NUCOR CORPORATION
1915 Rexford Road
Charlotte, NC 28211
704.366.7000

March 22, 2022

Mr. Joseph R. Kessler
West Virginia Department of Environmental Protection
Division of Air Quality – Permitting Division
601 57th Street SE
Charleston, WV 25304

RE: Nucor Steel West Virginia – R14 Air Permit Application

Dear Mr. Kessler:

On January 21, 2022, Nucor Steel West Virginia, LLC ("Nucor") submitted an application to obtain a Permit to Construct a new sheet mill facility to be located in Mason County, West Virginia ("West Virginia Steel Mill"). The West Virginia Steel Mill will be considered a major source with respect to the Prevention of Significant Deterioration (PSD) permit program and requires a permit in accordance with West Virginia Code of State Rules (CSR), Title 45, Series 14 (45CSR14).

With this submittal, Nucor is revising certain components of the 45CSR14 application to provide corrections and clarifications to the original application submittal. Those revisions are summarized below:

- Revised various typographical errors in the application
- Revised the naming convention for certain sources to clarify the emission unit versus the emissions control device
- Removed the following emission sources: 3 Pickling Line Boilers, Hot Mill Furnace 2, Alloy Storage Bins, Carbon Surge Bins, Pickling Line 2, Skin Pass Mill 3, and Scarfing Machine from the design of the WV Mill
- Application Narrative Section 3 – Regulatory Applicability Summary
    - 45CSR7 – Addressed the applicability of Rule 7 to the hydrochloric acid mist from the exhaust of the pickling line scrubbers
    - 45CSR10 – Addressed the applicability of Rule 10 to the EAFs and the installation of SO_2 CEMS as the proposed compliance method
    - 45CSR21 – Removed reference to Rule 21 as it does not apply to Mason County, the proposed location for the West Virginia Steel Mill
- Application Narrative Section 4 – BACT Analysis:

NUCOR CORPORATION
1915 Rexford Road
Charlotte, NC 28211
704.366.7000

  - Clarified that Nucor will be installing oxy-fuel burners on the EAF's for NO_X emissions control
  - Clarified that a combined scrubber and mist eliminator will be installed for the Pickling Lines and separate mist eliminators will be installed for the Galvanizing Lines, Tandem Mill, and Temper Mill
  - Revised the Box Annealing Furnace, Tandem Cold Mill, Skin Pass Mill, and Rolling Mill BACT limits to match vendor guarantees
  - Added a PM/PM_{10}/$PM_{2.5}$ BACT section for the Vacuum Tank Degassers
- Application Narrative Appendix D – Added the PSD Modeling Analysis
- Attachment A – Provided the West Virginia Business Certificate
- Attachment J – Added stack parameters that were not previously available
- Attachment L – Added process material throughputs for material handling sources
- Attachment N – Supporting Emission Calculations:
  - Added a column to the Emission Summary providing emissions of Total PM (including condensable)
  - Provided clarifications regarding the source of PM, lead, and fluoride emission factors presented in the PTE calculations input section
  - Revised the EAF fugitive emission calculation to account for a 95 percent DEC capture efficiency and represent fugitives during charging, tapping, and slagging operations
  - Revised the EAF VOC emission factor to match the BACT analysis section
  - Reduced proposed operating hours for emergency engines from 500 hours per year to 100 hours per year to correspond to the NSPS and NESHAP allowable non-emergency operating hours
  - Revised the exhaust flow rates for DRI Storage Silos, Rolling Mill, Pickling Line, Tandem Cold Mill, Skin Pass Mills, and Galvanizing Lines to match vendor guarantees
  - Revised the PM emission factors for Subentry Nozzle Preheaters to match EPA's AP-42 factors for natural gas combustion
  - Revised the heat input capacity of the Galvanizing Furnaces and the Box Annealing Furnaces to match vendor design data
  - Standardized the sizes of the material handling storage piles to be consistent with other Nucor operations
  - Reduced the conservativism of the gasoline tank throughput
- Attachment P – Provided the Affidavit of Legal Notice

NUCOR CORPORATION
1915 Rexford Road
Charlotte, NC 28211
704.366.7000

If you have any questions or comments regarding this air permit application, please do not hesitate to call Mr. William Bruscino with Trinity Consultants at (225) 274-5147 or me at (980) 244-9459.

Sincerely,

Sean Alteri
Environmental Manager

PSD AIR PERMIT APPLICATION
Nucor Steel West Virginia, LLC

Nucor Corporation
1915 Rexford Road
Charlotte, NC 28211
704.366.7000

Prepared By:

TRINITY CONSULTANTS
110 Polaris Parkway
Suite 200
Westerville, OH 43082
(614) 433-0733

Revised March 2022

Project 213601.0130

TABLE OF CONTENTS

LIST OF TABLES

1. APPLICATION OVERVIEW

Nucor Steel West Virginia, LLC (Nucor) is planning to build and operate a greenfield state-of-the-art sheet steel mill in Mason County, West Virginia (referred to as "West Virginia Steel Mill"). With this application, Nucor is requesting a Permit to Construct for the West Virginia Steel Mill in accordance with West Virginia Code of State Rules (CSR), Title 45, Series 14 (45CSR14).

Mason County is currently designated as "attainment" or "unclassified" for all regulated New Source Review (NSR) pollutants. As provided in the facility-wide emissions summary in Section 3 of this application, the West Virginia Steel Mill will be a major source with respect to the Prevention of Significant Deterioration (PSD) and the Title V operating permit programs. Under the PSD program, the West Virginia Steel Mill will be a major source for the following pollutants: carbon monoxide (CO), nitrogen oxides (NO_x), sulfur dioxide (SO_2), particulate matter less than or equal to ten microns (PM_{10}), particulate matter less than or equal to 2.5 microns ($PM_{2.5}$), volatile organic compounds (VOC), lead (Pb), fluoride excluding hydrogen fluoride (HF), and greenhouse gases (GHGs). Nucor has developed a PSD modeling analysis to demonstrate that the proposed project does not cause or contribute to a violation of any National Ambient Air Quality Standards (NAAQS) for these pollutants. That modeling analysis is provided in Appendix D of this application.

Section 2 (Construction Permit Request) of the application contains a process description, air emission source overview, and air emissions summary. Section 3 (Regulatory Applicability) of the application contains a state and federal regulatory applicability analysis for the proposed project. Section 4 (Best Available Control Technology Analysis) provides a summary of the EPA recommended 5-step top-down approach to determining the best available control technology (BACT) for applicable emission units. Additional background documentation from U.S. EPA's RACT/BACT/LAER Clearinghouse to support the BACT determinations is provided in Appendix C for reference.

Finally, Appendix A contains the WVDAQ R14 application form while Attachments A-S in Appendix B contain the following WVDAQ application components:

- Attachment A: West Virginia Business Certificate
- Attachment B: Site Map
- Attachment C: Installation and Start-up Schedule
- Attachment D: Regulatory Discussion
- Attachment E: Plot Plan
- Attachment F: Detailed Process Flow Diagrams
- Attachment G: Process Description
- Attachment H: Material Safety Data Sheets (MSDS)
- Attachment I: Emission Units Table
- Attachment J: Emission Points Data Summary Sheet
- Attachment K: Fugitive Emissions Data Summary Sheet
- Attachment L: Emission Unit Data Sheets
- Attachment M: Air Pollution Control Device Sheets
- Attachment N: Supporting Emission Calculations
- Attachment O: Monitoring/Recordkeeping/Reporting/Testing Plans
- Attachment P: Public Notice
- Attachment Q: Business Confidential Claims (Not Applicable)
- Attachment R: Authority Forms (Not Applicable)
- Attachment S: Title V Permit Revision Information (Not Applicable)

2. CONSTRUCTION PERMIT REQUEST

With this submittal, Nucor is requesting a Permit to Construct for the West Virginia Steel Mill. This section includes a detailed process description of the proposed West Virginia Steel Mill. A process flow diagram is provided in Appendix B for reference. The West Virginia Steel Mill will manufacture high quality sheets of steel primarily from scrap steel, direct reduced iron (DRI), and other scrap substitutes. Iron ore will not be processed at the proposed mill and the proposed mill will not utilize coke ovens or blast furnaces. The proposed West Virginia Steel Mill is expected to produce approximately 3 million tons of steel product per year. Nucor intends to commence construction of the West Virginia Steel Mill in April 2022 and startup operations by 2025. The proposed mill will include the following major processes:

Melt Shop
- Single-shell direct current (DC) electric arc furnaces (EAFs)
- Ladle metallurgy furnaces (LMF)
- Vacuum tank degasser (VTD)
- Continuous caster
- Ladle dryers and preheaters
- Tundish dryers and preheaters

Hot Mill
- Tunnel furnace
- Rolling mill

Cold Mill
- Pickling galvanizing lines
- Annealing furnaces
- Temper mill
- Skin pass mills

Auxiliary Processes
- Storage piles and silos
- Raw material, scrap, and slag transfer equipment
- Air Separation Unit
- Emergency engines
- Cooling towers
- Storage tanks
- Paved and unpaved roadways

2.1 Process Overview

2.1.1 Raw Material Storage and Handling

Various raw materials will be purchased from outside vendors and stored and handled at the facility prior to use in the steelmaking process.

2.1.1.1 Scrap Metal

Scrap steel will be transported to the facility by trucks, barge, and rail. Scrap material may include but not limited to sheet metal, rectangular scrap bundles, shredded scrap, plate scrap, structural scrap, pig iron, and miscellaneous scrap metal. The scrap will be delivered to the scrap yard, which will consist of various storage piles for the various types of steel scrap. The scrap will then be transported to the melt shop. At the melt shop, the scrap is transferred into charge buckets. Finished product chemistry and mechanical property requirements as well as cost and inventory balance factors determine the charge mix. Subsequently, overhead cranes bring the charge bucket into position over the EAF. Once in position, the charge bucket bottom opens, allowing scrap to fill the EAF.

Scrap will be unloaded from the barge via a clamshell or magnetic crane located on the dock and loaded into Euclid trucks for transport to scrap stockpiles. Railcars of scrap will be unloaded via a magnetic crane directly to stockpiles or into Euclid trucks for transport to scrap stockpiles. Trucks delivering scrap to the mill will dump the scrap directly to the scrap stockpiles. Potential emissions from scrap unloading to stockpiles from on-site Euclid trucks or off-site transport trucks, as well as from loading the scrap trucks from the stockpiles are included in the stockpile loading and unloading emission point. Emissions from transport of the scrap from the barge dock to the stockpiles and from the stockpiles to the melt shop are included in the unpaved road emission points.

2.1.1.2 Direct Reduced Iron (DRI)

Direct Reduced Iron (DRI) will be delivered to the facility by barge, unloaded and transported using a system of conveyors, and stored in silos controlled with bin vents prior to charging to the EAF.

The DRI will be unloaded from the barge via a clamshell crane located on the dock and transferred to a receiving hopper. The hopper will be equipped with side ventilation to capture potential PM emissions for control by dust collectors. From the bottom of the hopper, the DRI will be conveyed to storage silos. The DRI will then be conveyed from the bottom of the silos to a Day Bin located near the melt shop. From the Day Bin, the DRI will be transferred to the melt shop via conveyors where it will be added to the EAF charge through the roof of the EAF. The DRI Handling System will be an enclosed system, with the storage silos under nitrogen purge to “blanket” to minimize oxidation and maintain the material’s quality before charging.

The DRI storage silos and day bin will be equipped with bin vents to control potential PM emissions generated during the filling process. Dust collectors will also be used provide PM control at each conveyor transfer point. The DRI Handling System will include emergency bypass chutes located on DRI silos and at the end of DRI conveyors. The emergency bypass chutes are required to remove DRI from the system that cannot be fed to the furnaces (e.g., wet) or if there is an emergency with the nitrogen purge. Normal operation of the DRI Handling System will be shutdown if the emergency bypass chutes are needed to be used.

2.1.1.3 Carbon

Charge carbons will be transported to the site by truck. The carbon will be unloaded and transferred to a storage silo via truck dump stations and associated enclosed conveyor system or directly from a truck via pneumatic transfer. The storage silos will be equipped with fabric filter bin vents. From storage, the charge carbons will be introduced to the EAF as needed.

The Carbon Handling System will include a dump station and enclosed conveyor system that transfers carbon to the main storage silos. PM emissions from the carbon dump station are captured by a partially enclosed building and a dust collector. Carbon from this dump station is transferred to the carbon silo using an enclosed conveyor system. Transfer points located along the conveyor belt are enclosed and equipped with dust capture points tied to the system dust collector for PM control. The carbon silo is equipped with a bin vent to control PM emissions during silo loading.

2.1.1.4 Alloys

Several alloys are used to vary the chemical composition of the steel to specific customer and/or quality specifications. Bulk alloys are received by truck and transferred to storage bins inside the melt shop via dump stations and associated enclosed conveyor systems. The storage silos will be equipped with fabric filter bin vents. From storage, alloys will be introduced to the LMF and VTD as needed.

The Alloy Handling System will include a dump station and an enclosed conveyor system that will transfer the alloys to elevated storage bins located inside the melt shop. The storage bins will feed conveyors within the melt shop that will transfer the alloys to the LMF and VTD. PM emissions from the dump station will be captured by a partially enclosed building and controlled via a dust collector. Transfer points located along the conveyor belts will be enclosed and equipped with dust collectors. The storage bins will be located inside a building; each storage bin will be equipped with a passive bin vent to control any potential PM emissions that may be generated while the bins are being loaded.

2.1.1.5 Lime

Lime, a metallurgical flux, is used to remove phosphorus, sulfur, and silica from the liquid steel. Lime will be delivered to the site via truck and transferred to storage silos via lime dump stations and enclosed conveyor system. The storage silos will be equipped with fabric filter bin vents. The fluxing agents will be transferred to the melt shop for use in the EAF or LMF as needed.

The Lime Handling System will include a dump station and enclosed conveyor system that transfers lime to the lime storage silos. The lime storage silos also will have the capability of being loaded pneumatically directly from a truck. PM emissions from the lime dump station are captured by a partially enclosed building and a dust collector. Lime from this dump station is transferred to the silos using an enclosed conveyor system. Transfer points located along the conveyor belt are enclosed and equipped with dust capture points tied to the system dust collector for PM control. The lime silos are equipped with bin vents to control PM emissions during silo loading.

2.1.2 Melt Shop

The primary processing at the facility occurs in the melt shop. The feed materials are processed into liquid steel in the EAF and further refined in the LMF and vacuum tank degassers.

2.1.2.1 EAF Melting and Refining Operations

To initiate the steelmaking process, scrap material will be placed in each EAF. During a “cold” startup of EAF operations, loading of scrap will be accomplished using charge buckets, which are transported into position over the EAFs using overhead cranes. Once the charge bucket is in position, the furnace roof will pivot to the side, and the scrap will be charged to the furnace. Once charging is complete, the furnace roof will be re-positioned, and the steel will be preheated through natural gas fired oxyfuel burners. Once preheated, the furnace electrode will be lowered. Electrical power will be provided to increase the temperature of the scrap to beyond the steel melting point of approximately 3,000 degrees Fahrenheit (°F). The continued use of the natural gas fired oxyfuel burners promotes post combustion of gases in the furnace vapor space and introduces oxygen into the furnace for use in exothermic reactions within the melt.

During the melting process, fluxing agents (e.g., lime and injection carbon) will be used to remove impurities from the steel through the formation of “slag.” Oxygen and reducing agents (coal or coke) will be injected to make the slag foam. The low-density slag also provides insulation to reduce energy losses and improve heat transfer during the melting process.

Once steel melting in the EAF is complete, the contents of the furnace will be poured ("tapped") into a refractory-lined chamber ("ladle"), which will transport the molten steel to the ladle metallurgy furnaces (LMF) for further refining. A 10 to 20-ton "heel" of molten steel is typically left in the furnace after tapping in order to assist in the melting of the subsequent heat's scrap charges and to prevent damage to the furnace from thermal and mechanical shock during the next charge. The molten heel is periodically tapped out of the furnace so that the refractory can be inspected and repaired if needed. After tapping the molten heel, a "cold" startup is required, which requires greater than normal energy usage and batch time.

EAF emissions are generated during charging, melting, and tapping. In general, when the furnace roof is closed, emissions will be controlled by a direct-shell evacuation control (DEC) system, which is vented through a large diameter air-cooled duct to the melt shop baghouse for particulate control. When the furnace roof is open, emissions will be captured by the canopy hood above the EAF, which is also vented to the melt shop baghouse. Emissions that are not captured by the DEC system or the canopy hood may be released as fugitives from the melt shop building openings.

EAF dust collected in the melt shop baghouses will be pneumatically transferred to storage silos, which will be equipped with a fabric filter bin vent. The dust will be loaded into trucks or railcars beneath the silo to be transported to off-site disposal or reclamation facilities.

2.1.2.2 Ladle Metallurgy Furnace

The ladles of molten steel are transferred from the EAF to the LMF for final steel refining. Each LMF will consist of a combined furnace and stirring station. The introduction of additional materials, such as metal alloys or lime, will occur in the LMF in order to produce steel to meet specific customer requirements.

2.1.2.3 Vacuum Tank Degassing Operations

A portion of the steel will be further refined in the VTDs to reduce/eliminate dissolved gases, especially hydrogen, nitrogen, and carbon. Ladles are placed directly into the VTD for processing. During the degassing process, material additions are made for deoxidation, decarburization, and alloying. These materials will be supplied to the vacuum degasser by the Alloy Handling System. Once the ladle is enclosed in the VTD, mechanical pumps will be used to draw a vacuum on the ladle. The gas from the VTD is captured and first directed through a particulate filter to protect the mechanical pumps from the PM. The gas is then directed to a flare to control the excess carbon emissions, mainly CO.

2.1.2.4 Continuous Casting Operations

Once the molten steel achieves the desired properties in the LMF and/or VTD, the ladle will be removed and transported by overhead crane to a continuous casting machine. In the caster, steel will flow via a bottom slide gate from the ladle into another refractory-lined chamber ("tundish"). From the tundish, the molten steel will flow through a specially designed tundish nozzle into a thin slab caster. As the steel travels through the caster, it will be cooled with process water and formed into a continuous ribbon of steel.

2.1.3 Hot Mill

2.1.3.1 Tunnel Furnaces

After cooling, the ribbon of steel from the caster is sheared to length to form individual slabs and sent to the natural gas fired tunnel furnace. At the tunnel furnace, the slabs are heated to achieve a consistent temperature through the entire slab for feed to the hot rolling mill.

2.1.3.2 Rolling Mill

In the rolling mill each slab thickness is reduced to meet customer specification then cooled and coiled.

2.1.4 Cold Mill

2.1.4.1 Scale Breaker

A tension leveler type scale breaker will apply pressure to the steel slabs, elongating the slab to correct surface defects and breaking the iron oxide layer on the slab surface in order to enrich pickling performance. PM emissions from the scale breaker will be captured and controlled via a dust collector.

2.1.4.2 Pickling Galvanizing Line

The pickling operation cleans steel for shipment or further processing by removing scale and other deposits from the steel surface, which may develop during the manufacturing process. In the cold mill, coils are chemically cleaned on the continuous pickling line using hydrochloric acid (HCl). Pickled coils can be shipped to customers as finished product, or further processed in the tandem mill, to further reduce thickness of the coil or the batch annealing bays.

In the galvanizing lines, steel undergoes a process to alter the chemical properties of its surface. First, the steel will go through a cleaning section that removes rolling oils and metal fines from the surface of the steel. This section is controlled by a mist eliminator. The steel is dipped into a molten zinc bath, resulting in the formation of zinc-iron alloy layers that combat corrosion. The final product is galvanized or galvannealed cold rolled steel intended for critical exposed automotive applications.

2.1.4.3 Annealing Furnaces

Annealing furnaces will be used to alter the chemical or physical properties of a metal to make it more ductile and reduce its hardness. It will relieve internal stresses that may lead to failure in service and will produce a more uniform, or homogeneous, internal structure.

2.1.4.4 Tandem Cold Mill

A tandem cold mill is a type of cold-rolling mill which compresses the steel coil in order to achieve a desired thickness and surface quality. The final product of the tandem cold mill is cold rolled steel strips. An oiler applies surface oiling electrostatically to both sides of the strips simultaneously. This oiler can apply multiple grades of rolling oil with minimum transition times between oil types. After the tandem cold mill, a portion of the steel is annealed and/or tempered on site. PM emissions from the tandem cold mill will be captured and controlled via a dust collector.

2.1.4.5 Standalone Temper Mill and Skin Pass Mill

Temper mills and skin pass mills are cold-rolling mills which improve the surface finish on steel products. A variety of surface finishes are used to impart the desired finish to the product. Skin pass mills improve the final strip quality, including strip surface defects and roughness formed on the processing line. The standalone temper mill will be equipped with a mist eliminator and each skin pass mill will have a dedicated dust collector to control PM emissions.

2.1.5 Slag Processing

As mentioned in the Meltshop process discussion, slag is formed as lime and injection carbon is added to the steel bath to remove phosphorous and sulfur in both the EAF and LMF. Slag processing equipment will be required to handle, quench, crush, and screen the slag that is generated as part of the molten steel production in the melt shop.

The slag formed in the EAF tends to be larger in diameter and requires processing prior to resale as a usable aggregate product. The slag formed in the EAF will be emptied into slag pots beneath the furnace. After the slag pot is filled, it is taken to the slag dump station where it will be quenched using process water. The slag formed in the LMF will be emptied from the ladle after the LMF refining operation is complete. LMF slag will then be transported to the slag processing area.

In the processing area, slag will be crushed and separated into various products. Processed slag products will be transported off-site by truck for sale to customers for use as road-base materials and other uses.

Slag processing piles will also be required to temporarily store in process material and final size-specific products prior to transport off site. Potential emissions from the slag piles include material transfer onto the piles and loading material from the piles into trucks, as well as potential emissions from wind erosion.

2.1.6 Auxiliary Operations

Additional sources at the facility include cooling towers, emergency generators, plant roads, conveyors, air separation unit, and other material handling activities, and storage piles.

2.1.6.1 Air Separation Unit

The proposed mill will include an air separation plant to supply process gases, such as nitrogen and oxygen, to various facility operations. The air separation plant will include a Water Bath Vaporizer, an emergency generator, and a cooling tower. The Water Bath Vaporizer is a backup unit employed when the air separation plant is down, or the nitrogen or oxygen demand is more than the air separation plant is generating. During these events, liquefied gas maintained in storage tanks is passed through the Water Bath Vaporizer to vaporize the liquefied gas prior to distributing the gas to the process operations.

2.1.6.2 Emergency Engines

Emergency generators will be needed to provide emergency power for critical operations should the facility power supply be interrupted. The proposed mill will operate six (6) emergency generators, all powered by natural gas spark ignition engines.

2.1.6.3 Storage Tanks

Throughout the proposed mill, there will be a variety of auxiliary storage tanks to store the following materials utilized in operations throughout the mill. The tanks are comprised of horizontal, vertical and open tanks.

- Diesel
- Gasoline
- Hydraulic Oil
- Hydrochloric Acid
- Used oil, and

- Cold Degreasers

2.1.6.4 Cooling Towers

The proposed mill will operate eight (8) cooling towers that will provide contact and non-contact cooling water to various processes throughout the mill.

2.2 Summary of Emission Sources

Nucor plans to install the following air emission units during the construction of the proposed mill. Note that the design information discussed in this application is based on best available design information provided by vendors at the time of this application.

Melt Shop

- Two (2) single shell DC EAFs and two (2) LMFs each with a maximum hourly capacity of 171 tph and annual capacity of 1.5 million tons per year; each controlled with a DEC system and negative pressure baghouses
- One (1) ladle dryer firing natural gas with a rating of 15 MMBtu/hr
- Seven (7) ladle preheaters firing natural gas each with a rating of 15 MMBtu/hr
- One (1) tundish dryer firing natural gas with a rating of 6 MMBtu/hr
- Two (2) tundish preheaters firing natural gas each with a rating of 9 MMBtu/hr
- Two (2) subentry nozzle preheaters firing natural gas each with a rating of 1 MMBtu/hr
- Two (2) vacuum degassers each with a maximum hourly capacity of 171 tph and annual capacity of 1.5 million tons per year
- Two (2) continuous casters each with a maximum hourly capacity of 171 tph and annual capacity of 1.5 million tons per year

Hot Mill

- One (1) tunnel furnace firing natural gas with a rating of 150 MMBtu/hr
- One (1) rolling mill with a rating of 342 tph and annual capacity of 3.0 million tons per year

Cold Mill

- One (1) scale breaker with a rating of 342 tph and annual capacity of 3.0 million tons per year
- One (1) pickling line and two (2) galvanizing lines each with a rating of 171 tpy and annual capacity of 1.5 million tons per year
- Two (2) galvanizing furnaces firing natural gas each with a rating of 64 MMBtu/hr
- Twenty-two (22) box annealing furnaces firing natural gas each with a rating of 5.0 MMBtu/hr
- One (1) tandem cold mill with a rating of 342 tph and annual capacity of 3.0 million tons per year
- One (1) temper mill with a rating of 342 tph and annual capacity of 3.0 million tons per year
- Two (2) skin pass mills each with a rating of 171 tph and annual capacity of 1.5 million tons per year

Raw Material Handling

- One (1) lime handling system consisting of dump station, conveyor systems, and silos
- One (1) carbon handling system consisting of dump station, conveyor systems, and silos
- One (1) alloy handling system consisting of dump station, conveyor systems, and silos
- One (1) DRI handling system consisting of dump station, conveyor systems, and silos
- One (1) scrap handling system

Slag Handling

- One (1) slag handling system consisting of various conveyors systems, screen, piles, and crushers.

Storage Piles

- Four (4) slag stockpiles
- Three (3) scrap metal stockpiles

Auxiliary Equipment

- One (1) air separation unit including a 10 MMBtu/hr water vaporizer bath
- Eight (8) contact and non-contact cooling towers with a total recirculation rate of 204,150 gallons per minute
- Six (6) natural gas fired emergency engines each with a rating of 2,000 hp
- Ten (10) storage tanks containing organic liquids (e.g., diesel, gasoline, hydraulic oil, used oil)
- Fourteen (14) storage tanks containing virgin or spent hydrochloric acid
- Five (5) cold degreasers
- Paved and unpaved roadways will be constructed in and around the facility

2.3 Proposed Project Emissions

Table 2-1 provides a summary of the potential annual emissions attributable to the proposed mill, including particulate matter, particulate matter with an aerodynamic diameter of 10 microns or less, and particulate matter with an aerodynamic diameter of 2.5 microns of less ($PM/PM_{10}/PM_{2.5}$); nitrogen oxides (NO_X); sulfur dioxide (SO_2); carbon monoxide (CO); volatile organic compounds (VOC); lead; total hazardous air pollutants (HAP); and greenhouse gases (i.e., carbon dioxide [CO_2], methane [CH_4], and nitrous oxide [N_2O]) expressed as carbon dioxide equivalents (CO_2e). The detailed emission calculations and supporting documentation is provided in Attachment N.

Table 2-1. Facility-Wide Potential Emissions Summary

	NO_X (tpy)	CO (tpy)	SO_2 (tpy)	VOC (tpy)	PM (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)	Lead (tpy)	Total HAPs (tpy)	CO_2e (tpy)
West Virginia Steel Mill PTE	702	3,263	361	178	396	618	570	0.68	7.50	673,848

3. REGULATORY APPLICABILITY

This section presents information and data to either confirm non-applicability of or (if applicable) demonstrate compliance with potentially applicable federal and state air permitting and regulatory requirements for the proposed electric arc furnace (EAF) steel mill. Specifically, the applicability of Prevention of Significant Deterioration (PSD) Review, Nonattainment New Source Review (NANSR), New Source Performance Standards (NSPS), National Emission Standards for Hazardous Air Pollutants (NESHAP), and West Virginia 45 Code of State Rules (CSR) regulations are addressed in this section.

3.1 Construction Permitting Applicability

Construction permitting programs regulate new sources of pollutants under the New Source Review permit program. For areas meeting the National Ambient Air Quality Standards for criteria pollutants, the requirements of Prevention of Significant Deterioration (PSD) apply. If an area does not meet the NAAQS, the Non-Attainment New Source Review (NANSR) requirements are imposed.

Iron and steel mill plants are classified as one of the 28 listed source categories in Title 45, Legislative Rule of the Department of Environmental Protection, Series 14 (45CSR14) Section 2.43.a. with a 100 ton per year (tpy) "major" source PSD threshold. As such, the proposed Nucor West Virginia Steel Mill is considered a new "major" source with regard to PSD due to its facility-wide potential emissions greater than 100 tpy for PSD pollutants. Therefore, the project is subject to PSD review.

As mentioned above, the applicability of NANSR is evaluated for proposed construction, reconstruction, and modification of a major source in an area that is not meeting the NAAQS. The proposed Nucor West Virginia Steel Mill will be located in Mason County, which has been designated as "in attainment" or "unclassifiable" for all regulated NSR pollutants (see 40 CFR 81.349). Therefore, the West Virginia Steel Mill is not subject to the requirements of NANSR.

3.2 Title V Operating Permit Program

The requirements of 40 CFR Part 70 establish the federal Title V operating permit program elements required for a state to accept delegation of authority from the U.S. EPA. West Virginia has promulgated the necessary provisions of this Title V operating permit program. Initially, U.S. EPA granted final full approval effective on November 19, 2001. Since then, West Virginia adopted the necessary revisions to remain the delegated authority for the Part 70 operating permit program. To date, West Virginia implements a fully-approved Part 70 operating permit program under 45CSR30 (see 40 CFR 70, Appendix A).

With respect to the West Virginia Title V operating permit program, the regulatory major source thresholds are 10 tons per year (tpy) of a single hazardous air pollutant (HAP), 25 tpy of any combination of HAPs, and 100 tpy of all other regulated pollutants (except for Greenhouse Gas emissions). The potential emissions of at least one regulated pollutant exceed the corresponding threshold(s) at this facility. Therefore, the proposed Nucor West Virginia Steel Mill is classified as a major source for Title V purposes. Nucor will submit a Title V permit application for the Nucor West Virginia Steel Mill within twelve (12) months of commencing operation in accordance with 45CSR30-4.1.a.2.

3.3 New Source Performance Standards

The federal NSPS require new, modified, or reconstructed sources to control emissions to the level that is achievable by the best demonstrated technology as specified in the applicable provisions of the rule. The following summary describes the applicability and non-applicability of NSPS subparts relevant to the Nucor West Virginia Steel Mill.

3.3.1 40 CFR 60, Subpart AAa –Steel Plants: Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels Constructed After August 17, 1983

The affected sources under 40 CFR 60, Subpart AAa (NSPS AAa) are electric arc furnaces (EAF), argon-oxygen decarburization vessels, and dust-handling systems that are constructed after August 17, 1983. Therefore, the proposed EAFs, and EAF dust handling system are subject to NSPS Subpart AAa.

The emission requirements for the affected facilities related to the EAF include:

- Emissions of particulate matter must not exceed 12 mg/dscm (0.0052 gr/dscf) from each control device for the EAFs,
- Less than 3% opacity from each control device for the EAFs,
- Less than 6% opacity from the melt shop due solely to the operations of the EAFs, and
- Less than 10% opacity from EAF dust handling system.

Compliance with the emissions monitoring requirements for the EAF control devices will be achieved using either of the following options:

1. Installation and operation of a continuous opacity monitoring system (COMS); or
2. Daily Method 9 visible emission observations and installation of a bag leak detection system per 40 CFR 60.273a(c).

The EAFs will be equipped with a direct-shell evacuation control system (DEC); therefore, Nucor will monitor EAF emissions from the shop using either of the following options:

1. Daily Method 9 visible emissions observations, or
2. Installation of a furnace static pressure monitoring device.

Additionally, Nucor will implement one of the following monitoring options:

1. Check and record the control system fan motor amperes and damper position on a once-per-shift basis;
2. Install, calibrate, and maintain a monitoring device that continuously records the volumetric flow rate through each separately ducted hood; or
3. 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.

Performance testing is required within 60 days of achieving the maximum production rate for the facility, but not later than 180 days after initial startup of the facility for the standards for particulate matter emissions and opacity per 40 CFR 60.276a(f) and 40 CFR 60.11(e)(1). Notification of performance testing is required to be submitted at least 30 days prior to testing.

Nucor is also required to maintain records of all opacity observations made in accordance with 40 CFR 60.273a(d) and submit reports semi-annually indicating any periods of excess emissions observed.

3.3.2 40 CFR 60, Subpart Db – Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units

The affected source under 40 CFR 60, Subpart Db (NSPS Db) is each steam generating unit for which construction, modification, or reconstruction is commenced after June 19, 1984, and that has a maximum design heat input capacity of greater than 100 million British thermal units per hour (MMBtu/hr).

As provided in 40 CFR 60.41b, a steam-generating unit is defined as:

"...a device that combusts any fuel or byproduct/waste and produces steam or heats water or heats any heat transfer medium. This term includes any municipal-type solid waste incinerator with a heat recovery steam generating unit or any steam generating unit that combusts fuel and is part of a cogeneration system or a combined cycle system. This term does not include process heaters as they are defined in this subpart."

The proposed hot mill tunnel furnace is not subject to the requirements of NSPS Subpart Db because this unit is direct-fired and does not meet the definition of a steam-generating unit as provided above.

3.3.3 40 CFR 60, Subpart Dc – Standards of Performance for Small Industrial-Commercial Steam Generating Units

The affected source under 40 CFR 60, Subpart Dc (NSPS Dc) is each steam generating unit for which construction, modification, or reconstruction is commenced after June 9, 1989, and that has a maximum design heat input capacity of 100 million British thermal units per hour (MMBtu/hr) or less, but greater than or equal to 10 MMBtu/hr. NSPS Dc contains emission standards for SO_2 and PM.

As provided in 40 CFR 60.41c, a steam-generating unit is defined as:

"...a device that combusts any fuel and produces steam or heats water or heats any heat transfer medium. This term includes any duct burner that combusts fuel and is part of a combined cycle system. This term does not include process heaters as defined in this subpart."

Please note, the following sources which are sized to capacities greater than 10 MMBtu/hr are not subject to NSPS Subpart Dc as they are direct-fired and therefore do not meet the definition of a steam-generating unit above:

- Ladle Dryer
- Ladle Preheaters #1-7
- Galvanizing Furnace #1-2
- Box Annealing Furnace #1-22

3.3.4 40 CFR 60, Subpart Kb – Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels)

40 CFR 60, Subpart Kb applies to storage vessels with a capacity greater than or equal to 75 m^3 (~19,813 gallons) that are used to store volatile organic liquids (VOL) for which construction, reconstruction, or modification is commenced after July 23, 1984.

As provided in 40 CFR 60.111b, "volatile organic liquid" is defined as:

"...any organic liquid which can emit volatile organic compounds (as defined in 40 CFR 51.100) into the atmosphere."

No petroleum storage tanks associated with the proposed project will be sized to a capacity equal to or greater than 19,813 gallons. Certain other tanks associated with the proposed project will be sized to capacities greater than 19,813 gallons, however these tanks will contain hydrochloric acid (HCl) or spent pickle liquor which are not volatile organic liquids. Therefore, the provisions of this subpart do not apply to the proposed tanks at the Nucor West Virginia Steel Mill.

3.3.5 40 CFR 60, Subpart JJJJ – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

According to 40 CFR 60.4230(a)(4), owners and operators of spark-ignition internal combustion engines (SI ICEs) constructed after June 12, 2006, must comply with the standards of 40 CFR 60, Subpart JJJJ (NSPS JJJJ). The proposed emergency engines are subject to the requirements under NSPS Subpart JJJJ.

The proposed emergency engines are required to meet the emission standards in Table 1 of this subpart pursuant to 40 CFR 60.4233(e). This includes:

- NO_X: 2.0 g/hp-hr or 160 ppmvd at 15% O_2
- CO: 4.0 g/hp-hr or 540 ppmvd at 15% O_2
- VOC: 1.0 g/hp-hr of 86 ppmvd at 15% O_2

The proposed emergency engines must also meet the operating hour requirements of 40 CFR 60.4243(d) which include:

- No time limit on use in emergency situations
- Up to 100 hours per year for maintenance checks/readiness testing, emergency demand response, or voltage/frequency deviation ≥ 5% below standard.
- 50 hours (of the 100) per year can be for non-emergency operation.

Nucor will meet the requirements of NSPS JJJJ by purchasing certified engines or conducting initial and periodic performance testing pursuant to 40 CFR 60.4243(b)(2)(ii), and by limiting the hours of operation of the engines according to the requirements 40 CFR 60.4243(d).

3.4 National Emission Standards for Hazardous Air Pollutants

Maximum achievable control technology (MACT)-based NESHAPs (located in 40 CFR 63) require sources that are "major" for HAPs to control emissions to the level achievable by the best demonstrated technology as specified in the applicable provisions. A major source is defined in 40 CFR 63.2 as:

"...any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit considering controls, in the aggregate, 10 tons per year or more of any hazardous air pollutant or 25 tons per year or more of any combination of hazardous air pollutants..."

Generally available control technology (GACT)-based NESHAPs (located in 40 CFR 63) require area (i.e., non-major) sources to control emissions to the level achievable by the use of generally available control technologies or management practices to reduce emissions of HAPs.

As demonstrated in Section 3 above, the Nucor West Virginia Steel Mill does not have the potential to emit more than ten (10) tpy of a single HAP or 25 tpy of combined HAPs. As such, the Nucor West Virginia Steel Mill is considered an area source (i.e., non major source) of HAPs. Therefore, Nucor has evaluated the potential applicability of GACT requirements for area sources for the proposed Nucor West Virginia Steel Mill.

3.4.1 40 CFR 63, Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE)

40 CFR 63, Subpart ZZZZ applies to facilities that operate stationary reciprocating internal combustion engines (RICE). The emergency engines at the Nucor West Virginia Steel Mill will satisfy the requirements of Subpart ZZZZ by complying with the standards of NSPS JJJJ pursuant to 40 CFR 63.6590(c)(1). No other requirements apply under this subpart.

3.4.2 40 CFR 63, Subpart YYYYY - Area Source NESHAP for Electric Arc Furnace Steelmaking Facilities.

40 CFR 63, Subpart YYYYY applies to EAF steelmaking facilities located at area source of HAP emissions. The proposed EAFs at the Nucor West Virginia Steel Mill are subject to the requirements of 40 CFR 63, Subpart YYYYY. In accordance with 40 CFR 63.10685(a)(1), Nucor will develop a pollution prevention plan to minimize the amount of chlorinated plastics, lead, and free organic liquids charged to the EAFs. Nucor may also maintain segregated collections of scrap that do not contain 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 as provided in 40 CFR 60.10685(a)(2). Additionally, Nucor will satisfy the requirements of 40 CFR 63.10685(b) by implementing a site-specific plan for mercury switches as provided in 40 CFR 63.10685(b)(1) or by purchasing motor vehicle scrap from only those providers who participate in a program for removal of mercury switches as provided in 40 CFR 63.10685(b)(2).

Requirements for the EAF are found in 40 CFR 63.10686 and include:

- Installation of a capture system for each EAF (including charging, melting, and tapping operations) that conveys collected emissions to a control device for the removal of PM.
- Emissions of particulate matter must not exceed 0.0052 gr/dscf from each control device for the EAF and;
- Less than 6% opacity from the melt shop due solely to the operation of the EAFs.

The emission limit, recordkeeping, and performance testing requirements for this rule are equivalent to 40 CFR 60, Subpart AAa from Section 4.3.2 above, with the notable exception of records related to the scrap requirements in 40 CFR 63.10685, and a notification of compliance status must be submitted within 180 days of completion of initial performance testing.

Finally, pursuant to 40 CFR 63.10686(e), Nucor must develop, submit, and implement a monitoring plan for the EAF control device and capture system consistent with the requirements of 40 CFR 64 (i.e., the Compliance Assurance Monitoring [CAM]) program.

3.4.3 40 CFR 63, Subpart ZZZZZ - National Emission Standards for Hazardous Air Pollutants for Iron and Steel Foundries Area Sources

40 CFR 63, Subpart ZZZZZ applies to each iron and steel foundry located at an area source of HAP emissions.

As provided in 40 CFR 63.10906, iron and steel foundry is defined as:

"*…a facility or portion of a facility that melts scrap, ingot, and/or other forms of iron and/or steel and pours the resulting molten metal into molds to produce final or near final shape products for introduction into commerce. Research and development facilities, operations that only produce non-commercial castings, and operations associated with nonferrous metal production are not included in this definition."*

The requirements of 40 CFR 63, Subpart ZZZZZ do not apply because the Nucor West Virginia Steel Mill will not pour molten metal into molds to produce final or near-final shape products.

3.4.4 40 CFR 63, Subpart CCCCCC – National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities

40 CFR 63, Subpart CCCCCC establishes national emission limitations and management practices for HAP emitted from the loading of gasoline storage tanks at gasoline dispensing facilities (GDF).

As provided in 40 CFR 63.11132, a GDF is defined as:

"*…any stationary facility which dispenses gasoline into the fuel tank of a motor vehicle, motor vehicle engine, nonroad vehicle, or nonroad engine, including a nonroad vehicle or nonroad engine used solely for competition. These facilities include, but are not limited to, facilities that dispense gasoline into on- and off-road, street, or highway motor vehicles, lawn equipment, boats, test engines, landscaping equipment, generators, pumps, and other gasoline-fueled engines and equipment."*

The proposed Nucor West Virginia Steel Mill includes one (1) 1,000-gallon gasoline storage tank for storing gasoline for gasoline-fueled non-road engines and equipment. The requirements of 40 CFR 63, Subpart CCCCCC require Nucor to handle gasoline in a manner to minimize vapor releases and maintain records to demonstrate that the facility's monthly gasoline throughput is less than 10,000 gallons.

3.4.5 40 CFR 63, Subpart JJJJJJ - Area Sources: Industrial, Commercial, and Institutional Boilers

40 CFR 63, Subpart JJJJJJ applies to industrial, commercial, and institutional boilers located at area sources of HAP emissions. Pursuant to 40 CFR 63.11195(e), the requirements of NESHAP Subpart JJJJJJ do not apply to the proposed boilers, heaters, or furnaces as natural gas fired units are not subject to this subpart.

3.5 State of West Virginia Regulatory Applicability

This section of the permit application identifies specific West Virginia SIP regulations relevant to the Nucor West Virginia Steel Mill.

3.5.1 45CSR2 - To Prevent and Control Particulate Matter Air Pollution From Combustion of Fuel in Indirect Heat Exchangers

This rule contains requirements for particulate matter emissions from the combustion of fuel in indirect heat exchangers. Pursuant to 45CSR2-3.1, the proposed water bath vaporizer at the Nucor West Virginia Steel Mill shall not discharge smoke and/or particulate matter into the open air greater than ten (10) percent opacity based on a six-minute block average.

Per 45CSR2-8.4.b:

“The owner or operator of a fuel burning unit(s) which combusts only natural gas shall be exempt from the requirements of subdivision 8.1.a and subsection 8.2.”

45CSR2-8.1.a and 8.2 specify the testing and monitoring requirements for the owner and operator of fuel burning units. Since the proposed water bath vaporizer at the Nucor West Virginia Steel Mill combust only natural gas, Nucor is exempt from the testing and monitoring requirements of this rule.

A Type ‘b’ fuel burning unit, per the definitions provided in 45CSR2-2.10.b, is any fuel burning unit other than hand-fired or stoker-fired fuel burning units or units that generate steam or other vapor to produce electric power for sale. Therefore, the proposed water bath vaporizer at the Nucor West Virginia Steel Mill is a Type ‘b’ fuel burning unit. Per 45CSR2-4.1.b, emissions of particulate matter must not exceed the product of 0.09 and the total design heat input in MMBtu of the water bath vaporizer (i.e., 11 MMBtu/hr for a combined allowable emission rate of 1.0 lb/hr).

Nucor will maintain records of operating schedules and monthly natural gas usage for the water bath vaporizer. Furthermore, the water bath vaporizer must also meet the requirements for start-ups, shutdowns, and malfunctions provided in 45CSR2-9.

3.5.2 45CSR6-4 – To Prevent and Control Air Pollution from Flare Operations

The provisions of 45CSR6 include emissions standards for particulate and opacity generated through the use of flares as emissions control devices. The flares associated with each vacuum tank degasser (VTD) are subject to the requirements of 45CSR6 and will comply with the hourly particulate matter emission limit calculated as specified in 45CSR6-4.1. This emission limit is calculated by multiplying the factor, F, by the hourly flare capacity to obtain an hourly particulate matter emission limit. Using the estimated potential heat load of 12.37 MMBtu/hr for each VTD flare along with standard heat content values and the ideal gas law, Nucor calculates a PM limit of 2.5 lb/hr for each VTD flare.

The flares are also subject to the opacity requirements of 45CSR6-4.3 and 4.4, which limits the opacity from smoke emitted from the flares to less than 20% opacity, except for eight (8) minutes per startup where the smoke emitted from the flares must be limited to less than 40% opacity.

3.5.3 45CSR7 – To Prevent and Control Particulate Matter Air Pollution from Manufacturing Processes and Associated Operations

45CSR7 includes provisions intended to prevent and control emissions of particulate matter from manufacturing processes and associated operations. Because the proposed emergency engines serve the sole purpose of fire suppression and do not support any manufacturing activities, these engines do not meet the definition of a manufacturing process pursuant to 45CSR7-2.38. Furthermore, in accordance with

45CSR7-10.1, the provisions of this rule do not apply to particulate matter emissions regulated by 45CSR2, 3, and 5. Because 45CSR2 establishes an opacity limit for Nucor's water bath vaporizer, these emission units are exempt from the provisions of 45CSR7.

The EAFs, LMFs, annealing furnaces, coil cutting and slag processing area, cooling towers, and various material handling operations at the facility meet the definition of manufacturing processes contained in 45CSR7-2.20. Therefore, they are required to comply with the standards provided in 45CSR7-3 and 45CSR7-4 for emissions of opacity and particulate matter, respectively. Please refer to the table titled, "45CSR7-4.1 - Emission Limit Determination based on Process Weight Rate" in the attached emissions calculations for the derivation of the process-weight rate emission limit for each of these sources. 45CSR7-10.5 provides an exemption from the requirements of 45 CSR7-4.1 for any process emitting less than 1 lb/hr (and 1,000 lb/yr from all similar sources). The aforementioned table also identifies units eligible for an exemption.

Emissions of hydrochloric acid mist and/or vapor from the exhaust of the fume scrubber controlling emissions from the pickling line must not exceed 210 milligrams per dry cubic meter per 45CSR7-4.2 and Table 45-7B.

The requirements of 45CSR7-5 apply to sources of fugitive particulate matter, including the paved/unpaved roadways and the various cooling towers. Nucor complies with the requirements of 45CSR7-5.2 by applying appropriate control measures (i.e., paving and/or water/chemical dust suppressants) to plant roadways to minimize particulate emissions. Nucor will also comply with the requirements of 45CSR7 for the various cooling towers.

3.5.4 45CSR10 - To Prevent and Control Air Pollution from the Emission of Sulfur Oxides

This rule prevents and controls emissions of sulfur oxides (SO_X) from fuel burning sources, manufacturing process sources, and the combustion of refinery and/or process gas streams. According to Table 45-10A of 45CSR10, Mason County is a priority III county.

Per 45CSR10-2.8, a Fuel burning unit is defined as:

"*... any furnace, boiler apparatus, device, mechanism, stack or structure used in the process of burning fuel or other combustible material for the primary purpose of producing heat or power by indirect heat transfer...*"

The water bath vaporizer is subject to the requirements of 45CSR10 and will comply with the hourly SO_2 emission limit calculated as specified in 45CSR10-3.3.f. This emission limit is calculated by multiplying 3.2 lb/MMBtu by the hourly heat input of a fuel burning unit to obtain an hourly SO_2 emission limit as provided below.

Table 3.1 – Summary of 45CSR10 SO_2 Limits

Unit	**Heat Input Capacity** (MMBtu/hr)	**SO_2 Emission Limit** (lb/hr)
Water Bath Vaporizer	11	35.2

The EAFs meet the definition of a manufacturing process and must also comply with the requirements of 45CSR10. 45CSR10-4.1 prohibits the emission of process gas gases exceeding 2,000 parts per million by weight (ppmv) SO_2. The EAF stacks will not contain gases in excess of 2,000 ppmv and Nucor has proposed the installation of an SO_2 CEMS in accordance with 40 CFR 60, Appendix B, Performance Specification 2 to demonstrate compliance with this emissions limitation.

The VTD flares combust a process gas stream and are therefore subject to the requirement of 45CSR10. 45CSR10-5.1 prohibits the combustion of process gas streams which contains hydrogen sulfide in concentrations greater than 50 grains per 100 cubic feet of gas without an emission control and mitigation plan approved by the Director and U.S. EPA. The process gas stream routed to the VTD flares will not contain hydrogen sulfide in concentrations greater than 50 grains per 100 cubic feet of gas, and will therefore be in compliance with the requirements of 45CSR10-5.1.

Please note, the following combustion sources are not subject to 45CSR10 as they are direct-fired and therefore do not meet the definition of a fuel burning unit above:

- Hot Mill Tunnel Furnace
- Ladle Dryer
- Ladle Preheaters #1-7
- Galvanizing Furnace #1-2
- Box Annealing Furnace #1-22

Per 45CSR10-10.3:

“The owner or operator of a fuel burning unit(s) which combusts natural gas, wood or distillate oil, alone or in combination, shall be exempt from the requirements of section 8…”

Because the fuel burning sources at the Nucor West Virginia Steel Mill combust only natural gas, Nucor is exempt from the testing, monitoring, and reporting requirements of 45CSR10-8 and 45CSR10A.

3.5.5 45CSR13 - Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, and Procedures for Evaluation

This rule is generally applicable to the Nucor West Virginia Steel Mill. Nucor is submitting this permit application to satisfy the requirements of 45CSR13.

3.5.6 45CSR14 - Permits for Construction and Major Modification of Major Stationary Sources for the Prevention of Significant Deterioration of Air Quality

This rule is generally applicable to the Nucor West Virginia Steel Mill. Nucor is submitting this permit application to satisfy the requirements of 45CSR14. See Section 4.1 above for the applicability determination for this rule.

3.5.7 45CSR16 – Standards of Performance for New Stationary Sources

The provisions of 45CSR16 incorporate by reference the NSPS standards contained in 40 CFR 60. Please see Section 4.3 above for a list of NSPS for which the Nucor West Virginia Steel Mill is potentially subject.

3.5.8 45CSR22 - Air Quality Management Fee Program

This rule is generally applicable to the Nucor West Virginia Steel Mill. In addition to permit to construct fees, 45CSR22-4.1a will require Nucor to obtain a certificate to operate, which the Nucor West Virginia Steel Mill will obtain annually upon submittal of Certified Emission Statement.

3.5.9 45CSR30 – Requirements for Operating Permits

This rule is generally applicable to the Nucor West Virginia Steel Mill. Nucor will submit a Title V permit application within twelve (12) months after commencing operation to satisfy the requirements of 45CSR30.

3.5.10 45CSR34 – Emission Standards for Hazardous Air Pollutants

The provisions of 45CSR34 incorporate by reference the MACT/GACT standards contained in 40 CFR 63. Please see Section 4.4 above for a list of MACT/GACT standards for which the Nucor West Virginia Steel Mill is potentially subject.

4. BEST AVAILABLE CONTROL TECHNOLOGY

The requirement to use best available control technology (BACT) applies to each new or modified emission unit from which there are emissions increases of pollutants subject to PSD review. The proposed facility is subject to PSD permitting for NO_X, CO, SO_2, PM, PM_{10}, $PM_{2.5}$, Lead, Fluoride (excluding HF), VOC, and GHG and is therefore subject to BACT for these pollutants.

Table 4-1 identifies the pollutants considered in the BACT analysis for each emission unit. Refer to Section 2.1 of this report for a detailed discussion of each emission unit.

Table 4-1. Pollutants Evaluated in the BACT Analysis for Each Emission Unit

Emission Unit ID	Emission Unit	NO_X (Yes/No)	CO (Yes/No)	SO_2 (Yes/No)	$PM/PM_{10}/PM_{2.5}$ (Yes/No)	VOC (Yes/No)	Lead/Fluoride (Yes/No)	GHG (Yes/No)
EAF1 and LMF1	EAF1/LMF1	Yes	Yes	Yes	Yes	Yes	Yes	Yes
EAF2 and LMF2	EAF2/LMF2	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CAST	Casting Operations	--	--	--	Yes	--	--	Yes
TF1	Tunnel Furnace 1	Yes	Yes	Yes	Yes	Yes	--	Yes
VTD1	Vacuum Tank Degasser 1	--	Yes	--	Yes	--	--	--
VTD2	Vacuum Tank Degasser 2	--	Yes	--	Yes	--	--	--
RM	Rolling Mill	--	--	--	Yes	--	--	--
PKL-1	Pickling Line 1	--	--	--	Yes	--	--	--
PKLSB	Pickle Line Scale Breaker	--	--	--	Yes	--	--	--
TCM	Tandem Cold Mill	--	--	--	Yes	--	--	--
STM	Temper Mill	--	--	--	Yes	--	--	--
SPM	Skin Pass Mill	--	--	--	Yes	--	--	--
CGL1	Galvanizing Line 1	--	--	--	Yes	--	--	--
CGL2	Galvanizing Line 2	--	--	--	Yes	--	--	--
CT1 through 8	Cooling Towers	--	--	--	Yes	--	--	--
EMGEN1 through 6	Emergency Engines	Yes	Yes	Yes	Yes	Yes	--	Yes
FUG-PAVED	Paved Roadways	--	--	--	Yes	--	--	--
FUG-UNPAVED	Unpaved Roadways	--	--	--	Yes	--	--	--
See Table 4-29	Storage Tanks	--	--	--	--	Yes	--	--
Misc. Natural Gas Combustion Sources:								
LD	Ladle Dryer	Yes	Yes	Yes	Yes	Yes	--	Yes
LPHTR1 through 7	Ladle Preheaters	Yes	Yes	Yes	Yes	Yes	--	Yes
TD	Tundish Dryer	Yes	Yes	Yes	Yes	Yes	--	Yes
TPHTR1 & 2	Tundish Preheaters	Yes	Yes	Yes	Yes	Yes	--	Yes
SENPHTR1 & 2	Subentry Nozzle Preheaters	Yes	Yes	Yes	Yes	Yes	--	Yes
GALVFN1 & 2	Galvanizing Furnaces	Yes	Yes	Yes	Yes	Yes	--	Yes
BOXANN1 through 22	Annealing Furnaces	Yes	Yes	Yes	Yes	Yes	--	Yes
ASP	Water Bath Vaporizer	Yes	Yes	Yes	Yes	Yes	--	Yes
SLAG-CUT	Slag Cutting (Lancing/Torching)	Yes	Yes	Yes	Yes	Yes	--	Yes

Emission Unit ID	Emission Unit	NO_X (Yes/No)	CO (Yes/No)	SO_2 (Yes/No)	PM/PM_{10}/$PM_{2.5}$ (Yes/No)	VOC (Yes/No)	Lead/Fluoride (Yes/No)	GHG (Yes/No)
See Table 4-54	Slag Processing Equipment (See Table 4-54)	--	--	--	Yes	--	--	--
Scrap Handling Operations:								
SCRAP-DOCK	Barge Scrap Unloading	--	--	--	Yes	--	--	--
SCRAP-RAIL	Railcar Scrap Unloading	--	--	--	Yes	--	--	--
SCRAP-BULK34 through 39	Scrap Pile Loading and Unloading	--	--	--	Yes	--	--	--
SCRAP-BULK40	Scrap Charging	--	--	--	Yes	--	--	--
SLGSKP1 through 4	Slag Stockpile #1 through 4	--	--	--	Yes	--	--	--
SCRPSKP1 through 3	Scrap Metal Stockpile #1 through 3	--	--	--	Yes	--	--	--
LCB	Lime/Carbon/Alloy Storage Silos	--	--	--	Yes	--	--	--
LIME-DUMP	Lime Handling System	--	--	--	Yes	--	--	--
CARBON-DUMP	Carbon Handling System	--	--	--	Yes	--	--	--
ALLOY-HANDLE	Alloy Handling System	--	--	--	Yes	--	--	--
DRI Handling System								
DRI-Dock	DRI Unloading Dock	--	--	--	Yes	--	--	--
DRI1 through 4	DRI Storage Silos	--	--	--	Yes	--	--	--
BULK-DRI	DRI Loadouts	--	--	--	Yes	--	--	--
DRI-DB1 and 2	DRI Day Bins	--	--	--	Yes	--	--	--
DRI-CONY	DRI Transfer Conveyors	--	--	--	Yes	--	--	--
BULK-DRI	DRI Emergency Chutes	--	--	--	Yes	--	--	--

Note the same control techniques that reduce PM also reduce PM_{10} and $PM_{2.5}$. The BACT analyses for PM, PM_{10}, and $PM_{2.5}$ are combined to eliminate redundancy.

4.1 PSD BACT Top-Down Approach

The following sections contain a description of the five (5) basic steps of U.S. EPA's preferred "top-down" approach for selecting BACT.

4.1.1 Step 1 – Identify All Control Options

In this step, available control technologies with the practical potential for application to the emission unit and regulated air pollutant in question are identified. The selected control technologies vary widely depending on the process technology and pollutant being controlled. The application of demonstrated control technologies in other similar source categories to the emission unit in question may also be considered in this step.

The following resources are typically consulted when identifying potential technologies for criteria pollutants:

- EPA's RBLC database
- Determinations of BACT by regulatory agencies for other similar emission points or air permits and permit files from federal or state agencies;
- Applicable NSPS and NESHAP regulations;
- Engineering experience with similar control applications;
- Information provided by air pollution control equipment vendors with significant market share in the industry; and/or,
- Review of literature from industrial, technical, government, academic and trade organizations.

4.1.2 Step 2 – Eliminate Technically Infeasible Options

In this step, "technically infeasible" control options from the list of "potentially available" control options are eliminated. A control option is "technically feasible" if it has been "demonstrated" or if it is both "available" and "applicable."

4.1.3 Step 3 – Rank Remaining Control Options

All remaining technically feasible control options are ranked based on their overall control effectiveness for the pollutant under review. If there is only one remaining option or if all of the remaining technologies could achieve equivalent control efficiencies, ranking based on control efficiency is not required. Collateral effects are usually not considered until step four of the five step top-down BACT analysis.

4.1.4 Step 4 – Evaluation of Most Effective Control Option

After identifying and ranking available and technically feasible control technologies, the economic, environmental, and energy impacts are evaluated to select the best control option. If collateral impacts do not disqualify the top-ranked option from consideration it is selected as the basis for the BACT emission limit. Alternatively, in the judgment of the permitting agency, if inappropriate economic, environmental, or energy impacts are associated with the top control option, the next most stringent option is evaluated. This process continues until a control technology is identified. This step validates the suitability of the top identified control option or provides a clear justification as to why the top option should not be selected as BACT.

4.1.5 Step 5 – Select BACT

In the final step, the BACT emission limit is determined for each emission unit under review based on evaluations from the previous step.

Although the first four steps of the top-down BACT process involve technical and economic evaluations of potential control options (i.e., defining the appropriate technology), the selection of BACT in the fifth step involves an evaluation of emission rates achievable with the selected control technology.

The most effective control alternative not eliminated in Step 4 is selected as BACT with a corresponding emission limit established. BACT is an emissions limit unless technological or economic limitations of the measurement methodology would make the imposition of an emissions standard infeasible, in which case a work practice or operating standard can be imposed. Selected BACT can be no less stringent than an applicable NSPS, MACT, or RACT.

4.2 NO_X BACT Analysis

Nitrogen dioxide (NO_X) emissions are primarily generated through the combustion of fuel for the purposes of generating heat for direct or indirect heat transfer or for emergency backup power. At elevated temperatures, nitrogen in the air is oxidized to form thermal NO_X. Table 4-2 provides a summary of the selected NO_X BACT for each applicable NO_X emission source.

Table 4-2. Summary of Selected BACT for NO_X Emitting Sources

Emission Unit ID	Emission Unit	Selected NO_X BACT
EAF1/LMF1 EAF2/LMF2	EAF1/LMF1 EAF2/LMF2	0.35 lb NOx/ton steel each on a 30-day rolling average
TF1	Tunnel Furnace #1	0.1 lb/MMBtu
EMGEN1 through 6	Emergency Engine #1 through #6	NSPS JJJJ and RICE MACT
See Table 4-7	Ladle Dryer (1 Unit) Ladle Preheaters (7 Units) Tundish Dryer (1 Unit) Tundish Preheaters (2 Units) Subentry Nozzle Preheaters (2 Units) Box Annealing Furnaces (22 Units) Water Bath Vaporizer (1 Unit) Slag Cutting (1 Unit)	0.1 lb/MMBtu
	Galvanizing Furnaces (2 Units)	0.05 lb/MMBtu

4.2.1 Step 1 – Identify All Control Options

Nucor identified and reviewed the following NOx control options which are summarized in Table 4-3 and are evaluated for each NO_X source in this analysis.

Table 4-3. Potential NO_x Control Technologies

Control Option	Description
Selective Catalytic Reduction (SCR)	A nitrogen-based reagent (e.g., ammonia, urea) is injected into the exhaust stream downstream of the combustion unit. The reagent reacts selectively with NOx to produce molecular N_2 and water in a reactor vessel containing a metallic or ceramic catalyst.

Control Option	Description
Selective Non-Catalytic Reduction (SNCR)	A nitrogen-based reagent (e.g., ammonia, urea) is injected into the exhaust stream and reacts selectively with NOx to produce molecular N_2 and water within the combustion unit.
Non-Selective Catalytic Reduction (NSCR)	Metallic catalysts convert NOx, CO, and hydrocarbons to water, nitrogen, and CO_2.
SCONOX Catalytic Absorption System	Utilizes a single catalyst to remove NOx, CO, and VOC through oxidation.
Xonon Cool Combustion	A catalyst integrated into gas turbine combustors limits the production of NOx through temperature control also resulting in reduced emissions of CO and VOC.
Low-NOx Burners (LNBs)	Low-NOx burners employ multi-staged combustion to inhibit the formation of NOx. Primary combustion occurs at lower temperatures under oxygen-deficient conditions; secondary combustion occurs in the presence of excess air.
Oxy-Fuel Burners	Oxy-fired burners achieve combustion using oxygen rather than air, which reduces nitrogen levels in the furnace. The lower nitrogen levels result in a reduction in NOx emissions.
Good Combustion Practices	Operate and maintain the equipment in accordance with good air pollution control practices and with good combustion practices.

4.2.2 Electric Arc Furnace/Ladle Metallurgy Furnace (EU ID EAF1, EAF2, LMF1, and LMF2)

The EAFs and LMF will generate NO_x emissions as a product of combustion and from the exposure of air to the inherently elevated temperature of the EAFs and LMFs. It should be noted that there will be no combustion at the LMF but there will be electrodes to reheat the steel in the ladle. At elevated temperatures, nitrogen in air is oxidized to form thermal NO_X. This section covers BACT for both the EAFs and the LMFs since both will be exhausted to the same stacks (EAF1 and LMF1 both exhaust to BHST-1 and EAF2 and LMF2 both exhaust to BHST-2).

4.2.2.1 Step 2 – Eliminate Technically Infeasible Options

A primary pollutant of concern for the EAFs and LMFs is PM as the melting and refining of steel generates a large quantity of dust. The PM control device requires the temperature of the exhaust stream to be around 300 °F. An SCR or SNCR would have to be located downstream of this baghouse in order to properly control NO_X and prevent premature damage. Therefore, in order to operate an SCR or SNCR the exhaust stream would need to be reheated after passing through the baghouse. Heating a high-volume exhaust stream like this to proper temperature for the SCR or SNCR control would result in increased emissions of NO_X from the additional fuel that would have to be combusted, defeating the purpose of the control device. Additionally, the reagent-to-NO_X ratio cannot be feasibly maintained under the significant variation in NO_X loading associated with the EAF. SCR and SNCR are typically operated on units that provide consistent pollutant loading. The high variations inherent to the batch process of the EAF/LMF operations do not match the conditions where an SCR or SNCR is effective. Furthermore, no applications of SCR or SNCR control on similar sources were noted in the search of the RBLC database. Therefore, SCR or SNCR control is considered technically infeasible for the proposed EAFs/LMSs.

Additionally, the NSCR control is typically applied only to rich burn engines, the SCONOX Catalytic Absorption System is typically applied to power generation turbines, and the Xonon Cool Combustion control is only integrated into gas turbine combustors. Therefore, they are considered technically infeasible for the proposed EAF.

4.2.2.2 Step 3 – Rank Remaining Options

Table 4-4 shows the rankings of the options for controlling NO_X emissions from the proposed EAFs. The same control technologies will apply for the proposed LMFs except for ones specific to combustion.

Table 4-4. Rank of Remaining Control Technologies for NO_X from EAFs and LMFs

Control Technology	Efficiency	Rank
Low-NOx Burners (LNBs)	Up to 80%	1
Oxy-Fuel Burners	Up to 80%	2
Good Combustion Practices	Varies	3

4.2.2.3 Step 4 – Evaluation of Most Effective Control Option

None of the control options are eliminated based on an evaluation of collateral impacts or cost analysis.

4.2.2.4 Step 5 – Select BACT

Nucor is proposing BACT for the EAF and the LMF separately as this is how the limits are commonly permitted and shown in the RBLC database. However, since they both will exhaust to the same stack, it is important to consider both together in establishing the BACT emission limit.

4.2.2.4.1 EAF NO_X BACT Emission Limit

The NO_X limits in the RBLC database for EAFs range from 0.2 lb/ton to 1.43 lb/ton with most of the sources falling between 0.2 lb/ton and 0.6 lb/ton. The most stringent limits are achieved by using natural gas-fired low-NO_X burners or oxy-fuel burners. Also, note that many of the mills listed in the RBLC do not produce comparable products or may produce comparable products using a differing raw material mix and melting process. Other mills may produce comparable products, although variability in raw material mix, raw material supplier, and melting processes will ultimately determine the amount of NOx emitted from the EAF.

The EAF needs to be able to operate under a diverse set of operating conditions and the corresponding limit should reflect that. All of the NOx emission limits that are 0.2 lb/ton and the 0.2159 lb/ton limit in PSDTX708M6 are based on periodic stack testing of the EAF baghouses. There are two limits in the RBLC database at 0.28 lb/ton, Nucor Steel in Nebraska (Permit No. 12-027) permitted in 2013 and ERMS Pueblo in Colorado (Permit No. 02PB0492) permitted in 2011. Both limits are based on 30-day rolling averages. The Nucor Nebraska Mill was unable to achieve the initially permitted 0.28 lb/ton limit, in practice, and the permitting authority revised their permit in 2017 to 0.42 lb/ton on a 30-day rolling average. 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.

Recently issued permit for CMC Steel Oklahoma (2016) and Steel Dynamics Texas (2020) contain BACT emission limits of 0.30 lb/ton on a rolling 30-day average. Additionally, the permit issued for Nucor Florida (2019) and Big River Steel (2021) contain BACT emission limits of 0.30 lb/ton based on periodic stack testing of the EAF baghouses.

Nucor proposes as BACT for the proposed EAFs to utilize Oxy-Fuel Burners and an emission rate of 0.30 lb NOx/ton steel on a 30-day rolling average. It should be noted that the proposed LMFs will exhaust from the same stack (BHST-1 and BHST-2) as the EAFs. The final BACT emission limit will be the aggregate of all emission sources exhausting from the same stack.

4.2.2.4.2 LMF NOx BACT Emission Limit

Nucor proposes as BACT for the proposed LMFs to utilize good operating practices and a limit of 0.05 lb NOx/ton steel on a 30-day rolling average. This is equivalent to the lowest NOx emission limit identified in the RBLC database for LMFs.

4.2.2.4.3 Combined NOx BACT Emission Limit

Nucor proposes a combined EAF/LMF BACT emission limit of 0.35 lb NOx/ton steel each on a 30-day rolling average. This limit will be applied to the combined EAF1 and LMF1 which will exhaust through BHST-1 and the combined EAF2 and LMF2 which will exhaust through BHST-2. Nucor proposes to demonstrate ongoing compliance with the emission limitations through the use of Continuous Emissions Monitoring Systems (CEMS).

4.2.3 Tunnel Furnace (EU ID TF1)

NOx emissions are generated from the natural gas-fired tunnel furnace as a product of combustion.

4.2.3.1 Step 2 – Eliminate Technically Infeasible Options

The outlet temperature of the proposed tunnel furnace will be approximately 1,200 ˚F which is significantly above the normal operating temperature of the SCR (i.e., 480 ˚F to 800 ˚F). Furthermore, no applications of SCR control on similar natural gas-fired sources were noted in the search of the RBLC database. Therefore, the SCR control is considered technically infeasible for the proposed tunnel furnace.

NSCR requires specific temperature ranges (700 °F to 1,500°F), stoichiometric concentrations of NOx, CO, and VOC, and specific concentrations of oxygen (at or below approximately 0.5% oxygen) to operate correctly. The outlet gases of the tunnel furnace do not have the required oxygen content (the equipment exhaust contains anywhere from 3% to 4% oxygen) or operate in the optimal temperature range for NSCR to be an effective control. Furthermore, no applications of NSCR control on similar natural gas-fired sources were noted in the search of the RBLC database. Therefore, the NSCR control is considered technically infeasible for the proposed tunnel furnace.

SNCR is effective only in a stoichiometric or fuel-rich environment where combustion gas is nearly depleted of oxygen. Moreover, no applications of SNCR control on similar natural gas-fired sources were noted in the search of the RBLC database. Therefore, the SNCR control is considered technically infeasible for the proposed tunnel furnace.

4.2.3.2 Step 3 – Rank Remaining Options

Table 4-5 shows the rankings of the options for controlling NO_X emissions from the proposed tunnel furnaces.

Table 4-5. Rank of Remaining Control Technologies for NO_X from Tunnel Furnace

Control Technology	Efficiency	Rank
Low-NOx Burners (LNBs)	Up to 80%	1
Oxy-Fuel Burners	Up to 80%	2
Good Combustion Practices	Varies	3

4.2.3.3 Step 4 – Evaluation of Most Effective Control Option

None of the control options are eliminated based on an evaluation of collateral impacts or cost analysis.

4.2.3.4 Step 5 – Select BACT

A review of the RBLC database revealed that most other steel mills have utilized Low-NO_X burners that perform within a range of 0.07 to 0.1 lb/MMBtu. Additionally, recently issued permits for NorthStar Delta (2019) and Nucor Gallatin (2021) contains BACT emission limits of 0.07 lb/MMBtu.

Nucor proposes to utilize Low-NOx Burners, good combustion practices, and an emission rate of 0.07 lb NOx/MMBtu as BACT for the proposed natural gas-fired tunnel furnace.

4.2.4 Emergency Engines (EU ID EMGEN1 through 6)

NO_X emissions are generated from six (6) 2,000 HP natural gas fired emergency engines as a product of combustion.

4.2.4.1 Step 2 – Eliminate Technically Infeasible Options

The natural gas-fired emergency engines will be operated intermittently and not to exceed 100 hours per year for non-emergency purposes. For SCR and SNCR, the reagent-to-NO_X ratio cannot be feasibly maintained under the significant variation in NOx loading associated with the emergency generators. SCR and SNCR are typically operated on units that provide consistent pollutant loading. The high variations of short-term operation inherent to operations of the emergency generators do not match the conditions where an SCR or SNCR is effective. Furthermore, no applications of SCR or SNCR control on natural gas - fired emergency engines were noted in the search of the RBLC database. Therefore, the SCR or SNCR control is considered technically infeasible for the proposed emergency generators.

Additionally, NSCR control is typically applied only to rich burn engines, while use of a Lean NO_X Catalyst or NO_X Adsorber control are currently unproven for mobile or stationary sources. Therefore, they are considered technically infeasible for the proposed natural gas-fired emergency engines.

4.2.4.2 Step 3 – Rank Remaining Options

Table 4-6 shows the rankings of the options for controlling NO_X emissions from the proposed emergency engines.

Table 4-6. Rank of Remaining Control Technologies for NO_X from Emergency Engines

Control Technology	Efficiency	Rank
Usage Limitation	Varies	1
Good Combustion Practices	Varies	1

4.2.4.3 Step 4 – Evaluation of Most Effective Control Option

None of the control options are eliminated based on an evaluation of collateral impacts or cost analysis.

4.2.4.4 Step 5 – Select BACT

Nucor proposes complying with NSPS Subpart JJJJ and MACT Subpart ZZZZ standards as BACT for the natural gas-fired emergency engines. Nucor will operate the engines according to the manufacturer's recommendations and will limit the operation to less than 100 hours per year in non-emergency scenarios.

4.2.5 Miscellaneous Natural Gas Combustion Units (EU ID LD, LPHTR1 through 7, TD, TPHTR1 and 2, SENPHTR1 and 2, GALVFN1 and 2, BOXANN1 through 22, ASP, and SLAG-CUT)

The proposed mill will utilize several small natural gas-fired heaters, dryers, and furnaces throughout the melt shop, hot mill, and cold mill. The following section provides the NO_X BACT for these miscellaneous natural gas combustion units. Table 4-7 below identifies the natural gas combustion units covered in this section.

Table 4-7. Miscellaneous Natural Gas Combustion Units

Emission Unit ID	Description	Maximum Heat Input (MMBtu/hr)
LD	Ladle Dryer (1 Unit)	15 MMBtu/hr
LPHTR1 through 7	Ladle Preheaters (7 Units)	15 MMBtu/hr each
TD	Tundish Dryer (1 Unit)	6 MMBtu/hr
TPHTR1 and 2	Tundish Preheaters (2 Units)	9 MMBtu/hr each
SENPHTR1 and 2	Subentry Nozzle Preheaters (2 Units)	1 MMBtu/hr each
GALVFN1 and 2	Galvanizing Furnaces (2 Units)	83 MMBtu/hr each
BOXANN1 through 22	Box Annealing Furnaces (22 Units)	10 MMBtu/hr each
ASP	Water Bath Vaporizer (1 Unit)	11 MMBtu/hr
SLAG-CUT	Slag Cutting (Lancing/Torching)	2.4 MMBtu/hr

4.2.5.1 Step 2 – Eliminate Technically Infeasible Options

The sources in this section are all designed to exhaust indoors with the exception of the galvanizing line furnaces, making add-on controls not feasible as there is no duct or stack to route emissions to a control device. Furthermore, no applications of add-on controls on similar natural gas-fired sources were noted in the search of the RBLC database. Therefore, the application of SCR or SNCR control is considered technically infeasible for the sources included in this section with the exception of the galvanizing line furnaces.

Additionally, NSCR control is effective only in a stoichiometric or fuel-rich environment where combustion gas is nearly depleted of oxygen and is typically applied only to rich burn engines, while the SCONOX Catalytic Absorption Systems are typically applied to power generation turbines, and the Xonon Cool Combustion control is only integrated into gas turbine combustors. Therefore, they are considered technically infeasible for all sources in this section with the exception of the galvanizing line furnaces.

4.2.5.2 Step 3 – Rank Remaining Options

Table 4-8 shows the rankings of the options for controlling NO_X emissions from the miscellaneous natural gas combustion units listed in this section.

Table 4-8. Rank of Remaining Control Technologies for NO_X from Miscellaneous Natural Gas Combustion Units

Control Technology	Efficiency	Rank
SCR [Galvanizing Line Furnaces Only]	70-90%	1
Low-NOx Burners (LNBs) [All Other Sources]	Up to 80%	1
SNCR [Galvanizing Line Furnaces Only]	25-75%	2
Oxy-Fuel Burners	Up to 80%	2
Good Combustion Practices	Varies	3

4.2.5.3 Step 4 – Evaluation of Most Effective Control Option

For the galvanizing line furnaces, the highest ranking control technologies for the control of NO_X include SCR and SNCR. Nucor evaluated the cost effectiveness for both SCR and SNCR following inlet emissions from low-NO_X burners. As low-NO_X burners lower the inlet loading of NO_X to the potential control device, SCR or SNCR would not achieve the high end of their respective control efficiencies.

A cost analysis for SCR and SNCR determined that both technologies are beyond the acceptable range of BACT cost effectiveness for this type of emission unit. Cost analysis calculations are provided in Appendix C along with the RBLC database search results. A summary of the cost feasibility analysis are provided in Table 4-9 below.

Table 4-9. Cost Analysis for Galvanizing Line Furnaces NO_X Control Technologies

Control Technology	Emission Reduction (tpy)	Annualized Control Cost ($)	Cost ($/ton)
SCR	14.5	$214,470	$14,749
SNCR	7.3	$108,023	$14,857

4.2.5.4 Step 5 – Select BACT

The RBLC database search results range from 0.06 lb/MMBtu to 0.1 lb/MMBtu with the majority of the limits at 0.1 lb/MMBtu for similar natural gas combustion units at steel mills. Additionally, recently issued permits for Steel Dynamics Texas (2020) and Big River Steel (2021) contain BACT emission limits of 0.1 lb/MMBtu for similarly sized natural gas combustion units.

Nucor proposes to utilize Low-NOx Burners, good combustion practices, and an emission rate of 0.05 lb NOx/MMBtu as BACT from the Galvanizing Line Furnaces and the Box Annealing Furnaces. Additionally, Nucor proposes to utilize Low-NOx Burners, good combustion practices, and an emission rate of 0.1 lb NOx/MMBtu as BACT from the following sources:

- Ladle Dryer (EU ID LD)
- Ladle Preheaters (EU ID LPHTR1 – LPHTR7)
- Tundish Dryer (EU ID TD)
- Tundish Preheaters (EU ID TPHTR1 and 2)
- Subentry Nozzle Preheaters (EU ID SENPHTR1 and 2)
- Water Bath Vaporizer (EU ID ASP)
- Slag Cutting (EU ID SLAG-CUT)

4.3 CO BACT Analysis

Carbon Monoxide (CO) emissions are primarily generated through the incomplete combustion of fuel. Various fuels are used for the purposes of generating heat for direct or indirect heat transfer or for emergency backup power. Natural gas is proposed as the primary fuel source and the rate of CO emissions will be dependent on the efficiency of natural gas combustion. Table 4-10 provides a summary of the selected CO BACT for each applicable CO emission source.

Table 4-10. Summary of Selected BACT for CO Emitting Sources

Emission Unit ID	Emission Unit	Selected CO BACT
EAF1/LMF1 EAF2/LMF2	EAF1/LMF1 EAF2/LMF2	2.02 lb CO/ton steel each on a 30-day rolling average
TF1	Tunnel Furnace #1	0.082 lb CO/MMBtu
EMGEN1 through 6	Emergency Engine #1 through 6	NSPS JJJJ and RICE MACT
VTD1 VTD2	Vacuum Tank Degasser #1 Vacuum Tank Degasser #2	Minimum Destruction Efficiency of 98%
See Table 4-7	Ladle Dryer (1 Unit) Ladle Preheaters (7 Units) Tundish Dryer (1 Unit) Tundish Preheaters (2 Units) Subentry Nozzle Preheaters (2 Units) Galvanizing Furnaces (2 Units) Box Annealing Furnaces (22 Units) Water Bath Vaporizer (1 Unit) Slag Cutting (1 Unit)	0.082 lb/MMBtu

4.3.1 Step 1 – Identify All Control Options

Nucor identified and reviewed the following CO control options which are summarized in Table 4-11 and are evaluated for each CO source in this analysis.

Table 4-11. Potential CO Control Technologies

Control Option	Description
Non-Selective Catalytic Reduction (NSCR)	Metallic catalysts convert NOx, CO, and hydrocarbons to water, nitrogen, and CO2.
SCONOX Catalytic Absorption System	Utilizes a single catalyst to remove NOx, CO, and VOC through oxidation.
Xonon Cool Combustion	A catalyst integrated into gas turbine combustors limits the production of NOx through temperature control also resulting in reduced emissions of CO and VOC.
Recuperative Thermal Oxidation	Oxidizes combustible materials by raising the temperature of the material above the auto-ignition point in the presence of oxygen and maintaining the high temperature for sufficient time to complete combustion.
Regenerative Thermal Oxidation	Oxidizes combustible materials by raising the temperature of the material above the auto-ignition point in the presence of oxygen and maintaining the high temperature for sufficient time to complete combustion.

Control Option	Description
Catalytic Oxidation	Similar to thermal incineration; waste stream is heated by a flame and then passes through a catalyst bed that increases the oxidation rate more quickly and at lower temperatures.
Good Combustion Practices	Operate and maintain the equipment in accordance with good air pollution control practices and with good combustion practices.

4.3.2 Electric Arc Furnace/Ladle Metallurgy Furnace BACT Evaluation (EU ID EAF1, EAF2, LMF1, and LMF2)

The EAFs and LMFs will generate CO emissions as a product of combustion and incomplete oxidation of carbon from the steel.

4.3.2.1 Step 2 – Eliminate Technically Infeasible Options

NSCR control is typically applied only to rich burn engines, while SCONOX Catalytic Absorption System is typically applied to power generation turbines, and the Xonon Cool Combustion control is only integrated into gas turbine combustors. Therefore, they are considered technically infeasible for the proposed EAFs.

A primary pollutant of concern for the EAFs and LMFs is PM as the melting and refining of steel generates a large quantity of dust. The PM control device requires the temperature of the exhaust stream to be around 300 °F. A recuperative/regenerative thermal oxidizer or a catalytic oxidizer would necessarily have to be located downstream of this baghouse in order to properly control CO and prevent premature damage to the baghouse. Therefore, in order to operate a recuperative/regenerative thermal oxidizer or a catalytic oxidizer, the exhaust stream would need to be reheated after passing through the baghouse. Heating a high-volume exhaust stream like this to proper temperature for the oxidizers' effectiveness would result in increased emissions of CO, NO_X, formaldehyde, and other pollutants from the additional fuel that would have to be combusted. This increase in emissions defeats the purpose of the add-on pollution control device. Therefore, these oxidation controls are considered technically infeasible for the proposed EAF.

4.3.2.2 Step 3 – Rank Remaining Options

Table 4-12 shows the rankings of the options for controlling CO emissions from the proposed EAFs and LMFs.

Table 4-12. Rank of Remaining Control Technologies for CO from EAFs and LMFs

Control Technology	Efficiency	Rank
Good Combustion Practices	Varies	1

4.3.2.3 Step 4 – Evaluation of Most Effective Control Option

None of the control options are eliminated based on an evaluation of collateral impacts or cost analysis.

4.3.2.4 Step 5 – Select BACT

Nucor is proposing BACT for the EAF and the LMF separately as this is how the limits are commonly permitted and shown in the RBLC database. However, since they both will exhaust to the same stack, it is important to consider both together in establishing the BACT emission limit.

4.3.2.4.1 EAF CO BACT Emission Limit

A review of the RBLC database revealed that other steel mills have an emission limit ranging from 1.33 lb CO/ton of steel to 12 lb CO/ton of steel. The lowest CO emission limit identified in the RBLC database for EAFs is 1.3273 lb/ton from a PSD permit issued to CMC Seguin (PSDTX708M6) on July 24, 2014. However, such emission factor was based on site/equipment-specific stack testing results. Additionally, the next lowest CO emission limits of 1.7 lb/ton from a PSD permit issued to CMC South Carolina (1560-0087-CW) is also based on historical equipment-specific stack testing results. The stack testing results are not considered representative for establishing an emission limit for continuous compliance demonstration. The RBLC database clearly identifies that 2.0 lb/ton is considered BACT for similar sources.

Nucor proposes to utilize good combustion practices and a CO emission rate of 2.0 lb/ton steel as BACT for the proposed EAF. It should be noted that the proposed LMFs will exhaust from the same stack (BHST-1 and BHST-2) as the EAFs. The final BACT emission limit will be the aggregate of all emission sources exhausting from the same stack.

4.3.2.4.2 LMF CO BACT Emission Limit

Nucor proposes good combustion practices and a CO emission rate of 0.02 lb/ton steel as BACT for the proposed LMFs. This is equivalent to the lowest CO emission limit identified in the RBLC database for LMFs. The emissions from the LMFs will be exhausted from the same stack as the emissions from the EAFs.

4.3.2.4.3 Combined CO BACT Emission Limit

Recently issued permits for Steel Dynamics Texas (2020) and Big River Steel (2021) contain BACT emission limits of 2.02 lb/ton.

Nucor proposes a combined EAF/LMF CO emissions limit for BHST-1 and BHST-2 of 2.02 lb/ton steel for each stack.

4.3.3 Vacuum Tank Degassers (EU ID VTD1 and VTD2)

CO emissions will be generated from the vacuum tank degassers due to the release of carbon from steel and partial oxidation to CO.

4.3.3.1 Step 2 – Eliminate Technically Infeasible Options

NSCR control is typically applied only to rich burn engines, while SCONOX Catalytic Absorption System is typically applied to power generation turbines, and the Xonon Cool Combustion control is only integrated into gas turbine combustors. Therefore, these control options are considered technically infeasible for the proposed VTDs.

4.3.3.2 Step 3 – Rank Remaining Options

Table 4-13 shows the rankings of the options for controlling CO emissions from the proposed vacuum tank degassers.

Table 4-13. Rank of Remaining Control Technologies for CO from Vacuum Tank Degassers

Control Technology	Efficiency	Rank
Flare	98%	1
Regenerative Thermal Oxidizer	95 - 99%	2
Catalytic Oxidation	90 - 99%	3

4.3.3.3 Step 4 – Evaluation of Most Effective Control Option

None of the control options are eliminated based on an evaluation of collateral impacts or cost analysis.

4.3.3.4 Step 5 – Select BACT

The RBLC database search identified the typical control for VTDs at steel mills is the use of a flare. Since the use of a flare is the top identified control technology remaining, SDI has selected it as BACT for the control of CO from the VTD.

Nucor proposes to utilize a flare and destruction efficiency (DRE) of 98%, required under 40 CFR 60.18, as BACT for the proposed VTDs.

4.3.4 Tunnel Furnace (EU ID TF1)

CO emissions are generated from the natural gas-fired tunnel furnace as a product of combustion.

4.3.4.1 Step 2 – Eliminate Technically Infeasible Options

NSCR control is typically applied only to rich burn engines, while SCONOX Catalytic Absorption System is typically applied to power generation turbines, and the Xonon Cool Combustion control is only integrated into gas turbine combustors. Therefore, they are considered technically infeasible for the proposed tunnel furnace.

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. The exhaust temperature for the furnace will be approximately 1,200 °F, outside of the operating range for an oxidation catalyst. Therefore, an oxidation catalyst system is considered technically infeasible for the tunnel furnace.

Thermal oxidizers do not reduce CO emissions from properly operated natural gas combustion units without the use of a catalyst since they required further combustion to work.[1] Since this would follow an already efficient combustion, as well as require additional fuel at the expense of further combustion emissions, these control devices are not well suited for use at these combustion unit.

4.3.4.2 Step 3 – Rank Remaining Options

Table 4-14 shows the rankings of the options for controlling CO emissions from the proposed tunnel furnace.

[1] U.S. EPA. Air Pollution Control Technology Fact Sheet (Regenerative Incinerator), EPA-452/F-03-021.

Table 4-14. Rank of Remaining Control Technologies for CO from Tunnel Furnace

Control Technology	Efficiency	Rank
Good Combustion Practices	Varies	1

4.3.4.3 Step 4 – Evaluation of Most Effective Control Option

None of the control options are eliminated based on an evaluation of collateral impacts or cost analysis.

4.3.4.4 Step 5 – Select BACT

A review of the RBLC database revealed that CO emissions from tunnel furnaces range from 0.07 lb/MMBtu to 0.0824 lb/MMBtu with most steel mills permitted at 0.082 lb/MMBtu. Only one facility, NorthStar Delta, claimed a 0.07 lb CO/MMBtu limit through a retrofit of their existing tunnel furnace burners. However, the recently issued permits for Steel Dynamics Texas (2020) and Nucor Gallatin (2021) contain BACT emission limits of 0.082 lb/MMBtu.

Nucor proposes a CO emission rate of 0.082 lb/MMBtu as BACT for the proposed natural gas fired tunnel furnace. This is equivalent to recently permitted similar emission unit CO emission limits identified in the RBLC database and to the AP-42 emission factor for natural gas combustion in the latest version of Chapter 1.4. Compliance will be demonstrated via the combustion of pipeline quality natural gas and use of good combustion practices.

4.3.5 Emergency Engines (EU ID EMGEN1 through 6)

CO emissions are generated from six (6) 2,000 HP natural gas fired emergency engines as a product of combustion.

4.3.5.1 Step 2 – Eliminate Technically Infeasible Options

NSCR control is typically applied only to rich burn engines, while SCONOX Catalytic Absorption Systems are typically applied to power generation turbines, and the Xonon Cool Combustion control is only integrated into gas turbine combustors. Therefore, they are considered technically infeasible for the proposed emergency engines.

The natural gas-fired emergency engines will be operated intermittently and not to exceed 100 hours per year for non-emergency purposes. Add-on controls are not appropriate for such intermittent, natural gas fired combustion units as it would be ineffective in removing any additional CO emissions. Furthermore, no applications of add-on controls on natural gas -fired emergency engines were noted in the search of the RBLC database. Therefore, the application of the thermal or catalytic oxidizer control is considered technically infeasible for the proposed emergency engines.

4.3.5.2 Step 3 – Rank Remaining Options

Table 4-15 shows the rankings of the options for controlling CO emissions from the proposed emergency engines.

Table 4-15. Rank of Remaining Control Technologies for CO from Emergency Engines

Control Technology	Efficiency	Rank
Usage Limitation	Varies	1
Good Combustion Practices	Varies	1

4.3.5.3 Step 4 – Evaluation of Most Effective Control Option

None of the control options are eliminated based on an evaluation of collateral impacts or cost analysis.

4.3.5.4 Step 5 – Select BACT

Nucor proposes complying with NSPS Subpart JJJJ and MACT Subpart ZZZZ standards as BACT for the natural gas-fired emergency engines. Nucor will operate the engines according to the manufacturer's recommendations and will limit the operation to less than 100 hours per year in non-emergency scenarios.

4.3.6 Miscellaneous Natural Gas Combustion Units (EU ID LD, LPHTR1 through 7, TD, TPHTR1 and 2, SENPHTR1 and 2, GALVFN1 and 2, BOXANN1 through 22, ASP, and SLAG-CUT)

The proposed mill will utilize several small natural gas-fired heaters, dryers, and furnaces throughout the melt shop, hot mill, and cold mill. The following section provides the CO BACT for these miscellaneous natural gas combustion units. Table 4-7 above has identified the natural gas combustion units covered in this section.

4.3.6.1 Step 2 – Eliminate Technically Infeasible Options

NSCR control is typically applied only to rich burn engines, while SCONOX Catalytic Absorption System is typically applied to power generation turbines, and the Xonon Cool Combustion control is only integrated into gas turbine combustors. Therefore, they are considered technically infeasible for the proposed dryers and preheaters.

The sources in this section are all designed to exhaust indoors with the exception of the galvanizing line furnaces, making add-on controls not feasible as there is no duct or stack to route them through a control device. No applications of add-on controls on similar natural gas-fired sources were noted in the search of the RBLC database. Therefore, the application of post-combustion control device is considered technically infeasible for the sources included in this section, with the exception of the galvanizing line furnaces.

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. The exhaust temperature for the galvanizing line furnaces will be approximately 1,200 °F, outside of the operating range for an oxidation catalyst. Therefore, an oxidation catalyst system is considered technically infeasible for the galvanizing line furnaces.

Thermal oxidizers do not reduce CO emissions from properly operated natural gas combustion units without the use of a catalyst since they require further combustion to work.[2] Since this would follow an already efficient combustion process, as well as require additional fuel at the expense of further combustion emissions, these control devices are not well suited for use at these combustion units.

[2] U.S. EPA. Air Pollution Control Technology Fact Sheet (Regenerative Incinerator), EPA-452/F-03-021.

4.3.6.2 Step 3 – Rank Remaining Options

Table 4-16 shows the rankings of the options for controlling CO emissions from the miscellaneous natural gas combustion units listed in this section.

Table 4-16. Rank of Remaining Control Technologies for CO from Miscellaneous Natural Gas Combustion Units

Control Technology	Efficiency	Rank
Good Combustion Practices	Varies	1

4.3.6.3 Step 4 – Evaluation of Most Effective Control Option

None of the control options are eliminated based on an evaluation of collateral impacts or cost analysis.

4.3.6.4 Step 5 – Select BACT

The RBLC database search results range from 0.082 lb/MMBtu to 0.687 lb/MMBtu with the majority of the limits at 0.082 lb/MMBtu for similar natural gas combustion units at steel mills. Additionally, recently issued permits for Steel Dynamics Texas (2020) ang Big River Steel (2021) contain BACT emission limits of 0.082 lb/MMBtu for similarly sized natural gas combustion units.

Nucor proposes to utilize good combustion practices and an emission rate of 0.082 lb CO/MMBtu as BACT for the proposed miscellaneous natural gas combustion units identified in Table 4-7. This is equivalent to the AP-42 emission factor for natural gas combustion in the latest version of Chapter 1.4 and the lowest CO emission limit identified in the RBLC database for comparable units. Compliance will be demonstrated via the combustion of natural gas and use of good combustion practices.

4.4 SO_2 BACT Analysis

Sulfur dioxide (SO_2) emissions are primarily generated through the combustion of fuel for the purposes of generating heat for direct or indirect heat transfer or for emergency backup power. Incoming sulfur in the fuel stream is oxidized and converted to SO_2. Furthermore, the EAF's and LMF's will generate SO_2 emissions as a product of combustion due to sulfur present in the EAF charge material. Table 4-17 provides a summary of the selected SO_2 BACT for each applicable SO_2 emission source.

Table 4-17. Summary of Selected BACT for SO_2 Emitting Sources

Emission Unit ID	Emission Unit	Selected SO_2 BACT
EAF1/LMF1 EAF2/LMF2	EAF1/LMF1 EAF2/LMF2	0.24 lb SO_2/ton steel each on a 30-day rolling average
TF1	Tunnel Furnace #1	0.000588 lb SO_2/MMBtu
EMGEN1 through 6	Emergency Engine #1 through 6	NSPS JJJJ and RICE MACT, Use of ULSD
See Table 4-7	Ladle Dryer (1 Unit) Ladle Preheaters (7 Units) Tundish Dryer (1 Unit) Tundish Preheaters (2 Units) Subentry Nozzle Preheaters (2 Units) Galvanizing Furnaces (2 Units) Box Annealing Furnaces (22 Units) Water Bath Vaporizer (1 Unit) Slag Cutting (1 Unit)	0.000588 lb/MMBtu

4.4.1 Step 1 – Identify All Control Options

Nucor identified and reviewed the following SO_2 control options which are summarized in Table 4-18 and are evaluated for each SO_2 source in this analysis.

Table 4-18. Potential SO_2 Control Technologies

Control Option	Description
Impingement-Plate/ Tray-Tower Scrubber	An impingement-plate scrubber promotes contact between the flue gas and a sorbent slurry in a vertical column with transversely mounted perforated trays. Absorption of SO_2 is accomplished by countercurrent contact between the flue gas and reagent slurry.
Packed-Bed/Packed-Tower Wet Scrubber	Scrubbing liquid (e.g., NaOH), which is introduced above layers of variously-shaped packing material, flows concurrently against the flue gas stream. The acid gases are absorbed into the scrubbing solution and react with alkaline compounds to produce neutral salts.
Spray-Chamber/ Spray-Tower Wet Scrubber	Spray tower scrubbers introduce a reagent slurry as atomized droplets through an array of spray nozzles within the scrubbing chamber. The waste gas enters the bottom of the column and travels upward in a countercurrent flow. Absorption of SO_2 is accomplished by the contact between the gas and reagent slurry, which results in the formation of neutral salts.
Flue Gas Desulfurization	An alkaline reagent is introduced in a spray tower as an aqueous slurry (for wet systems) or is pneumatically injected as a powder in the waste gas ductwork (for dry systems). Absorption of SO_2 is accomplished by the contact between the gas and reagent slurry or powder, which results in the formation of neutral salts.
Good Combustion Practices	Operate and maintain the equipment in accordance with good air pollution control practices and with good combustion practices, including the use of natural gas.

4.4.2 Electric Arc Furnace/Ladle Metallurgy Furnace BACT Evaluation (EU ID EAF1, EAF2, LMF1, and LMF2)

The EAFs/LMFs will primarily generate SO_2 emissions as a product of combustion due to sulfur present in the EAF charge material.

4.4.2.1 Step 2 – Eliminate Technically Infeasible Options

The outlet temperature of the proposed EAFs will be significantly above the normal operating temperature of an impingement-plate/tray-tower scrubber, packed-bed/packed-tower wet scrubber, and spray-chamber/spray-tower wet scrubber. For these scrubbing technologies, the operating temperature of the incoming waste gas should be in the temperature range of 40°F to 100°F. However, the EAF baghouse exhaust temperature is expected to be 225°F. Therefore, the application of these scrubbers is considered technically infeasible for the proposed EAFs.

The SO_2 concentrations in the exhaust of the proposed EAFs will be below the levels typically controlled by flue gas desulfurization systems. Therefore, flue gas desulfurization control would not be effective in removing any additional SO_2 emissions from the proposed EAFs, and it is considered technically infeasible.

4.4.2.2 Step 3 – Rank Remaining Options

Table 4-19 shows the rankings of the options for controlling SO_2 emissions from the proposed EAFs and LMFs.

Table 4-19. Rank of Remaining Control Technologies for SO_2 from EAFs and LMFs

Control Technology	Efficiency	Rank
Scrap Management System	Varies	1

4.4.2.3 Step 4 – Evaluation of Most Effective Control Option

None of the control options are eliminated based on an evaluation of collateral impacts or cost analysis.

4.4.2.4 Step 5 – Select BACT

Nucor is proposing BACT for the EAF and the LMF separately as this is how the limits are commonly permitted and shown in the RBLC database. However, since they both will exhaust to the same stack, it is important to consider both together in establishing the BACT emission limit.

4.4.2.4.1 EAF SO_2 BACT Emission Limit

The implementation of a scrap management system is the only feasible control technique identified in the RBLC database. The corresponding limits range from 0.13 through 1.76 lb/ton. The lowest limit in the RBLC database is 0.13 lb/ton was issued for the New Steel Haverhill plant in 2008 but this plant has not been constructed. Therefore, this limit is not demonstrated in practice and is removed from consideration. The next two limits are 0.15 lb/ton, issued to Thyssenkrup Calvert (now AM/NS) and ERMS Pueblo in 2010 and 2011, respectively. The Calvert Mill subsequently requested a permit modification in 2014 to establish more representative BACT emission limits, including a higher 0.375 lb SO_2/ton steel limit. As represented by the Calvert Mill, the emissions of SO_2 generated in the EAF are dictated by the sulfur that is present in the melted scrap. Therefore, the SO_2 emissions will vary depending on the specific scrap received by each site and some fluctuations in the emission limits from site to site is to be expected.

Recently issued permit for Steel Dynamics Texas (2020) contain BACT emission limits of 0.24 lb/ton on a rolling 30-day average. Additionally, the most recent permit issued for Big River Steel (2021) contains BACT emission limits of 0.20 lb/ton based on periodic stack testing of the EAF baghouses.

Based on the anticipated scrap mix at the proposed facility, Nucor proposes BACT for the EAF as the use of a scrap management plan to minimize the amount of sulfur introduced into the EAF and an emission rate of 0.20 lb SO_2/ton steel on a rolling 30-day average. While there are three entries in the RBLC database that are lower, SO_2 emissions will vary with the availability of scrap materials. The proposed BACT emission limit for the proposed facility reflects this expected variability and represents BACT for SO_2 emissions that will be achievable using a site-specific scrap management plan.

4.4.2.4.2 LMF SO_2 BACT Emission Limit

Nucor proposes as BACT for the proposed LMFs to utilize a scrap management plan and an emission rate of 0.04 lb SO_2/ton steel on a rolling 30-day average. The emissions from the LMFs will be exhausted from the same stack as the emissions from the EAFs.

4.4.2.4.3 Combined SO_2 BACT Emission Limit

Nucor proposes a combined EAF/LMF limit for BHST-1 and BHST-2 of 0.24 lb SO_2/ton steel on a rolling 30-day average for each stack.

4.4.3 Tunnel Furnace (EU ID TF1)

SO_2 emissions are generated from the natural gas-fired tunnel furnaces as a product of combustion.

4.4.3.1 Step 2 – Eliminate Technically Infeasible Options

The outlet temperature of the proposed furnace will be significantly above the normal operating temperature of an impingement-plate/tray-tower scrubber, packed-bed/packed-tower wet scrubber, and spray-chamber/spray-tower wet scrubber. For these scrubbing technologies, the operating temperature of the incoming waste gas should be in the temperature range of 40°F to 100°F. However, the tunnel furnace exhaust temperature is expected to be 700°F. Therefore, the application of these scrubbers is considered technically infeasible for the proposed tunnel furnace.

The SO_2 concentrations in the exhaust of the proposed furnace will be below the levels typically controlled by flue gas desulfurization systems. Therefore, flue gas desulfurization control would not be effective in removing any additional SO_2 emissions from the proposed tunnel furnace, and it is considered technically infeasible.

4.4.3.2 Step 3 – Rank Remaining Options

Table 4-20 shows the rankings of the options for controlling SO_2 emissions from the proposed tunnel furnace.

Table 4-20. Rank of Remaining Control Technologies for SO_2 from Tunnel Furnace

Control Technology	Efficiency	Rank
Use of Low Sulfur Fuel (Natural Gas)	Varies	1

4.4.3.3 Step 4 – Evaluation of Most Effective Control Option

None of the control options are eliminated based on an evaluation of collateral impacts or cost analysis.

4.4.3.4 Step 5 – Select BACT

A review of the RBLC database revealed that SO_2 emissions from tunnel furnaces ranges from 0.00057 lb/MMBtu to 0.000625 lb/MMBtu. Additionally, recently issued permits for Steel Dynamics Texas (2020) and Big River Steel Arkansas (2021) contain BACT emission limits of 0.0006 lb/MMBtu.

Nucor proposes an emission rate of 0.0006 lb SO_2/MMBtu as BACT for the proposed natural gas fired tunnel furnace. This is equivalent to the AP-42 emission factor for natural gas combustion in the latest version of Chapter 1.4. The proposed emission limit is equivalent to the lowest SO_2 emission limit identified in the RBLC database for tunnel furnace. Compliance will be demonstrated via the combustion of pipeline quality natural gas.

4.4.4 Emergency Engines (EU ID EMGEN1 through 6)

SO_2 emissions are generated from six (6) 2,000 HP natural gas fired emergency engines as a product of combustion.

4.4.4.1 Step 2 – Eliminate Technically Infeasible Options

The natural gas-fired emergency engines will be operated intermittently and not to exceed 100 hours per year for non-emergency purposes. Add-on controls are not appropriate for such intermittent, natural gas-fired combustion units as it would be ineffective in removing any additional SO_2 emissions. Furthermore, no applications of add-on controls on sources similar to the proposed natural gas-fired emergency engines were found in the search of the RBLC database. Therefore, the application of the thermal or catalytic oxidizer control is considered technically infeasible for the proposed emergency engines.

4.4.4.2 Step 3 – Rank Remaining Options

Table 4-21 shows the rankings of the options for controlling SO_2 emissions from the proposed emergency engines.

