[3] Federal Land Managers’ Interagency Guidance for Nitrogen and Sulfur Deposition Analyses, National Park Service, Natural Resource report NPS/NRSS/ARD/NRR – 2001/465, November 2011