Table 4-21. Rank of Remaining Control Technologies for SO_2 from Emergency Engines

Control Technology	Efficiency	Rank
Usage Limitation	Varies	1
Good Combustion Practices	Varies	1

4.4.4.3 Step 4 – Evaluation of Most Effective Control Option

None of the control options are eliminated based on an evaluation of collateral impacts or cost analysis.

4.4.4.4 Step 5 – Select BACT

Nucor proposes complying with NSPS Subpart JJJJ and MACT Subpart ZZZZ standards as BACT for the natural gas fuel-fired emergency engines. Nucor will operate the engines according to the manufacturer's recommendations and will limit the operation to less than 100 hours per year in non-emergency scenarios.

4.4.5 Miscellaneous Natural Gas Combustion Units (EU ID LD, LPHTR1 through 7, TD, TPHTR1 and 2, SENPHTR1 and 2, GALVFN1 and 2, BOXANN1 through 22, ASP, and SLAG-CUT)

The proposed mill will utilize several small natural gas-fired heaters, dryers, and furnaces throughout the melt shop, hot mill, and cold mill. The following section provides the SO_2 BACT for these miscellaneous natural gas combustion units. Table 4-7 above has identified the natural gas combustion units covered in this section.

4.4.5.1 Step 2 – Eliminate Technically Infeasible Options

The sources in this section are all designed to exhaust indoors, making add-on controls not feasible as there is no duct or stack to route the emissions through a control device. Furthermore, no applications of add-on controls on similar natural gas-fired sources were noted in the search of the RBLC database. Therefore, the application of add on controls are considered technically infeasible for the sources included in this section.

4.4.5.2 Step 3 – Rank Remaining Options

Table 4-22 shows the rankings of the options for controlling SO_2 emissions from the miscellaneous natural gas combustion units listed in this section.

Table 4-22. Rank of Remaining Control Technologies for SO_2 from Miscellaneous Natural Gas Combustion Units

Control Technology	Efficiency	Rank
Use of Low Sulfur Fuel (Natural Gas)	Varies	1

4.4.5.3 Step 4 – Evaluation of Most Effective Control Option

None of the control options are eliminated based on an evaluation of collateral impacts or cost analysis.

4.4.5.4 Step 5 – Select BACT

The RBLC database search results indicate that the majority of the similar natural gas combustion units at steel mills have limits set at 0.000588 lb/MMBtu. Additionally, recently issued permits for Steel Dynamics Texas (2020) and Big River Steel Arkansas (2021) contain BACT emission limits of 0.0006 lb/MMBtu.

Nucor proposes to utilize good combustion practices and an emission rate of 0.0006 lb SO_2/MMBtu as BACT for the proposed miscellaneous natural gas-fired combustion units identified in Table 4-7. This is equivalent to the AP-42 emission factor for natural gas combustion in the latest version of Chapter 1.4. The proposed emission limit is equivalent to the lowest SO2 emission limit identified in the RBLC database for comparable units. Compliance will be demonstrated by firing pipeline quality natural gas.

4.5 VOC BACT Analysis

Similar to CO, Volatile Organic Compounds (VOC) emissions are primarily generated through the incomplete combustion of fuel. Various fuels are used for the purposes of generating heat for direct or indirect heat transfer or for emergency backup power. Natural gas is proposed as the primary fuel source and the rate of VOC emissions will be dependent on the efficiency of natural gas combustion. Table 4-23 provides a summary of the selected CO BACT for each applicable CO emission source.

Table 4-23. Summary of Selected BACT for VOC Emitting Sources

Emission Unit ID	Emission Unit	Selected VOC BACT
EAF1/LMF1 EAF2/LMF2	EAF1/LMF1 EAF2/LMF2	0.093 lb VOC/ton steel each
TF1	Tunnel Furnace #1	0.0054 lb/MMBtu
EMGEN1 through 6	Emergency Engine #1 through 6	NSPS JJJJ and RICE MACT
See Table 4-7	Ladle Dryer (1 Unit) Ladle Preheaters (7 Units) Tundish Dryer (1 Unit) Tundish Preheaters (2 Units) Subentry Nozzle Preheaters (2 Units) Galvanizing Furnaces (2 Units) Box Annealing Furnaces (22 Units) Water Bath Vaporizer (1 Unit) Slag Cutting (1 Unit)	0.0054 lb/MMBtu
See Table 4-29	Auxiliary Storage Tanks Cold Degreasers	Fixed Roof Cover when not in use

4.5.1 Step 1 – Identify All Control Options

Nucor identified and reviewed the following VOC control options which are summarized in Table 4-24 and are evaluated for each VOC source in this analysis.

Table 4-24. Potential VOC Control Technologies

Control Option	Description
Recuperative Thermal Oxidation	Oxidizes combustible materials by raising the temperature of the material above the auto-ignition point in the presence of oxygen and maintaining the high temperature for sufficient time to complete combustion.
Regenerative Thermal Oxidation	Oxidizes combustible materials by raising the temperature of the material above the auto-ignition point in the presence of oxygen and maintaining the high temperature for sufficient time to complete combustion.
Catalytic Oxidation	Similar to thermal incineration; waste stream is heated by a flame and then passes through a catalyst bed that increases the oxidation rate more quickly and at lower temperatures.
Carbon / Zeolite Adsorption	Adsorption technology utilizes a porous solid to selectively collect VOC from the gas stream. Adsorption collects VOC but does not destroy it.

Control Option	Description
Biofiltration	Exhaust gases containing biodegradable organic compounds are vented, under controlled temperature and humidity, through biologically active material. The microorganisms contained in the bed of bio-material digest or biodegrade the organics to CO_2 and water.
Condenser	Condensers convert a gas or vapor stream to a liquid, allowing the organics within the stream to be recovered, refined, or reused and preventing the release of organic streams into the ambient air.
Fixed Roof to a Control Device *(Only Applicable to storage tanks)*	A fixed roof tank routed to a vapor control device such as a flare, thermal oxidized, catalytic oxidizer, adsorber, or absorber/scrubber.
Internal Floating Roof or External Floating Roof *(Only Applicable to storage tanks)*	A tank with a roof that floats on the liquid surface to prevent losses from expansion or displacement of the vapor space
Fixed Roof *(Only Applicable to storage tanks)*	A fixed roof prevents wind from blowing over the surface of the liquid which would increase emissions
Submerged Fill *(Only Applicable to storage tanks)*	Submerged fill eliminates splashing to prevent formation of mist that could be entrained in the vent stream and/or increase evaporation rates due to increased liquid surface area caused by the mist.
White or Aluminum surfaces exposed to the sun *(Only Applicable to storage tanks)*	White or aluminum exterior surfaces that are exposed to the sun absorb less heat due to solar insolation resulting in lower breathing (standing) losses
Good Combustion Practices	Operate and maintain the equipment in accordance with good air pollution control practices.

4.5.2 Electric Arc Furnace/Ladle Metallurgy Furnace BACT Evaluation (EU ID EAF1, EAF2, LMF1, and LMF2)

The EAFs will generate VOC emissions as a product of combustion. The LMFs will generate VOC emissions as a result of escaping volatiles that were not emitted during the initial melting of the steel in the EAFs.

4.5.2.1 Step 2 – Eliminate Technically Infeasible Options

A primary pollutant of concern for the EAFs and LMFs is PM as the melting and refining of steel generates a large quantity of dust. The PM control device requires the temperature of the exhaust stream to be around 300 °F. For a recuperative/ regenerative thermal oxidizer or a catalytic oxidizer, the required operating temperature is typically at least 600 °F. Heating a high-volume exhaust stream like this to proper temperature for the oxidizers control would result in increased emissions of VOC from the additional fuel that would have to be combusted, defeating the purpose of the control device. Therefore, recuperative/ regenerative thermal oxidizer and catalytic oxidizer control are considered technically infeasible.

In addition, the exhaust temperature exceeds the acceptable levels of operating temperature for carbon/ zeolite adsorption, biofiltration, and condenser. Therefore, these control options are not considered technically feasible.

4.5.2.2 Step 3 – Rank Remaining Options

Table 4-25 shows the rankings of the options for controlling VOC emissions from the proposed EAFs and LMFs.

Table 4-25. Rank of Remaining Control Technologies for VOC from EAFs and LMFs

Control Technology	Efficiency	Rank
Good Combustion Practices/Scrap Management Program	Varies	1

4.5.2.3 Step 4 – Evaluation of Most Effective Control Option

None of the control options are eliminated based on an evaluation of collateral impacts or cost analysis.

4.5.2.4 Step 5 – Select BACT

Nucor is proposing BACT for the EAF and the LMF separately as this is how the limits are commonly permitted and shown in the RBLC database. However, since they both will exhaust to the same stack, it is important to consider both together in establishing the BACT emission limit.

4.5.2.4.1 EAF VOC BACT Emission Limit

The RBLC database search generates VOC emission limits that range from 0.03 lb/ton to 0.43 lb/ton. All the BACT emission limits are based on site specific scrap management programs used to eliminate the purchase of scrap steel that is heavily oiled or that contains organic liquids. The scrap management plan includes site specific oil minimization practices such as general scrap specifications. As such, the limits listed for one mill might not be feasible for another mill.

Recently issued permits for Steel Dynamics Texas (2020) and Big River Steel (2021) contain BACT emission limits of 0.093 lb/ton based on periodic stack testing of the baghouses.

Nucor proposes as BACT for the proposed EAFs to utilize good combustion practices and a scrap management program and an emission rate of 0.093 lb VOC/ton steel. While there are entries in the RBLC database that are lower, VOC emissions will vary with the availability of scrap materials. The proposed BACT emission limit for the proposed facility reflects this expected variability and represents BACT for VOC emissions that will be achievable using a site-specific scrap management plan.

4.5.2.4.2 LMF VOC BACT Emission Limit

RBLC reveals BACT emission limits that range from 0.004 lb/ton to 0.35 lb/ton. The 0.004 lb/ton emission limit is for a Nucor Steel Mill in Jewett, TX. This limit is eliminated from consideration because the corresponding VOC limit from the EAF for this same facility is 0.43 lb/ton, which is significantly higher than the proposed VOC emissions from the proposed EAF. The next most stringent limit is 0.005 lb/ton, which is at Big River Steel.

Nucor proposes as BACT for the proposed LMF to utilize a scrap management program and an emission rate of 0.005 lb VOC/ton steel. The LMFs emissions will exhaust through the same stack as the emissions from the EAFs.

4.5.2.4.3 Combined VOC BACT Emission Limit

Nucor proposes to utilize a scrap management program and a combined EAF/LMF BACT emission limit for BHST-1 and BHST-2 of 0.093 lb VOC/ton steel.

4.5.3 Tunnel Furnace (EU ID TF1)

VOC emissions are generated from the natural gas-fired tunnel furnace as a product of incomplete combustion.

4.5.3.1 Step 2 – Eliminate Technically Infeasible Options

Thermal oxidizers do not reduce VOC emissions from properly operated natural gas-fired combustion units without the use of a catalyst. Further, the outlet temperature of the proposed furnace will be significantly above the normal operating temperature for a catalytic oxidizer. Therefore, application of a thermal or catalytic oxidizer control is considered technically infeasible for the proposed tunnel furnace.

In addition, the exhaust temperature of the proposed furnaces will exceed the acceptable levels of operating temperature for carbon/ zeolite adsorption, biofiltration, and condenser. Therefore, these control options are not considered technically feasible.

4.5.3.2 Step 3 – Rank Remaining Options

Table 4-26 shows the rankings of the options for controlling VOC emissions from the proposed tunnel furnace.

Table 4-26. Rank of Remaining Control Technologies for VOC from Tunnel Furnace

Control Technology	Efficiency	Rank
Good Combustion Practices	Varies	1

4.5.3.3 Step 4 – Evaluation of Most Effective Control Option

None of the control options are eliminated based on an evaluation of collateral impacts or cost analysis.

4.5.3.4 Step 5 – Select BACT

A review of the RBLC database revealed that VOC emissions from tunnel furnaces ranges from 0.0054 lb/MMBtu to 0.0055 lb/MMBtu.

Nucor proposes to utilize good combustion practices and an emission rate of 0.0054 lb VOC/MMBtu, which is based on the AP-42 Chapter 1.4 emission factor of 5.5 lb VOC/MMscf converted to lb/MMBtu using the natural gas heating value of 1,020 Btu/scf as BACT for the proposed tunnel furnace. This is equivalent to the lowest emission limit identified in the RBLC database for tunnel furnaces in steel mills.

4.5.4 Emergency Engines (EU ID EMGEN1 through 6)

VOC emissions are generated from six (6) 2,000 HP natural gas fired emergency engines as a product of incomplete combustion.

4.5.4.1 Step 2 – Eliminate Technically Infeasible Options

Natural gas-fired emergency engines will be operated intermittently and not to exceed 100 hours per year for non-emergency purposes. Add-on controls are not appropriate for intermittent, natural gas fuel-fired combustion units as it would be ineffective in removing any additional VOC emissions. Furthermore, no applications of add-on controls on sources similar to the proposed natural gas-fired emergency engines were found in the search of the RBLC database. Therefore, the application of the thermal or catalytic oxidizer control is considered technically infeasible for the proposed emergency engines.

4.5.4.2 Step 3 – Rank Remaining Options

Table 4-27 shows the rankings of the options for controlling VOC emissions from the proposed emergency engines.

Table 4-27. Rank of Remaining Control Technologies for VOC from Emergency Engines

Control Technology	Efficiency	Rank
Usage Limitation	Varies	1
Good Combustion Practices	Varies	1

4.5.4.3 Step 4 – Evaluation of Most Effective Control Option

None of the control options are eliminated based on an evaluation of collateral impacts or cost analysis.

4.5.4.4 Step 5 – Select BACT

Nucor proposes complying with NSPS Subpart JJJJ and MACT Subpart ZZZZ standards as BACT for the natural gas-fired emergency engines. Nucor will operate the engines according to the manufacturer's recommendations and will limit the operation to less than 100 hours per year in non-emergency scenarios.

4.5.5 Miscellaneous Natural Gas Combustion Units (EU ID LD, LPHTR1 through 7, TD, TPHTR1 and 2, SENPHTR1 and 2, GALVFN1 and 2, BOXANN1 through 22, ASP, and SLAG-CUT)

The proposed mill will utilize several small natural gas-fired heaters, dryers, and furnaces throughout the melt shop, hot mill, and cold mill. The following section provides the VOC BACT for these miscellaneous natural gas combustion units. Table 4-7 above has identified the natural gas combustion units covered in this section.

4.5.5.1 Step 2 – Eliminate Technically Infeasible Options

The sources in this section are all designed to exhaust indoors, making add-on controls not feasible as there is no duct or stack to route them to a control device. Additionally, no applications of add-on controls to similar natural gas-fired sources were noted in the search of the RBLC database. Therefore, all add-on control options are considered technically infeasible for the proposed sources included in this section.

4.5.5.2 Step 3 – Rank Remaining Options

Table 4-28 shows the rankings of the options for controlling VOC emissions from the miscellaneous natural gas combustion units listed in this section.

Table 4-28. Rank of Remaining Control Technologies for VOC from Miscellaneous Natural Gas Combustion Units

Control Technology	Efficiency	Rank
Good Combustion Practices	Varies	1

4.5.5.3 Step 4 – Evaluation of Most Effective Control Option

None of the control options are eliminated based on an evaluation of collateral impacts or cost analysis.

4.5.5.4 Step 5 – Select BACT

Nucor proposes to utilize good combustion practices and an emission rate of 0.0054 lb VOC/MMBtu, which is based on the AP-42 Chapter 1.4 emission factor of 5.5 lb VOC/MMscf converted to lb/MMBtu using the natural gas heating value of 1,020 Btu/scf as BACT for the proposed miscellaneous natural gas-fired combustion units identified in Table 4-7. This is equivalent to the lowest emission limit identified in the RBLC database and the prevailing emission limit identified in the RBLC database for natural gas fired boilers and process heaters with a capacity less than 100 MMBtu/hr in steel mills.

4.5.6 Storage Tanks for Organic Material and Cold Degreasers

This project will include several small (capacity not greater than 5,000 gallon) auxiliary storage tanks to store diesel, gasoline, hydraulic fluid, and used oil as well as several cold degreasers. Minimal VOC emissions will be generated from these operations. Table 4-29 below identifies the emission units covered in this section.

Table 4-29. VOC Containing Auxiliary Storage Tanks

Emission Unit ID	Description	Capacity (gal)
T1	Diesel Tank	5,000
T2	Diesel Tank	1,000
T3	Diesel Tank	1,000
T4	Diesel Tank	1,000
T5	Diesel Tank	2,000
T6	Diesel Tank	2,000
T7	Gasoline Tank	1,000
T8	Caster Hydraulic	5,000
T9	Hot Mill Hydraulic	5,000
T24	Used Oil Tank	5,000
T25	Cold Degreaser	80
T26	Cold Degreaser	80
T27	Cold Degreaser	80
T28	Cold Degreaser	80
T29	Cold Degreaser	80

4.5.6.1 Step 2 - Eliminate Technically Infeasible Options

All of the proposed auxiliary storage tanks and degreasers will be storing low vapor pressure materials and have a capacity less than 5,000 gallons. These tanks are not subject to NSPS Kb requirements based their capacity and vapor pressure criteria. Add-on control devices or the application of floating roofs is not considered technically feasible for the proposed auxiliary tanks as it would be ineffective in removing any additional VOC emissions.

4.5.6.2 Step 3 - Rank Remaining Options

All feasible control options will be used as BACT for the proposed auxiliary storage tanks and cold degreasers.

4.5.6.3 Evaluation of Most Effective Control Option

None of the control options are eliminated based on an evaluation of collateral impacts or cost analysis.

4.5.6.4 Step 5 – Select BACT

Nucor proposes the use of fixed roof tanks, submerged fill, and a white color or aluminum for surfaces exposed to the sun as BACT for the proposed auxiliary storage tanks.

Nucor also proposes the use of good work practices as BACT for the degreasers, specifically the degreaser will be equipped with a cover and remain closed whenever parts are not being cleaned in the degreaser.

4.6 PM/PM_{10}/$PM_{2.5}$ BACT Analysis

Particulate matter (PM/PM_{10}/$PM_{2.5}$) emissions at the proposed mill will primarily be generated from EAF operations and material handling operations. Minor amounts of PM/PM_{10}/$PM_{2.5}$ will be generated through the combustion of fuel as the principal fuel source for the mill is natural gas, which generates inherently low PM/PM_{10}/$PM_{2.5}$ emissions. Table 4-30 provides a summary of the selected PM/PM_{10}/$PM_{2.5}$ BACT for each applicable emission source of PM/PM_{10}/$PM_{2.5}$.

Table 4-30. Summary of Selected BACT for PM/PM_{10}/$PM_{2.5}$ Emitting Sources

Emission Unit ID	Emission Unit	Selected PM/PM_{10}/$PM_{2.5}$ BACT
EAF1/LMF1 EAF2/LMF2 CAST	EAF1/LMF1 EAF2/LMF2 Casting Operations	PM – 0.0018 gr/dscf PM_{10}/$PM_{2.5}$ – 0.0052 gr/dscf
TF1	Tunnel Furnace #1	PM – 1.86E-3 lb/MMBtu PM_{10}/$PM_{2.5}$ – 7.45E-3 lb/MMBtu
PKL-1	Pickling Line #1	PM/PM_{10}/$PM_{2.5}$ – 0.01 gr/dscf
PKLSB	Pickling Line Scale Breaker	PM/PM_{10}/$PM_{2.5}$ – 0.003 gr/dscf
SPM1 SPM2	Skin Pass Mill #1 Skin Pass Mill #2	PM/PM_{10}/$PM_{2.5}$ – 0.01 gr/dscf
CGL1 CGL2	Galvanizing Line #1 Galvanizing Line #2	PM/PM_{10}/$PM_{2.5}$ – 0.003 gr/dscf
CT1 through 8	Cooling Towers #1 through 8	Drift Loss of 0.001%
EMGEN1 through 6	Emergency Engine #1 through #6	NSPS JJJJ and RICE MACT
TCM	Tandem Cold Mill	PM/PM_{10}/$PM_{2.5}$ – 0.01 gr/dscf
STM	Standalone Temper Mill	PM – 0.0025 gr/dscf PM_{10} – 0.0024 gr/dscf $PM_{2.5}$ – 0.0013 gr/dscf
RM	Rolling Mill	PM/PM_{10}/$PM_{2.5}$ – 0.01 gr/dscf
SLAG-CUT	Slag Cutting Mobile Hood	PM/PM_{10}/$PM_{2.5}$ – 0.01 gr/dscf

Emission Unit ID	Emission Unit	Selected PM/PM_{10}/$PM_{2.5}$ BACT
See Table 4-7	Ladle Dryer (1 Unit) Ladle Preheaters (7 Units) Tundish Dryer (1 Unit) Tundish Preheaters (2 Units) Subentry Nozzle Preheaters (2 Units) Galvanizing Furnaces (2 Units) Box Annealing Furnaces (22 Units) Water Bath Vaporizer (1 Unit) Slag Cutting (1 Unit)	PM – 1.86E-3 lb/MMBtu PM_{10}/$PM_{2.5}$ – 7.45E-3 lb/MMBtu
SLGSKP1 through 4 SCRPSKP1 through 3	Slag Stockpile #1 through 4 Scrap Metal Stockpile #1 through 3	Combination of wet suppression and good housekeeping practices
LIME-DUMP-ST CARBON-DUMP-ST ALLOY-HANDLE-ST	Lime Dump Station Carbon Dump Station Alloy Handling System	PM/PM_{10}/$PM_{2.5}$ – 0.005 gr/dscf
LCB	Lime/Carbon/Alloy Storage Silos	PM/PM_{10}/$PM_{2.5}$ – 0.005 gr/dscf
DRI-Dock DRI1 through 4 BULK-DRI DRI-DB1 and 2 DRI-CONY BULK-DRI	DRI unloading Dock DRI Storage Silos DRI Loadouts DRI Day Bins DRI Transfer Conveyors DRI Emergency Chutes	PM/PM_{10} – 0.001 gr/dscf $PM_{2.5}$ – 0.00049 gr/dscf
SCRAP-DOCK SCRAP-RAIL	Barge Unloading Railcar Unloading	PM – 0.0003 lb/ton PM_{10} – 0.00015 lb/ton $PM_{2.5}$ – 0.000043 lb/ton
SCRAP-BULK34 through 39 SCRAP-BULK40	Scrap Pile Loading and Unloading Scrap Charging	PM – 0.0009 lb/ton PM_{10} – 0.0004 lb/ton $PM_{2.5}$ – 0.0001 lb/ton
Table 4-54	Slag Processing Equipment	Combination of wet suppression and good housekeeping practices
FUG-PAVED FUG-UNPAVED	Paved Roadways Unpaved Roadways	Combination of wet suppression and good housekeeping practices

4.6.1 Step 1 – Identify All Control Options

Nucor identified and reviewed the following PM/PM_{10}/$PM_{2.5}$ control options which are summarized in Table 4-31 and are evaluated for each PM/PM_{10}/$PM_{2.5}$ source in this analysis.

Table 4-31. Potential PM/PM_{10}/$PM_{2.5}$ Control Technologies

Control Option	Description
Baghouse / Fabric Filter	Process exhaust gas passes through a tightly woven or felted fabric arranged in sheets, cartridges, or bags that collect PM via sieving and other mechanisms. The dust cake that accumulates on the filters increases collection efficiency. Various cleaning techniques include pulse-jet, reverse-air, and shaker technologies.
Electrostatic Precipitator (ESP)	Electrodes stimulate the waste gas and induce an electrical charge in the entrained particles. The resulting electrical field forces the charged particles to the collector walls from which the material may be mechanically dislodged and collected in dry systems or washed with a water deluge in wet systems.

Control Option	Description
Incinerator	The combustion of auxiliary fuel heats a combustion chamber to promote the thermal oxidation of partially combusted particulate hydrocarbons in the exhaust stream. Recuperative incinerators utilize heat exchangers to recover heat from the outlet gas which is used to pre-heat the incoming waste stream.
Wet Scrubber/Mist Eliminator	A scrubbing liquid introduced into the gas stream captures and collects entrained particles. In the case of a venturi scrubber, the turbulent airflow atomizes the scrubbing liquid to increase droplet-particle interaction. The droplets containing particles are typically separated from the exhaust gas in a downstream cyclonic separator and/or mist eliminator.
Cyclone	Centrifugal forces drive particles in the gas stream toward the cyclone walls as the waste gas flows through the conical unit. The captured particles are collected in a material hopper below the unit.
Dry Cooling Towers *(Only applicable to cooling towers)*	Heat transfer tubes or fins separate the cooling water from the ambient air, effectively eliminating drift losses.
Drift Eliminator *(Only applicable to cooling towers)*	An array of baffles in the cooling tower removes as many droplets as practical from the air stream before exiting the tower.
Full / Partial Enclosures *(Only applicable to stockpiles and material handling)*	Walls, buildings, ductwork, and other structures limit the escape of fugitive particulate material.
Watering / Material Moisture Content *(Only applicable to stockpiles and material handling)*	The inherent moisture content of certain materials may limit the generation and dispersion of fugitive dust. For dry materials, spray bars or spray nozzles may be utilized to apply water as necessary throughout the process.
Good Combustion Practices	Operate and maintain the equipment in accordance with good air pollution control practices.

4.6.2 Electric Arc Furnace/Ladle Metallurgy Furnace (EU ID EAF1, EAF2, LMF1, and LMF2)

The EAFs/LMFs will generate $PM/PM_{10}/PM_{2.5}$ emissions as a product of combustion and as a result of steel charging and melting which will generate metal dusts.

4.6.2.1 Step 2 – Eliminate Technically Infeasible Options

The $PM/PM_{10}/PM_{2.5}$ concentrations in the exhaust of the proposed EAFs and LMFs will be below the levels typically controlled by incinerators and wet scrubbers. Therefore, incinerator and wet scrubber control options would not be effective in removing any additional $PM/PM_{10}/PM_{2.5}$ emissions from the proposed EAFs and LMFs, and they are considered technically infeasible.

4.6.2.2 Step 3 – Rank Remaining Options

Table 4-32 shows the rankings of the options for controlling $PM/PM_{10}/PM_{2.5}$ emissions from the proposed EAFs. The same control technologies will apply for the proposed LMFs except for ones specific to combustion.

Table 4-32. Rank of Remaining Control Technologies for PM / PM_{10} / $PM_{2.5}$ from EAFs and LMFs

Control Technology	Efficiency	Rank
Baghouse / Fabric Filter	99 - 99.9%	1
Electrostatic Precipitator (ESP)	99 - 99.9%	1
Cyclone	70 - 99%	2
Good Combustion Practices	Varies	3

4.6.2.3 Step 4 – Evaluation of Most Effective Control Option

None of the control options are eliminated based on an evaluation of collateral impacts or cost analysis.

4.6.2.4 Step 5 – Select BACT

Negative pressure baghouses have been selected as BACT for the EAFs and LMFs as it represents the highest-ranking control technology remaining and are commonly used in the steel industry. Note that the LMFs will exhaust through the EAF baghouses. The selection of BACT for the PM/PM_{10}/$PM_{2.5}$ emissions from the EAFs and LMFs necessitates a review of both filterable and condensable PM emissions as the limits and effectiveness of control are different.

4.6.2.4.1 EAF / LMF PM (Filterable) BACT Emission Limit

The RBLC database search provides BACT emission limits for filterable PM that range from 0.0008 gr/dscf to 0.0052 gr/dscf, with the majority of limits at 0.0018 gr/dscf. The only limits in the RBLC database that were lower than 0.0018 gr/dscf were for the Nucor facility in Nebraska which has a limit of 0.0008 gr/dscf for filterable PM but a limit of 0.0052 gr/dscf for PM_{10} and $PM_{2.5}$.

Recently issued permits for Steel Dynamics Texas (2020) and Big River Steel (2021) contain BACT emission limits of 0.0018 gr/dscf based on periodic stack testing of the baghouses.

Nucor proposes use of a negative pressure fabric filter baghouse as BACT and a BACT emission limit of 0.0018 gr/dscf for filterable PM from each EAF/LMF baghouse exhaust stack.

4.6.2.4.2 EAF / LMF PM_{10} / $PM_{2.5}$ (Filterable + Condensable) BACT Emission Limit

The RBLC database search provides BACT emission limits for total PM_{10}/$PM_{2.5}$ that range from 0.0024 gr/dscf to 0.0054 gr/dscf, with the majority of the limits at 0.0052 gr/dscf. Condensable PM can vary greatly depending on the type of steel being produced as well as the amount of organics present in the charge material in the EAFs. These components can greatly alter the composition of the exhaust stream and consequently, the condensable fraction of PM emissions. Therefore, predicting the actual emissions of condensable PM is extremely difficult and the emissions are highly variable. As such, it is not reasonable to directly compare each of the site-specific limits in the RBLC database to the proposed facility.

Moreover, particulate emissions from EAFs are predominantly condensable particulates. A study published in 2015 concluded that the total $PM_{2.5}$ emissions from an EAF is comprised of 87.8 percent condensable $PM_{2.5}$ and 12.2 percent filterable PM_{2}.[3] Similarly, speciated PM data results from source tests of EAFs used for the

---

[3] Yang et al., "Emission Characteristics and Chemical Compositions of both Filterable and Condensable Fine Particulate from Steel Plants", Aerosol and Air Quality Research, 15: 1672–1680, 2015. Available at: http://aaqr.org/files/article/486/44_AAQR-15-06-OA-0398_1672-1680.pdf

development of AP-42 emission factors[4] indicate that condensable particulates from an EAF baghouse were in the range of 73 to 91 percent of the total PM_{10} emissions. Because the total particulate emissions from EAFs are primarily condensable particulates, Nucor is requesting BACT emission limits that account for the large fraction of condensable particulates in the EAF emissions commensurate with other recently permitted EAF BACT emission limits.

Nucor proposes the use of a negative pressure fabric filter baghouse as BACT and a BACT emission limit of 0.0052 gr/dscf for total PM_{10}/$PM_{2.5}$ emissions from each EAF/LMF baghouse exhaust stack. This corresponds with the majority of entries in the RBLC database, is consistent with the NSPS AAa emission limit, and represents an emission limit that the proposed facility can be reasonably expected to maintain through the life of the unit.

4.6.3 Vacuum Tank Degasser (EU ID VTD1 and VTD2)

During the degassing process, material additions are made for deoxidation, decarburization, and alloying. These materials will be supplied to the vacuum degasser by the Alloy Handling System and controlled through the EAF baghouse. Once the ladle is enclosed in the VTD, mechanical pumps will be used to draw a vacuum on the ladle. The gas from the VTD is captured and first directed through a baghouse to protect the mechanical pumps from the PM. Minor amounts of PM/PM_{10}/$PM_{2.5}$ emissions will be collected during the vacuum tank degassing process.

4.6.3.1 Step 2 – Eliminate Technically Infeasible Options

All control options are considered potentially technically feasible and are evaluated in the next step.

4.6.3.2 Step 3 – Rank Remaining Options

Table 4-33 shows the rankings of the options for controlling PM/PM_{10}/$PM_{2.5}$ emissions from the proposed vacuum tank degassers.

Table 4-33. Rank of Remaining Control Technologies for PM/PM10/PM2.5 from Vacuum Tank Degassers

Control Technology	Efficiency	Rank
Baghouse / Fabric Filter	99 - 99.9%	1
Electrostatic Precipitator (ESP)	99 - 99.9%	1
Wet Scrubber/Mist Eliminator	70 - 99%	2
Cyclone	70 - 99%	2
Good Process Operation	Varies	3

4.6.3.3 Step 4 – Evaluation of Most Effective Control Option

None of the control options are eliminated based on an evaluation of collateral impacts or cost analysis.

[4] U.S. EPA, "Emission Factor Documentation for AP-42, Chapter 12.5.1, Iron and Steel Production-Steel Minimills", Table 6-1, Office of Air Quality Planning and Standards, April 2009.

4.6.3.4 Step 5 – Select BACT

Most of the RBLC database search results are for CO emissions from vacuum tank degassing controlled via flare. Reviewing similar mill operations, other operations typically use baghouses or fabric filters to reduce PM emissions during the degassing process.

Nucor proposes to utilize a negative pressure fabric filter baghouse during degassing operations and emission rates of 0.0083 gr PM/PM_{10}/$PM_{2.5}$ dscf as BACT for the proposed vacuum tank degassers.

4.6.4 Continuous Casting (EU ID CAST)

PM/PM_{10}/$PM_{2.5}$ emissions are generated from the casting operations.

4.6.4.1 Step 2 – Eliminate Technically Infeasible Options

All control options are considered potentially technically feasible and are evaluated in the next step.

4.6.4.2 Step 3 – Rank Remaining Options

Table 4-34 shows the rankings of the options for controlling PM/PM_{10}/$PM_{2.5}$ emissions from the proposed casting operations.

Table 4-34. Rank of Remaining Control Technologies for PM/PM_{10}/$PM_{2.5}$ from Casting Operations

Control Technology	Efficiency	Rank
Baghouse / Fabric Filter	99 - 99.9%	1
Electrostatic Precipitator (ESP)	99 - 99.9%	1
Incinerator	70 - 99.9%	2
Wet Scrubber/Mist Eliminator	70 - 99%	3
Cyclone	70 - 99%	3
Full / Partial Enclosures	70%	4
Good Process Operation	Varies	5

4.6.4.3 Step 4 – Evaluation of Most Effective Control Option

None of the control options are eliminated based on an evaluation of collateral impacts or cost analysis.

4.6.4.4 Step 5 – Select BACT

Nucor proposes to capture and vent continuous casting emissions to the negative pressure EAF/LMF fabric filter baghouse. Therefore, the specific emission limits being proposed as BACT for the continuous casting are the same as the EAF/LMF and are as follows. Refer to Section 4.6.2 for discussion surrounding the derivation of these limits.

Total PM (filterable) – 0.0018 gr/dscf
PM_{10} (total) – 0.0052 gr/dscf
$PM_{2.5}$ (total) – 0.0052 gr/dscf

4.6.5 Tunnel Furnace (EU ID TF1)

PM/PM_{10}/$PM_{2.5}$ emissions are generated from the natural gas fired tunnel furnace as a product of combustion.

4.6.5.1 Step 2 – Eliminate Technically Infeasible Options

The PM/PM_{10}/$PM_{2.5}$ concentrations in the exhaust of the proposed tunnel furnace will be below the levels typically controlled by fabric filter baghouses, ESPs, incinerators, wet scrubbers, or cyclones. Therefore, these control options would not be effective in removing any additional PM/PM_{10}/$PM_{2.5}$ emissions from the proposed tunnel furnace, and they are considered technically infeasible.

4.6.5.2 Step 3 – Rank Remaining Options

Table 4-35 shows the rankings of the options for controlling PM/PM_{10}/$PM_{2.5}$ emissions from the proposed tunnel furnace.

Table 4-35. Rank of Remaining Control Technologies for PM/PM_{10}/$PM_{2.5}$ from Tunnel Furnace

Control Technology	Efficiency	Rank
Good Combustion Practices / Firing Pipeline Quality Natural Gas	Varies	1

4.6.5.3 Step 4 – Evaluation of Most Effective Control Option

None of the control options are eliminated based on an evaluation of collateral impacts or cost analysis.

4.6.5.4 Step 5 – Select BACT

The lowest PM/PM_{10}/$PM_{2.5}$ emission limit identified in the RBLC database for tunnel furnaces at steel mills is 0.53 lb/MMscf, which is from Permit No. 2305-AOP-R0 dated September 18, 2013 for Big River Steel LLC facility at Arkansas. Based on the permit application, the emission limit was based on a "recent EPA study" where "EPA believes the current AP-42 factors for condensable emissions are 10 to 20 times too high." All other steel mills included in the RBLC database utilize the PM/PM_{10}/$PM_{2.5}$ emission factors based on the current AP-42 Chapter 1.4.

Nucor proposes emission rates of 1.86E-3 lb FPM/MMBtu, 7.45E-3 lb PM_{10}/MMBtu, and 7.45E-3 lb $PM_{2.5}$/MMBtu as BACT for the proposed tunnel furnace. This is equivalent to the AP-42 emission factor for natural gas combustion in the latest version of Chapter 1.4 of 1.9 lb FPM/MMscf, 7.6 lb PM_{10}/MMscf, and 7.6 lb $PM_{2.5}$/MMscf converted to lb/MMBtu using the natural gas heating value of 1,020 Btu/scf. Compliance will be demonstrated via the combustion of pipeline quality natural gas and use of good combustion practices.

4.6.6 Pickling Line (EU ID PKL-1)

PM/PM_{10}/$PM_{2.5}$ emissions are generated from the pickling operations.

4.6.6.1 Step 2 – Eliminate Technically Infeasible Options

Hydrogen chloride (HCl) will be used in the picking operations and is expected to corrode fabric filters, ESPs, incinerators, and cyclones. Therefore, these control options are considered technically infeasible. However, a wet scrubber will be installed for HCl control as provided below.

4.6.6.2 Step 3 – Rank Remaining Options

Table 4-36 shows the rankings of the options for controlling $PM/PM_{10}/PM_{2.5}$ emissions from the proposed pickling operations.

Table 4-36. Rank of Remaining Control Technologies for $PM/PM_{10}/PM_{2.5}$ from Pickling Operations

Control Technology	Efficiency	Rank
Wet Scrubber with Mist Eliminator	70 - 99%	1
Good Process Operation	Varies	2

4.6.6.3 Step 4 – Evaluation of Most Effective Control Option

None of the control options are eliminated based on an evaluation of collateral impacts or cost analysis.

4.6.6.4 Step 5 – Select BACT

The RBLC database search results range from 0.0015 gr/dscf to 0.01 gr/dscf for pickling lines at steel mills with almost all mills permitted at 0.01 gr/dscf. The lowest limit identified in the RBLC database, 0.0015 gr/dscf, was associated with a pickling line at the Nucor Gallatin Mill that was never installed. Recently issued permits for Nucor Berkeley (2018) and Steel Dynamics Texas (2020) contain BACT emission limits of 0.01 gr/dscf for the pickling operations.

Nucor proposes to utilize a wet scrubber with mist eliminator and emissions rates of 0.01 gr PM/dscf, 0.01 gr PM_{10}/dscf, and 0.01 gr $PM_{2.5}$/dscf as BACT for the proposed pickling operations.

4.6.7 Pickle Line Scale Breaker (EU ID PKLSB)

$PM/PM_{10}/PM_{2.5}$ emissions are generated from the pickling scale breaker.

4.6.7.1 Step 2 – Eliminate Technically Infeasible Options

All control options are considered potentially technically feasible and are evaluated in the next step.

4.6.7.2 Step 3 – Rank Remaining Options

Table 4-37 shows the rankings of the options for controlling $PM/PM_{10}/PM_{2.5}$ emissions from the proposed pickling operations.

Table 4-37. Rank of Remaining Control Technologies for $PM/PM_{10}/PM_{2.5}$ from Pickling Operations

Control Technology	Efficiency	Rank
Baghouse / Fabric Filter	99 - 99.9%	1
Electrostatic Precipitator (ESP)	99 - 99.9%	1
Wet Scrubber/Mist Eliminator	70 - 99%	2
Cyclone	70 - 99%	2
Good Process Operation	Varies	3

4.6.7.3 Step 4 – Evaluation of Most Effective Control Option

None of the control options are eliminated based on an evaluation of collateral impacts or cost analysis.

4.6.7.4 Step 5 – Select BACT

Recently issued permit for Nucor Gallatin Kentucky (2021) and Steel Dynamics Texas (2020) contain BACT emission limits of 0.003 gr/dscf and 0.0087 gr/dscf, respectively, for the pickle line scale breakers.

Nucor proposes to utilize a negative pressure fabric filter baghouse and emission rates of 0.003 gr PM/dscf, 0.003 gr PM_{10}/dscf, and 0.003 gr $PM_{2.5}$/dscf as BACT for the proposed pickling scale breaker. These proposed emission rates are equivalent to the lowest emission limits identified in the RBLC database for scale breakers in steel mills.

4.6.8 Skin Pass Mills (EU ID SPM1 and SPM2)

$PM/PM_{10}/PM_{2.5}$ emissions are generated from the skin pass mills.

4.6.8.1 Step 2 – Eliminate Technically Infeasible Options

All control options are considered potentially technically feasible and are evaluated in the next step.

4.6.8.2 Step 3 – Rank Remaining Options

Table 4-38 shows the rankings of the options for controlling $PM/PM_{10}/PM_{2.5}$ emissions from the proposed skin pass mills.

Table 4-38. Rank of Remaining Control Technologies for $PM/PM_{10}/PM_{2.5}$ from Skin Pass Mills

Control Technology	Efficiency	Rank
Baghouse / Fabric Filter	99 - 99.9%	1
Electrostatic Precipitator (ESP)	99 - 99.9%	1
Wet Scrubber/Mist Eliminator	70 - 99%	2
Cyclone	70 - 99%	2
Good Process Operation	Varies	3

4.6.8.3 Step 4 – Evaluation of Most Effective Control Option

None of the control options are eliminated based on an evaluation of collateral impacts or cost analysis.

4.6.8.4 Step 5 – Select BACT

Most of the RBLC database search results are for skin pass mills controlled via mist eliminator which is not representative of the processes at the proposed mill. These results are excluded in this analysis. RBLC database search results for skin pass mills controlled via a baghouse range from 0.01 gr/dscf to 0.018 gr/dscf.

Nucor proposes to utilize a negative pressure fabric filter baghouse and emission rates of 0.01 gr PM/dscf, 0.01 gr PM_{10}/dscf, and 0.005 gr $PM_{2.5}$/dscf as BACT for the proposed skin pass mills.

4.6.9 Galvanizing Line (EU ID CGL1 and CGL2)

PM/PM_{10}/$PM_{2.5}$ emissions are generated from the proposed galvanizing lines.

4.6.9.1 Step 2 – Eliminate Technically Infeasible Options

The exhaust of the galvanizing lines has the potential to contain acid gases, which if present, would be expected to corrode fabric filters, ESPs, and cyclones. Therefore, these control options are considered technically infeasible. However, a mist eliminator will be installed for HCl control as provided below.

4.6.9.2 Step 3 – Rank Remaining Options

Table 4-39 shows the rankings of the options for controlling PM/PM_{10}/$PM_{2.5}$ emissions from the proposed the galvanizing lines.

Table 4-39. Rank of Remaining Control Technologies for PM/PM_{10}/$PM_{2.5}$ from Galvanizing Lines

Control Technology	Efficiency	Rank
Mist Eliminator	70 - 99%	1
Good Process Operation	Varies	2

4.6.9.3 Step 4 – Evaluation of Most Effective Control Option

None of the control options are eliminated based on an evaluation of collateral impacts or cost analysis.

4.6.9.4 Step 5 – Select BACT

Recently issued permit for Nucor Gallatin Kentucky (2021) and Steel Dynamics Texas (2020) contain BACT emission limits of 0.003 gr/dscf for the galvanizing lines controlled via a mist eliminator.

Nucor proposes as BACT for the proposed galvanizing line to utilize a mist eliminator and emission rates of 0.003 gr PM/dscf, 0.003 gr PM_{10}/dscf, and 0.003 gr $PM_{2.5}$/dscf. These proposed emission rates are equivalent to the lowest BACT emission limits identified in the RBLC database for galvanizing lines in steel mills.

4.6.10 Cooling Towers (EU ID CT1 through 8)

PM/PM_{10}/$PM_{2.5}$ emissions are generated from the cooling towers.

4.6.10.1 Step 2 – Eliminate Technically Infeasible Options

Cooling towers must be open to the atmosphere to function properly; therefore, cyclone control is considered technically infeasible. Additionally, excessive moisture from the cooling tower exhaust could lead to blinding of a fabric filter. As a result, baghouse or fabric filter is not considered technically feasible. Finally, dry cooling tower technology has not been demonstrated for use at steel mills. Therefore, dry cooling tower technology is considered technically infeasible for the proposed cooling towers.

4.6.10.2 Step 3 – Rank Remaining Options

Table 4-40 shows the rankings of the options for controlling $PM/PM_{10}/PM_{2.5}$ emissions from the proposed cooling towers.

Table 4-40. Rank of Remaining Control Technologies for $PM/PM_{10}/PM_{2.5}$ from Cooling Towers

Control Technology	Efficiency	Rank
Drift Eliminator	Varies	1
Good Process Operation	Varies	2

4.6.10.3 Step 4 – Evaluation of Most Effective Control Option

None of the control options are eliminated based on an evaluation of collateral impacts or cost analysis.

4.6.10.4 Step 5 – Select BACT

Nucor proposes to utilize a drift eliminator and a drift rate of 0.0005% as BACT for the proposed cooling towers. This is equivalent to the lowest drift rate identified in the RBLC database for cooling towers in steel mills.

4.6.11 Emergency Engines (EU ID EMGEN1 through 6)

$PM/PM_{10}/PM_{2.5}$ emissions are generated from six (6) 2,000 HP natural gas fired emergency engines as a product of combustion.

4.6.11.1 Step 2 – Eliminate Technically Infeasible Options

The natural gas-fired emergency engines will be operated intermittently and not to exceed 100 hours per year for non-emergency purposes. Add-on controls are not appropriate for such intermittent combustion units as they would be ineffective in removing any additional $PM/PM_{10}/PM_{2.5}$ emissions. Furthermore, no applications of add-on controls were found for sources similar to the proposed natural gas-fired emergency engines in the search of the RBLC database. Therefore, the application of baghouses, fabric filters, ESPs, incinerators, wet scrubbers, or cyclones is considered technically infeasible for the proposed emergency engines.

4.6.11.2 Step 3 – Rank Remaining Options

Table 4-41 shows the rankings of the options for controlling $PM/PM_{10}/PM_{2.5}$ emissions from the proposed emergency engines.

Table 4-41. Rank of Remaining Control Technologies for $PM/PM_{10}/PM_{2.5}$ from Emergency Engines

Control Technology	Efficiency	Rank
Usage Limitation	Varies	1
Good Combustion Practices	Varies	1

4.6.11.3 Step 4 – Evaluation of Most Effective Control Option

None of the control options are eliminated based on an evaluation of collateral impacts or cost analysis.

4.6.11.4 Step 5 – Select BACT

Nucor proposes complying with NSPS Subpart JJJJ and MACT Subpart ZZZZ standards as BACT for the emergency engines. Nucor will operate the engines according to the manufacturer's recommendations and will limit the operation to less than 100 hours per year in non-emergency scenarios.

4.6.12 Tandem Cold Mill (EU ID TCM)

$PM/PM_{10}/PM_{2.5}$ emissions are generated from the tandem cold mill.

4.6.12.1 Step 2 – Eliminate Technically Infeasible Options

The proposed tandem cold mill will be located downstream of pickling operations. Hydrogen chloride (HCl) used in the picking operations would be expected to corrode fabric filters, ESPs, incinerators, and cyclones. Therefore, these control options are considered technically infeasible.

4.6.12.2 Step 3 – Rank Remaining Options

Table 4-42 shows the rankings of the options for controlling $PM/PM_{10}/PM_{2.5}$ emissions from the proposed cold mill.

Table 4-42. Rank of Remaining Control Technologies for $PM/PM_{10}/PM_{2.5}$ from Cold Mill

Control Technology	Efficiency	Rank
Mist Eliminator	70 - 99%	1
Good Process Operation	Varies	2

4.6.12.3 Step 4 – Evaluation of Most Effective Control Option

None of the control options are eliminated based on an evaluation of collateral impacts or cost analysis.

4.6.12.4 Step 5 – Select BACT

The RBLC database search results in limited set of emission limits with only a single value for tandem cold mill. The controlled emissions rate ranges from cold mill monovents are excluded from this analysis since those emission rates would include fugitives from multiple sources in a dilute air stream.

Recently issued permits for Nucor Berkeley (2018) and Steel Dynamics Texas (2020) contain BACT emission limits of 0.01 gr/dscf for the cold mills controlled via a mist eliminator.

Nucor proposes as BACT for the proposed tandem cold mill to utilize a mist eliminator and emission rates of 0.01 gr PM/dscf, 0.0066 gr PM_{10}/dscf, and 0.0066 gr $PM_{2.5}$/dscf.

4.6.13 Standalone Temper Mill (EU ID STM)

PM/PM_{10}/$PM_{2.5}$ emissions are generated from the temper mill.

4.6.13.1 Step 2 – Eliminate Technically Infeasible Options

The proposed temper mill will be located downstream of pickling operations. Hydrogen chloride (HCl) used in the picking operations would be expected to corrode fabric filters, ESPs, incinerators, and cyclones. Therefore, these control options are considered technically infeasible.

4.6.13.2 Step 3 – Rank Remaining Options

Table 4-43 shows the rankings of the options for controlling PM/PM_{10}/$PM_{2.5}$ emissions from the proposed temper mill.

Table 4-43. Rank of Remaining Control Technologies for PM/PM_{10}/$PM_{2.5}$ from Temper Mill

Control Technology	Efficiency	Rank
Mist Eliminator	70 - 99%	1
Good Process Operation	Varies	2

4.6.13.3 Step 4 – Evaluation of Most Effective Control Option

None of the control options are eliminated based on an evaluation of collateral impacts or cost analysis.

4.6.13.4 Step 5 – Select BACT

The RBLC database search results in limited set of emission limits. Recently issued permits for Nucor Gallatin Kentucky (2021) contain BACT emission limits of 0.0025 gr/dscf, 0.0024 gr/dscf, and 0.0013 gr/dscf for PM, PM_{10}, and $PM_{2.5}$, respectively, for the temper mill controlled via a mist eliminator.

Nucor proposes as BACT for the proposed temper mill to utilize a mist eliminator and emission rates of 0.0025 gr PM/dscf, 0.0024 gr PM_{10}/dscf, and 0.0013 gr $PM_{2.5}$/dscf.

4.6.14 Rolling Mill (EU ID RM)

PM/PM_{10}/$PM_{2.5}$ emissions are generated from the rolling mill.

4.6.14.1 Step 2 – Eliminate Technically Infeasible Options

All control options are considered potentially technically feasible and are evaluated in the next step.

4.6.14.2 Step 3 – Rank Remaining Options

Table 4-44 shows the rankings of the options for controlling PM/PM_{10}/$PM_{2.5}$ emissions from the proposed rolling mill.

Table 4-44. Rank of Remaining Control Technologies for $PM/PM_{10}/PM_{2.5}$ from Rolling Mill

Control Technology	Efficiency	Rank
Baghouse / Fabric Filter	99 - 99.9%	1
Electrostatic Precipitator (ESP)	99 - 99.9%	1
Wet Scrubber /Mist Eliminator	70 - 99%	2
Cyclone	70 - 99%	2
Good Process Operation	Varies	3

4.6.14.3 Step 4 – Evaluation of Most Effective Control Option

None of the control options are eliminated based on an evaluation of collateral impacts or cost analysis.

4.6.14.4 Step 5 – Select BACT

Nucor noted that similar steel mills are relying on good process operations to control PM emissions from rolling mills based on RBLC records.

Nucor proposes to utilize a negative pressure fabric filter baghouse and emission rates of 0.01 gr PM/dscf, 0.01 gr PM_{10}/dscf, and 0.005 gr $PM_{2.5}$/dscf as BACT for the proposed rolling mill.

4.6.15 Slag Cutting Mobile Hood (EU ID SLAG-CUT)

$PM/PM_{10}/PM_{2.5}$ emissions are generated from the slag cutting operations.

4.6.15.1 Step 2 – Eliminate Technically Infeasible Options

All control options are considered potentially technically feasible and are evaluated in the next step.

4.6.15.2 Step 3 – Rank Remaining Options

Table 4-45 shows the rankings of the options for controlling $PM/PM_{10}/PM_{2.5}$ emissions from the proposed slag cutting operations.

Table 4-45. Rank of Remaining Control Technologies for $PM/PM_{10}/PM_{2.5}$ from Slag Cutting Operations

Control Technology	Efficiency	Rank
Baghouse / Fabric Filter	99 - 99.9%	1
Electrostatic Precipitator (ESP)	99 - 99.9%	1
Wet Scrubber/Mist Eliminator	70 - 99%	2
Cyclone	70 - 99%	2
Good Process Operation	Varies	3

4.6.15.3 Step 4 – Evaluation of Most Effective Control Option

None of the control options are eliminated based on an evaluation of collateral impacts or cost analysis.

4.6.15.4 Step 5 – Select BACT

Nucor proposes to utilize a negative pressure fabric filter baghouse and emission rates of 0.01 gr PM/dscf, 0.01 gr PM_{10}/dscf, and 0.01 gr $PM_{2.5}$/dscf as BACT for the proposed slag cutting operations.

4.6.16 Miscellaneous Natural Gas Combustion Units (EU ID LD, LPHTR1 through 7, TD, TPHTR1 and 2, SENPHTR1 and 2, GALVFN1 and 2, BOXANN1 through 22, ASP, and SLAG-CUT)

The proposed mill will utilize several small natural gas-fired heaters, dryers, and furnaces throughout the melt shop, hot mill, and cold mill. The following section provides the $PM/PM_{10}/PM_{2.5}$ BACT for these miscellaneous natural gas combustion units. Table 4-7 above has identified the natural gas combustion units covered in this section.

4.6.16.1 Step 2 – Eliminate Technically Infeasible Options

The $PM/PM_{10}/PM_{2.5}$ concentrations in the exhaust of the proposed miscellaneous natural gas combustion units will be below the levels typically controlled by fabric filter baghouses, ESPs, incinerators, wet scrubbers, or cyclones. Therefore, these control options would not be effective in removing any additional $PM/PM_{10}/PM_{2.5}$ emissions from the natural gas combustion units included in this section, and they are considered technically infeasible.

4.6.16.2 Step 3 – Rank Remaining Options

Table 4-46 shows the rankings of the options for controlling $PM/PM_{10}/PM_{2.5}$ emissions from the miscellaneous natural gas combustion units listed in this section.

Table 4-46. Rank of Remaining Control Technologies for $PM/PM_{10}/PM_{2.5}$ from Miscellaneous Natural Gas Combustion Units

Control Technology	Efficiency	Rank
Good Combustion Practices / Firing Pipeline Quality Natural Gas	Varies	1

4.6.16.3 Step 4 – Evaluation of Most Effective Control Option

None of the control options are eliminated based on an evaluation of collateral impacts or cost analysis.

4.6.16.4 Step 5 – Select BACT

The lowest $PM/PM_{10}/PM_{2.5}$ emission limit identified in the RBLC database for small natural gas combustion devices at steel mills is 0.53 lb/MMscf, which is from Permit No. 2305-AOP-R0 dated September 18, 2013 for Big River Steel LLC facility at Arizona. Based on the permit application, the emission limit was based on a "recent EPA study" where "EPA believes the current AP-42 factors for condensable emissions are 10 to 20 times too high." All other steel mills included in the RBLC database utilize the PM/PM10/PM2.5 emission factors based on the current AP-42 Chapter 1.4 for small natural gas combustion devices.

Nucor proposes to utilize good combustion practices and emission rates of 1.86E-3 lb FPM/MMBtu, 7.45E-3 lb PM_{10}/MMBtu, and 7.45E-3 lb $PM_{2.5}$/MMBtu as BACT for the proposed miscellaneous natural gas combustion units identified in Table 4-7. This is equivalent to the AP-42 emission factor for natural gas combustion in the latest version of Chapter 1.4 of 1.9 lb FPM/MMscf, 7.6 lb PM_{10}/MMscf, and 7.6 lb $PM_{2.5}$/MMscf converted to lb/MMBtu using the natural gas heating value of 1,020 Btu/scf. Compliance will be demonstrated via the combustion of pipeline quality natural gas and use of good combustion practices.

4.6.17 Slag and Scrap Metal Stockpiles (EU ID SLGSKP1 through 4 and SCRPSKP1 through 3)

PM/PM_{10}/$PM_{2.5}$ emissions are generated from storing bulk materials as stockpiles.

4.6.17.1 Step 2 – Eliminate Technically Infeasible Options

Materials stored at the stockpiles must be accessible by crane and truck; therefore, enclosures and capture/control systems may not be feasibly utilized. As a result, the control options of fabric filter, cyclone, or full/partial enclosure are considered technically infeasible for the proposed stockpiles.

4.6.17.2 Step 3 – Rank Remaining Options

Table 4-47 shows the rankings of the options for controlling PM/PM_{10}/$PM_{2.5}$ emissions from the proposed stockpiles.

Table 4-47. Rank of Remaining Control Technologies for PM/PM_{10}/$PM_{2.5}$ from Stockpiles

Control Technology	Efficiency	Rank
Watering / Material Moisture Content	70%	1
Good Process Operation	Varies	2

4.6.17.3 Step 4 – Evaluation of Most Effective Control Option

None of the control options are eliminated based on an evaluation of collateral impacts or cost analysis.

4.6.17.4 Step 5 – Select BACT

For the proposed stockpiles, Nucor proposes to utilize a combination of wet suppression and good housekeeping practices as BACT. This is the most prevailing control technique identified in the RBLC database for stockpiles in steel mills.

4.6.18 Lime/Carbon/Alloy Handling System (EU ID LIME-DUMP, CARBON-DUMP, and ALLOY-HANDLE)

PM/PM_{10}/$PM_{2.5}$ emissions are generated from the carbon/lime/alloy handling systems.

4.6.18.1 Step 2 – Eliminate Technically Infeasible Options

Water sprays and wet suppression are not suitable for control of the lime and carbon handling/loading/unloading emissions, because the systems for material handling, transfer, and storage are designed for dry materials.

Additionally, water sprays and wet suppression are not suitable for control of the LMF alloys loading/unloading emissions, because the systems for material handling, transfer, and storage are designed for dry materials and the introduction of wet material into the molten steel is also potentially dangerous.

4.6.18.2 Step 3 – Rank Remaining Options

Table 4-48 shows the rankings of the options for controlling PM/PM_{10}/$PM_{2.5}$ emissions from the proposed lime/carbon/alloy handling systems.

Table 4-48. Rank of Remaining Control Technologies for PM/PM_{10}/$PM_{2.5}$ from Lime/Carbon/Alloy Handling Systems

Control Technology	Efficiency	Rank
Enclosed (or partially enclosed) conveyors and transfer stations	Varies	1
Fabric Filter (Baghouse or Bin Vent Filter)	Up to 99.9%	2
Good Housekeeping Practices	Base Case	3

4.6.18.3 Step 4 – Evaluation of Most Effective Control Option

None of the control options are eliminated based on an evaluation of collateral impacts or cost analysis.

4.6.18.4 Step 5 – Select BACT

RBLC search results for PM/PM_{10}/$PM_{2.5}$ BACT emission limits for Storage Bin loading/unloading, show emissions are best controlled by filtration, such as baghouses or cartridge vent filters. The typical BACT emission rate established is 0.003 gr/dscf to 0.01 gr/dscf based on vendor guaranteed emission rates.

Nucor is proposing to utilize a combination of enclosed conveyors, partial enclosures of the unloading station, dust collector, along with good housekeeping practices, including maintenance of the dust collector according to manufacturer requirements as BACT for controlling PM/PM_{10}/$PM_{2.5}$ emissions from the Lime/Carbon/Alloy Handling Systems. Nucor proposes to utilize a negative pressure fabric filter baghouse and vendor guaranteed emission rates of 0.005 gr PM/dscf, 0.005 gr PM_{10}/dscf, and 0.005 gr $PM_{2.5}$/dscf as BACT for the proposed systems.

4.6.19 Lime/Carbon/Alloy Storage Silos (EU ID LCB)

PM/PM_{10}/$PM_{2.5}$ emissions are generated from the carbon/lime/alloy storage silos.

4.6.19.1 Step 2 – Eliminate Technically Infeasible Options

Water sprays and wet suppression are not suitable for control of the lime and carbon handling/loading/unloading emissions, because the systems for material handling, transfer, and storage are designed for dry materials.

Additionally, water sprays and wet suppression are not suitable for control of the LMF alloys loading/unloading emissions, because the systems for material handling, transfer, and storage are designed for dry materials and the introduction of wet material into the molten steel is also potentially dangerous.

4.6.19.2 Step 3 – Rank Remaining Options

Table 4-49 shows the rankings of the options for controlling PM/PM_{10}/$PM_{2.5}$ emissions from the proposed storage silos.

Table 4-49. Rank of Remaining Control Technologies for PM / PM_{10} / $PM_{2.5}$ from Lime / Carbon / Alloy Handling Systems

Control Technology	Efficiency	Rank
Fabric Filter (Baghouse or Bin Vent Filter)	Up to 99.9%	1
Good Housekeeping Practices	Base Case	2

4.6.19.3 Step 4 – Evaluation of Most Effective Control Option

None of the control options are eliminated based on an evaluation of collateral impacts or cost analysis.

4.6.19.4 Step 5 – Select BACT

RBLC search results for PM/PM_{10}/$PM_{2.5}$ BACT emission limits for Storage Bin loading/unloading, show emissions are best controlled by filtration, such as baghouses or cartridge vent filters. The typical BACT emission rate established is 0.001 gr/dscf to 0.02 gr/dscf.

Recently issued permits for Nucor Florida (2019), Nucor Brandenburg KY (2020), and Nucor Gallatin KY (2021) contain BACT emission limits of 0.005 gr/dscf for various storage silos.

Nucor is proposing to utilize a combination of dust collectors along with good housekeeping practices, including maintenance of the dust collector according to manufacturer requirements as BACT for controlling PM/PM_{10}/$PM_{2.5}$ emissions from the Lime/Carbon/Alloy Storage Silos. Nucor proposes to utilize a negative pressure fabric filter baghouse and emission rates of 0.005 gr PM/dscf, 0.005 gr PM_{10}/dscf, and 0.005 gr $PM_{2.5}$/dscf as BACT for the proposed storage silos.

4.6.20 DRI Handling System (EU ID DRI-DOCK, DRI1 through 4, DRI-DB1 and 2, DRI-CONY, and BULK-DRI)

PM/PM_{10}/$PM_{2.5}$ emissions are generated from the DRI handling system. Table 4-50 below identifies the emission units covered in this section.

Table 4-50. DRI Handling System

Emission Unit ID	Description
DRI-Dock	DRI Unloading Dock
DRI1 through 4	DRI Storage Silos
BULK-DRI	DRI Loadouts
DRI-DB1 and 2	DRI Day Bins
DRI-CONY	DRI Transfer Conveyors
BULK-DRI	DRI Emergency Chutes

4.6.20.1 Step 2 – Eliminate Technically Infeasible Options

Water sprays and wet suppression are not suitable for control of the DRI handling and storage emissions, because the systems for material handling, transfer, and storage are designed for dry materials. Wet materials may clog equipment and create additional wear. Water sprays and wet suppression are technically infeasible and will not be considered further.

4.6.20.2 Step 3 – Rank Remaining Options

Table 4-51 shows the rankings of the options for controlling $PM/PM_{10}/PM_{2.5}$ emissions from the proposed DRI handling system.

Table 4-51. Rank of Remaining Control Technologies for $PM/PM_{10}/PM_{2.5}$ from DRI Handling System

Control Technology	Efficiency	Rank
Enclosed (or partially enclosed) conveyors and transfer stations	Varies	1
Fabric Filter (Baghouse or Bin Vent Filter)	Up to 99.9%	2
Good Housekeeping Practices	Base Case	3

4.6.20.3 Step 4 – Evaluation of Most Effective Control Option

None of the control options are eliminated based on an evaluation of collateral impacts or cost analysis.

4.6.20.4 Step 5 – Select BACT

RBLC search results for $PM/PM_{10}/PM_{2.5}$ BACT emission limits for material (e.g., lime and carbon) storage silos (as discussed in Section 4.6.19) at steel mills indicate that the typical BACT the emission rate established is 0.001 gr/dscf to 0.02 gr/dscf with the use of a baghouse.

Recently issued permit for Nucor Brandenburg KY (2020) contains BACT emission limits of 0.001 gr/dscf for DRI storage silos.

Nucor is proposing to utilize a combination of bin vent filters and enclosures (or partial enclosures) for conveyors and transfer stations, along with good housekeeping practices including maintenance of the bin vents according to manufacturer requirements and emission rates of 0.001 gr PM/dscf, 0.001 gr PM_{10}/dscf, and 0.00049 gr $PM_{2.5}$/dscf as BACT for controlling $PM/PM_{10}/PM_{2.5}$ emissions from the DRI Handling and Storage Systems. Emissions from DRI Silo Loadout will be controlled by partial enclosure. Emissions from the DRI Emergency Chutes will be uncontrolled.

4.6.21 Scrap Handling (EU ID SCRAP-DOCK, SCRAP-RAIL, SCRAP-BULK34 through 39, and SCRAP-BULK40)

PM/PM10/PM2.5 emissions are generated from the scrap handling system. Table 4-52 below identifies the emission units covered in this section.

Table 4-52. Scrap Handling System

Emission Unit ID	Description
SCRAP-DOCK	Barge Unloading
SCRAP-RAIL	Railcar Unloading
SCRAP-BULK34 through 39	Scrap Pile Loading and Unloading
SCRAP-BULK40	Scrap Charging

4.6.21.1 Step 2 – Eliminate Technically Infeasible Options

Due to minimal intrinsic silt or moisture content of the scraps, the emissions from barge and railcar unloading are negligible. Additionally, due to the need to access the barges and railcars with a crane during unloading with transfer to trucks, the use of enclosures and capture/control systems may not be feasibly utilized. As a result, the control options of fabric filter, cyclone, or full/partial enclosure are considered technically infeasible for the proposed stockpiles.

4.6.21.2 Step 3 – Rank Remaining Options

Table 4-53 shows the rankings of the options for controlling $PM/PM_{10}/PM_{2.5}$ emissions from the proposed scrap handling system.

Table 4-53. Rank of Remaining Control Technologies for $PM/PM_{10}/PM_{2.5}$ from Scrap Handling System

Control Technology	Efficiency	Rank
Good Housekeeping Practices	Base Case	1

4.6.21.3 Step 4 – Evaluation of Most Effective Control Option

None of the control options are eliminated based on an evaluation of collateral impacts or cost analysis.

4.6.21.4 Step 5 – Select BACT

Nucor proposes emission rates of PM, PM_{10}, and $PM_{2.5}$ to be 0.0003 lb filterable PM/ton, 0.00015 lb PM_{10}/ton, and 0.000043 lb $PM_{2.5}$/ton, respectively, from AP-42, Table 12.5-4 as BACT for Scrap Handling during Barge and Railcar Unloading (SCRAP-DOCK and SCRAP-RAIL).

Additionally, Nucor proposes emission rates of PM, PM_{10}, and $PM_{2.5}$ to be 0.0009 lb filterable PM/ton, 0.0004 lb PM_{10}/ton, and 0.0001 lb $PM_{2.5}$/ton, respectively, as derived according to AP-42 Chapter 13.2.4 as BACT for Scrap Pile Loading and Unloading (SCRAP-BULK34 through 39) and Scrap Charging (SCRAP-BULK40).

4.6.22 Slag Processing

PM/PM10/PM2.5 emissions are generated from handling bulk materials, such as slag. Table 4-54 below identifies the emission units covered in this section.

Table 4-54. Slag Processing Equipment

Emission Unit ID	Description
SCRAP-BULK1	Dig slag inside pot barn
SCRAP-BULK2	Loader transport & dump slag into quench
SCRAP-BULK3	Loader transport & dump into F1 feed hopper/grizzly
SCRAP-BULK4	F1 feed hopper/grizzly to P1 oversize pile
SCRAP-BULK5	F1 feed hopper/grizzly to C7 crusher conveyor
SCRAP-BULK6	F1 feed hopper/grizzly to C1A main conveyor
SCRAP-BULK7	C7 to CR1 crusher
SCRAP-BULK8	CR1 crusher to C8 conveyor
SCRAP-BULK9	CR1 crusher to P2 output pile
SCRAP-BULK10	C8 conveyor to C9 conveyor
SCRAP-BULK11	C9 conveyor to C1A conveyor
SCRAP-BULK12	C1A conveyor to B1 surge bin
SCRAP-BULK13	B1 surge bin to C1 conveyor
SCRAP-BULK14	C1 conveyor through M1 mag splitter to S1 slag screen
SCRAP-BULK15	C1 conveyor through M1 mag splitter to S2 scrap screen
SCRAP-BULK16	S2 scrap screen to C6 conveyor
SCRAP-BULK17	S2 scrap screen to P3 scrap pile
SCRAP-BULK18	C6 conveyor to P4 scrap pile
SCRAP-BULK19	S1 slag screen to C2 conveyor
SCRAP-BULK20	C2 conveyor to C5 conveyor
SCRAP-BULK21	C5 conveyor to P5 product pile
SCRAP-BULK22	S1 slag screen to C4 conveyor
SCRAP-BULK23	C4 conveyor to P7 product pile
SCRAP-BULK24	S1 slag screen to C3 conveyor
SCRAP-BULK25	C3 conveyor to P6 product pile
SCRAP-BULK26	S1 slag screen to P8 product pile
SCRAP-BULK27	Loader transports & loads products into trucks to product stockpiles
SCRAP-BULK28	Truck transports & dumps products into product stockpiles
SCRAP-BULK29	Loader transports & loads into trucks, oversize to drop ball
SCRAP-BULK30	Truck transports & dumps oversize into drop ball area
SCRAP-BULK31	Truck transports ladle lip and melt shop cleanup materials & dumps at drop ball site
SCRAP-BULK32	Truck transports & dumps tundish at lancing station
SCRAP-BULK33	Ball drop crushing

4.6.22.1 Step 2 – Eliminate Technically Infeasible Options

Emissions from material handling process are fugitive in nature; therefore, enclosures and capture/control systems may not be feasibly utilized. As a result, the control options of fabric filter, cyclone, or full/partial enclosure are considered technically infeasible for the proposed material handling activities.

4.6.22.2 Step 3 – Rank Remaining Options

Table 4-55 shows the rankings of the options for controlling $PM/PM_{10}/PM_{2.5}$ emissions from the proposed slag processing equipment.

Table 4-55. Rank of Remaining Control Technologies for $PM/PM_{10}/PM_{2.5}$ from Slag Processing Equipment

Control Technology	Efficiency	Rank
Watering / Material Moisture Content	70%	1
Good Process Operation	Varies	2

4.6.22.3 Step 4 – Evaluation of Most Effective Control Option

None of the control options are eliminated based on an evaluation of collateral impacts or cost analysis.

4.6.22.4 Step 5 – Select BACT

Nucor is proposing to utilize a combination of wet suppression for loading and unloading of slag, conveying, crushing, and screening; and good housekeeping practices as BACT for controlling PM/PM10/PM2.5 emissions from the slag processing equipment.

4.6.23 Paved/Unpaved Roadways

$PM/PM_{10}/PM_{2.5}$ emissions are generated from vehicle traveling on paved/unpaved roads.

4.6.23.1 Step 2 – Eliminate Technically Infeasible Options

Emissions from vehicle traveling on paved/unpaved roads are fugitive in nature; therefore, enclosures and capture/control systems may not be feasibly utilized. As a result, the control options of fabric filter, cyclone, or full/partial enclosure are considered technically infeasible for the emissions due to vehicle traveling on paved/unpaved roads.

4.6.23.2 Step 3 – Rank Remaining Options

Table 4-56 shows the rankings of the options for controlling $PM/PM_{10}/PM_{2.5}$ emissions from vehicle traveling on paved/unpaved roads.

Table 4-56. Rank of Remaining Control Technologies for $PM/PM_{10}/PM_{2.5}$ from Paved/Unpaved Roadways

Control Technology	Efficiency	Rank
Watering / Material Moisture Content	70%	1
Good Process Operation	Varies	2

4.6.23.3 Step 4 – Evaluation of Most Effective Control Option

None of the control options are eliminated based on an evaluation of collateral impacts or cost analysis.

4.6.23.4 Step 5 – Select BACT

Nucor proposes to utilize a combination of wet suppression and good housekeeping practices as BACT. This is the most prevailing control technique identified in the RBLC database for vehicle traveling on paved/unpaved roads.

4.7 Lead and Fluoride BACT Analysis

4.7.1 Electric Arc Furnace BACT Evaluation (EU ID EAF1 and EAF2)

Lead and Fluoride will be present in the PM emissions generated from EAFs as a result of steel charging and melting and from the addition of fluoride containing agents used in the processing of slag in the LMF area.

4.7.1.1 Step 1 – Identify All Control Options

Nucor identified and reviewed the following control options which are summarized in Table 4-57 and are evaluated for each Lead and Fluoride sources in this analysis.

Table 4-57. Potential Lead and Fluoride Control Technologies

Control Option	Description
Baghouse / Fabric Filter	Process exhaust gas passes through a tightly woven or felted fabric arranged in sheets, cartridges, or bags that collect PM via sieving and other mechanisms. The dust cake that accumulates on the filters increases collection efficiency. Various cleaning techniques include pulse-jet, reverse-air, and shaker technologies.
Electrostatic Precipitator (ESP)	Electrodes stimulate the waste gas and induce an electrical charge in the entrained particles. The resulting electrical field forces the charged particles to the collector walls from which the material may be mechanically dislodged and collected in dry systems or washed with a water deluge in wet systems.
Incinerator	The combustion of auxiliary fuel heats a combustion chamber to promote the thermal oxidation of partially combusted particulate hydrocarbons in the exhaust stream. Recuperative incinerators utilize heat exchangers to recover heat from the outlet gas which is used to pre-heat the incoming waste stream.
Wet Scrubber (Mist Eliminator)	A scrubbing liquid introduced into the gas stream captures and collects entrained particles. In the case of a venturi scrubber, the turbulent airflow atomizes the scrubbing liquid to increase droplet-particle interaction. The droplets containing particles are typically separated from the exhaust gas in a downstream cyclonic separator and/or mist eliminator.
Cyclone	Centrifugal forces drive particles in the gas stream toward the cyclone walls as the waste gas flows through the conical unit. The captured particles are collected in a material hopper below the unit.
Good Combustion Practices	Operate and maintain the equipment in accordance with good air pollution control practices.

4.7.1.2 Step 2 – Eliminate Technically Infeasible Options

All control options are considered potentially technically feasible and are evaluated in the next step.

4.7.1.3 Step 3 – Rank Remaining Options

Table 4-58 shows the rankings of the options for controlling lead and fluoride emissions from the proposed EAFs. The same control technologies will apply for the proposed LMFs except for ones specific to combustion.

Table 4-58. Rank of Remaining Control Technologies for Lead from EAFs

Control Technology	Efficiency	Rank
Baghouse / Fabric Filter	99 - 99.9%	1
Electrostatic Precipitator (ESP)	99 - 99.9%	1
Cyclone	70 - 99%	2
Good Combustion Practices	Varies	3

4.7.1.4 Step 4 – Evaluation of Most Effective Control Option

None of the control options are eliminated based on an evaluation of collateral impacts or cost analysis.

4.7.1.5 Step 5 – Select BACT

Recently issued permits for Nucor Brandenburg KY (2020) and Big River Steel AR (2021) contain BACT emission limits of 0.00045 lb/ton and 0.00056 lb/ton for lead, respectively. Both facilities applied a baghouse for control of $PM/PM_{10}/PM_{2.5}$, lead, and fluoride emissions control.

Nucor proposes to use direct evacuation control and roof canopy hood exhausted to the negative pressure EAF/LMF baghouse and an emission limit of 0.00045 lb/ton as BACT for lead emission from the proposed EAFs.

Recently issued permits for Nucor Gallatin KY (2021) and Steel Dynamics Sinton (2020) contain BACT emission limits of 0.0035 lb/ton and 0.01 lb/ton for fluoride, respectively. Both facilities applied a baghouse for control of $PM/PM_{10}/PM_{2.5}$, lead, and fluoride emissions control.

Nucor proposes to use direct evacuation control and roof canopy hood exhausted to a negative pressure baghouse and an emission limit of 0.0035 lb/ton as BACT for fluoride emission from the proposed EAFs.

4.8 GHG BACT Analysis

The proposed plant will generate GHG emissions as a product of the combustion occurring at various units such as EAFs, natural gas combustion devices, and emergency engines. Since the proposed plant will have a GHG PTE greater than 75,000 tpy, a PSD review for GHGs is required. To identify potential GHG control technologies for EAFs, Nucor reviewed EPA's RBLC database (past 10 years) along with various EPA guidance documents to review and evaluate applicable BACT emission limits for GHG.

4.8.1 Step 1 – Identify All Control Options

Table 4-59 below summarizes identified GHG control measures that are potentially feasible for the Iron and Steel industries. All measures identified are aiming at enhancing energy efficiency of the equipment, thus either (1) reducing the fuel consumption of the equipment (reduction of direct GHG emissions), or (2) reducing the electricity usage of the equipment (reduction of indirect GHG emissions). The table further identifies the measures that are considered technically infeasible for the proposed plant.

Table 4-59. Potential GHG Control Measures for Iron/Steel Industries

Unit / Process	Control Option	Description
Site-wide	Preventive Maintenance	Training programs and good housekeeping programs help to decrease energy consumption throughout the plant.
Site-wide	Energy Monitoring & Management System	Energy monitoring and management systems help provide for optimal energy recovery and distribution between processes at the plant.
Site-wide	High-Efficiency Motors	Look for energy efficiency opportunities for all motor systems (e.g., motors, drives, pumps, fans, compressors, controls).
EAF	Improved Process Control (Neural Network)	Process control can optimize operations and significantly reduce electricity consumption. Control and monitoring systems for EAF are moving towards integration of real-time monitoring of process variables, such as steel bath temperature, carbon levels, and distance to scrap, along with real-time control systems for graphite injection and lance oxygen practice. By monitoring the furnace exhaust gas flow rate and composition, the use of chemical energy in the furnace can be enhanced.
EAF	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 energy can.
EAF	Transformer Efficiency - Ultra-High-Power Transformers	Ultra-high–power (UHP) transformers help to reduce energy loss and increase productivity. The UHP furnaces are those with a transformer capacity of more than 700 kilovolt amps (kVA)/tonne heat size. The UHP operation may lead to heat fluxes and increased refractory wear, making cooling of the furnace panels necessary. This results in heat losses that partially offset the power savings.
EAF	Foamy Slag Practice	Foamy slag covers the arc and melt surface to reduce radiation heat losses. Foamy slag can be obtained by injecting carbon (granular coal) and oxygen or by lancing of oxygen only.
EAF	Oxy-Fuel Burners	Oxy-fuel burners are used on most EAF 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. The use of oxy-fuels burners has several other beneficial effects: it increases heat transfer, reduces heat losses, reduces electrode consumption and, and reduces tap-to-tap time. Moreover, the injection of oxygen helps to remove different elements from the steel bath.
EAF	Post-combustion of Flue Gases / Scrap Preheating	Post-combustion is a process for utilizing the chemical energy in the CO and hydrogen evolving from the steel bath to heat the steel in the EAF ladle or to preheat scrap to 570 to 1,470°F. It reduces electrical energy requirements and increases the productivity of the EAF. Post-combustion helps to optimize the benefits of oxygen and fuel injection. This technology is commonly used in the U.S. and is considered to be the best control technology for CO emissions.
EAF	Engineered Refractories	Refractories in EAFs have to withstand extreme conditions such as temperatures over 2,900°F, oxidation, thermal shock, erosion, and corrosion, generally leading to an undesired wear of refractories.

Unit / Process	Control Option	Description
		Refractories can be provided by a controlled microstructure: alumina particles and mullite microballoons coated uniformly with carbon and carbides. The refractories can reduce ladle leakages and the formation of slag in transfer operations.
EAF	Airtight Operation	A large amount of air enters the EAF, with nitrogen and non-reactive oxygen heated in the furnace, and exits with the fumes at high temperature, resulting in significant thermal losses. Based on the results of pilot scale trials with a 7 ton EAF at Arcelor Research, the potential benefit for a 450 kWh/ton electric consumption furnace with an airtight process including a post-combustion practice and an efficient fume exhaust control is about 100 kWh/ton. Approximately, 20 percent of the savings are accounted for by reduced thermal losses due to a reduced tap-to-tap time.
EAF	Contiarc Furnace	The Contiarc furnace is fed continuously with material in a ring between the central shaft and the outer furnace vessel, where the charged material is continuously preheated by the rising process gas in a counter-current flow, while the material continuously moves down. Located below the central shaft is a “free-melting volume” in the form of a cavern. Contiarc furnace can reduce energy losses, volumes of waste gas and dust, and electrode consumption.
EAF	Eccentric Bottom Tapping	In eccentric bottom tapping, the tap hole is located at the bottom of the shell, near the nose of the hearth. This leads to slag-free tapping, shorter tap-to-tap times, reduced refractory and electrode consumption, and improved ladle life.
EAF	Twin-Shell Furnace	A twin-shell furnace includes two EAF vessels with a common arc and power supply system. The system increases productivity by decreasing tap-to-tap time, and reduces energy consumption by reducing heat losses.
Casting	Efficient Caster Ladle/Tundish Heating	The ladle of the caster is preheated with gas burners. Heat losses can occur through lack of lids and through radiation. The losses can be reduced by installing temperature controls, installing hoods, by efficient ladle management (reducing the need for preheating), using recuperative burners, and using oxy-fuel burners. Tundishes are heated to reduce the heat loss of the molten steel, to avoid bubbles in the first slab at the beginning of the casting sequence, and to avoid degeneration of the refractory due to thermal shocks. Energy savings can also be attained by refraining from heating the tundish.
Casting	Near Net Shape Casting - Thin Slab	Near net shape casting is a process of casting metal to a form close to that required for the finished product. This means less machining is required to finish the part. Near net shape casting integrates the casting and hot rolling of steel into one process step, thereby reducing the need to reheat the steel before rolling it. Thin slab casting and strip casting are both forms of continuous casting.
Hot Rolling	Proper Reheating Temperature	In choosing the heating temperature for semi-finished products prior to rolling, an attempt should be made to obtain a fine-grained structure in the metal along with the requisite mechanical properties in the rolled

Unit / Process	Control Option	Description
		product. The heating operation should also ensure dissolution of the inclusions in the metal in the absence of excessive grain growth.
Hot Rolling	Avoiding Overload of Reheat Furnaces	The burners of an overloaded furnace operate at higher than normal firing rates, which increases combustion gas volumes. The higher gas flow rates and shorter time that the gas remains in the furnace causes poor heat transfer, resulting in higher temperatures of the flue gases. The increased volumes of higher temperature flue gases lead to sharply increased heat losses. Overly ambitious production goals might be met, but at the cost of excessive fuel consumption. The overload problem may be corrected by improving heat transfer or not operating in this mode to achieve ambitious production goals.
Hot Rolling	Energy Efficient Drives	High efficiency AC motors can save 1 or 2% of the electricity consumption of conventional AC drives.
Hot Rolling	Process Control	Controlling oxygen levels and using variable speed drives (VSDs) on the combustion air fans help to control the oxygen level, and hence optimize the combustion in the furnace, especially as the load of the furnace may vary over time.
Hot Rolling	Recuperative Burners	A recuperator is a gas-to-gas heat exchanger placed on the stack of the furnace. There are numerous designs, but all rely on tubes or plates to transfer heat from the outgoing exhaust gas to the incoming combustion air, while keeping the two streams from mixing. Recuperative burners use the heat from the exhaust gas to preheat the combustion air.
Hot Rolling	Flameless Burners	Flameless air-fuel combustion uses air as oxidizer, while flameless oxy-fuel uses commercial oxygen as an oxidant. This technology carries out combustion under diluted oxygen conditions using internal flue gas recirculation and the flame becomes invisible. Flameless oxy-fuel gives high thermal efficiency, higher levels of heat flux, and reduced fuel consumption compared to conventional oxy-fuel.
Hot Rolling	Insulation of Furnaces	Replacing conventional insulating materials with ceramic low-thermal–mass insulation materials can reduce the heat losses through furnace walls.
Hot Rolling	Walking Beam Furnace	A walking beam furnace represents the state-of-the-art of efficient reheating furnaces. In a walking beam furnace, the stock is placed on stationary ridges and a revolving beam walks the product along through the furnace until the exit where the beam returns to the furnace entrance. This results in reductions in electricity usage and overall fuel consumption.
Hot Rolling	Heat Recovery to the Product	In cases where it is not possible to hot-charge the slabs directly from the caster, energy can be recovered by bringing exhaust gases that leave the high temperature portion of the process into contact with the relatively cool slabs. This will preheat the slab charge, raising charging temperatures, and reducing overall energy input to the process.
Hot Rolling	Waste Heat Recovery from Cooling Water	Waste heat can be recovered from the hot strip mill cooling water to produce low pressure steam. Fuel savings are potentially offset by higher electricity consumption and increased operation and maintenance costs.

Unit / Process	Control Option	Description
Boilers	Operating & Maintenance (O&M) Practices	Deterioration results in higher heat rate, CO2 emissions, and operating costs; in lower reliability; and in some cases, reduced output. Rehabilitation may focus on life extension and reliability improvement of the plant or may include additional measures that improve plant efficiency, occasionally above the original design efficiency. The efficiency can be improved by retrofitting combustion control technologies such as heat recovery systems, control technology, and upgraded burners.
Boilers	Efficient Burner Design	New efficient burner designs for all types of boilers and fuels are commercially available to help minimize fuel combustion and GHG emissions. Further, the burner size and turndown capability (i.e., ability to operate and/or efficiency of operation at less than full load) are also key aspects of burner design as they will impact the losses associated with inefficient low load and on/off cycling duty. A higher turndown ratio reduces burner startups, provides better load control, saves wear-and-tear on the burner, and reduces purge-air requirements, all resulting in better overall efficiency.
Boilers	Improved Combustion Measures: Combustion Tuning	Tuning of the combustion system requires a visual check by an experienced boiler engineer to ensure that everything is in good working condition and set according to the manufacturer's recommendations or the optimum settings developed for the particular boiler. Simple parametric testing may be required, which may involve changes in the key control variables of the combustion system and observation of key parameters such as CO emissions, steam outlet conditions, flue gas outlet (stack) temperature, and NOx emissions.
Boilers	Improved Combustion Measures: Optimization	Optimization can be accomplished through parametric testing, analysis of the results, parameter estimation, periodic testing, and/or manual tuning. Software-based optimization systems may be cost effective for large boilers.
Boilers	Improved Combustion Measures: Digital Control Systems	Digital control systems are generally necessary to achieve the greatest improvement in performance through tuning and optimization. Temperature sensors, oxygen monitors, oxygen trim controls, and other instrumentation may be required to maximize boiler efficiency.
Boilers	Air Preheater	Energy efficiency can be increased by using waste heat gas recovery systems to capture and utilize heat in the flue gas. There are two general types of air preheaters: recuperators and regenerators. Recuperators are gas-to-gas heat exchangers usually placed on the boiler stack. Internal tubes or plates transfer heat from the outgoing exhaust to the incoming combustion air. Regenerators include two or more separate heat storage sections. The hot flue gas heats the heating plates which in turn heat the incoming combustion air. Common methods are preheating combustion air and water heating via economizer.
Boilers	Economizer	Energy efficiency can be increased by using waste heat gas recovery systems to capture and utilize heat in the flue gas. Common methods are preheating combustion air and water heating via economizer.

Unit / Process	Control Option	Description
		In an economizer, tubular heat transfer surfaces preheat the boiler feedwater before it enters the steam drum or furnace surfaces. Economizers also reduce the potential of thermal shock and strong water temperature fluctuations as the feedwater enters the drum or waterwalls. Economizers are typically installed on larger units.
Boilers	Turbulators for Firetube Boilers	Turbulators create turbulence within the firetubes to improve heat transfer characteristics. An array of baffles, blades, or coiled wires disturb the laminar boundary layer within the firetubes, resulting in increased convective heat transfer. Turbulators are often considered a more economic alternative to economizers or air preheaters.
Boilers	Boiler Insulation	Proper insulation is used to minimize heat losses through the boiler shell. The refractory material lining inside the boiler is the primary insulating material, but properly applied insulation on the outer boiler surface can also reduce heat losses. Insulation material is categorized as either mass or reflective type, depending on whether it is aimed to reduce conductive or radiative heat transmission, respectively. The Thermal Insulation Manufacturers' Association provides guidance for determining the optimum insulation thickness for various applications.
Boilers	Minimization of Air Infiltration	Air infiltration occurs as a result of the large temperature difference between the hot combustion gases and the ambient air; the resulting pressure differential draws ambient air into the system through leaks such as warped doors or cracked casings/ductwork.
Boilers	Boiler Blowdown Heat Exchanger	Waste heat from the boiler blowdown stream can be recovered with a heat exchanger, a flash tank, or combined. Cooling the blowdown has additional advantage of reducing the liquid temperature released into the sewer system. High blowdown rates and boiler pressures are ideal conditions for blowdown recovery. Any boiler with continuous blowdown exceeding 5% of the steam rate exhibits significant potential for blowdown waste heat recovery.
Boilers	Condensate Return System	Hot condensate that is not returned to the boiler represents a corresponding loss of energy. Energy savings originate from the fact that most condensate is returned at relatively high temperatures (typically 130 to 225 °F) compared to the cold makeup water (50 to 60 °F) that must be heated. Operation of the return condensate system depends on the specific boiler and water/condensate quality. A further improvement on recovering the available energy of the condensate may be to use a heat exchanger (vent condenser) where the flashing steam is typically vented.
Boilers	Minimization of Gas-Side Heat Transfer Surface Deposits	To minimize deposition on boiler heat transfer surfaces, the boiler must be operated within its design parameters. Boilers firing ash-laden fuels may be equipped with soot blowers to periodically remove the unavoidable deposition on the boiler walls and tubes and may utilize fuel treatment to mitigate the deposition propensity of the ash and combustion products. The relationship between deposits and heat transfer deterioration varies with the type of fuel and ash

Unit / Process	Control Option	Description
		characteristics. Efficiency is reduced by approximately 1% for every 40 °F increase in stack temperature.
Boilers	Steam Line Maintenance	Leaky valves/traps can represent measurable losses. Leaking traps should account for less than 5% of the trap population at plants with regular inspection and maintenance programs for steam traps. Energy audits and maintenance procedures should highlight common maintenance items such as uninsulated steam distribution and condensate return lines and other fittings. Ensuring that all steam/condensate lines are properly insulated will yield measurable efficiency gains. Common practice suggests that surfaces over 120 °F (steam and condensate return piping, fittings) should be insulated.
Boilers	Alternative Fuels - Biomass	The potential on-site reduction in CO2 emissions may be realized by switching from a traditional fossil fuel to a biomass fuel is based on the specific emission factor for the fuel as related to its caloric value. Pure biomass fuels include animal meal, waste wood products and sawdust, and sewage sludge. It may also be possible to use biomass materials that are specifically cultivated for fuel use, such as wood, grasses, green algae, and other quick growing species.
Boilers	Co-firing	Gas co-firing involves modification of the combustion system to accommodate the introduction of natural gas or biomass-derived gas. The co-fired fuel is injected directly into the combustion zone. Co-firing of natural gas or biofuels does not present any technical issues which cannot be addressed through appropriate design. In most cases, the issues associated with these fuels relate to economic attractiveness, availability of biofuels, and availability of natural gas at the plant site.
Boilers	Fuel Switching	Fuel switching refers to a change in the plant hardware to accommodate complete replacement of one fuel with another fuel. Coal could be switched to oil, natural gas, or coal-derived gas; and oil could be switched to natural gas or coal-derived gas to achieve emissions reductions.
Boilers	Combined Heat and Power	Combined heat and power (cogeneration) involves the production of heat and electricity from a single facility. Boilers operating at high annual operating factors and maintaining a steady thermal load may be equipped with steam turbines or heat recovery steam generators (HRSGs) to generate power for use on-site or for sale to the power market. Use of CHP systems have been installed in integrated steel mills to take advantage of waste gases from blast furnaces, coke ovens, and other processes.

4.8.2 Step 2 – Eliminate Technically Infeasible Options

For the proposed EAFs, Adjustable Speed Drives are considered technically infeasible since dust collection efficiency may be reduced by 2 - 3%, which could affect compliance with BACT emission limits for particulate matter. Airtight Operations as a control measure is considered technically infeasible as the technology has not been demonstrated at full production levels. Contiarc process is designed for the production of cast iron not carbon steel; therefore, Contiarc Furnace is considered technically infeasible.

For the proposed casting operations, Near Net Shape Casting – Strip control measure is considered technically infeasible due to surface imperfections imparted by casting rollers.

For the proposed hot rolling operations, the use of supplied oxygen for oxy-fuel burners would impose various safety concerns (such as oxygen embrittlement) and maintaining the required temperature regimes in the furnace would be inconsistent and problematic. As a result, use of a Flameless Burner is considered technically infeasible. Walking Beam Furnace is not a feasible control option due to material length and flow and the manufacturing process of the intended product. Heat Recovery to the Product is not a feasible control option since slabs are not reheated. For Waste Heat Recovery from Cooling Water control measure, since waste heat is used to maintain furnace temperature at the plant instead of generating low pressure steam, this control measure is not technically feasible.

For the proposed boilers, Optimization and Digital Control Systems are typically applied to large coal-fired or biomass-fired boilers instead of smaller natural gas-fired boilers due to the variability in fuel quality of coal and biomass. Therefore, they are considered technically infeasible. Air Preheater control measures are considered technically infeasible since the resulting increases in combustion temperature contribute to elevated emissions of NOx. Economizer control measure is not considered technically feasible due to the technology typically being applied to large boilers. Turbulators are typically installed on older firetube boilers operating with fewer tube passes; therefore, the turbulators for firetube boilers control measure is considered technically infeasible. Boiler Blowdown Heat Exchanger control measure is not considered technically feasible as the low-pressure steam generated by the exchanger is not utilized at the proposed plant. Natural gas-fired boilers do not typically employ soot blowing systems given the reduced ash content of gaseous fuels; therefore, Minimization of Gas-Side Heat Transfer Surface Deposits control measure is not technically feasible. Co-firing is not considered technically feasible since the proposed boilers are designed to combust natural gas and will not be capable of co-firing solid or liquid fuels. Fuel Switching does not apply to natural gas combustion devices. Furthermore, alternative biomass fuel is not technically feasible since the availability of gaseous biomass fuels is limited such that a consistent supply of fuel cannot be assured, and the combustion of biomass fuels may affect compliance with BACT emission limits for criteria pollutants. Lastly, combined heat and power (CHP) systems are designed to collect waste energy in the form of low-pressure steam, which is not used at the facility; therefore, CHP control measure is considered technically infeasible.

4.8.3 Step 3 – Rank Remaining Options

Table 4-60 shows the rankings of the options for controlling GHG emissions from various emission units and processes throughout the site.

Table 4-60. Rank of Remaining Control Measures for GHGs

Unit/Process	Control Technology	Efficiency	Rank
Site-wide	Preventive Maintenance	2% of total energy use	1
Site-wide	High-Efficiency Motors	12% of energy use on motors	1
Site-wide	Energy Monitoring & Management System	0.5% of energy use	2
EAF	Post-combustion of Flue Gases	4 to 50 kWh/ton	1
EAF	Oxy-Fuel Burners	18 - 36 kWh/ton	2

Unit/Process	Control Technology	Efficiency	Rank
EAF	Improved Process Control (Neural Network)	34.5 kWh/ton	3
EAF	Transformer Efficiency	15 kWh/ton	5
EAF	Eccentric Bottom Tapping	13.6 kWh/ton	6
EAF	Engineered Refractories	10 kWh/ton	7
EAF	Foamy Slag Practice	5 - 7 kWh/ton	8
Casting	Near Net Shape Casting	4.2 MMBtu/ton	1
Casting	Efficient Caster Ladle/Tundish Heating	0.017 MMBtu/ton	2
Hot Rolling	Proper Reheating Temperature – Tunnel Furnaces	9 - 10%	2
Hot Rolling	Process Control in Hot Strip Mill	9%	3
Hot Rolling	Insulation of Furnaces	2% - 5%	4
Hot Rolling	Energy Efficient Drives	1 - 2%	5
Boiler	Boiler Insulation	Up to 7%	1
Boiler	Efficient Burner Design	Up to 6%	2
Boiler	Minimization of Air Infiltration	Up to 4%	3
Boiler	Improved Combustion Measures: Combustion Tuning	Up to 3%	4
Boiler	Operating & Maintenance (O&M) Practices	Varies	5
Boiler	Steam Line Maintenance	Varies	5
Boiler	Condensate Return System	Varies	5

4.8.4 Step 4 – Evaluation of Most Effective Control Option

None of the control options are eliminated based on an evaluation of collateral impacts or cost analysis.

4.8.5 Step 5 – Select BACT

A search of the RBLC database yielded no results for specific control of GHG emissions from steel mills. Upon finalizing the design specifications for the proposed plant and its equipment, Nucor will evaluate and implement appropriate control measures that have been demonstrated feasible to improve energy efficiency. Nucor proposes to utilize an energy efficiency plan that uses a combination of the energy efficiency measures listed in Table 4-60 as BACT for the proposed steel mill (such as variable frequency drive motors, oxy-fuel burners on the EAFs, preventive maintenance programs, and energy efficient design) and a site-wide CO_2e limit of 865,842 tons per year.

APPENDIX A. WVDAQ APPLICATION FORM FOR NSR PERMIT

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF AIR QUALITY

601 57th Street, SE
Charleston, WV 25304
(304) 926-0475
www.dep.wv.gov/daq

APPLICATION FOR NSR PERMIT AND TITLE V PERMIT REVISION (OPTIONAL)

PLEASE CHECK ALL THAT APPLY TO **NSR (45CSR13)** (IF KNOWN):

☒ **CONSTRUCTION** ☐ **MODIFICATION** ☐ **RELOCATION**
☐ **CLASS I ADMINISTRATIVE UPDATE** ☐ **TEMPORARY**
☐ **CLASS II ADMINISTRATIVE UPDATE** ☐ **AFTER-THE-FACT**

PLEASE CHECK TYPE OF **45CSR30 (TITLE V)** REVISION (IF ANY):

☐ **ADMINISTRATIVE AMENDMENT** ☐ **MINOR MODIFICATION**
☐ **SIGNIFICANT MODIFICATION**

IF ANY BOX ABOVE IS CHECKED, INCLUDE TITLE V REVISION INFORMATION AS **ATTACHMENT S** TO THIS APPLICATION

FOR TITLE V FACILITIES ONLY: Please refer to "Title V Revision Guidance" in order to determine your Title V Revision options (Appendix A, "Title V Permit Revision Flowchart") and ability to operate with the changes requested in this Permit Application.

Section I. General

1. Name of applicant *(as registered with the WV Secretary of State's Office)*:
Nucor Steel West Virginia LLC

2. Federal Employer ID No. ***(FEIN):***
13-1860817

3. Name of facility *(if different from above)*:
Nucor Steel West Virginia

4. The applicant is the:
☐ **OWNER** ☐ **OPERATOR** ☒ **BOTH**

5A. Applicant's mailing address:
1915 Rexford Road
Charlotte, NC 28211

5B. Facility's present physical address:
N/A

6. **West Virginia Business Registration.** Is the applicant a resident of the State of West Virginia? ☐ **YES** ☒ **NO**

– If **YES,** provide a copy of the **Certificate of Incorporation/Organization/Limited Partnership** (one page) including any name change amendments or other Business Registration Certificate as **Attachment A.**

– If **NO,** provide a copy of the **Certificate of Authority/Authority of L.L.C./Registration** (one page) including any name change amendments or other Business Certificate as **Attachment A.**

7. If applicant is a subsidiary corporation, please provide the name of parent corporation: Nucor Corporation

8. Does the applicant own, lease, have an option to buy or otherwise have control of the *proposed site?* ☒ **YES** ☐ **NO**

– If **YES,** please explain: Nucor will own the parcels of land for the proposed site.

– If **NO,** you are not eligible for a permit for this source.

9. Type of plant or facility (stationary source) to be **constructed, modified, relocated, administratively updated** or **temporarily permitted** (e.g., coal preparation plant, primary crusher, etc.): Steel Mill

10. North American Industry Classification System **(NAICS)** code for the facility:
331110

11A. DAQ Plant ID No. (for existing facilities only):
–

11B. List all current 45CSR13 and 45CSR30 (Title V) permit numbers associated with this process (for existing facilities only):

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

12A.

- For **Modifications, Administrative Updates** or **Temporary permits** at an existing facility, please provide directions to the *present location* of the facility from the nearest state road;
- For **Construction** or **Relocation permits,** please provide directions to the *proposed new site location* from the nearest state road. Include a **MAP** as **Attachment B**.

The proposed site will be located on the west side of State Route 2 (Huntington Road), approximately 1 kilometer south of the United States Post Office (27799 Huntington Rd, Apple Grove, WV 25502).

12.B. New site address (if applicable): N/A	12C. Nearest city or town: Apple Grove	12D. County: Mason
12.E. UTM Northing (KM): 4278.86930	12F. UTM Easting (KM): 398.20479	12G. UTM Zone: 17

13. Briefly describe the proposed change(s) at the facility:
Nucor is proposing to construct a new steel mill at this location.

14A. Provide the date of anticipated installation or change: 4/30/2022 – If this is an **After-The-Fact** permit application, provide the date upon which the proposed change did happen: / /	14B. Date of anticipated Start-Up if a permit is granted: 1/1/2024

14C. Provide a **Schedule** of the planned **Installation** of/**Change** to and **Start-Up** of each of the units proposed in this permit application as **Attachment C** (if more than one unit is involved).

15. Provide maximum projected **Operating Schedule** of activity/activities outlined in this application:
Hours Per Day 24 Days Per Week 7 Weeks Per Year52

16. Is demolition or physical renovation at an existing facility involved? ☐ **YES** ☒ **NO**

17. **Risk Management Plans.** If this facility is subject to 112(r) of the 1990 CAAA, or will become subject due to proposed changes (for applicability help see www.epa.gov/ceppo), submit your **Risk Management Plan (RMP)** to U. S. EPA Region III.

18. **Regulatory Discussion.** List all Federal and State air pollution control regulations that you believe are applicable to the proposed process *(if known)*. A list of possible applicable requirements is also included in Attachment S of this application (Title V Permit Revision Information). Discuss applicability and proposed demonstration(s) of compliance *(if known)*. Provide this information as **Attachment D.**

Section II. Additional attachments and supporting documents.

19. Include a check payable to WVDEP – Division of Air Quality with the appropriate **application fee** (per 45CSR22 and 45CSR13).

20. Include a **Table of Contents** as the first page of your application package.

21. Provide a **Plot Plan,** e.g. scaled map(s) and/or sketch(es) showing the location of the property on which the stationary source(s) is or is to be located as **Attachment E** (Refer to ***Plot Plan Guidance***) **.**
- Indicate the location of the nearest occupied structure (e.g. church, school, business, residence).

22. Provide a **Detailed Process Flow Diagram(s)** showing each proposed or modified emissions unit, emission point and control device as **Attachment F.**

23. Provide a **Process Description** as **Attachment G.**
- Also describe and quantify to the extent possible all changes made to the facility since the last permit review (if applicable).

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

24. Provide **Material Safety Data Sheets (MSDS)** for all materials processed, used or produced as **Attachment H.**

– For chemical processes, provide a MSDS for each compound emitted to the air.

25. Fill out the **Emission Units Table** and provide it as **Attachment I.**

26. Fill out the **Emission Points Data Summary Sheet (Table 1 and Table 2)** and provide it as **Attachment J.**

27. Fill out the **Fugitive Emissions Data Summary Sheet** and provide it as **Attachment K.**

28. Check all applicable **Emissions Unit Data Sheets** listed below:

☐ Bulk Liquid Transfer Operations
☒ Haul Road Emissions
☐ Quarry
☐ Chemical Processes
☐ Hot Mix Asphalt Plant
☐ Solid Materials Sizing, Handling and Storage Facilities
☐ Concrete Batch Plant
☐ Incinerator
☒ Storage Tanks
☐ Grey Iron and Steel Foundry
☒ Indirect Heat Exchanger

☒ General Emission Unit, specify: Heaters/EAF/LMF, Material Handling, Emergency Generators

Fill out and provide the **Emissions Unit Data Sheet(s)** as **Attachment L.**

29. Check all applicable **Air Pollution Control Device Sheets** listed below:

☐ Absorption Systems
☒ Baghouse
☒ Flare
☐ Adsorption Systems
☐ Condenser
☐ Mechanical Collector
☐ Afterburner
☐ Electrostatic Precipitator
☐ Wet Collecting System

☒ Other Collectors, specify: Scrubber

Fill out and provide the **Air Pollution Control Device Sheet(s)** as **Attachment M.**

30. Provide all **Supporting Emissions Calculations** as **Attachment N,** or attach the calculations directly to the forms listed in Items 28 through 31.

31. **Monitoring, Recordkeeping, Reporting and Testing Plans.** Attach proposed monitoring, recordkeeping, reporting and testing plans in order to demonstrate compliance with the proposed emissions limits and operating parameters in this permit application. Provide this information as **Attachment O.**

➢ Please be aware that all permits must be practically enforceable whether or not the applicant chooses to propose such measures. Additionally, the DAQ may not be able to accept all measures proposed by the applicant. If none of these plans are proposed by the applicant, DAQ will develop such plans and include them in the permit.

32. **Public Notice.** At the time that the application is submitted, place a **Class I Legal Advertisement** in a newspaper of general circulation in the area where the source is or will be located (See 45CSR§13-8.3 through 45CSR§13-8.5 and ***Example Legal Advertisement*** for details). Please submit the **Affidavit of Publication** as **Attachment P** immediately upon receipt.

33. **Business Confidentiality Claims.** Does this application include confidential information (per 45CSR31)?

☐ **YES** ☒ **NO**

➢ If **YES,** identify each segment of information on each page that is submitted as confidential and provide justification for each segment claimed confidential, including the criteria under 45CSR§31-4.1, and in accordance with the DAQ's ***"Precautionary Notice – Claims of Confidentiality"*** guidance found in the ***General Instructions*** as **Attachment Q.**

Section III. Certification of Information

34. **Authority/Delegation of Authority.** Only required when someone other than the responsible official signs the application. Check applicable **Authority Form** below:

☐ Authority of Corporation or Other Business Entity
☐ Authority of Partnership
☐ Authority of Governmental Agency
☐ Authority of Limited Partnership

Submit completed and signed **Authority Form** as **Attachment R.**

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

35A. **Certification of Information.** To certify this permit application, a Responsible Official (per 45CSR§13-2.22 and 45CSR§30-2.28) or Authorized Representative shall check the appropriate box and sign below.

Certification of Truth, Accuracy, and Completeness

I, the undersigned ☒ **Responsible Official** / ☐ **Authorized Representative,** hereby certify that all information contained in this application and any supporting documents appended hereto, is true, accurate, and complete based on information and belief after reasonable inquiry I further agree to assume responsibility for the construction, modification and/or relocation and operation of the stationary source described herein in accordance with this application and any amendments thereto, as well as the Department of Environmental Protection, Division of Air Quality permit issued in accordance with this application, along with all applicable rules and regulations of the West Virginia Division of Air Quality and W.Va. Code § 22-5-1 et seq. (State Air Pollution Control Act). If the business or agency changes its Responsible Official or Authorized Representative, the Director of the Division of Air Quality will be notified in writing within 30 days of the official change.

Compliance Certification

Except for requirements identified in the Title V Application for which compliance is not achieved, I, the undersigned hereby certify that, based on information and belief formed after reasonable inquiry, all air contaminant sources identified in this application are in compliance with all applicable requirements.

SIGNATURE ________John Farris________ DATE: ___3/23/2022___

(Please use blue ink) *(Please use blue ink)*

35B. Printed name of signee: John Farris		35C. Title: Vice President & General Manager
35D. E-mail: john.farris@nucor.com	36E. Phone: (704) 366-7000	36F. FAX: (704) 362-4208
36A. Printed name of contact person (if different from above):		36B. Title:
36C. E-mail:	36D. Phone:	36E. FAX:

PLEASE CHECK ALL APPLICABLE ATTACHMENTS INCLUDED WITH THIS PERMIT APPLICATION:

☒ **Attachment A: Business Certificate**
☒ **Attachment B: Map(s)**
☒ **Attachment C: Installation and Start Up Schedule**
☒ **Attachment D: Regulatory Discussion**
☒ **Attachment E: Plot Plan**
☒ **Attachment F: Detailed Process Flow Diagram(s)**
☒ **Attachment G: Process Description**
☒ **Attachment H: Material Safety Data Sheets (MSDS)**
☒ **Attachment I: Emission Units Table**
☒ **Attachment J: Emission Points Data Summary Sheet**
☒ **Attachment K: Fugitive Emissions Data Summary Sheet**
☒ **Attachment L: Emissions Unit Data Sheet(s)**
☒ **Attachment M: Air Pollution Control Device Sheet(s)**
☒ **Attachment N: Supporting Emissions Calculations**
☒ **Attachment O: Monitoring/Recordkeeping/Reporting/Testing Plans**
☒ **Attachment P: Public Notice**
☐ **Attachment Q: Business Confidential Claims**
☐ **Attachment R: Authority Forms**
☐ **Attachment S: Title V Permit Revision Information**
☒ **Application Fee**

Please mail an original and three (3) copies of the complete permit application with the signature(s) to the DAQ, Permitting Section, at the address listed on the first page of this application. Please DO NOT fax permit applications.

FOR AGENCY USE ONLY – IF THIS IS A TITLE V SOURCE:

☐ ***Forward 1 copy of the application to the Title V Permitting Group and:***
☐ ***For Title V Administrative Amendments:***
- ☐ ***NSR permit writer should notify Title V permit writer of draft permit,***

☐ ***For Title V Minor Modifications:***
- ☐ ***Title V permit writer should send appropriate notification to EPA and affected states within 5 days of receipt,***
- ☐ ***NSR permit writer should notify Title V permit writer of draft permit.***

☐ ***For Title V Significant Modifications processed in parallel with NSR Permit revision:***
- ☐ ***NSR permit writer should notify a Title V permit writer of draft permit,***
- ☐ ***Public notice should reference both 45CSR13 and Title V permits,***
- ☐ ***EPA has 45 day review period of a draft permit.***

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

APPENDIX B. WEST VIRGINIA PERMIT APPLICATION ATTACHMENTS

Attachment A: West Virginia Business Certificate
Attachment B: Site Map
Attachment C: Installation and Start-up Schedule
Attachment D: Regulatory Discussion
Attachment E: Plot Plan
Attachment F: Detailed Process Flow Diagrams
Attachment G: Process Description
Attachment H: Material Safety Data Sheets (MSDS)
Attachment I: Emission Units Table
Attachment J: Emission Points Data Summary Sheet
Attachment K: Fugitive Emissions Data Summary Sheet
Attachment L: Emission Unit Data Sheets
Attachment M: Air Pollution Control Device Sheets
Attachment N: Supporting Emission Calculations
Attachment O: Monitoring/Recordkeeping/Reporting/Testing Plans
Attachment P: Public Notice
Attachment Q: Business Confidential Claims (Not Applicable)
Attachment R: Authority Forms (Not Applicable)
Attachment S: Title V Permit Revision Information (Not Applicable)

Attachment A: West Virginia Business Certificate

State of West Virginia

Certificate

I, Mac Warner, Secretary of State,
of the State of West Virginia, hereby certify that

NUCOR STEEL WEST VIRGINIA LLC

has filed the appropriate registration documents in my office according to the provisions of the West Virginia Code and hereby declare the organization listed above as duly registered with the Secretary of State's Office.

Given under my hand and
the Great Seal of West Virginia
on this day of
February 01, 2022

Mac Warner

Secretary of State

Attachment B: Site Map

Figures B-1 and B-2 provide general maps of the proposed facility location, showing roads and general boundaries of towns and other nearby municipalities, and proximity to major geographical features such as the Ohio River. As can be seen from these figures, the land use near the facility is generally rural.

Figure B-1. Area Map Showing Nucor's Proposed West Virginia Steel Mill Location

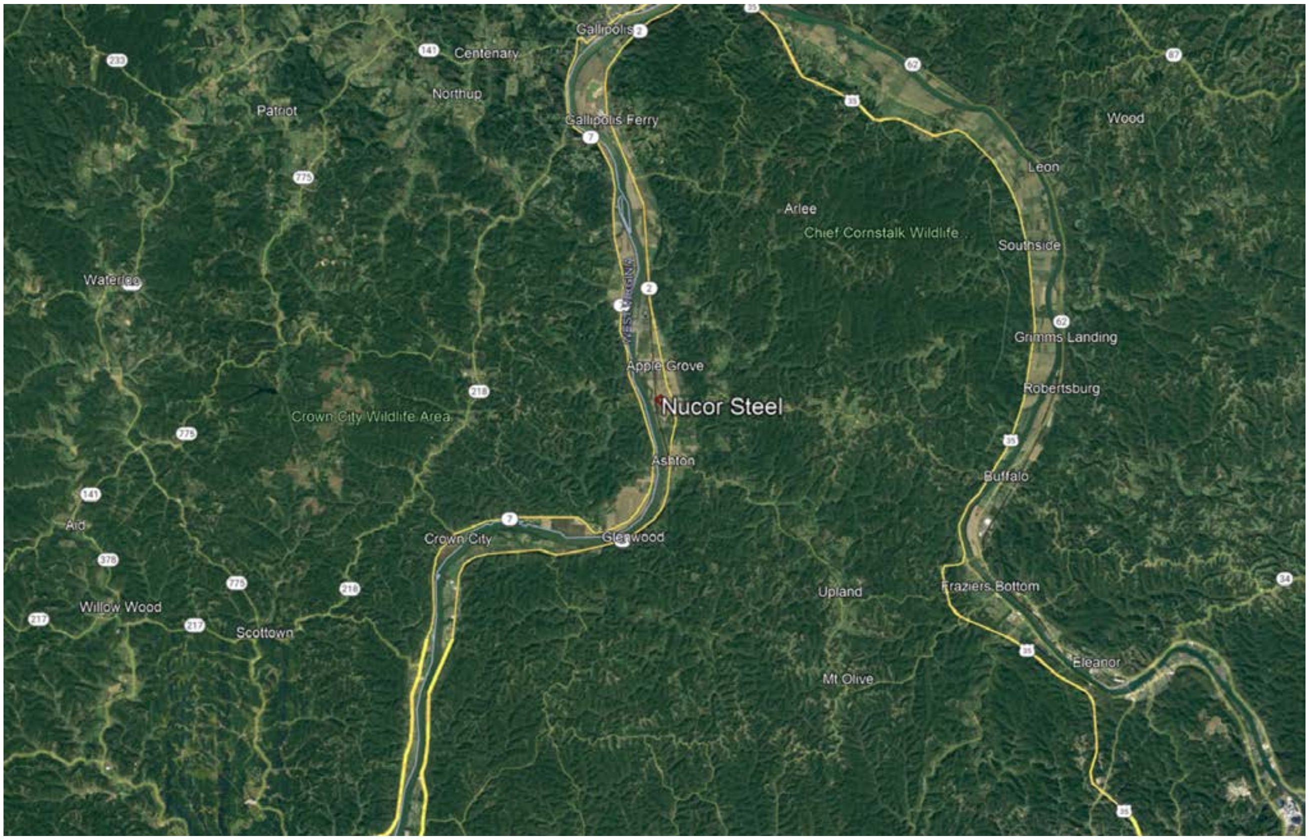


Figure B-2. Site Map Showing Nucor's Proposed West Virginia Steel Mill Location

Attachment C: Installation and Start-up Schedule

Section 2 of the application narrative provides a summary of the proposed emission units with the proposed installation and start-up schedule for the West Virginia Steel Mill.

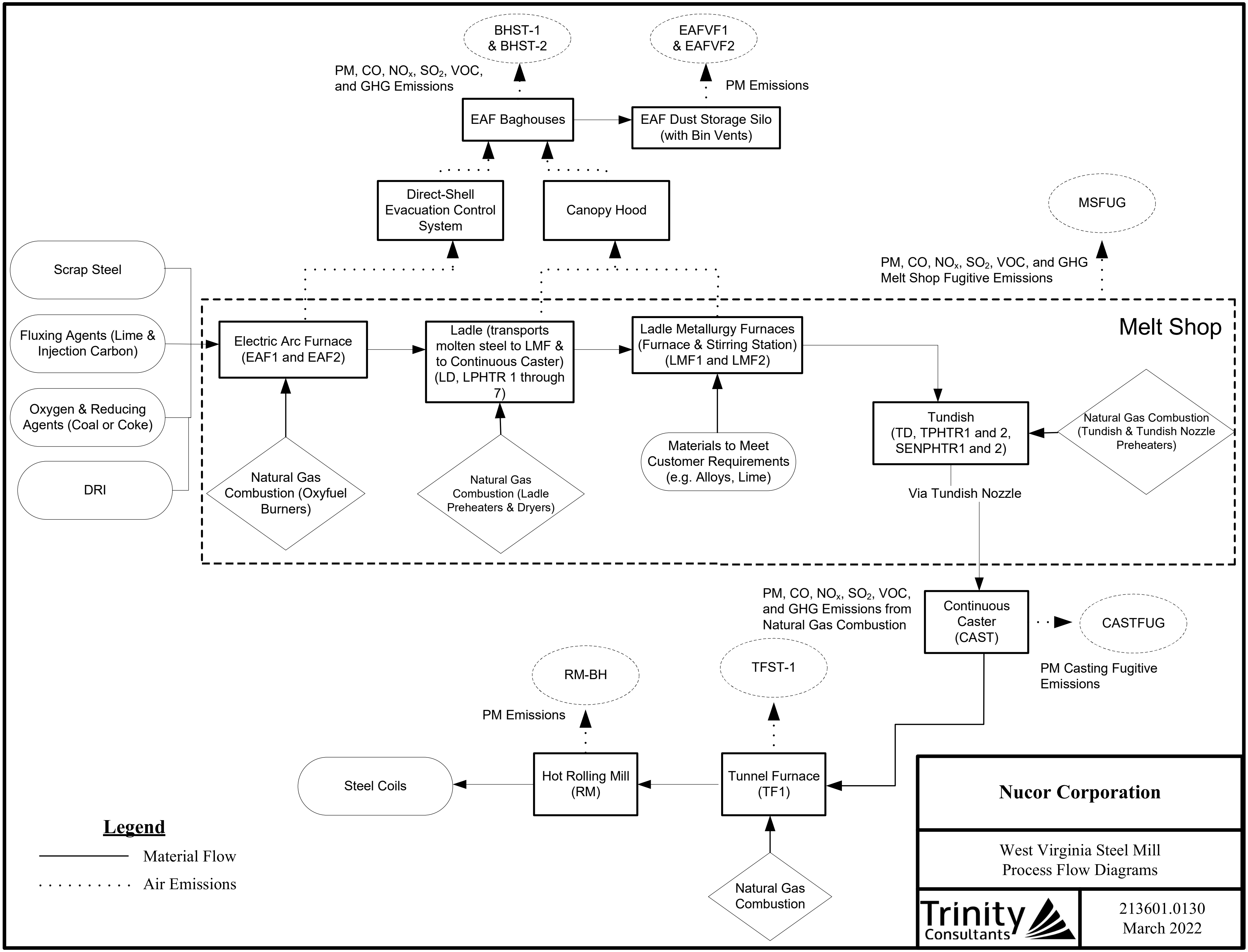
Attachment D: Regulatory Discussion

Section 3 of the application narrative provides a state and federal regulatory applicability analysis and summary of regulatory requirements that will apply to the West Virginia Steel Mill.

Attachment E: Plot Plan

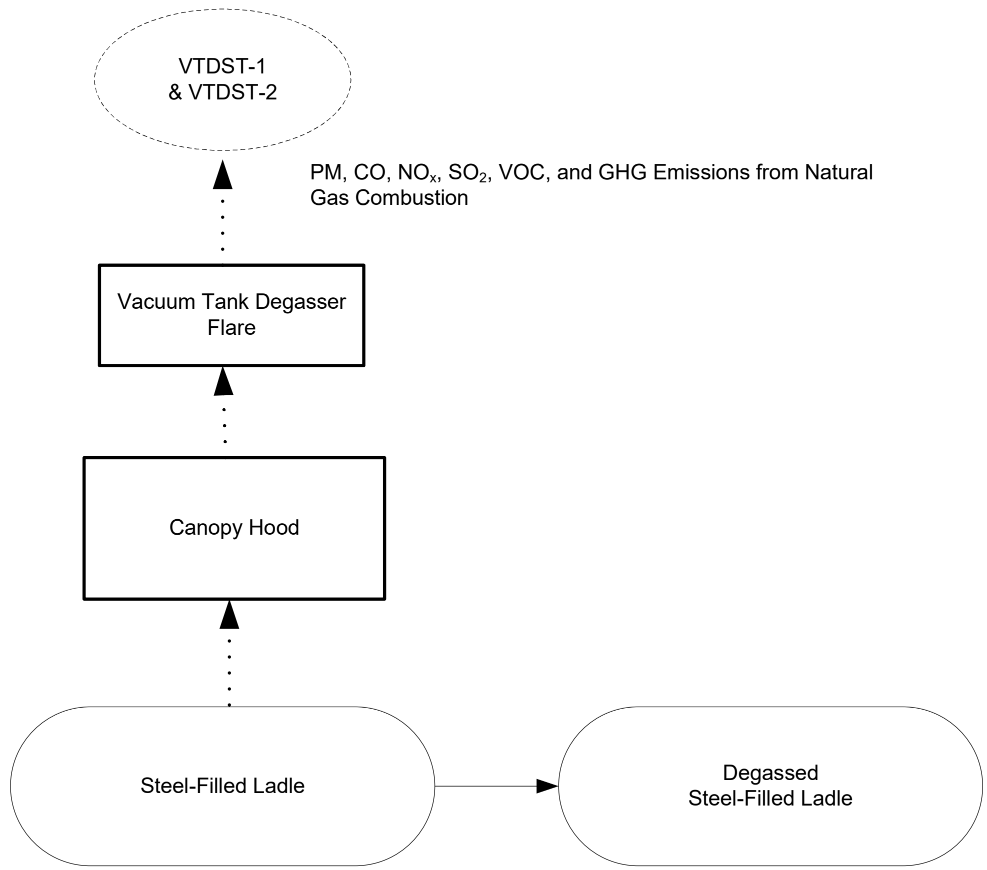
Nucor will submit facility plot plans within the air dispersion modeling report as required by the Prevention of Significant Deterioration (PSD) program.

Attachment F: Detailed Process Flow Diagrams



BHST-1 & BHST-2
EAFVF1 & EAFVF2
PM, CO, NO_x, SO_2, VOC, and GHG Emissions
PM Emissions
EAF Baghouses
EAF Dust Storage Silo (with Bin Vents)
Direct-Shell Evacuation Control System
Canopy Hood
MSFUG
PM, CO, NO_x, SO_2, VOC, and GHG Melt Shop Fugitive Emissions
Scrap Steel
Fluxing Agents (Lime & Injection Carbon)
Oxygen & Reducing Agents (Coal or Coke)
DRI
Melt Shop
Electric Arc Furnace (EAF1 and EAF2)
Ladle (transports molten steel to LMF & to Continuous Caster) (LD, LPHTR 1 through 7)
Ladle Metallurgy Furnaces (Furnace & Stirring Station) (LMF1 and LMF2)
Tundish (TD, TPHTR1 and 2, SENPHTR1 and 2)
Natural Gas Combustion (Tundish & Tundish Nozzle Preheaters)
Natural Gas Combustion (Oxyfuel Burners)
Natural Gas Combustion (Ladle Preheaters & Dryers)
Materials to Meet Customer Requirements (e.g. Alloys, Lime)
Via Tundish Nozzle
PM, CO, NO_x, SO_2, VOC, and GHG Emissions from Natural Gas Combustion
Continuous Caster (CAST)
CASTFUG
PM Casting Fugitive Emissions
RM-BH
TFST-1
PM Emissions
Steel Coils
Hot Rolling Mill (RM)
Tunnel Furnace (TF1)
Natural Gas Combustion
Legend
Material Flow
Air Emissions
Nucor Corporation
West Virginia Steel Mill
Process Flow Diagrams
Trinity Consultants
213601.0130
March 2022

Ladle Vacuum Tank Degassers (VTD1 and 2)
(Melt Shop)



Legend

Material Flow

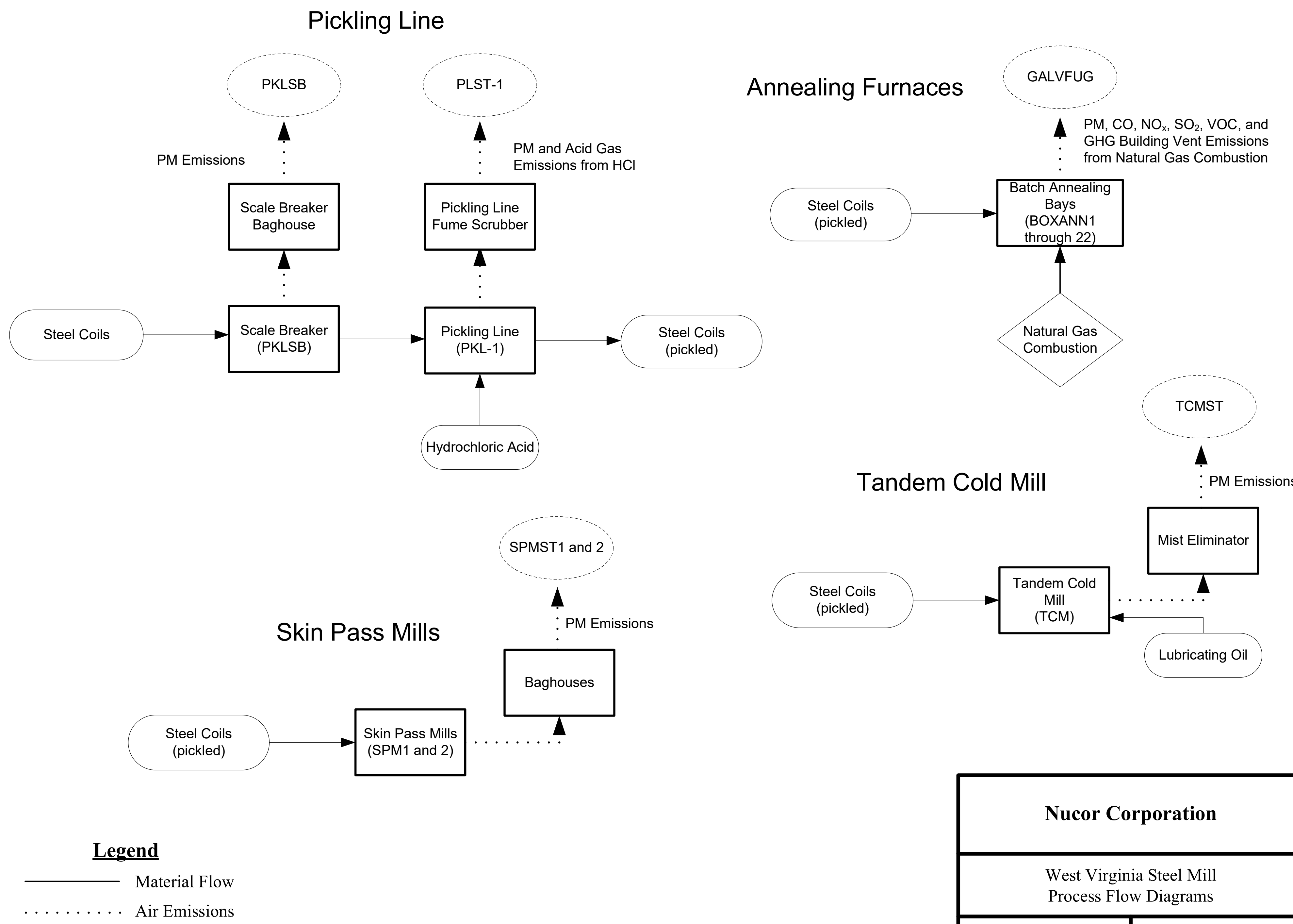
Air Emissions

Nucor Corporation

West Virginia Steel Mill
Process Flow Diagrams

Trinity Consultants

213601.0130
March 2022

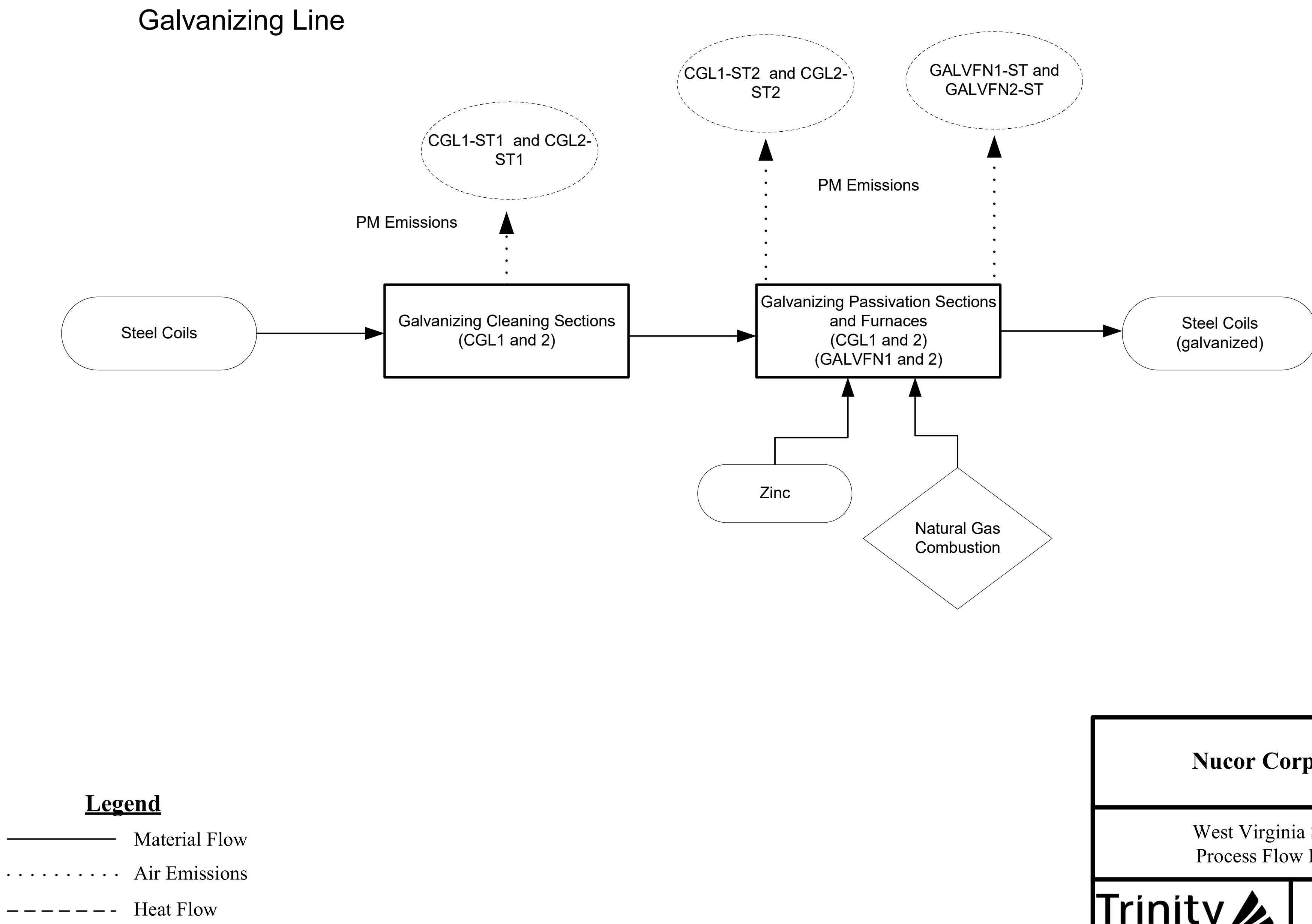


Nucor Corporation

West Virginia Steel Mill
Process Flow Diagrams

Trinity Consultants

213601.0130
March 2022

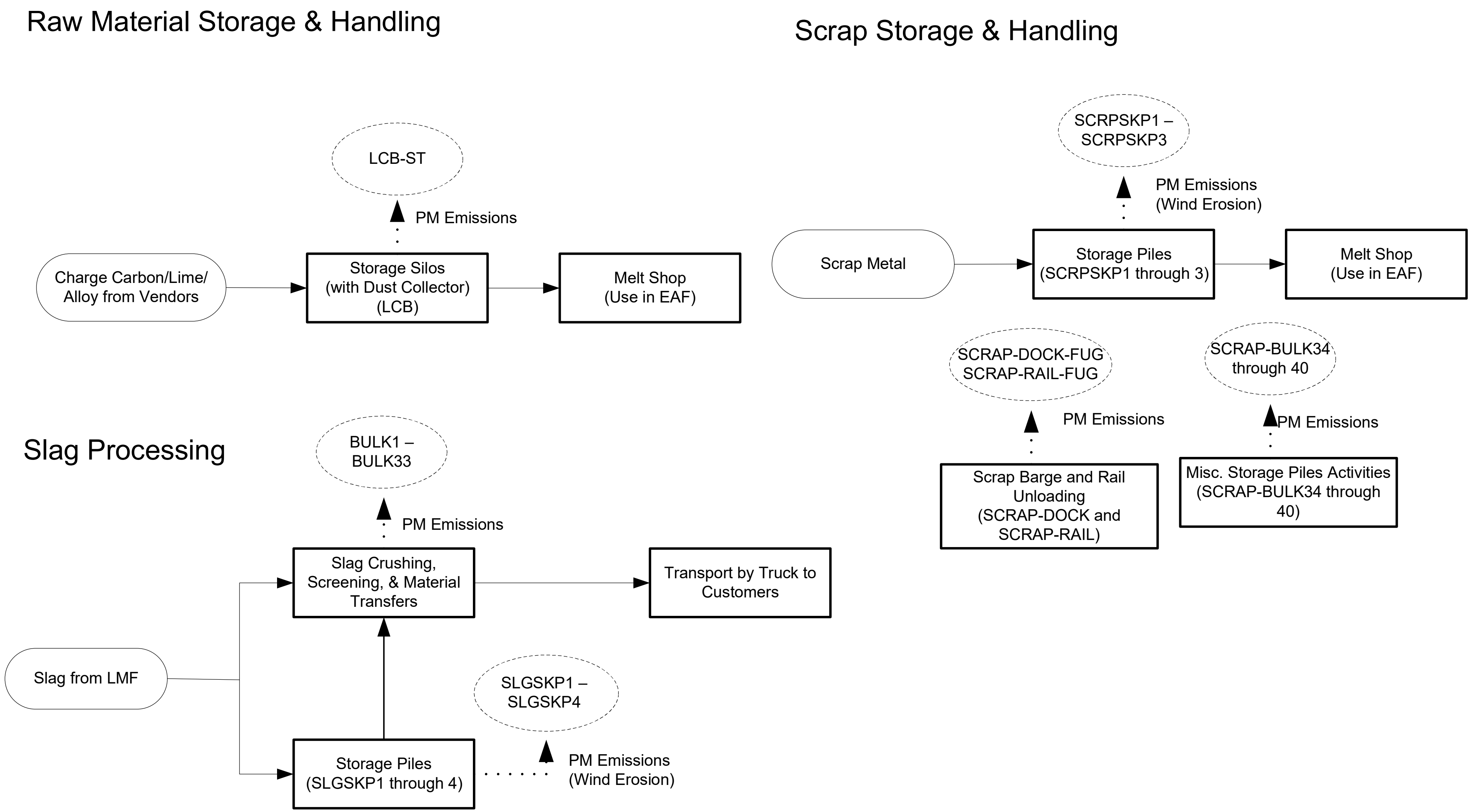


Nucor Corporation

West Virginia Steel Mill
Process Flow Diagrams

Trinity Consultants

213601.0130
March 2022



Legend

Material Flow (solid line)

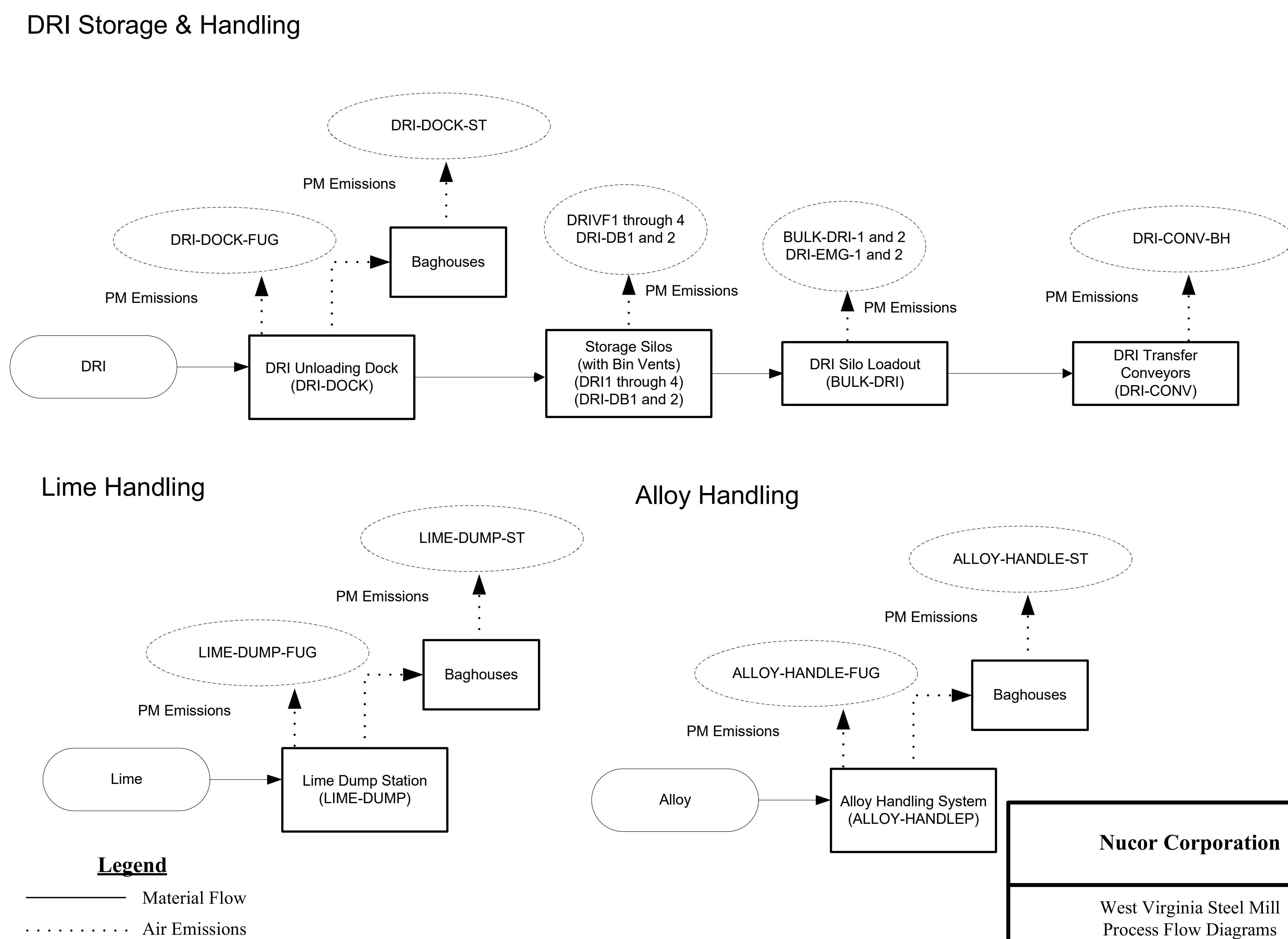
Air Emissions (dotted line)

Nucor Corporation

West Virginia Steel Mill
Process Flow Diagrams

Trinity Consultants

213601.0130
March 2022



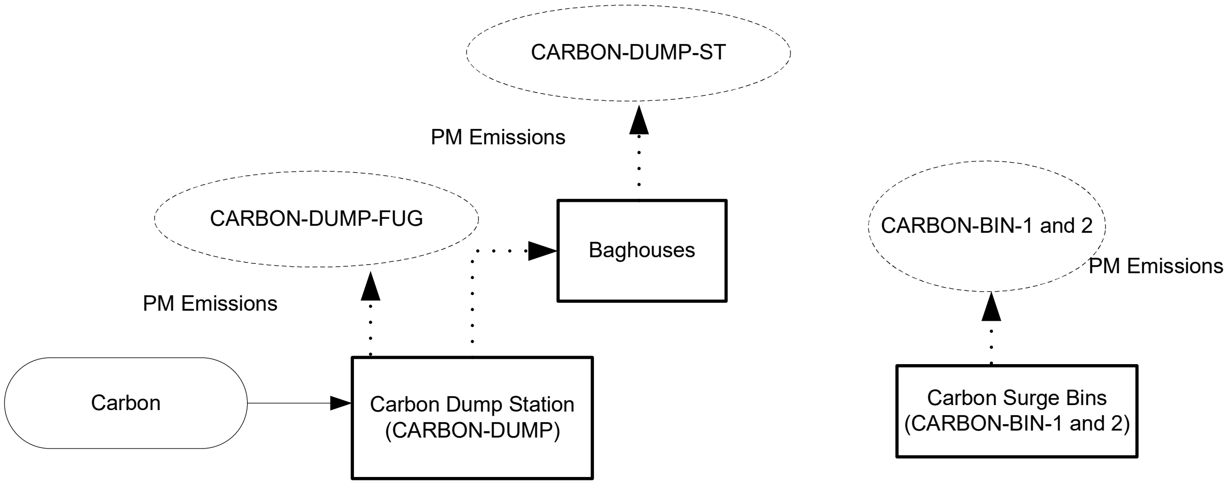
Nucor Corporation

West Virginia Steel Mill
Process Flow Diagrams

Trinity Consultants

213601.0130
March 2022

Carbon Handling



Legend

Material Flow

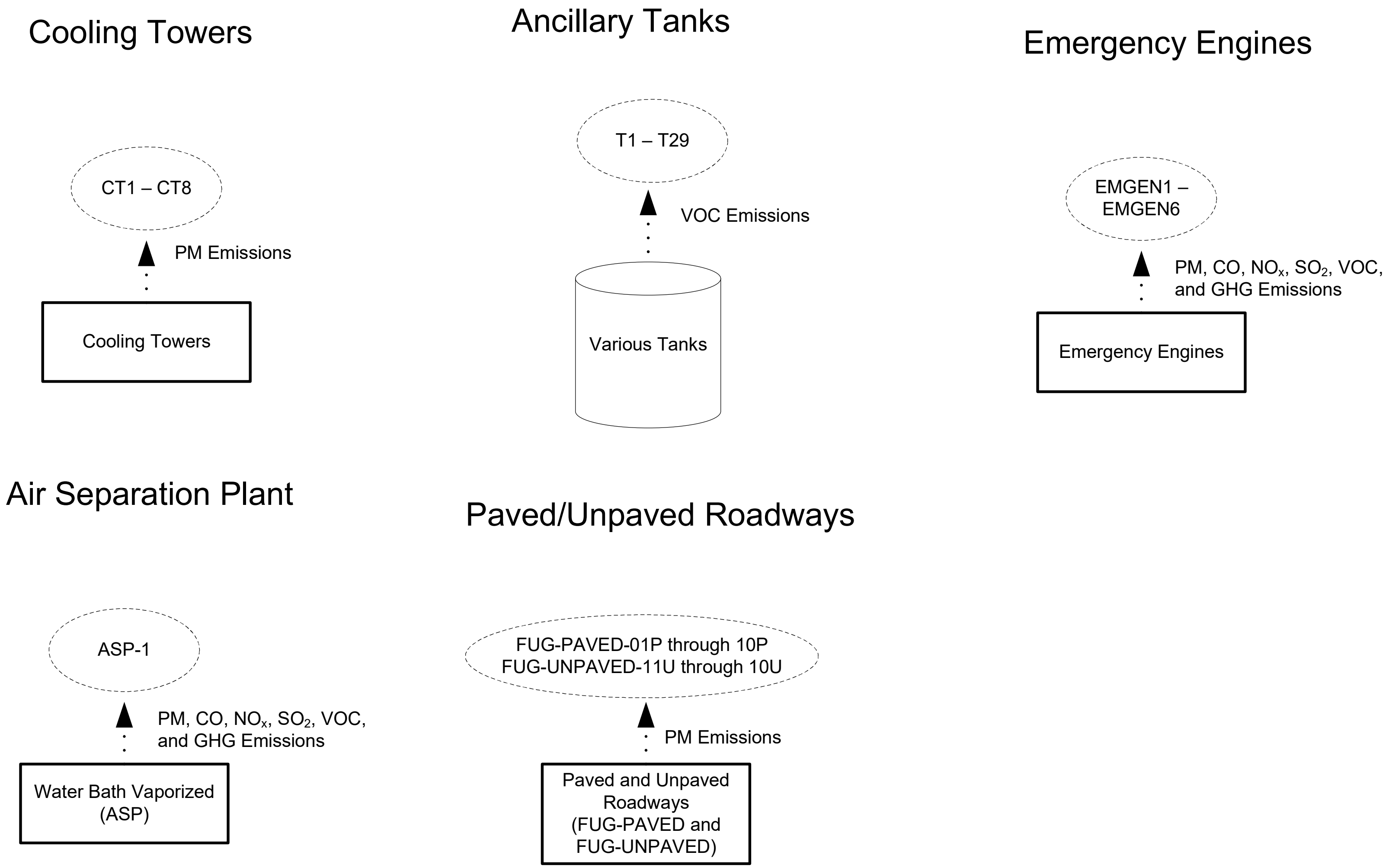
Air Emissions

Nucor Corporation

West Virginia Steel Mill
Process Flow Diagrams

Trinity Consultants

213601.0130
March 2022



Legend

——— Material Flow

· · · · · · · · · · Air Emissions

Nucor Corporation

West Virginia Steel Mill
Process Flow Diagrams

Trinity Consultants

213601.0130
March 2022

Attachment G: Process Description

Section 2 of the application narrative provides a detailed process description for each of the proposed West Virginia Steel Mill emission units.

Attachment H: Material Safety Data Sheets (MSDS)

Attachment N: Supporting Emission Calculations provides the specifications for materials that will be located at the proposed West Virginia Steel Mill.

Attachment I: Emission Units Table

NUCOR - Project Honey Badger
Attachment I - Emission Units Table

Emission Unit ID[1]	Emission Point ID[2]	Emission Unit Description	Year Installed	Design Capacity	Type[3] and Date of Change	Control Device[4]
EAF1	BHST-1	Electric Arc Furnace 1	N/A	171 ton steel/hr	New	Pulse Jet Fabric Filter Baghouse 1
LMF1	BHST-1	Ladle Metallurgical Furnace 1	N/A	171 ton steel/hr	New	Pulse Jet Fabric Filter Baghouse 1
CAST1	BHST-1	Caster 1	N/A	171 ton steel/hr	New	Pulse Jet Fabric Filter Baghouse 1
EAF2	BHST-2	Electric Arc Furnace 2	N/A	171 ton steel/hr	New	Pulse Jet Fabric Filter Baghouse 2
LMF2	BHST-2	Ladle Metallurgical Furnace 2	N/A	171 ton steel/hr	New	Pulse Jet Fabric Filter Baghouse 2
CAST2	BHST-2	Caster 2	N/A	171 ton steel/hr	New	Pulse Jet Fabric Filter Baghouse 2
MSFUG	MSFUG	Uncaptured Electric Arc Furnace Fugitives	N/A	342 ton steel/hr	New	N/A
CASTFUG	CASTFUG	Uncaptured Casting Fugitives	N/A	342 ton steel/hr	New	N/A
LCB	LCB-ST	Lime, Carbon, and Alloy Silos	N/A	Baghouse - 38,000 dscfm	New	Lime, Carbon, and Briquetter Silo Bin Vent Filters
DRI-DOCK	DRI-DOCK-ST	DRI Unloading Dock (two units)	N/A	Baghouse - 4,000 dscfm	New	DRI Unloading Dock Baghouse
DRI1	DRIVF1	DRI Storage Silo 1 - Baghouse	N/A	Baghouse - 1,200 dscfm	New	DRI Storage Silo 1 Baghouse
DRI1	DRIBV1	DRI Storage Silo 1 - Bin Vent	N/A	Bin Vent - 148 dscfm	New	DRI Storage Silo 1 Bin Vent
DRI2	DRIVF2	DRI Storage Silo 2 - Baghouse	N/A	Baghouse - 1,200 dscfm	New	DRI Storage Silo 2 Baghouse
DRI2	DRIBV2	DRI Storage Silo 2 - Bin Vent	N/A	Bin Vent - 148 dscfm	New	DRI Storage Silo 2 Bin Vent
DRI3	DRIVF3	DRI Storage Silo 3 - Baghouse	N/A	Baghouse - 1,200 dscfm	New	DRI Storage Silo 3 Baghouse
DRI3	DRIBV3	DRI Storage Silo 3 - Bin Vent	N/A	Bin Vent - 148 dscfm	New	DRI Storage Silo 3 Bin Vent
DRI4	DRIVF4	DRI Storage Silo 4 - Baghouse	N/A	Baghouse - 1,200 dscfm	New	DRI Storage Silo 4 Baghouse
DRI4	DRIBV4	DRI Storage Silo 4 - Bin Vent	N/A	Bin Vent - 148 dscfm	New	DRI Storage Silo 4 Bin Vent
DRI-DB1	DRI-DB1-BH	DRI Day Bin #1	N/A	Baghouse - 1,200 dscfm	New	DRI Day Bin 1 Baghouse
DRI-DB2	DRI-DB2-BH	DRI Day Bin #2	N/A	Baghouse - 1,200 dscfm	New	DRI Day Bin 2 Baghouse
DRI-CONV	DRI-CONV-BH	DRI Transfer Conveyors	N/A	Baghouse - 1,200 dscfm	New	DRI Transfer Conveyors Baghouse
SLAG-CUT	SLAG-CUT-BH	Slag Cutting in Slag Processing Area	N/A	Baghouse - 100,000 dscfm	New	Slag Cutting Baghouse
EAFVF1	EAFVF1	EAF Baghouse 1 Dust Silo	N/A	Bin Vent - 1,000 dscfm	New	EAF Baghouse 1 Dust Silo Bin Vent Filter
EAFVF2	EAFVF2	EAF Baghouse 2 Dust Silo	N/A	Bin Vent - 1,000 dscfm	New	EAF Baghouse 2 Dust Silo Bin Vent Filter
LIME-DUMP	LIME-DUMP-ST	Lime Dump Station	N/A	Baghouse - 2,000 dscfm	New	Lime Dump Station Baghouse
LIME-DUMP	LIME-DUMP-FUG	Lime Dump Station Fugitives	N/A	8.0 ton/hr	New	N/A
CARBON-DUMP	CARBON-DUMP-ST	Carbon Dump Station	N/A	Baghouse - 2,000 dscfm	New	Carbon Dump Station Baghouse
CARBON-DUMP	CARBON-DUMP-FUG	Carbon Dump Station Fugitives	N/A	4.0 ton/hr	New	N/A
ALLOY-HANDLE	ALLOY-HANDLE-ST	Alloy Handling System	N/A	Baghouse - 3,800 dscfm	New	Alloy Handling System Baghouse
ALLOY-HANDLE	ALLOY-HANDLE-FUG	Alloy Handling System Fugitives	N/A	20 ton/hr	New	N/A
RM	RM-BH	Rolling Mill	N/A	Baghouse - 117,716 dscfm	New	Rolling Mill Baghouse
VTD1	VTDST1	Vacuum Tank 1	N/A	269 lb Degassed CO/hr	New	Vacuum Tank Degasser Flare 1
VTD2	VTDST2	Vacuum Tank 2	N/A	269 lb Degassed CO/hr	New	Vacuum Tank Degasser Flare 2
LD	MSFUG	Ladle Dryer Fugitives	N/A	15 MMBtu/hr	New	N/A
LPHTR1	MSFUG	Horizontal Ladle Preheater 1 Fugitives	N/A	15 MMBtu/hr	New	N/A
LPHTR2	MSFUG	Horizontal Ladle Preheater 2 Fugitives	N/A	15 MMBtu/hr	New	N/A
LPHTR3	MSFUG	Horizontal Ladle Preheater 3 Fugitives	N/A	15 MMBtu/hr	New	N/A
LPHTR4	MSFUG	Horizontal Ladle Preheater 4 Fugitives	N/A	15 MMBtu/hr	New	N/A
LPHTR5	MSFUG	Horizontal Ladle Preheater 5 Fugitives	N/A	15 MMBtu/hr	New	N/A
LPHTR6	MSFUG	Vertical Ladle Preheater 6 Fugitives	N/A	15 MMBtu/hr	New	N/A
LPHTR7	MSFUG	Vertical Ladle Preheater 7 Fugitives	N/A	15 MMBtu/hr	New	N/A
TD	MSFUG	Tundish Dryer 1	N/A	6 MMBtu/hr	New	N/A
TPHTR1	MSFUG	Tundish Preheater 1	N/A	9 MMBtu/hr	New	N/A
TPHTR2	MSFUG	Tundish Preheater 2	N/A	9 MMBtu/hr	New	N/A
SENPHTR1	MSFUG	Subentry Nozzle (SEN) Preheater 1	N/A	1 MMBtu/hr	New	N/A
SENPHTR2	MSFUG	Subentry Nozzle (SEN) Preheater 2	N/A	1 MMBtu/hr	New	N/A
TF1	TFST-1	Hot Mill Tunnel Furnace 1	N/A	150 MMBtu/hr	New	N/A
PKL-1	PLST-1	Pickling Line #1	N/A	Scrubber - 7,185 dscfm	New	Pickling Line Scrubber 1
PKLSB	PKLSB	Pickle Line Scale Breaker	N/A	Baghouse - 52,972 dscfm	New	Pickle Line Scale Breaker Baghouse
TCM	TCMST	Tandem Cold Mill	N/A	Mist Eliminator - 202,162 dscfm	New	Tandem Cold Mill Mist Eliminator
STM	STMST	Standalone Temper Mill	N/A	Mist Eliminator - 45,000 dscfm	New	Temper Mill Mist Eliminator
SPM1	SPMST1	Skin Pass Mill #1	N/A	Baghouse - 24,587 dscfm	New	Skin Pass Mill Baghouse #1
SPM2	SPMST2	Skin Pass Mill #2	N/A	Baghouse - 24,587 dscfm	New	Skin Pass Mill Baghouse #2
CGL1	CGL1-ST1	CGL1 - Cleaning Section	N/A	Wet Scrubber - 6,123 dscfm	New	Continuous Galvanizing Line Wet Scrubber 1
CGL1	CGL1-ST2	CGL1 - Passivation Section	N/A	Wet Scrubber - 9,350 dscfm	New	Continuous Galvanizing Line Wet Scrubber 2
CGL2	CGL2-ST1	CGL2 - Cleaning Section	N/A	Wet Scrubber - 6,123 dscfm	New	Continuous Galvanizing Line Wet Scrubber 3
CGL2	CGL2-ST2	CGL2 - Passivation Section	N/A	Wet Scrubber - 9,350 dscfm	New	Continuous Galvanizing Line Wet Scrubber 4
GALVFN1	GALVFN1-ST	Galvanizing Furnace #1	N/A	64 MMBtu/hr	New	N/A
GALVFN2	GALVFN2-ST	Galvanizing Furnace #2	N/A	64 MMBtu/hr	New	N/A
BOXANN1	GALVFUG	Box Annealing Furnace #1	N/A	5 MMBtu/hr	New	N/A

Emission Unit ID[1]	Emission Point ID[2]	Emission Unit Description	Year Installed	Design Capacity	Type[3] and Date of Change	Control Device[4]
BOXANN2	GALVFUG	Box Annealing Furnace #2	N/A	5 MMBtu/hr	New	N/A
BOXANN3	GALVFUG	Box Annealing Furnace #3	N/A	5 MMBtu/hr	New	N/A
BOXANN4	GALVFUG	Box Annealing Furnace #4	N/A	5 MMBtu/hr	New	N/A
BOXANN5	GALVFUG	Box Annealing Furnace #5	N/A	5 MMBtu/hr	New	N/A
BOXANN6	GALVFUG	Box Annealing Furnace #6	N/A	5 MMBtu/hr	New	N/A
BOXANN7	GALVFUG	Box Annealing Furnace #7	N/A	5 MMBtu/hr	New	N/A
BOXANN8	GALVFUG	Box Annealing Furnace #8	N/A	5 MMBtu/hr	New	N/A
BOXANN9	GALVFUG	Box Annealing Furnace #9	N/A	5 MMBtu/hr	New	N/A
BOXANN10	GALVFUG	Box Annealing Furnace #10	N/A	5 MMBtu/hr	New	N/A
BOXANN11	GALVFUG	Box Annealing Furnace #11	N/A	5 MMBtu/hr	New	N/A
BOXANN12	GALVFUG	Box Annealing Furnace #12	N/A	5 MMBtu/hr	New	N/A
BOXANN13	GALVFUG	Box Annealing Furnace #13	N/A	5 MMBtu/hr	New	N/A
BOXANN14	GALVFUG	Box Annealing Furnace #14	N/A	5 MMBtu/hr	New	N/A
BOXANN15	GALVFUG	Box Annealing Furnace #15	N/A	5 MMBtu/hr	New	N/A
BOXANN16	GALVFUG	Box Annealing Furnace #16	N/A	5 MMBtu/hr	New	N/A
BOXANN17	GALVFUG	Box Annealing Furnace #17	N/A	5 MMBtu/hr	New	N/A
BOXANN18	GALVFUG	Box Annealing Furnace #18	N/A	5 MMBtu/hr	New	N/A
BOXANN19	GALVFUG	Box Annealing Furnace #19	N/A	5 MMBtu/hr	New	N/A
BOXANN20	GALVFUG	Box Annealing Furnace #20	N/A	5 MMBtu/hr	New	N/A
BOXANN21	GALVFUG	Box Annealing Furnace #21	N/A	5 MMBtu/hr	New	N/A
BOXANN22	GALVFUG	Box Annealing Furnace #22	N/A	5 MMBtu/hr	New	N/A
SLAG-CUT	SLAG-CUT-NG	Slag Cutting in Slag Processing Area	N/A	2.4 MMBtu/hr	New	N/A
ASP	ASP-1	Water Bath Vaporizer	N/A	11 MMBtu/hr	New	N/A
CT1	CT1	Melt Shop ICW Cooling Tower	N/A	52,000 gpm	New	N/A
CT2	CT2	Melt Shop DCW Cooling Tower	N/A	5,900 gpm	New	N/A
CT3	CT3	Rolling Mill ICW Cooling Tower	N/A	8,500 gpm	New	N/A
CT4	CT4	Rolling Mill DCW Cooling Tower	N/A	22,750 gpm	New	N/A
CT5	CT5	Rolling Mill/Quench/ACC Cooling Tower	N/A	90,000 gpm	New	N/A
CT6	CT6	Light Plate DCW System	N/A	8,000 gpm	New	N/A
CT7	CT7	Heavy Plate DCW System	N/A	3,000 gpm	New	N/A
CT8	CT8	Air Separation Plant Cooling Tower	N/A	14,000 gpm	New	N/A
EMGEN1	EMGEN1	Emergency Generator 1	N/A	2,000 hp	New	N/A
EMGEN2	EMGEN2	Emergency Generator 2	N/A	2,000 hp	New	N/A
EMGEN3	EMGEN3	Emergency Generator 3	N/A	2,000 hp	New	N/A
EMGEN4	EMGEN4	Emergency Generator 4	N/A	2,000 hp	New	N/A
EMGEN5	EMGEN5	Emergency Generator 5	N/A	2,000 hp	New	N/A
EMGEN6	EMGEN6	Emergency Generator 6	N/A	2,000 hp	New	N/A
DRI-DOCK	DRI-DOCK-FUG	DRI Unloading Dock - Fugitives	N/A	500 ton/hr	New	N/A
BULK-DRI	BULK-DRI-1	DRI Silo #1 Loadout	N/A	64 ton/hr	New	N/A
BULK-DRI	BULK-DRI-2	DRI Silo #2 Loadout	N/A	64 ton/hr	New	N/A
BULK-DRI	DRI-EMG-1	DRI Conveyor #1 Emergency Chute	N/A	125 ton/hr	New	N/A
BULK-DRI	DRI-EMG-2	DRI Silos Emergency Chute	N/A	800 ton/hr	New	N/A
SCRAP-DOCK	SCRAP-DOCK-FUG	Barge Scrap Unloading	N/A	600 ton/hr	New	N/A
SCRAP-RAIL	SCRAP-RAIL-FUG	Rail Scrap Unloading	N/A	200 ton/hr	New	N/A
SCRAP-BULK34	SCRAP-BULK34	Barge Scrap Pile Loading	N/A	600 ton/hr	New	N/A
SCRAP-BULK35	SCRAP-BULK35	Barge Scrap Pile Loadout	N/A	275 ton/hr	New	N/A
SCRAP-BULK36	SCRAP-BULK36	Rail Scrap Pile Loading	N/A	120 ton/hr	New	N/A
SCRAP-BULK37	SCRAP-BULK37	Rail Scrap Pile Loadout	N/A	275 ton/hr	New	N/A
SCRAP-BULK38	SCRAP-BULK38	Truck Scrap Pile Loading	N/A	200 ton/hr	New	N/A
SCRAP-BULK39	SCRAP-BULK39	Truck Scrap Pile Loadout	N/A	275 ton/hr	New	N/A
SCRAP-BULK40	SCRAP-BULK40	Scrap Charging	N/A	220 ton/hr	New	N/A
SCRAP-BULK1	SCRAP-BULK1	Dig slag inside pot barn	N/A	73 ton/hr	New	N/A
SCRAP-BULK2	SCRAP-BULK2	Loader transport & dump slag into quench	N/A	73 ton/hr	New	N/A
SCRAP-BULK3	SCRAP-BULK3	Loader transport & dump into F1 feed hopper/grizzly	N/A	73 ton/hr	New	N/A
SCRAP-BULK4	SCRAP-BULK4	F1 feed hopper/grizzly to P1 oversize storage	N/A	73 ton/hr	New	N/A
SCRAP-BULK5	SCRAP-BULK5	F1 feed hopper/grizzly to C7 crusher conveyor	N/A	1.5 ton/hr	New	N/A
SCRAP-BULK6	SCRAP-BULK6	F1 feed hopper/grizzly to C1A main conveyor	N/A	22 ton/hr	New	N/A
SCRAP-BULK7	SCRAP-BULK7	C7 to CR1 crusher	N/A	50 ton/hr	New	N/A
SCRAP-BULK8	SCRAP-BULK8	CR1 crusher to C8 conveyor	N/A	22 ton/hr	New	N/A
SCRAP-BULK9	SCRAP-BULK9	CR1 crusher to P2 off-spec storage	N/A	19 ton/hr	New	N/A

Emission Unit ID[1]	Emission Point ID[2]	Emission Unit Description	Year Installed	Design Capacity	Type[3] and Date of Change	Control Device[4]
SCRAP-BULK10	SCRAP-BULK10	C8 conveyor to C9 conveyor	N/A	3.3 ton/hr	New	N/A
SCRAP-BULK11	SCRAP-BULK11	C9 conveyor to C1A conveyor	N/A	19 ton/hr	New	N/A
SCRAP-BULK12	SCRAP-BULK12	C1A conveyor to B1 surge bin	N/A	19 ton/hr	New	N/A
SCRAP-BULK13	SCRAP-BULK13	B1 surge bin to C1 conveyor	N/A	68 ton/hr	New	N/A
SCRAP-BULK14	SCRAP-BULK14	C1 conveyor through M1 mag splitter to S1 slag screen	N/A	68 ton/hr	New	N/A
SCRAP-BULK15	SCRAP-BULK15	C1 conveyor through M1 mag splitter to S2 off-spec screen	N/A	66 ton/hr	New	N/A
SCRAP-BULK16	SCRAP-BULK16	S2 off-spec screen to C6 conveyor	N/A	2.4 ton/hr	New	N/A
SCRAP-BULK17	SCRAP-BULK17	S2 off-spec screen to P3 off-spec storage	N/A	2.0 ton/hr	New	N/A
SCRAP-BULK18	SCRAP-BULK18	C6 conveyor to P4 off-spec storage	N/A	0.4 ton/hr	New	N/A
SCRAP-BULK19	SCRAP-BULK19	S1 slag screen to C2 conveyor	N/A	2.0 ton/hr	New	N/A
SCRAP-BULK20	SCRAP-BULK20	C2 conveyor to C5 conveyor	N/A	26 ton/hr	New	N/A
SCRAP-BULK21	SCRAP-BULK21	C5 conveyor to SLGSKP1	N/A	26 ton/hr	New	N/A
SCRAP-BULK22	SCRAP-BULK22	S1 slag screen to C4 conveyor	N/A	26 ton/hr	New	N/A
SCRAP-BULK23	SCRAP-BULK23	C4 conveyor to SLGSKP3	N/A	20 ton/hr	New	N/A
SCRAP-BULK24	SCRAP-BULK24	S1 slag screen to C3 conveyor	N/A	20 ton/hr	New	N/A
SCRAP-BULK25	SCRAP-BULK25	C3 conveyor to SLGSKP2	N/A	13 ton/hr	New	N/A
SCRAP-BULK26	SCRAP-BULK26	S1 slag screen to SLGSKP4	N/A	13 ton/hr	New	N/A
SCRAP-BULK27	SCRAP-BULK27	Loader transports & loads products into trucks to productstockpiles	N/A	6.6 ton/hr	New	N/A
SCRAP-BULK28	SCRAP-BULK28	Truck transports & dumps products into product stockpiles	N/A	73 ton/hr	New	N/A
SCRAP-BULK29	SCRAP-BULK29	Loader transports & loads into trucks, oversize to drop ball	N/A	73 ton/hr	New	N/A
SCRAP-BULK30	SCRAP-BULK30	Truck transports & dumps oversize into drop ball area	N/A	1.5 ton/hr	New	N/A
SCRAP-BULK31	SCRAP-BULK31	Truck transports ladle lip and meltshop cleanup materials & dumps at drop ball site	N/A	4.7 ton/hr	New	N/A
SCRAP-BULK32	SCRAP-BULK32	Truck transports & dumps tundish at lancing station	N/A	2.6 ton/hr	New	N/A
SCRAP-BULK33	SCRAP-BULK33	Ball drop crushing	N/A	2.3 ton/hr	New	N/A
SLGSKP1	SLGSKP1	Slag Stockpile 1	N/A	0.75 acres	New	N/A
SLGSKP2	SLGSKP2	Slag Stockpile 2	N/A	0.75 acres	New	N/A
SLGSKP3	SLGSKP3	Slag Stockpile 3	N/A	0.75 acres	New	N/A
SLGSKP4	SLGSKP4	Slag Stockpile 4	N/A	0.75 acres	New	N/A
SCRPSKP1	SCRPSKP1	Scrap Metal Stockpile 1	N/A	1.88 acres	New	N/A
SCRPSKP2	SCRPSKP2	Scrap Metal Stockpile 2	N/A	1.88 acres	New	N/A
SCRPSKP3	SCRPSKP3	Scrap Metal Stockpile 3	N/A	1.88 acres	New	N/A
FUGD-PAVED-01P through 10P	FUGD-PAVED-01P through 10P	Paved Road-Road 01P through 10P	N/A	1,027 VMT/day	New	N/A
FUGD-UNPAVED-11U through 19U	FUGD-UNPAVED-11U through 19U	Unpaved Road-Road 11U through 19U	N/A	191 VMT/day	New	N/A
T1	T1	Diesel Tank	N/A	5,000 gal	New	N/A
T2	T2	Diesel Tank	N/A	1,000 gal	New	N/A
T3	T3	Diesel Tank	N/A	1,000 gal	New	N/A
T4	T4	Diesel Tank	N/A	1,000 gal	New	N/A
T5	T5	Diesel Tank	N/A	2,000 gal	New	N/A
T6	T6	Diesel Tank	N/A	2,000 gal	New	N/A
T7	T7	Gasoline Tank	N/A	1,000 gal	New	N/A
T8	T8	Caster Hydraulic Oil	N/A	5,000 gal	New	N/A
T9	T9	Hot Mill Hydraulic Oil	N/A	5,000 gal	New	N/A
T10	T10	HCL Tank #1	N/A	26,400 gal	New	N/A
T11	T11	HCL Tank #2	N/A	26,400 gal	New	N/A
T12	T12	HCL Tank #3	N/A	26,400 gal	New	N/A
T13	T13	HCL Tank #4	N/A	26,400 gal	New	N/A
T14	T14	HCL Tank #5	N/A	26,400 gal	New	N/A
T15	T15	HCL Tank #6	N/A	26,400 gal	New	N/A
T16	T16	SPL Tank #1	N/A	26,400 gal	New	N/A
T17	T17	SPL Tank #2	N/A	26,400 gal	New	N/A
T18	T18	SPL Tank #3	N/A	26,400 gal	New	N/A
T19	T19	SPL Tank #4	N/A	26,400 gal	New	N/A
T20	T20	SPL Tank #5	N/A	26,400 gal	New	N/A
T21	T21	SPL Tank #6	N/A	26,400 gal	New	N/A
T22	T22	SPL Tank #7	N/A	26,400 gal	New	N/A
T23	T23	SPL Tank #8	N/A	26,400 gal	New	N/A
T24	T24	Used Oil Tank	N/A	5,000 gal	New	N/A

NUCOR - Project Honey Badger
Attachment I - Emission Units Table

Emission Unit ID[1]	Emission Point ID[2]	Emission Unit Description	Year Installed	Design Capacity	Type[3] and Date of Change	Control Device[4]
T25	T25	Cold Degreaser	N/A	80 gal	New	N/A
T26	T26	Cold Degreaser	N/A	80 gal	New	N/A
T27	T27	Cold Degreaser	N/A	80 gal	New	N/A
T28	T28	Cold Degreaser	N/A	80 gal	New	N/A
T29	T29	Cold Degreaser	N/A	80 gal	New	N/A

[1] For Emission Units (or Sources) use the following numbering system:1S, 2S, 3S,... or other appropriate designation.
[2] For Emission Points use the following numbering system:1E, 2E, 3E, ... or other appropriate designation.
[3] New, modification, removal.
[4] For Control Devices use the following numbering system: 1C, 2C, 3C,... or other appropriate designation.

Attachment J: Emission Points Data Summary Sheet

Emission Point ID	Emission Point Type[1]	Emission Units Vented Through this Point: Emission Unit ID	Emission Units Vented Through this Point: Emission Unit Description	Air Pollution Control Device: Control Device ID	Air Pollution Control Device: Control Device Type	Pollutant Chemical Name/CAS[3] (See Emission Calculations for	Maximum Controlled Emissions[5]: lb/hr	Maximum Controlled Emissions[5]: tpy	Emission Form or Phase (At Exit Conditions)	Est. Method Used[6]	Emission Concentration[7] (ppmv or mg/m^3)	Inner Diameter (ft)	Exit Gas Temp (°F)	Exit Gas Volumetric Flow[8] (ACFM)	Exit Gas Velocity (fps)	Elevation: Ground Level (ft)	Stack Height above Ground Level[9] (ft)	UTM Northing (km)	UTM Easting (km)
BHST-1	Upward Verical Stack	EAF1/LMF1/CAST1	Electric Arc Furnace 1 Ladle Metallurgical Furnace 1 Caster 1	Pulse Jet Fabric Filter Baghouse 1	Baghouse	NO_X	56.86	249.38	Gas	O (BACT)	9.85	23	260	1,541,096	60	--	213	4277941.8	398168.9
						CO	328.15	1,439	Gas	O (BACT)	56.85								
						SO_2	38.99	171.00	Gas	O (BACT)	6.75								
						VOC	15.92	69.83	Gas	O (BACT)	2.76								
						PM	17.03	74.58	Solid	O (BACT)	2.95								
						PM_{10}	49.19	215.45	Solid/Gas	O (BACT)	8.52								
						$PM_{2.5}$	49.19	215.45	Solid/Gas	O (BACT)	8.52								
						Lead	7.3E-02	0.32	Solid	EE	1.3E-02								
						Total HAPs	0.25	1.09	Solid/Gas	EE	4.3E-02								
						CO_2	47,811	179,346	Gas	EE	8,283								
						CH_4	4.6E-02	0.20	Gas	EE	8.0E-03								
						N_2O	4.6E-03	2.0E-02	Gas	EE	8.0E-04								
						CO_2e	47,813	179,357	Gas	EE	8,283								
BHST-2	Upward Verical Stack	EAF2/LMF2/CAST2	Electric Arc Furnace 2 Ladle Metallurgical Furnace 2 Caster 2	Pulse Jet Fabric Filter Baghouse 2	Baghouse	NO_X	56.86	249.38	Gas	O (BACT)	9.85	23	260	1,541,096	60	--	213	4277917.3	398187.0
						CO	328.15	1,439	Gas	O (BACT)	56.85								
						SO_2	38.99	171.00	Gas	O (BACT)	6.75								
						VOC	15.92	69.83	Gas	O (BACT)	2.76								
						PM	17.03	74.58	Solid	O (BACT)	2.95								
						PM_{10}	49.19	215.45	Solid/Gas	O (BACT)	8.52								
						$PM_{2.5}$	49.19	215.45	Solid/Gas	O (BACT)	8.52								
						Lead	7.3E-02	0.32	Solid	EE	1.3E-02								
						Total HAPs	0.25	1.09	Solid/Gas	EE	4.3E-02								
						CO_2	47,811	179,346	Gas	EE	8,283								
						CH_4	4.6E-02	0.20	Gas	EE	8.0E-03								
						N_2O	4.6E-03	2.0E-02	Gas	EE	8.0E-04								
						CO_2e	47,813	179,357	Gas	EE	8,283								
MSFUG	Volume	MSFUG	Uncaptured Electric Arc Furnace Fugitives	N/A	N/A	NO_X	5.99	26.25	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	See Air Dispersion Modeling Report in Appendix D of Permit Application
						CO	34.54	151.50	Gas	O (BACT)	N/A								
						SO_2	4.10	18.00	Gas	O (BACT)	N/A								
						VOC	1.68	7.35	Gas	O (BACT)	N/A								
						PM	1.62	7.10	Solid	O (BACT)	N/A								
						PM_{10}	0.94	4.11	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	0.94	4.11	Solid/Gas	O (BACT)	N/A								
						Lead	7.7E-03	3.4E-02	Solid	EE	N/A								
						Total HAPs	1.5E-02	6.6E-02	Solid/Gas	EE	N/A								
						CO_2	5,033	18,879	Gas	EE	N/A								
						CH_4	4.9E-03	2.1E-02	Gas	EE	N/A								
						N_2O	4.9E-04	2.1E-03	Gas	EE	N/A								
						CO_2e	5,033	18,880	Gas	EE	N/A								
CASTFUG	Volume	CASTFUG	Uncaptured Casting Fugitives	N/A	N/A	NO_X	--	--	--	--	--	N/A	N/A	N/A	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	See Air Dispersion Modeling Report in Appendix D of Permit Application
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	0.21	0.90	Solid	O (BACT)	N/A								
						PM_{10}	0.21	0.90	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	0.21	0.90	Solid/Gas	O (BACT)	N/A								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
LCB-ST	Upward Verical Stack	LCB	Lime, Carbon, and Alloy Silos	Lime, Carbon, and Briquetter Silo Bin Vent Filters	Filter	NO_X	--	--	--	--	--	6.00	Ambient	38,000	22	--	213	4278180.1	398323.8
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	1.63	7.13	Solid	O (BACT)	11.44								
						PM_{10}	1.63	7.13	Solid	O (BACT)	11.44								
						$PM_{2.5}$	1.63	7.13	Solid	O (BACT)	11.44								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								

Emission Point ID	Emission Point Type[1]	Emission Units Vented Through this Point		Air Pollution Control Device		Pollutant Chemical Name/CAS[3] (See Emission Calculations for	Maximum Controlled Emissions[5]		Emission Form or Phase (At Exit Conditions)	Est. Method Used[6]	Emission Concentration[7] (ppmv or mg/m^3)	Inner Diameter (ft)	Exit Gas Temp (°F)	Exit Gas Volumetric Flow[8] (ACFM)	Exit Gas Velocity (fps)	Elevation: Ground Level (ft)	Stack Height above Ground Level[9] (ft)	UTM Northing (km)	UTM Easting (km)
		Emission Unit ID	Emission Unit Description	Control Device ID	Control Device Type		lb/hr	tpy											
DRI-DOCK-ST	Upward Verical Stack	DRI-DOCK	DRI Unloading Dock (two units)	DRI Unloading Dock Baghouse	Baghouse	NO_X	--	--	--	--	--	1.50	Ambient	2,000	19	--	20	4277673.8	397861.6
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	3.4E-02	0.15	Solid	O (BACT)	4.58								
						PM_{10}	3.4E-02	0.15	Solid	O (BACT)	4.58								
						$PM_{2.5}$	1.7E-02	7.4E-02	Solid	O (BACT)	2.24								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
DRIVF1	Upward Verical Stack	DRI1	DRI Storage Silo 1 - Baghouse	DRI Storage Silo 1 Baghouse	Baghouse	NO_X	--	--	--	--	--	3.00	Ambient	1,200	3	--	120	4277792.7	398236.6
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	1.0E-02	4.5E-02	Solid	O (BACT)	2.29								
						PM_{10}	1.0E-02	4.5E-02	Solid	O (BACT)	2.29								
						$PM_{2.5}$	5.0E-03	2.2E-02	Solid	O (BACT)	1.12								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
DRIBV1	Upward Verical Stack	DRI1	DRI Storage Silo 1 - Bin Vent	DRI Storage Silo 1 Bin Vent	Filter	NO_X	--	--	--	--	--	0.30	Ambient	148	35	--	93	4277792.7	398243.9
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	1.3E-03	5.6E-03	Solid	O (BACT)	2.29								
						PM_{10}	1.3E-03	5.6E-03	Solid	O (BACT)	2.29								
						$PM_{2.5}$	6.2E-04	2.7E-03	Solid	O (BACT)	1.12								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
DRIVF2	Upward Verical Stack	DRI2	DRI Storage Silo 2 - Baghouse	DRI Storage Silo 2 Baghouse	Baghouse	NO_X	--	--	--	--	--	3.00	Ambient	1,200	3	--	120	4277770.4	398240.8
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	1.0E-02	4.5E-02	Solid	O (BACT)	2.29								
						PM_{10}	1.0E-02	4.5E-02	Solid	O (BACT)	2.29								
						$PM_{2.5}$	5.0E-03	2.2E-02	Solid	O (BACT)	1.12								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
DRIBV2	Upward Verical Stack	DRI2	DRI Storage Silo 2 - Bin Vent	DRI Storage Silo 2 Bin Vent	Filter	NO_X	--	--	--	--	--	0.30	Ambient	148	35	--	93	4277771.5	398248.9
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	1.3E-03	5.6E-03	Solid	O (BACT)	2.29								
						PM_{10}	1.3E-03	5.6E-03	Solid	O (BACT)	2.29								
						$PM_{2.5}$	6.2E-04	2.7E-03	Solid	O (BACT)	1.12								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								

NUCOR - Project Honey Badger
Attachment J - Emission Points Data Summary Sheet

Emission Point ID	Emission Point Type[1]	Emission Units Vented Through this Point		Air Pollution Control Device		Pollutant Chemical Name/CAS[3] (See Emission Calculations for	Maximum Controlled Emissions[5]		Emission Form or Phase (At Exit Conditions)	Est. Method Used[6]	Emission Concentration[7] (ppmv or mg/m^3)	Inner Diameter (ft)	Exit Gas Temp (°F)	Exit Gas Volumetric Flow[8] (ACFM)	Exit Gas Velocity (fps)	Elevation: Ground Level (ft)	Stack Height above Ground Level[9] (ft)	UTM Northing (km)	UTM Easting (km)
		Emission Unit ID	Emission Unit Description	Control Device ID	Control Device Type		lb/hr	tpy											
DRIVF3	Upward Verical Stack	DRI3	DRI Storage Silo 3 - Baghouse	DRI Storage Silo 3 Baghouse	Baghouse	NO_X	--	--	--	--	--	3.00	Ambient	1,200	3	--	120	4277798.1	398257.3
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	1.0E-02	4.5E-02	Solid	O (BACT)	2.29								
						PM_{10}	1.0E-02	4.5E-02	Solid	O (BACT)	2.29								
						$PM_{2.5}$	5.0E-03	2.2E-02	Solid	O (BACT)	1.12								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
DRIBV3	Upward Verical Stack	DRI3	DRI Storage Silo 3 - Bin Vent	DRI Storage Silo 3 Bin Vent	Filter	NO_X	--	--	--	--	--	0.30	Ambient	148	35	--	93	4277798.1	398264.7
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	1.3E-03	5.6E-03	Solid	O (BACT)	2.29								
						PM_{10}	1.3E-03	5.6E-03	Solid	O (BACT)	2.29								
						$PM_{2.5}$	6.2E-04	2.7E-03	Solid	O (BACT)	1.12								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
DRIVF4	Upward Verical Stack	DRI4	DRI Storage Silo 4 - Baghouse	DRI Storage Silo 4 Baghouse	Baghouse	NO_X	--	--	--	--	--	3.00	Ambient	1,200	3	--	120	4277775.9	398261.8
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	1.0E-02	4.5E-02	Solid	O (BACT)	2.29								
						PM_{10}	1.0E-02	4.5E-02	Solid	O (BACT)	2.29								
						$PM_{2.5}$	5.0E-03	2.2E-02	Solid	O (BACT)	1.12								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
DRIBV4	Upward Verical Stack	DRI4	DRI Storage Silo 4 - Bin Vent	DRI Storage Silo 4 Bin Vent	Filter	NO_X	--	--	--	--	--	0.30	Ambient	148	35	--	93	4277776.3	398269.3
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	1.3E-03	5.6E-03	Solid	O (BACT)	2.29								
						PM_{10}	1.3E-03	5.6E-03	Solid	O (BACT)	2.29								
						$PM_{2.5}$	6.2E-04	2.7E-03	Solid	O (BACT)	1.12								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
DRI-DB1-BH	Upward Verical Stack	DRI-DB1	DRI Day Bin #1	DRI Day Bin 1 Baghouse	Baghouse	NO_X	--	--	--	--	--	1.00	Ambient	1,200	25	--	146	4278045.2	398387.8
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	1.0E-02	4.5E-02	Solid	O (BACT)	2.29								
						PM_{10}	1.0E-02	4.5E-02	Solid	O (BACT)	2.29								
						$PM_{2.5}$	5.0E-03	2.2E-02	Solid	O (BACT)	1.12								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								

Emission Point ID	Emission Point Type[1]	Emission Units Vented Through this Point: Emission Unit ID	Emission Units Vented Through this Point: Emission Unit Description	Air Pollution Control Device: Control Device ID	Air Pollution Control Device: Control Device Type	Pollutant Chemical Name/CAS[3] (See Emission Calculations for	Maximum Controlled Emissions[5]: lb/hr	Maximum Controlled Emissions[5]: tpy	Emission Form or Phase (At Exit Conditions)	Est. Method Used[6]	Emission Concentration[7] (ppmv or mg/m^3)	Inner Diameter (ft)	Exit Gas Temp (°F)	Exit Gas Volumetric Flow[8] (ACFM)	Exit Gas Velocity (fps)	Elevation: Ground Level (ft)	Stack Height above Ground Level[9] (ft)	UTM Northing (km)	UTM Easting (km)
DRI-DB2-BH	Upward Verical Stack	DRI-DB2	DRI Day Bin #2	DRI Day Bin 2 Baghouse	Baghouse	NO_X	--	--	--	--	--	1.00	Ambient	1,200	25	--	146	4278057.4	398420.2
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	1.0E-02	4.5E-02	Solid	O (BACT)	2.29								
						PM_{10}	1.0E-02	4.5E-02	Solid	O (BACT)	2.29								
						$PM_{2.5}$	5.0E-03	2.2E-02	Solid	O (BACT)	1.12								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
DRI-CONV-BH	Upward Verical Stack	DRI-CONV	DRI Transfer Conveyors	DRI Transfer Conveyors Baghouse	Baghouse	NO_X	--	--	--	--	--	1.00	Ambient	1,200	25	--	110	4277982.0	398368.0
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	1.0E-02	4.5E-02	Solid	O (BACT)	2.29								
						PM_{10}	1.0E-02	4.5E-02	Solid	O (BACT)	2.29								
						$PM_{2.5}$	5.0E-03	2.2E-02	Solid	O (BACT)	1.12								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
SLAG-CUT-BH	Upward Verical Stack	SLAG-CUT	Slag Cutting in Slag Processing Area	Slag Cutting Baghouse	Baghouse	NO_X	--	--	--	--	--	6.00	120	100,000	59	--	80	4278040.2	398569.4
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	0.86	3.75	Solid	O (BACT)	2.29								
						PM_{10}	0.86	3.75	Solid	O (BACT)	2.29								
						$PM_{2.5}$	0.86	3.75	Solid	O (BACT)	2.29								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
EAFVF1	Upward Verical Stack	EAFVF1	EAF Baghouse 1 Dust Silo	EAF Baghouse 1 Dust Silo Bin Vent Filter	Baghouse	NO_X	--	--	--	--	--	5.51	Ambient	1,000	1	--	115	4277957.7	398208.2
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	8.6E-02	0.38	Solid	O (BACT)	22.88								
						PM_{10}	8.6E-02	0.38	Solid	O (BACT)	22.88								
						$PM_{2.5}$	8.6E-02	0.38	Solid	O (BACT)	22.88								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
EAFVF2	Upward Verical Stack	EAFVF2	EAF Baghouse 2 Dust Silo	EAF Baghouse 2 Dust Silo Bin Vent Filter	Baghouse	NO_X	--	--	--	--	--	5.51	Ambient	1,000	1	--	115	4277934.6	398232.3
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	8.6E-02	0.38	Solid	O (BACT)	22.88								
						PM_{10}	8.6E-02	0.38	Solid	O (BACT)	22.88								
						$PM_{2.5}$	8.6E-02	0.38	Solid	O (BACT)	22.88								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								

NUCOR - Project Honey Badger
Attachment J - Emission Points Data Summary Sheet

Emission Point ID	Emission Point Type[1]	Emission Units Vented Through this Point: Emission Unit ID	Emission Units Vented Through this Point: Emission Unit Description	Air Pollution Control Device: Control Device ID	Air Pollution Control Device: Control Device Type	Pollutant Chemical Name/CAS[3] (See Emission Calculations for	Maximum Controlled Emissions[5]: lb/hr	Maximum Controlled Emissions[5]: tpy	Emission Form or Phase (At Exit Conditions)	Est. Method Used[6]	Emission Concentration[7] (ppmv or mg/m^3)	Inner Diameter (ft)	Exit Gas Temp (°F)	Exit Gas Volumetric Flow[8] (ACFM)	Exit Gas Velocity (fps)	Elevation: Ground Level (ft)	Stack Height above Ground Level[9] (ft)	UTM Northing (km)	UTM Easting (km)
LIME-DUMP-ST	Upward Verical Stack	LIME-DUMP	Lime Dump Station	Lime Dump Station Baghouse	Baghouse	NO_X	--	--	--	--	--	0.67	Ambient	2,000	95	--	50	4278083.0	398225.7
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	8.6E-02	0.38	Solid	O (BACT)	11.44								
						PM_{10}	8.6E-02	0.38	Solid	O (BACT)	11.44								
						$PM_{2.5}$	8.6E-02	0.38	Solid	O (BACT)	11.44								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
CARBON-DUMP-ST	Upward Verical Stack	CARBON-DUMP	Carbon Dump Station	Carbon Dump Station Baghouse	Baghouse	NO_X	--	--	--	--	--	0.67	Ambient	2,000	95	--	50	4278079.8	398219.8
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	8.6E-02	0.38	Solid	O (BACT)	11.44								
						PM_{10}	8.6E-02	0.38	Solid	O (BACT)	11.44								
						$PM_{2.5}$	8.6E-02	0.38	Solid	O (BACT)	11.44								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
ALLOY-HANDLE-ST	Upward Verical Stack	ALLOY-HANDLE	Alloy Handling System	Alloy Handling System Baghouse	Baghouse	NO_X	--	--	--	--	--	0.67	Ambient	3,800	181	--	40	4278088.1	398235.9
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	0.16	0.71	Solid	O (BACT)	11.44								
						PM_{10}	0.16	0.71	Solid	O (BACT)	11.44								
						$PM_{2.5}$	0.16	0.71	Solid	O (BACT)	11.44								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
RM-BH	Upward Verical Stack	RM	Rolling Mill	Rolling Mill Baghouse	Baghouse	NO_X	--	--	--	--	--	4.00	140	111,830	148.32	--	213.25	4278610.5	398172.5
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	10.09	44.19	Solid	O (BACT)	24.09								
						PM_{10}	10.09	44.19	Solid	O (BACT)	24.09								
						$PM_{2.5}$	5.04	22.10	Solid	O (BACT)	12.04								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								

Emission Point ID	Emission Point Type[1]	Emission Units Vented Through this Point		Air Pollution Control Device		Pollutant Chemical Name/CAS[3] (See Emission Calculations for	Maximum Controlled Emissions[5]		Emission Form or Phase (At Exit Conditions)	Est. Method Used[6]	Emission Concentration[7] (ppmv or mg/m³)	Inner Diameter (ft)	Exit Gas Temp (°F)	Exit Gas Volumetric Flow[8] (ACFM)	Exit Gas Velocity (fps)	Elevation: Ground Level (ft)	Stack Height above Ground Level[9] (ft)	UTM Northing (km)	UTM Easting (km)
		Emission Unit ID	Emission Unit Description	Control Device ID	Control Device Type		lb/hr	tpy											
VTDST1	Upward Verical Stack	VTD1	Vacuum Tank 1	Vacuum Tank Degasser Flare 1	Flare	NO_X	0.84	3.69	Gas	EE	190.94	0.62	1,832	1,176	66	--	150	4278065.5	398350.8
						CO	5.38	14.93	Gas	EE	1,220								
						SO_2	7.3E-03	3.2E-02	Gas	EE	1.65								
						VOC	1.73	7.60	Gas	EE	393.12								
						PM	7.5E-02	0.33	Solid	EE	17.00								
						PM_{10}	7.5E-02	0.33	Solid/Gas	EE	17.00								
						$PM_{2.5}$	7.5E-02	0.33	Solid/Gas	EE	17.00								
						Lead	--	--	--	--	--								
						Total HAPs	2.3E-02	0.10	Solid/Gas	EE	5.18								
						CO_2	1,861	7,497	Gas	EE	422,397								
						CH_4	2.7E-02	0.12	Gas	EE	6.19								
						N_2O	2.7E-03	1.2E-02	Gas	EE	0.62								
						CO_2e	1,863	7,504	Gas	EE	422,737								
VTDST2	Upward Verical Stack	VTD2	Vacuum Tank 2	Vacuum Tank Degasser Flare 2	Flare	NO_X	0.84	Included under VTDST1 (emissions will be routed to only 1 flare at any given time)	Gas	EE	190.94	0.62	1,832	1,176	66	--	150	4278112.2	398331.5
						CO	5.38		Gas	EE	1,220								
						SO_2	7.3E-03		Gas	EE	1.65								
						VOC	1.73		Gas	EE	393.12								
						PM	7.5E-02		Solid	EE	17.00								
						PM_{10}	7.5E-02		Solid/Gas	EE	17.00								
						$PM_{2.5}$	7.5E-02		Solid/Gas	EE	17.00								
						Lead	--		--	--	--								
						Total HAPs	2.3E-02		Solid/Gas	EE	5.18								
						CO_2	1,861		Gas	EE	422,397								
						CH_4	2.7E-02		Gas	EE	6.19								
						N_2O	2.7E-03		Gas	EE	0.62								
						CO_2e	1,863		Gas	EE	422,737								
MSFUG	Volume	LD	Ladle Dryer Fugitives	N/A	N/A	NO_X	1.47	6.44	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	See Air Dispersion Modeling Report in Appendix D of Permit Application
						CO	1.24	5.41	Gas	EE	N/A								
						SO_2	8.8E-03	3.9E-02	Gas	EE	N/A								
						VOC	8.1E-02	0.35	Gas	EE	N/A								
						PM	2.8E-02	0.12	Solid	O (BACT)	N/A								
						PM_{10}	0.11	0.49	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	0.11	0.49	Solid/Gas	O (BACT)	N/A								
						Lead	7.4E-06	3.2E-05	Solid	EE	N/A								
						Total HAPs	1.4E-03	6.1E-03	Solid/Gas	EE	N/A								
						CO_2	1,755	7,685	Gas	EE	N/A								
						CH_4	3.3E-02	0.14	Gas	EE	N/A								
						N_2O	3.3E-03	1.4E-02	Gas	EE	N/A								
						CO_2e	1,756	7,693	Gas	EE	N/A								
MSFUG	Volume	LPHTR1	Horizontal Ladle Preheater 1 Fugitives	N/A	N/A	NO_X	1.47	6.44	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	See Air Dispersion Modeling Report in Appendix D of Permit Application
						CO	1.24	5.41	Gas	EE	N/A								
						SO_2	8.8E-03	3.9E-02	Gas	EE	N/A								
						VOC	8.1E-02	0.35	Gas	EE	N/A								
						PM	2.8E-02	0.12	Solid	O (BACT)	N/A								
						PM_{10}	0.11	0.49	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	0.11	0.49	Solid/Gas	O (BACT)	N/A								
						Lead	7.4E-06	3.2E-05	Solid	EE	N/A								
						Total HAPs	1.4E-03	6.1E-03	Solid/Gas	EE	N/A								
						CO_2	1,755	7,685	Gas	EE	N/A								
						CH_4	3.3E-02	0.14	Gas	EE	N/A								
						N_2O	3.3E-03	1.4E-02	Gas	EE	N/A								
						CO_2e	1,756	7,693	Gas	EE	N/A								
MSFUG	Volume	LPHTR2	Horizontal Ladle Preheater 2 Fugitives	N/A	N/A	NO_X	1.47	6.44	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	See Air Dispersion Modeling Report in Appendix D of Permit Application
						CO	1.24	5.41	Gas	EE	N/A								
						SO_2	8.8E-03	3.9E-02	Gas	EE	N/A								
						VOC	8.1E-02	0.35	Gas	EE	N/A								
						PM	2.8E-02	0.12	Solid	O (BACT)	N/A								
						PM_{10}	0.11	0.49	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	0.11	0.49	Solid/Gas	O (BACT)	N/A								
						Lead	7.4E-06	3.2E-05	Solid	EE	N/A								
						Total HAPs	1.4E-03	6.1E-03	Solid/Gas	EE	N/A								
						CO_2	1,755	7,685	Gas	EE	N/A								
						CH_4	3.3E-02	0.14	Gas	EE	N/A								
						N_2O	3.3E-03	1.4E-02	Gas	EE	N/A								
						CO_2e	1,756	7,693	Gas	EE	N/A								

Emission Point ID	Emission Point Type[1]	Emission Units Vented Through this Point: Emission Unit ID	Emission Units Vented Through this Point: Emission Unit Description	Air Pollution Control Device: Control Device ID	Air Pollution Control Device: Control Device Type	Pollutant Chemical Name/CAS[3] (See Emission Calculations for	Maximum Controlled Emissions[5]: lb/hr	Maximum Controlled Emissions[5]: tpy	Emission Form or Phase (At Exit Conditions)	Est. Method Used[6]	Emission Concentration[7] (ppmv or mg/m^3)	Inner Diameter (ft)	Exit Gas Temp (°F)	Exit Gas Volumetric Flow[8] (ACFM)	Exit Gas Velocity (fps)	Elevation: Ground Level (ft)	Stack Height above Ground Level[9] (ft)	UTM Northing (km)	UTM Easting (km)
						NO_X	1.47	6.44	Gas	O (BACT)	N/A								
						CO	1.24	5.41	Gas	EE	N/A								
						SO_2	8.8E-03	3.9E-02	Gas	EE	N/A								
						VOC	8.1E-02	0.35	Gas	EE	N/A								
						PM	2.8E-02	0.12	Solid	O (BACT)	N/A								
						PM_{10}	0.11	0.49	Solid/Gas	O (BACT)	N/A								
MSFUG	Volume	LPHTR3	Horizontal Ladle Preheater 3 Fugitives	N/A	N/A	$PM_{2.5}$	0.11	0.49	Solid/Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	See Air Dispersion Modeling Report in Appendix D of Permit Application
						Lead	7.4E-06	3.2E-05	Solid	EE	N/A								
						Total HAPs	1.4E-03	6.1E-03	Solid/Gas	EE	N/A								
						CO_2	1,755	7,685	Gas	EE	N/A								
						CH_4	3.3E-02	0.14	Gas	EE	N/A								
						N_2O	3.3E-03	1.4E-02	Gas	EE	N/A								
						CO_2e	1,756	7,693	Gas	EE	N/A								
						NO_X	1.47	6.44	Gas	O (BACT)	N/A								
						CO	1.24	5.41	Gas	EE	N/A								
						SO_2	8.8E-03	3.9E-02	Gas	EE	N/A								
						VOC	8.1E-02	0.35	Gas	EE	N/A								
						PM	2.8E-02	0.12	Solid	O (BACT)	N/A								
						PM_{10}	0.11	0.49	Solid/Gas	O (BACT)	N/A								
MSFUG	Volume	LPHTR4	Horizontal Ladle Preheater 4 Fugitives	N/A	N/A	$PM_{2.5}$	0.11	0.49	Solid/Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	See Air Dispersion Modeling Report in Appendix D of Permit Application
						Lead	7.4E-06	3.2E-05	Solid	EE	N/A								
						Total HAPs	1.4E-03	6.1E-03	Solid/Gas	EE	N/A								
						CO_2	1,755	7,685	Gas	EE	N/A								
						CH_4	3.3E-02	0.14	Gas	EE	N/A								
						N_2O	3.3E-03	1.4E-02	Gas	EE	N/A								
						CO_2e	1,756	7,693	Gas	EE	N/A								
						NO_X	1.47	6.44	Gas	O (BACT)	N/A								
						CO	1.24	5.41	Gas	EE	N/A								
						SO_2	8.8E-03	3.9E-02	Gas	EE	N/A								
						VOC	8.1E-02	0.35	Gas	EE	N/A								
						PM	2.8E-02	0.12	Solid	O (BACT)	N/A								
						PM_{10}	0.11	0.49	Solid/Gas	O (BACT)	N/A								
MSFUG	Volume	LPHTR5	Horizontal Ladle Preheater 5 Fugitives	N/A	N/A	$PM_{2.5}$	0.11	0.49	Solid/Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	See Air Dispersion Modeling Report in Appendix D of Permit Application
						Lead	7.4E-06	3.2E-05	Solid	EE	N/A								
						Total HAPs	1.4E-03	6.1E-03	Solid/Gas	EE	N/A								
						CO_2	1,755	7,685	Gas	EE	N/A								
						CH_4	3.3E-02	0.14	Gas	EE	N/A								
						N_2O	3.3E-03	1.4E-02	Gas	EE	N/A								
						CO_2e	1,756	7,693	Gas	EE	N/A								
						NO_X	1.47	6.44	Gas	O (BACT)	N/A								
						CO	1.24	5.41	Gas	EE	N/A								
						SO_2	8.8E-03	3.9E-02	Gas	EE	N/A								
						VOC	8.1E-02	0.35	Gas	EE	N/A								
						PM	2.8E-02	0.12	Solid	O (BACT)	N/A								
						PM_{10}	0.11	0.49	Solid/Gas	O (BACT)	N/A								
MSFUG	Volume	LPHTR6	Vertical Ladle Preheater 6 Fugitives	N/A	N/A	$PM_{2.5}$	0.11	0.49	Solid/Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	See Air Dispersion Modeling Report in Appendix D of Permit Application
						Lead	7.4E-06	3.2E-05	Solid	EE	N/A								
						Total HAPs	1.4E-03	6.1E-03	Solid/Gas	EE	N/A								
						CO_2	1,755	7,685	Gas	EE	N/A								
						CH_4	3.3E-02	0.14	Gas	EE	N/A								
						N_2O	3.3E-03	1.4E-02	Gas	EE	N/A								
						CO_2e	1,756	7,693	Gas	EE	N/A								
						NO_X	1.47	6.44	Gas	O (BACT)	N/A								
						CO	1.24	5.41	Gas	EE	N/A								
						SO_2	8.8E-03	3.9E-02	Gas	EE	N/A								
						VOC	8.1E-02	0.35	Gas	EE	N/A								
						PM	2.8E-02	0.12	Solid	O (BACT)	N/A								
						PM_{10}	0.11	0.49	Solid/Gas	O (BACT)	N/A								
MSFUG	Volume	LPHTR7	Vertical Ladle Preheater 7 Fugitives	N/A	N/A	$PM_{2.5}$	0.11	0.49	Solid/Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	See Air Dispersion Modeling Report in Appendix D of Permit Application
						Lead	7.4E-06	3.2E-05	Solid	EE	N/A								
						Total HAPs	1.4E-03	6.1E-03	Solid/Gas	EE	N/A								
						CO_2	1,755	7,685	Gas	EE	N/A								
						CH_4	3.3E-02	0.14	Gas	EE	N/A								
						N_2O	3.3E-03	1.4E-02	Gas	EE	N/A								
						CO_2e	1,756	7,693	Gas	EE	N/A								

Emission Point ID	Emission Point Type[1]	Emission Units Vented Through this Point: Emission Unit ID	Emission Units Vented Through this Point: Emission Unit Description	Air Pollution Control Device: Control Device ID	Air Pollution Control Device: Control Device Type	Pollutant Chemical Name/CAS[3] (See Emission Calculations for	Maximum Controlled Emissions[5]: lb/hr	Maximum Controlled Emissions[5]: tpy	Emission Form or Phase (At Exit Conditions)	Est. Method Used[6]	Emission Concentration[7] (ppmv or mg/m^3)	Inner Diameter (ft)	Exit Gas Temp (°F)	Exit Gas Volumetric Flow[8] (ACFM)	Exit Gas Velocity (fps)	Elevation: Ground Level (ft)	Stack Height above Ground Level[9] (ft)	UTM Northing (km)	UTM Easting (km)
MSFUG	Volume	TD	Tundish Dryer 1	N/A	N/A	NO_X	0.59	2.58	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	See Air Dispersion Modeling Report in Appendix D of Permit Application
						CO	0.49	2.16	Gas	EE	N/A								
						SO_2	3.5E-03	1.5E-02	Gas	EE	N/A								
						VOC	3.2E-02	0.14	Gas	EE	N/A								
						PM	1.1E-02	4.9E-02	Solid	O (BACT)	N/A								
						PM_{10}	4.5E-02	0.20	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	4.5E-02	0.20	Solid/Gas	O (BACT)	N/A								
						Lead	2.9E-06	1.3E-05	Solid	EE	N/A								
						Total HAPs	1.1E-02	4.8E-02	Solid/Gas	EE	N/A								
						CO_2	701.86	3,074	Gas	EE	N/A								
						CH_4	1.3E-02	5.8E-02	Gas	EE	N/A								
						N_2O	1.3E-03	5.8E-03	Gas	EE	N/A								
						CO_2e	702.59	3,077	Gas	EE	N/A								
MSFUG	Volume	TPHTR1	Tundish Preheater 1	N/A	N/A	NO_X	0.88	3.86	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	See Air Dispersion Modeling Report in Appendix D of Permit Application
						CO	0.74	3.25	Gas	EE	N/A								
						SO_2	5.3E-03	2.3E-02	Gas	EE	N/A								
						VOC	4.9E-02	0.21	Gas	EE	N/A								
						PM	1.7E-02	7.3E-02	Solid	O (BACT)	N/A								
						PM_{10}	6.7E-02	0.29	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	6.7E-02	0.29	Solid/Gas	O (BACT)	N/A								
						Lead	4.4E-06	1.9E-05	Solid	EE	N/A								
						Total HAPs	1.7E-02	7.3E-02	Solid/Gas	EE	N/A								
						CO_2	1,053	4,611	Gas	EE	N/A								
						CH_4	2.0E-02	8.7E-02	Gas	EE	N/A								
						N_2O	2.0E-03	8.7E-03	Gas	EE	N/A								
						CO_2e	1,054	4,616	Gas	EE	N/A								
MSFUG	Volume	TPHTR2	Tundish Preheater 2	N/A	N/A	NO_X	0.88	3.86	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	See Air Dispersion Modeling Report in Appendix D of Permit Application
						CO	0.74	3.25	Gas	EE	N/A								
						SO_2	5.3E-03	2.3E-02	Gas	EE	N/A								
						VOC	4.9E-02	0.21	Gas	EE	N/A								
						PM	1.7E-02	7.3E-02	Solid	O (BACT)	N/A								
						PM_{10}	6.7E-02	0.29	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	6.7E-02	0.29	Solid/Gas	O (BACT)	N/A								
						Lead	4.4E-06	1.9E-05	Solid	EE	N/A								
						Total HAPs	1.7E-02	7.3E-02	Solid/Gas	EE	N/A								
						CO_2	1,053	4,611	Gas	EE	N/A								
						CH_4	2.0E-02	8.7E-02	Gas	EE	N/A								
						N_2O	2.0E-03	8.7E-03	Gas	EE	N/A								
						CO_2e	1,054	4,616	Gas	EE	N/A								
MSFUG	Volume	SENPHTR1	Subentry Nozzle (SEN) Preheater 1	N/A	N/A	NO_X	0.10	0.43	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	See Air Dispersion Modeling Report in Appendix D of Permit Application
						CO	8.2E-02	0.36	Gas	EE	N/A								
						SO_2	5.9E-04	2.6E-03	Gas	EE	N/A								
						VOC	5.4E-03	2.4E-02	Gas	EE	N/A								
						PM	1.9E-03	8.2E-03	Solid	O (BACT)	N/A								
						PM_{10}	7.5E-03	3.3E-02	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	7.5E-03	3.3E-02	Solid/Gas	O (BACT)	N/A								
						Lead	4.9E-07	2.1E-06	Solid	EE	N/A								
						Total HAPs	1.8E-03	8.1E-03	Solid/Gas	EE	N/A								
						CO_2	116.98	512.36	Gas	EE	N/A								
						CH_4	2.2E-03	9.7E-03	Gas	EE	N/A								
						N_2O	2.2E-04	9.7E-04	Gas	EE	N/A								
						CO_2e	117.10	512.89	Gas	EE	N/A								
MSFUG	Volume	SENPHTR2	Subentry Nozzle (SEN) Preheater 2	N/A	N/A	NO_X	0.10	0.43	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	See Air Dispersion Modeling Report in Appendix D of Permit Application
						CO	8.2E-02	0.36	Gas	EE	N/A								
						SO_2	5.9E-04	2.6E-03	Gas	EE	N/A								
						VOC	5.4E-03	2.4E-02	Gas	EE	N/A								
						PM	1.9E-03	8.2E-03	Solid	O (BACT)	N/A								
						PM_{10}	7.5E-03	3.3E-02	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	7.5E-03	3.3E-02	Solid/Gas	O (BACT)	N/A								
						Lead	4.9E-07	2.1E-06	Solid	EE	N/A								
						Total HAPs	1.8E-03	8.1E-03	Solid/Gas	EE	N/A								
						CO_2	116.98	512.36	Gas	EE	N/A								
						CH_4	2.2E-03	9.7E-03	Gas	EE	N/A								
						N_2O	2.2E-04	9.7E-04	Gas	EE	N/A								
						CO_2e	117.10	512.89	Gas	EE	N/A								

Emission Point ID	Emission Point Type[1]	Emission Units Vented Through this Point: Emission Unit ID	Emission Units Vented Through this Point: Emission Unit Description	Air Pollution Control Device: Control Device ID	Air Pollution Control Device: Control Device Type	Pollutant Chemical Name/CAS[3] (See Emission Calculations for	Maximum Controlled Emissions[5]: lb/hr	Maximum Controlled Emissions[5]: tpy	Emission Form or Phase (At Exit Conditions)	Est. Method Used[6]	Emission Concentration[7] (ppmv or mg/m³)	Inner Diameter (ft)	Exit Gas Temp (°F)	Exit Gas Volumetric Flow[8] (ACFM)	Exit Gas Velocity (fps)	Elevation: Ground Level (ft)	Stack Height above Ground Level[9] (ft)	UTM Northing (km)	UTM Easting (km)
TFST-1	Upward Verical Stack	TF1	Hot Mill Tunnel Furnace 1	N/A	N/A	NO_X	10.50	45.99	Gas	O (BACT)	36.32	6.00	1,076	77,182	45	--	164	4278247.9	398464.3
						CO	12.35	54.11	Gas	EE	42.73								
						SO_2	8.8E-02	0.39	Gas	EE	0.31								
						VOC	0.81	3.54	Gas	EE	2.80								
						PM	0.28	1.22	Solid	O (BACT)	0.97								
						PM_{10}	1.12	4.90	Solid/Gas	O (BACT)	3.87								
						$PM_{2.5}$	1.12	4.90	Solid/Gas	O (BACT)	3.87								
						Lead	7.4E-05	3.2E-04	Solid	EE	2.5E-04								
						Total HAPs	0.28	1.21	Solid/Gas	EE	0.96								
						CO_2	17,547	76,854	Gas	EE	60,694								
						CH_4	0.33	1.45	Gas	EE	1.14								
						N_2O	3.3E-02	0.14	Gas	EE	0.11								
						CO_2e	17,565	76,933	Gas	EE	60,757								
PLST-1	Upward Verical Stack	PKL-1	Pickling Line #1	Pickling Line Scrubber 1	Scrubber	NO_X	--	--	--	--	--	2.95	343	10,930	27	--	150	4278797.7	398161.5
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	0.62	2.70	Solid	O (BACT)	15.04								
						PM_{10}	0.62	2.70	Solid/Gas	O (BACT)	15.04								
						$PM_{2.5}$	0.62	2.70	Solid/Gas	O (BACT)	15.04								
						Lead	--	--	--	--	--								
						Total HAPs	0.25	1.09	Solid/Gas	EE	6.07								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
PKLSB	Upward Verical Stack	PKLSB	Pickle Line Scale Breaker	Pickle Line Scale Breaker Baghouse	Baghouse	NO_X	--	--	--	--	--	4.92	Ambient	52,972	46	--	213	4278937.1	398119.0
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	1.36	5.97	Solid	O (BACT)	6.87								
						PM_{10}	1.36	5.97	Solid/Gas	O (BACT)	6.87								
						$PM_{2.5}$	1.36	5.97	Solid/Gas	O (BACT)	6.87								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								

Emission Point ID	Emission Point Type[1]	Emission Units Vented Through this Point		Air Pollution Control Device		Pollutant Chemical Name/CAS[3] (See Emission Calculations for	Maximum Controlled Emissions[5]		Emission Form or Phase (At Exit Conditions)	Est. Method Used[6]	Emission Concentration[7] (ppmv or mg/m³)	Inner Diameter (ft)	Exit Gas Temp (°F)	Exit Gas Volumetric Flow[8] (ACFM)	Exit Gas Velocity (fps)	Elevation: Ground Level (ft)	Stack Height above Ground Level[9] (ft)	UTM Northing (km)	UTM Easting (km)
		Emission Unit ID	Emission Unit Description	Control Device ID	Control Device Type		lb/hr	tpy											
TCMST	Upward Verical Stack	TCM	Tandem Cold Mill	Tandem Cold Mill Mist Eliminator	Scrubber	NO_X	--	--	--	--	--	5.00	100	217,774	185	--	213	4279059.7	397988.7
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	17.33	75.90	Solid	O (BACT)	21.24								
						PM_{10}	11.44	50.09	Solid/Gas	O (BACT)	14.02								
						$PM_{2.5}$	11.44	50.09	Solid/Gas	O (BACT)	14.02								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
STMST	Upward Verical Stack	STM	Standalone Temper Mill	Temper Mill Mist Eliminator	Scrubber	NO_X	--	--	--	--	--	4.00	90	42,378	56.21	--	150.00	4278964.5	398355.4
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	0.96	4.22	Solid	O (BACT)	6.07								
						PM_{10}	0.93	4.05	Solid/Gas	O (BACT)	5.83								
						$PM_{2.5}$	0.50	2.20	Solid/Gas	O (BACT)	3.16								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
SPMST1	Upward Verical Stack	SPM1	Skin Pass Mill #1	Skin Pass Mill Baghouse #1	Baghouse	NO_X	--	--	--	--	--	4.00	90	52,972	70	--	213	4279199.3	398306.2
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	2.11	9.23	Solid	O (BACT)	10.62								
						PM_{10}	2.11	9.23	Solid/Gas	O (BACT)	10.62								
						$PM_{2.5}$	1.05	4.62	Solid/Gas	O (BACT)	5.31								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
SPMST2	Upward Verical Stack	SPM2	Skin Pass Mill #2	Skin Pass Mill Baghouse #2	Baghouse	NO_X	--	--	--	--	--	4.00	90	52,972	70	--	213	4279199.3	398306.2
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	2.11	9.23	Solid	O (BACT)	10.62								
						PM_{10}	2.11	9.23	Solid/Gas	O (BACT)	10.62								
						$PM_{2.5}$	1.05	4.62	Solid/Gas	O (BACT)	5.31								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
CGL1-ST1	Upward Verical Stack	CGL1	CGL1 - Cleaning Section	Continuous Galvanizing Line Wet Scrubber 1	Scrubber	NO_X	--	--	--	--	--	2.07	140	7,063	35	--	150	4279074.0	398230.3
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	0.16	0.69	Solid	O (BACT)	5.95								
						PM_{10}	0.16	0.69	Solid/Gas	O (BACT)	5.95								
						$PM_{2.5}$	0.16	0.69	Solid/Gas	O (BACT)	5.95								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
CGL1-ST2	Upward Verical Stack	CGL1	CGL1 - Passivation Section	Continuous Galvanizing Line Wet Scrubber 2	Scrubber	NO_X	--	--	--	--	--	2.07	140	8,829	44	--	150	4279082.4	398249.1
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	0.24	1.05	Solid	O (BACT)	7.27								
						PM_{10}	0.24	1.05	Solid/Gas	O (BACT)	7.27								
						$PM_{2.5}$	0.24	1.05	Solid/Gas	O (BACT)	7.27								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								

Emission Point ID	Emission Point Type[1]	Emission Units Vented Through this Point		Air Pollution Control Device		Pollutant Chemical Name/CAS[3] (See Emission Calculations for	Maximum Controlled Emissions[5]		Emission Form or Phase (At Exit Conditions)	Est. Method Used[6]	Emission Concentration[7] (ppmv or mg/m^3)	Inner Diameter (ft)	Exit Gas Temp (°F)	Exit Gas Volumetric Flow[8] (ACFM)	Exit Gas Velocity (fps)	Elevation: Ground Level (ft)	Stack Height above Ground Level[9] (ft)	UTM Northing (km)	UTM Easting (km)
		Emission Unit ID	Emission Unit Description	Control Device ID	Control Device Type		lb/hr	tpy											
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								

Emission Point ID	Emission Point Type[1]	Emission Units Vented Through this Point: Emission Unit ID	Emission Units Vented Through this Point: Emission Unit Description	Air Pollution Control Device: Control Device ID	Air Pollution Control Device: Control Device Type	Pollutant Chemical Name/CAS[3] (See Emission Calculations for	Maximum Controlled Emissions[5]: lb/hr	Maximum Controlled Emissions[5]: tpy	Emission Form or Phase (At Exit Conditions)	Est. Method Used[6]	Emission Concentration[7] (ppmv or mg/m^3)	Inner Diameter (ft)	Exit Gas Temp (°F)	Exit Gas Volumetric Flow[8] (ACFM)	Exit Gas Velocity (fps)	Elevation: Ground Level (ft)	Stack Height above Ground Level[9] (ft)	UTM Northing (km)	UTM Easting (km)
CGL2-ST1	Upward Verical Stack	CGL2	CGL2 - Cleaning Section	Continuous Galvanizing Line Wet Scrubber 3	Scrubber	NO_X	--	--	--	--	--	2.07	140	7,063	35	--	150	4278983.3	398287.0
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	0.16	0.69	Solid	O (BACT)	5.95								
						PM_{10}	0.16	0.69	Solid/Gas	O (BACT)	5.95								
						$PM_{2.5}$	0.16	0.69	Solid/Gas	O (BACT)	5.95								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
CGL2-ST2	Upward Verical Stack	CGL2	CGL2 - Passivation Section	Continuous Galvanizing Line Wet Scrubber 4	Scrubber	NO_X	--	--	--	--	--	2.07	140	8,829	44	--	150	4278936.3	398304.9
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	0.24	1.05	Solid	O (BACT)	7.27								
						PM_{10}	0.24	1.05	Solid/Gas	O (BACT)	7.27								
						$PM_{2.5}$	0.24	1.05	Solid/Gas	O (BACT)	7.27								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
GALVFN1-ST	Upward Verical Stack	GALVFN1	Galvanizing Furnace #1	N/A	N/A	NO_X	3.20	14.02	Gas	O (BACT)	44.26	5.25	440	19,303	15	--	150	4279013.5	398230.2
						CO	5.27	23.09	Gas	EE	72.90								
						SO_2	3.8E-02	0.16	Gas	EE	0.52								
						VOC	0.35	1.51	Gas	EE	4.77								
						PM	0.12	0.52	Solid	O (BACT)	1.65								
						PM_{10}	0.48	2.09	Solid/Gas	O (BACT)	6.60								
						$PM_{2.5}$	0.48	2.09	Solid/Gas	O (BACT)	6.60								
						Lead	3.1E-05	1.4E-04	Solid	EE	4.3E-04								
						Total HAPs	0.12	0.52	Solid/Gas	EE	1.63								
						CO_2	7,487	32,791	Gas	EE	103,544								
						CH_4	0.14	0.62	Gas	EE	1.95								
						N_2O	1.4E-02	6.2E-02	Gas	EE	0.20								
						CO_2e	7,494	32,825	Gas	EE	103,651								
GALVFN2-ST	Upward Verical Stack	GALVFN2	Galvanizing Furnace #2	N/A	N/A	NO_X	3.20	14.02	Gas	O (BACT)	44.26	5.25	440	19,303	15	--	150	4279038.5	398284.6
						CO	5.27	23.09	Gas	EE	72.90								
						SO_2	3.8E-02	0.16	Gas	EE	0.52								
						VOC	0.35	1.51	Gas	EE	4.77								
						PM	0.12	0.52	Solid	O (BACT)	1.65								
						PM_{10}	0.48	2.09	Solid/Gas	O (BACT)	6.60								
						$PM_{2.5}$	0.48	2.09	Solid/Gas	O (BACT)	6.60								
						Lead	3.1E-05	1.4E-04	Solid	EE	4.3E-04								
						Total HAPs	0.12	0.52	Solid/Gas	EE	1.63								
						CO_2	7,487	32,791	Gas	EE	103,544								
						CH_4	0.14	0.62	Gas	EE	1.95								
						N_2O	1.4E-02	6.2E-02	Gas	EE	0.20								
						CO_2e	7,494	32,825	Gas	EE	103,651								
GALVFUG	Volume	BOXANN1	Box Annealing Furnace #1	N/A	N/A	NO_X	0.25	1.10	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	See Air Dispersion Modeling Report in Appendix D of Permit Application
						CO	0.41	1.80	Gas	EE	N/A								
						SO_2	2.9E-03	1.3E-02	Gas	EE	N/A								
						VOC	2.7E-02	0.12	Gas	EE	N/A								
						PM	9.3E-03	4.1E-02	Solid	O (BACT)	N/A								
						PM_{10}	3.7E-02	0.16	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	3.7E-02	0.16	Solid/Gas	O (BACT)	N/A								
						Lead	2.5E-06	1.1E-05	Solid	EE	N/A								
						Total HAPs	9.2E-03	4.0E-02	Solid/Gas	EE	N/A								
						CO_2	584.89	2,562	Gas	EE	N/A								
						CH_4	1.1E-02	4.8E-02	Gas	EE	N/A								
						N_2O	1.1E-03	4.8E-03	Gas	EE	N/A								
						CO_2e	585.49	2,564	Gas	EE	N/A								

Emission Point ID	Emission Point Type[1]	Emission Units Vented Through this Point: Emission Unit ID	Emission Units Vented Through this Point: Emission Unit Description	Air Pollution Control Device: Control Device ID	Air Pollution Control Device: Control Device Type	Pollutant Chemical Name/CAS[3] (See Emission Calculations for	Maximum Controlled Emissions[5]: lb/hr	Maximum Controlled Emissions[5]: tpy	Emission Form or Phase (At Exit Conditions)	Est. Method Used[6]	Emission Concentration[7] (ppmv or mg/m^3)	Inner Diameter (ft)	Exit Gas Temp (°F)	Exit Gas Volumetric Flow[8] (ACFM)	Exit Gas Velocity (fps)	Elevation: Ground Level (ft)	Stack Height above Ground Level[9] (ft)	UTM Northing (km)	UTM Easting (km)
GALVFUG	Volume	BOXANN2	Box Annealing Furnace #2	N/A	N/A	NO_X	0.25	1.10	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	See Air Dispersion Modeling Report in Appendix D of Permit Application
						CO	0.41	1.80	Gas	EE	N/A								
						SO_2	2.9E-03	1.3E-02	Gas	EE	N/A								
						VOC	2.7E-02	0.12	Gas	EE	N/A								
						PM	9.3E-03	4.1E-02	Solid	O (BACT)	N/A								
						PM_{10}	3.7E-02	0.16	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	3.7E-02	0.16	Solid/Gas	O (BACT)	N/A								
						Lead	2.5E-06	1.1E-05	Solid	EE	N/A								
						Total HAPs	9.2E-03	4.0E-02	Solid/Gas	EE	N/A								
						CO_2	584.89	2,562	Gas	EE	N/A								
						CH_4	1.1E-02	4.8E-02	Gas	EE	N/A								
						N_2O	1.1E-03	4.8E-03	Gas	EE	N/A								
						CO_2e	585.49	2,564	Gas	EE	N/A								
GALVFUG	Volume	BOXANN3	Box Annealing Furnace #3	N/A	N/A	NO_X	0.25	1.10	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	See Air Dispersion Modeling Report in Appendix D of Permit Application
						CO	0.41	1.80	Gas	EE	N/A								
						SO_2	2.9E-03	1.3E-02	Gas	EE	N/A								
						VOC	2.7E-02	0.12	Gas	EE	N/A								
						PM	9.3E-03	4.1E-02	Solid	O (BACT)	N/A								
						PM_{10}	3.7E-02	0.16	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	3.7E-02	0.16	Solid/Gas	O (BACT)	N/A								
						Lead	2.5E-06	1.1E-05	Solid	EE	N/A								
						Total HAPs	9.2E-03	4.0E-02	Solid/Gas	EE	N/A								
						CO_2	584.89	2,562	Gas	EE	N/A								
						CH_4	1.1E-02	4.8E-02	Gas	EE	N/A								
						N_2O	1.1E-03	4.8E-03	Gas	EE	N/A								
						CO_2e	585.49	2,564	Gas	EE	N/A								
GALVFUG	Volume	BOXANN4	Box Annealing Furnace #4	N/A	N/A	NO_X	0.25	1.10	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	See Air Dispersion Modeling Report in Appendix D of Permit Application
						CO	0.41	1.80	Gas	EE	N/A								
						SO_2	2.9E-03	1.3E-02	Gas	EE	N/A								
						VOC	2.7E-02	0.12	Gas	EE	N/A								
						PM	9.3E-03	4.1E-02	Solid	O (BACT)	N/A								
						PM_{10}	3.7E-02	0.16	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	3.7E-02	0.16	Solid/Gas	O (BACT)	N/A								
						Lead	2.5E-06	1.1E-05	Solid	EE	N/A								
						Total HAPs	9.2E-03	4.0E-02	Solid/Gas	EE	N/A								
						CO_2	584.89	2,562	Gas	EE	N/A								
						CH_4	1.1E-02	4.8E-02	Gas	EE	N/A								
						N_2O	1.1E-03	4.8E-03	Gas	EE	N/A								
						CO_2e	585.49	2,564	Gas	EE	N/A								
GALVFUG	Volume	BOXANN5	Box Annealing Furnace #5	N/A	N/A	NO_X	0.25	1.10	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	See Air Dispersion Modeling Report in Appendix D of Permit Application
						CO	0.41	1.80	Gas	EE	N/A								
						SO_2	2.9E-03	1.3E-02	Gas	EE	N/A								
						VOC	2.7E-02	0.12	Gas	EE	N/A								
						PM	9.3E-03	4.1E-02	Solid	O (BACT)	N/A								
						PM_{10}	3.7E-02	0.16	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	3.7E-02	0.16	Solid/Gas	O (BACT)	N/A								
						Lead	2.5E-06	1.1E-05	Solid	EE	N/A								
						Total HAPs	9.2E-03	4.0E-02	Solid/Gas	EE	N/A								
						CO_2	584.89	2,562	Gas	EE	N/A								
						CH_4	1.1E-02	4.8E-02	Gas	EE	N/A								
						N_2O	1.1E-03	4.8E-03	Gas	EE	N/A								
						CO_2e	585.49	2,564	Gas	EE	N/A								
GALVFUG	Volume	BOXANN6	Box Annealing Furnace #6	N/A	N/A	NO_X	0.25	1.10	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	See Air Dispersion Modeling Report in Appendix D of Permit Application
						CO	0.41	1.80	Gas	EE	N/A								
						SO_2	2.9E-03	1.3E-02	Gas	EE	N/A								
						VOC	2.7E-02	0.12	Gas	EE	N/A								
						PM	9.3E-03	4.1E-02	Solid	O (BACT)	N/A								
						PM_{10}	3.7E-02	0.16	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	3.7E-02	0.16	Solid/Gas	O (BACT)	N/A								
						Lead	2.5E-06	1.1E-05	Solid	EE	N/A								
						Total HAPs	9.2E-03	4.0E-02	Solid/Gas	EE	N/A								
						CO_2	584.89	2,562	Gas	EE	N/A								
						CH_4	1.1E-02	4.8E-02	Gas	EE	N/A								
						N_2O	1.1E-03	4.8E-03	Gas	EE	N/A								
						CO_2e	585.49	2,564	Gas	EE	N/A								

Emission Point ID	Emission Point Type[1]	Emission Units Vented Through this Point: Emission Unit ID	Emission Units Vented Through this Point: Emission Unit Description	Air Pollution Control Device: Control Device ID	Air Pollution Control Device: Control Device Type	Pollutant Chemical Name/CAS[3] (See Emission Calculations for	Maximum Controlled Emissions[5]: lb/hr	Maximum Controlled Emissions[5]: tpy	Emission Form or Phase (At Exit Conditions)	Est. Method Used[6]	Emission Concentration[7] (ppmv or mg/m^3)	Inner Diameter (ft)	Exit Gas Temp (°F)	Exit Gas Volumetric Flow[8] (ACFM)	Exit Gas Velocity (fps)	Elevation: Ground Level (ft)	Stack Height above Ground Level[9] (ft)	UTM Northing (km)	UTM Easting (km)
GALVFUG	Volume	BOXANN7	Box Annealing Furnace #7	N/A	N/A	NO_X	0.25	1.10	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	See Air Dispersion Modeling Report in Appendix D of Permit Application
						CO	0.41	1.80	Gas	EE	N/A								
						SO_2	2.9E-03	1.3E-02	Gas	EE	N/A								
						VOC	2.7E-02	0.12	Gas	EE	N/A								
						PM	9.3E-03	4.1E-02	Solid	O (BACT)	N/A								
						PM_{10}	3.7E-02	0.16	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	3.7E-02	0.16	Solid/Gas	O (BACT)	N/A								
						Lead	2.5E-06	1.1E-05	Solid	EE	N/A								
						Total HAPs	9.2E-03	4.0E-02	Solid/Gas	EE	N/A								
						CO_2	584.89	2,562	Gas	EE	N/A								
						CH_4	1.1E-02	4.8E-02	Gas	EE	N/A								
						N_2O	1.1E-03	4.8E-03	Gas	EE	N/A								
						CO_2e	585.49	2,564	Gas	EE	N/A								
GALVFUG	Volume	BOXANN8	Box Annealing Furnace #8	N/A	N/A	NO_X	0.25	1.10	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	See Air Dispersion Modeling Report in Appendix D of Permit Application
						CO	0.41	1.80	Gas	EE	N/A								
						SO_2	2.9E-03	1.3E-02	Gas	EE	N/A								
						VOC	2.7E-02	0.12	Gas	EE	N/A								
						PM	9.3E-03	4.1E-02	Solid	O (BACT)	N/A								
						PM_{10}	3.7E-02	0.16	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	3.7E-02	0.16	Solid/Gas	O (BACT)	N/A								
						Lead	2.5E-06	1.1E-05	Solid	EE	N/A								
						Total HAPs	9.2E-03	4.0E-02	Solid/Gas	EE	N/A								
						CO_2	584.89	2,562	Gas	EE	N/A								
						CH_4	1.1E-02	4.8E-02	Gas	EE	N/A								
						N_2O	1.1E-03	4.8E-03	Gas	EE	N/A								
						CO_2e	585.49	2,564	Gas	EE	N/A								
GALVFUG	Volume	BOXANN9	Box Annealing Furnace #9	N/A	N/A	NO_X	0.25	1.10	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	See Air Dispersion Modeling Report in Appendix D of Permit Application
						CO	0.41	1.80	Gas	EE	N/A								
						SO_2	2.9E-03	1.3E-02	Gas	EE	N/A								
						VOC	2.7E-02	0.12	Gas	EE	N/A								
						PM	9.3E-03	4.1E-02	Solid	O (BACT)	N/A								
						PM_{10}	3.7E-02	0.16	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	3.7E-02	0.16	Solid/Gas	O (BACT)	N/A								
						Lead	2.5E-06	1.1E-05	Solid	EE	N/A								
						Total HAPs	9.2E-03	4.0E-02	Solid/Gas	EE	N/A								
						CO_2	584.89	2,562	Gas	EE	N/A								
						CH_4	1.1E-02	4.8E-02	Gas	EE	N/A								
						N_2O	1.1E-03	4.8E-03	Gas	EE	N/A								
						CO_2e	585.49	2,564	Gas	EE	N/A								
GALVFUG	Volume	BOXANN10	Box Annealing Furnace #10	N/A	N/A	NO_X	0.25	1.10	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	See Air Dispersion Modeling Report in Appendix D of Permit Application
						CO	0.41	1.80	Gas	EE	N/A								
						SO_2	2.9E-03	1.3E-02	Gas	EE	N/A								
						VOC	2.7E-02	0.12	Gas	EE	N/A								
						PM	9.3E-03	4.1E-02	Solid	O (BACT)	N/A								
						PM_{10}	3.7E-02	0.16	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	3.7E-02	0.16	Solid/Gas	O (BACT)	N/A								
						Lead	2.5E-06	1.1E-05	Solid	EE	N/A								
						Total HAPs	9.2E-03	4.0E-02	Solid/Gas	EE	N/A								
						CO_2	584.89	2,562	Gas	EE	N/A								
						CH_4	1.1E-02	4.8E-02	Gas	EE	N/A								
						N_2O	1.1E-03	4.8E-03	Gas	EE	N/A								
						CO_2e	585.49	2,564	Gas	EE	N/A								
GALVFUG	Volume	BOXANN11	Box Annealing Furnace #11	N/A	N/A	NO_X	0.25	1.10	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	See Air Dispersion Modeling Report in Appendix D of Permit Application
						CO	0.41	1.80	Gas	EE	N/A								
						SO_2	2.9E-03	1.3E-02	Gas	EE	N/A								
						VOC	2.7E-02	0.12	Gas	EE	N/A								
						PM	9.3E-03	4.1E-02	Solid	O (BACT)	N/A								
						PM_{10}	3.7E-02	0.16	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	3.7E-02	0.16	Solid/Gas	O (BACT)	N/A								
						Lead	2.5E-06	1.1E-05	Solid	EE	N/A								
						Total HAPs	9.2E-03	4.0E-02	Solid/Gas	EE	N/A								
						CO_2	584.89	2,562	Gas	EE	N/A								
						CH_4	1.1E-02	4.8E-02	Gas	EE	N/A								
						N_2O	1.1E-03	4.8E-03	Gas	EE	N/A								
						CO_2e	585.49	2,564	Gas	EE	N/A								

Emission Point ID	Emission Point Type[1]	Emission Units Vented Through this Point: Emission Unit ID	Emission Units Vented Through this Point: Emission Unit Description	Air Pollution Control Device: Control Device ID	Air Pollution Control Device: Control Device Type	Pollutant Chemical Name/CAS[3] (See Emission Calculations for	Maximum Controlled Emissions[5]: lb/hr	Maximum Controlled Emissions[5]: tpy	Emission Form or Phase (At Exit Conditions)	Est. Method Used[6]	Emission Concentration[7] (ppmv or mg/m^3)	Inner Diameter (ft)	Exit Gas Temp (°F)	Exit Gas Volumetric Flow[8] (ACFM)	Exit Gas Velocity (fps)	Elevation: Ground Level (ft)	Stack Height above Ground Level[9] (ft)	UTM Northing (km)	UTM Easting (km)
GALVFUG	Volume	BOXANN12	Box Annealing Furnace #12	N/A	N/A	NO_X	0.25	1.10	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	See Air Dispersion Modeling Report in Appendix D of Permit Application
						CO	0.41	1.80	Gas	EE	N/A								
						SO_2	2.9E-03	1.3E-02	Gas	EE	N/A								
						VOC	2.7E-02	0.12	Gas	EE	N/A								
						PM	9.3E-03	4.1E-02	Solid	O (BACT)	N/A								
						PM_{10}	3.7E-02	0.16	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	3.7E-02	0.16	Solid/Gas	O (BACT)	N/A								
						Lead	2.5E-06	1.1E-05	Solid	EE	N/A								
						Total HAPs	9.2E-03	4.0E-02	Solid/Gas	EE	N/A								
						CO_2	584.89	2,562	Gas	EE	N/A								
						CH_4	1.1E-02	4.8E-02	Gas	EE	N/A								
						N_2O	1.1E-03	4.8E-03	Gas	EE	N/A								
						CO_2e	585.49	2,564	Gas	EE	N/A								
GALVFUG	Volume	BOXANN13	Box Annealing Furnace #13	N/A	N/A	NO_X	0.25	1.10	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	See Air Dispersion Modeling Report in Appendix D of Permit Application
						CO	0.41	1.80	Gas	EE	N/A								
						SO_2	2.9E-03	1.3E-02	Gas	EE	N/A								
						VOC	2.7E-02	0.12	Gas	EE	N/A								
						PM	9.3E-03	4.1E-02	Solid	O (BACT)	N/A								
						PM_{10}	3.7E-02	0.16	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	3.7E-02	0.16	Solid/Gas	O (BACT)	N/A								
						Lead	2.5E-06	1.1E-05	Solid	EE	N/A								
						Total HAPs	9.2E-03	4.0E-02	Solid/Gas	EE	N/A								
						CO_2	584.89	2,562	Gas	EE	N/A								
						CH_4	1.1E-02	4.8E-02	Gas	EE	N/A								
						N_2O	1.1E-03	4.8E-03	Gas	EE	N/A								
						CO_2e	585.49	2,564	Gas	EE	N/A								
GALVFUG	Volume	BOXANN14	Box Annealing Furnace #14	N/A	N/A	NO_X	0.25	1.10	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	See Air Dispersion Modeling Report in Appendix D of Permit Application
						CO	0.41	1.80	Gas	EE	N/A								
						SO_2	2.9E-03	1.3E-02	Gas	EE	N/A								
						VOC	2.7E-02	0.12	Gas	EE	N/A								
						PM	9.3E-03	4.1E-02	Solid	O (BACT)	N/A								
						PM_{10}	3.7E-02	0.16	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	3.7E-02	0.16	Solid/Gas	O (BACT)	N/A								
						Lead	2.5E-06	1.1E-05	Solid	EE	N/A								
						Total HAPs	9.2E-03	4.0E-02	Solid/Gas	EE	N/A								
						CO_2	584.89	2,562	Gas	EE	N/A								
						CH_4	1.1E-02	4.8E-02	Gas	EE	N/A								
						N_2O	1.1E-03	4.8E-03	Gas	EE	N/A								
						CO_2e	585.49	2,564	Gas	EE	N/A								
GALVFUG	Volume	BOXANN15	Box Annealing Furnace #15	N/A	N/A	NO_X	0.25	1.10	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	See Air Dispersion Modeling Report in Appendix D of Permit Application
						CO	0.41	1.80	Gas	EE	N/A								
						SO_2	2.9E-03	1.3E-02	Gas	EE	N/A								
						VOC	2.7E-02	0.12	Gas	EE	N/A								
						PM	9.3E-03	4.1E-02	Solid	O (BACT)	N/A								
						PM_{10}	3.7E-02	0.16	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	3.7E-02	0.16	Solid/Gas	O (BACT)	N/A								
						Lead	2.5E-06	1.1E-05	Solid	EE	N/A								
						Total HAPs	9.2E-03	4.0E-02	Solid/Gas	EE	N/A								
						CO_2	584.89	2,562	Gas	EE	N/A								
						CH_4	1.1E-02	4.8E-02	Gas	EE	N/A								
						N_2O	1.1E-03	4.8E-03	Gas	EE	N/A								
						CO_2e	585.49	2,564	Gas	EE	N/A								
GALVFUG	Volume	BOXANN16	Box Annealing Furnace #16	N/A	N/A	NO_X	0.25	1.10	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	See Air Dispersion Modeling Report in Appendix D of Permit Application
						CO	0.41	1.80	Gas	EE	N/A								
						SO_2	2.9E-03	1.3E-02	Gas	EE	N/A								
						VOC	2.7E-02	0.12	Gas	EE	N/A								
						PM	9.3E-03	4.1E-02	Solid	O (BACT)	N/A								
						PM_{10}	3.7E-02	0.16	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	3.7E-02	0.16	Solid/Gas	O (BACT)	N/A								
						Lead	2.5E-06	1.1E-05	Solid	EE	N/A								
						Total HAPs	9.2E-03	4.0E-02	Solid/Gas	EE	N/A								
						CO_2	584.89	2,562	Gas	EE	N/A								
						CH_4	1.1E-02	4.8E-02	Gas	EE	N/A								
						N_2O	1.1E-03	4.8E-03	Gas	EE	N/A								
						CO_2e	585.49	2,564	Gas	EE	N/A								

Emission Point ID	Emission Point Type[1]	Emission Units Vented Through this Point: Emission Unit ID	Emission Units Vented Through this Point: Emission Unit Description	Air Pollution Control Device: Control Device ID	Air Pollution Control Device: Control Device Type	Pollutant Chemical Name/CAS[3] (See Emission Calculations for	Maximum Controlled Emissions[5]: lb/hr	Maximum Controlled Emissions[5]: tpy	Emission Form or Phase (At Exit Conditions)	Est. Method Used[6]	Emission Concentration[7] (ppmv or mg/m^3)	Inner Diameter (ft)	Exit Gas Temp (°F)	Exit Gas Volumetric Flow[8] (ACFM)	Exit Gas Velocity (fps)	Elevation: Ground Level (ft)	Stack Height above Ground Level[9] (ft)	UTM Northing (km)	UTM Easting (km)
GALVFUG	Volume	BOXANN17	Box Annealing Furnace #17	N/A	N/A	NO_X	0.25	1.10	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	See Air Dispersion Modeling Report in Appendix D of Permit Application
						CO	0.41	1.80	Gas	EE	N/A								
						SO_2	2.9E-03	1.3E-02	Gas	EE	N/A								
						VOC	2.7E-02	0.12	Gas	EE	N/A								
						PM	9.3E-03	4.1E-02	Solid	O (BACT)	N/A								
						PM_{10}	3.7E-02	0.16	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	3.7E-02	0.16	Solid/Gas	O (BACT)	N/A								
						Lead	2.5E-06	1.1E-05	Solid	EE	N/A								
						Total HAPs	9.2E-03	4.0E-02	Solid/Gas	EE	N/A								
						CO_2	584.89	2,562	Gas	EE	N/A								
						CH_4	1.1E-02	4.8E-02	Gas	EE	N/A								
						N_2O	1.1E-03	4.8E-03	Gas	EE	N/A								
						CO_2e	585.49	2,564	Gas	EE	N/A								
GALVFUG	Volume	BOXANN18	Box Annealing Furnace #18	N/A	N/A	NO_X	0.25	1.10	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	See Air Dispersion Modeling Report in Appendix D of Permit Application
						CO	0.41	1.80	Gas	EE	N/A								
						SO_2	2.9E-03	1.3E-02	Gas	EE	N/A								
						VOC	2.7E-02	0.12	Gas	EE	N/A								
						PM	9.3E-03	4.1E-02	Solid	O (BACT)	N/A								
						PM_{10}	3.7E-02	0.16	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	3.7E-02	0.16	Solid/Gas	O (BACT)	N/A								
						Lead	2.5E-06	1.1E-05	Solid	EE	N/A								
						Total HAPs	9.2E-03	4.0E-02	Solid/Gas	EE	N/A								
						CO_2	584.89	2,562	Gas	EE	N/A								
						CH_4	1.1E-02	4.8E-02	Gas	EE	N/A								
						N_2O	1.1E-03	4.8E-03	Gas	EE	N/A								
						CO_2e	585.49	2,564	Gas	EE	N/A								
GALVFUG	Volume	BOXANN19	Box Annealing Furnace #19	N/A	N/A	NO_X	0.25	1.10	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	See Air Dispersion Modeling Report in Appendix D of Permit Application
						CO	0.41	1.80	Gas	EE	N/A								
						SO_2	2.9E-03	1.3E-02	Gas	EE	N/A								
						VOC	2.7E-02	0.12	Gas	EE	N/A								
						PM	9.3E-03	4.1E-02	Solid	O (BACT)	N/A								
						PM_{10}	3.7E-02	0.16	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	3.7E-02	0.16	Solid/Gas	O (BACT)	N/A								
						Lead	2.5E-06	1.1E-05	Solid	EE	N/A								
						Total HAPs	9.2E-03	4.0E-02	Solid/Gas	EE	N/A								
						CO_2	584.89	2,562	Gas	EE	N/A								
						CH_4	1.1E-02	4.8E-02	Gas	EE	N/A								
						N_2O	1.1E-03	4.8E-03	Gas	EE	N/A								
						CO_2e	585.49	2,564	Gas	EE	N/A								
GALVFUG	Volume	BOXANN20	Box Annealing Furnace #20	N/A	N/A	NO_X	0.25	1.10	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	See Air Dispersion Modeling Report in Appendix D of Permit Application
						CO	0.41	1.80	Gas	EE	N/A								
						SO_2	2.9E-03	1.3E-02	Gas	EE	N/A								
						VOC	2.7E-02	0.12	Gas	EE	N/A								
						PM	9.3E-03	4.1E-02	Solid	O (BACT)	N/A								
						PM_{10}	3.7E-02	0.16	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	3.7E-02	0.16	Solid/Gas	O (BACT)	N/A								
						Lead	2.5E-06	1.1E-05	Solid	EE	N/A								
						Total HAPs	9.2E-03	4.0E-02	Solid/Gas	EE	N/A								
						CO_2	584.89	2,562	Gas	EE	N/A								
						CH_4	1.1E-02	4.8E-02	Gas	EE	N/A								
						N_2O	1.1E-03	4.8E-03	Gas	EE	N/A								
						CO_2e	585.49	2,564	Gas	EE	N/A								
GALVFUG	Volume	BOXANN21	Box Annealing Furnace #21	N/A	N/A	NO_X	0.25	1.10	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	See Air Dispersion Modeling Report in Appendix D of Permit Application
						CO	0.41	1.80	Gas	EE	N/A								
						SO_2	2.9E-03	1.3E-02	Gas	EE	N/A								
						VOC	2.7E-02	0.12	Gas	EE	N/A								
						PM	9.3E-03	4.1E-02	Solid	O (BACT)	N/A								
						PM_{10}	3.7E-02	0.16	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	3.7E-02	0.16	Solid/Gas	O (BACT)	N/A								
						Lead	2.5E-06	1.1E-05	Solid	EE	N/A								
						Total HAPs	9.2E-03	4.0E-02	Solid/Gas	EE	N/A								
						CO_2	584.89	2,562	Gas	EE	N/A								
						CH_4	1.1E-02	4.8E-02	Gas	EE	N/A								
						N_2O	1.1E-03	4.8E-03	Gas	EE	N/A								
						CO_2e	585.49	2,564	Gas	EE	N/A								

Emission Point ID	Emission Point Type[1]	Emission Units Vented Through this Point: Emission Unit ID	Emission Units Vented Through this Point: Emission Unit Description	Air Pollution Control Device: Control Device ID	Air Pollution Control Device: Control Device Type	Pollutant Chemical Name/CAS[3] (See Emission Calculations for	Maximum Controlled Emissions[5]: lb/hr	Maximum Controlled Emissions[5]: tpy	Emission Form or Phase (At Exit Conditions)	Est. Method Used[6]	Emission Concentration[7] (ppmv or mg/m^3)	Inner Diameter (ft)	Exit Gas Temp (°F)	Exit Gas Volumetric Flow[8] (ACFM)	Exit Gas Velocity (fps)	Elevation: Ground Level (ft)	Stack Height above Ground Level[9] (ft)	UTM Northing (km)	UTM Easting (km)
GALVFUG	Volume	BOXANN22	Box Annealing Furnace #22	N/A	N/A	NO_X	0.25	1.10	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	N/A	See Air Dispersion Modeling Report in Appendix D of Permit Application	See Air Dispersion Modeling Report in Appendix D of Permit Application
						CO	0.41	1.80	Gas	EE	N/A								
						SO_2	2.9E-03	1.3E-02	Gas	EE	N/A								
						VOC	2.7E-02	0.12	Gas	EE	N/A								
						PM	9.3E-03	4.1E-02	Solid	O (BACT)	N/A								
						PM_{10}	3.7E-02	0.16	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	3.7E-02	0.16	Solid/Gas	O (BACT)	N/A								
						Lead	2.5E-06	1.1E-05	Solid	EE	N/A								
						Total HAPs	9.2E-03	4.0E-02	Solid/Gas	EE	N/A								
						CO_2	584.89	2,562	Gas	EE	N/A								
						CH_4	1.1E-02	4.8E-02	Gas	EE	N/A								
						N_2O	1.1E-03	4.8E-03	Gas	EE	N/A								
						CO_2e	585.49	2,564	Gas	EE	N/A								
SLAG-CUT-NG	Upward Verical Stack	SLAG-CUT	Slag Cutting in Slag Processing Area	N/A	N/A	NO_X	0.24	1.03	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	--	N/A	4278031.0	398492.2
						CO	0.20	0.87	Gas	EE	N/A								
						SO_2	1.4E-03	6.2E-03	Gas	EE	N/A								
						VOC	1.3E-02	5.7E-02	Gas	EE	N/A								
						PM	4.5E-03	2.0E-02	Solid	O (BACT)	N/A								
						PM_{10}	1.8E-02	7.8E-02	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	1.8E-02	7.8E-02	Solid/Gas	O (BACT)	N/A								
						Lead	1.2E-06	5.2E-06	Solid	EE	N/A								
						Total HAPs	4.4E-03	1.9E-02	Solid/Gas	EE	N/A								
						CO_2	280.75	1,230	Gas	EE	N/A								
						CH_4	5.3E-03	2.3E-02	Gas	EE	N/A								
						N_2O	5.3E-04	2.3E-03	Gas	EE	N/A								
						CO_2e	281.04	1,231	Gas	EE	N/A								
ASP-1	Upward Verical Stack	ASP	Water Bath Vaporizer	N/A	N/A	NO_X	1.08	4.72	Gas	O (BACT)	105.62	1.00	400	2,726	58	--	20	4278688.5	399049.4
						CO	0.91	3.97	Gas	EE	88.72								
						SO_2	6.5E-03	2.8E-02	Gas	EE	0.63								
						VOC	5.9E-02	0.26	Gas	EE	5.81								
						PM	2.0E-02	9.0E-02	Solid	O (BACT)	2.01								
						PM_{10}	8.2E-02	0.36	Solid/Gas	O (BACT)	8.03								
						$PM_{2.5}$	8.2E-02	0.36	Solid/Gas	O (BACT)	8.03								
						Lead	5.4E-06	2.4E-05	Solid	EE	5.3E-04								
						Total HAPs	2.0E-02	8.9E-02	Solid/Gas	EE	1.99								
						CO_2	1,287	5,636	Gas	EE	126,020								
						CH_4	2.4E-02	0.11	Gas	EE	2.38								
						N_2O	2.4E-03	1.1E-02	Gas	EE	0.24								
						CO_2e	1,288	5,642	Gas	EE	126,150								
CT1	Upward Verical Stack	CT1	Melt Shop ICW Cooling Tower	N/A	N/A	NO_X	--	--	--	--	--	34.00	120	1,157,894	21	--	41	4278390.7	398528.9
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	0.20	0.86	Solid	EE	4.5E-02								
						PM_{10}	0.20	0.86	Solid	EE	4.5E-02								
						$PM_{2.5}$	0.20	0.86	Solid	EE	4.5E-02								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
CT2	Upward Verical Stack	CT2	Melt Shop DCW Cooling Tower	N/A	N/A	NO_X	--	--	--	--	--	16.00	120	252,156	21	--	32	4278421.9	398517.3
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	2.2E-02	0.10	Solid	EE	2.3E-02								
						PM_{10}	2.2E-02	0.10	Solid	EE	2.3E-02								
						$PM_{2.5}$	2.2E-02	0.10	Solid	EE	2.3E-02								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								

NUCOR - Project Honey Badger
Attachment J - Emission Points Data Summary Sheet

Emission Point ID	Emission Point Type[1]	Emission Units Vented Through this Point		Air Pollution Control Device		Pollutant Chemical Name/CAS[3] (See Emission Calculations for	Maximum Controlled Emissions[5]		Emission Form or Phase (At Exit Conditions)	Est. Method Used[6]	Emission Concentration[7] (ppmv or mg/m³)	Inner Diameter (ft)	Exit Gas Temp (°F)	Exit Gas Volumetric Flow[8] (ACFM)	Exit Gas Velocity (fps)	Elevation: Ground Level (ft)	Stack Height above Ground Level[9] (ft)	UTM Northing (km)	UTM Easting (km)
		Emission Unit ID	Emission Unit Description	Control Device ID	Control Device Type		lb/hr	tpy											
CT3	Upward Verical Stack	CT3	Rolling Mill ICW Cooling Tower	N/A	N/A	NO_X	--	--	--	--	--	16.00	120	318,139	26	--	28	4278672.0	398397.4
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	3.2E-02	0.14	Solid	EE	2.7E-02								
						PM_{10}	3.2E-02	0.14	Solid	EE	2.7E-02								
						$PM_{2.5}$	3.2E-02	0.14	Solid	EE	2.7E-02								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
CT4	Upward Verical Stack	CT4	Rolling Mill DCW Cooling Tower	N/A	N/A	NO_X	--	--	--	--	--	24.00	120	561,317	21	--	40	4278660.9	398341.2
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	8.5E-02	0.37	Solid	EE	4.1E-02								
						PM_{10}	8.5E-02	0.37	Solid	EE	4.1E-02								
						$PM_{2.5}$	8.5E-02	0.37	Solid	EE	4.1E-02								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
CT5	Upward Verical Stack	CT5	Rolling Mill/Quench/ACC Cooling Tower	N/A	N/A	NO_X	--	--	--	--	--	34.00	120	1,237,843	23	--	40	4278673.4	398363.9
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	0.34	1.48	Solid	EE	7.3E-02								
						PM_{10}	0.34	1.48	Solid	EE	7.3E-02								
						$PM_{2.5}$	0.34	1.48	Solid	EE	7.3E-02								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
CT6	Upward Verical Stack	CT6	Light Plate DCW System	N/A	N/A	NO_X	--	--	--	--	--	18.00	120	310,000	20	--	40	4278786.6	398445.1
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	3.0E-02	0.13	Solid	EE	2.6E-02								
						PM_{10}	3.0E-02	0.13	Solid	EE	2.6E-02								
						$PM_{2.5}$	3.0E-02	0.13	Solid	EE	2.6E-02								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
CT7	Upward Verical Stack	CT7	Heavy Plate DCW System	N/A	N/A	NO_X	--	--	--	--	--	14.00	120	200,000	22	--	11	4278793.7	398460.2
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	1.1E-02	4.9E-02	Solid	EE	1.5E-02								
						PM_{10}	1.1E-02	4.9E-02	Solid	EE	1.5E-02								
						$PM_{2.5}$	1.1E-02	4.9E-02	Solid	EE	1.5E-02								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								

Emission Point ID	Emission Point Type[1]	Emission Units Vented Through this Point: Emission Unit ID	Emission Unit Description	Air Pollution Control Device: Control Device ID	Control Device Type	Pollutant Chemical Name/CAS[3] (See Emission Calculations for	Maximum Controlled Emissions[5]: lb/hr	tpy	Emission Form or Phase (At Exit Conditions)	Est. Method Used[6]	Emission Concentration[7] (ppmv or mg/m^3)	Inner Diameter (ft)	Exit Gas Temp (°F)	Exit Gas Volumetric Flow[8] (ACFM)	Exit Gas Velocity (fps)	Elevation: Ground Level (ft)	Stack Height above Ground Level[9] (ft)	UTM Northing (km)	UTM Easting (km)
CT8	Upward Verical Stack	CT8	Air Separation Plant Cooling Tower	N/A	N/A	NO_X	--	--	--	--	--	20.00	120	400,000	21	--	29	4278662.7	399048.1
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	5.3E-02	0.23	Solid	EE	3.5E-02								
						PM_{10}	5.3E-02	0.23	Solid	EE	3.5E-02								
						$PM_{2.5}$	5.3E-02	0.23	Solid	EE	3.5E-02								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
EMGEN1	Upward Verical Stack	EMGEN1	Emergency Generator 1	N/A	N/A	NO_X	8.82	0.44	Gas	EE	2,000	0.49	997	1,177	104.04	--	10	4278066.5	398272.1
						CO	17.64	0.88	Gas	EE	4,000								
						SO_2	8.2E-03	4.1E-04	Gas	EE	1.87								
						VOC	4.41	0.22	Gas	EE	1,000.00								
						PM	0.68	3.4E-02	Solid	EE	153.39								
						PM_{10}	0.68	3.4E-02	Solid/Gas	EE	153.39								
						$PM_{2.5}$	0.68	3.4E-02	Solid/Gas	EE	153.39								
						Lead	--	--	--	--	--								
						Total HAPs	1.14	5.7E-02	Solid/Gas	EE	259.17								
						CO_2	1,638	81.88	Gas	EE	371,420								
						CH_4	3.1E-02	1.5E-03	Gas	EE	7.00								
						N_2O	3.1E-03	1.5E-04	Gas	EE	0.70								
						CO_2e	1,639	81.97	Gas	EE	371,804								
EMGEN2	Upward Verical Stack	EMGEN2	Emergency Generator 2	N/A	N/A	NO_X	8.82	0.44	Gas	EE	2,000	0.49	997	1,177	104	--	10	4278485.8	398352.8
						CO	17.64	0.88	Gas	EE	4,000								
						SO_2	8.2E-03	4.1E-04	Gas	EE	1.87								
						VOC	4.41	0.22	Gas	EE	1,000.00								
						PM	0.68	3.4E-02	Solid	EE	153.39								
						PM_{10}	0.68	3.4E-02	Solid/Gas	EE	153.39								
						$PM_{2.5}$	0.68	3.4E-02	Solid/Gas	EE	153.39								
						Lead	--	--	--	--	--								
						Total HAPs	1.14	5.7E-02	Solid/Gas	EE	259.17								
						CO_2	1,638	81.88	Gas	EE	371,420								
						CH_4	3.1E-02	1.5E-03	Gas	EE	7.00								
						N_2O	3.1E-03	1.5E-04	Gas	EE	0.70								
						CO_2e	1,639	81.97	Gas	EE	371,804								
EMGEN3	Upward Verical Stack	EMGEN3	Emergency Generator 3	N/A	N/A	NO_X	8.82	0.44	Gas	EE	2,000	0.49	997	1,177	104	--	10	4278499.3	398348.3
						CO	17.64	0.88	Gas	EE	4,000								
						SO_2	8.2E-03	4.1E-04	Gas	EE	1.87								
						VOC	4.41	0.22	Gas	EE	1,000.00								
						PM	0.68	3.4E-02	Solid	EE	153.39								
						PM_{10}	0.68	3.4E-02	Solid/Gas	EE	153.39								
						$PM_{2.5}$	0.68	3.4E-02	Solid/Gas	EE	153.39								
						Lead	--	--	--	--	--								
						Total HAPs	1.14	5.7E-02	Solid/Gas	EE	259.17								
						CO_2	1,638	81.88	Gas	EE	371,420								
						CH_4	3.1E-02	1.5E-03	Gas	EE	7.00								
						N_2O	3.1E-03	1.5E-04	Gas	EE	0.70								
						CO_2e	1,639	81.97	Gas	EE	371,804								
EMGEN4	Upward Verical Stack	EMGEN4	Emergency Generator 4	N/A	N/A	NO_X	8.82	0.44	Gas	EE	2,000	0.49	997	1,177	104	--	10	4278844.8	398231.2
						CO	17.64	0.88	Gas	EE	4,000								
						SO_2	8.2E-03	4.1E-04	Gas	EE	1.87								
						VOC	4.41	0.22	Gas	EE	1,000.00								
						PM	0.68	3.4E-02	Solid	EE	153.39								
						PM_{10}	0.68	3.4E-02	Solid/Gas	EE	153.39								
						$PM_{2.5}$	0.68	3.4E-02	Solid/Gas	EE	153.39								
						Lead	--	--	--	--	--								
						Total HAPs	1.14	5.7E-02	Solid/Gas	EE	259.17								
						CO_2	1,638	81.88	Gas	EE	371,420								
						CH_4	3.1E-02	1.5E-03	Gas	EE	7.00								
						N_2O	3.1E-03	1.5E-04	Gas	EE	0.70								
						CO_2e	1,639	81.97	Gas	EE	371,804								

Emission Point ID	Emission Point Type[1]	Emission Units Vented Through this Point: Emission Unit ID	Emission Units Vented Through this Point: Emission Unit Description	Air Pollution Control Device: Control Device ID	Air Pollution Control Device: Control Device Type	Pollutant Chemical Name/CAS[3] (See Emission Calculations for	Maximum Controlled Emissions[5]: lb/hr	Maximum Controlled Emissions[5]: tpy	Emission Form or Phase (At Exit Conditions)	Est. Method Used[6]	Emission Concentration[7] (ppmv or mg/m[3])	Inner Diameter (ft)	Exit Gas Temp (°F)	Exit Gas Volumetric Flow[8] (ACFM)	Exit Gas Velocity (fps)	Elevation: Ground Level (ft)	Stack Height above Ground Level[9] (ft)	UTM Northing (km)	UTM Easting (km)
EMGEN5	Upward Verical Stack	EMGEN5	Emergency Generator 5	N/A	N/A	NO_X	8.82	0.44	Gas	EE	2,000	0.49	997	1,177	104	--	10	4278820.7	398235.7
						CO	17.64	0.88	Gas	EE	4,000								
						SO_2	8.2E-03	4.1E-04	Gas	EE	1.87								
						VOC	4.41	0.22	Gas	EE	1,000.00								
						PM	0.68	3.4E-02	Solid	EE	153.39								
						PM_{10}	0.68	3.4E-02	Solid/Gas	EE	153.39								
						$PM_{2.5}$	0.68	3.4E-02	Solid/Gas	EE	153.39								
						Lead	--	--	--	--	--								
						Total HAPs	1.14	5.7E-02	Solid/Gas	EE	259.17								
						CO_2	1,638	81.88	Gas	EE	371,420								
						CH_4	3.1E-02	1.5E-03	Gas	EE	7.00								
						N_2O	3.1E-03	1.5E-04	Gas	EE	0.70								
						CO_2e	1,639	81.97	Gas	EE	371,804								
EMGEN6	Upward Verical Stack	EMGEN6	Emergency Generator 6	N/A	N/A	NO_X	8.82	0.44	Gas	EE	2,000	1.30	965	1,177	15	--	8	4278800.9	398243.1
						CO	17.64	0.88	Gas	EE	4,000								
						SO_2	8.2E-03	4.1E-04	Gas	EE	1.87								
						VOC	4.41	0.22	Gas	EE	1,000.00								
						PM	0.68	3.4E-02	Solid	EE	153.39								
						PM_{10}	0.68	3.4E-02	Solid/Gas	EE	153.39								
						$PM_{2.5}$	0.68	3.4E-02	Solid/Gas	EE	153.39								
						Lead	--	--	--	--	--								
						Total HAPs	1.14	5.7E-02	Solid/Gas	EE	259.17								
						CO_2	1,638	81.88	Gas	EE	371,420								
						CH_4	3.1E-02	1.5E-03	Gas	EE	7.00								
						N_2O	3.1E-03	1.5E-04	Gas	EE	0.70								
						CO_2e	1,639	81.97	Gas	EE	371,804								
DRI-DOCK-FUG	Volume	DRI-DOCK	DRI Unloading Dock - Fugitives	N/A	N/A	NO_X	--	--	--	--	--	N/A	N/A	N/A	N/A	528	N/A	4277668.9	397863.9
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	0.20	0.11	Solid	EE	N/A								
						PM_{10}	9.3E-02	5.2E-02	Solid	EE	N/A								
						$PM_{2.5}$	1.4E-02	7.8E-03	Solid	EE	N/A								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
LIME-DUMP-FUG	Volume	LIME-DUMP	Lime Dump Station Fugitives	N/A	N/A	NO_X	--	--	--	--	--	N/A	N/A	N/A	N/A	567	N/A	4278081.6	398224.3
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	5.0E-02	0.22	Solid	EE	N/A								
						PM_{10}	1.7E-02	7.6E-02	Solid	EE	N/A								
						$PM_{2.5}$	2.6E-03	1.2E-02	Solid	EE	N/A								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
CARBON-DUMP-FUG	Volume	CARBON-DUMP	Carbon Dump Station Fugitives	N/A	N/A	NO_X	--	--	--	--	--	N/A	N/A	N/A	N/A	567	N/A	4278077.8	398218.2
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	2.5E-02	0.11	Solid	EE	N/A								
						PM_{10}	8.7E-03	3.8E-02	Solid	EE	N/A								
						$PM_{2.5}$	1.3E-03	5.8E-03	Solid	EE	N/A								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								

Emission Point ID	Emission Point Type[1]	Emission Units Vented Through this Point		Air Pollution Control Device		Pollutant Chemical Name/CAS[3] (See Emission Calculations for	Maximum Controlled Emissions[5]		Emission Form or Phase (At Exit Conditions)	Est. Method Used[6]	Emission Concentration[7] (ppmv or mg/m[3])	Inner Diameter (ft)	Exit Gas Temp (°F)	Exit Gas Volumetric Flow[8] (ACFM)	Exit Gas Velocity (fps)	Elevation: Ground Level (ft)	Stack Height above Ground Level[9] (ft)	UTM Northing (km)	UTM Easting (km)
		Emission Unit ID	Emission Unit Description	Control Device ID	Control Device Type		lb/hr	tpy											
ALLOY-HANDLE-FUG	Volume	ALLOY-HANDLE	Alloy Handling System Fugitives	N/A	N/A	NO_X	--	--	--	--	--	N/A	N/A	N/A	N/A	568	N/A	4278086.0	398233.2
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	0.13	0.19	Solid	EE	N/A								
						PM_{10}	4.4E-02	6.7E-02	Solid	EE	N/A								
						$PM_{2.5}$	6.6E-03	1.0E-02	Solid	EE	N/A								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
T1	Upward Verical Stack	T1	Diesel Tank	N/A	N/A	NO_X	--	--	--	--	--	TBD	Ambient	TBD	Negligible	TBD	N/A	TBD	TBD
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	6.8E-02	1.0E-03	Gas	EE	TBD								
						PM	--	--	--	--	--								
						PM_{10}	--	--	--	--	--								
						$PM_{2.5}$	--	--	--	--	--								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
T2	Upward Verical Stack	T2	Diesel Tank	N/A	N/A	NO_X	--	--	--	--	--	TBD	Ambient	TBD	Negligible	TBD	N/A	TBD	TBD
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	6.8E-02	1.0E-03	Gas	EE	TBD								
						PM	--	--	--	--	--								
						PM_{10}	--	--	--	--	--								
						$PM_{2.5}$	--	--	--	--	--								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
T3	Upward Verical Stack	T3	Diesel Tank	N/A	N/A	NO_X	--	--	--	--	--	TBD	Ambient	TBD	Negligible	TBD	N/A	TBD	TBD
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	6.8E-02	1.0E-03	Gas	EE	TBD								
						PM	--	--	--	--	--								
						PM_{10}	--	--	--	--	--								
						$PM_{2.5}$	--	--	--	--	--								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
T4	Upward Verical Stack	T4	Diesel Tank	N/A	N/A	NO_X	--	--	--	--	--	TBD	Ambient	TBD	Negligible	TBD	N/A	TBD	TBD
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	6.8E-02	1.0E-03	Gas	EE	TBD								
						PM	--	--	--	--	--								
						PM_{10}	--	--	--	--	--								
						$PM_{2.5}$	--	--	--	--	--								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								

Emission Point ID	Emission Point Type[1]	Emission Units Vented Through this Point		Air Pollution Control Device		Pollutant Chemical Name/CAS[3] (See Emission Calculations for	Maximum Controlled Emissions[5]		Emission Form or Phase (At Exit Conditions)	Est. Method Used[6]	Emission Concentration[7] (ppmv or mg/m^3)	Inner Diameter (ft)	Exit Gas Temp (°F)	Exit Gas Volumetric Flow[8] (ACFM)	Exit Gas Velocity (fps)	Elevation: Ground Level (ft)	Stack Height above Ground Level[9] (ft)	UTM Northing (km)	UTM Easting (km)
		Emission Unit ID	Emission Unit Description	Control Device ID	Control Device Type		lb/hr	tpy											
T5	Upward Verical Stack	T5	Diesel Tank	N/A	N/A	NO_X	--	--	--	--	--	TBD	Ambient	TBD	Negligible	TBD	N/A	TBD	TBD
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	6.8E-02	1.0E-03	Gas	EE	TBD								
						PM	--	--	--	--	--								
						PM_{10}	--	--	--	--	--								
						$PM_{2.5}$	--	--	--	--	--								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
T6	Upward Verical Stack	T6	Diesel Tank	N/A	N/A	NO_X	--	--	--	--	--	TBD	Ambient	TBD	Negligible	TBD	N/A	TBD	TBD
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	6.8E-02	1.0E-03	Gas	EE	TBD								
						PM	--	--	--	--	--								
						PM_{10}	--	--	--	--	--								
						$PM_{2.5}$	--	--	--	--	--								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
T7	Upward Verical Stack	T7	Gasoline Tank	N/A	N/A	NO_X	--	--	--	--	--	TBD	Ambient	TBD	Negligible	TBD	N/A	TBD	TBD
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	21.09	0.46	Gas	EE	TBD								
						PM	--	--	--	--	--								
						PM_{10}	--	--	--	--	--								
						$PM_{2.5}$	--	--	--	--	--								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
T8	Upward Verical Stack	T8	Caster Hydraulic Oil	N/A	N/A	NO_X	--	--	--	--	--	TBD	Ambient	TBD	Negligible	TBD	N/A	TBD	TBD
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	1.2E-02	1.2E-05	Gas	EE	TBD								
						PM	--	--	--	--	--								
						PM_{10}	--	--	--	--	--								
						$PM_{2.5}$	--	--	--	--	--								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
T9	Upward Verical Stack	T9	Hot Mill Hydraulic Oil	N/A	N/A	NO_X	--	--	--	--	--	TBD	Ambient	TBD	Negligible	TBD	N/A	TBD	TBD
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	1.2E-02	1.2E-05	Gas	EE	TBD								
						PM	--	--	--	--	--								
						PM_{10}	--	--	--	--	--								
						$PM_{2.5}$	--	--	--	--	--								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								

Emission Point ID	Emission Point Type[1]	Emission Units Vented Through this Point: Emission Unit ID	Emission Units Vented Through this Point: Emission Unit Description	Air Pollution Control Device: Control Device ID	Air Pollution Control Device: Control Device Type	Pollutant Chemical Name/CAS[3] (See Emission Calculations for	Maximum Controlled Emissions[5]: lb/hr	Maximum Controlled Emissions[5]: tpy	Emission Form or Phase (At Exit Conditions)	Est. Method Used[6]	Emission Concentration[7] (ppmv or mg/m^3)	Inner Diameter (ft)	Exit Gas Temp (°F)	Exit Gas Volumetric Flow[8] (ACFM)	Exit Gas Velocity (fps)	Elevation: Ground Level (ft)	Stack Height above Ground Level[9] (ft)	UTM Northing (km)	UTM Easting (km)
T10	Upward Verical Stack	T10	HCL Tank #1	N/A	N/A	NO_X	--	--	--	--	--	TBD	Ambient	TBD	Negligible	TBD	N/A	TBD	TBD
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	--	--	--	--	--								
						PM_{10}	--	--	--	--	--								
						$PM_{2.5}$	--	--	--	--	--								
						Lead	--	--	--	--	--								
						Total HAPs	4.0E-02	5.4E-03	Gas	EE	TBD								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
T11	Upward Verical Stack	T11	HCL Tank #2	N/A	N/A	NO_X	--	--	--	--	--	TBD	Ambient	TBD	Negligible	TBD	N/A	TBD	TBD
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	--	--	--	--	--								
						PM_{10}	--	--	--	--	--								
						$PM_{2.5}$	--	--	--	--	--								
						Lead	--	--	--	--	--								
						Total HAPs	4.0E-02	5.4E-03	Gas	EE	TBD								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
T12	Upward Verical Stack	T12	HCL Tank #3	N/A	N/A	NO_X	--	--	--	--	--	TBD	Ambient	TBD	Negligible	TBD	N/A	TBD	TBD
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	--	--	--	--	--								
						PM_{10}	--	--	--	--	--								
						$PM_{2.5}$	--	--	--	--	--								
						Lead	--	--	--	--	--								
						Total HAPs	4.0E-02	5.4E-03	Gas	EE	TBD								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
T13	Upward Verical Stack	T13	HCL Tank #4	N/A	N/A	NO_X	--	--	--	--	--	TBD	Ambient	TBD	Negligible	TBD	N/A	TBD	TBD
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	--	--	--	--	--								
						PM_{10}	--	--	--	--	--								
						$PM_{2.5}$	--	--	--	--	--								
						Lead	--	--	--	--	--								
						Total HAPs	4.0E-02	5.4E-03	Gas	EE	TBD								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
T14	Upward Verical Stack	T14	HCL Tank #5	N/A	N/A	NO_X	--	--	--	--	--	TBD	Ambient	TBD	Negligible	TBD	N/A	TBD	TBD
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	--	--	--	--	--								
						PM_{10}	--	--	--	--	--								
						$PM_{2.5}$	--	--	--	--	--								
						Lead	--	--	--	--	--								
						Total HAPs	4.0E-02	5.4E-03	Gas	EE	TBD								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								

Emission Point ID	Emission Point Type[1]	Emission Units Vented Through this Point: Emission Unit ID	Emission Units Vented Through this Point: Emission Unit Description	Air Pollution Control Device: Control Device ID	Air Pollution Control Device: Control Device Type	Pollutant Chemical Name/CAS[3] (See Emission Calculations for	Maximum Controlled Emissions[5]: lb/hr	Maximum Controlled Emissions[5]: tpy	Emission Form or Phase (At Exit Conditions)	Est. Method Used[6]	Emission Concentration[7] (ppmv or mg/m^3)	Inner Diameter (ft)	Exit Gas Temp (°F)	Exit Gas Volumetric Flow[8] (ACFM)	Exit Gas Velocity (fps)	Elevation: Ground Level (ft)	Stack Height above Ground Level[9] (ft)	UTM Northing (km)	UTM Easting (km)
T15	Upward Verical Stack	T15	HCL Tank #6	N/A	N/A	NO_X	--	--	--	--	--	TBD	Ambient	TBD	Negligible	TBD	N/A	TBD	TBD
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	--	--	--	--	--								
						PM_{10}	--	--	--	--	--								
						$PM_{2.5}$	--	--	--	--	--								
						Lead	--	--	--	--	--								
						Total HAPs	4.0E-02	5.4E-03	Gas	EE	TBD								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
T16	Upward Verical Stack	T16	SPL Tank #1	N/A	N/A	NO_X	--	--	--	--	--	TBD	Ambient	TBD	Negligible	TBD	N/A	TBD	TBD
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	--	--	--	--	--								
						PM_{10}	--	--	--	--	--								
						$PM_{2.5}$	--	--	--	--	--								
						Lead	--	--	--	--	--								
						Total HAPs	4.0E-02	4.7E-03	Gas	EE	TBD								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
T17	Upward Verical Stack	T17	SPL Tank #2	N/A	N/A	NO_X	--	--	--	--	--	TBD	Ambient	TBD	Negligible	TBD	N/A	TBD	TBD
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	--	--	--	--	--								
						PM_{10}	--	--	--	--	--								
						$PM_{2.5}$	--	--	--	--	--								
						Lead	--	--	--	--	--								
						Total HAPs	4.0E-02	4.7E-03	Gas	EE	TBD								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
T18	Upward Verical Stack	T18	SPL Tank #3	N/A	N/A	NO_X	--	--	--	--	--	TBD	Ambient	TBD	Negligible	TBD	N/A	TBD	TBD
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	--	--	--	--	--								
						PM_{10}	--	--	--	--	--								
						$PM_{2.5}$	--	--	--	--	--								
						Lead	--	--	--	--	--								
						Total HAPs	4.0E-02	4.7E-03	Gas	EE	TBD								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
T19	Upward Verical Stack	T19	SPL Tank #4	N/A	N/A	NO_X	--	--	--	--	--	TBD	Ambient	TBD	Negligible	TBD	N/A	TBD	TBD
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	--	--	--	--	--								
						PM_{10}	--	--	--	--	--								
						$PM_{2.5}$	--	--	--	--	--								
						Lead	--	--	--	--	--								
						Total HAPs	4.0E-02	4.7E-03	Gas	EE	TBD								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								

Emission Point ID	Emission Point Type[1]	Emission Units Vented Through this Point: Emission Unit ID	Emission Units Vented Through this Point: Emission Unit Description	Air Pollution Control Device: Control Device ID	Air Pollution Control Device: Control Device Type	Pollutant Chemical Name/CAS[3] (See Emission Calculations for	Maximum Controlled Emissions[5]: lb/hr	Maximum Controlled Emissions[5]: tpy	Emission Form or Phase (At Exit Conditions)	Est. Method Used[6]	Emission Concentration[7] (ppmv or mg/m[3])	Inner Diameter (ft)	Exit Gas Temp (°F)	Exit Gas Volumetric Flow[8] (ACFM)	Exit Gas Velocity (fps)	Elevation: Ground Level (ft)	Stack Height above Ground Level[9] (ft)	UTM Northing (km)	UTM Easting (km)
T20	Upward Verical Stack	T20	SPL Tank #5	N/A	N/A	NO_X	--	--	--	--	--	TBD	Ambient	TBD	Negligible	TBD	N/A	TBD	TBD
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	--	--	--	--	--								
						PM_{10}	--	--	--	--	--								
						$PM_{2.5}$	--	--	--	--	--								
						Lead	--	--	--	--	--								
						Total HAPs	4.0E-02	4.7E-03	Gas	EE	TBD								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
T21	Upward Verical Stack	T21	SPL Tank #6	N/A	N/A	NO_X	--	--	--	--	--	TBD	Ambient	TBD	Negligible	TBD	N/A	TBD	TBD
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	--	--	--	--	--								
						PM_{10}	--	--	--	--	--								
						$PM_{2.5}$	--	--	--	--	--								
						Lead	--	--	--	--	--								
						Total HAPs	4.0E-02	4.7E-03	Gas	EE	TBD								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
T22	Upward Verical Stack	T22	SPL Tank #7	N/A	N/A	NO_X	--	--	--	--	--	TBD	Ambient	TBD	Negligible	TBD	N/A	TBD	TBD
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	--	--	--	--	--								
						PM_{10}	--	--	--	--	--								
						$PM_{2.5}$	--	--	--	--	--								
						Lead	--	--	--	--	--								
						Total HAPs	4.0E-02	4.7E-03	Gas	EE	TBD								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
T23	Upward Verical Stack	T23	SPL Tank #8	N/A	N/A	NO_X	--	--	--	--	--	TBD	Ambient	TBD	Negligible	TBD	N/A	TBD	TBD
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	--	--	--	--	--								
						PM_{10}	--	--	--	--	--								
						$PM_{2.5}$	--	--	--	--	--								
						Lead	--	--	--	--	--								
						Total HAPs	4.0E-02	4.7E-03	Gas	EE	TBD								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
T24	Upward Verical Stack	T24	Used Oil Tank	N/A	N/A	NO_X	--	--	--	--	--	TBD	Ambient	TBD	Negligible	TBD	N/A	TBD	TBD
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	1.2E-02	1.2E-05	Gas	EE	TBD								
						PM	--	--	--	--	--								
						PM_{10}	--	--	--	--	--								
						$PM_{2.5}$	--	--	--	--	--								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								

Emission Point ID	Emission Point Type[1]	Emission Units Vented Through this Point		Air Pollution Control Device		Pollutant Chemical Name/CAS[3] (See Emission Calculations for	Maximum Controlled Emissions[5]		Emission Form or Phase (At Exit Conditions)	Est. Method Used[6]	Emission Concentration[7] (ppmv or mg/m³)	Inner Diameter (ft)	Exit Gas Temp (°F)	Exit Gas Volumetric Flow[8] (ACFM)	Exit Gas Velocity (fps)	Elevation: Ground Level (ft)	Stack Height above Ground Level[9] (ft)	UTM Northing (km)	UTM Easting (km)
		Emission Unit ID	Emission Unit Description	Control Device ID	Control Device Type		lb/hr	tpy											

The EMISSION POINTS DATA SUMMARY SHEET provides a summation of emissions by emission unit. Note that uncaptured process emission unit emissions are not typically considered to be fugitive and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET. Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions). Please complete the FUGITIVE EMISSIONS DATA SUMMARY SHEET for fugitive emission activities.

[1] Please add descriptors such as upward vertical stack, downward vertical stack, horizontal stack, relief vent, rain cap, etc.
[2] Indicate by "C" if venting is continuous. Otherwise, specify the average short-term venting rate with units, for intermittent venting (ie., 15 min/hr). Indicate as many rates as needed to clarify frequency of venting (e.g., 5 min/day, 2 days/wk).
[3] List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. LIST Acids, CO, CS_2, VOCs, H_2S, Inorganics, Lead, Organics, O_3, NO, NO_2, SO_2, SO_3, all applicable Greenhouse Gases (including CO_2 and methane), etc. DO NOT LIST H_2, H_2O, N_2, O_2, and Noble Gases.
[4] Give maximum potential emission rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).
[5] Give maximum potential emission rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).
[6] Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).
[7] Provide for all pollutant emissions. Typically, the units of parts per million by volume (ppmv) are used. If the emission is a mineral acid (sulfuric, nitric, hydrochloric or phosphoric) use units of milligram per dry cubic meter (mg/m^3) at standard conditions (68 °F and 29.92 inches Hg) (see 45CSR7). If the pollutant is SO_2, use units of ppmv (See 45CSR10).
[8] Give at operating conditions. Include inerts.
[9] Release height of emissions above ground level.

Note: Extraneous information unrelated to regulatory requirements and air emissions has been excluded from the application form. Information labeled as "to be determined" (TBD) will be provided once specific equipment vendors have been selected.

Attachment K: Fugitive Emissions Data Summary Sheet

NUCOR - Project Honey Badger
Attachment K - Fugitive Emissions Data Summary Sheet

The FUGITIVE EMISSIONS SUMMARY SHEET provides a summation of fugitive emissions. Fugitive emissions are those emissions which could not reasonably pass through a stack, chimney, vent or other functionally equivalent opening. Note that uncaptured process emissions are not typically considered to be fugitive, and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET.

Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions).

APPLICATION FORMS CHECKLIST - FUGITIVE EMISSIONS

1.) Will there be haul road activities?

Yes — If YES, then complete the HAUL ROAD EMISSIONS UNIT DATA SHEET.

2.) Will there be Storage Piles?

No* — If YES, complete Table 1 of the NONMETALLIC MINERALS PROCESSING EMISSIONS UNIT DATA SHEET.

** The storage piles for the NUCOR Plant will all be metalic materials (i.e., scrap metal and slag).*

3.) Will there be Liquid Loading/Unloading Operations?

No — If YES, complete the BULK LIQUID TRANSFER OPERATIONS EMISSIONS UNIT DATA SHEET.

4.) Will there be emissions of air pollutants from Wastewater Treatment Evaporation?

No — If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET.

5.) Will there be Equipment Leaks (e.g. leaks from pumps, compressors, in-line process valves, pressure relief devices, open-ended valves, sampling connections, flanges, agitators, cooling towers, etc.)?

No — If YES, complete the LEAK SOURCE DATA SHEET section of the CHEMICAL PROCESSES EMISSIONS UNIT DATA SHEET.

6.) Will there be General Clean-up VOC Operations?

Yes — If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET.

7.) Will there be any other activities that generate fugitive emissions?

Yes — If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET or the most appropriate form.

NUCOR - Project Honey Badger
Attachment K - Fugitive Emissions Data Summary Sheet

FUGITIVE EMISSIONS SUMMARY	All Regulated Pollutants - Chemical Name/CAS[1]	Maximum Potential Uncontrolled Emissions[2]		Maximum Potential Controlled Emissions[3]		Est. Method Used[4]
		lb/hr	ton/yr	lb/hr	ton/yr	
Haul Road/Road Dust Emissions Paved Haul Roads	PM	5.60	24.55	5.60	24.55	EE
	PM_{10}	1.12	4.91	1.12	4.91	EE
	$PM_{2.5}$	0.28	1.21	0.28	1.21	EE
Unpaved Haul Roads	PM	5.78	25.31	5.78	25.31	EE
	PM_{10}	1.54	6.75	1.54	6.75	EE
	$PM_{2.5}$	0.15	0.67	0.15	0.67	EE
Storage Pile Emissions	Form K specifically requests information for nonmetallic mineral storage piles. The storage piles for the NUCOR Plant will store metallic materials (i.e., scrap metal and slag). As such, the information for facility storage piles is presented in the R13-L (General) worksheet.					
Liquid Loading/Unloading Operations	N/A	N/A	N/A	N/A	N/A	N/A
Wastewater Treatment Evaporation & Operations	N/A	N/A	N/A	N/A	N/A	N/A
Equipment Leaks	N/A	N/A	N/A	N/A	N/A	N/A
General Clean-up VOC Emissions: Cold Degreasers T25-T29	VOC	0.33	1.46	0.33	1.46	EE
	Total HAPs	0.01	0.05	0.01	0.05	EE
Other: Uncontrolled Bulk Material Handling and Storage, including DRI Silo Loadouts, Scrap Handling & Storage, Slag Processing, Handling & Storage	NO_X	--	--	--	--	--
	CO	--	--	--	--	--
	SO_2	--	--	--	--	--
	VOC	--	--	--	--	--
	PM	5.82	10.89	5.82	10.89	EE & O (MACT)
	PM_{10}	2.73	5.11	2.73	5.11	EE & O (MACT)
	$PM_{2.5}$	0.59	1.08	0.59	1.08	EE & O (MACT)
	Lead	--	--	--	--	--
	Total HAPs	--	--	--	--	--
	CO_2	--	--	--	--	--
	CH_4	--	--	--	--	--
	N_2O	--	--	--	--	--
	CO_2e	--	--	--	--	--

[1] *List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. LIST Acids, CO, CS_2, VOCs, H_2S, Inorganics, Lead, Organics, O_3, NO, NO_2, SO_2, SO_3, all applicable Greenhouse Gases (including CO_2 and methane), etc. DO NOT LIST H_2, H_2O, N_2, O_2, and Noble Gases.*

[2] *Give rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).*

[3] *Give rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).*

[4] *Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).*

Attachment L: Emission Unit Data Sheets

Attachment L - Emissions Unit Data Sheet (General)

Emission Unit Form Number:		1	3	4	6a	6g	7. Projected operating schedule:		
Emission Unit ID	Emission Point ID	Name or Type and Model	Name(s) and Maximum Process Materials Charged	Name(s) and Maximum Material Produced	Type and Amount of Fuel(s) Burned	Proposed Maximum Design Heat Input (10^6 BTU/hr)	Hours/Day	Days/Week	Weeks/Year
EAF1/LMF1/CAST1	BHST-1	Electric Arc Furnace 1 Ladle Metallurgical Furnace 1 Caster	DRI - 151,800 lb/hr Scrap - 354,200 lb/hr Flux - 21,160 lb/hr	Steel - 342,000 lb/hr Slag - 35,055 lb/hr Residue - 5,301 lb/hr	Natural Gas - 21,744 scf/hr	22.2 MMBtu/hr	24	7	52
EAF2/LMF2/CAST2	BHST-2	Electric Arc Furnace 2 Ladle Metallurgical Furnace 2 Caster	DRI - 151,800 lb/hr Scrap - 354,200 lb/hr Flux - 21,160 lb/hr	Steel - 342,000 lb/hr Slag - 35,055 lb/hr Residue - 5,301 lb/hr	Natural Gas - 21,744 scf/hr	22.2 MMBtu/hr	24	7	52
MSFUG	MSFUG	Uncaptured Electric Arc Furnace Fugitives	Per EAF: DRI - 151,800 lb/hr Scrap - 354,200 lb/hr Flux - 21,160 lb/hr Electrode - 333 lb/hr Carbon - 10,810 lb/hr	Per EAF: Steel - 342,000 lb/hr Slag - 35,055 lb/hr Residue - 5,301 lb/hr	Included under EAF1/LMF1/CAST1	Included under EAF1/LMF1/CAST1	24	7	52
CASTFUG	CASTFUG	Uncaptured Casting Fugitives	Per EAF: DRI - 151,800 lb/hr Scrap - 354,200 lb/hr Flux - 21,160 lb/hr Electrode - 333 lb/hr Carbon - 10,810 lb/hr	Per EAF: Steel - 342,000 lb/hr Slag - 35,055 lb/hr Residue - 5,301 lb/hr	Included under EAF1/LMF1/CAST2	Included under EAF1/LMF1/CAST2	24	7	52
DRI-DOCK	DRI-DOCK-ST	DRI Unloading Dock (two units)	DRI - 500 ton/hr	N/A	N/A	N/A	24	7	52
DRI1	DRIVF1	DRI Storage Silo 1 - Baghouse	DRI - 64 ton/hr	N/A	N/A	N/A	24	7	52
DRI1	DRIBV1	DRI Storage Silo 1 - Bin Vent	DRI - 64 ton/hr	N/A	N/A	N/A	24	7	52
DRI2	DRIVF2	DRI Storage Silo 2 - Baghouse	DRI - 64 ton/hr	N/A	N/A	N/A	24	7	52
DRI2	DRIBV2	DRI Storage Silo 2 - Bin Vent	DRI - 64 ton/hr	N/A	N/A	N/A	24	7	52
DRI3	DRIVF3	DRI Storage Silo 3 - Baghouse	DRI - 64 ton/hr	N/A	N/A	N/A	24	7	52
DRI3	DRIBV3	DRI Storage Silo 3 - Bin Vent	DRI - 64 ton/hr	N/A	N/A	N/A	24	7	52
DRI4	DRIVF4	DRI Storage Silo 4 - Baghouse	DRI - 64 ton/hr	N/A	N/A	N/A	24	7	52
DRI4	DRIBV4	DRI Storage Silo 4 - Bin Vent	DRI - 64 ton/hr	N/A	N/A	N/A	24	7	52
DRI-DB1	DRI-DB1-BH	DRI Day Bin #1	DRI - 64 ton/hr	N/A	N/A	N/A	24	7	52
DRI-DB2	DRI-DB2-BH	DRI Day Bin #2	DRI - 64 ton/hr	N/A	N/A	N/A	24	7	52
DRI-CONV	DRI-CONV-BH	DRI Transfer Conveyors	DRI - 64 ton/hr	N/A	N/A	N/A	24	7	52
SLAG-CUT	SLAG-CUT-BH	Slag Cutting in Slag Processing Area	Steel - 342,000 lb/hr	N/A	N/A	N/A	24	7	52
EAFVF1	EAFVF1	EAF Baghouse 1 Dust Silo	Dust - 1,686 lb/hr	N/A	N/A	N/A	24	7	52
EAFVF2	EAFVF2	EAF Baghouse 2 Dust Silo	Dust - 1,686 lb/hr	N/A	N/A	N/A	24	7	52
LIME-DUMP	LIME-DUMP-ST	Lime Dump Station	Lime - 8 ton/hr	N/A	N/A	N/A	24	7	52
CARBON-DUMP	CARBON-DUMP-ST	Carbon Dump Station	Carbon - 4 ton/hr	N/A	N/A	N/A	24	7	52
ALLOY-HANDLE	ALLOY-HANDLE-ST	Alloy Handling System	Alloy - 20 ton/hr	N/A	N/A	N/A	24	7	52
RM	RM-BH	Rolling Mill	Steel - 342,000 lb/hr	N/A	N/A	N/A	24	7	52
VTD1	VTDST1	Vacuum Tank 1	269 lb Degassed CO/hr	N/A	N/A	N/A	24	7	52
VTD2	VTDST2	Vacuum Tank 2	269 lb Degassed CO/hr	N/A	N/A	N/A	24	7	52
LD	MSFUG	Ladle Dryer Fugitives	Natural Gas - 14,706 scf/hr	N/A	Natural Gas - 14,706 scf/hr	15 MMBtu/hr	24	7	52
LPHTR1	MSFUG	Horizontal Ladle Preheater 1 Fugitives	Natural Gas - 14,706 scf/hr	N/A	Natural Gas - 14,706 scf/hr	15 MMBtu/hr	24	7	52
LPHTR2	MSFUG	Horizontal Ladle Preheater 2 Fugitives	Natural Gas - 14,706 scf/hr	N/A	Natural Gas - 14,706 scf/hr	15 MMBtu/hr	24	7	52
LPHTR3	MSFUG	Horizontal Ladle Preheater 3 Fugitives	Natural Gas - 14,706 scf/hr	N/A	Natural Gas - 14,706 scf/hr	15 MMBtu/hr	24	7	52
LPHTR4	MSFUG	Horizontal Ladle Preheater 4 Fugitives	Natural Gas - 14,706 scf/hr	N/A	Natural Gas - 14,706 scf/hr	15 MMBtu/hr	24	7	52
LPHTR5	MSFUG	Horizontal Ladle Preheater 5 Fugitives	Natural Gas - 14,706 scf/hr	N/A	Natural Gas - 14,706 scf/hr	15 MMBtu/hr	24	7	52
LPHTR6	MSFUG	Vertical Ladle Preheater 6 Fugitives	Natural Gas - 14,706 scf/hr	N/A	Natural Gas - 14,706 scf/hr	15 MMBtu/hr	24	7	52
LPHTR7	MSFUG	Vertical Ladle Preheater 7 Fugitives	Natural Gas - 14,706 scf/hr	N/A	Natural Gas - 14,706 scf/hr	15 MMBtu/hr	24	7	52
TD	MSFUG	Tundish Dryer 1	Natural Gas - 5,882 scf/hr	N/A	Natural Gas - 5,882 scf/hr	6 MMBtu/hr	24	7	52
TPHTR1	MSFUG	Tundish Preheater 1	Natural Gas - 8,824 scf/hr	N/A	Natural Gas - 8,824 scf/hr	9 MMBtu/hr	24	7	52
TPHTR2	MSFUG	Tundish Preheater 2	Natural Gas - 8,824 scf/hr	N/A	Natural Gas - 8,824 scf/hr	9 MMBtu/hr	24	7	52
SENPHTR1	MSFUG	Subentry Nozzle (SEN) Preheater 1	Natural Gas - 980 scf/hr	N/A	Natural Gas - 980 scf/hr	1 MMBtu/hr	24	7	52
SENPHTR2	MSFUG	Subentry Nozzle (SEN) Preheater 2	Natural Gas - 980 scf/hr	N/A	Natural Gas - 980 scf/hr	1 MMBtu/hr	24	7	52
TF1	TFST-1	Hot Mill Tunnel Furnace 1	Natural Gas - 147,059 scf/hr	N/A	Natural Gas - 147,059 scf/hr	150 MMBtu/hr	24	7	52
PKL-1	PLST-1	Pickling Line #1	Steel - 342,000 lb/hr	N/A	N/A	N/A	24	7	52
PKLSB	PKLSB	Pickle Line Scale Breaker	Steel - 342,000 lb/hr	N/A	N/A	N/A	24	7	52
TCM	TCMST	Tandem Cold Mill	Steel - 342,000 lb/hr	N/A	N/A	N/A	24	7	52
STM	STMST	Standalone Temper Mill	Steel - 342,000 lb/hr	N/A	N/A	N/A	24	7	52
SPM1	SPMST1	Skin Pass Mill #1	Steel - 114,000 lb/hr	N/A	N/A	N/A	24	7	52
SPM2	SPMST2	Skin Pass Mill #2	Steel - 114,000 lb/hr	N/A	N/A	N/A	24	7	52
CGL1	CGL1-ST1	CGL1 - Cleaning Section	Steel - 342,000 lb/hr	N/A	N/A	N/A	24	7	52
CGL1	CGL1-ST2	CGL1 - Passivation Section	Steel - 342,000 lb/hr	N/A	N/A	N/A	24	7	52
CGL2	CGL2-ST1	CGL2 - Cleaning Section	Steel - 342,000 lb/hr	N/A	N/A	N/A	24	7	52
CGL2	CGL2-ST2	CGL2 - Passivation Section	Steel - 342,000 lb/hr	N/A	N/A	N/A	24	7	52
GALVFN1	GALVFN1-ST	Galvanizing Furnace #1	Natural Gas - 62,745 scf/hr	N/A	Natural Gas - 62,745 scf/hr	64 MMBtu/hr	24	7	52
GALVFN2	GALVFN2-ST	Galvanizing Furnace #2	Natural Gas - 62,745 scf/hr	N/A	Natural Gas - 62,745 scf/hr	64 MMBtu/hr	24	7	52
BOXANN1	GALVFUG	Box Annealing Furnace #1	Natural Gas - 4,902 scf/hr	N/A	Natural Gas - 4,902 scf/hr	5 MMBtu/hr	24	7	52
BOXANN2	GALVFUG	Box Annealing Furnace #2	Natural Gas - 4,902 scf/hr	N/A	Natural Gas - 4,902 scf/hr	5 MMBtu/hr	24	7	52
BOXANN3	GALVFUG	Box Annealing Furnace #3	Natural Gas - 4,902 scf/hr	N/A	Natural Gas - 4,902 scf/hr	5 MMBtu/hr	24	7	52
BOXANN4	GALVFUG	Box Annealing Furnace #4	Natural Gas - 4,902 scf/hr	N/A	Natural Gas - 4,902 scf/hr	5 MMBtu/hr	24	7	52
BOXANN5	GALVFUG	Box Annealing Furnace #5	Natural Gas - 4,902 scf/hr	N/A	Natural Gas - 4,902 scf/hr	5 MMBtu/hr	24	7	52
BOXANN6	GALVFUG	Box Annealing Furnace #6	Natural Gas - 4,902 scf/hr	N/A	Natural Gas - 4,902 scf/hr	5 MMBtu/hr	24	7	52
BOXANN7	GALVFUG	Box Annealing Furnace #7	Natural Gas - 4,902 scf/hr	N/A	Natural Gas - 4,902 scf/hr	5 MMBtu/hr	24	7	52
BOXANN8	GALVFUG	Box Annealing Furnace #8	Natural Gas - 4,902 scf/hr	N/A	Natural Gas - 4,902 scf/hr	5 MMBtu/hr	24	7	52
BOXANN9	GALVFUG	Box Annealing Furnace #9	Natural Gas - 4,902 scf/hr	N/A	Natural Gas - 4,902 scf/hr	5 MMBtu/hr	24	7	52
BOXANN10	GALVFUG	Box Annealing Furnace #10	Natural Gas - 4,902 scf/hr	N/A	Natural Gas - 4,902 scf/hr	5 MMBtu/hr	24	7	52
BOXANN11	GALVFUG	Box Annealing Furnace #11	Natural Gas - 4,902 scf/hr	N/A	Natural Gas - 4,902 scf/hr	5 MMBtu/hr	24	7	52
BOXANN12	GALVFUG	Box Annealing Furnace #12	Natural Gas - 4,902 scf/hr	N/A	Natural Gas - 4,902 scf/hr	5 MMBtu/hr	24	7	52
BOXANN13	GALVFUG	Box Annealing Furnace #13	Natural Gas - 4,902 scf/hr	N/A	Natural Gas - 4,902 scf/hr	5 MMBtu/hr	24	7	52
BOXANN14	GALVFUG	Box Annealing Furnace #14	Natural Gas - 4,902 scf/hr	N/A	Natural Gas - 4,902 scf/hr	5 MMBtu/hr	24	7	52
BOXANN15	GALVFUG	Box Annealing Furnace #15	Natural Gas - 4,902 scf/hr	N/A	Natural Gas - 4,902 scf/hr	5 MMBtu/hr	24	7	52
BOXANN16	GALVFUG	Box Annealing Furnace #16	Natural Gas - 4,902 scf/hr	N/A	Natural Gas - 4,902 scf/hr	5 MMBtu/hr	24	7	52

Emission Unit Form Number:		1	3	4	6a	6g	7. Projected operating schedule:		
Emission Unit ID	Emission Point ID	Name or Type and Model	Name(s) and Maximum Process Materials Charged	Name(s) and Maximum Material Produced	Type and Amount of Fuel(s) Burned	Proposed Maximum Design Heat Input (10^6 BTU/hr)	Hours/Day	Days/Week	Weeks/Year
BOXANN17	GALVFUG	Box Annealing Furnace #17	Natural Gas - 4,902 scf/hr	N/A	Natural Gas - 4,902 scf/hr	5 MMBtu/hr	24	7	52
BOXANN18	GALVFUG	Box Annealing Furnace #18	Natural Gas - 4,902 scf/hr	N/A	Natural Gas - 4,902 scf/hr	5 MMBtu/hr	24	7	52
BOXANN19	GALVFUG	Box Annealing Furnace #19	Natural Gas - 4,902 scf/hr	N/A	Natural Gas - 4,902 scf/hr	5 MMBtu/hr	24	7	52
BOXANN20	GALVFUG	Box Annealing Furnace #20	Natural Gas - 4,902 scf/hr	N/A	Natural Gas - 4,902 scf/hr	5 MMBtu/hr	24	7	52
BOXANN21	GALVFUG	Box Annealing Furnace #21	Natural Gas - 4,902 scf/hr	N/A	Natural Gas - 4,902 scf/hr	5 MMBtu/hr	24	7	52
BOXANN22	GALVFUG	Box Annealing Furnace #22	Natural Gas - 4,902 scf/hr	N/A	Natural Gas - 4,902 scf/hr	5 MMBtu/hr	24	7	52
SLAG-CUT	SLAG-CUT-NG	Slag Cutting in Slag Processing Area	Natural Gas - 2,353 scf/hr	N/A	Natural Gas - 2,353 scf/hr	2.4 MMBtu/hr	24	7	52
ASP	ASP-1	Water Bath Vaporizer	Natural Gas - 10,784 scf/hr	N/A	Natural Gas - 10,784 scf/hr	11 MMBtu/hr	24	7	52
CT1	CT1	Melt Shop ICW Cooling Tower	Water - 52,000 gpm	N/A	N/A	N/A	24	7	52
CT2	CT2	Melt Shop DCW Cooling Tower	Water - 5,900 gpm	N/A	N/A	N/A	24	7	52
CT3	CT3	Rolling Mill ICW Cooling Tower	Water - 8,500 gpm	N/A	N/A	N/A	24	7	52
CT4	CT4	Rolling Mill DCW Cooling Tower	Water - 22,750 gpm	N/A	N/A	N/A	24	7	52
CT5	CT5	Rolling Mill/Quench/ACC Cooling Tower	Water - 90,000 gpm	N/A	N/A	N/A	24	7	52
CT6	CT6	Light Plate DCW System	Water - 8,000 gpm	N/A	N/A	N/A	24	7	52
CT7	CT7	Heavy Plate DCW System	Water - 3,000 gpm	N/A	N/A	N/A	24	7	52
CT8	CT8	Air Separation Plant Cooling Tower	Water - 14,000 gpm	N/A	N/A	N/A	24	7	52
EMGEN1	EMGEN1	Emergency Generator 1	Natural Gas - 13,725 scf/hr	N/A	Natural Gas - 13,725 scf/hr	14.0	24	7	52
EMGEN2	EMGEN2	Emergency Generator 2	Natural Gas - 13,725 scf/hr	N/A	Natural Gas - 13,725 scf/hr	14.0	24	7	52
EMGEN3	EMGEN3	Emergency Generator 3	Natural Gas - 13,725 scf/hr	N/A	Natural Gas - 13,725 scf/hr	14.0	24	7	52
EMGEN4	EMGEN4	Emergency Generator 4	Natural Gas - 13,725 scf/hr	N/A	Natural Gas - 13,725 scf/hr	14.0	24	7	52
EMGEN5	EMGEN5	Emergency Generator 5	Natural Gas - 13,725 scf/hr	N/A	Natural Gas - 13,725 scf/hr	14.0	24	7	52
EMGEN6	EMGEN6	Emergency Generator 6	Natural Gas - 13,725 scf/hr	N/A	Natural Gas - 13,725 scf/hr	14.0	24	7	52
DRI-DOCK	DRI-DOCK-FUG	DRI Unloading Dock - Fugitives	DRI - 500 ton/hr	N/A	N/A	N/A	24	7	52
BULK-DRI	BULK-DRI-1	DRI Silo #1 Loadout	DRI - 64 ton/hr	N/A	N/A	N/A	24	7	52
BULK-DRI	BULK-DRI-2	DRI Silo #2 Loadout	DRI - 64 ton/hr	N/A	N/A	N/A	24	7	52
BULK-DRI	DRI-EMG-1	DRI Conveyor #1 Emergency Chute	DRI - 125 ton/hr	N/A	N/A	N/A	24	7	52
BULK-DRI	DRI-EMG-2	DRI Silos Emergency Chute	DRI - 800 ton/hr	N/A	N/A	N/A	24	7	52
LIME-DUMP	LIME-DUMP-FUG	Lime Dump Station Fugitives	Lime - 8 ton/hr	N/A	N/A	N/A	24	7	52
CARBON-DUMP	CARBON-DUMP-FUG	Carbon Dump Station Fugitives	Carbon - 4 ton/hr	N/A	N/A	N/A	24	7	52
ALLOY-HANDLE	ALLOY-HANDLE-FUG	Alloy Handling System Fugitives	Alloy - 20 ton/hr	N/A	N/A	N/A	24	7	52
SCRAP-DOCK	SCRAP-DOCK-FUG	Barge Scrap Unloading	Scrap - 600 ton/hr	N/A	N/A	N/A	24	7	52
SCRAP-RAIL	SCRAP-RAIL-FUG	Rail Scrap Unloading	Scrap - 200 ton/hr	N/A	N/A	N/A	24	7	52
SCRAP-BULK34	SCRAP-BULK34	Barge Scrap Pile Loading	Scrap - 600 ton/hr	N/A	N/A	N/A	24	7	52
SCRAP-BULK35	SCRAP-BULK35	Barge Scrap Pile Loadout	Scrap - 275 ton/hr	N/A	N/A	N/A	24	7	52
SCRAP-BULK36	SCRAP-BULK36	Rail Scrap Pile Loading	Scrap - 120 ton/hr	N/A	N/A	N/A	24	7	52
SCRAP-BULK37	SCRAP-BULK37	Rail Scrap Pile Loadout	Scrap - 275 ton/hr	N/A	N/A	N/A	24	7	52
SCRAP-BULK38	SCRAP-BULK38	Truck Scrap Pile Loading	Scrap - 200 ton/hr	N/A	N/A	N/A	24	7	52
SCRAP-BULK39	SCRAP-BULK39	Truck Scrap Pile Loadout	Scrap - 275 ton/hr	N/A	N/A	N/A	24	7	52
SCRAP-BULK40	SCRAP-BULK40	Scrap Charging	Scrap - 220 ton/hr	N/A	N/A	N/A	24	7	52
SCRAP-BULK1	SCRAP-BULK1	Dig slag inside pot barn	Slag - 73 ton/hr	N/A	N/A	N/A	24	7	52
SCRAP-BULK2	SCRAP-BULK2	Loader transport & dump slag into quench	Slag - 73 ton/hr	N/A	N/A	N/A	24	7	52
SCRAP-BULK3	SCRAP-BULK3	Loader transport & dump into F1 feed hopper/grizzly	Slag - 73 ton/hr	N/A	N/A	N/A	24	7	52
SCRAP-BULK4	SCRAP-BULK4	F1 feed hopper/grizzly to P1 oversize storage	Slag - 73 ton/hr	N/A	N/A	N/A	24	7	52
SCRAP-BULK5	SCRAP-BULK5	F1 feed hopper/grizzly to C7 crusher conveyor	Slag - 1 ton/hr	N/A	N/A	N/A	24	7	52
SCRAP-BULK6	SCRAP-BULK6	F1 feed hopper/grizzly to C1A main conveyor	Slag - 22 ton/hr	N/A	N/A	N/A	24	7	52
SCRAP-BULK7	SCRAP-BULK7	C7 to CR1 crusher	Slag - 50 ton/hr	N/A	N/A	N/A	24	7	52
SCRAP-BULK8	SCRAP-BULK8	CR1 crusher to C8 conveyor	Slag - 22 ton/hr	N/A	N/A	N/A	24	7	52
SCRAP-BULK9	SCRAP-BULK9	CR1 crusher to P2 off-spec storage	Slag - 19 ton/hr	N/A	N/A	N/A	24	7	52
SCRAP-BULK10	SCRAP-BULK10	C8 conveyor to C9 conveyor	Slag - 3 ton/hr	N/A	N/A	N/A	24	7	52
SCRAP-BULK11	SCRAP-BULK11	C9 conveyor to C1A conveyor	Slag - 19 ton/hr	N/A	N/A	N/A	24	7	52
SCRAP-BULK12	SCRAP-BULK12	C1A conveyor to B1 surge bin	Slag - 19 ton/hr	N/A	N/A	N/A	24	7	52
SCRAP-BULK13	SCRAP-BULK13	B1 surge bin to C1 conveyor	Slag - 68 ton/hr	N/A	N/A	N/A	24	7	52
SCRAP-BULK14	SCRAP-BULK14	C1 conveyor through M1 mag splitter to S1 slag screen	Slag - 68 ton/hr	N/A	N/A	N/A	24	7	52
SCRAP-BULK15	SCRAP-BULK15	C1 conveyor through M1 mag splitter to S2 off-spec screen	Slag - 66 ton/hr	N/A	N/A	N/A	24	7	52
SCRAP-BULK16	SCRAP-BULK16	S2 off-spec screen to C6 conveyor	Slag - 2 ton/hr	N/A	N/A	N/A	24	7	52
SCRAP-BULK17	SCRAP-BULK17	S2 off-spec screen to P3 off-spec storage	Slag - 2 ton/hr	N/A	N/A	N/A	24	7	52
SCRAP-BULK18	SCRAP-BULK18	C6 conveyor to P4 off-spec storage	Slag - 0.4 ton/hr	N/A	N/A	N/A	24	7	52
SCRAP-BULK19	SCRAP-BULK19	S1 slag screen to C2 conveyor	Slag - 2 ton/hr	N/A	N/A	N/A	24	7	52
SCRAP-BULK20	SCRAP-BULK20	C2 conveyor to C5 conveyor	Slag - 26 ton/hr	N/A	N/A	N/A	24	7	52
SCRAP-BULK21	SCRAP-BULK21	C5 conveyor to SLGSKP1	Slag - 26 ton/hr	N/A	N/A	N/A	24	7	52
SCRAP-BULK22	SCRAP-BULK22	S1 slag screen to C4 conveyor	Slag - 26 ton/hr	N/A	N/A	N/A	24	7	52
SCRAP-BULK23	SCRAP-BULK23	C4 conveyor to SLGSKP3	Slag - 20 ton/hr	N/A	N/A	N/A	24	7	52
SCRAP-BULK24	SCRAP-BULK24	S1 slag screen to C3 conveyor	Slag - 20 ton/hr	N/A	N/A	N/A	24	7	52
SCRAP-BULK25	SCRAP-BULK25	C3 conveyor to SLGSKP2	Slag - 13 ton/hr	N/A	N/A	N/A	24	7	52
SCRAP-BULK26	SCRAP-BULK26	S1 slag screen to SLGSKP4	Slag - 13 ton/hr	N/A	N/A	N/A	24	7	52
SCRAP-BULK27	SCRAP-BULK27	Loader transports & loads products into trucks to product stockpiles	Slag - 7 ton/hr	N/A	N/A	N/A	24	7	52
SCRAP-BULK28	SCRAP-BULK28	Truck transports & dumps products into product stockpiles	Slag - 73 ton/hr	N/A	N/A	N/A	24	7	52
SCRAP-BULK29	SCRAP-BULK29	Loader transports & loads into trucks, oversize to drop ball	Slag - 73 ton/hr	N/A	N/A	N/A	24	7	52
SCRAP-BULK30	SCRAP-BULK30	Truck transports & dumps oversize into drop ball area	Slag - 1 ton/hr	N/A	N/A	N/A	24	7	52
SCRAP-BULK31	SCRAP-BULK31	Truck transports ladle lip and meltshop cleanup materials & dumps at drop ball site	Slag - 5 ton/hr	N/A	N/A	N/A	24	7	52
SCRAP-BULK32	SCRAP-BULK32	Truck transports & dumps tundish at lancing station	Slag - 3 ton/hr	N/A	N/A	N/A	24	7	52
SCRAP-BULK33	SCRAP-BULK33	Ball drop crushing	Slag - 2 ton/hr	N/A	N/A	N/A	24	7	52
SLGSKP1	SLGSKP1	Slag Stockpile 1	Slag - 32,541 sq. ft	N/A	N/A	N/A	24	7	52
SLGSKP2	SLGSKP2	Slag Stockpile 2	Slag - 32,541 sq. ft	N/A	N/A	N/A	24	7	52

NUCOR - Project Honey Badger
Attachment L - Emissions Unit Data Sheet (General)

Emission Unit Form Number:		1	3	4	6a	6g	7. Projected operating schedule:		
Emission Unit ID	Emission Point ID	Name or Type and Model	Name(s) and Maximum Process Materials Charged	Name(s) and Maximum Material Produced	Type and Amount of Fuel(s) Burned	Proposed Maximum Design Heat Input (10^6 BTU/hr)	Hours/Day	Days/Week	Weeks/Year
SLGSKP3	SLGSKP3	Slag Stockpile 3	Slag - 32,541 sq. ft	N/A	N/A	N/A	24	7	52
SLGSKP4	SLGSKP4	Slag Stockpile 4	Slag - 32,541 sq. ft	N/A	N/A	N/A	24	7	52
SCRPSKP1	SCRPSKP1	Scrap Metal Stockpile 1	Scrap - 81,809 sq. ft	N/A	N/A	N/A	24	7	52
SCRPSKP2	SCRPSKP2	Scrap Metal Stockpile 2	Scrap - 81,809 sq. ft	N/A	N/A	N/A	24	7	52
SCRPSKP3	SCRPSKP3	Scrap Metal Stockpile 3	Scrap - 81,809 sq. ft	N/A	N/A	N/A	24	7	52
T25	T25	Cold Degreaser	Solvent - 80 gal	N/A	N/A	N/A	24	7	52
T26	T26	Cold Degreaser	Solvent - 80 gal	N/A	N/A	N/A	24	7	52
T27	T27	Cold Degreaser	Solvent - 80 gal	N/A	N/A	N/A	24	7	52
T28	T28	Cold Degreaser	Solvent - 80 gal	N/A	N/A	N/A	24	7	52
T29	T29	Cold Degreaser	Solvent - 80 gal	N/A	N/A	N/A	24	7	52

Emission Unit Form Number:		1	8. Projected amount of pollutants								9. Proposed Monitoring, Recordkeeping, Reporting, and Testing			
			Controlled Emission Rates (lb/hr)											
Emission Unit ID	Emission Point ID	Name or Type and Model	@ Temp and Pressure (°F & psia)	NO_X	SO_2	CO	PM_{10}	Hydrocarbons	VOC	Lead	Monitoring	Recordkeeping	Reporting	Testing
EAF1/LMF1/CAST1	BHST-1	Electric Arc Furnace 1 Ladle Metallurgical Furnace 1 Caster	260 °F / Ambient Pressure	56.86	38.99	328.15	49.19	15.92	15.92	7.3E-02	See regulatory write-up in the application narrative			
EAF2/LMF2/CAST2	BHST-2	Electric Arc Furnace 2 Ladle Metallurgical Furnace 2 Caster	260 °F / Ambient Pressure	56.86	38.99	328.15	49.19	15.92	15.92	7.3E-02	See regulatory write-up in the application narrative			
MSFUG	MSFUG	Uncaptured Electric Arc Furnace Fugitives	Ambient Temperature / Ambient Pressure	5.99	4.10	34.54	0.94	1.68	1.68	7.7E-03	See regulatory write-up in the application narrative			
CASTFUG	CASTFUG	Uncaptured Casting Fugitives	Ambient Temperature / Ambient Pressure	--	--	--	0.21	--	--	--	See regulatory write-up in the application narrative			
DRI-DOCK	DRI-DOCK-ST	DRI Unloading Dock (two units)	Ambient Temperature / Ambient Pressure	--	--	--	3.4E-02	--	--	--	See regulatory write-up in the application narrative			
DRI1	DRIVF1	DRI Storage Silo 1 - Baghouse	Ambient Temperature / Ambient Pressure	--	--	--	1.0E-02	--	--	--	See regulatory write-up in the application narrative			
DRI1	DRIBV1	DRI Storage Silo 1 - Bin Vent	Ambient Temperature / Ambient Pressure	--	--	--	1.3E-03	--	--	--	See regulatory write-up in the application narrative			
DRI2	DRIVF2	DRI Storage Silo 2 - Baghouse	Ambient Temperature / Ambient Pressure	--	--	--	1.0E-02	--	--	--	See regulatory write-up in the application narrative			
DRI2	DRIBV2	DRI Storage Silo 2 - Bin Vent	Ambient Temperature / Ambient Pressure	--	--	--	1.3E-03	--	--	--	See regulatory write-up in the application narrative			
DRI3	DRIVF3	DRI Storage Silo 3 - Baghouse	Ambient Temperature / Ambient Pressure	--	--	--	1.0E-02	--	--	--	See regulatory write-up in the application narrative			
DRI3	DRIBV3	DRI Storage Silo 3 - Bin Vent	Ambient Temperature / Ambient Pressure	--	--	--	1.3E-03	--	--	--	See regulatory write-up in the application narrative			
DRI4	DRIVF4	DRI Storage Silo 4 - Baghouse	Ambient Temperature / Ambient Pressure	--	--	--	1.0E-02	--	--	--	See regulatory write-up in the application narrative			
DRI4	DRIBV4	DRI Storage Silo 4 - Bin Vent	Ambient Temperature / Ambient Pressure	--	--	--	1.3E-03	--	--	--	See regulatory write-up in the application narrative			
DRI-DB1	DRI-DB1-BH	DRI Day Bin #1	Ambient Temperature / Ambient Pressure	--	--	--	1.0E-02	--	--	--	See regulatory write-up in the application narrative			
DRI-DB2	DRI-DB2-BH	DRI Day Bin #2	Ambient Temperature / Ambient Pressure	--	--	--	1.0E-02	--	--	--	See regulatory write-up in the application narrative			
DRI-CONV	DRI-CONV-BH	DRI Transfer Conveyors	Ambient Temperature / Ambient Pressure	--	--	--	1.0E-02	--	--	--	See regulatory write-up in the application narrative			
SLAG-CUT	SLAG-CUT-BH	Slag Cutting in Slag Processing Area	120 °F / Ambient Pressure	--	--	--	0.86	--	--	--	See regulatory write-up in the application narrative			
EAFVF1	EAFVF1	EAF Baghouse 1 Dust Silo	Ambient Temperature / Ambient Pressure	--	--	--	8.6E-02	--	--	--	See regulatory write-up in the application narrative			
EAFVF2	EAFVF2	EAF Baghouse 2 Dust Silo	Ambient Temperature / Ambient Pressure	--	--	--	8.6E-02	--	--	--	See regulatory write-up in the application narrative			
LIME-DUMP	LIME-DUMP-ST	Lime Dump Station	Ambient Temperature / Ambient Pressure	--	--	--	8.6E-02	--	--	--	See regulatory write-up in the application narrative			
CARBON-DUMP	CARBON-DUMP-ST	Carbon Dump Station	Ambient Temperature / Ambient Pressure	--	--	--	8.6E-02	--	--	--	See regulatory write-up in the application narrative			
ALLOY-HANDLE	ALLOY-HANDLE-ST	Alloy Handling System	Ambient Temperature / Ambient Pressure	--	--	--	0.16	--	--	--	See regulatory write-up in the application narrative			
RM	RM-BH	Rolling Mill	140 °F / Ambient Pressure	--	--	--	10.09	--	--	--	See regulatory write-up in the application narrative			
VTD1	VTDST1	Vacuum Tank 1	1,832 °F / Ambient Pressure	0.84	7.3E-03	5.38	7.5E-02	1.73	1.73	--	See regulatory write-up in the application narrative			
VTD2	VTDST2	Vacuum Tank 2	1,832 °F / Ambient Pressure	0.84	7.3E-03	5.38	7.5E-02	1.73	1.73	--	See regulatory write-up in the application narrative			
LD	MSFUG	Ladle Dryer Fugitives	Ambient Temperature / Ambient Pressure	1.47	8.8E-03	1.24	0.11	8.1E-02	8.1E-02	7.4E-06	See regulatory write-up in the application narrative			
LPHTR1	MSFUG	Horizontal Ladle Preheater 1 Fugitives	Ambient Temperature / Ambient Pressure	1.47	8.8E-03	1.24	0.11	8.1E-02	8.1E-02	7.4E-06	See regulatory write-up in the application narrative			
LPHTR2	MSFUG	Horizontal Ladle Preheater 2 Fugitives	Ambient Temperature / Ambient Pressure	1.47	8.8E-03	1.24	0.11	8.1E-02	8.1E-02	7.4E-06	See regulatory write-up in the application narrative			
LPHTR3	MSFUG	Horizontal Ladle Preheater 3 Fugitives	Ambient Temperature / Ambient Pressure	1.47	8.8E-03	1.24	0.11	8.1E-02	8.1E-02	7.4E-06	See regulatory write-up in the application narrative			
LPHTR4	MSFUG	Horizontal Ladle Preheater 4 Fugitives	Ambient Temperature / Ambient Pressure	1.47	8.8E-03	1.24	0.11	8.1E-02	8.1E-02	7.4E-06	See regulatory write-up in the application narrative			
LPHTR5	MSFUG	Horizontal Ladle Preheater 5 Fugitives	Ambient Temperature / Ambient Pressure	1.47	8.8E-03	1.24	0.11	8.1E-02	8.1E-02	7.4E-06	See regulatory write-up in the application narrative			
LPHTR6	MSFUG	Vertical Ladle Preheater 6 Fugitives	Ambient Temperature / Ambient Pressure	1.47	8.8E-03	1.24	0.11	8.1E-02	8.1E-02	7.4E-06	See regulatory write-up in the application narrative			
LPHTR7	MSFUG	Vertical Ladle Preheater 7 Fugitives	Ambient Temperature / Ambient Pressure	1.47	8.8E-03	1.24	0.11	8.1E-02	8.1E-02	7.4E-06	See regulatory write-up in the application narrative			
TD	MSFUG	Tundish Dryer 1	Ambient Temperature / Ambient Pressure	0.59	3.5E-03	0.49	4.5E-02	3.2E-02	3.2E-02	2.9E-06	See regulatory write-up in the application narrative			
TPHTR1	MSFUG	Tundish Preheater 1	Ambient Temperature / Ambient Pressure	0.88	5.3E-03	0.74	6.7E-02	4.9E-02	4.9E-02	4.4E-06	See regulatory write-up in the application narrative			
TPHTR2	MSFUG	Tundish Preheater 2	Ambient Temperature / Ambient Pressure	0.88	5.3E-03	0.74	6.7E-02	4.9E-02	4.9E-02	4.4E-06	See regulatory write-up in the application narrative			
SENPHTR1	MSFUG	Subentry Nozzle (SEN) Preheater 1	Ambient Temperature / Ambient Pressure	0.10	5.9E-04	8.2E-02	7.5E-03	5.4E-03	5.4E-03	4.9E-07	See regulatory write-up in the application narrative			
SENPHTR2	MSFUG	Subentry Nozzle (SEN) Preheater 2	Ambient Temperature / Ambient Pressure	0.10	5.9E-04	8.2E-02	7.5E-03	5.4E-03	5.4E-03	4.9E-07	See regulatory write-up in the application narrative			
TF1	TFST-1	Hot Mill Tunnel Furnace 1	1,076 °F / Ambient Pressure	10.50	8.8E-02	12.35	1.12	0.81	0.81	7.4E-05	See regulatory write-up in the application narrative			
PKL-1	PLST-1	Pickling Line #1	343 °F / Ambient Pressure	--	--	--	0.62	--	--	--	See regulatory write-up in the application narrative			
PKLSB	PKLSB	Pickle Line Scale Breaker	Ambient Temperature / Ambient Pressure	--	--	--	1.36	--	--	--	See regulatory write-up in the application narrative			
TCM	TCMST	Tandem Cold Mill	100 °F / Ambient Pressure	--	--	--	11.44	--	--	--	See regulatory write-up in the application narrative			
STM	STMST	Standalone Temper Mill	90 °F / Ambient Pressure	--	--	--	0.93	--	--	--	See regulatory write-up in the application narrative			
SPM1	SPMST1	Skin Pass Mill #1	90 °F / Ambient Pressure	--	--	--	2.11	--	--	--	See regulatory write-up in the application narrative			
SPM2	SPMST2	Skin Pass Mill #2	90 °F / Ambient Pressure	--	--	--	2.11	--	--	--	See regulatory write-up in the application narrative			
CGL1	CGL1-ST1	CGL1 - Cleaning Section	140 °F / Ambient Pressure	--	--	--	0.16	--	--	--	See regulatory write-up in the application narrative			
CGL1	CGL1-ST2	CGL1 - Passivation Section	140 °F / Ambient Pressure	--	--	--	0.24	--	--	--	See regulatory write-up in the application narrative			
CGL2	CGL2-ST1	CGL2 - Cleaning Section	140 °F / Ambient Pressure	--	--	--	0.16	--	--	--	See regulatory write-up in the application narrative			
CGL2	CGL2-ST2	CGL2 - Passivation Section	140 °F / Ambient Pressure	--	--	--	0.24	--	--	--	See regulatory write-up in the application narrative			
GALVFN1	GALVFN1-ST	Galvanizing Furnace #1	Ambient Temperature / Ambient Pressure	3.20	3.8E-02	5.27	0.48	0.35	0.35	3.1E-05	See regulatory write-up in the application narrative			
GALVFN2	GALVFN2-ST	Galvanizing Furnace #2	Ambient Temperature / Ambient Pressure	3.20	3.8E-02	5.27	0.48	0.35	0.35	3.1E-05	See regulatory write-up in the application narrative			
BOXANN1	GALVFUG	Box Annealing Furnace #1	Ambient Temperature / Ambient Pressure	0.25	2.9E-03	0.41	3.7E-02	2.7E-02	2.7E-02	2.5E-06	See regulatory write-up in the application narrative			
BOXANN2	GALVFUG	Box Annealing Furnace #2	Ambient Temperature / Ambient Pressure	0.25	2.9E-03	0.41	3.7E-02	2.7E-02	2.7E-02	2.5E-06	See regulatory write-up in the application narrative			
BOXANN3	GALVFUG	Box Annealing Furnace #3	Ambient Temperature / Ambient Pressure	0.25	2.9E-03	0.41	3.7E-02	2.7E-02	2.7E-02	2.5E-06	See regulatory write-up in the application narrative			
BOXANN4	GALVFUG	Box Annealing Furnace #4	Ambient Temperature / Ambient Pressure	0.25	2.9E-03	0.41	3.7E-02	2.7E-02	2.7E-02	2.5E-06	See regulatory write-up in the application narrative			
BOXANN5	GALVFUG	Box Annealing Furnace #5	Ambient Temperature / Ambient Pressure	0.25	2.9E-03	0.41	3.7E-02	2.7E-02	2.7E-02	2.5E-06	See regulatory write-up in the application narrative			
BOXANN6	GALVFUG	Box Annealing Furnace #6	Ambient Temperature / Ambient Pressure	0.25	2.9E-03	0.41	3.7E-02	2.7E-02	2.7E-02	2.5E-06	See regulatory write-up in the application narrative			
BOXANN7	GALVFUG	Box Annealing Furnace #7	Ambient Temperature / Ambient Pressure	0.25	2.9E-03	0.41	3.7E-02	2.7E-02	2.7E-02	2.5E-06	See regulatory write-up in the application narrative			
BOXANN8	GALVFUG	Box Annealing Furnace #8	Ambient Temperature / Ambient Pressure	0.25	2.9E-03	0.41	3.7E-02	2.7E-02	2.7E-02	2.5E-06	See regulatory write-up in the application narrative			
BOXANN9	GALVFUG	Box Annealing Furnace #9	Ambient Temperature / Ambient Pressure	0.25	2.9E-03	0.41	3.7E-02	2.7E-02	2.7E-02	2.5E-06	See regulatory write-up in the application narrative			
BOXANN10	GALVFUG	Box Annealing Furnace #10	Ambient Temperature / Ambient Pressure	0.25	2.9E-03	0.41	3.7E-02	2.7E-02	2.7E-02	2.5E-06	See regulatory write-up in the application narrative			
BOXANN11	GALVFUG	Box Annealing Furnace #11	Ambient Temperature / Ambient Pressure	0.25	2.9E-03	0.41	3.7E-02	2.7E-02	2.7E-02	2.5E-06	See regulatory write-up in the application narrative			
BOXANN12	GALVFUG	Box Annealing Furnace #12	Ambient Temperature / Ambient Pressure	0.25	2.9E-03	0.41	3.7E-02	2.7E-02	2.7E-02	2.5E-06	See regulatory write-up in the application narrative			
BOXANN13	GALVFUG	Box Annealing Furnace #13	Ambient Temperature / Ambient Pressure	0.25	2.9E-03	0.41	3.7E-02	2.7E-02	2.7E-02	2.5E-06	See regulatory write-up in the application narrative			
BOXANN14	GALVFUG	Box Annealing Furnace #14	Ambient Temperature / Ambient Pressure	0.25	2.9E-03	0.41	3.7E-02	2.7E-02	2.7E-02	2.5E-06	See regulatory write-up in the application narrative			
BOXANN15	GALVFUG	Box Annealing Furnace #15	Ambient Temperature / Ambient Pressure	0.25	2.9E-03	0.41	3.7E-02	2.7E-02	2.7E-02	2.5E-06	See regulatory write-up in the application narrative			
BOXANN16	GALVFUG	Box Annealing Furnace #16	Ambient Temperature / Ambient Pressure	0.25	2.9E-03	0.41	3.7E-02	2.7E-02	2.7E-02	2.5E-06	See regulatory write-up in the application narrative			

NUCOR - Project Honey Badger
Attachment L - Emissions Unit Data Sheet (General)

Emission Unit Form Number:		1	8. Projected amount of pollutants								9. Proposed Monitoring, Recordkeeping, Reporting, and Testing			
			Controlled Emission Rates (lb/hr)											
Emission Unit ID	Emission Point ID	Name or Type and Model	@ Temp and Pressure (°F & psia)	NO_x	SO_2	CO	PM_{10}	Hydrocarbons	VOC	Lead	Monitoring	Recordkeeping	Reporting	Testing
BOXANN17	GALVFUG	Box Annealing Furnace #17	Ambient Temperature / Ambient Pressure	0.25	2.9E-03	0.41	3.7E-02	2.7E-02	2.7E-02	2.5E-06	See regulatory write-up in the application narrative			
BOXANN18	GALVFUG	Box Annealing Furnace #18	Ambient Temperature / Ambient Pressure	0.25	2.9E-03	0.41	3.7E-02	2.7E-02	2.7E-02	2.5E-06	See regulatory write-up in the application narrative			
BOXANN19	GALVFUG	Box Annealing Furnace #19	Ambient Temperature / Ambient Pressure	0.25	2.9E-03	0.41	3.7E-02	2.7E-02	2.7E-02	2.5E-06	See regulatory write-up in the application narrative			
BOXANN20	GALVFUG	Box Annealing Furnace #20	Ambient Temperature / Ambient Pressure	0.25	2.9E-03	0.41	3.7E-02	2.7E-02	2.7E-02	2.5E-06	See regulatory write-up in the application narrative			
BOXANN21	GALVFUG	Box Annealing Furnace #21	Ambient Temperature / Ambient Pressure	0.25	2.9E-03	0.41	3.7E-02	2.7E-02	2.7E-02	2.5E-06	See regulatory write-up in the application narrative			
BOXANN22	GALVFUG	Box Annealing Furnace #22	Ambient Temperature / Ambient Pressure	0.25	2.9E-03	0.41	3.7E-02	2.7E-02	2.7E-02	2.5E-06	See regulatory write-up in the application narrative			
SLAG-CUT	SLAG-CUT-NG	Slag Cutting in Slag Processing Area	N/A °F / Ambient Pressure	0.24	1.4E-03	0.20	1.8E-02	1.3E-02	1.3E-02	1.2E-06	See regulatory write-up in the application narrative			
ASP	ASP-1	Water Bath Vaporizer	400 °F / Ambient Pressure	1.08	6.5E-03	0.91	8.2E-02	5.9E-02	5.9E-02	5.4E-06	See regulatory write-up in the application narrative			
CT1	CT1	Melt Shop ICW Cooling Tower	120 °F / Ambient Pressure	--	--	--	0.20	--	--	--	See regulatory write-up in the application narrative			
CT2	CT2	Melt Shop DCW Cooling Tower	120 °F / Ambient Pressure	--	--	--	2.2E-02	--	--	--	See regulatory write-up in the application narrative			
CT3	CT3	Rolling Mill ICW Cooling Tower	120 °F / Ambient Pressure	--	--	--	3.2E-02	--	--	--	See regulatory write-up in the application narrative			
CT4	CT4	Rolling Mill DCW Cooling Tower	120 °F / Ambient Pressure	--	--	--	8.5E-02	--	--	--	See regulatory write-up in the application narrative			
CT5	CT5	Rolling Mill/Quench/ACC Cooling Tower	120 °F / Ambient Pressure	--	--	--	0.34	--	--	--	See regulatory write-up in the application narrative			
CT6	CT6	Light Plate DCW System	120 °F / Ambient Pressure	--	--	--	3.0E-02	--	--	--	See regulatory write-up in the application narrative			
CT7	CT7	Heavy Plate DCW System	120 °F / Ambient Pressure	--	--	--	1.1E-02	--	--	--	See regulatory write-up in the application narrative			
CT8	CT8	Air Separation Plant Cooling Tower	120 °F / Ambient Pressure	--	--	--	5.3E-02	--	--	--	See regulatory write-up in the application narrative			
EMGEN1	EMGEN1	Emergency Generator 1	997 °F / Ambient Pressure	8.82	8.2E-03	17.64	0.68	4.41	4.41	--	See regulatory write-up in the application narrative			
EMGEN2	EMGEN2	Emergency Generator 2	997 °F / Ambient Pressure	8.82	8.2E-03	17.64	0.68	4.41	4.41	--	See regulatory write-up in the application narrative			
EMGEN3	EMGEN3	Emergency Generator 3	997 °F / Ambient Pressure	8.82	8.2E-03	17.64	0.68	4.41	4.41	--	See regulatory write-up in the application narrative			
EMGEN4	EMGEN4	Emergency Generator 4	997 °F / Ambient Pressure	8.82	8.2E-03	17.64	0.68	4.41	4.41	--	See regulatory write-up in the application narrative			
EMGEN5	EMGEN5	Emergency Generator 5	997 °F / Ambient Pressure	8.82	8.2E-03	17.64	0.68	4.41	4.41	--	See regulatory write-up in the application narrative			
EMGEN6	EMGEN6	Emergency Generator 6	965 °F / Ambient Pressure	8.82	8.2E-03	17.64	0.68	4.41	4.41	--	See regulatory write-up in the application narrative			
DRI-DOCK	DRI-DOCK-FUG	DRI Unloading Dock - Fugitives	Ambient Temperature / Ambient Pressure	--	--	--	9.3E-02	--	--	--	See regulatory write-up in the application narrative			
BULK-DRI	BULK-DRI-1	DRI Silo #1 Loadout	Ambient Temperature / Ambient Pressure	--	--	--	1.2E-02	--	--	--	See regulatory write-up in the application narrative			
BULK-DRI	BULK-DRI-2	DRI Silo #2 Loadout	Ambient Temperature / Ambient Pressure	--	--	--	1.2E-02	--	--	--	See regulatory write-up in the application narrative			
BULK-DRI	DRI-EMG-1	DRI Conveyor #1 Emergency Chute	Ambient Temperature / Ambient Pressure	--	--	--	9.3E-02	--	--	--	See regulatory write-up in the application narrative			
BULK-DRI	DRI-EMG-2	DRI Silos Emergency Chute	Ambient Temperature / Ambient Pressure	--	--	--	0.59	--	--	--	See regulatory write-up in the application narrative			
LIME-DUMP	LIME-DUMP-FUG	Lime Dump Station Fugitives	Ambient Temperature / Ambient Pressure	--	--	--	1.7E-02	--	--	--	See regulatory write-up in the application narrative			
CARBON-DUMP	CARBON-DUMP-FUG	Carbon Dump Station Fugitives	Ambient Temperature / Ambient Pressure	--	--	--	8.7E-03	--	--	--	See regulatory write-up in the application narrative			
ALLOY-HANDLE	ALLOY-HANDLE-FUG	Alloy Handling System Fugitives	Ambient Temperature / Ambient Pressure	--	--	--	4.4E-02	--	--	--	See regulatory write-up in the application narrative			
SCRAP-DOCK	SCRAP-DOCK-FUG	Barge Scrap Unloading	Ambient Temperature / Ambient Pressure	--	--	--	9.0E-02	--	--	--	See regulatory write-up in the application narrative			
SCRAP-RAIL	SCRAP-RAIL-FUG	Rail Scrap Unloading	Ambient Temperature / Ambient Pressure	--	--	--	3.0E-02	--	--	--	See regulatory write-up in the application narrative			
SCRAP-BULK34	SCRAP-BULK34	Barge Scrap Pile Loading	Ambient Temperature / Ambient Pressure	--	--	--	0.26	--	--	--	See regulatory write-up in the application narrative			
SCRAP-BULK35	SCRAP-BULK35	Barge Scrap Pile Loadout	Ambient Temperature / Ambient Pressure	--	--	--	0.12	--	--	--	See regulatory write-up in the application narrative			
SCRAP-BULK36	SCRAP-BULK36	Rail Scrap Pile Loading	Ambient Temperature / Ambient Pressure	--	--	--	5.2E-02	--	--	--	See regulatory write-up in the application narrative			
SCRAP-BULK37	SCRAP-BULK37	Rail Scrap Pile Loadout	Ambient Temperature / Ambient Pressure	--	--	--	0.12	--	--	--	See regulatory write-up in the application narrative			
SCRAP-BULK38	SCRAP-BULK38	Truck Scrap Pile Loading	Ambient Temperature / Ambient Pressure	--	--	--	8.6E-02	--	--	--	See regulatory write-up in the application narrative			
SCRAP-BULK39	SCRAP-BULK39	Truck Scrap Pile Loadout	Ambient Temperature / Ambient Pressure	--	--	--	0.12	--	--	--	See regulatory write-up in the application narrative			
SCRAP-BULK40	SCRAP-BULK40	Scrap Charging	Ambient Temperature / Ambient Pressure	--	--	--	9.5E-02	--	--	--	See regulatory write-up in the application narrative			
SCRAP-BULK1	SCRAP-BULK1	Dig slag inside pot barn	Ambient Temperature / Ambient Pressure	--	--	--	7.8E-02	--	--	--	See regulatory write-up in the application narrative			
SCRAP-BULK2	SCRAP-BULK2	Loader transport & dump slag into quench	Ambient Temperature / Ambient Pressure	--	--	--	7.8E-02	--	--	--	See regulatory write-up in the application narrative			
SCRAP-BULK3	SCRAP-BULK3	Loader transport & dump into F1 feed hopper/grizzly	Ambient Temperature / Ambient Pressure	--	--	--	3.1E-02	--	--	--	See regulatory write-up in the application narrative			
SCRAP-BULK4	SCRAP-BULK4	F1 feed hopper/grizzly to P1 oversize storage	Ambient Temperature / Ambient Pressure	--	--	--	2.6E-02	--	--	--	See regulatory write-up in the application narrative			
SCRAP-BULK5	SCRAP-BULK5	F1 feed hopper/grizzly to C7 crusher conveyor	Ambient Temperature / Ambient Pressure	--	--	--	5.2E-04	--	--	--	See regulatory write-up in the application narrative			
SCRAP-BULK6	SCRAP-BULK6	F1 feed hopper/grizzly to C1A main conveyor	Ambient Temperature / Ambient Pressure	--	--	--	7.8E-03	--	--	--	See regulatory write-up in the application narrative			
SCRAP-BULK7	SCRAP-BULK7	C7 to CR1 crusher	Ambient Temperature / Ambient Pressure	--	--	--	2.2E-03	--	--	--	See regulatory write-up in the application narrative			
SCRAP-BULK8	SCRAP-BULK8	CR1 crusher to C8 conveyor	Ambient Temperature / Ambient Pressure	--	--	--	1.2E-02	--	--	--	See regulatory write-up in the application narrative			
SCRAP-BULK9	SCRAP-BULK9	CR1 crusher to P2 off-spec storage	Ambient Temperature / Ambient Pressure	--	--	--	1.0E-02	--	--	--	See regulatory write-up in the application narrative			
SCRAP-BULK10	SCRAP-BULK10	C8 conveyor to C9 conveyor	Ambient Temperature / Ambient Pressure	--	--	--	1.5E-04	--	--	--	See regulatory write-up in the application narrative			
SCRAP-BULK11	SCRAP-BULK11	C9 conveyor to C1A conveyor	Ambient Temperature / Ambient Pressure	--	--	--	8.4E-04	--	--	--	See regulatory write-up in the application narrative			
SCRAP-BULK12	SCRAP-BULK12	C1A conveyor to B1 surge bin	Ambient Temperature / Ambient Pressure	--	--	--	8.4E-04	--	--	--	See regulatory write-up in the application narrative			
SCRAP-BULK13	SCRAP-BULK13	B1 surge bin to C1 conveyor	Ambient Temperature / Ambient Pressure	--	--	--	3.1E-03	--	--	--	See regulatory write-up in the application narrative			
SCRAP-BULK14	SCRAP-BULK14	C1 conveyor through M1 mag splitter to S1 slag screen	Ambient Temperature / Ambient Pressure	--	--	--	3.1E-03	--	--	--	See regulatory write-up in the application narrative			
SCRAP-BULK15	SCRAP-BULK15	C1 conveyor through M1 mag splitter to S2 off-spec screen	Ambient Temperature / Ambient Pressure	--	--	--	3.0E-03	--	--	--	See regulatory write-up in the application narrative			
SCRAP-BULK16	SCRAP-BULK16	S2 off-spec screen to C6 conveyor	Ambient Temperature / Ambient Pressure	--	--	--	1.7E-03	--	--	--	See regulatory write-up in the application narrative			
SCRAP-BULK17	SCRAP-BULK17	S2 off-spec screen to P3 off-spec storage	Ambient Temperature / Ambient Pressure	--	--	--	1.5E-03	--	--	--	See regulatory write-up in the application narrative			
SCRAP-BULK18	SCRAP-BULK18	C6 conveyor to P4 off-spec storage	Ambient Temperature / Ambient Pressure	--	--	--	1.6E-05	--	--	--	See regulatory write-up in the application narrative			
SCRAP-BULK19	SCRAP-BULK19	S1 slag screen to C2 conveyor	Ambient Temperature / Ambient Pressure	--	--	--	1.5E-03	--	--	--	See regulatory write-up in the application narrative			
SCRAP-BULK20	SCRAP-BULK20	C2 conveyor to C5 conveyor	Ambient Temperature / Ambient Pressure	--	--	--	1.2E-03	--	--	--	See regulatory write-up in the application narrative			
SCRAP-BULK21	SCRAP-BULK21	C5 conveyor to SLGSKP1	Ambient Temperature / Ambient Pressure	--	--	--	1.2E-03	--	--	--	See regulatory write-up in the application narrative			
SCRAP-BULK22	SCRAP-BULK22	S1 slag screen to C4 conveyor	Ambient Temperature / Ambient Pressure	--	--	--	1.9E-02	--	--	--	See regulatory write-up in the application narrative			
SCRAP-BULK23	SCRAP-BULK23	C4 conveyor to SLGSKP3	Ambient Temperature / Ambient Pressure	--	--	--	8.9E-04	--	--	--	See regulatory write-up in the application narrative			
SCRAP-BULK24	SCRAP-BULK24	S1 slag screen to C3 conveyor	Ambient Temperature / Ambient Pressure	--	--	--	1.4E-02	--	--	--	See regulatory write-up in the application narrative			
SCRAP-BULK25	SCRAP-BULK25	C3 conveyor to SLGSKP2	Ambient Temperature / Ambient Pressure	--	--	--	5.9E-04	--	--	--	See regulatory write-up in the application narrative			
SCRAP-BULK26	SCRAP-BULK26	S1 slag screen to SLGSKP4	Ambient Temperature / Ambient Pressure	--	--	--	9.6E-03	--	--	--	See regulatory write-up in the application narrative			
SCRAP-BULK27	SCRAP-BULK27	Loader transports & loads products into trucks to product stockpiles	Ambient Temperature / Ambient Pressure	--	--	--	2.8E-03	--	--	--	See regulatory write-up in the application narrative			
SCRAP-BULK28	SCRAP-BULK28	Truck transports & dumps products into product stockpiles	Ambient Temperature / Ambient Pressure	--	--	--	3.1E-02	--	--	--	See regulatory write-up in the application narrative			
SCRAP-BULK29	SCRAP-BULK29	Loader transports & loads into trucks, oversize to drop ball	Ambient Temperature / Ambient Pressure	--	--	--	3.1E-02	--	--	--	See regulatory write-up in the application narrative			
SCRAP-BULK30	SCRAP-BULK30	Truck transports & dumps oversize into drop ball area	Ambient Temperature / Ambient Pressure	--	--	--	6.3E-04	--	--	--	See regulatory write-up in the application narrative			
SCRAP-BULK31	SCRAP-BULK31	Truck transports ladle lip and meltshop cleanup materials & dumps at drop ball site	Ambient Temperature / Ambient Pressure	--	--	--	2.0E-03	--	--	--	See regulatory write-up in the application narrative			
SCRAP-BULK32	SCRAP-BULK32	Truck transports & dumps tundish at lancing station	Ambient Temperature / Ambient Pressure	--	--	--	1.1E-03	--	--	--	See regulatory write-up in the application narrative			
SCRAP-BULK33	SCRAP-BULK33	Ball drop crushing	Ambient Temperature / Ambient Pressure	--	--	--	1.2E-03	--	--	--	See regulatory write-up in the application narrative			
SLGSKP1	SLGSKP1	Slag Stockpile 1	Ambient Temperature / Ambient Pressure	--	--	--	5.8E-02	--	--	--	See regulatory write-up in the application narrative			
SLGSKP2	SLGSKP2	Slag Stockpile 2	Ambient Temperature / Ambient Pressure	--	--	--	5.8E-02	--	--	--	See regulatory write-up in the application narrative			

Emission Unit Form Number:		1	8. Projected amount of pollutants								9. Proposed Monitoring, Recordkeeping, Reporting, and Testing			
			Controlled Emission Rates (lb/hr)											
Emission Unit ID	Emission Point ID	Name or Type and Model	@ Temp and Pressure (°F & psia)	NO_X	SO_2	CO	PM_{10}	Hydrocarbons	VOC	Lead	Monitoring	Recordkeeping	Reporting	Testing
SLGSKP3	SLGSKP3	Slag Stockpile 3	Ambient Temperature / Ambient Pressure	--	--	--	5.8E-02	--	--	--	See regulatory write-up in the application narrative			
SLGSKP4	SLGSKP4	Slag Stockpile 4	Ambient Temperature / Ambient Pressure	--	--	--	5.8E-02	--	--	--	See regulatory write-up in the application narrative			
SCRPSKP1	SCRPSKP1	Scrap Metal Stockpile 1	Ambient Temperature / Ambient Pressure	--	--	--	0.15	--	--	--	See regulatory write-up in the application narrative			
SCRPSKP2	SCRPSKP2	Scrap Metal Stockpile 2	Ambient Temperature / Ambient Pressure	--	--	--	0.15	--	--	--	See regulatory write-up in the application narrative			
SCRPSKP3	SCRPSKP3	Scrap Metal Stockpile 3	Ambient Temperature / Ambient Pressure	--	--	--	0.15	--	--	--	See regulatory write-up in the application narrative			
T25	T25	Cold Degreaser	Ambient Temperature / Ambient Pressure	--	--	--	--	6.6E-02	6.6E-02	--	See regulatory write-up in the application narrative			
T26	T26	Cold Degreaser	Ambient Temperature / Ambient Pressure	--	--	--	--	6.6E-02	6.6E-02	--	See regulatory write-up in the application narrative			
T27	T27	Cold Degreaser	Ambient Temperature / Ambient Pressure	--	--	--	--	6.6E-02	6.6E-02	--	See regulatory write-up in the application narrative			
T28	T28	Cold Degreaser	Ambient Temperature / Ambient Pressure	--	--	--	--	6.6E-02	6.6E-02	--	See regulatory write-up in the application narrative			
T29	T29	Cold Degreaser	Ambient Temperature / Ambient Pressure	--	--	--	--	6.6E-02	6.6E-02	--	See regulatory write-up in the application narrative			

Note: Extraneous information unrelated to regulatory requirements and air emissions has been excluded from the application form. Information labeled as "to be determined" (TBD) will be provided once specific equipment vendors have been selected.

NUCOR - Project Honey Badger
Attachment L - Fugitive Emissions from Unpaved Haulroads

UNPAVED HAULROADS & PARKING AREAS (including all equipment traffic involved in process, haul trucks, endloaders, etc.)

		PM	PM-10
k =	Particle Size Multiplier	4.90	1.5
s =	Silt content of road surface material (%)	6	6
p =	Number of days per year with precipitation > 0.01 in.	140	140

Roadway Segment	Desciption	Mean Vehicle Weight (tons)	Mean Vehicle Speed (mph)	Daily Miles Traveled (VMT/day)	Annual Miles Traveled (VMT/yr)	Control Device ID Number	Control Efficiency (%)
FUGD-UNPAVED-11U	Unpaved Road-Road 11U	29.22	<15 MPH	29.12	10,629	Watering	90%
FUGD-UNPAVED-12U	Unpaved Road-Road 12U	29.43	<15 MPH	30.24	11,038	Watering	90%
FUGD-UNPAVED-13U	Unpaved Road-Road 13U	74.09	<15 MPH	31.96	11,665	Watering	90%
FUGD-UNPAVED-14U	Unpaved Road-Road 14U	74.09	<15 MPH	3.76	1,372	Watering	90%
FUGD-UNPAVED-15U	Unpaved Road-Road 15U	118.66	<15 MPH	24.94	9,103	Watering	90%
FUGD-UNPAVED-16U	Unpaved Road-Road 16U	109.06	<15 MPH	17.59	6,420	Watering	90%
FUGD-UNPAVED-17U	Unpaved Road-Road 17U	153.66	<15 MPH	13.78	5,030	Watering	90%
FUGD-UNPAVED-18U	Unpaved Road-Road 18U	29.22	<15 MPH	27.04	9,870	Watering	90%
FUGD-UNPAVED-19U	Unpaved Road-Road 19U	70.63	<15 MPH	12.96	4,730	Watering	90%

Source: *AP-42 Fifth Edition – 13.2.2 Unpaved Roads*

$E = k \times 5.9 \times (s \div 12) \times (S \div 30) \times (W \div 3)^{0.7} \times (w \div 4)^{0.5} \times ((365 - p) \div 365)$ = lb/Vehicle Mile Traveled (VMT)

Where:

		PM	PM-10
k =	Particle Size Multiplier	4.90	1.5
s =	Silt content of road surface material (%)	6	6
S =	Mean vehicle speed (mph)	<15 MPH	<15 MPH
W =	Mean vehicle weight (tons)	68.38	68.38
p =	Number of days per year with precipitation > 0.01 in.	140	140

For lb/hr: [lb ÷ VMT] × [VMT ÷ trip] × [Trips ÷ Hour] = lb/hr

For TPY: [lb ÷ VMT] × [VMT ÷ trip] × [Trips ÷ Hour] × [Ton ÷ 2000 lb] = Tons/year

SUMMARY OF UNPAVED HAULROAD EMISSIONS

	PM				PM-10			
	Uncontrolled		Controlled		Uncontrolled		Controlled	
Roadway Segment	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
FUGD-UNPAVED-11U	6.28	27.52	0.63	2.75	1.67	7.33	0.17	0.73
FUGD-UNPAVED-12U	6.55	28.67	0.65	2.87	1.74	7.64	0.17	0.76
FUGD-UNPAVED-13U	10.48	45.91	1.05	4.59	2.79	12.24	0.28	1.22
FUGD-UNPAVED-14U	1.23	5.40	0.12	0.54	0.33	1.44	0.03	0.14
FUGD-UNPAVED-15U	10.11	44.28	1.01	4.43	2.69	11.80	0.27	1.18
FUGD-UNPAVED-16U	6.87	30.07	0.69	3.01	1.83	8.01	0.18	0.80
FUGD-UNPAVED-17U	6.28	27.49	0.63	2.75	1.67	7.33	0.17	0.73
FUGD-UNPAVED-18U	5.83	25.56	0.58	2.56	1.55	6.81	0.16	0.68
FUGD-UNPAVED-19U	4.16	18.22	0.42	1.82	1.11	4.86	0.11	0.49

Note: Extraneous information unrelated to regulatory requirements and air emissions has been excluded from the application form. Information labeled as "to be determined" (TBD) will be provided once specific equipment vendors have been selected.

Attachment L - Fugitive Emissions from Paved Haulroads

INDUSTRIAL PAVED HAULROADS & PARKING AREAS (including all equipment traffic involved in process, haul trucks, endloaders, etc.)

s =	Surface material silt content (g/m^2)	9.7

Roadway Segment	Desciption	Mean Vehicle Weight (tons)	Daily Miles Traveled (VMT/day)	Annual Miles Traveled (VMT/yr)	Control Device ID Number	Control Efficiency (%)
FUGD-PAVED-01P	Paved Road-Road 01P	15.33	107.14	39,106	Watering	90%
FUGD-PAVED-02P	Paved Road-Road 02P	25.09	281.40	102,711	Watering	90%
FUGD-PAVED-03P	Paved Road-Road 03P	11.67	74.58	27,222	Watering	90%
FUGD-PAVED-04P	Paved Road-Road 04P	3.03	306.00	111,690	Watering	90%
FUGD-PAVED-05P	Paved Road-Road 05P	27.02	9.44	3,446	Watering	90%
FUGD-PAVED-06P	Paved Road-Road 06P	2.4	46.00	16,790	Watering	90%
FUGD-PAVED-07P	Paved Road-Road 07P	25.98	30.96	11,300	Watering	90%
FUGD-PAVED-08P	Paved Road-Road 08P	26.78	14.08	5,139	Watering	90%
FUGD-PAVED-09P	Paved Road-Road 09P	17.41	125.12	45,669	Watering	90%
FUGD-PAVED-10P	Paved Road-Road 10P	58.07	32.20	11,753	Watering	90%

SUMMARY OF PAVED HAULROAD EMISSIONS

	PM				PM-10			
	Uncontrolled		Controlled		Uncontrolled		Controlled	
Roadway Segment	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
FUGD-PAVED-01P	5.68	24.89	0.57	2.49	1.14	4.98	0.11	0.50
FUGD-PAVED-02P	24.67	108.06	2.47	10.81	4.93	21.61	0.49	2.16
FUGD-PAVED-03P	3.00	13.12	0.30	1.31	0.60	2.62	0.06	0.26
FUGD-PAVED-04P	3.11	13.60	0.31	1.36	0.62	2.72	0.06	0.27
FUGD-PAVED-05P	0.89	3.91	0.09	0.39	0.18	0.78	0.02	0.08
FUGD-PAVED-06P	0.37	1.61	0.04	0.16	0.07	0.32	0.01	0.03
FUGD-PAVED-07P	2.81	12.32	0.28	1.23	0.56	2.46	0.06	0.25
FUGD-PAVED-08P	1.32	5.78	0.13	0.58	0.26	1.16	0.03	0.12
FUGD-PAVED-09P	7.56	33.10	0.76	3.31	1.51	6.62	0.15	0.66
FUGD-PAVED-10P	6.64	29.10	0.66	2.91	1.33	5.82	0.13	0.58

Note: Extraneous information unrelated to regulatory requirements and air emissions has been excluded from the application form. Information labeled as "to be determined" (TBD) will be provided once specific equipment vendors have been selected.

NUCOR - Project Honey Badger
Attachment L - Emission Unit Data Sheet (Storage Tanks)

Form Number:	2	3	4	5	6	7A	7B	7C	8	9A	9B	10A	10B	11A	11B	12	13A	13B
	Tank Name	**Tank Equipment Identification No. (As Assigned on Equipment List Form)**	**Emission Point Identification No. (As Assigned on Equipment List Form)**	**Date of Commencement of Construction (For Existing Tanks)**	**Type of Change**	**Does the Tank Have More Than One Mode of Operation? (e.g., Is There More Than One Product Stored in the Tank?)**	**If YES, Explain and Identify Which Mode is Covered by this Application (Note: A Separate Form Must be Completed for Each Mode).**	**Provide Any Limitations on Source Operation Affecting Emissions, Any Work Practice Standards (e.g. Production Variation, etc.)**	**Design Capacity (gal)**	**Tank Internal Diameter (ft)**	**Tank Internal Height (or Length) (ft)**	**Maximum Liquid Height (ft)**	**Average Liquid Height (ft)**	**Maximum Vapor Space Height (ft)**	**Average Vapor Space Height (ft)**	**Nominal Capacity (gal)**	**Maximum Annual Throughput (gal/yr)**	**Maximum Daily Throughput (gal/day)**
	Diesel Tank	T1	T1	N/A	New Construction	No	N/A	N/A	5,000	5	8	7	4	8	4	5,000	365,000	24,000
	Diesel Tank	T2	T2	N/A	New Construction	No	N/A	N/A	1,000	8	27	26	13.5	27	13.5	1,000	365,000	24,000
	Diesel Tank	T3	T3	N/A	New Construction	No	N/A	N/A	1,000	5	8	7	4	8	4	1,000	365,000	24,000
	Diesel Tank	T4	T4	N/A	New Construction	No	N/A	N/A	1,000	5	8	7	4	8	4	1,000	365,000	24,000
	Diesel Tank	T5	T5	N/A	New Construction	No	N/A	N/A	2,000	5	8	7	4	8	4	2,000	365,000	24,000
	Diesel Tank	T6	T6	N/A	New Construction	No	N/A	N/A	2,000	5	8	7	4	8	4	2,000	365,000	24,000
	Gasoline Tank	T7	T7	N/A	New Construction	No	N/A	N/A	1,000	5	8	7	4	8	4	1,000	120,000	24,000
	Caster Hydraulic Oil	T8	T8	N/A	New Construction	No	N/A	N/A	5,000	5	8	7	4	8	4	5,000	365,000	120,000
	Hot Mill Hydraulic Oil	T9	T9	N/A	New Construction	No	N/A	N/A	5,000	5	8	7	4	8	4	5,000	365,000	120,000
	HCL Tank #1	T10	T10	N/A	New Construction	No	N/A	N/A	26,400	11	40	39	20	40	20	26,400	1,200,000	120,000
	HCL Tank #2	T11	T11	N/A	New Construction	No	N/A	N/A	26,400	11	40	39	20	40	20	26,400	1,200,000	120,000
	HCL Tank #3	T12	T12	N/A	New Construction	No	N/A	N/A	26,400	11	40	39	20	40	20	26,400	1,200,000	120,000
	HCL Tank #4	T13	T13	N/A	New Construction	No	N/A	N/A	26,400	11	40	39	20	40	20	26,400	1,200,000	120,000
	HCL Tank #5	T14	T14	N/A	New Construction	No	N/A	N/A	26,400	11	40	39	20	40	20	26,400	1,200,000	120,000
	HCL Tank #6	T15	T15	N/A	New Construction	No	N/A	N/A	26,400	11	40	39	20	40	20	26,400	1,200,000	120,000
	SPL Tank #1	T16	T16	N/A	New Construction	No	N/A	N/A	26,400	11	40	39	20	40	20	26,400	900,000	120,000
	SPL Tank #2	T17	T17	N/A	New Construction	No	N/A	N/A	26,400	11	40	39	20	40	20	26,400	900,000	120,000
	SPL Tank #3	T18	T18	N/A	New Construction	No	N/A	N/A	26,400	11	40	39	20	40	20	26,400	900,000	120,000
	SPL Tank #4	T19	T19	N/A	New Construction	No	N/A	N/A	26,400	11	40	39	20	40	20	26,400	900,000	120,000
	SPL Tank #5	T20	T20	N/A	New Construction	No	N/A	N/A	26,400	11	40	39	20	40	20	26,400	900,000	120,000
	SPL Tank #6	T21	T21	N/A	New Construction	No	N/A	N/A	26,400	11	40	39	20	40	20	26,400	900,000	120,000
	SPL Tank #7	T22	T22	N/A	New Construction	No	N/A	N/A	26,400	11	40	39	20	40	20	26,400	900,000	120,000
	SPL Tank #8	T23	T23	N/A	New Construction	No	N/A	N/A	26,400	11	40	39	20	40	20	26,400	900,000	120,000
	Used Oil Tank	T24	T24	N/A	New Construction	No	N/A	N/A	5,000	5	8	7	4	8	4	5,000	365,000	120,000

Form Number:	2	3	4	14	16	17. Variable Vapor Space Systems (If Applicable)		18	20A	20B	20C	22A	22B	22C	24A	24B	27
	Tank Name	Tank Equipment Identification No. (As Assigned on Equipment List Form)	Emission Point Identification No. (As Assigned on Equipment List Form)	Turnovers per Year	Tank Fill Method	Volume Expansion Capacity of System (gal)	Number of Transfers Into System per Year	Type of Tanks (Select All that Apply)	Shell Color	Roof Color	Year Last Painted	Is the tank heated?	If YES, Provide the Operating Temperature (°F)	If YES, Please Describe How Heat is Provided to Tank	For Domed Roof, Provide Roof Radius (ft)	For Cone Roof, Provide Slope (ft/ft)	Provide the City and State on Which the Data in this Section are Based
	Diesel Tank	T1	T1	73	TBD	N/A	N/A	Fixed Roof - Horizontal	White	White	N/A	No	N/A	N/A	N/A	0.0625	Huntington, West Virginia
	Diesel Tank	T2	T2	365	TBD	N/A	N/A	Fixed Roof - Horizontal	White	White	N/A	No	N/A	N/A	N/A	0.0625	Huntington, West Virginia
	Diesel Tank	T3	T3	365	TBD	N/A	N/A	Fixed Roof - Horizontal	White	White	N/A	No	N/A	N/A	N/A	0.0625	Huntington, West Virginia
	Diesel Tank	T4	T4	365	TBD	N/A	N/A	Fixed Roof - Horizontal	White	White	N/A	No	N/A	N/A	N/A	0.0625	Huntington, West Virginia
	Diesel Tank	T5	T5	183	TBD	N/A	N/A	Fixed Roof - Horizontal	White	White	N/A	No	N/A	N/A	N/A	0.0625	Huntington, West Virginia
	Diesel Tank	T6	T6	183	TBD	N/A	N/A	Fixed Roof - Horizontal	White	White	N/A	No	N/A	N/A	N/A	0.0625	Huntington, West Virginia
	Gasoline Tank	T7	T7	120	TBD	N/A	N/A	Fixed Roof - Horizontal	White	White	N/A	No	N/A	N/A	N/A	0.0625	Huntington, West Virginia
	Caster Hydraulic Oil	T8	T8	73	TBD	N/A	N/A	Fixed Roof - Cone Roof	White	White	N/A	No	N/A	N/A	N/A	0.0625	Huntington, West Virginia
	Hot Mill Hydraulic Oil	T9	T9	73	TBD	N/A	N/A	Fixed Roof - Cone Roof	White	White	N/A	No	N/A	N/A	N/A	0.0625	Huntington, West Virginia
	HCL Tank #1	T10	T10	45	TBD	N/A	N/A	Fixed Roof - Cone Roof	White	White	N/A	No	N/A	N/A	N/A	0.0625	Huntington, West Virginia
	HCL Tank #2	T11	T11	45	TBD	N/A	N/A	Fixed Roof - Cone Roof	White	White	N/A	No	N/A	N/A	N/A	0.0625	Huntington, West Virginia
	HCL Tank #3	T12	T12	45	TBD	N/A	N/A	Fixed Roof - Cone Roof	White	White	N/A	No	N/A	N/A	N/A	0.0625	Huntington, West Virginia
	HCL Tank #4	T13	T13	45	TBD	N/A	N/A	Fixed Roof - Cone Roof	White	White	N/A	No	N/A	N/A	N/A	0.0625	Huntington, West Virginia
	HCL Tank #5	T14	T14	45	TBD	N/A	N/A	Fixed Roof - Cone Roof	White	White	N/A	No	N/A	N/A	N/A	0.0625	Huntington, West Virginia
	HCL Tank #6	T15	T15	45	TBD	N/A	N/A	Fixed Roof - Cone Roof	White	White	N/A	No	N/A	N/A	N/A	0.0625	Huntington, West Virginia
	SPL Tank #1	T16	T16	34	TBD	N/A	N/A	Fixed Roof - Cone Roof	White	White	N/A	No	N/A	N/A	N/A	0.0625	Huntington, West Virginia
	SPL Tank #2	T17	T17	34	TBD	N/A	N/A	Fixed Roof - Cone Roof	White	White	N/A	No	N/A	N/A	N/A	0.0625	Huntington, West Virginia
	SPL Tank #3	T18	T18	34	TBD	N/A	N/A	Fixed Roof - Cone Roof	White	White	N/A	No	N/A	N/A	N/A	0.0625	Huntington, West Virginia
	SPL Tank #4	T19	T19	34	TBD	N/A	N/A	Fixed Roof - Cone Roof	White	White	N/A	No	N/A	N/A	N/A	0.0625	Huntington, West Virginia
	SPL Tank #5	T20	T20	34	TBD	N/A	N/A	Fixed Roof - Cone Roof	White	White	N/A	No	N/A	N/A	N/A	0.0625	Huntington, West Virginia
	SPL Tank #6	T21	T21	34	TBD	N/A	N/A	Fixed Roof - Cone Roof	White	White	N/A	No	N/A	N/A	N/A	0.0625	Huntington, West Virginia
	SPL Tank #7	T22	T22	34	TBD	N/A	N/A	Fixed Roof - Cone Roof	White	White	N/A	No	N/A	N/A	N/A	0.0625	Huntington, West Virginia
	SPL Tank #8	T23	T23	34	TBD	N/A	N/A	Fixed Roof - Cone Roof	White	White	N/A	No	N/A	N/A	N/A	0.0625	Huntington, West Virginia
	Used Oil Tank	T24	T24	73	TBD	N/A	N/A	Fixed Roof - Cone Roof	White	White	N/A	No	N/A	N/A	N/A	0.0625	Huntington, West Virginia

Form Number:	2	3	4	28	29	30	31	32	33	34A	34B	35A	35B	36A	36B	37A	37B	38A	38B
	Tank Name	Tank Equipment Identification No. (As Assigned on Equipment List Form)	Emission Point Identification No. (As Assigned on Equipment List Form)	Daily Average Ambient Temperature (°F)	Annual Average Maximum Temperature (°F)	Annual Average Minimum Temperature (°F)	Average Wind Speed (miles/hr)	Annual Average Solar Insulation Factor (BTU/(ft^2·day))	Atmospheric Pressure (psia)	Minimum Average Daily Temperature Range of Bulk Liquid (°F)	Maximum Average Daily Temperature Range of Bulk Liquid (°F)	Minimum Average Operating Pressure Range of Tank (psig)	Maximum Average Operating Pressure Range of Tank (psig)	Minimum Liquid Surface Temperature (°F)	Corresponding Vapor Pressure (psia)	Average Liquid Surface Temperature (°F)	Corresponding Vapor Pressure (psia)	Maximum Liquid Surface Temperature (°F)	Corresponding Vapor Pressure (psia)
	Diesel Tank	T1	T1	See Storage Tank Emission Calculation Worksheets															
	Diesel Tank	T2	T2	See Storage Tank Emission Calculation Worksheets															
	Diesel Tank	T3	T3	See Storage Tank Emission Calculation Worksheets															
	Diesel Tank	T4	T4	See Storage Tank Emission Calculation Worksheets															
	Diesel Tank	T5	T5	See Storage Tank Emission Calculation Worksheets															
	Diesel Tank	T6	T6	See Storage Tank Emission Calculation Worksheets															
	Gasoline Tank	T7	T7	See Storage Tank Emission Calculation Worksheets															
	Caster Hydraulic Oil	T8	T8	See Storage Tank Emission Calculation Worksheets															
	Hot Mill Hydraulic Oil	T9	T9	See Storage Tank Emission Calculation Worksheets															
	HCL Tank #1	T10	T10	See Storage Tank Emission Calculation Worksheets															
	HCL Tank #2	T11	T11	See Storage Tank Emission Calculation Worksheets															
	HCL Tank #3	T12	T12	See Storage Tank Emission Calculation Worksheets															
	HCL Tank #4	T13	T13	See Storage Tank Emission Calculation Worksheets															
	HCL Tank #5	T14	T14	See Storage Tank Emission Calculation Worksheets															
	HCL Tank #6	T15	T15	See Storage Tank Emission Calculation Worksheets															
	SPL Tank #1	T16	T16	See Storage Tank Emission Calculation Worksheets															
	SPL Tank #2	T17	T17	See Storage Tank Emission Calculation Worksheets															
	SPL Tank #3	T18	T18	See Storage Tank Emission Calculation Worksheets															
	SPL Tank #4	T19	T19	See Storage Tank Emission Calculation Worksheets															
	SPL Tank #5	T20	T20	See Storage Tank Emission Calculation Worksheets															
	SPL Tank #6	T21	T21	See Storage Tank Emission Calculation Worksheets															
	SPL Tank #7	T22	T22	See Storage Tank Emission Calculation Worksheets															
	SPL Tank #8	T23	T23	See Storage Tank Emission Calculation Worksheets															
	Used Oil Tank	T24	T24	See Storage Tank Emission Calculation Worksheets															

Form Number:	2	3	4	39. Provide the following for each liquid or gas to be stored in tank							40	41. Emission Rate (Remember to attach emissions calculations, including TANKS Summary Sheets if applicable.)				
	Tank Name	Tank Equipment Identification No. (As Assigned on Equipment List Form)	Emission Point Identification No. (As Assigned on Equipment List Form)	Material Name or Composition	Liquid Density (lb/gal)	Vapor Molecular Weight (lb/lb-mole)	Maximum True Vapor Pressure (psia)	Maximum Reid Vapor Pressure (psia)	Months Storage per Year (Start)	Months Storage per Year (End)	Emission Control Devices (Select as Many as Apply)	Material Name & CAS No.	Breather Loss (lb/yr)	Working Loss (lb/yr)	Annual Loss (lb/yr)	Estimation Method
	Diesel Tank	T1	T1	Diesel	7.1	130	0.02	N/A	January	December	Does Not Apply	Diesel	0.16	1.88	2.04	EPA Emission Factor
	Diesel Tank	T2	T2	Diesel	7.1	130	0.02	N/A	January	December	Does Not Apply	Diesel	0.16	1.88	2.04	EPA Emission Factor
	Diesel Tank	T3	T3	Diesel	7.1	130	0.02	N/A	January	December	Does Not Apply	Diesel	0.16	1.88	2.04	EPA Emission Factor
	Diesel Tank	T4	T4	Diesel	7.1	130	0.02	N/A	January	December	Does Not Apply	Diesel	0.16	1.88	2.04	EPA Emission Factor
	Diesel Tank	T5	T5	Diesel	7.1	130	0.02	N/A	January	December	Does Not Apply	Diesel	0.16	1.88	2.04	EPA Emission Factor
	Diesel Tank	T6	T6	Diesel	7.1	130	0.02	N/A	January	December	Does Not Apply	Diesel	0.16	1.88	2.04	EPA Emission Factor
	Gasoline Tank	T7	T7	Unleaded Gasoline	5.6	62	15.4	15	January	December	Does Not Apply	Gasoline	343	572	916	EPA Emission Factor
	Caster Hydraulic Oil	T8	T8	Hydraulic Oil	7.26	226	0.0005	N/A	January	December	Does Not Apply	Hydraulic Oil	2.0E-03	0.02	0.02	EPA Emission Factor
	Hot Mill Hydraulic Oil	T9	T9	Hydraulic Oil	7.26	226	0.0005	N/A	January	December	Does Not Apply	Hydraulic Oil	2.0E-03	0.02	0.02	EPA Emission Factor
	HCL Tank #1	T10	T10	HCl Acid	9.83	36	0.010	N/A	January	December	Does Not Apply	HCl	1.65	9	11	EPA Emission Factor
	HCL Tank #2	T11	T11	HCl Acid	9.83	36	0.010	N/A	January	December	Does Not Apply	HCl	1.65	9	11	EPA Emission Factor
	HCL Tank #3	T12	T12	HCl Acid	9.83	36	0.010	N/A	January	December	Does Not Apply	HCl	1.65	9	11	EPA Emission Factor
	HCL Tank #4	T13	T13	HCl Acid	9.83	36	0.010	N/A	January	December	Does Not Apply	HCl	1.65	9	11	EPA Emission Factor
	HCL Tank #5	T14	T14	HCl Acid	9.83	36	0.010	N/A	January	December	Does Not Apply	HCl	1.65	9	11	EPA Emission Factor
	HCL Tank #6	T15	T15	HCl Acid	9.83	36	0.010	N/A	January	December	Does Not Apply	HCl	1.65	9	11	EPA Emission Factor
	SPL Tank #1	T16	T16	Spent Pickle Liquor	9.83	36	0.010	N/A	January	December	Does Not Apply	Spent Pickle Liquor	1.65	8	9	EPA Emission Factor
	SPL Tank #2	T17	T17	Spent Pickle Liquor	9.83	36	0.010	N/A	January	December	Does Not Apply	Spent Pickle Liquor	1.65	8	9	EPA Emission Factor
	SPL Tank #3	T18	T18	Spent Pickle Liquor	9.83	36	0.010	N/A	January	December	Does Not Apply	Spent Pickle Liquor	1.65	8	9	EPA Emission Factor
	SPL Tank #4	T19	T19	Spent Pickle Liquor	9.83	36	0.010	N/A	January	December	Does Not Apply	Spent Pickle Liquor	1.65	8	9	EPA Emission Factor
	SPL Tank #5	T20	T20	Spent Pickle Liquor	9.83	36	0.010	N/A	January	December	Does Not Apply	Spent Pickle Liquor	1.65	8	9	EPA Emission Factor
	SPL Tank #6	T21	T21	Spent Pickle Liquor	9.83	36	0.010	N/A	January	December	Does Not Apply	Spent Pickle Liquor	1.65	8	9	EPA Emission Factor
	SPL Tank #7	T22	T22	Spent Pickle Liquor	9.83	36	0.010	N/A	January	December	Does Not Apply	Spent Pickle Liquor	1.65	8	9	EPA Emission Factor
	SPL Tank #8	T23	T23	Spent Pickle Liquor	9.83	36	0.010	N/A	January	December	Does Not Apply	Spent Pickle Liquor	1.65	8	9	EPA Emission Factor
	Used Oil Tank	T24	T24	Used Oil	7.26	226	0.0005	N/A	January	December	Does Not Apply	Used Oil	2.0E-03	0.02	0.02	EPA Emission Factor

Note: Extraneous information unrelated to regulatory requirements and air emissions has been excluded from the application form. Information labeled as "to be determined" (TBD) will be provided once specific equipment vendors have been selected.

Attachment M: Air Pollution Control Device Sheets

Form Number:		1	5	11	14. Operation Hours		16	21. Particulate Loading	22	23	24		26	31	32. Proposed Monitoring, Recordkeeping, Reporting, and Testing			
Control Device ID	Emission Point ID	Manufacturer and Model No.	Baghouse Configuration	Baghouse Operation	Max. per Day	Max. per Year	Gas flow rate into the collector (dscfm)	Outlet (gr/scf)	Type of pollutant(s) to be collected (if particulate give specific type)	Is there any SO_3 in the emission stream (If yes, also include ppmv)	Emission rate of pollutant (specify) into and out of collector at maximum design operating conditions Pollutant	Outlet (gr/dscf)	How is filter monitored for indications of deterioration (e.g., broken bags)?	Have you included Baghouse Control Device in the Emissions Points Data Summary Sheet?	Monitoring	Recordkeeping	Reporting	Testing
Pulse Jet Fabric Filter Baghouse 1	BHST-1	TBD	TBD	Continuous	24	8,760	1,103,616	0.0018	PM, PM_{10}, & $PM_{2.5}$	6.75	PM PM_{10} $PM_{2.5}$	0.0018 0.0052 0.0052	TBD	Yes	See regulatory write-up in the application narrative			
Pulse Jet Fabric Filter Baghouse 2	BHST-2	TBD	TBD	Continuous	24	8,760	1,103,616	0.0018	PM, PM_{10}, & $PM_{2.5}$	6.75	PM PM_{10} $PM_{2.5}$	0.0018 0.0052 0.0052	TBD	Yes	See regulatory write-up in the application narrative			
DRI Unloading Dock Baghouse	DRI-DOCK-ST	TBD	TBD	Continuous	24	8,760	4,000	0.001	PM, PM_{10}, & $PM_{2.5}$	--	PM PM_{10} $PM_{2.5}$	0.001 0.001 0.00049	TBD	Yes	See regulatory write-up in the application narrative			
DRI Storage Silo 1 Baghouse	DRIVF1	TBD	TBD	Continuous	24	8,760	1,200	0.001	PM, PM_{10}, & $PM_{2.5}$	--	PM PM_{10} $PM_{2.5}$	0.001 0.001 0.00049	TBD	Yes	See regulatory write-up in the application narrative			
DRI Storage Silo 2 Baghouse	DRIVF2	TBD	TBD	Continuous	24	8,760	1,200	0.001	PM, PM_{10}, & $PM_{2.5}$	--	PM PM_{10} $PM_{2.5}$	0.001 0.001 0.00049	TBD	Yes	See regulatory write-up in the application narrative			
DRI Storage Silo 3 Baghouse	DRIVF3	TBD	TBD	Continuous	24	8,760	1,200	0.001	PM, PM_{10}, & $PM_{2.5}$	--	PM PM_{10} $PM_{2.5}$	0.001 0.001 0.00049	TBD	Yes	See regulatory write-up in the application narrative			
DRI Storage Silo 4 Baghouse	DRIVF4	TBD	TBD	Continuous	24	8,760	1,200	0.001	PM, PM_{10}, & $PM_{2.5}$	--	PM PM_{10} $PM_{2.5}$	0.001 0.001 0.00049	TBD	Yes	See regulatory write-up in the application narrative			
DRI Day Bin 1 Baghouse	DRI-DB1-BH	TBD	TBD	Continuous	24	8,760	1,200	0.001	PM, PM_{10}, & $PM_{2.5}$	--	PM PM_{10} $PM_{2.5}$	0.001 0.001 0.00049	TBD	Yes	See regulatory write-up in the application narrative			
DRI Day Bin 2 Baghouse	DRI-DB2-BH	TBD	TBD	Continuous	24	8,760	1,200	0.001	PM, PM_{10}, & $PM_{2.5}$	--	PM PM_{10} $PM_{2.5}$	0.001 0.001 0.00049	TBD	Yes	See regulatory write-up in the application narrative			
DRI Transfer Conveyors Baghouse	DRI-CONV-BH	TBD	TBD	Continuous	24	8,760	1,200	0.001	PM, PM_{10}, & $PM_{2.5}$	--	PM PM_{10} $PM_{2.5}$	0.001 0.001 0.00049	TBD	Yes	See regulatory write-up in the application narrative			
Slag Cutting Baghouse	SLAG-CUT-BH	TBD	TBD	Continuous	24	8,760	100,000	0.001	PM, PM_{10}, & $PM_{2.5}$	--	PM PM_{10} $PM_{2.5}$	0.001 0.001 0.001	TBD	Yes	See regulatory write-up in the application narrative			
EAF Baghouse 1 Dust Silo Bin Vent Filter	EAFVF1	TBD	TBD	Continuous	24	8,760	1,000	0.01	PM, PM_{10}, & $PM_{2.5}$	--	PM PM_{10} $PM_{2.5}$	0.01 0.01 0.01	TBD	Yes	See regulatory write-up in the application narrative			
EAF Baghouse 2 Dust Silo Bin Vent Filter	EAFVF2	TBD	TBD	Continuous	24	8,760	1,000	0.01	PM, PM_{10}, & $PM_{2.5}$	--	PM PM_{10} $PM_{2.5}$	0.01 0.01 0.01	TBD	Yes	See regulatory write-up in the application narrative			
Lime Dump Station Baghouse	LIME-DUMP-ST	TBD	TBD	Continuous	24	8,760	2,000	0.005	PM, PM_{10}, & $PM_{2.5}$	--	PM PM_{10} $PM_{2.5}$	0.005 0.005 0.005	TBD	Yes	See regulatory write-up in the application narrative			
Carbon Dump Station Baghouse	CARBON-DUMP-ST	TBD	TBD	Continuous	24	8,760	2,000	0.005	PM, PM_{10}, & $PM_{2.5}$	--	PM PM_{10} $PM_{2.5}$	0.005 0.005 0.005	TBD	Yes	See regulatory write-up in the application narrative			
Alloy Handling System Baghouse	ALLOY-HANDLE-ST	TBD	TBD	Continuous	24	8,760	3,800	0.005	PM, PM_{10}, & $PM_{2.5}$	--	PM PM_{10} $PM_{2.5}$	0.005 0.005 0.005	TBD	Yes	See regulatory write-up in the application narrative			
Rolling Mill Baghouse	RM-BH	TBD	TBD	Continuous	24	8,760	117,716	0.01	PM, PM_{10}, & $PM_{2.5}$	--	PM PM_{10} $PM_{2.5}$	0.01 0.01 0.005	TBD	Yes	See regulatory write-up in the application narrative			
Pickle Line Scale Breaker Baghouse	PKLSB	TBD	TBD	Continuous	24	8,760	52,972	0.003	PM, PM_{10}, & $PM_{2.5}$	--	PM PM_{10} $PM_{2.5}$	0.003 0.003 0.003	TBD	Yes	See regulatory write-up in the application narrative			
Skin Pass Mill Baghouse #1	SPMST1	TBD	TBD	Continuous	24	8,760	24,587	0.01	PM, PM_{10}, & $PM_{2.5}$	--	PM PM_{10} $PM_{2.5}$	0.01 0.01 0.005	TBD	Yes	See regulatory write-up in the application narrative			
Skin Pass Mill Baghouse #2	SPMST2	TBD	TBD	Continuous	24	8,760	24,587	0.01	PM, PM_{10}, & $PM_{2.5}$	--	PM PM_{10} $PM_{2.5}$	0.01 0.01 0.005	TBD	Yes	See regulatory write-up in the application narrative			
Lime, Carbon, and Briquetter Silo Bin Vent Filters	LCB-ST	TBD	Other - Bin Vent Filter	Intermittent	24	8,760	38,000	0.005	PM, PM_{10}, & $PM_{2.5}$	--	PM PM_{10} $PM_{2.5}$	0.005 0.005 0.005	TBD	Yes	See regulatory write-up in the application narrative			
DRI Storage Silo 1 Bin Vent	DRIBV1	TBD	Other - Bin Vent Filter	Intermittent	24	8,760	148	0.001	PM, PM_{10}, & $PM_{2.5}$	--	PM PM_{10} $PM_{2.5}$	0.001 0.001 0.00049	TBD	Yes	See regulatory write-up in the application narrative			
DRI Storage Silo 2 Bin Vent	DRIBV2	TBD	Other - Bin Vent Filter	Intermittent	24	8,760	148	0.001	PM, PM_{10}, & $PM_{2.5}$	--	PM PM_{10} $PM_{2.5}$	0.001 0.001 0.00049	TBD	Yes	See regulatory write-up in the application narrative			

NUCOR - Project Honey Badger
Attachment M - Air Pollution Control Device Sheet (Baghouse)

Form Number:		1	5	11	14. Operation Hours		16	21. Particulate Loading	22	23	24		26	31	32. Proposed Monitoring, Recordkeeping, Reporting, and Testing			
											Emission rate of pollutant (specify) into and out of collector at maximum design operating conditions							
Control Device ID	Emission Point ID	Manufacturer and Model No.	Baghouse Configuration	Baghouse Operation	Max. per Day	Max. per Year	Gas flow rate into the collector (dscfm)	Outlet (gr/scf)	Type of pollutant(s) to be collected (if particulate give specific type)	Is there any SO_3 in the emission stream (If yes, also include ppmv)	Pollutant	Outlet (gr/dscf)	How is filter monitored for indications of deterioration (e.g., broken bags)?	Have you included Baghouse Control Device in the Emissions Points Data Summary Sheet?	Monitoring	Recordkeeping	Reporting	Testing
DRI Storage Silo 3 Bin Vent	DRIBV3	TBD	Other - Bin Vent Filter	Intermittent	24	8,760	148	0.001	PM, PM_{10}, & $PM_{2.5}$	--	PM PM_{10} $PM_{2.5}$	0.001 0.001 0.00049	TBD	Yes	See regulatory write-up in the application narrative			
DRI Storage Silo 4 Bin Vent	DRIBV4	TBD	Other - Bin Vent Filter	Intermittent	24	8,760	148	0.001	PM, PM_{10}, & $PM_{2.5}$	--	PM PM_{10} $PM_{2.5}$	0.001 0.001 0.00049	TBD	Yes	See regulatory write-up in the application narrative			

Note: Extraneous information unrelated to regulatory requirements and air emissions has been excluded from the application form. Information labeled as "to be determined" (TBD) will be provided once specific equipment vendors have been selected.

NUCOR - Project Honey Badger
Attachment M - Air Pollution Control Device Sheet (Flare)

Form Number:		1	2	4	5	6. Dimensions of Stack		7	8	9. Burners		12	13	15. Pilot Lights	19	20
Control Device ID	**Emission Point ID**	**Manufacturer and Model No.**	**Method**	**Method of System Used**	**Maximum Capacity of Flare (scf/hr)**	**Diameter (ft)**	**Height (ft)**	**Control Efficiency**	**Fuel Used in Burners**	**Number of Burners**	**Rated Heat Input Capacity (MMBtu/hr)**	**Flare Height (ft)**	**Flare Tip Inside Diameter (ft)**	**Total Heat Input Capacity for Pilots (MMBtu/hr)**	**Hours of unit operation per year:**	**Will steam injection be used?**
Vacuum Tank Degasser Flare 1	VTDST1	TBD	Elevated flare	Air-assisted	63,152	0.62	150	>98%	Waste Gas & Natural Gas	TBD	12.37	150	0.62	2.5	8,760 (only one flare will be used at a time)	No
Vacuum Tank Degasser Flare 2	VTDST2	TBD	Elevated flare	Air-assisted	63,152	0.62	150	>98%	Waste Gas & Natural Gas	TBD	12.37	150	0.62	2.5		No

NUCOR - Project Honey Badger
Attachment M - Air Pollution Control Device Sheet (Flare)

Form Number:		29. Characteristics of Waste Gas Stream to be Burned			30	31	34	36	37	38	43	44. Proposed Monitoring, Recordkeeping, Reporting, and Testing			
Control Device ID	Emission Point ID	Name	Quantity (lb/hr)	Source of Material	Maximum Combustible to Flare (lb/hr)	Total Flow Rate to Flare Including Material to be Burned, Carrier Gasses, Auxiliary Fuel, etc. (ft^3/hr)	Identify and Describe All Auxiliary Fuels, Including Btu/scf	Flare Gas Flow Rate (scfm)	Flare Gas Heat Content (Btu/scf)	Flare Gas Exit Velocity (fps)	Have you Included Flare Control Device in the Emissions Points Data Summary Sheet?	Monitoring	Recordkeeping	Reporting	Testing
Vacuum Tank Degasser Flare 1	VTDST1	CO from Vacuum Tank Degassers	269	Vacuum Tank Degassers	397	63,152	Natural Gas (1,020 Btu/scf)	1,053	22.2	66	Yes	See regulatory write-up in the application narrative			
Vacuum Tank Degasser Flare 2	VTDST2	CO from Vacuum Tank Degassers	269	Vacuum Tank Degassers	397	63,152	Natural Gas (1,020 Btu/scf)	1,053	22.2	66	Yes	See regulatory write-up in the application narrative			

Note: Extraneous information unrelated to regulatory requirements and air emissions has been excluded from the application form. Information labeled as "to be determined" (TBD) will be provided once specific equipment vendors have been selected.

NUCOR - Project Honey Badger
Attachment M - Air Pollution Control Device Sheet (Wet Collecting System-Scrubber)

Form Number:		1	2	9	10	13	15	22. Gas Stream Temperature	23	24. Particulate Grain Loading	25. Emission Rate of Each Pollutant (Specify)	Outlet		26	28. Dimensions of Stack		34	35. Proposed Monitoring, Recordkeeping, Reporting, and Testing			
Control Device ID	Emission Point ID	Manufacturer and Model No.	Method	Pressure Drop at Maximum Flow Rate (in H_2O)	Scrubbing Liquor Composition (Material & wt%)	Pressure Drop Through Scrubber (in H_2O)	Liquor Flow Rates to Scrubber (gpm)	Outlet (°F)	Gas Flow Rate (acfm)	Outlet (gr/scf)	Pollutant	lb/hr	gr/acf	Type of Pollutant(s) Controlled (SO_X, Odor, Particulate [Type], and/or Other)	Height (ft)	Diameter (ft)	Have You Include Wet Collecting (Scrubber) Control Device in the Emissions Points Data Summary Sheet?	Monitoring	Recordkeeping	Reporting	Testing
Pickling Line Scrubber 1	PLST-1	TBD	TBD	TBD	TBD	TBD	TBD	343	10,930	0.01	PM PM_{10} $PM_{2.5}$ HCl	0.62 0.62 0.62 0.25	6.6E-03 6.6E-03 6.6E-03 2.7E-03	Particulate & HCl	150	2.95	Yes	See regulatory write-up in the application narrative			
Continuous Galvanizing Line Wet Scrubber 1	CGL1-ST1	TBD	TBD	TBD	TBD	TBD	TBD	140	7,063	0.003	PM PM_{10} $PM_{2.5}$	0.16 0.16 0.16	2.6E-03 2.6E-03 2.6E-03	Particulate	150	2.07	Yes	See regulatory write-up in the application narrative			
Continuous Galvanizing Line Wet Scrubber 2	CGL1-ST2	TBD	TBD	TBD	TBD	TBD	TBD	140	8,829	0.003	PM PM_{10} $PM_{2.5}$	0.24 0.24 0.24	3.2E-03 3.2E-03 3.2E-03	Particulate	150	2.07	Yes	See regulatory write-up in the application narrative			
Continuous Galvanizing Line Wet Scrubber 3	CGL2-ST1	TBD	TBD	TBD	TBD	TBD	TBD	140	7,063	0.003	PM PM_{10} $PM_{2.5}$	0.16 0.16 0.16	2.6E-03 2.6E-03 2.6E-03	Particulate	150	2.07	Yes	See regulatory write-up in the application narrative			
Continuous Galvanizing Line Wet Scrubber 4	CGL2-ST2	TBD	TBD	TBD	TBD	TBD	TBD	140	8,829	0.003	PM PM_{10} $PM_{2.5}$	0.24 0.24 0.24	3.2E-03 3.2E-03 3.2E-03	Particulate	150	2.07	Yes	See regulatory write-up in the application narrative			
Temper Mill Mist Eliminator	STMST	TBD	TBD	TBD	TBD	TBD	TBD	90	45,000	0.0025	PM PM_{10} $PM_{2.6}$	0.96 0.93 0.50	0.0025 0.0024 0.0013	Particulate	150	4.00	Yes	See regulatory write-up in the application narrative			
Tandem Cold Mill Mist Eliminator	TCMST	TBD	TBD	TBD	TBD	TBD	TBD	100	217,774	0.01	PM PM_{10} $PM_{2.5}$	17.33 11.44 11.44	9.3E-03 6.1E-03 6.1E-03	Particulate	213	5.00	Yes	See regulatory write-up in the application narrative			
Temper Mill Mist Eliminator	STMST	TBD							0.0025 0.0024 0.0013	TBD			Yes	See regulatory write-up in the application narrative							

Note: Some of the information for this form has been excluded, as it was either deemed unecessary for evaluating regulatory requirements and air emissions. Information labled as "to be determined" (TBD) has not yet been determined by NUCOR as the design is being finalized and equipment vendors have not yet been selected.

Attachment N: Supporting Emission Calculations

NUCOR - Project Honey Badger
Emissions Calculation Inputs and Assumptions

Electric Arc Furnace and Ladle Metallurgical Furnace

Emission Point ID	Emission Unit ID	Unit	Description	Heat Capacity (MMBtu/hr)	Throughput		Emission Factor[1,2]							
					Hourly (ton stl/hr)	Annual (ton stl/yr)	NO_X (lb/ton stl)	CO (lb/ton stl)	SO_2 (lb/ton stl)	VOC (lb/ton stl)	Lead[3] (lb/ton stl)	CO_2[4] (lb/MMBtu)	CH_4[4] (lb/MMBtu)	N_2O[4] (lb/MMBtu)
BHST-1	EAF1	Melt Shop	Single Shell DC Electric Arc Furnace 1	22	171	1,500,000	0.3	2	0.2	0.093	0.00045	116.98	2.20E-03	2.20E-04
BHST-2	EAF2	Melt Shop	Single Shell DC Electric Arc Furnace 2	22	171	1,500,000	0.3	2	0.2	0.093	0.00045	116.98	2.20E-03	2.20E-04
BHST-1	LMF1	Melt Shop	Ladle Metallurgical Furnace 1	--	171	1,500,000	0.05	0.02	0.04	0.005	--	--	--	--
BHST-2	LMF2	Melt Shop	Ladle Metallurgical Furnace 2	--	171	1,500,000	0.05	0.02	0.04	0.005	--	--	--	--

[1] Emission factors of criteria pollutants for electric arc furnace are based on anticipated BACT.
[2] Emission factors of criteria pollutants for ladle metallurgical furnace are based on anticipated BACT.
[3] Controlled lead emission factor for electric arc furnace is based on data collected from the Nucor Gallatin Mill.
[4] Emission factors of GHGs are based on Tables C-1 and C-2 of 40 CFR Part 98.

Electric Arc Furnace Throughputs

Emission Point ID	Emission Unit ID	Unit	Description	Throughput															
				DRI		Scrap		Flux		Electrode		Carbon		Steel		Slag		Residue	
				Hourly (lb/hr)	Annual (tpy)	Hourly (lb/hr)	Annual (tpy)	Hourly (lb/hr)	Annual (tpy)	Hourly (lb/hr)	Annual (tpy)	Hourly (lb/hr)	Annual (tpy)	Hourly (lb/hr)	Annual (tpy)	Hourly (lb/hr)	Annual (tpy)	Hourly (lb/hr)	Annual (tpy)
BHST-1	EAF1	Melt Shop	Single Shell DC Electric Arc Furnace 1	151,800	577,500	354,200	1,347,500	21,160	80,500	333	1,463	10,810	41,125	342,000	1,500,000	35,055	153,750	5,301	23,250
BHST-2	EAF2	Melt Shop	Single Shell DC Electric Arc Furnace 2	151,800	577,500	354,200	1,347,500	21,160	80,500	333	1,463	10,810	41,125	342,000	1,500,000	35,055	153,750	5,301	23,250

[1] Throughputs are estimates based on similar facilities.

Electric Arc Furnace Carbon Content

Emission Point ID	Emission Unit ID	Unit	Description	Carbon Content							
				DRI (wt. frac.)	Scrap (wt. frac.)	Flux (wt. frac.)	Electrode (wt. frac.)	Carbon (wt. frac.)	Steel (wt. frac.)	Slag (wt. frac.)	Residue (wt. frac.)
BHST-1	EAF1	Melt Shop	Single Shell DC Electric Arc Furnace 1	0.028	0.0027	0.012	0.999	0.88	0.0038	0.0267	0.01
BHST-2	EAF2	Melt Shop	Single Shell DC Electric Arc Furnace 2	0.028	0.0027	0.012	0.999	0.88	0.0038	0.0267	0.01

[1] Carbon weight percentages are estimates based on similar facilities.

Electric Arc Furnace HAP Speciations

Emission Point ID	Emission Unit ID	Unit	Description	Throughput		Emission Factor[1]							
				Hourly (ton stl/hr)	Annual (ton stl/yr)	Ar (lb/ton stl)	Be (lb/ton stl)	Cd (lb/ton stl)	Cr (lb/ton stl)	Hg (lb/ton stl)	Mn (lb/ton stl)	Ni (lb/ton stl)	F-[2] (lb/ton stl)
BHST-1	EAF1	Melt Shop	Single Shell DC Electric Arc Furnace 1	171	1,500,000	6.20E-06	2.80E-07	5.00E-06	3.50E-06	1.10E-04	3.00E-04	5.50E-06	0.0035
BHST-2	EAF2	Melt Shop	Single Shell DC Electric Arc Furnace 2	171	1,500,000	6.20E-06	2.80E-07	5.00E-06	3.50E-06	1.10E-04	3.00E-04	5.50E-06	0.0035

[1] Emission factors of metal pollutants for electric arc furnace are based on AP-42 Section 12.5.1.
[2] Emission factors of flouride for electric arc furnace are based on Nucor Berkeley Mill emission data.

Melt Shop Baghouses

Emission Point ID	Emission Unit ID	Unit	Description	Flow Rate (m^3/hr)	Flow Rate (dscfm)	Emission Factor[1,3,4]		
						PM[2] (gr/dscf)	PM_{10} (gr/dscf)	$PM_{2.5}$ (gr/dscf)
BHST-1	EAF1/LMF1/CAST1	Melt Shop	Pulse Jet Fabric Filter Baghouse 1	2,618,339	1,103,616	0.0018	0.0052	0.0052
BHST-2	EAF2/LMF2/CAST2	Melt Shop	Pulse Jet Fabric Filter Baghouse 2	2,618,339	1,103,616	0.0018	0.0052	0.0052
LCB-ST	LCB	Melt Shop	Lime, Carbon, and Alloy Silo Baghouse	64,562	38,000	0.005	0.005	0.005
DRI-DOCK-ST	DRI-DOCK	DRI Unloading Dock	DRI Unloading Dock (two units)	6,796	4,000	0.001	0.001	0.00049
DRIVF1	DRI1	Melt Shop	DRI Storage Silo 1 - Baghouse	2,039	1,200	0.001	0.001	0.00049
DRIBV1	DRI1	Melt Shop	DRI Storage Silo 1 - Bin Vent	251	148	0.001	0.001	0.00049
DRIVF2	DRI2	Melt Shop	DRI Storage Silo 2 - Baghouse	2,039	1,200	0.001	0.001	0.00049
DRIBV2	DRI2	Melt Shop	DRI Storage Silo 2 - Bin Vent	251	148	0.001	0.001	0.00049
DRIVF3	DRI3	Melt Shop	DRI Storage Silo 3 - Baghouse	2,039	1,200	0.001	0.001	0.00049
DRIBV3	DRI3	Melt Shop	DRI Storage Silo 3 - Bin Vent	251	148	0.001	0.001	0.00049
DRIVF4	DRI4	Melt Shop	DRI Storage Silo 4 - Baghouse	2,039	1,200	0.001	0.001	0.00049
DRIBV4	DRI4	Melt Shop	DRI Storage Silo 4 - Bin Vent	251	148	0.001	0.001	0.00049
DRI-DB1-BH	DRI-DB1	Melt Shop	DRI Day Bin #1	2,039	1,200	0.001	0.001	0.00049
DRI-DB2-BH	DRI-DB2	Melt Shop	DRI Day Bin #2	2,039	1,200	0.001	0.001	0.00049
DRI-CONV-BH	DRI-CONV	Melt Shop	DRI Transfer Conveyors	2,039	1,200	0.001	0.001	0.00049
SLAG-CUT-BH	SLAG-CUT	Slag Cutting	Slag Cutting in Slag Processing Area	169,901	100,000	0.001	0.001	0.001
EAFVF1	EAFVF1	Melt Shop	EAF Baghouse 1 Dust Silo	1,699	1,000	0.01	0.01	0.01
EAFVF2	EAFVF2	Melt Shop	EAF Baghouse 2 Dust Silo	1,699	1,000	0.01	0.01	0.01
LIME-DUMP-ST	LIME-DUMP	Melt Shop	Lime Dump Station	3,398	2,000	0.005	0.005	0.005
CARBON-DUMP-ST	CARBON-DUMP	Melt Shop	Carbon Dump Station	3,398	2,000	0.005	0.005	0.005
ALLOY-HANDLE-ST	ALLOY-HANDLE	Melt Shop	Alloy Handling System	6,456	3,800	0.005	0.005	0.005

[1] Emission factors based on anticipated BACT, except for those for bin vent filters, which are based on TCEQ BACT guideline.
[2] PM emission factor is filterable PM only. PM_{10} and $PM_{2.5}$ emission factors are filterable and condensable PM combined.
[3] Emission factors for DRI unloading dock, silos, day bins, and transfer conveyors are from Brandenburg Application.
[4] Emission factors for LCB silos, EAF Top Feed are from Berkeley PTE calculations.

Melt Shop Fugitives

Emission Point ID	Emission Unit ID	Unit	Description	Capture Efficiency[1]		Building Enclosure[2] (%)	Emission Factors[3,4]		
				DEC (%)	Canopy Hood (%)		PM (lb/ton stl)	PM_{10} (lb/ton stl)	$PM_{2.5}$ (lb/ton stl)
MSFUG	MSFUG	Melt Shop	Uncaptured Electric Arc Furnace Fugitives	95	95	90	11.3	6.55	6.55
CASTFUG	CASTFUG	Melt Shop	Uncaptured Casting Fugitives	-	95	90	0.12	0.12	0.12

[1] Capture efficiency of the Electric Arc Furnace Direct Evacuation System (DEC) and capture efficiency of the Canopy Hood are estimates based on BACT for similar facilities.
[2] Emission factor obtained from TCEQ Draft RG 058 Rock Crushing Plants, February 2002, Table 7 for sources enclosed by building.
[3] PM and PM_{10} uncontrolled emission factor per Energy and Environmental Profile of the U.S. Iron and Steel Industry, U.S. Department of Energy (Aug. 2000), Table 5-3, for EAF (melting, refining, charging, tapping, and slagging alloy steel). Conservatively assumed $PM_{2.5}$ is equivalent to PM_{10}.
[4] Emission factor for casting fugitives obtained from AP-42 Table 12.5.1-1 for uncontrolled ladle heating and transfer and continuous casting. Condensable PM emissions are not anticipated for this process. PM_{10} and $PM_{2.5}$ are conservatively assumed to be equivalent to total PM.

NUCOR - Project Honey Badger
Emissions Calculation Inputs and Assumptions

Natural Gas Combustion

Natural Gas Heating Value	1,020	(Btu/scf)

NG Emission Factors									
NO_X ($lb/10^6$ scf)	CO ($lb/10^6$ scf)	SO_2 ($lb/10^6$ scf)	VOC ($lb/10^6$ scf)	PM ($lb/10^6$ scf)	PM_{10} ($lb/10^6$ scf)	$PM_{2.5}$ ($lb/10^6$ scf)	CO_2 ($lb/10^6$ scf)	CH_4 ($lb/10^6$ scf)	N_2O ($lb/10^6$ scf)
100	84	0.6	5.5	1.9	7.6	7.6	119,317	2.2	0.2

Emission Point ID	Emission Unit ID	Unit	Description	Heat Input		Emission Factor									
				Hourly (MMBtu/hr)	Annual (MMBtu/yr)	NO_X[1] (lb/MMBtu)	CO[2] (lb/MMBtu)	SO_2[3] (lb/MMBtu)	VOC[2] (lb/MMBtu)	PM[4] (lb/MMBtu)	PM_{10}[4] (lb/MMBtu)	$PM_{2.5}$[4] (lb/MMBtu)	CO_2[5] (lb/MMBtu)	CH_4[5] (lb/MMBtu)	N_2O[5] (lb/MMBtu)
MSFUG	LD	Melt Shop	Ladle Dryer	15	131,400	0.10	0.082	5.88E-04	5.39E-03	1.86E-03	7.45E-03	7.45E-03	116.98	2.20E-03	2.20E-04
MSFUG	LPHTR1	Melt Shop	Horizontal Ladle Preheater 1	15	131,400	0.10	0.082	5.88E-04	5.39E-03	1.86E-03	7.45E-03	7.45E-03	116.98	2.20E-03	2.20E-04
MSFUG	LPHTR2	Melt Shop	Horizontal Ladle Preheater 2	15	131,400	0.10	0.082	5.88E-04	5.39E-03	1.86E-03	7.45E-03	7.45E-03	116.98	2.20E-03	2.20E-04
MSFUG	LPHTR3	Melt Shop	Horizontal Ladle Preheater 3	15	131,400	0.10	0.082	5.88E-04	5.39E-03	1.86E-03	7.45E-03	7.45E-03	116.98	2.20E-03	2.20E-04
MSFUG	LPHTR4	Melt Shop	Horizontal Ladle Preheater 4	15	131,400	0.10	0.082	5.88E-04	5.39E-03	1.86E-03	7.45E-03	7.45E-03	116.98	2.20E-03	2.20E-04
MSFUG	LPHTR5	Melt Shop	Horizontal Ladle Preheater 5	15	131,400	0.10	0.082	5.88E-04	5.39E-03	1.86E-03	7.45E-03	7.45E-03	116.98	2.20E-03	2.20E-04
MSFUG	LPHTR6	Melt Shop	Vertical Ladle Preheater 6	15	131,400	0.10	0.082	5.88E-04	5.39E-03	1.86E-03	7.45E-03	7.45E-03	116.98	2.20E-03	2.20E-04
MSFUG	LPHTR7	Melt Shop	Vertical Ladle Preheater 7	15	131,400	0.10	0.082	5.88E-04	5.39E-03	1.86E-03	7.45E-03	7.45E-03	116.98	2.20E-03	2.20E-04
MSFUG	TD	Melt Shop	Tundish Dryer 1	6	52,560	0.10	0.082	5.88E-04	5.39E-03	1.86E-03	7.45E-03	7.45E-03	116.98	2.20E-03	2.20E-04
MSFUG	TPHTR1	Melt Shop	Tundish Preheater 1	9	78,840	0.10	0.082	5.88E-04	5.39E-03	1.86E-03	7.45E-03	7.45E-03	116.98	2.20E-03	2.20E-04
MSFUG	TPHTR2	Melt Shop	Tundish Preheater 2	9	78,840	0.10	0.082	5.88E-04	5.39E-03	1.86E-03	7.45E-03	7.45E-03	116.98	2.20E-03	2.20E-04
MSFUG	SENPHTR1	Melt Shop	Subentry Nozzle (SEN) Preheater 1	1	8,760	0.10	0.082	5.88E-04	5.39E-03	1.86E-03	7.45E-03	7.45E-03	116.98	2.20E-03	2.20E-04
MSFUG	SENPHTR2	Melt Shop	Subentry Nozzle (SEN) Preheater 2	1	8,760	0.10	0.082	5.88E-04	5.39E-03	1.86E-03	7.45E-03	7.45E-03	116.98	2.20E-03	2.20E-04
GALVFN1-ST	GALVFN1	Cold Mill	Galvanizing Furnace #1	64	560,640	0.05	0.082	5.88E-04	5.39E-03	1.86E-03	7.45E-03	7.45E-03	116.98	2.20E-03	2.20E-04
GALVFN2-ST	GALVFN2	Cold Mill	Galvanizing Furnace #2	64	560,640	0.05	0.082	5.88E-04	5.39E-03	1.86E-03	7.45E-03	7.45E-03	116.98	2.20E-03	2.20E-04
GALVFUG	BOXANN1	Cold Mill	Box Annealing Furnace #1	5.00	43,800	0.05	0.082	5.88E-04	5.39E-03	1.86E-03	7.45E-03	7.45E-03	116.98	2.20E-03	2.20E-04
GALVFUG	BOXANN2	Cold Mill	Box Annealing Furnace #2	5.00	43,800	0.05	0.082	5.88E-04	5.39E-03	1.86E-03	7.45E-03	7.45E-03	116.98	2.20E-03	2.20E-04
GALVFUG	BOXANN3	Cold Mill	Box Annealing Furnace #3	5.00	43,800	0.05	0.082	5.88E-04	5.39E-03	1.86E-03	7.45E-03	7.45E-03	116.98	2.20E-03	2.20E-04
GALVFUG	BOXANN4	Cold Mill	Box Annealing Furnace #4	5.00	43,800	0.05	0.082	5.88E-04	5.39E-03	1.86E-03	7.45E-03	7.45E-03	116.98	2.20E-03	2.20E-04
GALVFUG	BOXANN5	Cold Mill	Box Annealing Furnace #5	5.00	43,800	0.05	0.082	5.88E-04	5.39E-03	1.86E-03	7.45E-03	7.45E-03	116.98	2.20E-03	2.20E-04
GALVFUG	BOXANN6	Cold Mill	Box Annealing Furnace #6	5.00	43,800	0.05	0.082	5.88E-04	5.39E-03	1.86E-03	7.45E-03	7.45E-03	116.98	2.20E-03	2.20E-04
GALVFUG	BOXANN7	Cold Mill	Box Annealing Furnace #7	5.00	43,800	0.05	0.082	5.88E-04	5.39E-03	1.86E-03	7.45E-03	7.45E-03	116.98	2.20E-03	2.20E-04
GALVFUG	BOXANN8	Cold Mill	Box Annealing Furnace #8	5.00	43,800	0.05	0.082	5.88E-04	5.39E-03	1.86E-03	7.45E-03	7.45E-03	116.98	2.20E-03	2.20E-04
GALVFUG	BOXANN9	Cold Mill	Box Annealing Furnace #9	5.00	43,800	0.05	0.082	5.88E-04	5.39E-03	1.86E-03	7.45E-03	7.45E-03	116.98	2.20E-03	2.20E-04
GALVFUG	BOXANN10	Cold Mill	Box Annealing Furnace #10	5.00	43,800	0.05	0.082	5.88E-04	5.39E-03	1.86E-03	7.45E-03	7.45E-03	116.98	2.20E-03	2.20E-04
GALVFUG	BOXANN11	Cold Mill	Box Annealing Furnace #11	5.00	43,800	0.05	0.082	5.88E-04	5.39E-03	1.86E-03	7.45E-03	7.45E-03	116.98	2.20E-03	2.20E-04
GALVFUG	BOXANN12	Cold Mill	Box Annealing Furnace #12	5.00	43,800	0.05	0.082	5.88E-04	5.39E-03	1.86E-03	7.45E-03	7.45E-03	116.98	2.20E-03	2.20E-04
GALVFUG	BOXANN13	Cold Mill	Box Annealing Furnace #13	5.00	43,800	0.05	0.082	5.88E-04	5.39E-03	1.86E-03	7.45E-03	7.45E-03	116.98	2.20E-03	2.20E-04
GALVFUG	BOXANN14	Cold Mill	Box Annealing Furnace #14	5.00	43,800	0.05	0.082	5.88E-04	5.39E-03	1.86E-03	7.45E-03	7.45E-03	116.98	2.20E-03	2.20E-04
GALVFUG	BOXANN15	Cold Mill	Box Annealing Furnace #15	5.00	43,800	0.05	0.082	5.88E-04	5.39E-03	1.86E-03	7.45E-03	7.45E-03	116.98	2.20E-03	2.20E-04
GALVFUG	BOXANN16	Cold Mill	Box Annealing Furnace #16	5.00	43,800	0.05	0.082	5.88E-04	5.39E-03	1.86E-03	7.45E-03	7.45E-03	116.98	2.20E-03	2.20E-04
GALVFUG	BOXANN17	Cold Mill	Box Annealing Furnace #17	5.00	43,800	0.05	0.082	5.88E-04	5.39E-03	1.86E-03	7.45E-03	7.45E-03	116.98	2.20E-03	2.20E-04
GALVFUG	BOXANN18	Cold Mill	Box Annealing Furnace #18	5.00	43,800	0.05	0.082	5.88E-04	5.39E-03	1.86E-03	7.45E-03	7.45E-03	116.98	2.20E-03	2.20E-04
GALVFUG	BOXANN19	Cold Mill	Box Annealing Furnace #19	5.00	43,800	0.05	0.082	5.88E-04	5.39E-03	1.86E-03	7.45E-03	7.45E-03	116.98	2.20E-03	2.20E-04
GALVFUG	BOXANN20	Cold Mill	Box Annealing Furnace #20	5.00	43,800	0.05	0.082	5.88E-04	5.39E-03	1.86E-03	7.45E-03	7.45E-03	116.98	2.20E-03	2.20E-04
GALVFUG	BOXANN21	Cold Mill	Box Annealing Furnace #21	5.00	43,800	0.05	0.082	5.88E-04	5.39E-03	1.86E-03	7.45E-03	7.45E-03	116.98	2.20E-03	2.20E-04
GALVFUG	BOXANN22	Cold Mill	Box Annealing Furnace #22	5.00	43,800	0.05	0.082	5.88E-04	5.39E-03	1.86E-03	7.45E-03	7.45E-03	116.98	2.20E-03	2.20E-04
TFST-1	TF1	Hot Mill	Hot Mill Tunnel Furnace 1	150	1,314,000	0.07	0.082	5.88E-04	5.39E-03	1.86E-03	7.45E-03	7.45E-03	116.98	2.20E-03	2.20E-04
SLAG-CUT-NG	SLAG-CUT	Slag Cutting	Slag Cutting in Slag Processing Area	2.4	21,024	0.10	0.082	5.88E-04	5.39E-03	1.86E-03	7.45E-03	7.45E-03	116.98	2.20E-03	2.20E-04
ASP-1	ASP	Air Separation	Water Bath Vaporizer	11	96,360	0.10	0.082	5.88E-04	5.39E-03	1.86E-03	7.45E-03	7.45E-03	116.98	2.20E-03	2.20E-04

[1] NOx emission factor based on anticipated BACT emission limits.
[2] Emission factor is based on AP-42 Section 1.4. Factor is converted to lb/MMBtu based on natural gas heat value.
[3] SO_2 emission factor is calculated based on AP-42 Section 1.4 emission factor and proposed natural gas sulfur content. Factor is converted to lb/MMBtu based on natural gas heat value.
[4] Emission factor is based on anticipated BACT emission limits. Factor is converted to lb/MMBtu based on natural gas heat value. PM emission factor is filterable PM only. PM_{10} and $PM_{2.5}$ emission factors are filterable and condensable PM combined.
[5] Emission factors of GHGs are based on Tables C-1 and C-2 of 40 CFR Part 98.

VTD - Vacuum Tank Degasser (Mechanical Pumps Used for VTD Pump Down - Heat Input for Flare Gas-Assist Only)

Emission Point ID	Emission Unit ID	Unit	Description	Treatment Time (min)	Control Efficiency[1] (%)	Steel Throughput		Uncontrolled CO[2]		Heat Input		Emission Factor						
						Hourly (ton/hr)	Annual (tpy)	Hourly (lb/hr)	Annual (lb/yr)	Hourly (MMBtu/hr)	Annual (MMBtu/yr)	NO_X[3] (lb/MMBtu)	VOC[4] (lb/MMBtu)	SO_2[5] (lb/MMBtu)	$PM/PM_{10}/PM_{2.5}$[6] (lb/MMBtu)	CO_2[7] (lb/MMBtu)	CH_4[7] (lb/MMBtu)	N_2O[7] lb/MMBtu)
VTDST1	VTD1	Melt Shop	Vacuum Tank 1	50	98	171	1,500,000	268.75	1,493,333	12.37	108,523	0.068	0.140	5.88E-04	6.05E-03	116.98	2.20E-03	2.20E-04
VTDST2	VTD2	Melt Shop	Vacuum Tank 2	50	98	171	1,500,000	268.75	1,493,333	12.37	108,523	0.068	0.140	5.88E-04	6.05E-03	116.98	2.20E-03	2.20E-04

[1] Flare control efficiency based on 40 CFR 60.18.
[2] Emission factor based on engineering estimate of carbon removed in VTD process.
[3] Emission factor is based on AP-42 Table 13.5-1 for flare operations.
[4] VOC conservatively based on AP-42 Table 13.5-1 emission factor for total hydrocarbons.
[5] SO_2 emission factor is calculated based on AP-42 Section 1.4 emission factor and proposed natural gas sulfur content. Factor is converted to lb/MMBtu based on natural gas heat value.
[6] PM emissions are controlled by a vacuum bag filter before passing through the mechanical pumps. Emission factor is estimate based on information from similar facilities using total gas flow per treatment and an exit loading rate of 0.0083 gr/scf PM.
[7] Emission factors of GHGs are based on Tables C-1 and C-2 of 40 CFR Part 98.

NUCOR - Project Honey Badger
Emissions Calculation Inputs and Assumptions

Bulk Materials Transfer/Process

Emission Point ID	Emission Unit ID	Unit	Description	Material	Throughput Hourly (ton/hr)	Throughput Annual (tpy)	Fines Content[1] (%)	Moisture Content[2] (%)	Emission Factor[3,4] PM (lb/ton)	Emission Factor[3,4] PM_{10} (lb/ton)	Emission Factor[3,4] $PM_{2.5}$[5] (lb/ton)	Outdoor/ Indoor?	Control Applied	Enclosure	Control Efficiency[6] (%)	Notes
DRI-DOCK-FUG	DRI-DOCK	DRI Unloading Dock	DRI Unloading Dock - Fugitives	DRI	500	557,500	3%	0.30%	5.22E-02	2.47E-02	3.74E-03	Outdoor	Four sided container	Open	75%	--
BULK-DRI-1	BULK-DRI	DRI Handling	DRI Silo #1 Loadout	DRI	64	557,500	3%	0.30%	5.22E-02	2.47E-02	3.74E-03	Outdoor	Four sided container	Open	75%	--
BULK-DRI-2	BULK-DRI	DRI Handling	DRI Silo #2 Loadout	DRI	64	557,500	3%	0.30%	5.22E-02	2.47E-02	3.74E-03	Outdoor	Four sided container	Open	75%	--
DRI-EMG-1	BULK-DRI	DRI Handling	DRI Conveyor #1 Emergency Chute	DRI	125	500	3%	0.30%	5.22E-02	2.47E-02	3.74E-03	Outdoor	N/A	Open	0%	--
DRI-EMG-2	BULK-DRI	DRI Handling	DRI Silos Emergency Chute	DRI	800	14,400	3%	0.30%	5.22E-02	2.47E-02	3.74E-03	Outdoor	N/A	Open	0%	--
LIME-DUMP-FUG	LIME-DUMP	Melt Shop	Lime Dump Station Fugitives	Lime	8	70,000	--	0.20%	2.50E-02	8.70E-03	1.32E-03	Outdoor	Building Enclosure	Covered	75.00%	--
CARBON-DUMP-FUG	CARBON-DUMP	Melt Shop	Carbon Dump Station Fugitives	Carbon	4	35,000	--	0.20%	2.50E-02	8.70E-03	1.32E-03	Outdoor	Building Enclosure	Covered	75.00%	--
ALLOY-HANDLE-FUG	ALLOY-HANDLE	Melt Shop	Alloy Handling System Fugitives	Alloy	20	62,000	--	0.20%	2.50E-02	8.70E-03	1.32E-03	Outdoor	Building Enclosure	Covered	75.00%	--
SCRAP-DOCK-FUG	SCRAP-DOCK	Scrap Handle	Barge Scrap Unloading	Scrap	600	1,443,750	--	--	3.00E-04	1.50E-04	4.30E-05	Outdoor	N/A	Open	0.00%	11
SCRAP-RAIL-FUG	SCRAP-RAIL	Scrap Handle	Rail Scrap Unloading	Scrap	200	192,500	--	--	3.00E-04	1.50E-04	4.30E-05	Outdoor	N/A	Open	0.00%	11
SCRAP-BULK34	SCRAP-BULK34	Scrap Handle	Barge Scrap Pile Loading	Scrap	600	1,443,750	--	5.40%	9.13E-04	4.32E-04	6.54E-05	Outdoor	N/A	Open	0.00%	--
SCRAP-BULK35	SCRAP-BULK35	Scrap Handle	Barge Scrap Pile Loadout	Scrap	275	1,443,750	--	5.40%	9.13E-04	4.32E-04	6.54E-05	Outdoor	N/A	Open	0.00%	--
SCRAP-BULK36	SCRAP-BULK36	Scrap Handle	Rail Scrap Pile Loading	Scrap	120	192,500	--	5.40%	9.13E-04	4.32E-04	6.54E-05	Outdoor	N/A	Open	0.00%	--
SCRAP-BULK37	SCRAP-BULK37	Scrap Handle	Rail Scrap Pile Loadout	Scrap	275	192,500	--	5.40%	9.13E-04	4.32E-04	6.54E-05	Outdoor	N/A	Open	0.00%	--
SCRAP-BULK38	SCRAP-BULK38	Scrap Handle	Truck Scrap Pile Loading	Scrap	200	288,750	--	5.40%	9.13E-04	4.32E-04	6.54E-05	Outdoor	N/A	Open	0.00%	--
SCRAP-BULK39	SCRAP-BULK39	Scrap Handle	Truck Scrap Pile Loadout	Scrap	275	288,750	--	5.40%	9.13E-04	4.32E-04	6.54E-05	Outdoor	N/A	Open	0.00%	--
SCRAP-BULK40	SCRAP-BULK40	Scrap Handle	Scrap Charging	Scrap	220	1,925,000	--	5.40%	9.13E-04	4.32E-04	6.54E-05	Outdoor	N/A	Open	0.00%	--
SCRAP-BULK1	SCRAP-BULK1	Slag Handle	Dig slag inside pot barn	Slag	73	262,500	--	--	8.80E-03	4.30E-03	1.60E-03	Outdoor	N/A	Covered	75.00%	7
SCRAP-BULK2	SCRAP-BULK2	Slag Handle	Loader transport & dump slag into quench	Slag	73	262,500	--	--	8.80E-03	4.30E-03	1.60E-03	Outdoor	N/A	Covered	75.00%	7
SCRAP-BULK3	SCRAP-BULK3	Slag Handle	Loader transport & dump into F1 feed hopper/grizzly	Slag	73	262,500	--	--	8.80E-03	4.30E-03	1.60E-03	Outdoor	N/A	Covered	90.00%	7
SCRAP-BULK4	SCRAP-BULK4	Slag Handle	F1 feed hopper/grizzly to P1 oversize storage	Slag	73	262,500	--	--	2.50E-02	8.70E-03	8.70E-03	Outdoor	N/A	Covered	95.90%	8
SCRAP-BULK5	SCRAP-BULK5	Slag Handle	F1 feed hopper/grizzly to C7 crusher conveyor	Slag	1	5,250	--	--	2.50E-02	8.70E-03	8.70E-03	Outdoor	N/A	Covered	95.90%	8
SCRAP-BULK6	SCRAP-BULK6	Slag Handle	F1 feed hopper/grizzly to C1A main conveyor	Slag	22	78,750	--	--	2.50E-02	8.70E-03	8.70E-03	Outdoor	N/A	Covered	95.90%	8
SCRAP-BULK7	SCRAP-BULK7	Slag Handle	C7 to CR1 crusher	Slag	50	178,500	--	--	3.00E-03	1.10E-03	1.10E-03	Outdoor	N/A	Covered	95.90%	9
SCRAP-BULK8	SCRAP-BULK8	Slag Handle	CR1 crusher to C8 conveyor	Slag	22	78,750	--	--	5.40E-03	2.40E-03	2.40E-03	Outdoor	N/A	Covered	77.70%	10
SCRAP-BULK9	SCRAP-BULK9	Slag Handle	CR1 crusher to P2 off-spec storage	Slag	19	66,938	--	--	5.40E-03	2.40E-03	2.40E-03	Outdoor	N/A	Covered	77.70%	10
SCRAP-BULK10	SCRAP-BULK10	Slag Handle	C8 conveyor to C9 conveyor	Slag	3	11,813	--	--	3.00E-03	1.10E-03	1.10E-03	Outdoor	N/A	Covered	95.90%	9
SCRAP-BULK11	SCRAP-BULK11	Slag Handle	C9 conveyor to C1A conveyor	Slag	19	66,938	--	--	3.00E-03	1.10E-03	1.10E-03	Outdoor	N/A	Covered	95.90%	9
SCRAP-BULK12	SCRAP-BULK12	Slag Handle	C1A conveyor to B1 surge bin	Slag	19	66,938	--	--	3.00E-03	1.10E-03	1.10E-03	Outdoor	N/A	Covered	95.90%	9
SCRAP-BULK13	SCRAP-BULK13	Slag Handle	B1 surge bin to C1 conveyor	Slag	68	245,438	--	--	3.00E-03	1.10E-03	1.10E-03	Outdoor	N/A	Covered	95.90%	9
SCRAP-BULK14	SCRAP-BULK14	Slag Handle	C1 conveyor through M1 mag splitter to S1 slag screen	Slag	68	245,438	--	--	3.00E-03	1.10E-03	1.10E-03	Outdoor	N/A	Covered	95.90%	9
SCRAP-BULK15	SCRAP-BULK15	Slag Handle	C1 conveyor through M1 mag splitter to S2 off-spec screen	Slag	66	236,847	--	--	3.00E-03	1.10E-03	1.10E-03	Outdoor	N/A	Covered	95.90%	9
SCRAP-BULK16	SCRAP-BULK16	Slag Handle	S2 off-spec screen to C6 conveyor	Slag	2	8,590	--	--	2.50E-02	8.70E-03	8.70E-03	Outdoor	N/A	Covered	91.60%	8
SCRAP-BULK17	SCRAP-BULK17	Slag Handle	S2 off-spec screen to P3 off-spec storage	Slag	2	7,302	--	--	2.50E-02	8.70E-03	8.70E-03	Outdoor	N/A	Covered	91.60%	8
SCRAP-BULK18	SCRAP-BULK18	Slag Handle	C6 conveyor to P4 off-spec storage	Slag	0.4	1,289	--	--	3.00E-03	1.10E-03	1.10E-03	Outdoor	N/A	Covered	95.90%	9
SCRAP-BULK19	SCRAP-BULK19	Slag Handle	S1 slag screen to C2 conveyor	Slag	2	7,302	--	--	2.50E-02	8.70E-03	8.70E-03	Outdoor	N/A	Covered	91.60%	8
SCRAP-BULK20	SCRAP-BULK20	Slag Handle	C2 conveyor to C5 conveyor	Slag	26	94,739	--	--	3.00E-03	1.10E-03	1.10E-03	Outdoor	N/A	Covered	95.90%	9
SCRAP-BULK21	SCRAP-BULK21	Slag Handle	C5 conveyor to SLGSKP1	Slag	26	94,739	--	--	3.00E-03	1.10E-03	1.10E-03	Outdoor	N/A	Covered	95.90%	9
SCRAP-BULK22	SCRAP-BULK22	Slag Handle	S1 slag screen to C4 conveyor	Slag	26	94,739	--	--	2.50E-02	8.70E-03	8.70E-03	Outdoor	N/A	Covered	91.60%	8
SCRAP-BULK23	SCRAP-BULK23	Slag Handle	C4 conveyor to SLGSKP3	Slag	20	71,054	--	--	3.00E-03	1.10E-03	1.10E-03	Outdoor	N/A	Covered	95.90%	9
SCRAP-BULK24	SCRAP-BULK24	Slag Handle	S1 slag screen to C3 conveyor	Slag	20	71,054	--	--	2.50E-02	8.70E-03	8.70E-03	Outdoor	N/A	Covered	91.60%	8
SCRAP-BULK25	SCRAP-BULK25	Slag Handle	C3 conveyor to SLGSKP2	Slag	13	47,369	--	--	3.00E-03	1.10E-03	1.10E-03	Outdoor	N/A	Covered	95.90%	9
SCRAP-BULK26	SCRAP-BULK26	Slag Handle	S1 slag screen to SLGSKP4	Slag	13	47,369	--	--	2.50E-02	8.70E-03	8.70E-03	Outdoor	N/A	Covered	91.60%	8
SCRAP-BULK27	SCRAP-BULK27	Slag Handle	Loader transports & loads products into trucks to productst	Slag	7	23,685	--	--	8.80E-03	4.30E-03	1.60E-03	Outdoor	N/A	Covered	90.00%	7
SCRAP-BULK28	SCRAP-BULK28	Slag Handle	Truck transports & dumps products into product stockpiles	Slag	73	262,500	--	--	8.80E-03	4.30E-03	1.60E-03	Outdoor	N/A	Covered	90.00%	7
SCRAP-BULK29	SCRAP-BULK29	Slag Handle	Loader transports & loads into trucks, oversize to drop ball	Slag	73	262,500	--	--	8.80E-03	4.30E-03	1.60E-03	Outdoor	N/A	Covered	90.00%	7
SCRAP-BULK30	SCRAP-BULK30	Slag Handle	Truck transports & dumps oversize into drop ball area	Slag	1	5,250	--	--	8.80E-03	4.30E-03	1.60E-03	Outdoor	N/A	Covered	90.00%	7
SCRAP-BULK31	SCRAP-BULK31	Slag Handle	Truck transports ladle lip and meltshop cleanup materials &	Slag	5	17,063	--	--	8.80E-03	4.30E-03	1.60E-03	Outdoor	N/A	Covered	90.00%	7
SCRAP-BULK32	SCRAP-BULK32	Slag Handle	Truck transports & dumps tundish at lancing station	Slag	3	9,188	--	--	8.80E-03	4.30E-03	1.60E-03	Outdoor	N/A	Covered	90.00%	7
SCRAP-BULK33	SCRAP-BULK33	Slag Handle	Ball drop crushing	Slag	2	8,250	--	--	5.40E-03	2.40E-03	2.40E-03	Outdoor	N/A	Covered	77.70%	10

[1] Engineering estimate based on DRI fines content at other Nucor Mills.
[2] Assumed. AP-42 Table 13.2.4-1 provides a mean value of 0.92% based on 3 samples.
[3] For all drop points, emission factors based on Equation 1 of AP-42 Section 13.2.4.
[4] For screens and crusher, emission factors based on AP-42 Table 11.19.2-2, August 2004. The emission factors include drops to equipment and drops off equipment.
[5] For screens and crusher, the ratio of $PM_{2.5}$ to PM_{10} are based on Page 13.2.4-4 of AP-42 Section 13.2.4.
[6] Based on Table 7 of TCEQ Draft RG 058 Rock Crushing Plants, February 2002 or other similar facilities
[7] Emission factor from AP-42 Table 12.5-4, 10/86 version (all units in lb/ton) for Loading low-silt slag
[8] Emission factor from AP-42 Table 11.19.2-2, 8/2004 version (all units in lb/ton) for Screening; conservatively use PM 10 emission factor for PM2.5
[9] Emission factor from AP-42 Table 11.19.2-2, 8/2004 version (all units in lb/ton) for Transfer Points; conservatively use PM 10 emission factor for PM2.5
[10] Emission factor from AP-42 Table 11.19.2-2, 8/2004 version (all units in lb/ton) for Crushing; conservatively use PM 10 emission factor for PM2.5
[11] Emission factors from AP-42 Chapter 12.5 Iron and Steel Production Table 12.5-4, lump ore pile formation.

Bulk Materials Stockpiles

Emission Point ID	Emission Unit ID	Unit	Description	Material	Max Stockpile Area (ft^2)	Max Stockpile Area (acre)	No. of Active Days[1] (d)	EF for Active Stockpile[2,3] PM (lb/acre-d)	EF for Active Stockpile[2,3] PM_{10} (lb/acre-d)	EF for Active Stockpile[2,3] $PM_{2.5}$ (lb/acre-d)	EF for Inactive Stockpile[2,3] PM (lb/acre-d)	EF for Inactive Stockpile[2,3] PM_{10} (lb/acre-d)	EF for Inactive Stockpile[2,3] $PM_{2.5}$ (lb/acre-d)	Control Applied	Control Efficiency[6] (%)
SLGSKP1	SLGSKP1	Slag Handle	Slag Stockpile 1	Slag	32,541	0.75	365	13.2	6.24	0.95	3.5	1.66	0.25	Water	70%
SLGSKP2	SLGSKP2	Slag Handle	Slag Stockpile 2	Slag	32,541	0.75	365	13.2	6.24	0.95	3.5	1.66	0.25	Water	70%
SLGSKP3	SLGSKP3	Slag Handle	Slag Stockpile 3	Slag	32,541	0.75	365	13.2	6.24	0.95	3.5	1.66	0.25	Water	70%
SLGSKP4	SLGSKP4	Slag Handle	Slag Stockpile 4	Slag	32,541	0.75	365	13.2	6.24	0.95	3.5	1.66	0.25	Water	70%
SCRPSKP1	SCRPSKP1	Scrap Handle	Scrap Metal Stockpile 1	Scrap	81,809	1.88	365	13.2	6.24	0.95	3.5	1.66	0.25	Water	70%
SCRPSKP2	SCRPSKP2	Scrap Handle	Scrap Metal Stockpile 2	Scrap	81,809	1.88	365	13.2	6.24	0.95	3.5	1.66	0.25	Water	70%
SCRPSKP3	SCRPSKP3	Scrap Handle	Scrap Metal Stockpile 3	Scrap	81,809	1.88	365	13.2	6.24	0.95	3.5	1.66	0.25	Water	70%

[1] Inactive stockpiles are those affected by wind erosion only. Active stockpiles are those piles that have 8 to 12 hours of activity per 24 hours.
Active stockpiles include the following distinct source operations in the storage cycle: loading of rock onto storage piles (batch or continuous drop), equipment traffic in storage areas, and wind erosion of the pile.
[2] PM emission factors based on TCEQ Draft RG 058 Rock Crushing Plants, February 2002.
[3] The ratios of PM_{10} to PM and $PM_{2.5}$ to PM_{10} are based on Page 13.2.4-4 of AP-42 Section 13.2.4.

NUCOR - Project Honey Badger
Emissions Calculation Inputs and Assumptions

Hot Mill

Emission Point ID	Emission Unit ID	Unit	Description	Exhaust Flow Rate (m^3/hr)	Exhaust Flow Rate (dscfm)	Emission Factor[1] PM (gr/dscf)	PM_{10} (gr/dscf)	$PM_{2.5}$ (gr/dscf)
RM-BH	RM	Hot Mill	Rolling Mill	190,000	117,716	0.01	0.01	0.005

[1] Based on anticipated BACT emission limits.

Cold Mill Pickling Line

Emission Point ID	Emission Unit ID	Unit	Description	Exhaust Flow Rate (dscfm)	HCl Concentration Breakthrough (ppmv)	Scrubber Collect Eff. [1] (%)	Scrubber Control Eff. (%)
PLST-1	PKL-1	Cold Mill	Pickling Line #1	7,185	6	95%	99%

[1] Assumed to be under negative pressure

Emission Point ID	Emission Unit ID	Unit	Description	Exhaust Flow Rate (m^3/hr)	Exhaust Flow Rate (dscfm)	Emission Factor[1,2] PM (gr/dscf)	PM_{10} (gr/dscf)	$PM_{2.5}$ (gr/dscf)
PLST-1	PKL-1	Cold Mill	Pickling Line #1	20,000	7,185	0.01	0.01	0.01
PKLSB	PKLSB	Cold Mill	Pickle Line Scale Breaker	90,000	52,972	0.003	0.003	0.003
TCMST	TCM	Cold Mill	Tandem Cold Mill	370,000	202,162	0.01	0.0066	0.0066
STMST	STM	Cold Mill	Standalone Temper Mill	72,000	45,000	0.0025	0.0024	0.0013
SPMST1	SPM1	Cold Mill	Skin Pass Mill #1	45,000	24,587	0.01	0.01	0.005
SPMST2	SPM2	Cold Mill	Skin Pass Mill #2	45,000	24,587	0.01	0.01	0.005

[1] Based on anticipated BACT emission limits.
[2] Temper Mill emission factors based on Nucor Gallatin stack test data.

Hot Dip Galvanizing Line

Emission Point ID	Emission Unit ID	Unit	Description	Exhaust Flow Rate (m^3/hr)	Exhaust Flow Rate (dscfm)	Emission Factor[1] PM (gr/dscf)	PM_{10} (gr/dscf)	$PM_{2.5}$ (gr/dscf)
CGL1-ST1	CGL1	Cold Mill	CGL1 - Cleaning Section	12,000	6,123	0.003	0.003	0.003
CGL1-ST2	CGL1	Cold Mill	CGL1 - Passivation Section	15,000	9,350	0.003	0.003	0.003
CGL2-ST1	CGL2	Cold Mill	CGL2 - Cleaning Section	12,000	6,123	0.003	0.003	0.003
CGL2-ST2	CGL2	Cold Mill	CGL2 - Passivation Section	15,000	9,350	0.003	0.003	0.003

[1] Based on anticipated BACT emission limits.

Cooling Tower

Emission Point ID	Emission Unit ID	Unit	Description	Flow Rate (gpm)	Drift Loss (%)	Total Dissoved Solids Conc.[1] (ppmw)
CT1	CT1	Melt Shop	Melt Shop ICW Cooling Tower	52,000	0.0005%	1,500
CT2	CT2	Melt Shop	Melt Shop DCW Cooling Tower	5,900	0.0005%	1,500
CT3	CT3	Melt Shop	Rolling Mill ICW Cooling Tower	8,500	0.0005%	1,500
CT4	CT4	Melt Shop	Rolling Mill DCW Cooling Tower	22,750	0.0005%	1,500
CT5	CT5	Melt Shop	Rolling Mill/Quench/ACC Cooling Tower	90,000	0.0005%	1,500
CT6	CT6	Melt Shop	Light Plate DCW System	8,000	0.0005%	1,500
CT7	CT7	Melt Shop	Heavy Plate DCW System	3,000	0.0005%	1,500
CT8	CT8	Air Separation	Air Separation Plant Cooling Tower	14,000	0.0005%	1,500

[1] Conservative assumption based on TDS levels at similar facilities.

Natural Gas Engines

Emission Point ID	Emission Unit ID	Unit	Description	Engine Rating (hp)	Max Ann. Op. Hours[1] (hr/yr)	Fuel Use [6] (mmscf/hr)	Emission Factor NO_x[2] (g/hp-hr)	CO[2] (g/hp-hr)	SO_2[3] (lb/MMBtu)	VOC[2] (g/hp-hr)	PM/PM_{10}/$PM_{2.5}$[3,5] (lb/MMBtu)	CO_2[4] (kg CO2/mmBTU)	CH_4[4] (kg CH4/mmBTU)	N_2O[4] (kg N2O/mmBTU)	Emission Factor NO_x[2] (lb/hp-hr)	CO[2] (lb/hp-hr)	SO_2[3] (lb/hp-hr)	VOC[2] (lb/hp-hr)	PM/PM_{10}/$PM_{2.5}$[3,5] (lb/hp-hr)	CO_2[4] (lb/MMBtu)	CH_4[4] (lb/MMBtu)	N_2O[4] (lb/MMBtu)
EMGEN1	EMGEN1	Melt Shop	Emergency Generator 1	2000	100	1.37E-02	2.0	4.0	5.88E-04	1.0	0.04831	53.06	0.001	0.0001	4.41E-03	8.82E-03	4.12E-06	2.20E-03	3.38E-04	116.98	2.20E-03	2.20E-04
EMGEN2	EMGEN2	Caster/HM	Emergency Generator 2	2000	100	1.37E-02	2.0	4.0	5.88E-04	1.0	0.04831	53.06	0.001	0.0001	4.41E-03	8.82E-03	4.12E-06	2.20E-03	3.38E-04	116.98	2.20E-03	2.20E-04
EMGEN3	EMGEN3	Caster/HM	Emergency Generator 3	2000	100	1.37E-02	2.0	4.0	5.88E-04	1.0	0.04831	53.06	0.001	0.0001	4.41E-03	8.82E-03	4.12E-06	2.20E-03	3.38E-04	116.98	2.20E-03	2.20E-04
EMGEN4	EMGEN4	Galvanizing Line	Emergency Generator 4	2000	100	1.37E-02	2.0	4.0	5.88E-04	1.0	0.04831	53.06	0.001	0.0001	4.41E-03	8.82E-03	4.12E-06	2.20E-03	3.38E-04	116.98	2.20E-03	2.20E-04
EMGEN5	EMGEN5	Galvanizing Line	Emergency Generator 5	2000	100	1.37E-02	2.0	4.0	5.88E-04	1.0	0.04831	53.06	0.001	0.0001	4.41E-03	8.82E-03	4.12E-06	2.20E-03	3.38E-04	116.98	2.20E-03	2.20E-04
EMGEN6	EMGEN6	Galvanizing Line	Emergency Generator 6	2000	100	1.37E-02	2.0	4.0	5.88E-04	1.0	0.04831	53.06	0.001	0.0001	4.41E-03	8.82E-03	4.12E-06	2.20E-03	3.38E-04	116.98	2.20E-03	2.20E-04

[1] A maximum of 50 hours of maintenance and maximum of 50 hours of general use are allowed under MACT ZZZZ for emergency engines.
[2] Emission factors obtained from 40 CFR 60, Subpart JJJJ, Table 1 for an emergency engine with a power rating greater than 130 hp.
[3] Worst-case emission factor for natural gas-fired reciprocating engines in AP-42 Section 3.2, Tables 3.2-1, 3.2-2, and 3.2-3. Conversion to lb/hp-hr assumes brake-specific fuel consumption of 7000 Btu/hp-hr.
[4] Based on Tables C-1 and C-2 of 40 CFR Part 98.
[5] Includes PM filterable and PM condensable. Conservatively assumes PM = PM10 = PM2.5
[6] Hourly fuel use assumes brake-specific fuel consumption of 7000 Btu/hp-hr and fuel higher heating value of 1020 Btu/scf.

Vehicle Fugitive Dust - Vehicle Properties

Emission Point ID	Emission Unit ID	Unit	Description	Road Length (one-way)[1] (mile)	Vehicle Miles Traveled Daily[1] (VMT/day)	Vehicle Avg. Weight[1] (ton)	Road Surface Silt Loading[2] (g/m^2)	No. of Wet Days[3] (days/yr)	Control Efficiency[4] (%)
FUGD-PAVED-01P	FUG-PAVED	Site-wide	Paved Road-Road 01P	0.11	107.14	15.33	9.7	140	90%
FUGD-PAVED-02P	FUG-PAVED	Site-wide	Paved Road-Road 02P	1.05	281.4	25.09	9.7	140	90%
FUGD-PAVED-03P	FUG-PAVED	Site-wide	Paved Road-Road 03P	0.11	74.58	11.67	9.7	140	90%
FUGD-PAVED-04P	FUG-PAVED	Site-wide	Paved Road-Road 04P	0.75	306	3.03	9.7	140	90%
FUGD-PAVED-05P	FUG-PAVED	Site-wide	Paved Road-Road 05P	0.04	9.44	27.02	9.7	140	90%
FUGD-PAVED-06P	FUG-PAVED	Site-wide	Paved Road-Road 06P	0.23	46	2.4	9.7	140	90%
FUGD-PAVED-07P	FUG-PAVED	Site-wide	Paved Road-Road 07P	0.12	30.96	25.98	9.7	140	90%
FUGD-PAVED-08P	FUG-PAVED	Site-wide	Paved Road-Road 08P	0.11	14.08	26.78	9.7	140	90%
FUGD-PAVED-09P	FUG-PAVED	Site-wide	Paved Road-Road 09P	0.34	125.12	17.41	9.7	140	90%
FUGD-PAVED-10P	FUG-PAVED	Site-wide	Paved Road-Road 10P	0.35	32.2	58.07	9.7	140	90%
FUGD-UNPAVED-11U	FUG-UNPAVED	Site-wide	Unpaved Road-Road 11U	0.14	29.12	29.22	6	140	90%
FUGD-UNPAVED-12U	FUG-UNPAVED	Site-wide	Unpaved Road-Road 12U	0.28	30.24	29.43	6	140	90%
FUGD-UNPAVED-13U	FUG-UNPAVED	Site-wide	Unpaved Road-Road 13U	0.17	31.96	74.09	6	140	90%
FUGD-UNPAVED-14U	FUG-UNPAVED	Site-wide	Unpaved Road-Road 14U	0.02	3.76	74.09	6	140	90%
FUGD-UNPAVED-15U	FUG-UNPAVED	Site-wide	Unpaved Road-Road 15U	0.13	24.94	118.66	6	140	90%
FUGD-UNPAVED-16U	FUG-UNPAVED	Site-wide	Unpaved Road-Road 16U	0.1	17.59	109.06	6	140	90%
FUGD-UNPAVED-17U	FUG-UNPAVED	Site-wide	Unpaved Road-Road 17U	0.15	13.78	153.66	6	140	90%
FUGD-UNPAVED-18U	FUG-UNPAVED	Site-wide	Unpaved Road-Road 18U	0.13	27.04	29.22	6	140	90%
FUGD-UNPAVED-19U	FUG-UNPAVED	Site-wide	Unpaved Road-Road 19U	0.12	12.96	70.63	6	140	90%

[1] Based on similar site
[2] Based on Table 13.2.1-3 of AP-42 Section 13.2.1 dated January 2011.
[3] Defined to be at least 0.254 mm (0.01 in) of precipitation based on AP-42 Sections 13.2.1.3 and 13.2.2.2.
[4] From EPA document: Control of Open Fugitive Dust Sources, published September 1988.

NUCOR - Project Honey Badger
Emissions Calculation Inputs and Assumptions

Auxillliary Storage Tanks

Emission Point ID	Emission Unit ID	Unit	Description	Tank Type	Tank Color	Diameter (ft)	Length (ft)	Capacity (gal)	Material	Throughput		
										Hourly (gal/hr)	Annual (gal/yr)	Monthly (gal/month)
T1	T1	Slag Processor	Diesel Tank	Horizontal Tank	White	5	8	5,000	Diesel	1,000	365000	30000
T2	T2	Melt Shop	Diesel Tank	Horizontal Tank	White	8	27	1,000	Diesel	1,000	365000	30000
T3	T3	Hot Mill	Diesel Tank	Horizontal Tank	White	5	8	1,000	Diesel	1,000	365000	30000
T4	T4	Cold Mill	Diesel Tank	Horizontal Tank	White	5	8	1,000	Diesel	1,000	365000	30000
T5	T5	Scrap	Diesel Tank	Horizontal Tank	White	5	8	2,000	Diesel	1,000	365000	30000
T6	T6	Shipping	Diesel Tank	Horizontal Tank	White	5	8	2,000	Diesel	1,000	365000	30000
T7	T7	Plant	Gasoline Tank	Horizontal Tank	White	5	8	1,000	Unleaded Gasoline	1,000	120000	10000
T8	T8	CSP	Caster Hydraulic Oil	Cone	White	5	8	5,000	Hydraulic Oil	5,000	365000	30000
T9	T9	CSP	Hot Mill Hydraulic Oil	Cone	White	5	8	5,000	Hydraulic Oil	5,000	365000	30000
T10	T10	Cold Mill	HCL Tank #1	Cone	White	11	40	26,400	HCl Acid	5,000	1200000	100000
T11	T11	Cold Mill	HCL Tank #2	Cone	White	11	40	26,400	HCl Acid	5,000	1200000	100000
T12	T12	Cold Mill	HCL Tank #3	Cone	White	11	40	26,400	HCl Acid	5,000	1200000	100000
T13	T13	Cold Mill	HCL Tank #4	Cone	White	11	40	26,400	HCl Acid	5,000	1200000	100000
T14	T14	Cold Mill	HCL Tank #5	Cone	White	11	40	26,400	HCl Acid	5,000	1200000	100000
T15	T15	Cold Mill	HCL Tank #6	Cone	White	11	40	26,400	HCl Acid	5,000	1200000	100000
T16	T16	Cold Mill	SPL Tank #1	Cone	White	11	40	26,400	Spent Pickle Liquor	5,000	900000	75000
T17	T17	Cold Mill	SPL Tank #2	Cone	White	11	40	26,400	Spent Pickle Liquor	5,000	900000	75000
T18	T18	Cold Mill	SPL Tank #3	Cone	White	11	40	26,400	Spent Pickle Liquor	5,000	900000	75000
T19	T19	Cold Mill	SPL Tank #4	Cone	White	11	40	26,400	Spent Pickle Liquor	5,000	900000	75000
T20	T20	Cold Mill	SPL Tank #5	Cone	White	11	40	26,400	Spent Pickle Liquor	5,000	900000	75000
T21	T21	Cold Mill	SPL Tank #6	Cone	White	11	40	26,400	Spent Pickle Liquor	5,000	900000	75000
T22	T22	Cold Mill	SPL Tank #7	Cone	White	11	40	26,400	Spent Pickle Liquor	5,000	900000	75000
T23	T23	Cold Mill	SPL Tank #8	Cone	White	11	40	26,400	Spent Pickle Liquor	5,000	900000	75000
T24	T24	Water Treak	Used Oil Tank	Cone	White	5	8	5,000	Used Oil	5,000	365000	30000
T25	T25	Melt Shop	Cold Degreaser	Open	White	2	3.4	80	Solvent			
T26	T26	Hot Mill	Cold Degreaser	Open	White	2	3.4	80	Solvent			
T27	T27	Cold Mill	Cold Degreaser	Open	White	2	3.4	80	Solvent			
T28	T28	Melt Shop	Cold Degreaser	Open	White	2	3.4	80	Solvent			
T29	T29	Loco Shop	Cold Degreaser	Open	White	2	3.4	80	Solvent			

NUCOR - Project Honey Badger
Summary of Proposed Hourly and Annual Emissions

Emission Point ID	Emission Unit ID	Emission Source	NO_X		CO		SO_2		VOC		Total PM (including condensibles)		PM		PM_{10}		$PM_{2.5}$		Lead		Total HAPs[1]		CO_2	
			(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
Emissions Group 1: Meltshop Sources: EAFs																								
BHST-1	EAF1/LMF1/CAST1	Pulse Jet Fabric Filter Baghouse 1	56.858	249.375	328.149	1,439	38.988	171.000	15.920	69.825	49.190	215.451	17.027	74.579	49.190	215.451	49.190	215.451	0.07	0.32	0.25	1.09	47,811	179,346
BHST-2	EAF2/LMF2/CAST2	Pulse Jet Fabric Filter Baghouse 2	56.858	249.375	328.149	1,439	38.988	171.000	15.920	69.825	49.190	215.451	17.027	74.579	49.190	215.451	49.190	215.451	0.07	0.32	0.25	1.09	47,811	179,346
MSFUG	MSFUG	Uncaptured Electric Arc Furnace Fugitives	5.985	26.250	34.542	151.500	4.104	18.000	1.676	7.350	1.618	7.098	1.618	7.098	0.938	4.115	0.938	4.115	7.70E-03	0.03	0.02	0.07	5,033	18,879
CASTFUG	CASTFUG	Uncaptured Casting Fugitives	--	--	--	--	--	--	--	--	0.205	0.900	0.205	0.900	0.205	0.900	0.205	0.900	--	--	--	--	--	--
EAFVF1	EAFVF1	EAF Baghouse 1 Dust Silo	--	--	--	--	--	--	--	--	0.086	0.375	0.086	0.375	0.086	0.375	0.086	0.375	--	--	--	--	--	--
EAFVF2	EAFVF2	EAF Baghouse 2 Dust Silo	--	--	--	--	--	--	--	--	0.086	0.375	0.086	0.375	0.086	0.375	0.086	0.375	--	--	--	--	--	--
Emissions Group 2: Meltshop Sources: Preheaters and Dryers																								
MSFUG	LD	Ladle Dryer Fugitives	1.471	6.441	1.235	5.411	8.82E-03	0.039	0.081	0.354	0.112	0.490	0.028	0.122	0.112	0.490	0.112	0.490	7.35E-06	3.22E-05	1.38E-03	6.06E-03	1,755	7,685
MSFUG	LPHTR1	Horizontal Ladle Preheater 1 Fugitives	1.471	6.441	1.235	5.411	8.82E-03	0.039	0.081	0.354	0.112	0.490	0.028	0.122	0.112	0.490	0.112	0.490	7.35E-06	3.22E-05	1.38E-03	6.06E-03	1,755	7,685
MSFUG	LPHTR2	Horizontal Ladle Preheater 2 Fugitives	1.471	6.441	1.235	5.411	8.82E-03	0.039	0.081	0.354	0.112	0.490	0.028	0.122	0.112	0.490	0.112	0.490	7.35E-06	3.22E-05	1.38E-03	6.06E-03	1,755	7,685
MSFUG	LPHTR3	Horizontal Ladle Preheater 3 Fugitives	1.471	6.441	1.235	5.411	8.82E-03	0.039	0.081	0.354	0.112	0.490	0.028	0.122	0.112	0.490	0.112	0.490	7.35E-06	3.22E-05	1.38E-03	6.06E-03	1,755	7,685
MSFUG	LPHTR4	Horizontal Ladle Preheater 4 Fugitives	1.471	6.441	1.235	5.411	8.82E-03	0.039	0.081	0.354	0.112	0.490	0.028	0.122	0.112	0.490	0.112	0.490	7.35E-06	3.22E-05	1.38E-03	6.06E-03	1,755	7,685
MSFUG	LPHTR5	Horizontal Ladle Preheater 5 Fugitives	1.471	6.441	1.235	5.411	8.82E-03	0.039	0.081	0.354	0.112	0.490	0.028	0.122	0.112	0.490	0.112	0.490	7.35E-06	3.22E-05	1.38E-03	6.06E-03	1,755	7,685
MSFUG	LPHTR6	Vertical Ladle Preheater 6 Fugitives	1.471	6.441	1.235	5.411	8.82E-03	0.039	0.081	0.354	0.112	0.490	0.028	0.122	0.112	0.490	0.112	0.490	7.35E-06	3.22E-05	1.38E-03	6.06E-03	1,755	7,685
MSFUG	LPHTR7	Vertical Ladle Preheater 7 Fugitives	1.471	6.441	1.235	5.411	8.82E-03	0.039	0.081	0.354	0.112	0.490	0.028	0.122	0.112	0.490	0.112	0.490	7.35E-06	3.22E-05	1.38E-03	6.06E-03	1,755	7,685
MSFUG	TD	Tundish Dryer 1	0.588	2.576	0.494	2.164	3.53E-03	0.015	0.032	0.142	0.045	0.196	0.011	0.049	0.045	0.196	0.045	0.196	2.94E-06	1.29E-05	0.01	0.05	701.86	3,074
MSFUG	TPHTR1	Tundish Preheater 1	0.882	3.865	0.741	3.246	5.29E-03	0.023	0.049	0.213	0.067	0.294	0.017	0.073	0.067	0.294	0.067	0.294	4.41E-06	1.93E-05	0.02	0.07	1,053	4,611
MSFUG	TPHTR2	Tundish Preheater 2	0.882	3.865	0.741	3.246	5.29E-03	0.023	0.049	0.213	0.067	0.294	0.017	0.073	0.067	0.294	0.067	0.294	4.41E-06	1.93E-05	0.02	0.07	1,053	4,611
MSFUG	SENPHTR1	Subentry Nozzle (SEN) Preheater 1	0.098	0.429	0.082	0.361	5.88E-04	2.58E-03	5.39E-03	0.024	7.45E-03	0.033	1.86E-03	8.16E-03	7.45E-03	0.033	7.45E-03	0.033	4.90E-07	2.15E-06	1.85E-03	8.08E-03	116.98	512.36
MSFUG	SENPHTR2	Subentry Nozzle (SEN) Preheater 2	0.098	0.429	0.082	0.361	5.88E-04	2.58E-03	5.39E-03	0.024	7.45E-03	0.033	1.86E-03	8.16E-03	7.45E-03	0.033	7.45E-03	0.033	4.90E-07	2.15E-06	1.85E-03	8.08E-03	116.98	512.36
Emissions Group 3: Meltshop Sources: Vacuum Tank Degassers																								
VTDST1	VTD1	Vacuum Tank 1	0.841	3.690	5.375	14.933	7.28E-03	0.032	1.732	7.597	0.075	0.328	0.075	0.328	0.075	0.328	0.075	0.328	--	--	0.02	0.10	1,861	7,497
VTDST2	VTD2	Vacuum Tank 2	0.841	3.690	5.375	14.933	7.28E-03	0.032	1.732	7.597	0.075	0.328	0.075	0.328	0.075	0.328	0.075	0.328	--	--	0.02	0.10	1,861	7,497
Emissions Group 4: Hot Mill : Furnaces																								
TFST-1	TF1	Hot Mill Tunnel Furnace 1	10.500	45.990	12.353	54.106	0.088	0.386	0.809	3.543	1.118	4.895	0.279	1.224	1.118	4.895	1.118	4.895	7.35E-05	3.22E-04	0.28	1.21	17,547	76,854
Emissions Group 5: Hot Mill : Misc.																								
RM-BH	RM	Rolling Mill	--	--	--	--	--	--	--	--	10.090	44.194	10.090	44.194	10.090	44.194	5.045	22.097	--	--	--	--	--	--
Emissions Group 6: Cold Mill : Pickling Lines																								
PLST-1	PKL-1	Pickling Line #1	--	--	--	--	--	--	--	--	0.616	2.697	0.616	2.697	0.616	2.697	0.616	2.697	--	--	0.25	1.09	--	--
PKLSB	PKLSB	Pickle Line Scale Breaker	--	--	--	--	--	--	--	--	1.362	5.966	1.362	5.966	1.362	5.966	1.362	5.966	--	--	--	--	--	--
Emissions Group 7: Cold Mill : Mills																								
TCMST	TCM	Tandem Cold Mill	--	--	--	--	--	--	--	--	17.328	75.897	17.328	75.897	11.437	50.092	11.437	50.092	--	--	--	--	--	--
STMST	STM	Standalone Temper Mill	--	--	--	--	--	--	--	--	0.964	4.224	0.964	4.224	0.926	4.055	0.501	2.196	--	--	--	--	--	--
SPMST1	SPM1	Skin Pass Mill #1	--	--	--	--	--	--	--	--	2.107	9.231	2.107	9.231	2.107	9.231	1.054	4.615	--	--	--	--	--	--
SPMST2	SPM2	Skin Pass Mill #2	--	--	--	--	--	--	--	--	2.107	9.231	2.107	9.231	2.107	9.231	1.054	4.615	--	--	--	--	--	--
Emissions Group 8: Cold Mill : Galvanizing Lines																								
CGL1-ST1	CGL1	CGL1 - Cleaning Section	--	--	--	--	--	--	--	--	0.157	0.690	0.157	0.690	0.157	0.690	0.157	0.690	--	--	--	--	--	--
CGL1-ST2	CGL1	CGL1 - Passivation Section	--	--	--	--	--	--	--	--	0.240	1.053	0.240	1.053	0.240	1.053	0.240	1.053	--	--	--	--	--	--
CGL2-ST1	CGL2	CGL2 - Cleaning Section	--	--	--	--	--	--	--	--	0.157	0.690	0.157	0.690	0.157	0.690	0.157	0.690	--	--	--	--	--	--
CGL2-ST2	CGL2	CGL2 - Passivation Section	--	--	--	--	--	--	--	--	0.240	1.053	0.240	1.053	0.240	1.053	0.240	1.053	--	--	--	--	--	--
Emissions Group 9: Cold Mill : Galvanizing Line Furnaces																								
GALVFN1-ST	GALVFN1	Galvanizing Furnace #1	3.200	14.016	5.271	23.085	0.038	0.165	0.345	1.512	0.477	2.089	0.119	0.522	0.477	2.089	0.477	2.089	3.14E-05	1.37E-04	0.12	0.52	7,487	32,791
GALVFN2-ST	GALVFN2	Galvanizing Furnace #2	3.200	14.016	5.271	23.085	0.038	0.165	0.345	1.512	0.477	2.089	0.119	0.522	0.477	2.089	0.477	2.089	3.14E-05	1.37E-04	0.12	0.52	7,487	32,791
Emissions Group 10: Cold Mill : Annealing Furnaces																								
GALVFUG	BOXANN1	Box Annealing Furnace #1	0.250	1.095	0.412	1.804	2.94E-03	0.013	0.027	0.118	0.037	0.163	9.31E-03	0.041	0.037	0.163	0.037	0.163	2.45E-06	1.07E-05	9.23E-03	0.04	584.89	2,562
GALVFUG	BOXANN2	Box Annealing Furnace #2	0.250	1.095	0.412	1.804	2.94E-03	0.013	0.027	0.118	0.037	0.163	9.31E-03	0.041	0.037	0.163	0.037	0.163	2.45E-06	1.07E-05	9.23E-03	0.04	584.89	2,562
GALVFUG	BOXANN3	Box Annealing Furnace #3	0.250	1.095	0.412	1.804	2.94E-03	0.013	0.027	0.118	0.037	0.163	9.31E-03	0.041	0.037	0.163	0.037	0.163	2.45E-06	1.07E-05	9.23E-03	0.04	584.89	2,562
GALVFUG	BOXANN4	Box Annealing Furnace #4	0.250	1.095	0.412	1.804	2.94E-03	0.013	0.027	0.118	0.037	0.163	9.31E-03	0.041	0.037	0.163	0.037	0.163	2.45E-06	1.07E-05	9.23E-03	0.04	584.89	2,562
GALVFUG	BOXANN5	Box Annealing Furnace #5	0.250	1.095	0.412	1.804	2.94E-03	0.013	0.027	0.118	0.037	0.163	9.31E-03	0.041	0.037	0.163	0.037	0.163	2.45E-06	1.07E-05	9.23E-03	0.04	584.89	2,562
GALVFUG	BOXANN6	Box Annealing Furnace #6	0.250	1.095	0.412	1.804	2.94E-03	0.013	0.027	0.118	0.037	0.163	9.31E-03	0.041	0.037	0.163	0.037	0.163	2.45E-06	1.07E-05	9.23E-03	0.04	584.89	2,562
GALVFUG	BOXANN7	Box Annealing Furnace #7	0.250	1.095	0.412	1.804	2.94E-03	0.013	0.027	0.118	0.037	0.163	9.31E-03	0.041	0.037	0.163	0.037	0.163	2.45E-06	1.07E-05	9.23E-03	0.04	584.89	2,562
GALVFUG	BOXANN8	Box Annealing Furnace #8	0.250	1.095	0.412	1.804	2.94E-03	0.013	0.027	0.118	0.037	0.163	9.31E-03	0.041	0.037	0.163	0.037	0.163	2.45E-06	1.07E-05	9.23E-03	0.04	584.89	2,562
GALVFUG	BOXANN9	Box Annealing Furnace #9	0.250	1.095	0.412	1.804	2.94E-03	0.013	0.027	0.118	0.037	0.163	9.31E-03	0.041	0.037	0.163	0.037	0.163	2.45E-06	1.07E-05	9.23E-03	0.04	584.89	2,562
GALVFUG	BOXANN10	Box Annealing Furnace #10	0.250	1.095	0.412	1.804	2.94E-03	0.013	0.027	0.118	0.037	0.163	9.31E-03	0.041	0.037	0.163	0.037	0.163	2.45E-06	1.07E-05	9.23E-03	0.04	584.89	2,562
GALVFUG	BOXANN11	Box Annealing Furnace #11	0.250	1.095	0.412	1.804	2.94E-03	0.013	0.027	0.118	0.037	0.163	9.31E-03	0.041	0.037	0.163	0.037	0.163	2.45E-06	1.07E-05	9.23E-03	0.04	584.89	2,562
GALVFUG	BOXANN12	Box Annealing Furnace #12	0.250	1.095	0.412	1.804	2.94E-03	0.013	0.027	0.118	0.037	0.163	9.31E-03	0.041	0.037	0.163	0.037	0.163	2.45E-06	1.07E-05	9.23E-03	0.04	584.89	2,562
GALVFUG	BOXANN13	Box Annealing Furnace #13	0.250	1.095	0.412	1.804	2.94E-03	0.013	0.027	0.118	0.037	0.163	9.31E-03	0.041	0.037	0.163	0.037	0.163	2.45E-06	1.07E-05	9.23E-03	0.04	584.89	2,562
GALVFUG	BOXANN14	Box Annealing Furnace #14	0.250	1.095	0.412	1.804	2.94E-03	0.013	0.027	0.118	0.037	0.163	9.31E-03	0.041	0.037	0.163	0.037	0.163	2.45E-06	1.07E-05	9.23E-03	0.04	584.89	2,562
GALVFUG	BOXANN15	Box Annealing Furnace #15	0.250	1.095	0.412	1.804	2.94E-03	0.013	0.027	0.118	0.037	0.163	9.31E-03	0.041	0.037	0.163	0.037	0.163	2.45E-06	1.07E-05	9.23E-03	0.04	584.89	2,562
GALVFUG	BOXANN16	Box Annealing Furnace #16	0.250	1.095	0.412	1.804	2.94E-03	0.013	0.027	0.118	0.037	0.163	9.31E-03	0.041	0.037	0.163	0.037	0.163	2.45E-06	1.07E-05	9.23E-03	0.04	584.89	2,562
GALVFUG	BOXANN17	Box Annealing Furnace #17	0.250	1.095	0.412	1.804	2.94E-03	0.013	0.027	0.118	0.037	0.163	9.31E-03	0.041	0.037	0.163	0.037	0.163	2.45E-06	1.07E-05	9.23E-03	0.04	584.89	2,562
GALVFUG	BOXANN18	Box Annealing Furnace #18	0.250	1.095	0.412	1.804	2.94E-03	0.013	0.027	0.118	0.037	0.163	9.31E-03	0.041	0.037	0.163	0.037	0.163	2.45E-06	1.07E-05	9.23E-03	0.04	584.89	2,562
GALVFUG	BOXANN19	Box Annealing Furnace #19	0.250	1.095	0.412	1.804	2.94E-03	0.013	0.027	0.118	0.037	0.163	9.31E-03	0.041	0.037	0.163	0.037	0.163	2.45E-06	1.07E-05	9.23E-03	0.04	584.89	2,562
GALVFUG	BOXANN20	Box Annealing Furnace #20	0.250	1.095	0.412	1.804	2.94E-03	0.013	0.027	0.118	0.037	0.163	9.31E-03	0.041	0.037	0.163	0.037	0.163	2.45E-06	1.07E-05	9.23E-03	0.04	584.89	2,562
GALVFUG	BOXANN21	Box Annealing Furnace #21	0.250	1.095	0.412	1.804	2.94E-03	0.013	0.027	0.118	0.037	0.163	9.31E-03	0.041	0.037	0.163	0.037	0.163	2.45E-06	1.07E-05	9.23E-03	0.04	584.89	2,562
GALVFUG	BOXANN22	Box Annealing Furnace #22	0.250	1.095	0.412	1.804	2.94E-03	0.013	0.027	0.118	0.037	0.163	9.31E-03	0.041	0.037	0.163	0.037	0.163	2.45E-06	1.07E-05	9.23E-03	0.04	584.89	2,562
Emissions Group 11: Material Handling System																								
LCB-ST	LCB	Lime, Carbon, and Alloy Silos	--	--	--	--	--	--	--	--	1.629	7.133	1.629	7.133	1.629	7.133	1.629	7.133	--	--	--	--	--	--
ALLOY-HANDLE-ST	ALLOY-HANDLE	Alloy Handling System	--	--	--	--	--	--	--	--	0.163	0.713	0.163	0.713	0.163	0.713	0.163	0.713	--	--	--	--	--	--

NUCOR - Project Honey Badger
Summary of Proposed Hourly and Annual Emissions

Emission Point ID	Emission Unit ID	Emission Source	NO_X		CO		SO_2		VOC		Total PM (including condensibles)		PM		PM_{10}		$PM_{2.5}$		Lead		Total HAPs[1]		CO_2	
			(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
ALLOY-HANDLE-FUG	ALLOY-HANDLE	Alloy Handling System Fugitives	--	--	--	--	--	--	--	--	0.125	0.194	0.125	0.194	0.044	0.067	6.59E-03	0.010	--	--	--	--	--	--
CARBON-DUMP-ST	CARBON-DUMP	Carbon Dump Station	--	--	--	--	--	--	--	--	0.086	0.375	0.086	0.375	0.086	0.375	0.086	0.375	--	--	--	--	--	--
CARBON-DUMP-FUG	CARBON-DUMP	Carbon Dump Station Fugitives	--	--	--	--	--	--	--	--	0.025	0.109	0.025	0.109	8.69E-03	0.038	1.32E-03	5.76E-03	--	--	--	--	--	--
LIME-DUMP-ST	LIME-DUMP	Lime Dump Station	--	--	--	--	--	--	--	--	0.086	0.375	0.086	0.375	0.086	0.375	0.086	0.375	--	--	--	--	--	--
LIME-DUMP-FUG	LIME-DUMP	Lime Dump Station Fugitives	--	--	--	--	--	--	--	--	0.050	0.219	0.050	0.219	0.017	0.076	2.63E-03	0.012	--	--	--	--	--	--
DRI-DOCK-ST	DRI-DOCK	DRI Unloading Dock (two units)	--	--	--	--	--	--	--	--	0.034	0.150	0.034	0.150	0.034	0.150	0.017	0.074	--	--	--	--	--	--
DRIVF1	DRI1	DRI Storage Silo 1 - Baghouse	--	--	--	--	--	--	--	--	0.010	0.045	0.010	0.045	0.010	0.045	5.04E-03	0.022	--	--	--	--	--	--
DRIBV1	DRI1	DRI Storage Silo 1 - Bin Vent	--	--	--	--	--	--	--	--	1.27E-03	5.56E-03	1.27E-03	5.56E-03	1.27E-03	5.56E-03	6.22E-04	2.72E-03	--	--	--	--	--	--
DRIVF2	DRI2	DRI Storage Silo 2 - Baghouse	--	--	--	--	--	--	--	--	0.010	0.045	0.010	0.045	0.010	0.045	5.04E-03	0.022	--	--	--	--	--	--
DRIBV2	DRI2	DRI Storage Silo 2 - Bin Vent	--	--	--	--	--	--	--	--	1.27E-03	5.56E-03	1.27E-03	5.56E-03	1.27E-03	5.56E-03	6.22E-04	2.72E-03	--	--	--	--	--	--
DRIVF3	DRI3	DRI Storage Silo 3 - Baghouse	--	--	--	--	--	--	--	--	0.010	0.045	0.010	0.045	0.010	0.045	5.04E-03	0.022	--	--	--	--	--	--
DRIBV3	DRI3	DRI Storage Silo 3 - Bin Vent	--	--	--	--	--	--	--	--	1.27E-03	5.56E-03	1.27E-03	5.56E-03	1.27E-03	5.56E-03	6.22E-04	2.72E-03	--	--	--	--	--	--
DRIVF4	DRI4	DRI Storage Silo 4 - Baghouse	--	--	--	--	--	--	--	--	0.010	0.045	0.010	0.045	0.010	0.045	5.04E-03	0.022	--	--	--	--	--	--
DRIBV4	DRI4	DRI Storage Silo 4 - Bin Vent	--	--	--	--	--	--	--	--	1.27E-03	5.56E-03	1.27E-03	5.56E-03	1.27E-03	5.56E-03	6.22E-04	2.72E-03	--	--	--	--	--	--
DRI-DB1-BH	DRI-DB1	DRI Day Bin #1	--	--	--	--	--	--	--	--	0.010	0.045	0.010	0.045	0.010	0.045	5.04E-03	0.022	--	--	--	--	--	--
DRI-DB2-BH	DRI-DB2	DRI Day Bin #2	--	--	--	--	--	--	--	--	0.010	0.045	0.010	0.045	0.010	0.045	5.04E-03	0.022	--	--	--	--	--	--
DRI-CONV-BH	DRI-CONV	DRI Transfer Conveyors	--	--	--	--	--	--	--	--	0.010	0.045	0.010	0.045	0.010	0.045	5.04E-03	0.022	--	--	--	--	--	--
DRI-DOCK-FUG	DRI-DOCK	DRI Unloading Dock - Fugitives	--	--	--	--	--	--	--	--	0.196	0.109	0.196	0.109	0.093	0.052	0.014	7.82E-03	--	--	--	--	--	--
BULK-DRI-1	BULK-DRI	DRI Silo #1 Loadout	--	--	--	--	--	--	--	--	0.025	0.109	0.025	0.109	0.012	0.052	1.79E-03	7.82E-03	--	--	--	--	--	--
BULK-DRI-2	BULK-DRI	DRI Silo #2 Loadout	--	--	--	--	--	--	--	--	0.025	0.109	0.025	0.109	0.012	0.052	1.79E-03	7.82E-03	--	--	--	--	--	--
DRI-EMG-1	BULK-DRI	DRI Conveyor #1 Emergency Chute	--	--	--	--	--	--	--	--	0.196	3.92E-04	0.196	3.92E-04	0.093	1.85E-04	0.014	2.80E-05	--	--	--	--	--	--
DRI-EMG-2	BULK-DRI	DRI Silos Emergency Chute	--	--	--	--	--	--	--	--	1.253	0.011	1.253	0.011	0.593	5.33E-03	0.090	8.08E-04	--	--	--	--	--	--
SCRAP-DOCK-FUG	SCRAP-DOCK	Barge Scrap Unloading	--	--	--	--	--	--	--	--	0.180	0.217	0.180	0.217	0.090	0.108	0.026	0.031	--	--	--	--	--	--
SCRAP-RAIL-FUG	SCRAP-RAIL	Rail Scrap Unloading	--	--	--	--	--	--	--	--	0.060	0.029	0.060	0.029	0.030	0.014	8.60E-03	4.14E-03	--	--	--	--	--	--
SCRAP-BULK34	SCRAP-BULK34	Barge Scrap Pile Loading	--	--	--	--	--	--	--	--	0.548	0.659	0.548	0.659	0.259	0.312	0.039	0.047	--	--	--	--	--	--
SCRAP-BULK35	SCRAP-BULK35	Barge Scrap Pile Loadout	--	--	--	--	--	--	--	--	0.251	0.659	0.251	0.659	0.119	0.312	0.018	0.047	--	--	--	--	--	--
SCRAP-BULK36	SCRAP-BULK36	Rail Scrap Pile Loading	--	--	--	--	--	--	--	--	0.110	0.088	0.110	0.088	0.052	0.042	7.85E-03	6.29E-03	--	--	--	--	--	--
SCRAP-BULK37	SCRAP-BULK37	Rail Scrap Pile Loadout	--	--	--	--	--	--	--	--	0.251	0.088	0.251	0.088	0.119	0.042	0.018	6.29E-03	--	--	--	--	--	--
SCRAP-BULK38	SCRAP-BULK38	Truck Scrap Pile Loading	--	--	--	--	--	--	--	--	0.183	0.132	0.183	0.132	0.086	0.062	0.013	9.44E-03	--	--	--	--	--	--
SCRAP-BULK39	SCRAP-BULK39	Truck Scrap Pile Loadout	--	--	--	--	--	--	--	--	0.251	0.132	0.251	0.132	0.119	0.062	0.018	9.44E-03	--	--	--	--	--	--
SCRAP-BULK40	SCRAP-BULK40	Scrap Charging	--	--	--	--	--	--	--	--	0.201	0.879	0.201	0.879	0.095	0.416	0.014	0.063	--	--	--	--	--	--
Emissions Group 12: Slag Processing																								
SCRAP-BULK1	SCRAP-BULK1	Dig slag inside pot barn	--	--	--	--	--	--	--	--	0.160	0.289	0.160	0.289	0.078	0.141	0.029	0.053	--	--	--	--	--	--
SCRAP-BULK2	SCRAP-BULK2	Loader transport & dump slag into quench	--	--	--	--	--	--	--	--	0.160	0.289	0.160	0.289	0.078	0.141	0.029	0.053	--	--	--	--	--	--
SCRAP-BULK3	SCRAP-BULK3	Loader transport & dump into F1 feed hopper/grizzly	--	--	--	--	--	--	--	--	0.064	0.116	0.064	0.116	0.031	0.056	0.012	0.021	--	--	--	--	--	--
SCRAP-BULK4	SCRAP-BULK4	F1 feed hopper/grizzly to P1 oversize storage	--	--	--	--	--	--	--	--	0.075	0.135	0.075	0.135	0.026	0.047	0.026	0.047	--	--	--	--	--	--
SCRAP-BULK5	SCRAP-BULK5	F1 feed hopper/grizzly to C7 crusher conveyor	--	--	--	--	--	--	--	--	1.49E-03	2.69E-03	1.49E-03	2.69E-03	5.20E-04	9.36E-04	5.20E-04	9.36E-04	--	--	--	--	--	--
SCRAP-BULK6	SCRAP-BULK6	F1 feed hopper/grizzly to C1A main conveyor	--	--	--	--	--	--	--	--	0.022	0.040	0.022	0.040	7.80E-03	0.014	7.80E-03	0.014	--	--	--	--	--	--
SCRAP-BULK7	SCRAP-BULK7	C7 to CR1 crusher	--	--	--	--	--	--	--	--	6.10E-03	0.011	6.10E-03	0.011	2.24E-03	4.03E-03	2.24E-03	4.03E-03	--	--	--	--	--	--
SCRAP-BULK8	SCRAP-BULK8	CR1 crusher to C8 conveyor	--	--	--	--	--	--	--	--	0.026	0.047	0.026	0.047	0.012	0.021	0.012	0.021	--	--	--	--	--	--
SCRAP-BULK9	SCRAP-BULK9	CR1 crusher to P2 off-spec storage	--	--	--	--	--	--	--	--	0.022	0.040	0.022	0.040	9.95E-03	0.018	9.95E-03	0.018	--	--	--	--	--	--
SCRAP-BULK10	SCRAP-BULK10	C8 conveyor to C9 conveyor	--	--	--	--	--	--	--	--	4.04E-04	7.26E-04	4.04E-04	7.26E-04	1.48E-04	2.66E-04	1.48E-04	2.66E-04	--	--	--	--	--	--
SCRAP-BULK11	SCRAP-BULK11	C9 conveyor to C1A conveyor	--	--	--	--	--	--	--	--	2.29E-03	4.12E-03	2.29E-03	4.12E-03	8.39E-04	1.51E-03	8.39E-04	1.51E-03	--	--	--	--	--	--
SCRAP-BULK12	SCRAP-BULK12	C1A conveyor to B1 surge bin	--	--	--	--	--	--	--	--	2.29E-03	4.12E-03	2.29E-03	4.12E-03	8.39E-04	1.51E-03	8.39E-04	1.51E-03	--	--	--	--	--	--
SCRAP-BULK13	SCRAP-BULK13	B1 surge bin to C1 conveyor	--	--	--	--	--	--	--	--	8.39E-03	0.015	8.39E-03	0.015	3.07E-03	5.53E-03	3.07E-03	5.53E-03	--	--	--	--	--	--
SCRAP-BULK14	SCRAP-BULK14	C1 conveyor through M1 mag splitter to S1 slag screen	--	--	--	--	--	--	--	--	8.39E-03	0.015	8.39E-03	0.015	3.07E-03	5.53E-03	3.07E-03	5.53E-03	--	--	--	--	--	--
SCRAP-BULK15	SCRAP-BULK15	C1 conveyor through M1 mag splitter to S2 off-spec screen	--	--	--	--	--	--	--	--	8.09E-03	0.015	8.09E-03	0.015	2.97E-03	5.34E-03	2.97E-03	5.34E-03	--	--	--	--	--	--
SCRAP-BULK16	SCRAP-BULK16	S2 off-spec screen to C6 conveyor	--	--	--	--	--	--	--	--	5.01E-03	9.02E-03	5.01E-03	9.02E-03	1.74E-03	3.14E-03	1.74E-03	3.14E-03	--	--	--	--	--	--
SCRAP-BULK17	SCRAP-BULK17	S2 off-spec screen to P3 off-spec storage	--	--	--	--	--	--	--	--	4.26E-03	7.67E-03	4.26E-03	7.67E-03	1.48E-03	2.67E-03	1.48E-03	2.67E-03	--	--	--	--	--	--
SCRAP-BULK18	SCRAP-BULK18	C6 conveyor to P4 off-spec storage	--	--	--	--	--	--	--	--	4.40E-05	7.93E-05	4.40E-05	7.93E-05	1.61E-05	2.91E-05	1.61E-05	2.91E-05	--	--	--	--	--	--
SCRAP-BULK19	SCRAP-BULK19	S1 slag screen to C2 conveyor	--	--	--	--	--	--	--	--	4.26E-03	7.67E-03	4.26E-03	7.67E-03	1.48E-03	2.67E-03	1.48E-03	2.67E-03	--	--	--	--	--	--
SCRAP-BULK20	SCRAP-BULK20	C2 conveyor to C5 conveyor	--	--	--	--	--	--	--	--	3.24E-03	5.83E-03	3.24E-03	5.83E-03	1.19E-03	2.14E-03	1.19E-03	2.14E-03	--	--	--	--	--	--
SCRAP-BULK21	SCRAP-BULK21	C5 conveyor to SLGSKP1	--	--	--	--	--	--	--	--	3.24E-03	5.83E-03	3.24E-03	5.83E-03	1.19E-03	2.14E-03	1.19E-03	2.14E-03	--	--	--	--	--	--
SCRAP-BULK22	SCRAP-BULK22	S1 slag screen to C4 conveyor	--	--	--	--	--	--	--	--	0.055	0.099	0.055	0.099	0.019	0.035	0.019	0.035	--	--	--	--	--	--
SCRAP-BULK23	SCRAP-BULK23	C4 conveyor to SLGSKP3	--	--	--	--	--	--	--	--	2.43E-03	4.37E-03	2.43E-03	4.37E-03	8.90E-04	1.60E-03	8.90E-04	1.60E-03	--	--	--	--	--	--
SCRAP-BULK24	SCRAP-BULK24	S1 slag screen to C3 conveyor	--	--	--	--	--	--	--	--	0.041	0.075	0.041	0.075	0.014	0.026	0.014	0.026	--	--	--	--	--	--
SCRAP-BULK25	SCRAP-BULK25	C3 conveyor to SLGSKP2	--	--	--	--	--	--	--	--	1.62E-03	2.91E-03	1.62E-03	2.91E-03	5.93E-04	1.07E-03	5.93E-04	1.07E-03	--	--	--	--	--	--
SCRAP-BULK26	SCRAP-BULK26	S1 slag screen to SLGSKP4	--	--	--	--	--	--	--	--	0.028	0.050	0.028	0.050	9.62E-03	0.017	9.62E-03	0.017	--	--	--	--	--	--
SCRAP-BULK27	SCRAP-BULK27	Loader transports & loads products into trucks to productstockpiles	--	--	--	--	--	--	--	--	5.79E-03	0.010	5.79E-03	0.010	2.83E-03	5.09E-03	1.05E-03	1.89E-03	--	--	--	--	--	--
SCRAP-BULK28	SCRAP-BULK28	Truck transports & dumps products into product stockpiles	--	--	--	--	--	--	--	--	0.064	0.116	0.064	0.116	0.031	0.056	0.012	0.021	--	--	--	--	--	--
SCRAP-BULK29	SCRAP-BULK29	Loader transports & loads into trucks, oversize to drop ball	--	--	--	--	--	--	--	--	0.064	0.116	0.064	0.116	0.031	0.056	0.012	0.021	--	--	--	--	--	--
SCRAP-BULK30	SCRAP-BULK30	Truck transports & dumps oversize into drop ball area	--	--	--	--	--	--	--	--	1.28E-03	2.31E-03	1.28E-03	2.31E-03	6.27E-04	1.13E-03	2.33E-04	4.20E-04	--	--	--	--	--	--
SCRAP-BULK31	SCRAP-BULK31	Truck transports ladle lip and meltshop cleanup materials &dumps at drop ball site	--	--	--	--	--	--	--	--	4.17E-03	7.51E-03	4.17E-03	7.51E-03	2.04E-03	3.67E-03	7.58E-04	1.37E-03	--	--	--	--	--	--
SCRAP-BULK32	SCRAP-BULK32	Truck transports & dumps tundish at lancing station	--	--	--	--	--	--	--	--	2.25E-03	4.04E-03	2.25E-03	4.04E-03	1.10E-03	1.98E-03	4.08E-04	7.35E-04	--	--	--	--	--	--
SCRAP-BULK33	SCRAP-BULK33	Ball drop crushing	--	--	--	--	--	--	--	--	2.76E-03	4.97E-03	2.76E-03	4.97E-03	1.23E-03	2.21E-03	1.23E-03	2.21E-03	--	--	--	--	--	--
Emissions Group 13: Storage Piles																								
SLGSKP1	SLGSKP1	Slag Stockpile 1	--	--	--	--	--	--	--	--	0.123	0.540	0.123	0.540	0.058	0.255	8.83E-03	0.039	--	--	--	--	--	--
SLGSKP2	SLGSKP2	Slag Stockpile 2	--	--	--	--	--	--	--	--	0.123	0.540	0.123	0.540	0.058	0.255	8.83E-03	0.039	--	--	--	--	--	--
SLGSKP3	SLGSKP3	Slag Stockpile 3	--	--	--	--	--	--	--	--	0.123	0.540	0.123	0.540	0.058	0.255	8.83E-03	0.039	--	--	--	--	--	--
SLGSKP4	SLGSKP4	Slag Stockpile 4	--	--	--	--	--	--	--	--	0.123	0.540	0.123	0.540	0.058	0.255	8.83E-03	0.039	--	--	--	--	--	--

NUCOR - Project Honey Badger
Summary of Proposed Hourly and Annual Emissions

Emission Point ID	Emission Unit ID	Emission Source	NO_X (lb/hr)	NO_X (tpy)	CO (lb/hr)	CO (tpy)	SO_2 (lb/hr)	SO_2 (tpy)	VOC (lb/hr)	VOC (tpy)	Total PM (including condensibles) (lb/hr)	Total PM (including condensibles) (tpy)	PM (lb/hr)	PM (tpy)	PM_{10} (lb/hr)	PM_{10} (tpy)	$PM_{2.5}$ (lb/hr)	$PM_{2.5}$ (tpy)	Lead (lb/hr)	Lead (tpy)	Total HAPs[1] (lb/hr)	Total HAPs[1] (tpy)	CO_2 (lb/hr)	CO_2 (tpy)
SCRPSKP1	SCRPSKP1	Scrap Metal Stockpile 1	--	--	--	--	--	--	--	--	0.310	1.357	0.310	1.357	0.147	0.642	0.022	0.097	--	--	--	--	--	--
SCRPSKP2	SCRPSKP2	Scrap Metal Stockpile 2	--	--	--	--	--	--	--	--	0.310	1.357	0.310	1.357	0.147	0.642	0.022	0.097	--	--	--	--	--	--
SCRPSKP3	SCRPSKP3	Scrap Metal Stockpile 3	--	--	--	--	--	--	--	--	0.310	1.357	0.310	1.357	0.147	0.642	0.022	0.097	--	--	--	--	--	--
Emissions Group 14: Slag Cutting																								
SLAG-CUT-NG	SLAG-CUT	Slag Cutting in Slag Processing Area	0.235	1.031	0.198	0.866	1.41E-03	6.18E-03	0.013	0.057	0.018	0.078	4.47E-03	0.020	0.018	0.078	0.018	0.078	1.18E-06	5.15E-06	4.43E-03	0.02	280.75	1,230
SLAG-CUT-BH	SLAG-CUT	Slag Cutting in Slag Processing Area	--	--	--	--	--	--	--	--	0.857	3.754	0.857	3.754	0.857	3.754	0.857	3.754	--	--	--	--	--	--
Emissions Group 15: Air Separation Plant																								
ASP-1	ASP	Water Bath Vaporizer	1.078	4.724	0.906	3.968	6.47E-03	0.028	0.059	0.260	0.082	0.359	0.020	0.090	0.082	0.359	0.082	0.359	5.39E-06	2.36E-05	0.02	0.09	1,287	5,636
Emissions Group 16: Cooling Towers																								
CT1	CT1	Melt Shop ICW Cooling Tower	--	--	--	--	--	--	--	--	0.195	0.856	0.195	0.856	0.195	0.856	0.195	0.856	--	--	--	--	--	--
CT2	CT2	Melt Shop DCW Cooling Tower	--	--	--	--	--	--	--	--	0.022	0.097	0.022	0.097	0.022	0.097	0.022	0.097	--	--	--	--	--	--
CT3	CT3	Rolling Mill ICW Cooling Tower	--	--	--	--	--	--	--	--	0.032	0.140	0.032	0.140	0.032	0.140	0.032	0.140	--	--	--	--	--	--
CT4	CT4	Rolling Mill DCW Cooling Tower	--	--	--	--	--	--	--	--	0.085	0.374	0.085	0.374	0.085	0.374	0.085	0.374	--	--	--	--	--	--
CT5	CT5	Rolling Mill/Quench/ACC Cooling Tower	--	--	--	--	--	--	--	--	0.338	1.481	0.338	1.481	0.338	1.481	0.338	1.481	--	--	--	--	--	--
CT6	CT6	Light Plate DCW System	--	--	--	--	--	--	--	--	0.030	0.132	0.030	0.132	0.030	0.132	0.030	0.132	--	--	--	--	--	--
CT7	CT7	Heavy Plate DCW System	--	--	--	--	--	--	--	--	0.011	0.049	0.011	0.049	0.011	0.049	0.011	0.049	--	--	--	--	--	--
CT8	CT8	Air Separation Plant Cooling Tower	--	--	--	--	--	--	--	--	0.053	0.230	0.053	0.230	0.053	0.230	0.053	0.230	--	--	--	--	--	--
Emissions Group 17: Emergency Engines																								
EMGEN1	EMGEN1	Emergency Generator 1	8.818	0.441	17.637	0.882	8.23E-03	4.12E-04	4.409	0.220	0.676	0.034	0.676	0.034	0.676	0.034	0.676	0.034	--	--	1.14	0.06	1,638	81.88
EMGEN2	EMGEN2	Emergency Generator 2	8.818	0.441	17.637	0.882	8.23E-03	4.12E-04	4.409	0.220	0.676	0.034	0.676	0.034	0.676	0.034	0.676	0.034	--	--	1.14	0.06	1,638	81.88
EMGEN3	EMGEN3	Emergency Generator 3	8.818	0.441	17.637	0.882	8.23E-03	4.12E-04	4.409	0.220	0.676	0.034	0.676	0.034	0.676	0.034	0.676	0.034	--	--	1.14	0.06	1,638	81.88
EMGEN4	EMGEN4	Emergency Generator 4	8.818	0.441	17.637	0.882	8.23E-03	4.12E-04	4.409	0.220	0.676	0.034	0.676	0.034	0.676	0.034	0.676	0.034	--	--	1.14	0.06	1,638	81.88
EMGEN5	EMGEN5	Emergency Generator 5	8.818	0.441	17.637	0.882	8.23E-03	4.12E-04	4.409	0.220	0.676	0.034	0.676	0.034	0.676	0.034	0.676	0.034	--	--	1.14	0.06	1,638	81.88
EMGEN6	EMGEN6	Emergency Generator 6	8.818	0.441	17.637	0.882	8.23E-03	4.12E-04	4.409	0.220	0.676	0.034	0.676	0.034	0.676	0.034	0.676	0.034	--	--	1.14	0.06	1,638	81.88
Emissions Group 18: Roadways																								
FUGD-PAVED-01P through 10P	FUGD-PAVED-01P through 10P	Paved Road-Road 01P through 10P	--	--	--	--	--	--	--	--	5.605	24.549	5.605	24.549	1.121	4.910	0.275	1.205	--	--	--	--	--	--
FUGD-UNPAVED-11U through 19U	FUGD-UNPAVED-11U through 19U	Unpaved Road-Road 11U through 19U	--	--	--	--	--	--	--	--	5.779	25.313	5.779	25.313	1.540	6.746	0.154	0.675	--	--	--	--	--	--
Emissions Group 19: Miscellaneous Tanks																								
T1	T1	Diesel Tank	--	--	--	--	--	--	0.068	1.02E-03	--	--	--	--	--	--	--	--	--	--	--	--	--	--
T2	T2	Diesel Tank	--	--	--	--	--	--	0.068	1.02E-03	--	--	--	--	--	--	--	--	--	--	--	--	--	--
T3	T3	Diesel Tank	--	--	--	--	--	--	0.068	1.02E-03	--	--	--	--	--	--	--	--	--	--	--	--	--	--
T4	T4	Diesel Tank	--	--	--	--	--	--	0.068	1.02E-03	--	--	--	--	--	--	--	--	--	--	--	--	--	--
T5	T5	Diesel Tank	--	--	--	--	--	--	0.068	1.02E-03	--	--	--	--	--	--	--	--	--	--	--	--	--	--
T6	T6	Diesel Tank	--	--	--	--	--	--	0.068	1.02E-03	--	--	--	--	--	--	--	--	--	--	--	--	--	--
T7	T7	Gasoline Tank	--	--	--	--	--	--	21.092	0.458	--	--	--	--	--	--	--	--	--	--	--	--	--	--
T8	T8	Caster Hydraulic Oil	--	--	--	--	--	--	0.012	1.22E-05	--	--	--	--	--	--	--	--	--	--	--	--	--	--
T9	T9	Hot Mill Hydraulic Oil	--	--	--	--	--	--	0.012	1.22E-05	--	--	--	--	--	--	--	--	--	--	--	--	--	--
T10	T10	HCL Tank #1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.04	5.38E-03	--	--
T11	T11	HCL Tank #2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.04	5.38E-03	--	--
T12	T12	HCL Tank #3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.04	5.38E-03	--	--
T13	T13	HCL Tank #4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.04	5.38E-03	--	--
T14	T14	HCL Tank #5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.04	5.38E-03	--	--
T15	T15	HCL Tank #6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.04	5.38E-03	--	--
T16	T16	SPL Tank #1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.04	4.72E-03	--	--
T17	T17	SPL Tank #2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.04	4.72E-03	--	--
T18	T18	SPL Tank #3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.04	4.72E-03	--	--
T19	T19	SPL Tank #4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.04	4.72E-03	--	--
T20	T20	SPL Tank #5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.04	4.72E-03	--	--
T21	T21	SPL Tank #6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.04	4.72E-03	--	--
T22	T22	SPL Tank #7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.04	4.72E-03	--	--
T23	T23	SPL Tank #8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.04	4.72E-03	--	--
T24	T24	Used Oil Tank	--	--	--	--	--	--	0.012	1.22E-05	--	--	--	--	--	--	--	--	--	--	--	--	--	--
T25	T25	Cold Degreaser	--	--	--	--	--	--	0.066	0.291	--	--	--	--	--	--	--	--	--	--	2.29E-03	0.01	--	--
T26	T26	Cold Degreaser	--	--	--	--	--	--	0.066	0.291	--	--	--	--	--	--	--	--	--	--	2.29E-03	0.01	--	--
T27	T27	Cold Degreaser	--	--	--	--	--	--	0.066	0.291	--	--	--	--	--	--	--	--	--	--	2.29E-03	0.01	--	--
T28	T28	Cold Degreaser	--	--	--	--	--	--	0.066	0.291	--	--	--	--	--	--	--	--	--	--	2.29E-03	0.01	--	--
T29	T29	Cold Degreaser	--	--	--	--	--	--	0.066	0.291	--	--	--	--	--	--	--	--	--	--	2.29E-03	0.01	--	--
		TOTAL:	**212.32**	**701.59**	**852.49**	**3,263**	**82.47**	**361.48**	**88.26**	**178.36**	**165.33**	**690.89**	**97.94**	**395.74**	**146.67**	**617.54**	**134.53**	**570.10**	**0.15**	**0.68**	**9.04**	**7.50**	**178,236**	**673,522**
		PSD Major Source Thresholds:	**-**	**100**	**-**	**100**	**-**	**100**	**-**	**100**	**-**	**-**	**-**	**100**	**-**	**100**	**-**	**100**	**-**	**100**	**-**	**-**	**-**	**-**
		Major Source?	**-**	**Yes**	**-**	**Yes**	**-**	**Yes**	**-**	**Yes**	**-**	**-**	**-**	**Yes**	**-**	**Yes**	**-**	**Yes**	**-**	**-**	**-**	**-**	**-**	**-**
		PSD Major Source SER:	**-**	**40**	**-**	**100**	**-**	**40**	**-**	**40**	**-**	**-**	**-**	**25**	**-**	**15**	**-**	**10**	**-**	**0.6**	**-**	**-**	**-**	**-**
		Major Source Modification?	**-**	**Yes**	**-**	**Yes**	**-**	**Yes**	**-**	**Yes**	**-**	**-**	**-**	**Yes**	**-**	**Yes**	**-**	**Yes**	**-**	**Yes**	**-**	**-**	**-**	**-**

NUCOR - Project Honey Badger
Summary of Proposed Hourly and Annual Emissions

Emission Point ID	Emission Unit ID	Emission Source	CH_4 (lb/hr)	CH_4 (tpy)	N_2O (lb/hr)	N_2O (tpy)	CO_2e (lb/hr)	CO_2e (tpy)
Emissions Group 1: Meltshop Sources: EAFs								
BHST-1	EAF1/LMF1/CAST1	Pulse Jet Fabric Filter Baghouse 1	0.05	0.20	4.65E-03	0.02	47,813	179,357
BHST-2	EAF2/LMF2/CAST2	Pulse Jet Fabric Filter Baghouse 2	0.05	0.20	4.65E-03	0.02	47,813	179,357
MSFUG	MSFUG	Uncaptured Electric Arc Furnace Fugitives	4.89E-03	0.02	4.89E-04	2.14E-03	5,033	18,880
CASTFUG	CASTFUG	Uncaptured Casting Fugitives	--	--	--	--	--	--
EAFVF1	EAFVF1	EAF Baghouse 1 Dust Silo	--	--	--	--	--	--
EAFVF2	EAFVF2	EAF Baghouse 2 Dust Silo	--	--	--	--	--	--
Emissions Group 2: Meltshop Sources: Preheaters and Dryers								
MSFUG	LD	Ladle Dryer Fugitives	0.03	0.14	3.31E-03	0.01	1,756	7,693
MSFUG	LPHTR1	Horizontal Ladle Preheater 1 Fugitives	0.03	0.14	3.31E-03	0.01	1,756	7,693
MSFUG	LPHTR2	Horizontal Ladle Preheater 2 Fugitives	0.03	0.14	3.31E-03	0.01	1,756	7,693
MSFUG	LPHTR3	Horizontal Ladle Preheater 3 Fugitives	0.03	0.14	3.31E-03	0.01	1,756	7,693
MSFUG	LPHTR4	Horizontal Ladle Preheater 4 Fugitives	0.03	0.14	3.31E-03	0.01	1,756	7,693
MSFUG	LPHTR5	Horizontal Ladle Preheater 5 Fugitives	0.03	0.14	3.31E-03	0.01	1,756	7,693
MSFUG	LPHTR6	Vertical Ladle Preheater 6 Fugitives	0.03	0.14	3.31E-03	0.01	1,756	7,693
MSFUG	LPHTR7	Vertical Ladle Preheater 7 Fugitives	0.03	0.14	3.31E-03	0.01	1,756	7,693
MSFUG	TD	Tundish Dryer 1	0.01	0.06	1.32E-03	5.79E-03	702.59	3,077
MSFUG	TPHTR1	Tundish Preheater 1	0.02	0.09	1.98E-03	8.69E-03	1,054	4,616
MSFUG	TPHTR2	Tundish Preheater 2	0.02	0.09	1.98E-03	8.69E-03	1,054	4,616
MSFUG	SENPHTR1	Subentry Nozzle (SEN) Preheater 1	2.20E-03	9.66E-03	2.20E-04	9.66E-04	117.10	512.89
MSFUG	SENPHTR2	Subentry Nozzle (SEN) Preheater 2	2.20E-03	9.66E-03	2.20E-04	9.66E-04	117.10	512.89
Emissions Group 3: Meltshop Sources: Vacuum Tank Degassers								
VTDST1	VTD1	Vacuum Tank 1	0.03	0.12	2.73E-03	0.01	1,863	7,504
VTDST2	VTD2	Vacuum Tank 2	0.03	0.12	2.73E-03	0.01	1,863	7,504
Emissions Group 4: Hot Mill : Furnaces								
TFST-1	TF1	Hot Mill Tunnel Furnace 1	0.33	1.45	0.03	0.14	17,565	76,933
Emissions Group 5: Hot Mill : Misc.								
RM-BH	RM	Rolling Mill	--	--	--	--	--	--
Emissions Group 6: Cold Mill : Pickling Lines								
PLST-1	PKL-1	Pickling Line #1	--	--	--	--	--	--
PKLSB	PKLSB	Pickle Line Scale Breaker	--	--	--	--	--	--
Emissions Group 7: Cold Mill : Mills								
TCMST	TCM	Tandem Cold Mill	--	--	--	--	--	--
STMST	STM	Standalone Temper Mill	--	--	--	--	--	--
SPMST1	SPM1	Skin Pass Mill #1	--	--	--	--	--	--
SPMST2	SPM2	Skin Pass Mill #2	--	--	--	--	--	--
Emissions Group 8: Cold Mill : Galvanizing Lines								
CGL1-ST1	CGL1	CGL1 - Cleaning Section	--	--	--	--	--	--
CGL1-ST2	CGL1	CGL1 - Passivation Section	--	--	--	--	--	--
CGL2-ST1	CGL2	CGL2 - Cleaning Section	--	--	--	--	--	--
CGL2-ST2	CGL2	CGL2 - Passivation Section	--	--	--	--	--	--
Emissions Group 9: Cold Mill : Galvanizing Line Furnaces								
GALVFN1-ST	GALVFN1	Galvanizing Furnace #1	0.14	0.62	0.01	0.06	7,494	32,825
GALVFN2-ST	GALVFN2	Galvanizing Furnace #2	0.14	0.62	0.01	0.06	7,494	32,825
Emissions Group 10: Cold Mill : Annealing Furnaces								
GALVFUG	BOXANN1	Box Annealing Furnace #1	0.01	0.05	1.10E-03	4.83E-03	585.49	2,564
GALVFUG	BOXANN2	Box Annealing Furnace #2	0.01	0.05	1.10E-03	4.83E-03	585.49	2,564
GALVFUG	BOXANN3	Box Annealing Furnace #3	0.01	0.05	1.10E-03	4.83E-03	585.49	2,564
GALVFUG	BOXANN4	Box Annealing Furnace #4	0.01	0.05	1.10E-03	4.83E-03	585.49	2,564
GALVFUG	BOXANN5	Box Annealing Furnace #5	0.01	0.05	1.10E-03	4.83E-03	585.49	2,564
GALVFUG	BOXANN6	Box Annealing Furnace #6	0.01	0.05	1.10E-03	4.83E-03	585.49	2,564
GALVFUG	BOXANN7	Box Annealing Furnace #7	0.01	0.05	1.10E-03	4.83E-03	585.49	2,564
GALVFUG	BOXANN8	Box Annealing Furnace #8	0.01	0.05	1.10E-03	4.83E-03	585.49	2,564
GALVFUG	BOXANN9	Box Annealing Furnace #9	0.01	0.05	1.10E-03	4.83E-03	585.49	2,564
GALVFUG	BOXANN10	Box Annealing Furnace #10	0.01	0.05	1.10E-03	4.83E-03	585.49	2,564
GALVFUG	BOXANN11	Box Annealing Furnace #11	0.01	0.05	1.10E-03	4.83E-03	585.49	2,564
GALVFUG	BOXANN12	Box Annealing Furnace #12	0.01	0.05	1.10E-03	4.83E-03	585.49	2,564
GALVFUG	BOXANN13	Box Annealing Furnace #13	0.01	0.05	1.10E-03	4.83E-03	585.49	2,564
GALVFUG	BOXANN14	Box Annealing Furnace #14	0.01	0.05	1.10E-03	4.83E-03	585.49	2,564
GALVFUG	BOXANN15	Box Annealing Furnace #15	0.01	0.05	1.10E-03	4.83E-03	585.49	2,564
GALVFUG	BOXANN16	Box Annealing Furnace #16	0.01	0.05	1.10E-03	4.83E-03	585.49	2,564
GALVFUG	BOXANN17	Box Annealing Furnace #17	0.01	0.05	1.10E-03	4.83E-03	585.49	2,564
GALVFUG	BOXANN18	Box Annealing Furnace #18	0.01	0.05	1.10E-03	4.83E-03	585.49	2,564
GALVFUG	BOXANN19	Box Annealing Furnace #19	0.01	0.05	1.10E-03	4.83E-03	585.49	2,564
GALVFUG	BOXANN20	Box Annealing Furnace #20	0.01	0.05	1.10E-03	4.83E-03	585.49	2,564
GALVFUG	BOXANN21	Box Annealing Furnace #21	0.01	0.05	1.10E-03	4.83E-03	585.49	2,564
GALVFUG	BOXANN22	Box Annealing Furnace #22	0.01	0.05	1.10E-03	4.83E-03	585.49	2,564
Emissions Group 11: Material Handling System								
LCB-ST	LCB	Lime, Carbon, and Alloy Silos	--	--	--	--	--	--
ALLOY-HANDLE-ST	ALLOY-HANDLE	Alloy Handling System	--	--	--	--	--	--

NUCOR - Project Honey Badger
Summary of Proposed Hourly and Annual Emissions

Emission Point ID	Emission Unit ID	Emission Source	CH_4		N_2O		CO_2e	
			(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
ALLOY-HANDLE-FUG	ALLOY-HANDLE	Alloy Handling System Fugitives	--	--	--	--	--	--
CARBON-DUMP-ST	CARBON-DUMP	Carbon Dump Station	--	--	--	--	--	--
CARBON-DUMP-FUG	CARBON-DUMP	Carbon Dump Station Fugitives	--	--	--	--	--	--
LIME-DUMP-ST	LIME-DUMP	Lime Dump Station	--	--	--	--	--	--
LIME-DUMP-FUG	LIME-DUMP	Lime Dump Station Fugitives	--	--	--	--	--	--
DRI-DOCK-ST	DRI-DOCK	DRI Unloading Dock (two units)	--	--	--	--	--	--
DRIVF1	DRI1	DRI Storage Silo 1 - Baghouse	--	--	--	--	--	--
DRIBV1	DRI1	DRI Storage Silo 1 - Bin Vent	--	--	--	--	--	--
DRIVF2	DRI2	DRI Storage Silo 2 - Baghouse	--	--	--	--	--	--
DRIBV2	DRI2	DRI Storage Silo 2 - Bin Vent	--	--	--	--	--	--
DRIVF3	DRI3	DRI Storage Silo 3 - Baghouse	--	--	--	--	--	--
DRIBV3	DRI3	DRI Storage Silo 3 - Bin Vent	--	--	--	--	--	--
DRIVF4	DRI4	DRI Storage Silo 4 - Baghouse	--	--	--	--	--	--
DRIBV4	DRI4	DRI Storage Silo 4 - Bin Vent	--	--	--	--	--	--
DRI-DB1-BH	DRI-DB1	DRI Day Bin #1	--	--	--	--	--	--
DRI-DB2-BH	DRI-DB2	DRI Day Bin #2	--	--	--	--	--	--
DRI-CONV-BH	DRI-CONV	DRI Transfer Conveyors	--	--	--	--	--	--
DRI-DOCK-FUG	DRI-DOCK	DRI Unloading Dock - Fugitives	--	--	--	--	--	--
BULK-DRI-1	BULK-DRI	DRI Silo #1 Loadout	--	--	--	--	--	--
BULK-DRI-2	BULK-DRI	DRI Silo #2 Loadout	--	--	--	--	--	--
DRI-EMG-1	BULK-DRI	DRI Conveyor #1 Emergency Chute	--	--	--	--	--	--
DRI-EMG-2	BULK-DRI	DRI Silos Emergency Chute	--	--	--	--	--	--
SCRAP-DOCK-FUG	SCRAP-DOCK	Barge Scrap Unloading	--	--	--	--	--	--
SCRAP-RAIL-FUG	SCRAP-RAIL	Rail Scrap Unloading	--	--	--	--	--	--
SCRAP-BULK34	SCRAP-BULK34	Barge Scrap Pile Loading	--	--	--	--	--	--
SCRAP-BULK35	SCRAP-BULK35	Barge Scrap Pile Loadout	--	--	--	--	--	--
SCRAP-BULK36	SCRAP-BULK36	Rail Scrap Pile Loading	--	--	--	--	--	--
SCRAP-BULK37	SCRAP-BULK37	Rail Scrap Pile Loadout	--	--	--	--	--	--
SCRAP-BULK38	SCRAP-BULK38	Truck Scrap Pile Loading	--	--	--	--	--	--
SCRAP-BULK39	SCRAP-BULK39	Truck Scrap Pile Loadout	--	--	--	--	--	--
SCRAP-BULK40	SCRAP-BULK40	Scrap Charging	--	--	--	--	--	--
Emissions Group 12: Slag Processing								
SCRAP-BULK1	SCRAP-BULK1	Dig slag inside pot barn	--	--	--	--	--	--
SCRAP-BULK2	SCRAP-BULK2	Loader transport & dump slag into quench	--	--	--	--	--	--
SCRAP-BULK3	SCRAP-BULK3	Loader transport & dump into F1 feed hopper/grizzly	--	--	--	--	--	--
SCRAP-BULK4	SCRAP-BULK4	F1 feed hopper/grizzly to P1 oversize storage	--	--	--	--	--	--
SCRAP-BULK5	SCRAP-BULK5	F1 feed hopper/grizzly to C7 crusher conveyor	--	--	--	--	--	--
SCRAP-BULK6	SCRAP-BULK6	F1 feed hopper/grizzly to C1A main conveyor	--	--	--	--	--	--
SCRAP-BULK7	SCRAP-BULK7	C7 to CR1 crusher	--	--	--	--	--	--
SCRAP-BULK8	SCRAP-BULK8	CR1 crusher to C8 conveyor	--	--	--	--	--	--
SCRAP-BULK9	SCRAP-BULK9	CR1 crusher to P2 off-spec storage	--	--	--	--	--	--
SCRAP-BULK10	SCRAP-BULK10	C8 conveyor to C9 conveyor	--	--	--	--	--	--
SCRAP-BULK11	SCRAP-BULK11	C9 conveyor to C1A conveyor	--	--	--	--	--	--
SCRAP-BULK12	SCRAP-BULK12	C1A conveyor to B1 surge bin	--	--	--	--	--	--
SCRAP-BULK13	SCRAP-BULK13	B1 surge bin to C1 conveyor	--	--	--	--	--	--
SCRAP-BULK14	SCRAP-BULK14	C1 conveyor through M1 mag splitter to S1 slag screen	--	--	--	--	--	--
SCRAP-BULK15	SCRAP-BULK15	C1 conveyor through M1 mag splitter to S2 off-spec screen	--	--	--	--	--	--
SCRAP-BULK16	SCRAP-BULK16	S2 off-spec screen to C6 conveyor	--	--	--	--	--	--
SCRAP-BULK17	SCRAP-BULK17	S2 off-spec screen to P3 off-spec storage	--	--	--	--	--	--
SCRAP-BULK18	SCRAP-BULK18	C6 conveyor to P4 off-spec storage	--	--	--	--	--	--
SCRAP-BULK19	SCRAP-BULK19	S1 slag screen to C2 conveyor	--	--	--	--	--	--
SCRAP-BULK20	SCRAP-BULK20	C2 conveyor to C5 conveyor	--	--	--	--	--	--
SCRAP-BULK21	SCRAP-BULK21	C5 conveyor to SLGSKP1	--	--	--	--	--	--
SCRAP-BULK22	SCRAP-BULK22	S1 slag screen to C4 conveyor	--	--	--	--	--	--
SCRAP-BULK23	SCRAP-BULK23	C4 conveyor to SLGSKP3	--	--	--	--	--	--
SCRAP-BULK24	SCRAP-BULK24	S1 slag screen to C3 conveyor	--	--	--	--	--	--
SCRAP-BULK25	SCRAP-BULK25	C3 conveyor to SLGSKP2	--	--	--	--	--	--
SCRAP-BULK26	SCRAP-BULK26	S1 slag screen to SLGSKP4	--	--	--	--	--	--
SCRAP-BULK27	SCRAP-BULK27	Loader transports & loads products into trucks to productstockpiles	--	--	--	--	--	--
SCRAP-BULK28	SCRAP-BULK28	Truck transports & dumps products into product stockpiles	--	--	--	--	--	--
SCRAP-BULK29	SCRAP-BULK29	Loader transports & loads into trucks, oversize to drop ball	--	--	--	--	--	--
SCRAP-BULK30	SCRAP-BULK30	Truck transports & dumps oversize into drop ball area	--	--	--	--	--	--
SCRAP-BULK31	SCRAP-BULK31	Truck transports ladle lip and meltshop cleanup materials &dumps at drop ball site	--	--	--	--	--	--
SCRAP-BULK32	SCRAP-BULK32	Truck transports & dumps tundish at lancing station	--	--	--	--	--	--
SCRAP-BULK33	SCRAP-BULK33	Ball drop crushing	--	--	--	--	--	--
Emissions Group 13: Storage Piles								
SLGSKP1	SLGSKP1	Slag Stockpile 1	--	--	--	--	--	--
SLGSKP2	SLGSKP2	Slag Stockpile 2	--	--	--	--	--	--
SLGSKP3	SLGSKP3	Slag Stockpile 3	--	--	--	--	--	--
SLGSKP4	SLGSKP4	Slag Stockpile 4	--	--	--	--	--	--

NUCOR - Project Honey Badger
Summary of Proposed Hourly and Annual Emissions

Emission Point ID	Emission Unit ID	Emission Source	CH_4 (lb/hr)	CH_4 (tpy)	N_2O (lb/hr)	N_2O (tpy)	CO_2e (lb/hr)	CO_2e (tpy)
SCRPSKP1	SCRPSKP1	Scrap Metal Stockpile 1	--	--	--	--	--	--
SCRPSKP2	SCRPSKP2	Scrap Metal Stockpile 2	--	--	--	--	--	--
SCRPSKP3	SCRPSKP3	Scrap Metal Stockpile 3	--	--	--	--	--	--
Emissions Group 14: Slag Cutting								
SLAG-CUT-NG	SLAG-CUT	Slag Cutting in Slag Processing Area	5.29E-03	0.02	5.29E-04	2.32E-03	281.04	1,231
SLAG-CUT-BH	SLAG-CUT	Slag Cutting in Slag Processing Area	--	--	--	--	--	--
Emissions Group 15: Air Separation Plant								
ASP-1	ASP	Water Bath Vaporizer	0.02	0.11	2.43E-03	0.01	1,288	5,642
Emissions Group 16: Cooling Towers								
CT1	CT1	Melt Shop ICW Cooling Tower	--	--	--	--	--	--
CT2	CT2	Melt Shop DCW Cooling Tower	--	--	--	--	--	--
CT3	CT3	Rolling Mill ICW Cooling Tower	--	--	--	--	--	--
CT4	CT4	Rolling Mill DCW Cooling Tower	--	--	--	--	--	--
CT5	CT5	Rolling Mill/Quench/ACC Cooling Tower	--	--	--	--	--	--
CT6	CT6	Light Plate DCW System	--	--	--	--	--	--
CT7	CT7	Heavy Plate DCW System	--	--	--	--	--	--
CT8	CT8	Air Separation Plant Cooling Tower	--	--	--	--	--	--
Emissions Group 17: Emergency Engines								
EMGEN1	EMGEN1	Emergency Generator 1	0.03	1.54E-03	3.09E-03	1.54E-04	1,639	81.97
EMGEN2	EMGEN2	Emergency Generator 2	0.03	1.54E-03	3.09E-03	1.54E-04	1,639	81.97
EMGEN3	EMGEN3	Emergency Generator 3	0.03	1.54E-03	3.09E-03	1.54E-04	1,639	81.97
EMGEN4	EMGEN4	Emergency Generator 4	0.03	1.54E-03	3.09E-03	1.54E-04	1,639	81.97
EMGEN5	EMGEN5	Emergency Generator 5	0.03	1.54E-03	3.09E-03	1.54E-04	1,639	81.97
EMGEN6	EMGEN6	Emergency Generator 6	0.03	1.54E-03	3.09E-03	1.54E-04	1,639	81.97
Emissions Group 18: Roadways								
FUGD-PAVED-01P through 10P	FUGD-PAVED-01P through 10P	Paved Road-Road 01P through 10P	--	--	--	--	--	--
FUGD-UNPAVED-11U through 19U	FUGD-UNPAVED-11U through 19U	Unpaved Road-Road 11U through 19U	--	--	--	--	--	--
Emissions Group 19: Miscellaneous Tanks								
T1	T1	Diesel Tank	--	--	--	--	--	--
T2	T2	Diesel Tank	--	--	--	--	--	--
T3	T3	Diesel Tank	--	--	--	--	--	--
T4	T4	Diesel Tank	--	--	--	--	--	--
T5	T5	Diesel Tank	--	--	--	--	--	--
T6	T6	Diesel Tank	--	--	--	--	--	--
T7	T7	Gasoline Tank	--	--	--	--	--	--
T8	T8	Caster Hydraulic Oil	--	--	--	--	--	--
T9	T9	Hot Mill Hydraulic Oil	--	--	--	--	--	--
T10	T10	HCL Tank #1	--	--	--	--	--	--
T11	T11	HCL Tank #2	--	--	--	--	--	--
T12	T12	HCL Tank #3	--	--	--	--	--	--
T13	T13	HCL Tank #4	--	--	--	--	--	--
T14	T14	HCL Tank #5	--	--	--	--	--	--
T15	T15	HCL Tank #6	--	--	--	--	--	--
T16	T16	SPL Tank #1	--	--	--	--	--	--
T17	T17	SPL Tank #2	--	--	--	--	--	--
T18	T18	SPL Tank #3	--	--	--	--	--	--
T19	T19	SPL Tank #4	--	--	--	--	--	--
T20	T20	SPL Tank #5	--	--	--	--	--	--
T21	T21	SPL Tank #6	--	--	--	--	--	--
T22	T22	SPL Tank #7	--	--	--	--	--	--
T23	T23	SPL Tank #8	--	--	--	--	--	--
T24	T24	Used Oil Tank	--	--	--	--	--	--
T25	T25	Cold Degreaser	--	--	--	--	--	--
T26	T26	Cold Degreaser	--	--	--	--	--	--
T27	T27	Cold Degreaser	--	--	--	--	--	--
T28	T28	Cold Degreaser	--	--	--	--	--	--
T29	T29	Cold Degreaser	--	--	--	--	--	--
		TOTAL:	**1.54**	**5.96**	**0.15**	**0.60**	**178,320**	**673,848**
		PSD Major Source Thresholds:	-	-	-	-	-	**100,000**
		Major Source?	-	-	-	-	-	**Yes**
		PSD Major Source SER:	-	-	-	-	-	**75,000**
		Major Source Modification?	-	-	-	-	-	**Yes**

NUCOR - Project Honey Badger
HAP Emission Summary

Pollutant	Hourly Emissions (lb/hr)	Annual Emissions (tpy)	Natural Gas		Emergency Engine		EAF		HCL Sources and Tanks	
			Hourly Emissions (lb/hr)	Annual Emissions (tpy)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
1,1,2,2-Tetrachloroethane	5.57E-03	2.78E-04	0	0	5.57E-03	2.78E-04	0	0	0	0
1,1,2-Trichloroethane	4.43E-03	2.21E-04	0	0	4.43E-03	2.21E-04	0	0	0	0
1,3-Butadiene	0.07	3.44E-03	0	0	0.07	3.44E-03	0	0	0	0
1,3-Dichloropropene	3.68E-03	1.84E-04	0	0	3.68E-03	1.84E-04	0	0	0	0
2,2,4-Trimethylpentane	0.07	3.55E-03	0	0	0.07	3.55E-03	0	0	0	0
2-Methylnaphthalene	2.79E-03	1.39E-04	0	0	2.79E-03	1.39E-04	0	0	0	0
Acenaphthene	1.12E-04	5.59E-06	0	0	1.12E-04	5.59E-06	0	0	0	0
Acenaphthylene	4.65E-04	2.32E-05	0	0	4.65E-04	2.32E-05	0	0	0	0
Acetaldehyde	0.70	0.04	0	0	0.70	0.04	0	0	0	0
Acrolein	0.65	0.03	0	0	0.65	0.03	0	0	0	0
Anthracene	6.03E-05	3.02E-06	0	0	6.03E-05	3.02E-06	0	0	0	0
Argon	2.12E-03	9.30E-03	0	0	0	0	2.12E-03	9.30E-03	0	0
Benzene	0.16	0.01	1.18E-03	5.16E-03	0.16	8.15E-03	0	0	0	0
Benz(a)anthracene	2.82E-05	1.41E-06	0	0	2.82E-05	1.41E-06	0	0	0	0
Benzo(a)pyrene	4.77E-07	2.39E-08	0	0	4.77E-07	2.39E-08	0	0	0	0
Benzo(b)fluoranthene	1.39E-05	6.97E-07	0	0	1.39E-05	6.97E-07	0	0	0	0
Benzo(e)pyrene	3.49E-05	1.74E-06	0	0	3.49E-05	1.74E-06	0	0	0	0
Benzo(g,h,i)perylene	3.48E-05	1.74E-06	0	0	3.48E-05	1.74E-06	0	0	0	0
Benzo(k)fluoranthene	3.58E-07	1.79E-08	0	0	3.58E-07	1.79E-08	0	0	0	0
Beryllium	9.58E-05	4.20E-04	0	0	0	0	9.58E-05	4.20E-04	0	0
Biphenyl	0.02	8.90E-04	0	0	0.02	8.90E-04	0	0	0	0
Cadmium	1.71E-03	7.50E-03	0	0	0	0	1.71E-03	7.50E-03	0	0
Carbon Tetrachloride	5.10E-03	2.55E-04	0	0	5.10E-03	2.55E-04	0	0	0	0
Chlorobenzene	3.73E-03	1.86E-04	0	0	3.73E-03	1.86E-04	0	0	0	0
Chloroform	3.96E-03	1.98E-04	0	0	3.96E-03	1.98E-04	0	0	0	0
Chromium	1.20E-03	5.25E-03	0	0	0	0	1.20E-03	5.25E-03	0	0
Chrysene	5.82E-05	2.91E-06	0	0	5.82E-05	2.91E-06	0	0	0	0
Dichlorobenzene	6.73E-04	2.95E-03	6.73E-04	2.95E-03	0	0	0	0	0	0
Ethyl Benzene	9.07E-03	4.54E-04	0	0	9.07E-03	4.54E-04	0	0	0	0
Ethylene Dibromide	6.17E-03	3.08E-04	0	0	6.17E-03	3.08E-04	0	0	0	0
Fluoranthene	9.32E-05	4.66E-06	0	0	9.32E-05	4.66E-06	0	0	0	0
Fluorene	4.76E-04	2.38E-05	0	0	4.76E-04	2.38E-05	0	0	0	0
Formaldehyde	4.68	0.42	0.04	0.18	4.64	0.23	0	0	0	0
Hydrogen Chloride	0.33	1.16	0	0	0	0	0	0	0.33	1.16
Indeno(1,2,3-c,d)pyrene	8.34E-07	4.17E-08	0	0	8.34E-07	4.17E-08	0	0	0	0
Lead	0.15	0.68	0	0	0	0	0.15	0.68	0	0
Manganese Compounds	0.10	0.45	0	0	0	0	0.10	0.45	0	0

NUCOR - Project Honey Badger
HAP Emission Summary

Pollutant	Hourly Emissions (lb/hr)	Annual Emissions (tpy)	Natural Gas		Emergency Engine		EAF		HCL Sources and Tanks	
			Hourly Emissions (lb/hr)	Annual Emissions (tpy)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
Mercury	0.04	0.17	0	0	0	0	0.04	0.17	0	0
Methanol	0.26	0.01	0	0	0.26	0.01	0	0	0	0
Methylene Chloride	0.01	6.17E-04	0	0	0.01	6.17E-04	0	0	0	0
Naphthalene	8.50E-03	1.91E-03	3.42E-04	1.50E-03	8.16E-03	4.08E-04	0	0	0	0
N-Hexane	1.10	4.43	1.01	4.42	0.09	4.66E-03	0	0	0	0
Nickel	1.88E-03	8.25E-03	0	0	0	0	1.88E-03	8.25E-03	0	0
PAHs	0.01	8.09E-04	4.95E-05	2.17E-04	0.01	5.92E-04	0	0	0	0
Perylene	4.17E-07	2.09E-08	0	0	4.17E-07	2.09E-08	0	0	0	0
Phenanthrene	8.74E-04	4.37E-05	0	0	8.74E-04	4.37E-05	0	0	0	0
Phenol	3.54E-03	1.77E-04	0	0	3.54E-03	1.77E-04	0	0	0	0
Pyrene	1.14E-04	5.71E-06	0	0	1.14E-04	5.71E-06	0	0	0	0
Styrene	4.60E-03	2.30E-04	0	0	4.60E-03	2.30E-04	0	0	0	0
Tetrachloroethane	2.08E-04	1.04E-05	0	0	2.08E-04	1.04E-05	0	0	0	0
Tetrachloroethylene	2.29E-03	0.01	0	0	0	0	0	0	2.29E-03	0.01
Toluene	0.08	0.01	1.91E-03	8.35E-03	0.08	4.04E-03	0	0	0	0
Vinyl Chloride	2.07E-03	1.04E-04	0	0	2.07E-03	1.04E-04	0	0	0	0
Xylene, mixed (Dimethylbenzene)	0.02	1.13E-03	0	0	0.02	1.13E-03	0	0	0	0
Total	**8.54**	**7.46**	**1.06**	**4.63**	**6.86**	**0.34**	**0.30**	**1.32**	**0.33**	**1.17**

NUCOR - Project Honey Badger
FLM - Class I Q/d Calculation

Class I Area	Distance to Proposed Site (km)	Facility Wide Emission Rates							FLAG 2010 Q/d
		SO_2 (lb/hr)[2]	SO_2 (tpy)[3]	NO_X (lb/hr)[2]	NO_X (tpy)[3]	PM_{10} (lb/hr)[2]	PM_{10} (tpy)[3]	Q (tpy)[1]	
Otter Creek Wilderness	220	82.42	360.99	159.41	700.86	142.62	624.86	1,686.71	7.67
Dolly Sods Wilderness	240	82.42	360.99	159.41	700.86	142.62	624.86	1,686.71	7.03
Shenandoah National Park	302	82.42	360.99	159.41	700.86	142.62	624.86	1,686.71	5.59
James River Face Wilderness	318	82.42	360.99	159.41	700.86	142.62	624.86	1,686.71	5.30

[1] Sum of all SO_2, NO_X, and PM_{10} emitting equipment that can operate simultaneously at the plant and assumes 8,760 hours of operation.

[2] Excludes emissions from emergency generator operation during malfunction events.

[3] Includes emissions for 100 hours of emergency generator maintenance and testing authorized under NSPS JJJJ.

NUCOR - Project Honey Badger
45CSR7-4.1 - Emission Limit Determination based on Process Weight Rate

Emission Point ID	Emission Unit ID	Emission Source	PM (lb/hr)	PM (tpy)	Exempt?	Weight Rate (lb/hr)	Type	Emission Limit (lb/hr)
BHST-1	EAF1/LMF1/CAST1	Pulse Jet Fabric Filter Baghouse 1	17.03	74.58		342,000.00	b	42.52
BHST-2	EAF2/LMF2/CAST2	Pulse Jet Fabric Filter Baghouse 2	17.03	74.58		342,000.00	b	42.52
MSFUG	MSFUG	Uncaptured Electric Arc Furnace Fugitives	1.62	7.10		684,000.00	b	69.56
CASTFUG	CASTFUG	Uncaptured Casting Fugitives	0.21	0.90		684,000.00	b	69.56
LCB-ST	LCB	Lime, Carbon, and Briquetter Silos	1.63	7.13		63,940.00	b	31.56
DRI-DOCK-ST	DRI-DOCK	DRI Unloading Dock (two units)	0.03	0.15	Yes - Emission Rate	N/A	N/A	N/A
DRIVF1	DRI1	DRI Storage Silo 1 - Baghouse	0.01	0.05		127,283.11	b	34.09
DRIBV1	DRI1	DRI Storage Silo 1 - Bin Vent	0.01	0.05		127,283.11	b	34.09
DRIVF2	DRI2	DRI Storage Silo 2 - Baghouse	0.01	0.05		127,283.11	b	34.09
DRIBV2	DRI2	DRI Storage Silo 2 - Bin Vent	0.01	0.05		127,283.11	b	34.09
DRI-DB1-BH	DRI-DB1	DRI Day Bin #1	0.01	0.05	Yes - Emission Rate	N/A	N/A	N/A
DRI-DB2-BH	DRI-DB2	DRI Day Bin #2	0.01	0.05	Yes - Emission Rate	N/A	N/A	N/A
DRI-CONV-BH	DRI-CONV	DRI Transfer Conveyors	0.01	0.05	Yes - Emission Rate	N/A	N/A	N/A
SLAG-CUT-BH	SLAG-CUT	Slag Cutting in Slag Processing Area	0.86	3.75		342,000.00	b	42.52
EAFVF1	EAFVF1	EAF Baghouse 1 Dust Silo	0.09	0.38		1,685.70	b	2.02
EAFVF2	EAFVF2	EAF Baghouse 2 Dust Silo	0.09	0.38		1,685.70	b	2.02
LIME-DUMP-ST	LIME-DUMP	Lime Dump Station	0.09	0.38		15,981.74	b	13.59
CARBON-DUMP-ST	CARBON-DUMP	Carbon Dump Station	0.09	0.38		7,990.87	b	7.99
ALLOY-HANDLE-ST	ALLOY-HANDLE	Alloy Handling System	0.16	0.71		40,000.00	b	28.00
RM-BH	RM	Rolling Mill	10.09	44.19		342,000.00	b	42.52
VTDST1	VTD1	Vacuum Tank 1	0.07	0.33	Yes - Emission Rate	N/A	N/A	N/A
VTDST2	VTD2	Vacuum Tank 2	0.07	0.33	Yes - Emission Rate	N/A	N/A	N/A
MSFUG	LD	Ladle Dryer Fugitives	0.03	0.12	Yes - Emission Rate	N/A	N/A	N/A
MSFUG	LPHTR1	Horizontal Ladle Preheater 1 Fugitives	0.03	0.12		97,714.29	b	32.91
MSFUG	LPHTR2	Horizontal Ladle Preheater 2 Fugitives	0.03	0.12		97,714.29	b	32.91
MSFUG	LPHTR3	Horizontal Ladle Preheater 3 Fugitives	0.03	0.12		97,714.29	b	32.91
MSFUG	LPHTR4	Horizontal Ladle Preheater 4 Fugitives	0.03	0.12		97,714.29	b	32.91
MSFUG	LPHTR5	Horizontal Ladle Preheater 5 Fugitives	0.03	0.12		97,714.29	b	32.91
MSFUG	LPHTR6	Vertical Ladle Preheater 6 Fugitives	0.03	0.12		97,714.29	b	32.91
MSFUG	LPHTR7	Vertical Ladle Preheater 7 Fugitives	0.03	0.12		97,714.29	b	32.91
MSFUG	TD	Tundish Dryer 1	0.01	0.05	Yes - Emission Rate	N/A	N/A	N/A
MSFUG	TPHTR1	Tundish Preheater 1	0.02	0.07	Yes - Emission Rate	N/A	N/A	N/A
MSFUG	TPHTR2	Tundish Preheater 2	0.02	0.07	Yes - Emission Rate	N/A	N/A	N/A
MSFUG	SENPHTR1	Subentry Nozzle (SEN) Preheater 1	0.00	0.01	Yes - Emission Rate	N/A	N/A	N/A
MSFUG	SENPHTR2	Subentry Nozzle (SEN) Preheater 2	0.00	0.01	Yes - Emission Rate	N/A	N/A	N/A
TFST-1	TF1	Hot Mill Tunnel Furnace 1	0.28	1.22		342,000.00	b	42.52
PLST-1	PKL-1	Pickling Line 1	0.62	2.70		342,000.00	b	42.52
PKLSB	PKLSB	Pickle Line Scale Breaker	1.36	5.97		342,000.00	b	42.52
TCMST	TCM	Tandem Cold Mill	17.33	75.90		342,000.00	b	42.52
STM-BH	STM	Standalone Temper Mill	0.96	4.22		342,000.00	b	42.52
SPMST1	SPM1	Skin Pass Mill Baghouse #1	2.11	9.23		114,000.00	b	33.56
SPMST2	SPM2	Skin Pass Mill Baghouse #2	2.11	9.23		114,000.00	b	33.56
CGL1-ST1	CGL1	CGL1 - Cleaning Section	0.16	0.69		342,000.00	b	42.52
CGL1-ST2	CGL1	CGL1 - Passivation Section	0.16	0.69		342,000.00	b	42.52
CGL2-ST1	CGL2	CGL2 - Cleaning Section	0.16	0.69		342,000.00	b	42.52
CGL2-ST2	CGL2	CGL2 - Passivation Section	0.16	0.69		342,000.00	b	42.52
GALVFUG	GALVFN1	Galvanizing Furnace #1	0.12	0.52		342,000.00	b	42.52
GALVFUG	GALVFN2	Galvanizing Furnace #2	0.12	0.52		342,000.00	b	42.52
MSFUG	BOXANN1	Box Annealing Furnace #1	0.01	0.04		31,090.91	b	22.65
MSFUG	BOXANN2	Box Annealing Furnace #2	0.01	0.04		31,090.91	b	22.65
MSFUG	BOXANN3	Box Annealing Furnace #3	0.01	0.04		31,090.91	b	22.65
MSFUG	BOXANN4	Box Annealing Furnace #4	0.01	0.04		31,090.91	b	22.65
MSFUG	BOXANN5	Box Annealing Furnace #5	0.01	0.04		31,090.91	b	22.65
MSFUG	BOXANN6	Box Annealing Furnace #6	0.01	0.04		31,090.91	b	22.65
MSFUG	BOXANN7	Box Annealing Furnace #7	0.01	0.04		31,090.91	b	22.65
MSFUG	BOXANN8	Box Annealing Furnace #8	0.01	0.04		31,090.91	b	22.65
MSFUG	BOXANN9	Box Annealing Furnace #9	0.01	0.04		31,090.91	b	22.65
MSFUG	BOXANN10	Box Annealing Furnace #10	0.01	0.04		31,090.91	b	22.65
MSFUG	BOXANN11	Box Annealing Furnace #11	0.01	0.04		31,090.91	b	22.65
MSFUG	BOXANN12	Box Annealing Furnace #12	0.01	0.04		31,090.91	b	22.65
MSFUG	BOXANN13	Box Annealing Furnace #13	0.01	0.04		31,090.91	b	22.65
MSFUG	BOXANN14	Box Annealing Furnace #14	0.01	0.04		31,090.91	b	22.65
MSFUG	BOXANN15	Box Annealing Furnace #15	0.01	0.04		31,090.91	b	22.65
MSFUG	BOXANN16	Box Annealing Furnace #16	0.01	0.04		31,090.91	b	22.65
MSFUG	BOXANN17	Box Annealing Furnace #17	0.01	0.04		31,090.91	b	22.65
MSFUG	BOXANN18	Box Annealing Furnace #18	0.01	0.04		31,090.91	b	22.65
MSFUG	BOXANN19	Box Annealing Furnace #19	0.01	0.04		31,090.91	b	22.65
MSFUG	BOXANN20	Box Annealing Furnace #20	0.01	0.04		31,090.91	b	22.65
MSFUG	BOXANN21	Box Annealing Furnace #21	0.01	0.04		31,090.91	b	22.65
MSFUG	BOXANN22	Box Annealing Furnace #22	0.01	0.04		31,090.91	b	22.65

NUCOR - Project Honey Badger
45CSR7-4.1 - Emission Limit Determination based on Process Weight Rate

Emission Point ID	Emission Unit ID	Emission Source	PM (lb/hr)	PM (tpy)	Exempt?	Weight Rate (lb/hr)	Type	Emission Limit (lb/hr)
SLAG-CUT-NG	SLAG-CUT	Slag Cutting in Slag Processing Area	0.004	0.02	Yes - Emission Rate	N/A	N/A	N/A
ASP-1	ASP	Water Bath Vaporizer	0.02	0.09	Yes - 45CSR2	N/A	N/A	N/A
CT1	CT1	Melt Shop ICW Cooling Tower	0.20	0.86	Yes - Not Mnfct. Prcs.	N/A	N/A	N/A
CT2	CT2	Melt Shop DCW Cooling Tower	0.02	0.10	Yes - Not Mnfct. Prcs.	N/A	N/A	N/A
CT3	CT3	Rolling Mill ICW Cooling Tower	0.03	0.14	Yes - Not Mnfct. Prcs.	N/A	N/A	N/A
CT4	CT4	Rolling Mill DCW Cooling Tower	0.09	0.37	Yes - Not Mnfct. Prcs.	N/A	N/A	N/A
CT5	CT5	Rolling Mill/Quench/ACC Cooling Tower	0.34	1.48	Yes - Not Mnfct. Prcs.	N/A	N/A	N/A
CT6	CT6	Light Plate DCW System	0.03	0.13	Yes - Emission Rate	N/A	N/A	N/A
CT7	CT7	Heavy Plate DCW System	0.01	0.05	Yes - Emission Rate	N/A	N/A	N/A
CT8	CT8	Air Separation Plant Cooling Tower	0.05	0.23	Yes - Not Mnfct. Prcs.	N/A	N/A	N/A
EMGEN1	EMGEN1	Emergency Generator 1	0.68	0.03	Yes - Not Mnfct. Prcs.	N/A	N/A	N/A
EMGEN2	EMGEN2	Emergency Generator 2	0.68	0.03	Yes - Not Mnfct. Prcs.	N/A	N/A	N/A
EMGEN3	EMGEN3	Emergency Generator 3	0.68	0.03	Yes - Not Mnfct. Prcs.	N/A	N/A	N/A
EMGEN4	EMGEN4	Emergency Generator 4	0.68	0.03	Yes - Not Mnfct. Prcs.	N/A	N/A	N/A
EMGEN5	EMGEN5	Emergency Generator 5	0.68	0.03	Yes - Not Mnfct. Prcs.	N/A	N/A	N/A
EMGEN6	EMGEN6	Emergency Generator 6	0.68	0.03	Yes - Not Mnfct. Prcs.	N/A	N/A	N/A
DRI-DOCK-FUG	DRI-DOCK	DRI Unloading Dock - Fugitives	0.03	0.15		1,000,000.00	b	97.78
BULK-DRI-1	BULK-DRI	DRI Silo #1 Loadout	0.02	0.11		127,283.11	b	34.09
BULK-DRI-2	BULK-DRI	DRI Silo #2 Loadout	0.02	0.11		127,283.11	b	34.09
DRI-EMG-1	BULK-DRI	DRI Conveyor #1 Emergency Chute	0.02	0.11		250,000.00	b	38.50
DRI-EMG-2	BULK-DRI	DRI Silos Emergency Chute	0.02	0.11		1,600,000.00	b	156.44
LIME-DUMP-FUG	LIME-DUMP	Lime Dump Station Fugitives	0.09	0.38	Yes - Emission Rate	N/A	N/A	N/A
CARBON-DUMP-FUG	CARBON-DUMP	Carbon Dump Station Fugitives	0.09	0.38	Yes - Emission Rate	N/A	N/A	N/A
ALLOY-HANDLE-FUG	ALLOY-HANDLE	Alloy Handling System Fugitives	0.16	0.71	Yes - Emission Rate	N/A	N/A	N/A
SCRAP-DOCK-FUG	SCRAP-DOCK	Barge Scrap Unloading	0.18	0.22	Yes - Emission Rate	N/A	N/A	N/A
SCRAP-RAIL-FUG	SCRAP-RAIL	Rail Scrap Unloading	0.06	0.03	Yes - Emission Rate	N/A	N/A	N/A
SCRAP-BULK34	SCRAP-BULK34	Barge Scrap Pile Loading	0.55	0.66		1,200,000.00	b	117.33
SCRAP-BULK35	SCRAP-BULK35	Barge Scrap Pile Loadout	0.25	0.66		550,000.00	b	57.50
SCRAP-BULK36	SCRAP-BULK36	Rail Scrap Pile Loading	0.11	0.09	Yes - Emission Rate	N/A	N/A	N/A
SCRAP-BULK37	SCRAP-BULK37	Rail Scrap Pile Loadout	0.25	0.09	Yes - Emission Rate	N/A	N/A	N/A
SCRAP-BULK38	SCRAP-BULK38	Truck Scrap Pile Loading	0.18	0.13	Yes - Emission Rate	N/A	N/A	N/A
SCRAP-BULK39	SCRAP-BULK39	Truck Scrap Pile Loadout	0.25	0.13	Yes - Emission Rate	N/A	N/A	N/A
SCRAP-BULK40	SCRAP-BULK40	Scrap Charging	0.20	0.88		439,497.72	b	48.76
SCRAP-BULK1	SCRAP-BULK1	Dig slag inside pot barn	0.16	0.29		145,833.33	b	34.83
SCRAP-BULK2	SCRAP-BULK2	Loader transport & dump slag into quench	0.16	0.29		145,833.33	b	34.83
SCRAP-BULK3	SCRAP-BULK3	Loader transport & dump into F1 feed hopper/grizzly	0.06	0.12		145,833.33	b	34.83
SCRAP-BULK4	SCRAP-BULK4	F1 feed hopper/grizzly to P1 oversize pile	0.07	0.13		145,833.33	b	34.83
SCRAP-BULK5	SCRAP-BULK5	F1 feed hopper/grizzly to C7 crusher conveyor	0.00	0.00		2,916.67	b	3.33
SCRAP-BULK6	SCRAP-BULK6	F1 feed hopper/grizzly to C1A main conveyor	0.02	0.04		43,750.00	b	29.13
SCRAP-BULK7	SCRAP-BULK7	C7 to CR1 crusher	0.01	0.01		99,166.67	b	32.97
SCRAP-BULK8	SCRAP-BULK8	CR1 crusher to C8 conveyor	0.03	0.05		43,750.00	b	29.13
SCRAP-BULK9	SCRAP-BULK9	CR1 crusher to P2 output pile	0.02	0.04		37,187.78	b	26.31
SCRAP-BULK10	SCRAP-BULK10	C8 conveyor to C9 conveyor	0.00	0.00		6,562.78	b	6.56
SCRAP-BULK11	SCRAP-BULK11	C9 conveyor to C1A conveyor	0.00	0.00		37,187.78	b	26.31
SCRAP-BULK12	SCRAP-BULK12	C1A conveyor to B1 surge bin	0.00	0.00		37,187.78	b	26.31
SCRAP-BULK13	SCRAP-BULK13	B1 surge bin to C1 conveyor	0.01	0.02		136,354.44	b	34.45
SCRAP-BULK14	SCRAP-BULK14	C1 conveyor through M1 mag splitter to S1 slag screen	0.01	0.02		136,354.44	b	34.45
SCRAP-BULK15	SCRAP-BULK15	C1 conveyor through M1 mag splitter to S2 scrap screen	0.01	0.01		131,581.67	b	34.26
SCRAP-BULK16	SCRAP-BULK16	S2 scrap screen to C6 conveyor	0.01	0.01		4,772.22	b	4.82
SCRAP-BULK17	SCRAP-BULK17	S2 scrap screen to P3 scrap pile	0.00	0.01		4,056.67	b	4.25
SCRAP-BULK18	SCRAP-BULK18	C6 conveyor to P4 scrap pile	0.00	0.00		716.11	b	0.86
SCRAP-BULK19	SCRAP-BULK19	S1 slag screen to C2 conveyor	0.00	0.01		4,056.67	b	4.25
SCRAP-BULK20	SCRAP-BULK20	C2 conveyor to C5 conveyor	0.00	0.01		52,632.78	b	31.11
SCRAP-BULK21	SCRAP-BULK21	C5 conveyor to P5 product pile	0.00	0.01		52,632.78	b	31.11
SCRAP-BULK22	SCRAP-BULK22	S1 slag screen to C4 conveyor	0.06	0.10		52,632.78	b	31.11
SCRAP-BULK23	SCRAP-BULK23	C4 conveyor to P7 product pile	0.00	0.00		39,474.44	b	27.68
SCRAP-BULK24	SCRAP-BULK24	S1 slag screen to C3 conveyor	0.04	0.07		39,474.44	b	27.68
SCRAP-BULK25	SCRAP-BULK25	C3 conveyor to P6 product pile	0.00	0.00		26,316.11	b	19.79
SCRAP-BULK26	SCRAP-BULK26	S1 slag screen to P8 product pile	0.03	0.05		26,316.11	b	19.79
SCRAP-BULK27	SCRAP-BULK27	Loader transports & loads products into trucks to product stockpiles	0.01	0.01		13,158.33	b	11.90
SCRAP-BULK28	SCRAP-BULK28	Truck transports & dumps products into product stockpiles	0.06	0.12		145,833.33	b	34.83
SCRAP-BULK29	SCRAP-BULK29	Loader transports & loads into trucks, oversize to drop ball	0.06	0.12		145,833.33	b	34.83
SCRAP-BULK30	SCRAP-BULK30	Truck transports & dumps oversize into drop ball area	0.00	0.00		2,916.67	b	3.33

NUCOR - Project Honey Badger
45CSR7-4.1 - Emission Limit Determination based on Process Weight Rate

Emission Point ID	Emission Unit ID	Emission Source	PM (lb/hr)	PM (tpy)	Exempt?	Weight Rate (lb/hr)	Type	Emission Limit (lb/hr)
SCRAP-BULK31	SCRAP-BULK31	Truck transports ladle lip and meltshop cleanup materials & dumps at drop ball site	0.00	0.01		9,479.44	b	9.48
SCRAP-BULK32	SCRAP-BULK32	Truck transports & dumps tundish at lancing station	0.00	0.00		5,104.44	b	5.10
SCRAP-BULK33	SCRAP-BULK33	Ball drop crushing	0.00	0.00	Yes - Emission Rate	N/A	N/A	N/A
SLGSKP1	SLGSKP1	Slag Stockpile 1	0.12	0.54	Yes - Not Mnfct. Prcs.	N/A	N/A	N/A
SLGSKP2	SLGSKP2	Slag Stockpile 2	0.12	0.54	Yes - Not Mnfct. Prcs.	N/A	N/A	N/A
SLGSKP3	SLGSKP3	Slag Stockpile 3	0.12	0.54	Yes - Not Mnfct. Prcs.	N/A	N/A	N/A
SLGSKP4	SLGSKP4	Scrap Metal Stockpile 1	0.12	0.54	Yes - Not Mnfct. Prcs.	N/A	N/A	N/A
SCRPSKP1	SCRPSKP1	Scrap Metal Stockpile 2	0.31	1.36	Yes - Not Mnfct. Prcs.	N/A	N/A	N/A
SCRPSKP2	SCRPSKP2	Scrap Metal Stockpile 3	0.31	1.36	Yes - Not Mnfct. Prcs.	N/A	N/A	N/A
SCRPSKP3	SCRPSKP3	Scrap Metal Stockpile 4	0.31	1.36	Yes - Not Mnfct. Prcs.	N/A	N/A	N/A
FUGD-PAVED-01P through 10P	FUGD-PAVED-01P through 10P	Paved Road-Road 01P through 10P	5.60	24.55	Yes - Not Mnfct. Prcs.	N/A	N/A	N/A
FUGD-UNPAVED-11U through 19U	FUGD-UNPAVED-11U through 19U	Unpaved Road-Road 11U through 19U	5.78	25.31	Yes - Not Mnfct. Prcs.	N/A	N/A	N/A

NUCOR - Project Honey Badger
Electric Arc Furnace Emissions Calculation

Electric Arc Furnace Emission Factors

Emission Point ID	Unit	Description	DEC Capture Efficiency[1] (%)	Oxy-fuel Burner Heat Capacity (MMBtu/hr)	Throughput		Emission Factor[2]							
					Hourly (ton stl/hr)	Annual (ton stl/yr)	NO_X (lb/ton stl)	CO (lb/ton stl)	SO_2 (lb/ton stl)	VOC (lb/ton stl)	Lead[3] (lb/ton stl)	CO_2[4] (lb/MMBtu)	CH_4[4] (lb/MMBtu)	N_2O[4] (lb/MMBtu)
BHST-1	Melt Shop	Single Shell DC Electric Arc Furnace 1	95	22.18	171	1,500,000	0.3	2	0.2	0.093	4.50E-04	116.98	2.20E-03	2.20E-04
BHST-2	Melt Shop	Single Shell DC Electric Arc Furnace 2	95	22.18	171	1,500,000	0.3	2	0.2	0.093	4.50E-04	116.98	2.20E-03	2.20E-04

[1] Per vendor guarantee, 99% of emissions are captured by the stacks and 1% are released into the Melt Shop Area as Melt Shop fugitives (EPN MSFUG).

[2] Emission factors of criteria pollutants for electric arc furnace are based on proposed BACT.

[3] Controlled lead emission factor for electric arc furnace is based on data collected from the Nucor Gallatin Mill. Lead emissions are in the form of elemental lead.

[4] Emission factors of GHGs are based on Tables C-1 and C-2 of 40 CFR Part 98.

CO_2e Potential

Global Warming Potentials (GWPs)[1]		
CO_2	CH_4	N_2O
1	25	298

[1] EPA GHG MRR rule (40 CFR 98, dated September 22, 2009), Table A-1. Updated GWP finalized on November 29, 2013.

Electric Arc Furnace Hourly Emissions

Emission Point ID	Unit	Description	Hourly Emissions[1,2]								
			NO_X (lb/hr)	CO (lb/hr)	SO_2 (lb/hr)	VOC (lb/hr)	Lead (lb/hr)	CO_2 (lb/hr)	CH_4 (lb/hr)	N_2O (lb/hr)	CO_2e (lb/hr)
BHST-1	Melt Shop	Single Shell DC Electric Arc Furnace 1	48.74	324.90	32.49	15.11	0.07	2,465	0.05	0.00	2,467
BHST-2	Melt Shop	Single Shell DC Electric Arc Furnace 2	48.74	324.90	32.49	15.11	0.07	2,465	0.05	0.00	2,467
MSFUG	Melt Shop	Uncaptured Electric Arc Furnace Fugitives	5.13	34.20	3.42	1.59	7.70E-03	259	4.89E-03	4.89E-04	260

[1] Hourly Emissions (lb/hr) = Hourly Throughput (ton stl/hr) x Emission Factor (lb/ton stl) x Capture Efficiency (%)

$$NO_x \text{ Hourly Emissions (lb/hr)} = \frac{171 \text{ ton stl}}{\text{hr}} \times \frac{0.30 \text{ lb}}{\text{ton stl}} \times 95\ \% = 48.74 \text{ lb/hr}$$

[2] Hourly Emissions (lb/hr) = Heat Capacity (MMBtu/hr) x Emission Factor (lb/MMBtu) x Capture Efficiency (%)

$$CO_2 \text{ Hourly Emissions (lb/hr)} = \frac{22 \text{ MMBtu}}{\text{hr}} \times \frac{116.98 \text{ lb}}{\text{MMBtu}} \times 95\ \% = 2{,}464.71 \text{ lb/hr}$$

NUCOR - Project Honey Badger
Electric Arc Furnace Emissions Calculation

Electric Arc Furnace Annual Emissions

Emission Point ID	Unit	Description	Annual Emissions[1,2]								
			NO_X (tpy)	CO (tpy)	SO_2 (tpy)	VOC (tpy)	Lead (tpy)	CO_2 (tpy)	CH_4 (tpy)	N_2O (tpy)	CO_2e (tpy)
BHST-1	Melt Shop	Single Shell DC Electric Arc Furnace 1	213.75	1425.00	142.50	66.26	0.32	10,795	0.20	0.02	10,807
BHST-2	Melt Shop	Single Shell DC Electric Arc Furnace 2	213.75	1425.00	142.50	66.26	0.32	10,795	0.20	0.02	10,807
MSFUG	Melt Shop	Uncaptured Electric Arc Furnace Fugitives	22.50	150.00	15.00	6.98	3.38E-02	1,136.36	2.14E-02	2.14E-03	1,138

[1] Annual Emissions (tpy) = Annual Throughput (ton stl/hr) x Emission Factor (lb/ton stl) / 2000 (lb/ton) x Capture Efficiency (%)

NO_x Annual Emissions (tpy) =	1,500,000 ton st	0.30 lb	ton	95 %	= 213.75 tpy
	yr	ton stl	2,000 lb		

[2] Annual Emissions (tpy) = Heat Capacity (MMBtu/hr) x Emission Factor (lb/MMBtu) / Hours of Operation (hr/yr) / 2000 (lb/ton) x Capture Efficiency (%)

CO_2 Annual Emissions (tpy) =	22 MMBtu	116.98 lb	8760 hr	ton	95 %	= 10,795 tpy
	hr	MMBtu	yr	2,000 lb		

Electric Arc Furnace Speciations

Emission Point ID	Unit	Description	Speciated Emission Factors[1,2]							
			Ar (lb/ton stl)	Be (lb/ton stl)	Cd (lb/ton stl)	Cr (lb/ton stl)	Hg (lb/ton stl)	Mn (lb/ton stl)	Ni (lb/ton stl)	F- (lb/ton stl)
BHST-1	Melt Shop	Single Shell DC Electric Arc Furnace 1	6.20E-06	2.80E-07	5.00E-06	3.50E-06	1.10E-04	3.00E-04	5.50E-06	3.50E-03
BHST-2	Melt Shop	Single Shell DC Electric Arc Furnace 2	6.20E-06	2.80E-07	5.00E-06	3.50E-06	1.10E-04	3.00E-04	5.50E-06	3.50E-03

[1] Emission factors of hazardous air pollutants for electric arc furnace are based on AP-42 Section 12.5.1.

[2] Emission factors of flouride for electric arc furnace are based on Nucor Berkeley Mill emission data.

Electric Arc Furnace Speciated Hourly Emissions

Emission Point ID	Unit	Description	Speciated Hourly Emissions[1]							
			Ar (lb/hr)	Be (lb/hr)	Cd (lb/hr)	Cr (lb/hr)	Hg (lb/hr)	Mn (lb/hr)	Ni (lb/hr)	F- (lb/hr)
BHST-1	Melt Shop	Single Shell DC Electric Arc Furnace 1	1.01E-03	4.55E-05	8.12E-04	5.69E-04	1.79E-02	0.05	8.93E-04	5.69E-01
BHST-2	Melt Shop	Single Shell DC Electric Arc Furnace 2	1.01E-03	4.55E-05	8.12E-04	5.69E-04	1.79E-02	0.05	8.93E-04	5.69E-01
MSFUG	Melt Shop	Uncaptured Electric Arc Furnace Fugitives	1.06E-04	4.79E-06	8.55E-05	5.99E-05	1.88E-03	5.13E-03	9.41E-05	5.99E-02

[1] Speciated Hourly Emissions (lb/hr) = Hourly Throughput (ton stl/hr) x Speciated Emission Factor (lb/ton stl) x Capture Efficiency (%)

Ar Hourly Emissions (lb/hr) =	171 ton stl	6.20E-06 lb	95 %	= 1.01E-03 lb/hr
	hr	ton stl		

NUCOR - Project Honey Badger
Electric Arc Furnace Emissions Calculation

Electric Arc Furnace Speciated Annual Emissions

Emission Point ID	Unit	Description	Speciated Annual Emissions[1]							
			Ar (tpy)	Be (tpy)	Cd (tpy)	Cr (tpy)	Hg (tpy)	Mn (tpy)	Ni (tpy)	F- (tpy)
BHST-1	Melt Shop	Single Shell DC Electric Arc Furnace 1	4.42E-03	2.00E-04	3.56E-03	2.49E-03	7.84E-02	2.14E-01	3.92E-03	2.49E+00
BHST-2	Melt Shop	Single Shell DC Electric Arc Furnace 2	4.42E-03	2.00E-04	3.56E-03	2.49E-03	7.84E-02	2.14E-01	3.92E-03	2.49E+00
MSFUG	Melt Shop	Uncaptured Electric Arc Furnace Fugitives	4.65E-04	2.10E-05	3.75E-04	2.63E-04	8.25E-03	2.25E-02	4.13E-04	2.63E-01

[1] Speciated Annual Emissions (tpy) = Annual Throughput (ton stl/hr) x Speciated Emission Factor (lb/ton stl) / 2000 (lb/ton) x Capture Efficiency (%)

Ar Annual Emissions (tpy) = $\frac{1{,}500{,}000 \text{ ton st}}{\text{yr}} \times \frac{6.20\text{E-06 lb}}{\text{ton stl}} \times \frac{\text{ton}}{2{,}000 \text{ lb}} \times 95\ \%$ = 4.42E-03 tpy

NUCOR - Project Honey Badger
Electric Arc Furnace GHG Emissions Calculation

Electric Arc Furnace Emission Factors

Emission Point ID	Unit	Description	Capture Efficiency[1] (%)	Throughput															
				DRI		Scrap		Flux		Electrode		Carbon		Steel		Slag		Residue	
				Hourly (lb/hr)	Annual (tpy)	Hourly (lb/hr)	Annual (tpy)	Hourly (lb/hr)	Annual (tpy)	Hourly (lb/hr)	Annual (tpy)	Hourly (lb/hr)	Annual (tpy)	Hourly (lb/hr)	Annual (tpy)	Hourly (lb/hr)	Annual (tpy)	Hourly (lb/hr)	Annual (tpy)
BHST-1	Melt Shop	Single Shell DC Electric Arc Furnace 1	95	151,800	577,500	354,200	1,347,500	21,160	80,500	333	1,463	10,810	41,125	342,000	1,500,000	35,055	153,750	5,301	23,250
BHST-2	Melt Shop	Single Shell DC Electric Arc Furnace 2	95	151,800	577,500	354,200	1,347,500	21,160	80,500	333	1,463	10,810	41,125	342,000	1,500,000	35,055	153,750	5,301	23,250

[1] Per vendor guarantee, 99% of emissions are captured by the stacks and 1% are released into the Melt Shop Area as Melt Shop fugitives (EPN MSFUG).

Electric Arc Furnace GHG Emissions

Emission Point ID	Unit	Description	Carbon Content								CO_2 Emissions[1]	
			DRI (wt. frac.)	Scrap (wt. frac.)	Flux (wt. frac.)	Electrode (wt. frac.)	Carbon (wt. frac.)	Steel (wt. frac.)	Slag (wt. frac.)	Residue (wt. frac.)	Hourly (lb/hr)	Annual (tpy)
BHST-1	Melt Shop	Single Shell DC Electric Arc Furnace 1	2.80E-02	2.70E-03	1.20E-02	0.999	0.88	3.80E-03	2.67E-02	1.00E-02	45,346	168,550
BHST-2	Melt Shop	Single Shell DC Electric Arc Furnace 2	2.80E-02	2.70E-03	1.20E-02	0.999	0.88	3.80E-03	2.67E-02	1.00E-02	45,346	168,550
MSFUG	Melt Shop	Uncaptured Electric Arc Furnace Fugitives	2.80E-02	2.70E-03	1.20E-02	0.999	0.88	3.80E-03	2.67E-02	1.00E-02	4,773	17,742

[1] Total emissions of GHGs are estimated according to Equation Q-5 of 40 CFR 98, Subpart Q, adapted as follows:

CO_2 = 44/12 * [(Pig Iron/HBI) *(CPigIron/HBI) + (Scrap) * (C_{Scrap}) + (Flux) * (C_{flux}) + (Electrode) * ($C_{Electrode}$) + (Carbon) * (C_{Carbon}) - (Steel) * (C_{Steel}) - (Slag) * (C_{Slag}) - (R) * ($C_{Residue}$)] * Capture Efficiency (%)

NUCOR - Project Honey Badger
Ladle Metallurgical Furnace Emissions Calculation

Ladle Metallurgical Furnace Emission Factors

Emission Point ID	Unit	Description	Canopy Hood Capture Efficiency[1] (%)	Throughput		Emission Factor[2]			
				Hourly (ton stl/hr)	Annual (ton stl/yr)	NO_X (lb/ton stl)	CO (lb/ton stl)	SO_2 (lb/ton stl)	VOC (lb/ton stl)
BHST-1	Melt Shop	Ladle Metallurgical Furnace 1	95	171	1,500,000	0.05	0.02	0.04	0.005
BHST-2	Melt Shop	Ladle Metallurgical Furnace 2	95	171	1,500,000	0.05	0.02	0.04	0.005

[1] Per vendor guarantee, 95% of emissions are captured by the canopy hood and 5% are released into the Melt Shop Area as Melt Shop fugitives (EPN MSFUG).

[2] Emission factors of criteria pollutants for ladle metallurgical furnace are based on proposed BACT.

Ladle Metallurgical Furnace Hourly Emissions

Emission Point ID	Unit	Description	Hourly Emissions[1,2]			
			NO_X (lb/hr)	CO (lb/hr)	SO_2 (lb/hr)	VOC (lb/hr)
BHST-1	Melt Shop	Ladle Metallurgical Furnace 1	8.12	3.25	6.50	0.81
BHST-2	Melt Shop	Ladle Metallurgical Furnace 2	8.12	3.25	6.50	0.81
MSFUG	Melt Shop	Uncaptured Electric Arc Furnace Fugitives	0.86	0.34	0.68	0.09

[1] Hourly Emissions (lb/hr) = Hourly Throughput (ton stl/hr) x Emission Factor (lb/ton stl) x Capture Efficiency (%)

$$NO_x \text{ Hourly Emissions (lb/hr)} = \frac{171 \text{ ton stl}}{\text{hr}} \times \frac{0.05 \text{ lb}}{\text{ton stl}} \times 95\,\% = 8.12 \text{ lb/hr}$$

Ladle Metallurgical Furnace Annual Emissions

Emission Point ID	Unit	Description	Annual Emissions[1,2]			
			NO_X (tpy)	CO (tpy)	SO_2 (tpy)	VOC (tpy)
BHST-1	Melt Shop	Ladle Metallurgical Furnace 1	35.63	14.25	28.50	3.56
BHST-2	Melt Shop	Ladle Metallurgical Furnace 2	35.63	14.25	28.50	3.56
MSFUG	Melt Shop	Uncaptured Electric Arc Furnace Fugitives	3.75	1.50	3.00	0.38

[1] Annual Emissions (tpy) = Annual Throughput (ton stl/hr) x Emission Factor (lb/ton stl) / 2000 (lb/ton) x Capture Efficiency (%)

$$NO_x \text{ Annual Emissions (tpy)} = \frac{1{,}500{,}000 \text{ ton stl}}{\text{yr}} \times \frac{0.05 \text{ lb}}{\text{ton stl}} \times \frac{\text{ton}}{2{,}000 \text{ lb}} \times 95\,\% = 35.63 \text{ tpy}$$

NUCOR - Project Honey Badger
Baghouse/Fugitives PM Emissions Calculation

Baghouse Emissions

Emission Point ID	Unit	Description	Flow Rate (dscfm)	Emission Factor[1] PM (gr/dscf)	PM_{10} (gr/dscf)	$PM_{2.5}$ (gr/dscf)	Hourly Emissions PM (lb/hr)	PM_{10} (lb/hr)	$PM_{2.5}$ (lb/hr)	Annual Emissions PM (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
BHST-1	Melt Shop	Pulse Jet Fabric Filter Baghouse 1	1,103,616	0.0018	0.0052	0.0052	17.03	49.19	49.19	74.58	215.45	215.45
BHST-2	Melt Shop	Pulse Jet Fabric Filter Baghouse 2	1,103,616	0.0018	0.0052	0.0052	17.03	49.19	49.19	74.58	215.45	215.45
LCB-ST	Melt Shop	Lime, Carbon, and Alloy Silo Baghouse	38,000	0.005	0.005	0.005	1.63	1.63	1.63	7.13	7.13	7.13
DRI-DOCK-ST	DRI Unloading Dock	DRI Unloading Dock (two units)	4,000	0.001	0.001	0.00049	0.03	0.03	0.02	0.15	0.15	0.07
DRIVF1	Melt Shop	DRI Storage Silo 1 - Baghouse	1,200	0.001	0.001	0.00049	0.01	0.01	0.01	0.05	0.05	0.02
DRIBV1	Melt Shop	DRI Storage Silo 1 - Bin Vent	148	0.001	0.001	0.00049	0.00	0.00	0.00	0.01	0.01	0.00
DRIVF2	Melt Shop	DRI Storage Silo 2 - Baghouse	1,200	0.001	0.001	0.00049	0.01	0.01	0.01	0.05	0.05	0.02
DRIBV2	Melt Shop	DRI Storage Silo 2 - Bin Vent	148	0.001	0.001	0.00049	0.00	0.00	0.00	0.01	0.01	0.00
DRIVF3	Melt Shop	DRI Storage Silo 3 - Baghouse	1,200	0.001	0.001	0.00049	0.01	0.01	0.01	0.05	0.05	0.02
DRIBV3	Melt Shop	DRI Storage Silo 3 - Bin Vent	148	0.001	0.001	0.00049	0.00	0.00	0.00	0.01	0.01	0.00
DRIVF4	Melt Shop	DRI Storage Silo 4 - Baghouse	1,200	0.001	0.001	0.00049	0.01	0.01	0.01	0.05	0.05	0.02
DRIBV4	Melt Shop	DRI Storage Silo 4 - Bin Vent	148	0.001	0.001	0.00049	0.00	0.00	0.00	0.01	0.01	0.00
DRI-DB1-BH	Melt Shop	DRI Day Bin #1	1,200	0.001	0.001	0.00049	0.01	0.01	0.01	0.05	0.05	0.02
DRI-DB2-BH	Melt Shop	DRI Day Bin #2	1,200	0.001	0.001	0.00049	0.01	0.01	0.01	0.05	0.05	0.02
DRI-CONV-BH	Melt Shop	DRI Transfer Conveyors	1,200	0.001	0.001	0.00049	0.01	0.01	0.01	0.05	0.05	0.02
SLAG-CUT-BH	Slag Cutting	Slag Cutting in Slag Processing Area	100,000	0.001	0.001	0.001	0.86	0.86	0.86	3.75	3.75	3.75
EAFVF1	Melt Shop	EAF Baghouse 1 Dust Silo	1,000	0.01	0.01	0.01	0.09	0.09	0.09	0.38	0.38	0.38
EAFVF2	Melt Shop	EAF Baghouse 2 Dust Silo	1,000	0.01	0.01	0.01	0.09	0.09	0.09	0.38	0.38	0.38
LIME-DUMP-ST	Melt Shop	Lime Dump Station	2,000	0.005	0.005	0.005	0.09	0.09	0.09	0.38	0.38	0.38
CARBON-DUMP-ST	Melt Shop	Carbon Dump Station	2,000	0.005	0.005	0.005	0.09	0.09	0.09	0.38	0.38	0.38
ALLOY-HANDLE-ST	Melt Shop	Alloy Handling System	3,800	0.005	0.005	0.005	0.16	0.16	0.16	0.71	0.71	0.71
RM-BH	Hot Mill	Rolling Mill	117,716	0.01	0.01	0.005	10.09	10.09	5.04	44.19	44.19	22.10

[1] Exit loading rate in grain per dry standard cubic feet (gr/dscf) obtained from vendor's guarantee.

Uncaptured Melt Shop Fugitives from EAF/LMF - Emission Factor

Emission Point ID	Unit	Description	Throughput Hourly (ton stl/hr)	Throughput Annual (ton stl/yr)	Capture Efficiency[1] DEC (%)	Capture Efficiency[1] Canopy Hood (%)	Building Enclosure[2] (%)	Emissions Allocation[3] (%)	Emission Factors[3,4] PM (lb/ton stl)	PM_{10} (lb/ton stl)	$PM_{2.5}$ (lb/ton stl)
MSFUG	Melt Shop	Uncaptured Electric Arc Furnace Fugitives - Melting and Refining	342	3,000,000	95	95	90	96%	11.3	6.55	6.55
MSFUG	Melt Shop	Uncaptured Electric Arc Furnace Fugitives - Charging Tapping and Slagging	342	3,000,000	-	95	90	4%	11.3	6.55	6.55
CASTFUG	Melt Shop	Uncaptured Casting Fugitives	342	3,000,000	-	95	90	-	0.12	0.12	0.12

[1] Capture efficiency of the Electric Arc Furnace Direct Evacuation System (DEC) and capture efficiency of the Canopy Hood are based on vendor's design specification.

[2] Emission factor obtained from TCEQ Draft RG 058 Rock Crushing Plants, February 2002, Table 7 for sources enclosed by building.

[3] PM and PM_{10} uncontrolled emission factor per Energy and Environmental Profile of the U.S. Iron and Steel Industry, U.S. Department of Energy (Aug. 2000), Table 5-3, for EAF (melting, refining, charging, tapping, and slagging alloy steel).
Conservatively assumed PM2.5 emission factor is equivalent to PM10 emission factor.
Emissions allocations determined via ratios of uncontrolled melting and refining emission factor (38 lb/ton) and charging, tapping, slagging emission factor (1.4 lb/ton).

[4] Emission factor for casting fugitives obtained from AP-42 Table 12.5.1-1 for uncontrolled ladle heating and transfer and continuous casting. Condensable PM emissions are not anticipated for this process.
PM10 and PM2.5 emission factors are conservatively assumed to be equivalent to total PM emission factor.

Uncaptured Melt Shop Fugitives from EAF/LMF - Emission Calculation

Emission Point ID	Unit	Description	Hourly Emissions[1] PM (lb/hr)	Hourly Emissions[1] PM_{10} (lb/hr)	Hourly Emissions[1] $PM_{2.5}$ (lb/hr)	Annual Emissions[2] PM (tpy)	Annual Emissions[2] PM_{10} (tpy)	Annual Emissions[2] $PM_{2.5}$ (tpy)
MSFUG	Melt Shop	Uncaptured Electric Arc Furnace Fugitives - Melting and Refining	0.93	0.54	0.54	4.09	2.37	2.37
MSFUG	Melt Shop	Uncaptured Electric Arc Furnace Fugitives - Charging Tapping and Slagging	0.69	0.40	0.40	3.01	1.75	1.75
CASTFUG	Melt Shop	Uncaptured Casting Fugitives	0.21	0.21	0.21	0.90	0.90	0.90

[1] MSFUG Hourly Emissions (lb/hr) = Hourly Throughput (ton stl/hr) x Emission Factor (lb/ton stl) x [1 - DEC Capture Efficiency (%)] x [1 - Canopy Hood Capture Efficiency (%)] x [1 - Building Enclosure (%)]

PM Hourly Emissions (lb/hr) = 342 ton stl / hr | 11.30 lb / ton stl | 5 % | 5 % | 10 % = 0.93 lb/hr

CASTFUG Hourly Emissions (lb/hr) = Hourly Throughput (ton stl/hr) x Emission Factor (lb/ton stl) x [1 - Building Enclosure (%)]

PM Hourly Emissions (lb/hr) = 342 ton stl / hr | 0.12 lb / ton stl | 5 % | 10 % = 0.21 lb/hr

[2] MSFUG Annual Emissions (tpy) = Annual Throughput (ton stl/hr) x Emission Factor (lb/ton stl) / 2000 (lb/ton) x [1 - DEC Capture Efficiency (%)] x [1 - Canopy Hood Capture Efficiency (%)] x [1 - Building Enclosure (%)]

PM Annual Emissions (tpy) = 3,000,000 ton stl / yr | 11.30 lb / ton stl | ton / 2,000 lb | 5 % | 5 % | 10 % = 4.09 tpy

CASTFUG Annual Emissions (tpy) = Annual Throughput (ton stl/hr) x Emission Factor (lb/ton stl) / 2000 (lb/ton) x [1 - Building Enclosure (%)]

PM Annual Emissions (tpy) = 3,000,000 ton stl / yr | 0.12 lb / ton stl | ton / 2,000 lb | 5 % | 10 % = 0.90 tpy

NUCOR - Project Honey Badger
Vacuum Tank Degasser Emissions Calculation

Vacuum Tank Degasser Waste Gas and Natural Gas Combustion

Emission Point ID	Unit	Description	Total Treatment Time[1] (min/heat)	Control Efficiency[2] (%)	Steel Throughput Hourly (ton/hr)	Steel Throughput Annual (tpy)	Uncontrolled CO[1] Hourly (lb/hr)	Uncontrolled CO[1] Annual (lb/yr)	Heat Input[2] Hourly (MMBtu/hr)	Heat Input[2] Annual (MMBtu/yr)	Emission Factor NO_X[2] (lb/MMBtu)	VOC[3] (lb/MMBtu)	SO_2[4] (lb/MMBtu)	$PM/PM_{10}/PM_{2.5}$[5] (lb/MMBtu)	CO_2[6] (lb/MMBtu)	CH_4[6] (lb/MMBtu)	N_2O[6] (lb/MMBtu)
VTDST1	Melt Shop	Vacuum Tank 1	50	98	171	1500000	268.8	1,493,333	12.37	108,523	0.068	0.140	5.88E-04	6.05E-03	117.0	2.20E-03	2.20E-04
VTDST2	Melt Shop	Vacuum Tank 2	50	98	171	1500000	268.8	1,493,333	12.37	108,523	0.068	0.140	5.88E-04	6.05E-03	117.0	2.20E-03	2.20E-04

[1] Emission factor based on engineering estimate of carbon removed in VTD process.
[2] Based on vendor guarantee.
[3] VOC conservatively based on AP-42 Table 13.5-1 emission factor for total hydrocarbons.
[4] SO_2 emission factor is based on Tables 1.4-2 of AP-42 Section 1.4 and the conservative assumption of 150 grain/MMscf.
[5] PM emissions are controlled by a vacuum bag filter before passing through the mechanical pumps. Emission factor provided by vendor is based on total gas flow per treatment and an exit loading rate of 0.0083 gr/scf PM.
[6] Emission factors of GHGs are based on Tables C-1 and C-2 of 40 CFR Part 98.

CO_2e Potential

Global Warming Potentials (GWPs)[1]		
CO_2	CH_4	N_2O
1	25	298

[1] EPA GHG MRR rule (40 CFR 98, dated September 22, 2009), Table A-1. Updated GWP finalized on November 29, 2013.

Hourly Emissions Calculation

Emission Point ID	Unit	Description	NO_X[1] (lb/hr)	CO[2] (lb/hr)	VOC[1] (lb/hr)	SO_2[1] (lb/hr)	$PM/PM_{10}/PM_{2.5}$[1] (lb/hr)	CO_2[3] (lb/hr)	CH_4[1] (lb/hr)	N_2O[1] (lb/hr)	CO_2e (lb/hr)
VTDST1	Melt Shop	Vacuum Tank 1	0.841	5.375	1.732	0.007	0.075	1,861	0.027	0.003	1,863
VTDST2	Melt Shop	Vacuum Tank 2	0.841	5.375	1.732	0.007	0.075	1,861	0.027	0.003	1,863

(Column group "Hourly Emissions" spans NO_X through CO_2e.)

[1] Hourly Emissions NO_x, VOC, SO_2, PM, CH_4, N_2O (lb/hr) = Heat Input (MMBtu/hr) x Emission Factor (lb/MMBtu)

NO_x Hourly Emissions (lb/hr) = 12.4 MMBtu / hr | 0.068 lb / MMBtu = 0.84 lb/hr

[2] Hourly Emissions CO (lb/hr) = CO Throughput (lb/hr) x (1 - Control Efficiency)[%]

CO Hourly Emissions (lb/hr) = 268.8 lb / hr | 2 % = 5.38 lb/hr

[3] Hourly Emissions CO_2 (lb/hr) = Heat Input (MMBtu/hr) x Emission Factor (lb/MMBtu) + CO Throughput (lb/hr) x Control Efficiency (%) / 28.01 lb/lb-mol CO x 44.01 lb/lb-mol CO_2

CO_2 Hourly Emissions (lb/hr) = 12.4 MMBtu / hr | 116.977 lb / MMBtu + 268.8 lb / hr | 98 % | 44.01 lb/lb-mol CO_2 / 28.01 lb/lb-mol CO = 1861 lb/hr

Annual Emissions Calculation

Emission Point ID	Unit	Description	NO_X[1] (tpy)	CO[2] (tpy)	VOC[1] (tpy)	SO_2[1] (tpy)	$PM/PM_{10}/PM_{2.5}$[1] (tpy)	CO_2[3] (tpy)	CH_4[1] (tpy)	N_2O[1] (tpy)	CO_2e (tpy)
VTDST1	Melt Shop	Vacuum Tank 1	3.690	14.933	7.597	0.032	0.328	7,497	0.120	0.012	7,504
VTDST2	Melt Shop	Vacuum Tank 2	3.690	14.933	7.597	0.032	0.328	7,497	0.120	0.012	7,504

(Column group "Annual Emissions" spans NO_X through CO_2e.)

[1] Annual Emissions NO_x, VOC, SO_2, PM, CH_4, N_2O (lb/hr) = Heat Input (MMBtu/yr) x Emission Factor (lb/MMBtu)

NO_x Hourly Emissions (tpy) = 108523 MMBtu / yr | 0.068 lb / MMBtu | ton / 2,000 lb = 3.69 tpy

[2] Annual Emissions CO (tpy) = CO Throughput (lb/yr) x (1 - Control Efficiency)[%] / 2000 lb/ton

CO Annual Emissions (tpy) = 1493333 lb / yr | 2 % | ton / 2,000 lb = 14.93 tpy

[3] Annual Emissions CO_2 (tpy) = Heat Input (MMBtu/yr) x Emission Factor (lb/MMBtu) / 2000 lb/ton + CO Throughput (lb/hr) x Control Efficiency (%) / 28.01 lb/lb-mol CO x 44.01 lb/lb-mol CO_2 / 2000 lb/ton

CO_2 Annual Emissions (tpy) = 108523 MMBtu / yr | 116.977 lb / MMBtu | ton / 2,000 lb + 1493333 lb / hr | 98 % | 44.01 lb/lb-mol CO_2 / 28.01 lb/lb-mol CO | ton / 2,000 lb = 7497 tpy

NUCOR - Project Honey Badger
Natural Gas Combustion Emissions Calculation

Heat Input and Emission Factor

Emission Point ID	Unit	Description	Heat Input: Hourly (MMBtu/hr)	Heat Input: Annual (MMBtu/yr)	Emission Factor: NO_X [1] (lb/MMBtu)	CO [2] (lb/MMBtu)	SO_2 [3] (lb/MMBtu)	VOC [3] (lb/MMBtu)	PM [4] (lb/MMBtu)	PM_{10} [4] (lb/MMBtu)	$PM_{2.5}$ [4] (lb/MMBtu)	Lead (lb/MMBtu)	CO_2 [5] (lb/MMBtu)	CH_4 [5] (lb/MMBtu)	N_2O [5] (lb/MMBtu)
MSFUG	Melt Shop	Ladle Dryer Fugitives	15	131,400	0.098	0.082	5.88E-04	0.005	0.002	0.007	0.007	4.90E-07	116.977	0.002	2.20E-04
MSFUG	Melt Shop	Horizontal Ladle Preheater 1 Fugitives	15	131,400	0.098	0.082	5.88E-04	0.005	0.002	0.007	0.007	4.90E-07	116.977	0.002	2.20E-04
MSFUG	Melt Shop	Horizontal Ladle Preheater 2 Fugitives	15	131,400	0.098	0.082	5.88E-04	0.005	0.002	0.007	0.007	4.90E-07	116.977	0.002	2.20E-04
MSFUG	Melt Shop	Horizontal Ladle Preheater 3 Fugitives	15	131,400	0.098	0.082	5.88E-04	0.005	0.002	0.007	0.007	4.90E-07	116.977	0.002	2.20E-04
MSFUG	Melt Shop	Horizontal Ladle Preheater 4 Fugitives	15	131,400	0.098	0.082	5.88E-04	0.005	0.002	0.007	0.007	4.90E-07	116.977	0.002	2.20E-04
MSFUG	Melt Shop	Horizontal Ladle Preheater 5 Fugitives	15	131,400	0.098	0.082	5.88E-04	0.005	0.002	0.007	0.007	4.90E-07	116.977	0.002	2.20E-04
MSFUG	Melt Shop	Vertical Ladle Preheater 6 Fugitives	15	131,400	0.098	0.082	5.88E-04	0.005	0.002	0.007	0.007	4.90E-07	116.977	0.002	2.20E-04
MSFUG	Melt Shop	Vertical Ladle Preheater 7 Fugitives	15	131,400	0.098	0.082	5.88E-04	0.005	0.002	0.007	0.007	4.90E-07	116.977	0.002	2.20E-04
MSFUG	Melt Shop	Tundish Dryer 1	6	52,560	0.098	0.082	5.88E-04	0.005	0.002	0.007	0.007	4.90E-07	116.977	0.002	2.20E-04
MSFUG	Melt Shop	Tundish Preheater 1	9	78,840	0.098	0.082	5.88E-04	0.005	0.002	0.007	0.007	4.90E-07	116.977	0.002	2.20E-04
MSFUG	Melt Shop	Tundish Preheater 2	9	78,840	0.098	0.082	5.88E-04	0.005	0.002	0.007	0.007	4.90E-07	116.977	0.002	2.20E-04
MSFUG	Melt Shop	Subentry Nozzle (SEN) Preheater 1	1	8,760	0.098	0.082	5.88E-04	0.005	0.00186	0.007	0.007	4.90E-07	116.977	0.002	2.20E-04
MSFUG	Melt Shop	Subentry Nozzle (SEN) Preheater 2	1	8,760	0.098	0.082	5.88E-04	0.005	0.00186	0.007	0.007	4.90E-07	116.977	0.002	2.20E-04
GALVFN1-ST	Cold Mill	Galvanizing Furnace #1	64	560,640	0.050	0.082	5.88E-04	0.005	0.002	0.007	0.007	4.90E-07	116.977	0.002	2.20E-04
GALVFN2-ST	Cold Mill	Galvanizing Furnace #2	64	560,640	0.050	0.082	5.88E-04	0.005	0.002	0.007	0.007	4.90E-07	116.977	0.002	2.20E-04
GALVFUG	Cold Mill	Box Annealing Furnace #1	5	43,800	0.050	0.082	5.88E-04	0.005	0.002	0.007	0.007	4.90E-07	116.977	0.002	2.20E-04
GALVFUG	Cold Mill	Box Annealing Furnace #2	5	43,800	0.050	0.082	5.88E-04	0.005	0.002	0.007	0.007	4.90E-07	116.977	0.002	2.20E-04
GALVFUG	Cold Mill	Box Annealing Furnace #3	5	43,800	0.050	0.082	5.88E-04	0.005	0.002	0.007	0.007	4.90E-07	116.977	0.002	2.20E-04
GALVFUG	Cold Mill	Box Annealing Furnace #4	5	43,800	0.050	0.082	5.88E-04	0.005	0.002	0.007	0.007	4.90E-07	116.977	0.002	2.20E-04
GALVFUG	Cold Mill	Box Annealing Furnace #5	5	43,800	0.050	0.082	5.88E-04	0.005	0.002	0.007	0.007	4.90E-07	116.977	0.002	2.20E-04
GALVFUG	Cold Mill	Box Annealing Furnace #6	5	43,800	0.050	0.082	5.88E-04	0.005	0.002	0.007	0.007	4.90E-07	116.977	0.002	2.20E-04
GALVFUG	Cold Mill	Box Annealing Furnace #7	5	43,800	0.050	0.082	5.88E-04	0.005	0.002	0.007	0.007	4.90E-07	116.977	0.002	2.20E-04
GALVFUG	Cold Mill	Box Annealing Furnace #8	5	43,800	0.050	0.082	5.88E-04	0.005	0.002	0.007	0.007	4.90E-07	116.977	0.002	2.20E-04
GALVFUG	Cold Mill	Box Annealing Furnace #9	5	43,800	0.050	0.082	5.88E-04	0.005	0.002	0.007	0.007	4.90E-07	116.977	0.002	2.20E-04
GALVFUG	Cold Mill	Box Annealing Furnace #10	5	43,800	0.050	0.082	5.88E-04	0.005	0.002	0.007	0.007	4.90E-07	116.977	0.002	2.20E-04
GALVFUG	Cold Mill	Box Annealing Furnace #11	5	43,800	0.050	0.082	5.88E-04	0.005	0.002	0.007	0.007	4.90E-07	116.977	0.002	2.20E-04
GALVFUG	Cold Mill	Box Annealing Furnace #12	5	43,800	0.050	0.082	5.88E-04	0.005	0.002	0.007	0.007	4.90E-07	116.977	0.002	2.20E-04
GALVFUG	Cold Mill	Box Annealing Furnace #13	5	43,800	0.050	0.082	5.88E-04	0.005	0.002	0.007	0.007	4.90E-07	116.977	0.002	2.20E-04
GALVFUG	Cold Mill	Box Annealing Furnace #14	5	43,800	0.050	0.082	5.88E-04	0.005	0.002	0.007	0.007	4.90E-07	116.977	0.002	2.20E-04
GALVFUG	Cold Mill	Box Annealing Furnace #15	5	43,800	0.050	0.082	5.88E-04	0.005	0.002	0.007	0.007	4.90E-07	116.977	0.002	2.20E-04
GALVFUG	Cold Mill	Box Annealing Furnace #16	5	43,800	0.050	0.082	5.88E-04	0.005	0.002	0.007	0.007	4.90E-07	116.977	0.002	2.20E-04
GALVFUG	Cold Mill	Box Annealing Furnace #17	5	43,800	0.050	0.082	5.88E-04	0.005	0.002	0.007	0.007	4.90E-07	116.977	0.002	2.20E-04
GALVFUG	Cold Mill	Box Annealing Furnace #18	5	43,800	0.050	0.082	5.88E-04	0.005	0.002	0.007	0.007	4.90E-07	116.977	0.002	2.20E-04
GALVFUG	Cold Mill	Box Annealing Furnace #19	5	43,800	0.050	0.082	5.88E-04	0.005	0.002	0.007	0.007	4.90E-07	116.977	0.002	2.20E-04
GALVFUG	Cold Mill	Box Annealing Furnace #20	5	43,800	0.050	0.082	5.88E-04	0.005	0.002	0.007	0.007	4.90E-07	116.977	0.002	2.20E-04
GALVFUG	Cold Mill	Box Annealing Furnace #21	5	43,800	0.050	0.082	5.88E-04	0.005	0.002	0.007	0.007	4.90E-07	116.977	0.002	2.20E-04
GALVFUG	Cold Mill	Box Annealing Furnace #22	5	43,800	0.050	0.082	5.88E-04	0.005	0.002	0.007	0.007	4.90E-07	116.977	0.002	2.20E-04
TFST-1	Hot Mill	Hot Mill Tunnel Furnace 1	150	1,314,000	0.070	0.082	5.88E-04	0.005	0.002	0.007	0.007	4.90E-07	116.977	0.002	2.20E-04
SLAG-CUT-NG	Slag Cutting	Slag Cutting in Slag Processing Area	2.4	21,024	0.098	0.082	5.88E-04	0.005	0.002	0.007	0.007	4.90E-07	116.977	0.002	2.20E-04
ASP-1	Air Separation	Water Bath Vaporizer	11	96,360	0.098	0.082	5.88E-04	0.005	0.002	0.007	0.007	4.90E-07	116.977	0.002	2.20E-04

[1] NOx emission factor based on proposed BACT emission limits.

[2] Emission factor is based on AP-42 Section 1.4. Factor is converted to lb/MMBtu based on natural gas heat value.

[3] SO_2 emission factor is calculated based on AP-42 Section 1.4 emission factor and proposed natural gas sulfur content. Factor is converted to lb/MMBtu based on natural gas heat value.

[4] Emission factor is based on proposed BACT emission limits. Factor is converted to lb/MMBtu based on natural gas heat value. PM emission factor is filterable PM only. PM_{10} and $PM_{2.5}$ emission factors are filterable and condensable PM combined.

[5] Emission factors of GHGs are based on Tables C-1 and C-2 of 40 CFR Part 98.

CO_2e Potential

Global Warming Potentials (GWPs) [1]		
CO_2	CH_4	N_2O
1	25	298

[1] EPA GHG MRR rule (40 CFR 98, dated September 22, 2009), Table A-1. Updated GWP finalized on November 29, 2013.

NUCOR - Project Honey Badger
Natural Gas Combustion Emissions Calculation

Hourly Emissions Calculation

Emission Point ID	Unit	Description	Hourly Emissions[1] NO$_X$ (lb/hr)	CO (lb/hr)	SO$_2$[3] (lb/hr)	VOC (lb/hr)	PM (lb/hr)	PM$_{10}$ (lb/hr)	PM$_{2.5}$ (lb/hr)	Lead (lb/hr)	CO$_2$ (lb/hr)	CH$_4$ (lb/hr)	N$_2$O (lb/hr)	CO$_2$e (lb/hr)
MSFUG	Melt Shop	Ladle Dryer Fugitives	1.471	1.235	0.009	0.081	0.028	0.112	0.112	7.35E-06	1754.659	0.033	0.003	1756
MSFUG	Melt Shop	Horizontal Ladle Preheater 1 Fugitives	1.471	1.235	0.009	0.081	0.028	0.112	0.112	7.35E-06	1754.659	0.033	0.003	1756
MSFUG	Melt Shop	Horizontal Ladle Preheater 2 Fugitives	1.471	1.235	0.009	0.081	0.028	0.112	0.112	7.35E-06	1754.659	0.033	0.003	1756
MSFUG	Melt Shop	Horizontal Ladle Preheater 3 Fugitives	1.471	1.235	0.009	0.081	0.028	0.112	0.112	7.35E-06	1754.659	0.033	0.003	1756
MSFUG	Melt Shop	Horizontal Ladle Preheater 4 Fugitives	1.471	1.235	0.009	0.081	0.028	0.112	0.112	7.35E-06	1754.659	0.033	0.003	1756
MSFUG	Melt Shop	Horizontal Ladle Preheater 5 Fugitives	1.471	1.235	0.009	0.081	0.028	0.112	0.112	7.35E-06	1754.659	0.033	0.003	1756
MSFUG	Melt Shop	Vertical Ladle Preheater 6 Fugitives	1.471	1.235	0.009	0.081	0.028	0.112	0.112	7.35E-06	1754.659	0.033	0.003	1756
MSFUG	Melt Shop	Vertical Ladle Preheater 7 Fugitives	1.471	1.235	0.009	0.081	0.028	0.112	0.112	7.35E-06	1754.659	0.033	0.003	1756
MSFUG	Melt Shop	Tundish Dryer 1	0.588	0.494	0.004	0.032	0.011	0.045	0.045	2.94E-06	702	0.013	0.001	703
MSFUG	Melt Shop	Tundish Preheater 1	0.882	0.741	0.005	0.049	0.017	0.067	0.067	4.41E-06	1,053	0.020	0.002	1,054
MSFUG	Melt Shop	Tundish Preheater 2	0.882	0.741	0.005	0.049	0.017	0.067	0.067	4.41E-06	1,053	0.020	0.002	1,054
MSFUG	Melt Shop	Subentry Nozzle (SEN) Preheater 1	0.098	0.082	0.001	0.005	0.002	0.007	0.007	4.90E-07	117	0.002	0.000	117
MSFUG	Melt Shop	Subentry Nozzle (SEN) Preheater 2	0.098	0.082	0.001	0.005	0.002	0.007	0.007	4.90E-07	117	0.002	0.000	117
GALVFN1-ST	Cold Mill	Galvanizing Furnace #1	3.200	5.271	0.038	0.345	0.119	0.477	0.477	3.14E-05	7,487	0.141	0.014	7,494
GALVFN2-ST	Cold Mill	Galvanizing Furnace #2	3.200	5.271	0.038	0.345	0.119	0.477	0.477	3.14E-05	7,487	0.141	0.014	7,494
GALVFUG	Cold Mill	Box Annealing Furnace #1	0.250	0.412	0.003	0.027	0.009	0.037	0.037	2.45E-06	585	0.011	0.001	585
GALVFUG	Cold Mill	Box Annealing Furnace #2	0.250	0.412	0.003	0.027	0.009	0.037	0.037	2.45E-06	585	0.011	0.001	585
GALVFUG	Cold Mill	Box Annealing Furnace #3	0.250	0.412	0.003	0.027	0.009	0.037	0.037	2.45E-06	585	0.011	0.001	585
GALVFUG	Cold Mill	Box Annealing Furnace #4	0.250	0.412	0.003	0.027	0.009	0.037	0.037	2.45E-06	585	0.011	0.001	585
GALVFUG	Cold Mill	Box Annealing Furnace #5	0.250	0.412	0.003	0.027	0.009	0.037	0.037	2.45E-06	585	0.011	0.001	585
GALVFUG	Cold Mill	Box Annealing Furnace #6	0.250	0.412	0.003	0.027	0.009	0.037	0.037	2.45E-06	585	0.011	0.001	585
GALVFUG	Cold Mill	Box Annealing Furnace #7	0.250	0.412	0.003	0.027	0.009	0.037	0.037	2.45E-06	585	0.011	0.001	585
GALVFUG	Cold Mill	Box Annealing Furnace #8	0.250	0.412	0.003	0.027	0.009	0.037	0.037	2.45E-06	585	0.011	0.001	585
GALVFUG	Cold Mill	Box Annealing Furnace #9	0.250	0.412	0.003	0.027	0.009	0.037	0.037	2.45E-06	585	0.011	0.001	585
GALVFUG	Cold Mill	Box Annealing Furnace #10	0.250	0.412	0.003	0.027	0.009	0.037	0.037	2.45E-06	585	0.011	0.001	585
GALVFUG	Cold Mill	Box Annealing Furnace #11	0.250	0.412	0.003	0.027	0.009	0.037	0.037	2.45E-06	585	0.011	0.001	585
GALVFUG	Cold Mill	Box Annealing Furnace #12	0.250	0.412	0.003	0.027	0.009	0.037	0.037	2.45E-06	585	0.011	0.001	585
GALVFUG	Cold Mill	Box Annealing Furnace #13	0.250	0.412	0.003	0.027	0.009	0.037	0.037	2.45E-06	585	0.011	0.001	585
GALVFUG	Cold Mill	Box Annealing Furnace #14	0.250	0.412	0.003	0.027	0.009	0.037	0.037	2.45E-06	585	0.011	0.001	585
GALVFUG	Cold Mill	Box Annealing Furnace #15	0.250	0.412	0.003	0.027	0.009	0.037	0.037	2.45E-06	585	0.011	0.001	585
GALVFUG	Cold Mill	Box Annealing Furnace #16	0.250	0.412	0.003	0.027	0.009	0.037	0.037	2.45E-06	585	0.011	0.001	585
GALVFUG	Cold Mill	Box Annealing Furnace #17	0.250	0.412	0.003	0.027	0.009	0.037	0.037	2.45E-06	585	0.011	0.001	585
GALVFUG	Cold Mill	Box Annealing Furnace #18	0.250	0.412	0.003	0.027	0.009	0.037	0.037	2.45E-06	585	0.011	0.001	585
GALVFUG	Cold Mill	Box Annealing Furnace #19	0.250	0.412	0.003	0.027	0.009	0.037	0.037	2.45E-06	585	0.011	0.001	585
GALVFUG	Cold Mill	Box Annealing Furnace #20	0.250	0.412	0.003	0.027	0.009	0.037	0.037	2.45E-06	585	0.011	0.001	585
GALVFUG	Cold Mill	Box Annealing Furnace #21	0.250	0.412	0.003	0.027	0.009	0.037	0.037	2.45E-06	585	0.011	0.001	585
GALVFUG	Cold Mill	Box Annealing Furnace #22	0.250	0.412	0.003	0.027	0.009	0.037	0.037	2.45E-06	585	0.011	0.001	585
TFST-1	Hot Mill	Hot Mill Tunnel Furnace 1	10.500	12.353	0.088	0.809	0.279	1.118	1.118	7.35E-05	17,547	0.331	0.033	17,565
SLAG-CUT-NG	Slag Cutting	Slag Cutting in Slag Processing Area	0.235	0.198	0.001	0.013	0.004	0.018	0.018	1.18E-06	281	0.005	0.001	281
ASP-1	Air Separation	Water Bath Vaporizer	1.078	0.906	0.006	0.059	0.020	0.082	0.082	5.39E-06	1,287	0.024	0.002	1,288
		Total	**38.027**	**45.080**	**0.322**	**2.952**	**1.020**	**4.079**	**4.079**	**2.68E-04**	**64,033**	**1.207**	**0.121**	**64,099**

[1] Hourly Emissions (lb/hr) = Heat Input (MMBtu/hr) x Emission Factor (lb/MMBtu)

EPN MSFUG NO$_x$ Hourly Emissions (lb/hr) = $\frac{15\ \text{MMBtu}}{\text{hr}} \times \frac{0.098\ \text{lb}}{\text{MMBtu}}$ = 1.47 lb/hr

NUCOR - Project Honey Badger
Natural Gas Combustion Emissions Calculation

Annual Emissions Calculation

Emission Point ID	Unit	Description	Annual Emissions[1] NO_X (tpy)	CO (tpy)	SO_2[3] (tpy)	VOC (tpy)	PM (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)	Lead (tpy)	CO_2 (tpy)	CH_4 (tpy)	N_2O (tpy)	CO_2e (tpy)
MSFUG	Melt Shop	Ladle Dryer Fugitives	6.441	5.411	0.039	0.354	0.122	0.490	0.490	3.22E-05	7,685	0.145	0.014	7,693
MSFUG	Melt Shop	Horizontal Ladle Preheater 1 Fugitives	6.441	5.411	0.039	0.354	0.122	0.490	0.490	3.22E-05	7,685	0.145	0.014	7,693
MSFUG	Melt Shop	Horizontal Ladle Preheater 2 Fugitives	6.441	5.411	0.039	0.354	0.122	0.490	0.490	3.22E-05	7,685	0.145	0.014	7,693
MSFUG	Melt Shop	Horizontal Ladle Preheater 3 Fugitives	6.441	5.411	0.039	0.354	0.122	0.490	0.490	3.22E-05	7,685	0.145	0.014	7,693
MSFUG	Melt Shop	Horizontal Ladle Preheater 4 Fugitives	6.441	5.411	0.039	0.354	0.122	0.490	0.490	3.22E-05	7,685	0.145	0.014	7,693
MSFUG	Melt Shop	Horizontal Ladle Preheater 5 Fugitives	6.441	5.411	0.039	0.354	0.122	0.490	0.490	3.22E-05	7,685	0.145	0.014	7,693
MSFUG	Melt Shop	Vertical Ladle Preheater 6 Fugitives	6.441	5.411	0.039	0.354	0.122	0.490	0.490	3.22E-05	7,685	0.145	0.014	7,693
MSFUG	Melt Shop	Vertical Ladle Preheater 7 Fugitives	6.441	5.411	0.039	0.354	0.122	0.490	0.490	3.22E-05	7,685	0.145	0.014	7,693
MSFUG	Melt Shop	Tundish Dryer 1	2.576	2.164	0.015	0.142	0.049	0.196	0.196	1.29E-05	3,074	0.058	0.006	3,077
MSFUG	Melt Shop	Tundish Preheater 1	3.865	3.246	0.023	0.213	0.073	0.294	0.294	1.93E-05	4,611	0.087	0.009	4,616
MSFUG	Melt Shop	Tundish Preheater 2	3.865	3.246	0.023	0.213	0.073	0.294	0.294	1.93E-05	4,611	0.087	0.009	4,616
MSFUG	Melt Shop	Subentry Nozzle (SEN) Preheater 1	0.429	0.361	0.003	0.024	0.008	0.033	0.033	2.15E-06	512	0.010	0.001	513
MSFUG	Melt Shop	Subentry Nozzle (SEN) Preheater 2	0.429	0.361	0.003	0.024	0.008	0.033	0.033	2.15E-06	512	0.010	0.001	513
GALVFN1-ST	Cold Mill	Galvanizing Furnace #1	14.016	23.085	0.165	1.512	0.522	2.089	2.089	1.37E-04	32,791	0.618	0.062	32,825
GALVFN2-ST	Cold Mill	Galvanizing Furnace #2	14.016	23.085	0.165	1.512	0.522	2.089	2.089	1.37E-04	32,791	0.618	0.062	32,825
GALVFUG	Cold Mill	Box Annealing Furnace #1	1.095	1.804	0.013	0.118	0.041	0.163	0.163	1.07E-05	2,562	0.048	0.005	2,564
GALVFUG	Cold Mill	Box Annealing Furnace #2	1.095	1.804	0.013	0.118	0.041	0.163	0.163	1.07E-05	2,562	0.048	0.005	2,564
GALVFUG	Cold Mill	Box Annealing Furnace #3	1.095	1.804	0.013	0.118	0.041	0.163	0.163	1.07E-05	2,562	0.048	0.005	2,564
GALVFUG	Cold Mill	Box Annealing Furnace #4	1.095	1.804	0.013	0.118	0.041	0.163	0.163	1.07E-05	2,562	0.048	0.005	2,564
GALVFUG	Cold Mill	Box Annealing Furnace #5	1.095	1.804	0.013	0.118	0.041	0.163	0.163	1.07E-05	2,562	0.048	0.005	2,564
GALVFUG	Cold Mill	Box Annealing Furnace #6	1.095	1.804	0.013	0.118	0.041	0.163	0.163	1.07E-05	2,562	0.048	0.005	2,564
GALVFUG	Cold Mill	Box Annealing Furnace #7	1.095	1.804	0.013	0.118	0.041	0.163	0.163	1.07E-05	2,562	0.048	0.005	2,564
GALVFUG	Cold Mill	Box Annealing Furnace #8	1.095	1.804	0.013	0.118	0.041	0.163	0.163	1.07E-05	2,562	0.048	0.005	2,564
GALVFUG	Cold Mill	Box Annealing Furnace #9	1.095	1.804	0.013	0.118	0.041	0.163	0.163	1.07E-05	2,562	0.048	0.005	2,564
GALVFUG	Cold Mill	Box Annealing Furnace #10	1.095	1.804	0.013	0.118	0.041	0.163	0.163	1.07E-05	2,562	0.048	0.005	2,564
GALVFUG	Cold Mill	Box Annealing Furnace #11	1.095	1.804	0.013	0.118	0.041	0.163	0.163	1.07E-05	2,562	0.048	0.005	2,564
GALVFUG	Cold Mill	Box Annealing Furnace #12	1.095	1.804	0.013	0.118	0.041	0.163	0.163	1.07E-05	2,562	0.048	0.005	2,564
GALVFUG	Cold Mill	Box Annealing Furnace #13	1.095	1.804	0.013	0.118	0.041	0.163	0.163	1.07E-05	2,562	0.048	0.005	2,564
GALVFUG	Cold Mill	Box Annealing Furnace #14	1.095	1.804	0.013	0.118	0.041	0.163	0.163	1.07E-05	2,562	0.048	0.005	2,564
GALVFUG	Cold Mill	Box Annealing Furnace #15	1.095	1.804	0.013	0.118	0.041	0.163	0.163	1.07E-05	2,562	0.048	0.005	2,564
GALVFUG	Cold Mill	Box Annealing Furnace #16	1.095	1.804	0.013	0.118	0.041	0.163	0.163	1.07E-05	2,562	0.048	0.005	2,564
GALVFUG	Cold Mill	Box Annealing Furnace #17	1.095	1.804	0.013	0.118	0.041	0.163	0.163	1.07E-05	2,562	0.048	0.005	2,564
GALVFUG	Cold Mill	Box Annealing Furnace #18	1.095	1.804	0.013	0.118	0.041	0.163	0.163	1.07E-05	2,562	0.048	0.005	2,564
GALVFUG	Cold Mill	Box Annealing Furnace #19	1.095	1.804	0.013	0.118	0.041	0.163	0.163	1.07E-05	2,562	0.048	0.005	2,564
GALVFUG	Cold Mill	Box Annealing Furnace #20	1.095	1.804	0.013	0.118	0.041	0.163	0.163	1.07E-05	2,562	0.048	0.005	2,564
GALVFUG	Cold Mill	Box Annealing Furnace #21	1.095	1.804	0.013	0.118	0.041	0.163	0.163	1.07E-05	2,562	0.048	0.005	2,564
GALVFUG	Cold Mill	Box Annealing Furnace #22	1.095	1.804	0.013	0.118	0.041	0.163	0.163	1.07E-05	2,562	0.048	0.005	2,564
TFST-1	Hot Mill	Hot Mill Tunnel Furnace 1	45.990	54.106	0.386	3.543	1.224	4.895	4.895	3.22E-04	76,854	1.448	0.145	76,933
SLAG-CUT-NG	Slag Cutting	Slag Cutting in Slag Processing Area	1.031	0.866	0.006	0.057	0.020	0.078	0.078	5.15E-06	1,230	0.023	0.002	1,231
ASP-1	Air Separation	Water Bath Vaporizer	4.724	3.968	0.028	0.260	0.090	0.359	0.359	2.36E-05	5,636	0.106	0.011	5,642
		Total	**166.560**	**197.450**	**1.410**	**12.928**	**4.466**	**17.865**	**17.865**	**1.18E-03**	**280,466**	**5.286**	**0.529**	**280,756**

[1] Annual Emissions (tpy) = Heat Input (MMBtu/yr) x Emission Factor (lb/MMBtu) / 2,000 (lb/ton)

EPN MSFUG NO_x Annual Emissions (tpy) = $\frac{131{,}400\ \text{MMBtu}}{\text{yr}} \times \frac{0.098\ \text{lb}}{\text{MMBtu}} \times \frac{\text{ton}}{2{,}000\ \text{lb}}$ = 6.44 tpy

NUCOR - Project Honey Badger
Natural Gas Combustion HAP Emissions Calculation

Heat Input and Emission Factor

Emission Point ID	Unit	Description	Heat Input		Emission Factor[1,2]						
			Hourly (MMBtu/hr)	Annual (MMBtu/yr)	Benzene (lb/MMBtu)	Dichlorobenzene (lb/MMBtu)	Formaldehyde (lb/MMBtu)	N-Hexane (lb/MMBtu)	Naphthalene (lb/MMBtu)	Toluene (lb/MMBtu)	PAHs (lb/MMBtu)
MSFUG	Melt Shop	Ladle Dryer Fugitives	15	131,400	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
MSFUG	Melt Shop	Horizontal Ladle Preheater 1 Fugitives	15	131,400	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
MSFUG	Melt Shop	Horizontal Ladle Preheater 2 Fugitives	15	131,400	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
MSFUG	Melt Shop	Horizontal Ladle Preheater 3 Fugitives	15	131,400	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
MSFUG	Melt Shop	Horizontal Ladle Preheater 4 Fugitives	15	131,400	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
MSFUG	Melt Shop	Horizontal Ladle Preheater 5 Fugitives	15	131,400	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
MSFUG	Melt Shop	Vertical Ladle Preheater 6 Fugitives	15	131,400	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
MSFUG	Melt Shop	Vertical Ladle Preheater 7 Fugitives	15	131,400	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
MSFUG	Melt Shop	Tundish Dryer 1	6	52,560	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
MSFUG	Melt Shop	Tundish Preheater 1	9	78,840	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
MSFUG	Melt Shop	Tundish Preheater 2	9	78,840	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
MSFUG	Melt Shop	Subentry Nozzle (SEN) Preheater 1	1	8,760	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
MSFUG	Melt Shop	Subentry Nozzle (SEN) Preheater 2	1	8,760	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
GALVFN1-ST	Cold Mill	Galvanizing Furnace #1	64	560,640	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
GALVFN2-ST	Cold Mill	Galvanizing Furnace #2	64	560,640	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
GALVFUG	Cold Mill	Box Annealing Furnace #1	5	43,800	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
GALVFUG	Cold Mill	Box Annealing Furnace #2	5	43,800	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
GALVFUG	Cold Mill	Box Annealing Furnace #3	5	43,800	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
GALVFUG	Cold Mill	Box Annealing Furnace #4	5	43,800	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
GALVFUG	Cold Mill	Box Annealing Furnace #5	5	43,800	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
GALVFUG	Cold Mill	Box Annealing Furnace #6	5	43,800	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
GALVFUG	Cold Mill	Box Annealing Furnace #7	5	43,800	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
GALVFUG	Cold Mill	Box Annealing Furnace #8	5	43,800	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
GALVFUG	Cold Mill	Box Annealing Furnace #9	5	43,800	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
GALVFUG	Cold Mill	Box Annealing Furnace #10	5	43,800	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
GALVFUG	Cold Mill	Box Annealing Furnace #11	5	43,800	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
GALVFUG	Cold Mill	Box Annealing Furnace #12	5	43,800	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
GALVFUG	Cold Mill	Box Annealing Furnace #13	5	43,800	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
GALVFUG	Cold Mill	Box Annealing Furnace #14	5	43,800	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
GALVFUG	Cold Mill	Box Annealing Furnace #15	5	43,800	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
GALVFUG	Cold Mill	Box Annealing Furnace #16	5	43,800	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
GALVFUG	Cold Mill	Box Annealing Furnace #17	5	43,800	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
GALVFUG	Cold Mill	Box Annealing Furnace #18	5	43,800	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
GALVFUG	Cold Mill	Box Annealing Furnace #19	5	43,800	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
GALVFUG	Cold Mill	Box Annealing Furnace #20	5	43,800	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
GALVFUG	Cold Mill	Box Annealing Furnace #21	5	43,800	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
GALVFUG	Cold Mill	Box Annealing Furnace #22	5	43,800	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
TFST-1	Hot Mill	Hot Mill Tunnel Furnace 1	150	1,314,000	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
SLAG-CUT-NG	Slag Cutting	Slag Cutting in Slag Processing Area	2.4	21,024	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
ASP-1	Air Separation	Water Bath Vaporizer	11	96,360	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
VTDST1	Melt Shop	Vacuum Tank 1	12.37157534	108,523	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
VTDST2	Melt Shop	Vacuum Tank 2	12.4	108,523	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08

[1] Emission factors based on AP-42 Section 1.4, Natural Gas Combustion, Table 1.4-3 (July 1998).

Polycyclic Aromatic Compounds (PAHs) with two or more aromatic rings are grouped (except for naphathalene) and represented as PAHs.

[2] AP-42 emission factors are converted to heat input rating by dividing by natural gas heating value of 1,020 Btu/scf.

NUCOR - Project Honey Badger
Natural Gas Combustion HAP Emissions Calculation

Hourly Emissions Calculation

Emission Point ID	Unit	Description	Hourly Emissions[1,2] Benzene (lb/hr)	Dichlorobenzene (lb/hr)	Formaldehyde (lb/hr)	N-Hexane (lb/hr)	Naphthalene (lb/hr)	Toluene (lb/hr)	PAHs (lb/hr)
BHST-1	Melt Shop	Pulse Jet Fabric Filter Baghouse 1	1.17E-04	6.71E-05	4.19E-03	1.01E-01	3.41E-05	1.90E-04	4.93E-06
BHST-2	Melt Shop	Pulse Jet Fabric Filter Baghouse 2	1.17E-04	6.71E-05	4.19E-03	1.01E-01	3.41E-05	1.90E-04	4.93E-06
MSFUG	Melt Shop	Ladle Dryer Fugitives	1.54E-06	8.82E-07	5.51E-05	1.32E-03	4.49E-07	2.50E-06	6.49E-08
MSFUG	Melt Shop	Horizontal Ladle Preheater 1 Fugitives	1.54E-06	8.82E-07	5.51E-05	1.32E-03	4.49E-07	2.50E-06	6.49E-08
MSFUG	Melt Shop	Horizontal Ladle Preheater 2 Fugitives	1.54E-06	8.82E-07	5.51E-05	1.32E-03	4.49E-07	2.50E-06	6.49E-08
MSFUG	Melt Shop	Horizontal Ladle Preheater 3 Fugitives	1.54E-06	8.82E-07	5.51E-05	1.32E-03	4.49E-07	2.50E-06	6.49E-08
MSFUG	Melt Shop	Horizontal Ladle Preheater 4 Fugitives	1.54E-06	8.82E-07	5.51E-05	1.32E-03	4.49E-07	2.50E-06	6.49E-08
MSFUG	Melt Shop	Horizontal Ladle Preheater 5 Fugitives	1.54E-06	8.82E-07	5.51E-05	1.32E-03	4.49E-07	2.50E-06	6.49E-08
MSFUG	Melt Shop	Vertical Ladle Preheater 6 Fugitives	1.54E-06	8.82E-07	5.51E-05	1.32E-03	4.49E-07	2.50E-06	6.49E-08
MSFUG	Melt Shop	Vertical Ladle Preheater 7 Fugitives	1.54E-06	8.82E-07	5.51E-05	1.32E-03	4.49E-07	2.50E-06	6.49E-08
MSFUG	Melt Shop	Tundish Dryer 1	1.24E-05	7.06E-06	4.41E-04	1.06E-02	3.59E-06	2.00E-05	5.19E-07
MSFUG	Melt Shop	Tundish Preheater 1	1.85E-05	1.06E-05	6.62E-04	1.59E-02	5.38E-06	3.00E-05	7.78E-07
MSFUG	Melt Shop	Tundish Preheater 2	1.85E-05	1.06E-05	6.62E-04	1.59E-02	5.38E-06	3.00E-05	7.78E-07
MSFUG	Melt Shop	Subentry Nozzle (SEN) Preheater 1	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
MSFUG	Melt Shop	Subentry Nozzle (SEN) Preheater 2	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
GALVFN1-ST	Cold Mill	Galvanizing Furnace #1	1.32E-04	7.53E-05	4.71E-03	1.13E-01	3.83E-05	2.13E-04	5.53E-06
GALVFN2-ST	Cold Mill	Galvanizing Furnace #2	1.32E-04	7.53E-05	4.71E-03	1.13E-01	3.83E-05	2.13E-04	5.53E-06
GALVFUG	Cold Mill	Box Annealing Furnace #1	1.03E-05	5.88E-06	3.68E-04	8.82E-03	2.99E-06	1.67E-05	4.32E-07
GALVFUG	Cold Mill	Box Annealing Furnace #2	1.03E-05	5.88E-06	3.68E-04	8.82E-03	2.99E-06	1.67E-05	4.32E-07
GALVFUG	Cold Mill	Box Annealing Furnace #3	1.03E-05	5.88E-06	3.68E-04	8.82E-03	2.99E-06	1.67E-05	4.32E-07
GALVFUG	Cold Mill	Box Annealing Furnace #4	1.03E-05	5.88E-06	3.68E-04	8.82E-03	2.99E-06	1.67E-05	4.32E-07
GALVFUG	Cold Mill	Box Annealing Furnace #5	1.03E-05	5.88E-06	3.68E-04	8.82E-03	2.99E-06	1.67E-05	4.32E-07
GALVFUG	Cold Mill	Box Annealing Furnace #6	1.03E-05	5.88E-06	3.68E-04	8.82E-03	2.99E-06	1.67E-05	4.32E-07
GALVFUG	Cold Mill	Box Annealing Furnace #7	1.03E-05	5.88E-06	3.68E-04	8.82E-03	2.99E-06	1.67E-05	4.32E-07
GALVFUG	Cold Mill	Box Annealing Furnace #8	1.03E-05	5.88E-06	3.68E-04	8.82E-03	2.99E-06	1.67E-05	4.32E-07
GALVFUG	Cold Mill	Box Annealing Furnace #9	1.03E-05	5.88E-06	3.68E-04	8.82E-03	2.99E-06	1.67E-05	4.32E-07
GALVFUG	Cold Mill	Box Annealing Furnace #10	1.03E-05	5.88E-06	3.68E-04	8.82E-03	2.99E-06	1.67E-05	4.32E-07
GALVFUG	Cold Mill	Box Annealing Furnace #11	1.03E-05	5.88E-06	3.68E-04	8.82E-03	2.99E-06	1.67E-05	4.32E-07
GALVFUG	Cold Mill	Box Annealing Furnace #12	1.03E-05	5.88E-06	3.68E-04	8.82E-03	2.99E-06	1.67E-05	4.32E-07
GALVFUG	Cold Mill	Box Annealing Furnace #13	1.03E-05	5.88E-06	3.68E-04	8.82E-03	2.99E-06	1.67E-05	4.32E-07
GALVFUG	Cold Mill	Box Annealing Furnace #14	1.03E-05	5.88E-06	3.68E-04	8.82E-03	2.99E-06	1.67E-05	4.32E-07
GALVFUG	Cold Mill	Box Annealing Furnace #15	1.03E-05	5.88E-06	3.68E-04	8.82E-03	2.99E-06	1.67E-05	4.32E-07
GALVFUG	Cold Mill	Box Annealing Furnace #16	1.03E-05	5.88E-06	3.68E-04	8.82E-03	2.99E-06	1.67E-05	4.32E-07
GALVFUG	Cold Mill	Box Annealing Furnace #17	1.03E-05	5.88E-06	3.68E-04	8.82E-03	2.99E-06	1.67E-05	4.32E-07
GALVFUG	Cold Mill	Box Annealing Furnace #18	1.03E-05	5.88E-06	3.68E-04	8.82E-03	2.99E-06	1.67E-05	4.32E-07
GALVFUG	Cold Mill	Box Annealing Furnace #19	1.03E-05	5.88E-06	3.68E-04	8.82E-03	2.99E-06	1.67E-05	4.32E-07
GALVFUG	Cold Mill	Box Annealing Furnace #20	1.03E-05	5.88E-06	3.68E-04	8.82E-03	2.99E-06	1.67E-05	4.32E-07
GALVFUG	Cold Mill	Box Annealing Furnace #21	1.03E-05	5.88E-06	3.68E-04	8.82E-03	2.99E-06	1.67E-05	4.32E-07
GALVFUG	Cold Mill	Box Annealing Furnace #22	1.03E-05	5.88E-06	3.68E-04	8.82E-03	2.99E-06	1.67E-05	4.32E-07
TFST-1	Hot Mill	Hot Mill Tunnel Furnace 1	3.09E-04	1.76E-04	1.10E-02	2.65E-01	8.97E-05	5.00E-04	1.30E-05
SLAG-CUT-NG	Slag Cutting	Slag Cutting in Slag Processing Area	4.94E-06	2.82E-06	1.76E-04	4.24E-03	1.44E-06	8.00E-06	2.08E-07
ASP-1	Air Separation	Water Bath Vaporizer	2.26E-05	1.29E-05	8.09E-04	1.94E-02	6.58E-06	3.67E-05	9.51E-07
VTDST1	Melt Shop	Vacuum Tank 1	2.55E-05	1.46E-05	9.10E-04	2.18E-02	7.40E-06	4.12E-05	1.07E-06
VTDST2	Melt Shop	Vacuum Tank 2	2.55E-05	1.46E-05	9.10E-04	2.18E-02	7.40E-06	4.12E-05	1.07E-06
		Total	**1.18E-03**	**6.73E-04**	**4.21E-02**	**1.01E+00**	**3.42E-04**	**1.91E-03**	**4.95E-05**

[1] 95% of ladle process emissions are captured by the canopy hood and 5% are released into the Melt Shop Area as Melt Shop fugitives (EPN MSFUG).

Ladle Hourly Emissions (lb/hr) = Heat Input (MMBtu/hr) x Emission Factor (lb/MMBtu) x Capture Efficiency (%)

EPN MSFUG Benzene Hourly Emissions (lb/hr) = 15 MMBtu / hr | 2.06E-06 lb / MMBtu | 5 % = 1.54E-06 lb/hr

EPN BHST-1 / BHST-2 Benzene Hourly Emissions (lb/hr) = 120 MMBtu / hr | 2.06E-06 lb / MMBtu | 95 % / 2 = 1.17E-04 lb/hr

[2] Hourly Emissions (lb/hr) = Heat Input (MMBtu/hr) x Emission Factor (lb/MMBtu)

EPN MSFUG Benzene Hourly Emissions (lb/hr) = 6 MMBtu / hr | 2.06E-06 lb / MMBtu = 1.24E-05 lb/hr

NUCOR - Project Honey Badger
Natural Gas Combustion HAP Emissions Calculation

Annual Emissions Calculation

Emission Point ID	Unit	Description	Annual Emissions[1] Benzene (tpy)	Dichlorobenzene (tpy)	Formaldehyde (tpy)	N-Hexane (tpy)	Naphthalene (tpy)	Toluene (tpy)	PAHs (tpy)
BHST-1	Melt Shop	Pulse Jet Fabric Filter Baghouse 1	5.14E-04	2.94E-04	1.84E-02	4.41E-01	1.49E-04	8.32E-04	2.16E-05
BHST-2	Melt Shop	Pulse Jet Fabric Filter Baghouse 2	5.14E-04	2.94E-04	1.84E-02	4.41E-01	1.49E-04	8.32E-04	2.16E-05
MSFUG	Melt Shop	Ladle Dryer Fugitives	6.76E-06	3.86E-06	2.42E-04	5.80E-03	1.96E-06	1.10E-05	2.84E-07
MSFUG	Melt Shop	Horizontal Ladle Preheater 1 Fugitives	6.76E-06	3.86E-06	2.42E-04	5.80E-03	1.96E-06	1.10E-05	2.84E-07
MSFUG	Melt Shop	Horizontal Ladle Preheater 2 Fugitives	6.76E-06	3.86E-06	2.42E-04	5.80E-03	1.96E-06	1.10E-05	2.84E-07
MSFUG	Melt Shop	Horizontal Ladle Preheater 3 Fugitives	6.76E-06	3.86E-06	2.42E-04	5.80E-03	1.96E-06	1.10E-05	2.84E-07
MSFUG	Melt Shop	Horizontal Ladle Preheater 4 Fugitives	6.76E-06	3.86E-06	2.42E-04	5.80E-03	1.96E-06	1.10E-05	2.84E-07
MSFUG	Melt Shop	Horizontal Ladle Preheater 5 Fugitives	6.76E-06	3.86E-06	2.42E-04	5.80E-03	1.96E-06	1.10E-05	2.84E-07
MSFUG	Melt Shop	Vertical Ladle Preheater 6 Fugitives	6.76E-06	3.86E-06	2.42E-04	5.80E-03	1.96E-06	1.10E-05	2.84E-07
MSFUG	Melt Shop	Vertical Ladle Preheater 7 Fugitives	6.76E-06	3.86E-06	2.42E-04	5.80E-03	1.96E-06	1.10E-05	2.84E-07
MSFUG	Melt Shop	Tundish Dryer 1	5.41E-05	3.09E-05	1.93E-03	4.64E-02	1.57E-05	8.76E-05	2.27E-06
MSFUG	Melt Shop	Tundish Preheater 1	8.12E-05	4.64E-05	2.90E-03	6.96E-02	2.36E-05	1.31E-04	3.41E-06
MSFUG	Melt Shop	Tundish Preheater 2	8.12E-05	4.64E-05	2.90E-03	6.96E-02	2.36E-05	1.31E-04	3.41E-06
MSFUG	Melt Shop	Subentry Nozzle (SEN) Preheater 1	9.02E-06	5.15E-06	3.22E-04	7.73E-03	2.62E-06	1.46E-05	3.79E-07
MSFUG	Melt Shop	Subentry Nozzle (SEN) Preheater 2	9.02E-06	5.15E-06	3.22E-04	7.73E-03	2.62E-06	1.46E-05	3.79E-07
GALVFN1-ST	Cold Mill	Galvanizing Furnace #1	5.77E-04	3.30E-04	2.06E-02	4.95E-01	1.68E-04	9.34E-04	2.42E-05
GALVFN2-ST	Cold Mill	Galvanizing Furnace #2	5.77E-04	3.30E-04	2.06E-02	4.95E-01	1.68E-04	9.34E-04	2.42E-05
GALVFUG	Cold Mill	Box Annealing Furnace #1	4.51E-05	2.58E-05	1.61E-03	3.86E-02	1.31E-05	7.30E-05	1.89E-06
GALVFUG	Cold Mill	Box Annealing Furnace #2	4.51E-05	2.58E-05	1.61E-03	3.86E-02	1.31E-05	7.30E-05	1.89E-06
GALVFUG	Cold Mill	Box Annealing Furnace #3	4.51E-05	2.58E-05	1.61E-03	3.86E-02	1.31E-05	7.30E-05	1.89E-06
GALVFUG	Cold Mill	Box Annealing Furnace #4	4.51E-05	2.58E-05	1.61E-03	3.86E-02	1.31E-05	7.30E-05	1.89E-06
GALVFUG	Cold Mill	Box Annealing Furnace #5	4.51E-05	2.58E-05	1.61E-03	3.86E-02	1.31E-05	7.30E-05	1.89E-06
GALVFUG	Cold Mill	Box Annealing Furnace #6	4.51E-05	2.58E-05	1.61E-03	3.86E-02	1.31E-05	7.30E-05	1.89E-06
GALVFUG	Cold Mill	Box Annealing Furnace #7	4.51E-05	2.58E-05	1.61E-03	3.86E-02	1.31E-05	7.30E-05	1.89E-06
GALVFUG	Cold Mill	Box Annealing Furnace #8	4.51E-05	2.58E-05	1.61E-03	3.86E-02	1.31E-05	7.30E-05	1.89E-06
GALVFUG	Cold Mill	Box Annealing Furnace #9	4.51E-05	2.58E-05	1.61E-03	3.86E-02	1.31E-05	7.30E-05	1.89E-06
GALVFUG	Cold Mill	Box Annealing Furnace #10	4.51E-05	2.58E-05	1.61E-03	3.86E-02	1.31E-05	7.30E-05	1.89E-06
GALVFUG	Cold Mill	Box Annealing Furnace #11	4.51E-05	2.58E-05	1.61E-03	3.86E-02	1.31E-05	7.30E-05	1.89E-06
GALVFUG	Cold Mill	Box Annealing Furnace #12	4.51E-05	2.58E-05	1.61E-03	3.86E-02	1.31E-05	7.30E-05	1.89E-06
GALVFUG	Cold Mill	Box Annealing Furnace #13	4.51E-05	2.58E-05	1.61E-03	3.86E-02	1.31E-05	7.30E-05	1.89E-06
GALVFUG	Cold Mill	Box Annealing Furnace #14	4.51E-05	2.58E-05	1.61E-03	3.86E-02	1.31E-05	7.30E-05	1.89E-06
GALVFUG	Cold Mill	Box Annealing Furnace #15	4.51E-05	2.58E-05	1.61E-03	3.86E-02	1.31E-05	7.30E-05	1.89E-06
GALVFUG	Cold Mill	Box Annealing Furnace #16	4.51E-05	2.58E-05	1.61E-03	3.86E-02	1.31E-05	7.30E-05	1.89E-06
GALVFUG	Cold Mill	Box Annealing Furnace #17	4.51E-05	2.58E-05	1.61E-03	3.86E-02	1.31E-05	7.30E-05	1.89E-06
GALVFUG	Cold Mill	Box Annealing Furnace #18	4.51E-05	2.58E-05	1.61E-03	3.86E-02	1.31E-05	7.30E-05	1.89E-06
GALVFUG	Cold Mill	Box Annealing Furnace #19	4.51E-05	2.58E-05	1.61E-03	3.86E-02	1.31E-05	7.30E-05	1.89E-06
GALVFUG	Cold Mill	Box Annealing Furnace #20	4.51E-05	2.58E-05	1.61E-03	3.86E-02	1.31E-05	7.30E-05	1.89E-06
GALVFUG	Cold Mill	Box Annealing Furnace #21	4.51E-05	2.58E-05	1.61E-03	3.86E-02	1.31E-05	7.30E-05	1.89E-06
GALVFUG	Cold Mill	Box Annealing Furnace #22	4.51E-05	2.58E-05	1.61E-03	3.86E-02	1.31E-05	7.30E-05	1.89E-06
TFST-1	Hot Mill	Hot Mill Tunnel Furnace 1	1.35E-03	7.73E-04	4.83E-02	1.16E+00	3.93E-04	2.19E-03	5.68E-05
SLAG-CUT-NG	Slag Cutting	Slag Cutting in Slag Processing Area	2.16E-05	1.24E-05	7.73E-04	1.86E-02	6.29E-06	3.50E-05	9.09E-07
ASP-1	Air Separation	Water Bath Vaporizer	9.92E-05	5.67E-05	3.54E-03	8.50E-02	2.88E-05	1.61E-04	4.17E-06
VTDST1	Melt Shop	Vacuum Tank 1	1.12E-04	6.38E-05	3.99E-03	9.58E-02	3.25E-05	1.81E-04	4.69E-06
VTDST2	Melt Shop	Vacuum Tank 2	1.12E-04	6.38E-05	3.99E-03	9.58E-02	3.25E-05	1.81E-04	4.69E-06
		Total	**5.16E-03**	**2.95E-03**	**1.84E-01**	**4.42E+00**	**1.50E-03**	**8.35E-03**	**2.17E-04**

[1] 95% of ladle process emissions are captured by the canopy hood and 5% are released into the Melt Shop Area as Melt Shop fugitives (EPN MSFUG).

Ladle Annual Emissions (tpy) = Heat Input (MMBtu/yr) x Emission Factor (lb/MMBtu) / 2,000 (lb/ton) x Capture Efficiency (%)

EPN MSFUG Benzene Hourly Emissions (tpy) = (131400 MMBtu / hr) × (2.06E-06 lb / MMBtu) × (ton / 2,000 lb) × 5 % = 6.76E-06 lb/hr

[2] Annual Emissions (tpy) = Heat Input (MMBtu/yr) x Emission Factor (lb/MMBtu) / 2,000 (lb/ton)

EPN MSFUG Benzene Annual Emissions (tpy) = (52,560 MMBtu / yr) × (2.06E-06 lb / MMBtu) × (ton / 2,000 lb) = 5.41E-05 tpy

NUCOR - Project Honey Badger
Pickling and Galvanizing Emissions Calculation

Pickling Line Scrubber Emissions

EPN	Unit	Description	Universal Gas Law Constant (psia-ft^3/lbmol-°R)	Vapor Molecular Weight[1] (lb/lb-mol)	Temperature[2] (Rank)	Atmospheric Pressure[2] (psia)	Flow Rate[3] (dscfm)	HCl Concentration Breakthrough[3] (ppmv)	Hours of Operation (hr/yr)	Hourly HCl Emissions[4,5] (lb/hr)	Annual HCl Emissions[4,6] (tpy)	m3/min	mg/m3
PLST-1	Cold Mill	Pickling Line #1	10.7310	36.46	519.67	14.7	7,185	6	8760	0.25	1.09	203.4565428	9.237155634

[1] HCL properties based on Perry's Handbook for Chemical Engineers, Table 2-10, Partial Pressures of HCl over Aqueous Solutions of HCl

[2] Based on atmospheric properties.

[3] Based on vendor guarantee.

[4] Pickling Line operations are enclosed in a building under negative pressure. No fugitive emissions are anticipated.

[5] Hourly HCl Emissions (lb/hr) = Flow Rate (dscfm) x 60 min/hr x Atmospheric Pressure (psia) x Molecular Weight (lb/lbmol) / Universal Gas Law Constant (psia-ft3/lbmol-Rank) / Temperature (Rank) x 6 ppmv / 1000000

Hourly HCl Emissions (lb/hr) =	7,185 dscf	60 min	14.7 psia	36.46 lb	lbmol-Rank		6 ppmv	= 0.25 lb/hr
	min	hr		lbmol	10.73 psia-ft3	519.67 Rank	1,000,000	

[6] Annual HCl Emissions (tpy) = Hourly HCl Emissions (lb/hr) x Hours of Operation (hr/yr) / 2000 (lb/ton)

Annual HCl Emissions (tpy) =	0.25 lb	8760 hr	ton	= 1.09 tpy
	hr	yr	2000 lb	

Cold Mill Control Devices Emissions

EPN	Unit	Description	Flow Rate[1] (dscfm)	Hours of Operation (hr/yr)	Emission Factor[2] PM (gr/dscf)	Emission Factor[2] PM_{10} (gr/dscf)	Emission Factor[2] $PM_{2.5}$ (gr/dscf)	Hourly Emissions[3] PM (lb/hr)	Hourly Emissions[3] PM_{10} (lb/hr)	Hourly Emissions[3] $PM_{2.5}$ (lb/hr)	Annual Emissions[4] PM (tpy)	Annual Emissions[4] PM_{10} (tpy)	Annual Emissions[4] $PM_{2.5}$ (tpy)
PLST-1	Cold Mill	Pickling Line #1	7,185	8,760	0.01	0.01	0.01	0.62	0.62	0.62	2.70	2.70	2.70
PKLSB	Cold Mill	Pickle Line Scale Breaker	52,972	8,760	0.003	0.003	0.003	1.36	1.36	1.36	5.97	5.97	5.97
TCMST	Cold Mill	Tandem Cold Mill	202,162	8,760	0.01	0.0066	0.0066	17.33	11.44	11.44	75.90	50.09	50.09
STMST	Cold Mill	Standalone Temper Mill	45,000	8,760	0.0025	0.0024	0.0013	0.96	0.93	0.50	4.22	4.05	2.20
SPMST1	Cold Mill	Skin Pass Mill #1	24,587	8,760	0.01	0.01	0.005	2.11	2.11	1.05	9.23	9.23	4.62
SPMST2	Cold Mill	Skin Pass Mill #2	24,587	8,760	0.01	0.01	0.005	2.11	2.11	1.05	9.23	9.23	4.62
CGL1-ST1	Cold Mill	CGL1 - Cleaning Section	6,123	8,760	0.003	0.003	0.003	0.16	0.16	0.16	0.69	0.69	0.69
CGL1-ST2	Cold Mill	CGL1 - Passivation Section	9,350	8,760	0.003	0.003	0.003	0.24	0.24	0.24	1.05	1.05	1.05
CGL2-ST1	Cold Mill	CGL2 - Cleaning Section	6,123	8,760	0.003	0.003	0.003	0.16	0.16	0.16	0.69	0.69	0.69
CGL2-ST2	Cold Mill	CGL2 - Passivation Section	9,350	8,760	0.003	0.003	0.003	0.24	0.24	0.24	1.05	1.05	1.05

[1] Flow rate based on design specification.

[2] Based on proposed BACT. Temper Mill emission factors based on Nucor Gallatin stack test data.

[3] Hourly Emissions (lb/hr) = Flow Rate (dscfm) x Emission Factor (gr/dscf) / 7000 (gr/lb) x 60 (min/hr)

Hourly Emissions (lb/hr) =	7,185 dscf	0.010 gr	1 lb	60 min	= 0.62 lb/hr
	min	dscf	7000 gr	1 hr	

[4] Annual Emissions (tpy) = Flow Rate (dscfm) x Emission Factor (gr/dscf) / 7000 (gr/lb) x 60 (min/hr) x Hours of Operation (hr/yr) / 2000 (lb/ton)

Annual Emissions (tpy) =	7,185 dscf	0.010 gr	1 lb	60 min	8,760 hr	1 ton	= 2.70 tpy
	min	dscf	7000 gr	1 hr	yr	2000 lb	

NUCOR - Project Honey Badger
Emergency Generator Emissions Calculation

Criteria Pollutant Emission Factors

Emission Point ID	Description	Emission Factor (lb/hp-hr) NOx[1]	CO[1]	SO_2[2]	VOC[1]	$PM/PM_{10}/PM_{2.5}$[2,3]
EMGEN1	Emergency Generator 1	4.41E-03	8.82E-03	4.12E-06	2.20E-03	3.38E-04
EMGEN2	Emergency Generator 2	4.41E-03	8.82E-03	4.12E-06	2.20E-03	3.38E-04
EMGEN3	Emergency Generator 3	4.41E-03	8.82E-03	4.12E-06	2.20E-03	3.38E-04
EMGEN4	Emergency Generator 4	4.41E-03	8.82E-03	4.12E-06	2.20E-03	3.38E-04
EMGEN5	Emergency Generator 5	4.41E-03	8.82E-03	4.12E-06	2.20E-03	3.38E-04
EMGEN6	Emergency Generator 6	4.41E-03	8.82E-03	4.12E-06	2.20E-03	3.38E-04

[1] Emission factors obtained from 40 CFR 60, Subpart JJJJ, Table 1 for an emergency engine with a power rating greater than 130 hp.

[2] Worst-case emission factor for natural gas-fired reciprocating engines in AP-42 Section 3.2, Tables 3.2-1, 3.2-2, and 3.2-3. Conversion to lb/hp-hr assumes brake-specific fuel consumption of 7000 Btu/hp-hr.

[3] Includes PM filterable and PM condensable. Conservatively assumes PM = PM10 = PM2.5 Btu/hp-hr.

Criteria Pollutants Emissions Calculation

Emission Point ID	Description[1]	Engine Rating (hp)	Max Annual Hours of Operation[2] (hr/yr)	Maximum Hourly Emissions[3] NO_X (lb/hr)	CO (lb/hr)	SO_2 (lb/hr)	VOC (lb/hr)	$PM/PM_{10}/PM_{2.5}$ (lb/hr)	Maximum Annual Emissions[4] NO_X (tpy)	CO (tpy)	SO_2 (tpy)	VOC (tpy)	$PM/PM_{10}/PM_{2.5}$ (tpy)
EMGEN1	Emergency Generator 1	2000	100	8.82	17.64	8.23E-03	4.41	0.68	0.44	0.88	4.12E-04	0.22	0.03
EMGEN2	Emergency Generator 2	2000	100	8.82	17.64	8.23E-03	4.41	0.68	0.44	0.88	4.12E-04	0.22	0.03
EMGEN3	Emergency Generator 3	2000	100	8.82	17.64	8.23E-03	4.41	0.68	0.44	0.88	4.12E-04	0.22	0.03
EMGEN4	Emergency Generator 4	2000	100	8.82	17.64	8.23E-03	4.41	0.68	0.44	0.88	4.12E-04	0.22	0.03
EMGEN5	Emergency Generator 5	2000	100	8.82	17.64	8.23E-03	4.41	0.68	0.44	0.88	4.12E-04	0.22	0.03
EMGEN6	Emergency Generator 6	2000	100	8.82	17.64	8.23E-03	4.41	0.68	0.44	0.88	4.12E-04	0.22	0.03

[1] All engines are spark ignition engines.

[2] A maximum of 50 hours of maintenance and maximum of 50 hours of general use are allowed under MACT ZZZZ and NSPS JJJJ for emergency engines.

[3] Maximum Hourly Emissions (lb/hr) = Engine Rating (hp) x Emission Factor (lb/hp-hr)

Example NOx Hourly Emission Rate (lb/hr) = $\frac{2{,}000\ \text{hp}}{} \times \frac{4.41\text{E-03 lb}}{\text{hp-hr}}$ = 8.82 lb/hr

[4] Maximum Annual Emission (tpy) = Maximum Hourly Emission Rate (lb/hr) x Hours of Operation (hr/yr) / (2,000 lb/ton)

Example NOx Annual Emission Rate (tpy) = $\frac{8.82\ \text{lb}}{\text{hr}} \times \frac{100\ \text{hr}}{\text{yr}} \times \frac{1\ \text{ton}}{2{,}000\ \text{lb}}$ = 0.44 tpy

Greenhouse Gas Emission Factors

Fuel	Default Higher Heating Value (HHV)[1] (MMBtu/scf)	Emission Factors[2] (kg/MMBtu) CO_2	CH_4	N_2O	Global Warming Potentials (GWPs)[3] CO_2	CH_4	N_2O
Distillate Fuel Oil No. 2	1.02E-03	53.06	0.0010	0.0001	1	25	298

[1] HHV (MMBtu/scf) is taken from the GHG MRR under "Table C-1 of Subpart C of Part 98 - Default CO_2 Emission Factors and High Heat values for Various Types of Fuel."

[2] Emission Factors are from the GHG MRR under "Table C-1 of Subpart C and Table C-2 of Subpart C." Default CH_4 and N_2O emission factors are based on Natural Gas, per listings in Table C-2.

[3] EPA GHG MRR rule (40 CFR 98, dated December 11, 2014), Table A-1.

NUCOR - Project Honey Badger
Emergency Generator Emissions Calculation

Greenhouse Gas Emission Calculations

Emission Point ID	Description	Fuel Usage[1] (MMscf/hr)	Hours of Operation (hr/yr)	Maximum Hourly Emissions[2,4] CO_2 (lb/hr)	CH_4 (lb/hr)	N_2O (lb/hr)	CO_2e (lb/hr)	Maximum Annual Emissions[3,4] CO_2 (tpy)	CH_4 (tpy)	N_2O (tpy)	CO_2e (tpy)
EMGEN1	Emergency Generator 1	0.014	100	1,638	0.03	0.003	1,639	81.88	1.54E-03	1.54E-04	81.97
EMGEN2	Emergency Generator 2	0.014	100	1,638	0.03	0.003	1,639	81.88	1.54E-03	1.54E-04	81.97
EMGEN3	Emergency Generator 3	0.014	100	1,638	0.03	0.003	1,639	81.88	1.54E-03	1.54E-04	81.97
EMGEN4	Emergency Generator 4	0.014	100	1,638	0.03	0.003	1,639	81.88	1.54E-03	1.54E-04	81.97
EMGEN5	Emergency Generator 5	0.014	100	1,638	0.03	0.003	1,639	81.88	1.54E-03	1.54E-04	81.97
EMGEN6	Emergency Generator 6	0.014	100	1,638	0.03	0.003	1,639	81.88	1.54E-03	1.54E-04	81.97

[1] Fuel usage is calculated using assumed brake-specific fuel consumption of 7,000 Btu/hp-hr.

[2] Maximum Hourly Emissions (lb/hr) = Engine Fuel Usage (mmscf/hr) x Default HHV (MMBtu/scf) x Emission Factor (kg/MMBtu) x Conversion factor (scf/MMscf) x Conversion Factor (lb/kg)

CO_2 Hourly Emission Rate (lb/hr) = $\frac{0.014\ MMscf}{hour} \times \frac{0.001\ MMBtu}{scf} \times \frac{53.06\ kg}{MMBtu} \times \frac{2.2046\ lb}{kg} \times \frac{1{,}000{,}000\ scf}{MMscf}$ = 1,637.68 lb/hr

[3] Maximum Annual Emission (tpy) = Maximum Hourly Emission Rate (lb/hr) x Hours of Operation (hr/yr) / (2,000 lb/ton)

CO_2 Annual Emission Rate (tpy) = $\frac{1{,}637.68\ lb}{hr} \times \frac{100\ hr}{yr} \times \frac{1\ ton}{2{,}000\ lb}$ = 81.88 tpy

[4] CO_2e emissions are calculated based on the Global Warming Potentials (GWP)

CO_2e = CO_2 Emission Rate * CO_2 GWP + CH_4 Emission Rate * CH_4 GWP + N_2O Emission Rate * N_2O GWP

HAP Combustion Emission Calculations

Constituent	Emission Factors[1] (lb/MMBtu)	EMGEN1[3] (lb/hr)	(tpy)	EMGEN2[3] (lb/hr)	(tpy)	EMGEN3[3] (lb/hr)	(tpy)	EMGEN4[3] (lb/hr)	(tpy)	EMGEN5[3] (lb/hr)	(tpy)	EMGEN6[3] (lb/hr)	(tpy)
1,1,2,2-Tetrachloroethane	6.63E-05	9.28E-04	4.64E-05	9.28E-04	4.64E-05	9.28E-04	4.64E-05	9.28E-04	4.64E-05	9.28E-04	4.64E-05	9.28E-04	4.64E-05
1,1,2-Trichloroethane	5.27E-05	7.38E-04	3.69E-05	7.38E-04	3.69E-05	7.38E-04	3.69E-05	7.38E-04	3.69E-05	7.38E-04	3.69E-05	7.38E-04	3.69E-05
1,3-Butadiene	8.20E-04	0.01	5.74E-04	0.01	5.74E-04	0.01	5.74E-04	0.01	5.74E-04	0.01	5.74E-04	0.01	5.74E-04
1,3-Dichloropropene	4.38E-05	6.13E-04	3.07E-05	6.13E-04	3.07E-05	6.13E-04	3.07E-05	6.13E-04	3.07E-05	6.13E-04	3.07E-05	6.13E-04	3.07E-05
2,2,4-Trimethylpentane	8.46E-04	0.01	5.92E-04	0.01	5.92E-04	0.01	5.92E-04	0.01	5.92E-04	0.01	5.92E-04	0.01	5.92E-04
2-Methylnaphthalene	3.32E-05	4.65E-04	2.32E-05	4.65E-04	2.32E-05	4.65E-04	2.32E-05	4.65E-04	2.32E-05	4.65E-04	2.32E-05	4.65E-04	2.32E-05
Acenaphthene	1.33E-06	1.86E-05	9.31E-07	1.86E-05	9.31E-07	1.86E-05	9.31E-07	1.86E-05	9.31E-07	1.86E-05	9.31E-07	1.86E-05	9.31E-07
Acenaphthylene	5.53E-06	7.74E-05	3.87E-06	7.74E-05	3.87E-06	7.74E-05	3.87E-06	7.74E-05	3.87E-06	7.74E-05	3.87E-06	7.74E-05	3.87E-06
Acetaldehyde	8.36E-03	0.12	5.85E-03	0.12	5.85E-03	0.12	5.85E-03	0.12	5.85E-03	0.12	5.85E-03	0.12	5.85E-03
Acrolein	7.78E-03	0.11	5.45E-03	0.11	5.45E-03	0.11	5.45E-03	0.11	5.45E-03	0.11	5.45E-03	0.11	5.45E-03
Anthracene	7.18E-07	1.01E-05	5.03E-07	1.01E-05	5.03E-07	1.01E-05	5.03E-07	1.01E-05	5.03E-07	1.01E-05	5.03E-07	1.01E-05	5.03E-07
Benz(a)anthracene	3.36E-07	4.70E-06	2.35E-07	4.70E-06	2.35E-07	4.70E-06	2.35E-07	4.70E-06	2.35E-07	4.70E-06	2.35E-07	4.70E-06	2.35E-07
Benzene	1.94E-03	0.03	1.36E-03	0.03	1.36E-03	0.03	1.36E-03	0.03	1.36E-03	0.03	1.36E-03	0.03	1.36E-03
Benzo(a)pyrene	5.68E-09	7.95E-08	3.98E-09	7.95E-08	3.98E-09	7.95E-08	3.98E-09	7.95E-08	3.98E-09	7.95E-08	3.98E-09	7.95E-08	3.98E-09
Benzo(b)fluoranthene	1.66E-07	2.32E-06	1.16E-07	2.32E-06	1.16E-07	2.32E-06	1.16E-07	2.32E-06	1.16E-07	2.32E-06	1.16E-07	2.32E-06	1.16E-07
Benzo(e)pyrene	4.15E-07	5.81E-06	2.91E-07	5.81E-06	2.91E-07	5.81E-06	2.91E-07	5.81E-06	2.91E-07	5.81E-06	2.91E-07	5.81E-06	2.91E-07
Benzo(g,h,i)perylene	4.14E-07	5.80E-06	2.90E-07	5.80E-06	2.90E-07	5.80E-06	2.90E-07	5.80E-06	2.90E-07	5.80E-06	2.90E-07	5.80E-06	2.90E-07
Benzo(k)fluoranthene	4.26E-09	5.96E-08	2.98E-09	5.96E-08	2.98E-09	5.96E-08	2.98E-09	5.96E-08	2.98E-09	5.96E-08	2.98E-09	5.96E-08	2.98E-09
Biphenyl	2.12E-04	2.97E-03	1.48E-04	2.97E-03	1.48E-04	2.97E-03	1.48E-04	2.97E-03	1.48E-04	2.97E-03	1.48E-04	2.97E-03	1.48E-04
Carbon Tetrachloride	6.07E-05	8.50E-04	4.25E-05	8.50E-04	4.25E-05	8.50E-04	4.25E-05	8.50E-04	4.25E-05	8.50E-04	4.25E-05	8.50E-04	4.25E-05
Chlorobenzene	4.44E-05	6.22E-04	3.11E-05	6.22E-04	3.11E-05	6.22E-04	3.11E-05	6.22E-04	3.11E-05	6.22E-04	3.11E-05	6.22E-04	3.11E-05
Chloroform	4.71E-05	6.59E-04	3.30E-05	6.59E-04	3.30E-05	6.59E-04	3.30E-05	6.59E-04	3.30E-05	6.59E-04	3.30E-05	6.59E-04	3.30E-05
Chrysene	6.93E-07	9.70E-06	4.85E-07	9.70E-06	4.85E-07	9.70E-06	4.85E-07	9.70E-06	4.85E-07	9.70E-06	4.85E-07	9.70E-06	4.85E-07
Ethyl Benzene	1.08E-04	1.51E-03	7.56E-05	1.51E-03	7.56E-05	1.51E-03	7.56E-05	1.51E-03	7.56E-05	1.51E-03	7.56E-05	1.51E-03	7.56E-05
Ethylene Dibromide	7.34E-05	1.03E-03	5.14E-05	1.03E-03	5.14E-05	1.03E-03	5.14E-05	1.03E-03	5.14E-05	1.03E-03	5.14E-05	1.03E-03	5.14E-05
Fluoranthene	1.11E-06	1.55E-05	7.77E-07	1.55E-05	7.77E-07	1.55E-05	7.77E-07	1.55E-05	7.77E-07	1.55E-05	7.77E-07	1.55E-05	7.77E-07
Fluorene	5.67E-06	7.94E-05	3.97E-06	7.94E-05	3.97E-06	7.94E-05	3.97E-06	7.94E-05	3.97E-06	7.94E-05	3.97E-06	7.94E-05	3.97E-06
Formaldehyde	5.52E-02	0.77	0.04	0.77	0.04	0.77	0.04	0.77	0.04	0.77	0.04	0.77	0.04

NUCOR - Project Honey Badger
Emergency Generator Emissions Calculation

Indeno(1,2,3-c,d)pyrene	9.93E-09	1.39E-07	6.95E-09	1.39E-07	6.95E-09	1.39E-07	6.95E-09	1.39E-07	6.95E-09	1.39E-07	6.95E-09	1.39E-07	6.95E-09
Methanol	3.06E-03	0.04	2.14E-03	0.04	2.14E-03	0.04	2.14E-03	0.04	2.14E-03	0.04	2.14E-03	0.04	2.14E-03
Methylene Chloride	1.47E-04	2.06E-03	1.03E-04	2.06E-03	1.03E-04	2.06E-03	1.03E-04	2.06E-03	1.03E-04	2.06E-03	1.03E-04	2.06E-03	1.03E-04
n-Hexane	1.11E-03	0.02	7.77E-04	0.02	7.77E-04	0.02	7.77E-04	0.02	7.77E-04	0.02	7.77E-04	0.02	7.77E-04
Naphthalene	9.71E-05	1.36E-03	6.80E-05	1.36E-03	6.80E-05	1.36E-03	6.80E-05	1.36E-03	6.80E-05	1.36E-03	6.80E-05	1.36E-03	6.80E-05
PAHs	1.41E-04	1.97E-03	9.87E-05	1.97E-03	9.87E-05	1.97E-03	9.87E-05	1.97E-03	9.87E-05	1.97E-03	9.87E-05	1.97E-03	9.87E-05
Perylene	4.97E-09	6.96E-08	3.48E-09	6.96E-08	3.48E-09	6.96E-08	3.48E-09	6.96E-08	3.48E-09	6.96E-08	3.48E-09	6.96E-08	3.48E-09
Phenanthrene	1.04E-05	1.46E-04	7.28E-06	1.46E-04	7.28E-06	1.46E-04	7.28E-06	1.46E-04	7.28E-06	1.46E-04	7.28E-06	1.46E-04	7.28E-06
Phenol	4.21E-05	5.89E-04	2.95E-05	5.89E-04	2.95E-05	5.89E-04	2.95E-05	5.89E-04	2.95E-05	5.89E-04	2.95E-05	5.89E-04	2.95E-05
Pyrene	1.36E-06	1.90E-05	9.52E-07	1.90E-05	9.52E-07	1.90E-05	9.52E-07	1.90E-05	9.52E-07	1.90E-05	9.52E-07	1.90E-05	9.52E-07
Styrene	5.48E-05	7.67E-04	3.84E-05	7.67E-04	3.84E-05	7.67E-04	3.84E-05	7.67E-04	3.84E-05	7.67E-04	3.84E-05	7.67E-04	3.84E-05
Tetrachloroethane	2.48E-06	3.47E-05	1.74E-06	3.47E-05	1.74E-06	3.47E-05	1.74E-06	3.47E-05	1.74E-06	3.47E-05	1.74E-06	3.47E-05	1.74E-06
Toluene	9.63E-04	0.01	6.74E-04	0.01	6.74E-04	0.01	6.74E-04	0.01	6.74E-04	0.01	6.74E-04	0.01	6.74E-04
Vinyl Chloride	2.47E-05	3.46E-04	1.73E-05	3.46E-04	1.73E-05	3.46E-04	1.73E-05	3.46E-04	1.73E-05	3.46E-04	1.73E-05	3.46E-04	1.73E-05
Xylene, mixed (Dimethylber	2.68E-04	3.75E-03	1.88E-04	3.75E-03	1.88E-04	3.75E-03	1.88E-04	3.75E-03	1.88E-04	3.75E-03	1.88E-04	3.75E-03	1.88E-04
Total HAPs	8.16E-02	1.14	0.06	1.14	0.06	1.14	0.06	1.14	0.06	1.14	0.06	1.14	0.06

[1] Emission factors are worst case from AP-42 Section 3.2, Tables 3.2-1, 3.2-2, and 3.2-3

[3] Sample calculations of benzene emissions for EMGEN1:

Benzene Hourly Emission Rate (lb/hr) =	0.014 MMscf / hr	0.002 lb / MMBtu	1020 Btu / scf	= 0.03 lb/hr
Benzene Annual Emission Rate (tpy) =	0.03 lb / hr	100 hr / yr	1 ton / 2,000 lb	= 1.36E-03 tpy

NUCOR - Project Honey Badger
Fugitive Dust from Bulk Material Transfer Emissions Calculation

Emission Point ID	Description of Operation	Material	# of drop points	Max Hourly Rate (tph)	Annual Rate (tpy)	Location	Control Option	Control Efficiency[1]	Fines Content[2] (%)	Moisture Content[3] (%)	Emission Factor[4,5,7,8,9,10,11] PM (lb/ton)	PM_{10} (lb/ton)	$PM_{2.5}$[6] (lb/ton)	Total Emissions PM (lb/hr)	PM (tpy)	PM_{10} (lb/hr)	PM_{10} (tpy)	$PM_{2.5}$ (lb/hr)	$PM_{2.5}$ (tpy)
DRI-DOCK-FUG	DRI Unloading Dock - Fugitives	DRI	1	500	557,500	Outdoor	Four sided container	0.75	3%	0.30%	0.05	0.02	3.74E-03	0.196	0.109	0.093	0.052	0.014	0.008
BULK-DRI-1	DRI Silo #1 Loadout	DRI	1	64	557,500	Outdoor	Four sided container	0.75	3%	0.30%	0.05	0.02	3.74E-03	0.025	0.109	0.012	0.052	0.002	0.008
BULK-DRI-2	DRI Silo #2 Loadout	DRI	1	64	557,500	Outdoor	Four sided container	0.75	3%	0.30%	0.05	0.02	3.74E-03	0.025	0.109	0.012	0.052	0.002	0.008
DRI-EMG-1	DRI Conveyor #1 Emergency Chute	DRI	1	125	500	Outdoor	N/A	0.00	3%	0.30%	0.05	0.02	3.74E-03	0.196	0.000	0.093	0.000	0.014	0.000
DRI-EMG-2	DRI Silos Emergency Chute	DRI	1	800	14,400	Outdoor	N/A	0.00	3%	0.30%	0.05	0.02	3.74E-03	1.253	0.011	0.593	0.005	0.090	0.001
LIME-DUMP-FUG	Lime Dump Station Fugitives	Lime	1	8	70,000	Outdoor	Building Enclosure	0.75	--	0.20%	0.03	8.70E-03	1.32E-03	0.050	0.219	0.017	0.076	0.003	0.012
CARBON-DUMP-FUG	Carbon Dump Station Fugitives	Carbon	1	4	35,000	Outdoor	Building Enclosure	0.75	--	0.20%	0.03	8.70E-03	1.32E-03	0.025	0.109	0.009	0.038	0.001	0.006
ALLOY-HANDLE-FUG	Alloy Handling System Fugitives	Alloy	1	20	62,000	Outdoor	Building Enclosure	0.75	--	0.20%	0.03	8.70E-03	1.32E-03	0.125	0.194	0.044	0.067	0.007	0.010
SCRAP-DOCK-FUG	Barge Scrap Unloading	Scrap	1	600	1,443,750	Outdoor	N/A	0.00	--	--	3.00E-04	1.50E-04	4.30E-05	0.180	0.217	0.090	0.108	0.026	0.031
SCRAP-RAIL-FUG	Rail Scrap Unloading	Scrap	1	200	192,500	Outdoor	N/A	0.00	--	--	3.00E-04	1.50E-04	4.30E-05	0.060	0.029	0.030	0.014	0.009	0.004
SCRAP-BULK34	Barge Scrap Pile Loading	Scrap	1	600	1,443,750	Outdoor	N/A	0.00	--	5.40%	9.13E-04	4.32E-04	6.54E-05	0.548	0.659	0.259	0.312	0.039	0.047
SCRAP-BULK35	Barge Scrap Pile Loadout	Scrap	1	275	1,443,750	Outdoor	N/A	0.00	--	5.40%	9.13E-04	4.32E-04	6.54E-05	0.251	0.659	0.119	0.312	0.018	0.047
SCRAP-BULK36	Rail Scrap Pile Loading	Scrap	1	120	192,500	Outdoor	N/A	0.00	--	5.40%	9.13E-04	4.32E-04	6.54E-05	0.110	0.088	0.052	0.042	0.008	0.006
SCRAP-BULK37	Rail Scrap Pile Loadout	Scrap	1	275	192,500	Outdoor	N/A	0.00	--	5.40%	9.13E-04	4.32E-04	6.54E-05	0.251	0.088	0.119	0.042	0.018	0.006
SCRAP-BULK38	Truck Scrap Pile Loading	Scrap	1	200	288,750	Outdoor	N/A	0.00	--	5.40%	9.13E-04	4.32E-04	6.54E-05	0.183	0.132	0.086	0.062	0.013	0.009
SCRAP-BULK39	Truck Scrap Pile Loadout	Scrap	1	275	288,750	Outdoor	N/A	0.00	--	5.40%	9.13E-04	4.32E-04	6.54E-05	0.251	0.132	0.119	0.062	0.018	0.009
SCRAP-BULK40	Scrap Charging	Scrap	1	220	1,925,000	Outdoor	N/A	0.00	--	5.40%	9.13E-04	4.32E-04	6.54E-05	0.201	0.879	0.095	0.416	0.014	0.063
SCRAP-BULK1	Dig slag inside pot barn	Slag	1	73	262,500	Outdoor	N/A	0.75	--	--	8.80E-03	4.30E-03	1.60E-03	0.160	0.289	0.078	0.141	0.029	0.053
SCRAP-BULK2	Loader transport & dump slag into quench	Slag	1	73	262,500	Outdoor	N/A	0.75	--	--	8.80E-03	4.30E-03	1.60E-03	0.160	0.289	0.078	0.141	0.029	0.053
SCRAP-BULK3	Loader transport & dump into F1 feed hopper/grizzly	Slag	1	73	262,500	Outdoor	N/A	0.90	--	--	8.80E-03	4.30E-03	1.60E-03	0.064	0.116	0.031	0.056	0.012	0.021
SCRAP-BULK4	F1 feed hopper/grizzly to P1 oversize storage	Slag	1	73	262,500	Outdoor	N/A	0.96	--	--	0.03	8.70E-03	8.70E-03	0.075	0.135	0.026	0.047	0.026	0.047
SCRAP-BULK5	F1 feed hopper/grizzly to C7 crusher conveyor	Slag	1	1	5,250	Outdoor	N/A	0.96	--	--	0.03	8.70E-03	8.70E-03	0.001	0.003	0.001	0.001	0.001	0.001
SCRAP-BULK6	F1 feed hopper/grizzly to C1A main conveyor	Slag	1	22	78,750	Outdoor	N/A	0.96	--	--	0.03	8.70E-03	8.70E-03	0.022	0.040	0.008	0.014	0.008	0.014
SCRAP-BULK7	C7 to CR1 crusher	Slag	1	50	178,500	Outdoor	N/A	0.96	--	--	3.00E-03	1.10E-03	1.10E-03	0.006	0.011	0.002	0.004	0.002	0.004
SCRAP-BULK8	CR1 crusher to C8 conveyor	Slag	1	22	78,750	Outdoor	N/A	0.78	--	--	5.40E-03	2.40E-03	2.40E-03	0.026	0.047	0.012	0.021	0.012	0.021
SCRAP-BULK9	CR1 crusher to P2 off-spec storage	Slag	1	19	66,938	Outdoor	N/A	0.78	--	--	5.40E-03	2.40E-03	2.40E-03	0.022	0.040	0.010	0.018	0.010	0.018
SCRAP-BULK10	C8 conveyor to C9 conveyor	Slag	1	3	11,813	Outdoor	N/A	0.96	--	--	3.00E-03	1.10E-03	1.10E-03	0.000	0.001	0.000	0.000	0.000	0.000
SCRAP-BULK11	C9 conveyor to C1A conveyor	Slag	1	19	66,938	Outdoor	N/A	0.96	--	--	3.00E-03	1.10E-03	1.10E-03	0.002	0.004	0.001	0.002	0.001	0.002
SCRAP-BULK12	C1A conveyor to B1 surge bin	Slag	1	19	66,938	Outdoor	N/A	0.96	--	--	3.00E-03	1.10E-03	1.10E-03	0.002	0.004	0.001	0.002	0.001	0.002
SCRAP-BULK13	B1 surge bin to C1 conveyor	Slag	1	68	245,438	Outdoor	N/A	0.96	--	--	3.00E-03	1.10E-03	1.10E-03	0.008	0.015	0.003	0.006	0.003	0.006
SCRAP-BULK14	C1 conveyor through M1 mag splitter to S1 slag screen	Slag	1	68	245,438	Outdoor	N/A	0.96	--	--	3.00E-03	1.10E-03	1.10E-03	0.008	0.015	0.003	0.006	0.003	0.006
SCRAP-BULK15	C1 conveyor through M1 mag splitter to S2 off-spec screen	Slag	1	66	236,847	Outdoor	N/A	0.96	--	--	3.00E-03	1.10E-03	1.10E-03	0.008	0.015	0.003	0.005	0.003	0.005
SCRAP-BULK16	S2 off-spec screen to C6 conveyor	Slag	1	2	8,590	Outdoor	N/A	0.92	--	--	0.03	8.70E-03	8.70E-03	0.005	0.009	0.002	0.003	0.002	0.003
SCRAP-BULK17	S2 off-spec screen to P3 off-spec storage	Slag	1	2	7,302	Outdoor	N/A	0.92	--	--	0.03	8.70E-03	8.70E-03	0.004	0.008	0.001	0.003	0.001	0.003
SCRAP-BULK18	C6 conveyor to P4 off-spec storage	Slag	1	0	1,289	Outdoor	N/A	0.96	--	--	3.00E-03	1.10E-03	1.10E-03	0.000	0.000	0.000	0.000	0.000	0.000
SCRAP-BULK19	S1 slag screen to C2 conveyor	Slag	1	2	7,302	Outdoor	N/A	0.92	--	--	0.03	8.70E-03	8.70E-03	0.004	0.008	0.001	0.003	0.001	0.003
SCRAP-BULK20	C2 conveyor to C5 conveyor	Slag	1	26	94,739	Outdoor	N/A	0.96	--	--	3.00E-03	1.10E-03	1.10E-03	0.003	0.006	0.001	0.002	0.001	0.002
SCRAP-BULK21	C5 conveyor to SLGSKP1	Slag	1	26	94,739	Outdoor	N/A	0.96	--	--	3.00E-03	1.10E-03	1.10E-03	0.003	0.006	0.001	0.002	0.001	0.002
SCRAP-BULK22	S1 slag screen to C4 conveyor	Slag	1	26	94,739	Outdoor	N/A	0.92	--	--	0.03	8.70E-03	8.70E-03	0.055	0.099	0.019	0.035	0.019	0.035
SCRAP-BULK23	C4 conveyor to SLGSKP3	Slag	1	20	71,054	Outdoor	N/A	0.96	--	--	3.00E-03	1.10E-03	1.10E-03	0.002	0.004	0.001	0.002	0.001	0.002
SCRAP-BULK24	S1 slag screen to C3 conveyor	Slag	1	20	71,054	Outdoor	N/A	0.92	--	--	0.03	8.70E-03	8.70E-03	0.041	0.075	0.014	0.026	0.014	0.026
SCRAP-BULK25	C3 conveyor to SLGSKP2	Slag	1	13	47,369	Outdoor	N/A	0.96	--	--	3.00E-03	1.10E-03	1.10E-03	0.002	0.003	0.001	0.001	0.001	0.001
SCRAP-BULK26	S1 slag screen to SLGSKP4	Slag	1	13	47,369	Outdoor	N/A	0.92	--	--	0.03	8.70E-03	8.70E-03	0.028	0.050	0.010	0.017	0.010	0.017
SCRAP-BULK27	Loader transports & loads products into trucks to product stockpiles	Slag	1	7	23,685	Outdoor	N/A	0.90	--	--	8.80E-03	4.30E-03	1.60E-03	0.006	0.010	0.003	0.005	0.001	0.002
SCRAP-BULK28	Truck transports & dumps products into product stockpiles	Slag	1	73	262,500	Outdoor	N/A	0.90	--	--	8.80E-03	4.30E-03	1.60E-03	0.064	0.116	0.031	0.056	0.012	0.021
SCRAP-BULK29	Loader transports & loads into trucks, oversize to drop ball	Slag	1	73	262,500	Outdoor	N/A	0.90	--	--	8.80E-03	4.30E-03	1.60E-03	0.064	0.116	0.031	0.056	0.012	0.021
SCRAP-BULK30	Truck transports & dumps oversize into drop ball area	Slag	1	1	5,250	Outdoor	N/A	0.90	--	--	8.80E-03	4.30E-03	1.60E-03	0.001	0.002	0.001	0.001	0.000	0.000
SCRAP-BULK31	Truck transports ladle lip and meltshop cleanup materials & dumps at drop ball site	Slag	1	5	17,063	Outdoor	N/A	0.90	--	--	8.80E-03	4.30E-03	1.60E-03	0.004	0.008	0.002	0.004	0.001	0.001
SCRAP-BULK32	Truck transports & dumps tundish at lancing station	Slag	1	3	9,188	Outdoor	N/A	0.90	--	--	8.80E-03	4.30E-03	1.60E-03	0.002	0.004	0.001	0.002	0.000	0.001
SCRAP-BULK33	Ball drop crushing	Slag	1	2	8,250	Outdoor	N/A	0.78	--	--	5.40E-03	2.40E-03	2.40E-03	0.003	0.005	0.001	0.002	0.001	0.002
													Total Bulk Material Transfers	**4.79**	**5.29**	**2.22**	**2.39**	**0.51**	**0.67**

[1] Based on Table 7 of TCEQ Draft RG 058 Rock Crushing Plants, February 2002.

[2] Engineering estimate based on DRI fines content at other Nucor Mills.

[3] AP-42 Table 13.2.4-1 provides a mean value of 0.92% based on 3 samples.

[4] For all drop points, emission factors based on Equation 1 of AP-42 Section 13.2.4.

[5] For screens and crusher, emission factors based on AP-42 Table 11.19.2-2, August 2004. The emission factors include drops to equipment and drops off equipment.

[6] For screens and crusher, the ratio of $PM_{2.5}$ to PM_{10} are based on Page 13.2.4-4 of AP-42 Section 13.2.4.

[7] Emission factor from AP-42 Table 12.5-4, 10/86 version (all units in lb/ton) for Loading low-silt slag

[8] Emission factor from AP-42 Table 11.19.2-2, 8/2004 version (all units in lb/ton) for Screening; conservatively use PM 10 emission factor for PM2.5

[9] Emission factor from AP-42 Table 11.19.2-2, 8/2004 version (all units in lb/ton) for Transfer Points; conservatively use PM 10 emission factor for PM2.5

[10] Emission factor from AP-42 Table 11.19.2-2, 8/2004 version (all units in lb/ton) for Crushing; conservatively use PM 10 emission factor for PM2.5

[11] Emission factors from AP-42 Chapter 12.5 Iron and Steel Production Table 12.5-4, lump ore pile formation.

NUCOR - Project Honey Badger
Fugitive Dust from Stockpiles Emissions Calculation

Stockpile Properties and Emission Factor

Emission Point ID	Description	Pile Area (ft^2)	Pile Area (acres)	Number of Active Days[1]	Number of Inactive Days[1]	Control Factor	Emission Factor for Active Stockpile[2,3] PM (lb/acre-d)	PM_{10} (lb/acre-d)	$PM_{2.5}$ (lb/acre-d)	Emission Factor for Inactive Stockpile[2,3] PM (lb/acre-d)	PM_{10} (lb/acre-d)	$PM_{2.5}$ (lb/acre-d)
SLGSKP1	Slag Stockpile 1	32,541	0.75	365	0	0.70	13.2	6.24	0.95	3.5	1.66	0.25
SLGSKP2	Slag Stockpile 2	32,541	0.75	365	0	0.70	13.2	6.24	0.95	3.5	1.66	0.25
SLGSKP3	Slag Stockpile 3	32,541	0.75	365	0	0.70	13.2	6.24	0.95	3.5	1.66	0.25
SLGSKP4	Slag Stockpile 4	32,541	0.75	365	0	0.70	13.2	6.24	0.95	3.5	1.66	0.25
SCRPSKP1	Scrap Metal Stockpile 1	81,809	1.88	365	0	0.70	13.2	6.24	0.95	3.5	1.66	0.25
SCRPSKP2	Scrap Metal Stockpile 2	81,809	1.88	365	0	0.70	13.2	6.24	0.95	3.5	1.66	0.25
SCRPSKP3	Scrap Metal Stockpile 3	81,809	1.88	365	0	0.70	13.2	6.24	0.95	3.5	1.66	0.25

[1] Inactive stockpiles are those affected by wind erosion only. Active stockpiles are those piles that have 8 to 12 hours of activity per 24 hours.

Active stockpiles include the following distinct source operations in the storage cycle: loading of rock onto storage piles (batch or continuous drop), equipment traffic in storage areas, and wind erosion of the pile.

[2] PM emission factors based on TCEQ Draft RG 058 Rock Crushing Plants, February 2002.

[3] The ratios of PM_{10} to PM and $PM_{2.5}$ to PM_{10} are based on Page 13.2.4-4 of AP-42 Section 13.2.4.

Emission Calculation

Emission Point ID	Description	Active Emissions[1,2] PM (lb/hr)	PM (tpy)	PM_{10} (lb/hr)	PM_{10} (tpy)	$PM_{2.5}$ (lb/hr)	$PM_{2.5}$ (tpy)	Inactive Emissions[1,2] PM (lb/hr)	PM (tpy)	PM_{10} (lb/hr)	PM_{10} (tpy)	$PM_{2.5}$ (lb/hr)	$PM_{2.5}$ (tpy)
SLGSKP1	Slag Stockpile 1	0.12	0.54	0.06	0.26	0.01	0.04	0.00	0.00	0.00	0.00	0.00	0.00
SLGSKP2	Slag Stockpile 2	0.12	0.54	0.06	0.26	0.01	0.04	0.00	0.00	0.00	0.00	0.00	0.00
SLGSKP3	Slag Stockpile 3	0.12	0.54	0.06	0.26	0.01	0.04	0.00	0.00	0.00	0.00	0.00	0.00
SLGSKP4	Slag Stockpile 4	0.12	0.54	0.06	0.26	0.01	0.04	0.00	0.00	0.00	0.00	0.00	0.00
SCRPSKP1	Scrap Metal Stockpile 1	0.31	1.36	0.15	0.64	0.02	0.10	0.00	0.00	0.00	0.00	0.00	0.00
SCRPSKP2	Scrap Metal Stockpile 2	0.31	1.36	0.15	0.64	0.02	0.10	0.00	0.00	0.00	0.00	0.00	0.00
SCRPSKP3	Scrap Metal Stockpile 3	0.31	1.36	0.15	0.64	0.02	0.10	0.00	0.00	0.00	0.00	0.00	0.00

[1] Hourly Emissions (lb/hr) = Pile Area (acres) x Emission Factor for Stockpile (lb/acre-d) x (1 - Control Factor) / 24 (hr/day)

0.75 acres	13.20 lb	0.30	1 day	= 0.12 lb/hr
hr	acre-d		24 hr	

[2] Annual Emissions (lb/hr) = Pile Area (acres) x Emission Factor for Stockpile (lb/acre-d) x Number of Days / 2000 (lb/ton) x (1 - Control Factor)

0.75 acres	13.20 lb	365 days	0.30	ton	= 0.54 tpy
hr	acre-d			2000 lb	

NUCOR - Project Honey Badger
Fugitive Dust from Stockpiles Emissions Calculation

Emission Summary

Emission Point ID	Description	Total Emissions[1,2]					
		PM (lb/hr)	PM (tpy)	PM_{10} (lb/hr)	PM_{10} (tpy)	$PM_{2.5}$ (lb/hr)	$PM_{2.5}$ (tpy)
SLGSKP1	Slag Stockpile 1	0.12	0.54	0.06	0.26	0.01	0.04
SLGSKP2	Slag Stockpile 2	0.12	0.54	0.06	0.26	0.01	0.04
SLGSKP3	Slag Stockpile 3	0.12	0.54	0.06	0.26	0.01	0.04
SLGSKP4	Slag Stockpile 4	0.12	0.54	0.06	0.26	0.01	0.04
SCRPSKP1	Scrap Metal Stockpile 1	0.31	1.36	0.15	0.64	0.02	0.10
SCRPSKP2	Scrap Metal Stockpile 2	0.31	1.36	0.15	0.64	0.02	0.10
SCRPSKP3	Scrap Metal Stockpile 3	0.31	1.36	0.15	0.64	0.02	0.10

[1] For hourly emissions, the max between the active and inactive emissions is represented since a stockpile can only be one or the other within a given hour.

[2] For annual emissions, the sum of the active and inactive emissions is taken.

NUCOR - Project Honey Badger
Cooling Tower Emissions Calculation

Cooling Tower Properties

EPN	Unit	Description	Flow Rate[1] (gpm)	Drift Eliminator Efficiency[2] (%)	Water Density (lb/gal)	Entrained Water Carried Over[3] (lb/hr)	Total Dissoved Solids Concentration[4] (ppmw)
CT1	Melt Shop	Melt Shop ICW Cooling Tower	52,000	0.0005%	8.35	130.26	1,500
CT2	Melt Shop	Melt Shop DCW Cooling Tower	5,900	0.0005%	8.35	14.78	1,500
CT3	Melt Shop	Rolling Mill ICW Cooling Tower	8,500	0.0005%	8.35	21.29	1,500
CT4	Melt Shop	Rolling Mill DCW Cooling Tower	22,750	0.0005%	8.35	56.99	1,500
CT5	Melt Shop	Rolling Mill/Quench/ACC Cooling Tower	90,000	0.0005%	8.35	225.45	1,500
CT6	Melt Shop	Light Plate DCW System	8,000	0.0005%	8.35	20.04	1,500
CT7	Melt Shop	Heavy Plate DCW System	3,000	0.0005%	8.35	7.52	1,500
CT8	Air Separation	Air Separation Plant Cooling Tower	14,000	0.0005%	8.35	35.07	1,500

[1] Maximum flowrate conservatively based on worst case operating scenarios.

[2] Drift eliminator efficiency based on proposed BACT.

[3] Entrained Water Carried Over (lb/hr) = Flow Rate (gpm) x Water Density (lb/gal) x 60 (min/hr) x Drift Eliminator Efficiency (%)

Entrained Water Carried Over (lb/hr) =	52,000 gal	8.35 lb	60 min	0.0005 %	= 130.26 lb/hr
	min	gal	hr		

[4] Conservative assumption based on operational experience at similar facilities.

NUCOR - Project Honey Badger
Cooling Tower Emissions Calculation

Cooling Tower Emissions Calculation

EPN	Unit	Description	Hourly PM Emissions[1] (lb/hr)	Annual PM Emissions[2] (tpy)
CT1	Melt Shop	Melt Shop ICW Cooling Tower	0.20	0.86
CT2	Melt Shop	Melt Shop DCW Cooling Tower	0.02	0.10
CT3	Melt Shop	Rolling Mill ICW Cooling Tower	0.03	0.14
CT4	Melt Shop	Rolling Mill DCW Cooling Tower	0.09	0.37
CT5	Melt Shop	Rolling Mill/Quench/ACC Cooling Tower	0.34	1.48
CT6	Melt Shop	Light Plate DCW System	0.03	0.13
CT7	Melt Shop	Heavy Plate DCW System	0.01	0.05
CT8	Air Separation	Air Separation Plant Cooling Tower	0.05	0.23

[1] Maximum Hourly PM Emissions (lb/hr) = Entrained Water Carried Over (lb/hr) x Total Dissolved Solids Concentration (ppmw) / 1,000,000

NCCT PM Hourly Emission Rate (lb/hr) =	130.26 lb/hr	1,500 ppmw		= 0.20 lb/hr
			1,000,000	

[2] Maximum Annual PM Emission (tpy) = Maximum Hourly PM Emission Rate (lb/hr) x Hours of Operation (hr/yr) / (2,000 lb/ton)

Example NOx Annual Emission Rate (tpy) =	0.20 lb	8,760 hr	1 ton	= 0.86 tpy
	hr	yr	2,000 lb	

NUCOR - Project Honey Badger
Fugitive Dust from Paved Roads Emissions Calculation

Paved Roads Operational Properties

Emission Point ID	Description	Average Weight of Vehicle[1] (tons)	Total Daily Miles Traveled[1] (VMT/day)	Total Annual Miles Traveled (VMT/yr)	Road Surface Silt Loading[2] (g/m^2)	Number of Days with Precipitation[3] (days/yr)	Control Efficiency[4] (%)
FUGD-PAVED-01P	Paved Road-Road 01P	15.33	107	39,106	9.7	140	90%
FUGD-PAVED-02P	Paved Road-Road 02P	25.09	281	102,711	9.7	140	90%
FUGD-PAVED-03P	Paved Road-Road 03P	11.67	75	27,222	9.7	140	90%
FUGD-PAVED-04P	Paved Road-Road 04P	3.03	306	111,690	9.7	140	90%
FUGD-PAVED-05P	Paved Road-Road 05P	27.02	9	3,446	9.7	140	90%
FUGD-PAVED-06P	Paved Road-Road 06P	2.40	46	16,790	9.7	140	90%
FUGD-PAVED-07P	Paved Road-Road 07P	25.98	31	11,300	9.7	140	90%
FUGD-PAVED-08P	Paved Road-Road 08P	26.78	14	5,139	9.7	140	90%
FUGD-PAVED-09P	Paved Road-Road 09P	17.41	125	45,669	9.7	140	90%
FUGD-PAVED-10P	Paved Road-Road 10P	58.07	32	11,753	9.7	140	90%

[1] Estimated based on similar facility

[2] Based on Table 13.2.1-3 of AP-42 Section 13.2.1 dated January 2011.

[3] Defined to be at least 0.254 mm (0.01 in) of precipitation based on AP-42 Sections 13.2.1.3 and 13.2.2.2.

[4] From EPA document: Control of Open Fugitive Dust Sources, published September 1988.

Fugitive Dust from Paved Roads Emission Factors Calculations

Emission Point ID	Description	Emission Factor		
		PM_{30} (lb/VMT)	PM_{10} (lb/VMT)	$PM_{2.5}$ (lb/VMT)
FUGD-PAVED-01P	Paved Road-Road 01P	1.27	0.25	0.062
FUGD-PAVED-02P	Paved Road-Road 02P	2.10	0.42	0.103
FUGD-PAVED-03P	Paved Road-Road 03P	0.96	0.19	0.047
FUGD-PAVED-04P	Paved Road-Road 04P	0.24	0.05	0.012
FUGD-PAVED-05P	Paved Road-Road 05P	2.27	0.45	0.111
FUGD-PAVED-06P	Paved Road-Road 06P	0.19	0.04	0.009
FUGD-PAVED-07P	Paved Road-Road 07P	2.18	0.44	0.107
FUGD-PAVED-08P	Paved Road-Road 08P	2.25	0.45	0.110
FUGD-PAVED-09P	Paved Road-Road 09P	1.45	0.29	0.071
FUGD-PAVED-10P	Paved Road-Road 10P	4.95	0.99	0.243

E = k x s L^0.91 x W^1.02 x (1 - P/4N)

Where

E= Size specific emission factor (lb/VMT)
k= Constant from AP-42 Table 13.2.1-1 (lb/VMT)
sL= Road surface silt loading (g/m^2)
W= Average weight of vehicles traveling the road (tons)
P= Number of days in a year with at least 0.254 mm (0.1 in) of precipitation using Figure 13.2.2-1.
N= Number of days in the averaging period (365 for annual)

NUCOR - Project Honey Badger
Fugitive Dust from Paved Roads Emissions Calculation

Fugitive Dust from Paved Roads Emissions Calculation

Emission Point ID	Description	Hourly Emissions[1]			Annual Emissions[2]		
		PM_{30} (lb/hr)	PM_{10} (lb/hr)	$PM_{2.5}$ (lb/hr)	PM_{30} (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
FUGD-PAVED-01P	Paved Road-Road 01P	0.57	0.11	0.03	2.49	0.50	0.12
FUGD-PAVED-02P	Paved Road-Road 02P	2.47	0.49	0.12	10.81	2.16	0.53
FUGD-PAVED-03P	Paved Road-Road 03P	0.30	0.06	0.01	1.31	0.26	0.06
FUGD-PAVED-04P	Paved Road-Road 04P	0.31	0.06	0.02	1.36	0.27	0.07
FUGD-PAVED-05P	Paved Road-Road 05P	0.09	0.02	0.004	0.39	0.08	0.02
FUGD-PAVED-06P	Paved Road-Road 06P	0.04	0.01	0.002	0.16	0.03	0.01
FUGD-PAVED-07P	Paved Road-Road 07P	0.28	0.06	0.01	1.23	0.25	0.06
FUGD-PAVED-08P	Paved Road-Road 08P	0.13	0.03	0.01	0.58	0.12	0.03
FUGD-PAVED-09P	Paved Road-Road 09P	0.76	0.15	0.04	3.31	0.66	0.16
FUGD-PAVED-10P	Paved Road-Road 10P	0.66	0.13	0.03	2.91	0.58	0.14
Total Paved Roadways		**5.60**	**1.12**	**0.28**	**24.55**	**4.91**	**1.21**

[1] Hourly Emissions (lb/hr) = Total Hourly Miles Traveled (VMT/hr) x Emission Factor (lb/VMT) x (1 - Control Efficiency (%))

PM Hourly Emission Rate (lb/hr) =	107 VMT / day	1.27 lb / VMT	10 % / 24 hr	= 0.57 lb/hr

[2] Annual Emissions (tpy) = Total Annual Miles Traveled (VMT/yr) x Emission Factor (lb/VMT) / 2000 (lb/ton) x (1 - Control Efficiency (%))

PM Annual Emission Rate (tpy) =	39,106 VMT / yr	1.27 lb / VMT	ton / 2000 lb	10 %	= 2.49 tpy

NUCOR - Project Honey Badger
Fugitive Dust from Unpaved Road Emissions Calculation

Unpaved Roads Operational Properties

Emission Point ID	Description	Average Weight of Vehicle[1] (tons)	Total Daily Miles Traveled (VMT/day)	Total Annual Miles Traveled (VMT/yr)	Silt Content[2] (%)	Number of Days with Precipitation[3] (days/yr)	Control Efficiency[4] (%)
FUGD-UNPAVED-11U	Unpaved Road-Road 11U	29.22	29.1	10,629	6	140	90%
FUGD-UNPAVED-12U	Unpaved Road-Road 12U	29.43	30.2	11,038	6	140	90%
FUGD-UNPAVED-13U	Unpaved Road-Road 13U	74.09	32.0	11,665	6	140	90%
FUGD-UNPAVED-14U	Unpaved Road-Road 14U	74.09	3.8	1,372	6	140	90%
FUGD-UNPAVED-15U	Unpaved Road-Road 15U	118.66	24.9	9,103	6	140	90%
FUGD-UNPAVED-16U	Unpaved Road-Road 16U	109.06	17.6	6,420	6	140	90%
FUGD-UNPAVED-17U	Unpaved Road-Road 17U	153.66	13.8	5,030	6	140	90%
FUGD-UNPAVED-18U	Unpaved Road-Road 18U	29.22	27.0	9,870	6	140	90%
FUGD-UNPAVED-19U	Unpaved Road-Road 19U	70.63	13.0	4,730	6	140	90%

[1] Average Weight of Vehicle (tons) = [(Weight of Loading Truck with Material x No. of Trips per Day for Loading Truck with Material) + (Weight of Loading Truck without Material x No. of Trips per Day for Loading Truck without Material) + (Weight of Plant Equipment x No. of Trips per Day for Equipment) + (Weight of Personal Vehicle x No. of Trips per Day for Personal Vehicle)] / (Total No. of Trips per Day)

[2] Based on Table 13.2.2-1 of AP-42 Section 13.2.2 dated November 2006 for mean iron and steel production.

[3] Defined to be at least 0.254 mm (0.01 in) of precipitation based on AP-42 Sections 13.2.1.3 and 13.2.2.2.

[4] From EPA document: Control of Open Fugitive Dust Sources, published September 1988.

Fugitive Dust from Unpaved Roads Emission Factors Calculations

Emission Point ID	Description	Emission Factor		
		PM_{30} (lb/VMT)	PM_{10} (lb/VMT)	$PM_{2.5}$ (lb/VMT)
FUGD-UNPAVED-11U	Unpaved Road-Road 11U	5.18	1.38	0.14
FUGD-UNPAVED-12U	Unpaved Road-Road 12U	5.20	1.38	0.14
FUGD-UNPAVED-13U	Unpaved Road-Road 13U	7.87	2.10	0.21
FUGD-UNPAVED-14U	Unpaved Road-Road 14U	7.87	2.10	0.21
FUGD-UNPAVED-15U	Unpaved Road-Road 15U	9.73	2.59	0.26
FUGD-UNPAVED-16U	Unpaved Road-Road 16U	9.37	2.50	0.25
FUGD-UNPAVED-17U	Unpaved Road-Road 17U	10.93	2.91	0.29
FUGD-UNPAVED-18U	Unpaved Road-Road 18U	5.18	1.38	0.14
FUGD-UNPAVED-19U	Unpaved Road-Road 19U	7.70	2.05	0.21

E = k x (s/12)^a x (W/3)^b x (365-P)/365

Where

E= Size specific emission factor (lb/VMT)
k= Constant from AP-42 Table 13.2.2-2 (lb/VMT)
a= Constant from AP-42 Table 13.2.2-2
b= Constant from AP-42 Table 13.2.2-2
s= Surface material silt content (%)
W= Mean vehicle weight (tons)
P= Number of days in a year with at least 0.254 mm (0.1 in) of precipitation using Figure 13.2.2-1.

NUCOR - Project Honey Badger
Fugitive Dust from Unpaved Road Emissions Calculation

Fugitive Dust from Unpaved Roads Emissions Calculation

EPN	Description	Hourly Emissions[1]			Annual Emissions[2]		
		PM_{30} (lb/hr)	PM_{10} (lb/hr)	$PM_{2.5}$ (lb/hr)	PM_{30} (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
FUGD-UNPAVED-11U	Unpaved Road-Road 11U	0.63	0.17	0.02	2.75	0.73	0.07
FUGD-UNPAVED-12U	Unpaved Road-Road 12U	0.65	0.17	0.02	2.87	0.76	0.08
FUGD-UNPAVED-13U	Unpaved Road-Road 13U	1.05	0.28	0.03	4.59	1.22	0.12
FUGD-UNPAVED-14U	Unpaved Road-Road 14U	0.12	0.03	0.00	0.54	0.14	0.01
FUGD-UNPAVED-15U	Unpaved Road-Road 15U	1.01	0.27	0.03	4.43	1.18	0.12
FUGD-UNPAVED-16U	Unpaved Road-Road 16U	0.69	0.18	0.02	3.01	0.80	0.08
FUGD-UNPAVED-17U	Unpaved Road-Road 17U	0.63	0.17	0.02	2.75	0.73	0.07
FUGD-UNPAVED-18U	Unpaved Road-Road 18U	0.58	0.16	0.02	2.56	0.68	0.07
FUGD-UNPAVED-19U	Unpaved Road-Road 19U	0.42	0.11	0.01	1.82	0.49	0.05
Total Unpaved Roadways		**5.78**	**1.54**	**0.15**	**25.31**	**6.75**	**0.67**

[1] Hourly Emissions (lb/hr) = Total Hourly Miles Traveled (VMT/hr) x Emission Factor (lb/VMT) x (1 - Control Efficiency (%))

PM Hourly Emission Rate (lb/hr) =	29 VMT / hr	5.18 lb / VMT	10 % / 24	= 0.63 lb/hr

[2] Annual Emissions (tpy) = Total Annual Miles Traveled (VMT/yr) x Emission Factor (lb/VMT) / 2000 (lb/ton) x (1 - Control Efficiency (%))

PM Annual Emission Rate (tpy) =	10,629 VMT / yr	5.18 lb / VMT	ton / 2000 lb	10 %	= 2.75 tpy

NUCOR - Project Honey Badger
Ancillary Storage Tanks Emissions Calculation

Tanks Physical Properties

Emission Point ID	Description	Product Stored	Capacity (gal)	Diameter (ft)	Length (ft)	Maximum Hourly Throughput (gal/hr)	Maximum Monthly Throughput (gal/month)	Annual Throughput (gal/yr)
T1	Diesel Tank	Diesel	5,000	5	8	1,000	30,000	365,000
T2	Diesel Tank	Diesel	1,000	8	27	1,000	30,000	365,000
T3	Diesel Tank	Diesel	1,000	5	8	1,000	30,000	365,000
T4	Diesel Tank	Diesel	1,000	5	8	1,000	30,000	365,000
T5	Diesel Tank	Diesel	2,000	5	8	1,000	30,000	365,000
T6	Diesel Tank	Diesel	2,000	5	8	1,000	30,000	365,000
T7	Gasoline Tank	Unleaded Gasoline	1,000	5	8	1,000	10,000	120,000
T8	Caster Hydraulic Oil	Hydraulic Oil	5,000	5	8	5,000	30,000	365,000
T9	Hot Mill Hydraulic Oil	Hydraulic Oil	5,000	5	8	5,000	30,000	365,000
T10	HCL Tank #1	HCl Acid	26,400	11	40	5,000	100,000	1,200,000
T11	HCL Tank #2	HCl Acid	26,400	11	40	5,000	100,000	1,200,000
T12	HCL Tank #3	HCl Acid	26,400	11	40	5,000	100,000	1,200,000
T13	HCL Tank #4	HCl Acid	26,400	11	40	5,000	100,000	1,200,000
T14	HCL Tank #5	HCl Acid	26,400	11	40	5,000	100,000	1,200,000
T15	HCL Tank #6	HCl Acid	26,400	11	40	5,000	100,000	1,200,000
T16	SPL Tank #1	Spent Pickle Liquor	26,400	11	40	5,000	75,000	900,000
T17	SPL Tank #2	Spent Pickle Liquor	26,400	11	40	5,000	75,000	900,000
T18	SPL Tank #3	Spent Pickle Liquor	26,400	11	40	5,000	75,000	900,000
T19	SPL Tank #4	Spent Pickle Liquor	26,400	11	40	5,000	75,000	900,000
T20	SPL Tank #5	Spent Pickle Liquor	26,400	11	40	5,000	75,000	900,000
T21	SPL Tank #6	Spent Pickle Liquor	26,400	11	40	5,000	75,000	900,000
T22	SPL Tank #7	Spent Pickle Liquor	26,400	11	40	5,000	75,000	900,000
T23	SPL Tank #8	Spent Pickle Liquor	26,400	11	40	5,000	75,000	900,000
T24	Used Oil Tank	Used Oil	5,000	5	8	5,000	30,000	365,000

NUCOR - Project Honey Badger
Ancillary Storage Tanks Emissions Calculation

Working and Breathing Emissions Calculation

Emission Point ID	Description	Product Stored	Maximum Daily Liquid Surface Temperature[1] (°R)	Vapor Pressure at Maximum Liquid Surface Temperature (P_{VA})[2] (psia)	Vapor Molecular Weight (M_V)[3] (lb/lb-mol)	Hourly Emissions[4] (lb/hr)	Annual Emissions[5] (tpy)
T1	Diesel Tank	Diesel	563.67	0.024	130	0.07	1.02E-03
T2	Diesel Tank	Diesel	563.67	0.024	130	0.07	1.02E-03
T3	Diesel Tank	Diesel	563.67	0.024	130	0.07	1.02E-03
T4	Diesel Tank	Diesel	563.67	0.024	130	0.07	1.02E-03
T5	Diesel Tank	Diesel	563.67	0.024	130	0.07	1.02E-03
T6	Diesel Tank	Diesel	563.67	0.024	130	0.07	1.02E-03
T7	Gasoline Tank	Unleaded Gasoline	563.67	15.393	62	21.09	4.58E-01
T8	Caster Hydraulic Oil	Hydraulic Oil	563.67	0.000	226	0.01	1.22E-05
T9	Hot Mill Hydraulic Oil	Hydraulic Oil	563.67	0.000	226	0.01	1.22E-05
T10	HCL Tank #1	HCl Acid	563.67	0.010	36	0.04	5.38E-03
T11	HCL Tank #2	HCl Acid	563.67	0.010	36	0.04	5.38E-03
T12	HCL Tank #3	HCl Acid	563.67	0.010	36	0.04	5.38E-03
T13	HCL Tank #4	HCl Acid	563.67	0.010	36	0.04	5.38E-03
T14	HCL Tank #5	HCl Acid	563.67	0.010	36	0.04	5.38E-03
T15	HCL Tank #6	HCl Acid	563.67	0.010	36	0.04	5.38E-03
T16	SPL Tank #1	Spent Pickle Liquor	563.67	0.010	36	0.04	4.72E-03
T17	SPL Tank #2	Spent Pickle Liquor	563.67	0.010	36	0.04	4.72E-03
T18	SPL Tank #3	Spent Pickle Liquor	563.67	0.010	36	0.04	4.72E-03
T19	SPL Tank #4	Spent Pickle Liquor	563.67	0.010	36	0.04	4.72E-03
T20	SPL Tank #5	Spent Pickle Liquor	563.67	0.010	36	0.04	4.72E-03
T21	SPL Tank #6	Spent Pickle Liquor	563.67	0.010	36	0.04	4.72E-03
T22	SPL Tank #7	Spent Pickle Liquor	563.67	0.010	36	0.04	4.72E-03
T23	SPL Tank #8	Spent Pickle Liquor	563.67	0.010	36	0.04	4.72E-03
T24	Used Oil Tank	Used Oil	563.67	0.000	226	0.01	1.22E-05

[1] Maximum daily liquid surface temperature is conservatively assumed to be 105°F.

[2] Vapor pressure at maximum liquid surface temperature is calculated based on antoine's coefficients.

[3] Molecular weight of diesel were obtained from AP-42 Table 7.1-2 for distillate fuel oil No. 2 or respective MSDS.

[4] Hourly emissions are calculated based on *TCEQ Air Permit Division Estimating Short Term Emission Rates from Fixed Roof Tanks* (February 2018).

$$L_{max} = M_V \times P_{VA} / RT \times FR_M$$

Where

L_{MAX}= Maximum short term emission rate, lbs/hour

M_v= vapor molecular weight, lb/lb-mole

P_{VA}= VP at max daily liquid surface temperature, psia

FR_M= Maximum filling rate, gal/hr

R= Ideal gas constant, (psia gal)/(lb-mol °R)

T= Max daily liquid surface temperature, °R

Maximum Hourly Emissions = $\frac{1{,}000 \text{ gal}}{\text{hr}} \times \frac{130 \text{ lb}}{\text{lb-mol}} \times 0.024 \text{ psia} \times \frac{1}{563.67\ °R} \times \frac{°R \text{ lb-mol}}{80.273 \text{ psia gal}}$ = 0.07 lb/hr

[5] Annual emissions are based on AP-42 Section 7.1.3.1 (November 2006). See separate pages.

NUCOR - Project Honey Badger
Ancillary Diesel Storage Tank Annual Emissions Calculation

Calculation performed in accordance with AP-42, November 2006, Section 7.1.3.1.

Variable	
Tank Identification	T1 - T6
CIN	N/A
Discharging to	Atmosphere
EPN	T1 - T6
Location for Calculation Purposes	Huntington, West Virginia
Tank/Roof Type	Horizontal Tank
Underground?	Aboveground
Diameter, ft	5.0
Shell Height or Length, ft	8.0
Nominal Capacity, gal	5,000
Breather Vent Type	Combination Vent Valve
Shell Paint Color	White
Shell Paint Condition	Good
Roof Paint Color	White
Roof Paint Condition	Good

	January	February	March	April	May	June	July	August	September	October	November	December
Type of Substance	Organic Liquid	Organic Liquid	Organic Liquid	Organic Liquid	Organic Liquid	Organic Liquid	Organic Liquid	Organic Liquid	Organic Liquid	Organic Liquid	Organic Liquid	Organic Liquid
Contents of Tank	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Throughput, gallons/month	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
Effective Diameter, ft	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1
Effective Height, ft	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
Working Capacity, gal	1,175	1,175	1,175	1,175	1,175	1,175	1,175	1,175	1,175	1,175	1,175	1,175
Maximum Liquid Height, ft	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Liquid Height, ft	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average Liquid Height, ft	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50
Vapor Space Outage, ft	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96
Vapor Space Volume, ft^3	79	79	79	79	79	79	79	79	79	79	79	79
Average Daily Minimum Ambient Temperature, F	23.20	26.10	35.50	43.80	52.40	60.40	65.00	63.90	57.10	45.00	37.00	28.40
Average Daily Maximum Ambient Temperature, F	40.70	44.20	56.50	66.80	75.20	81.30	84.30	83.10	78.00	67.20	55.90	45.30
Daily Total Solar Insolation Factor, Btu/ft^2/day	619	856	1174	1509	1776	1905	1842	1657	1371	1044	677	526
Daily Average Ambient Temperature, F	32.0	35.2	46.0	55.3	63.8	70.9	74.7	73.5	67.6	56.1	46.5	36.9
Tank Paint Solar Absorbance, dimensionless	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170
Daily Vapor Temperature Range, R	15.5	17.1	20.7	23.7	24.9	24.1	22.7	21.7	21.6	21.0	16.8	14.7
Daily Average Liquid Surf. Temperature, F	32.8	36.3	47.6	57.3	66.2	73.4	77.1	75.7	69.4	57.5	47.4	37.6
Daily Minimum Liquid Surf. Temperature, F	28.9	32.0	42.4	51.4	60.0	67.4	71.5	70.3	64.0	52.3	43.2	33.9
Daily Maximum Liquid Surf. Temperature, F	36.7	40.6	52.8	63.3	72.4	79.4	82.8	81.2	74.8	62.8	51.6	41.2
Liquid Bulk Temperature	32.0	35.2	46.0	55.3	63.8	70.9	74.7	73.5	67.6	56.1	46.5	36.9
Vapor Molecular Weight, lb/lbmol	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00
Antoine's Coefficient A	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80
Antoine's Coefficient B	686.26	686.26	686.26	686.26	686.26	686.26	686.26	686.26	686.26	686.26	686.26	686.26
Antoine's Coefficient C	144.92	144.92	144.92	144.92	144.92	144.92	144.92	144.92	144.92	144.92	144.92	144.92
Vapor Pressure at Daily Av. Liquid Surf. Temp., psia	0.0023	0.0027	0.0041	0.0059	0.0079	0.0100	0.0112	0.0107	0.0088	0.0059	0.0041	0.0028
Vapor Pressure at Daily Min. Liquid Surf. Temp., psia	0.0020	0.0022	0.0034	0.0048	0.0064	0.0082	0.0094	0.0090	0.0074	0.0049	0.0035	0.0024
Vapor Pressure at Daily Max. Liquid Surf. Temp., psia	0.0027	0.0032	0.0050	0.0072	0.0097	0.0120	0.0132	0.0126	0.0104	0.0071	0.0048	0.0033
Vapor Density, lb/ft^3	0.00006	0.00007	0.00010	0.00014	0.00018	0.00023	0.00025	0.00024	0.00020	0.00014	0.00010	0.00007
Daily Vapor Pressure range, psi	0.0007	0.0009	0.0016	0.0024	0.0032	0.0038	0.0039	0.0036	0.0030	0.0022	0.0013	0.0008
Breather Vent Pressure Setting, psig	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300
Breather Vent Vacuum Setting, psig	-0.0300	-0.0300	-0.0300	-0.0300	-0.0300	-0.0300	-0.0300	-0.0300	-0.0300	-0.0300	-0.0300	-0.0300
Breather Vent Pressure Setting Range, psi	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600
Ambient Pressure, psia	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3
Vapor Space Expansion Factor	0.028	0.0308	0.0373	0.0427	0.0448	0.0434	0.0408	0.0391	0.0388	0.0377	0.0303	0.0264
Vented Vapor Saturation Factor	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.999	1.000	1.000

NUCOR - Project Honey Badger
Ancillary Diesel Storage Tank Annual Emissions Calculation

Calculation performed in accordance with AP-42, November 2006, Section 7.1.3.1.

Variable	
Tank Identification	**T1 - T6**
CIN	**N/A**
Discharging to	**Atmosphere**
EPN	**T1 - T6**
Location for Calculation Purposes	**Huntington, West Virginia**
Tank/Roof Type	**Horizontal Tank**
Underground?	**Aboveground**
Diameter, ft	**5.0**
Shell Height or Length, ft	**8.0**
Nominal Capacity, gal	**5,000**
Breather Vent Type	**Combination Vent Valve**
Shell Paint Color	**White**
Shell Paint Condition	**Good**
Roof Paint Color	**White**
Roof Paint Condition	**Good**

	January	February	March	April	May	June	July	August	September	October	November	December
Annual Turnovers	306.37	306.37	306.37	306.37	306.37	306.37	306.37	306.37	306.37	306.37	306.37	306.37
Turnover Factor	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26
Working Loss Product Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Standing Storage Loss, lb/mo	0.0039	0.0044	0.0090	0.0139	0.0199	0.0232	0.0250	0.0230	0.0184	0.0127	0.0070	0.0044
Working Loss, lb/mo	0.0569	0.0657	0.1017	0.1444	0.1947	0.2451	0.2747	0.2633	0.2159	0.1453	0.1009	0.0691
Total Losses, lb/mo	0.0607	0.0701	0.1107	0.1583	0.2145	0.2682	0.2998	0.2863	0.2343	0.1580	0.1079	0.0735

Standing Storage Loss, lb/yr	0.1648
Working Loss, lb/yr	1.8777
Total Losses, lb/yr	2.0424

Sample Calculations

Emissions were calculated on a pounds per month basis. The emissions for each month were then summed in order to estimate annual emissions. Monthly emissions were calculated according to the calculation methodology for fixed roof tanks explained in EPA AP-42 Chapter 7 for Organic Liquid Storage Tanks.

A sample calculation has been provided for the tank, material, and month which had the highest emissions. All Input data and intermediate calculation information has been provided.

<u>Estimating Monthly Emissions from Fixed Roof Tanks</u>

[LT] = [LS] + [LW]

[LS] = [MD] x [VV] x [WV] x [KE] x [KS]

[LW] = 0.001 x [MV] x [PVA] x [Q] x [KN] x [KP]

Where:

LT	Total Losses, lb/mo
LS	Standing Storage Loss, lb/mo
LW	Working Loss, lb/mo
MD	Days in month
VV	Vapor Space Volume, ft^3
WV	Vapor Density, lb/ft^3
KE	Vapor Space Expansion Factor

Where:

KS	Vented Vapor Saturation Factor
MV	Vapor Molecular Weight, lb/lbmol
PVA	Vapor Pressure at Daily Av. Liquid Surf. Temp., psia
Q	Throughput, gallons/month
KN	Turnover Factor
KP	Working Loss Product Factor

Maximum Monthly Emissions:

Material	Diesel
Month	July

[LT] = [0.0250] + [0.2747] = 0.2998 lbs

[LS] = [31] x [78.5398] x [0.0003] x [0.0408] x [0.9988] = 0.0250 lbs

[LW] = 0.001 x [130] x [0.0112] x [30,000] x [0.2646] x [1] = 0.2747 lbs

Values for Sample Calculation

LT	0.2998	KS	0.9988
LS	0.0250	MV	130
LW	0.2747	PVA	0.0112
MD	31	Q	30,000
VV	78.5398	KN	0.2646
WV	0.0003	KP	1
KE	0.0408		

NUCOR - Project Honey Badger
Ancillary Gasoline Storage Tank Annual Emissions Calculation

Calculation performed in accordance with AP-42, November 2006, Section 7.1.3.1.

Variable	
Tank Identification	T7
CIN	N/A
Discharging to	Atmosphere
EPN	T7
Location for Calculation Purposes	Huntington, West Virginia
Tank/Roof Type	Horizontal Tank
Underground?	Aboveground
Diameter, ft	5.0
Shell Height or Length, ft	8.0
Nominal Capacity, gal	1,000
Breather Vent Type	Combination Vent Valve
Shell Paint Color	White
Shell Paint Condition	Good
Roof Paint Color	White
Roof Paint Condition	Good

	January	February	March	April	May	June	July	August	September	October	November	December
Type of Substance	Organic Liquid	Organic Liquid	Organic Liquid	Organic Liquid	Organic Liquid	Organic Liquid	Organic Liquid	Organic Liquid	Organic Liquid	Organic Liquid	Organic Liquid	Organic Liquid
Contents of Tank	Unleaded Gasoline	Unleaded Gasoline	Unleaded Gasoline	Unleaded Gasoline	Unleaded Gasoline	Unleaded Gasoline	Unleaded Gasoline	Unleaded Gasoline	Unleaded Gasoline	Unleaded Gasoline	Unleaded Gasoline	Unleaded Gasoline
Throughput, gallons/month	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Effective Diameter, ft	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1
Effective Height, ft	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
Working Capacity, gal	1,175	1,175	1,175	1,175	1,175	1,175	1,175	1,175	1,175	1,175	1,175	1,175
Maximum Liquid Height, ft	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Liquid Height, ft	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average Liquid Height, ft	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50
Vapor Space Outage, ft	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96
Vapor Space Volume, ft^3	79	79	79	79	79	79	79	79	79	79	79	79
Average Daily Minimum Ambient Temperature, F	23.20	26.10	35.50	43.80	52.40	60.40	65.00	63.90	57.10	45.00	37.00	28.40
Average Daily Maximum Ambient Temperature, F	40.70	44.20	56.50	66.80	75.20	81.30	84.30	83.10	78.00	67.20	55.90	45.30
Daily Total Solar Insolation Factor, Btu/ft^2/day	619	856	1174	1509	1776	1905	1842	1657	1371	1044	677	526
Daily Average Ambient Temperature, F	32.0	35.2	46.0	55.3	63.8	70.9	74.7	73.5	67.6	56.1	46.5	36.9
Tank Paint Solar Absorbance, dimensionless	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170
Daily Vapor Temperature Range, R	15.5	17.1	20.7	23.7	24.9	24.1	22.7	21.7	21.6	21.0	16.8	14.7
Daily Average Liquid Surf. Temperature, F	32.8	36.3	47.6	57.3	66.2	73.4	77.1	75.7	69.4	57.5	47.4	37.6
Daily Minimum Liquid Surf. Temperature, F	28.9	32.0	42.4	51.4	60.0	67.4	71.5	70.3	64.0	52.3	43.2	33.9
Daily Maximum Liquid Surf. Temperature, F	36.7	40.6	52.8	63.3	72.4	79.4	82.8	81.2	74.8	62.8	51.6	41.2
Liquid Bulk Temperature	32.0	35.2	46.0	55.3	63.8	70.9	74.7	73.5	67.6	56.1	46.5	36.9
Vapor Molecular Weight, lb/lbmol	62.00	62.00	62.00	62.00	62.00	62.00	62.00	62.00	62.00	62.00	62.00	62.00
Antoine's Coefficient A	6.77	6.77	6.77	6.77	6.77	6.77	6.77	6.77	6.77	6.77	6.77	6.77
Antoine's Coefficient B	1209.97	1209.97	1209.97	1209.97	1209.97	1209.97	1209.97	1209.97	1209.97	1209.97	1209.97	1209.97
Antoine's Coefficient C	273.11	273.11	273.11	273.11	273.11	273.11	273.11	273.11	273.11	273.11	273.11	273.11
Vapor Pressure at Daily Av. Liquid Surf. Temp., psia	4.2509	4.5694	5.7215	6.8945	8.1186	9.2388	9.8605	9.6227	8.6018	6.9171	5.6972	4.6877
Vapor Pressure at Daily Min. Liquid Surf. Temp., psia	3.9200	4.1846	5.1669	6.1597	7.2430	8.2960	8.9250	8.7424	7.8015	6.2637	5.2446	4.3491
Vapor Pressure at Daily Max. Liquid Surf. Temp., psia	4.6038	4.9820	6.3227	7.6972	9.0758	10.2640	10.8714	10.5714	9.4655	7.6236	6.1805	5.0471
Vapor Density, lb/ft^3	0.04987	0.05323	0.06517	0.07705	0.08920	0.10013	0.10613	0.10384	0.09393	0.07727	0.06492	0.05447
Daily Vapor Pressure range, psi	0.6838	0.7974	1.1559	1.5375	1.8329	1.9679	1.9464	1.8290	1.6640	1.3599	0.9359	0.6979
Breather Vent Pressure Setting, psig	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300
Breather Vent Vacuum Setting, psig	-0.0300	-0.0300	-0.0300	-0.0300	-0.0300	-0.0300	-0.0300	-0.0300	-0.0300	-0.0300	-0.0300	-0.0300
Breather Vent Pressure Setting Range, psi	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600
Ambient Pressure, psia	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3
Vapor Space Expansion Factor	0.093	0.1101	0.1682	0.2447	0.3329	0.4203	0.4646	0.4167	0.3210	0.2160	0.1347	0.0957
Vented Vapor Saturation Factor	0.693	0.678	0.627	0.582	0.542	0.510	0.494	0.500	0.528	0.581	0.628	0.672

NUCOR - Project Honey Badger
Ancillary Gasoline Storage Tank Annual Emissions Calculation

Calculation performed in accordance with AP-42, November 2006, Section 7.1.3.1.

Variable	
Tank Identification	T7
CIN	N/A
Discharging to	Atmosphere
EPN	T7
Location for Calculation Purposes	Huntington, West Virginia
Tank/Roof Type	Horizontal Tank
Underground?	Aboveground
Diameter, ft	5.0
Shell Height or Length, ft	8.0
Nominal Capacity, gal	1,000
Breather Vent Type	Combination Vent Valve
Shell Paint Color	White
Shell Paint Condition	Good
Roof Paint Color	White
Roof Paint Condition	Good

	January	February	March	April	May	June	July	August	September	October	November	December
Annual Turnovers	102.12	102.12	102.12	102.12	102.12	102.12	102.12	102.12	102.12	102.12	102.12	102.12
Turnover Factor	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46
Working Loss Product Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Standing Storage Loss, lb/mo	7.8700	8.7316	16.7263	25.8692	39.1881	50.5522	59.2570	52.6365	37.4878	23.6250	12.9348	8.5294
Working Loss, lb/mo	28.8923	31.0569	38.8879	46.8604	55.1802	62.7939	67.0194	65.4035	58.4646	47.0140	38.7228	31.8611
Total Losses, lb/mo	36.7623	39.7885	55.6142	72.7296	94.3683	113.3461	126.2765	118.0400	95.9523	70.6390	51.6576	40.3905

Standing Storage Loss, lb/yr	343.4079
Working Loss, lb/yr	572.1571
Total Losses, lb/yr	915.5651

Sample Calculations

Emissions were calculated on a pounds per month basis. The emissions for each month were then summed in order to estimate annual emissions. Monthly emissions were calculated according to the calculation methodology for fixed roof tanks explained in EPA AP-42 Chapter 7 for Organic Liquid Storage Tanks.

A sample calculation has been provided for the tank, material, and month which had the highest emissions. All Input data and intermediate calculation information has been provided.

Estimating Monthly Emissions from Fixed Roof Tanks

[LT] = [LS] + [LW]

[LS] = [MD] x [VV] x [WV] x [KE] x [KS]

[LW] = 0.001 x [MV] x [PVA] x [Q] x [KN] x [KP]

Where:

LT	Total Losses, lb/mo
LS	Standing Storage Loss, lb/mo
LW	Working Loss, lb/mo
MD	Days in month
VV	Vapor Space Volume, ft^3
WV	Vapor Density, lb/ft^3
KE	Vapor Space Expansion Factor
KS	Vented Vapor Saturation Factor
MV	Vapor Molecular Weight, lb/lbmol
PVA	Vapor Pressure at Daily Av. Liquid Surf. Temp., psia
Q	Throughput, gallons/month
KN	Turnover Factor
KP	Working Loss Product Factor

Maximum Monthly Emissions:

Material	Unleaded Gasoline
Month	July

[LT] = [59.2570] + [67.0194] = 126.2765 lbs

[LS] = [31] x [78.5398] x [0.1061] x [0.4646] x [0.4936] = 59.2570 lbs

[LW] = 0.001 x [62] x [9.8605] x [10,000] x [0.4604] x [1] = 67.0194 lbs

Values for Sample Calculation

LT	126.2765	KS	0.4936
LS	59.2570	MV	62
LW	67.0194	PVA	9.8605
MD	31	Q	10,000
VV	78.5398	KN	0.4604
WV	0.1061	KP	1
KE	0.4646		

NUCOR - Project Honey Badger
Ancillary Oil/Grease Storage Tank Annual Emissions Calculation

Calculation performed in accordance with AP-42, November 2006, Section 7.1.3.1.

Variable	
Tank Identification	**T8 & T9**
CIN	**N/A**
Discharging to	**Atmosphere**
EPN	**T8 & T9**
Location for Calculation Purposes	**Huntington, West Virginia**
Tank/Roof Type	**Cone**
Underground?	**Aboveground**
Diameter, ft	**5.0**
Shell Height or Length, ft	**8.0**
Nominal Capacity, gal	**5000.0**
Breather Vent Type	**Combination Vent Valve**
Shell Paint Color	**White**
Shell Paint Condition	**Good**
Roof Paint Color	**White**
Roof Paint Condition	**Good**

	January	February	March	April	May	June	July	August	September	October	November	December
Type of Substance	**Organic Liquid**	**Organic Liquid**	**Organic Liquid**	**Organic Liquid**	**Organic Liquid**	**Organic Liquid**	**Organic Liquid**	**Organic Liquid**	**Organic Liquid**	**Organic Liquid**	**Organic Liquid**	**Organic Liquid**
Contents of Tank	**Hydraulic Oil**	**Hydraulic Oil**	**Hydraulic Oil**	**Hydraulic Oil**	**Hydraulic Oil**	**Hydraulic Oil**	**Hydraulic Oil**	**Hydraulic Oil**	**Hydraulic Oil**	**Hydraulic Oil**	**Hydraulic Oil**	**Hydraulic Oil**
Throughput, gallons/month	**30,000**	**30,000**	**30,000**	**30,000**	**30,000**	**30,000**	**30,000**	**30,000**	**30,000**	**30,000**	**30,000**	**30,000**
Effective Diameter, ft	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Effective Height, ft	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Working Capacity, gal	1,175	1,175	1,175	1,175	1,175	1,175	1,175	1,175	1,175	1,175	1,175	1,175
Maximum Liquid Height, ft	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Liquid Height, ft	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average Liquid Height, ft	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Vapor Space Outage, ft	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05
Vapor Space Volume, ft^3	80	80	80	80	80	80	80	80	80	80	80	80
Average Daily Minimum Ambient Temperature, F	23.20	26.10	35.50	43.80	52.40	60.40	65.00	63.90	57.10	45.00	37.00	28.40
Average Daily Maximum Ambient Temperature, F	40.70	44.20	56.50	66.80	75.20	81.30	84.30	83.10	78.00	67.20	55.90	45.30
Daily Total Solar Insolation Factor, Btu/ft^2/day	619	856	1174	1509	1776	1905	1842	1657	1371	1044	677	526
Daily Average Ambient Temperature, F	32.0	35.2	46.0	55.3	63.8	70.9	74.7	73.5	67.6	56.1	46.5	36.9
Tank Paint Solar Absorbance, dimensionless	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170
Daily Vapor Temperature Range, R	15.5	17.1	20.7	23.7	24.9	24.1	22.7	21.7	21.6	21.0	16.8	14.7
Daily Average Liquid Surf. Temperature, F	32.8	36.3	47.6	57.3	66.2	73.4	77.1	75.7	69.4	57.5	47.4	37.6
Daily Minimum Liquid Surf. Temperature, F	28.9	32.0	42.4	51.4	60.0	67.4	71.5	70.3	64.0	52.3	43.2	33.9
Daily Maximum Liquid Surf. Temperature, F	36.7	40.6	52.8	63.3	72.4	79.4	82.8	81.2	74.8	62.8	51.6	41.2
Liquid Bulk Temperature	32.0	35.2	46.0	55.3	63.8	70.9	74.7	73.5	67.6	56.1	46.5	36.9
Vapor Molecular Weight, lb/lbmol	226.45	226.45	226.45	226.45	226.45	226.45	226.45	226.45	226.45	226.45	226.45	226.45
Antoine's Coefficient A	7.59	7.59	7.59	7.59	7.59	7.59	7.59	7.59	7.59	7.59	7.59	7.59
Antoine's Coefficient B	2071.60	2071.60	2071.60	2071.60	2071.60	2071.60	2071.60	2071.60	2071.60	2071.60	2071.60	2071.60
Antoine's Coefficient C	185.27	185.27	185.27	185.27	185.27	185.27	185.27	185.27	185.27	185.27	185.27	185.27
Vapor Pressure at Daily Av. Liquid Surf. Temp., psia	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000
Vapor Pressure at Daily Min. Liquid Surf. Temp., psia	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000
Vapor Pressure at Daily Max. Liquid Surf. Temp., psia	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000
Vapor Density, lb/ft^3	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily Vapor Pressure range, psi	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000
Breather Vent Pressure Setting, psig	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300
Breather Vent Vacuum Setting, psig	-0.0300	-0.0300	-0.0300	-0.0300	-0.0300	-0.0300	-0.0300	-0.0300	-0.0300	-0.0300	-0.0300	-0.0300
Breather Vent Pressure Setting Range, psi	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600
Ambient Pressure, psia	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3
Vapor Space Expansion Factor	0.028	0.0308	0.0373	0.0427	0.0448	0.0434	0.0408	0.0391	0.0388	0.0377	0.0303	0.0264
Vented Vapor Saturation Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

NUCOR - Project Honey Badger
Ancillary Oil/Grease Storage Tank Annual Emissions Calculation

Calculation performed in accordance with AP-42, November 2006, Section 7.1.3.1.

Variable	
Tank Identification	T8 & T9
CIN	N/A
Discharging to	Atmosphere
EPN	T8 & T9
Location for Calculation Purposes	Huntington, West Virginia
Tank/Roof Type	Cone
Underground?	Aboveground
Diameter, ft	5.0
Shell Height or Length, ft	8.0
Nominal Capacity, gal	5000.0
Breather Vent Type	Combination Vent Valve
Shell Paint Color	White
Shell Paint Condition	Good
Roof Paint Color	White
Roof Paint Condition	Good

	January	February	March	April	May	June	July	August	September	October	November	December
Annual Turnovers	306.37	306.37	306.37	306.37	306.37	306.37	306.37	306.37	306.37	306.37	306.37	306.37
Turnover Factor	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26
Working Loss Product Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Standing Storage Loss, lb/mo	0.0000	0.0000	0.0001	0.0001	0.0002	0.0003	0.0004	0.0004	0.0002	0.0001	0.0000	0.0000
Working Loss, lb/mo	0.0002	0.0003	0.0007	0.0013	0.0023	0.0036	0.0046	0.0042	0.0028	0.0013	0.0007	0.0003
Total Losses, lb/mo	0.0002	0.0003	0.0007	0.0014	0.0026	0.0040	0.0050	0.0046	0.0031	0.0014	0.0007	0.0003

Standing Storage Loss, lb/yr	0.0020
Working Loss, lb/yr	0.0224
Total Losses, lb/yr	0.0244

Sample Calculations

Emissions were calculated on a pounds per month basis. The emissions for each month were then summed in order to estimate annual emissions. Monthly emissions were calculated according to the calculation methodology for fixed roof tanks explained in EPA AP-42 Chapter 7 for Organic Liquid Storage Tanks.

A sample calculation has been provided for the tank, material, and month which had the highest emissions. All Input data and intermediate calculation information has been provided.

Estimating Monthly Emissions from Fixed Roof Tanks

[LT] = [LS] + [LW]

[LS] = [MD] x [VV] x [WV] x [KE] x [KS]

[LW] = 0.001 x [MV] x [PVA] x [Q] x [KN] x [KP]

Where:

LT	Total Losses, lb/mo
LS	Standing Storage Loss, lb/mo
LW	Working Loss, lb/mo
MD	Days in month
VV	Vapor Space Volume, ft^3
WV	Vapor Density, lb/ft^3
KE	Vapor Space Expansion Factor

Where:

KS	Vented Vapor Saturation Factor
MV	Vapor Molecular Weight, lb/lbmol
PVA	Vapor Pressure at Daily Av. Liquid Surf. Temp., psia
Q	Throughput, gallons/month
KN	Turnover Factor
KP	Working Loss Product Factor

Maximum Monthly Emissions:

Material	Hydraulic Oil
Month	July

[LT] = [0.0004] + [0.0046] = 0.0050 lbs

[LS] = [31] x [79.5625] x [0.0000] x [0.0408] x [1.0000] = 0.0004 lbs

[LW] = 0.001 x [226.45] x [0.0001] x [30,000] x [0.2646] x [1] = 0.0046 lbs

Values for Sample Calculation

LT	0.0050	KS	1.0000
LS	0.0004	MV	226.45
LW	0.0046	PVA	0.0001
MD	31	Q	30,000
VV	79.5625	KN	0.2646
WV	0.0000	KP	1
KE	0.0408		

NUCOR - Project Honey Badger
Ancillary HCL Storage Tank Annual Emissions Calculation

Calculation performed in accordance with AP-42, November 2006, Section 7.1.3.1.

Variable	
Tank Identification	**T10**
CIN	**N/A**
Discharging to	**Atmosphere**
EPN	**T10**
Location for Calculation Purposes	**Huntington, West Virginia**
Tank/Roof Type	**Cone**
Underground?	**Aboveground**
Diameter, ft	**11.0**
Shell Height or Length, ft	**40.0**
Nominal Capacity, gal	**26400.0**
Breather Vent Type	**Combination Vent Valve**
Shell Paint Color	**White**
Shell Paint Condition	**Good**
Roof Paint Color	**White**
Roof Paint Condition	**Good**

	January	February	March	April	May	June	July	August	September	October	November	December
Type of Substance	Organic Liquid	Organic Liquid	Organic Liquid	Organic Liquid	Organic Liquid	Organic Liquid	Organic Liquid	Organic Liquid	Organic Liquid	Organic Liquid	Organic Liquid	Organic Liquid
Contents of Tank	HCl Acid	HCl Acid	HCl Acid	HCl Acid	HCl Acid	HCl Acid	HCl Acid	HCl Acid	HCl Acid	HCl Acid	HCl Acid	HCl Acid
Throughput, gallons/month	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
Effective Diameter, ft	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Effective Height, ft	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
Working Capacity, gal	28,436	28,436	28,436	28,436	28,436	28,436	28,436	28,436	28,436	28,436	28,436	28,436
Maximum Liquid Height, ft	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
Minimum Liquid Height, ft	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average Liquid Height, ft	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
Vapor Space Outage, ft	20.11	20.11	20.11	20.11	20.11	20.11	20.11	20.11	20.11	20.11	20.11	20.11
Vapor Space Volume, ft^3	1912	1912	1912	1912	1912	1912	1912	1912	1912	1912	1912	1912
Average Daily Minimum Ambient Temperature, F	23.20	26.10	35.50	43.80	52.40	60.40	65.00	63.90	57.10	45.00	37.00	28.40
Average Daily Maximum Ambient Temperature, F	40.70	44.20	56.50	66.80	75.20	81.30	84.30	83.10	78.00	67.20	55.90	45.30
Daily Total Solar Insolation Factor, Btu/ft^2/day	619	856	1174	1509	1776	1905	1842	1657	1371	1044	677	526
Daily Average Ambient Temperature, F	32.0	35.2	46.0	55.3	63.8	70.9	74.7	73.5	67.6	56.1	46.5	36.9
Tank Paint Solar Absorbance, dimensionless	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170
Daily Vapor Temperature Range, R	15.5	17.1	20.7	23.7	24.9	24.1	22.7	21.7	21.6	21.0	16.8	14.7
Daily Average Liquid Surf. Temperature, F	32.8	36.3	47.6	57.3	66.2	73.4	77.1	75.7	69.4	57.5	47.4	37.6
Daily Minimum Liquid Surf. Temperature, F	28.9	32.0	42.4	51.4	60.0	67.4	71.5	70.3	64.0	52.3	43.2	33.9
Daily Maximum Liquid Surf. Temperature, F	36.7	40.6	52.8	63.3	72.4	79.4	82.8	81.2	74.8	62.8	51.6	41.2
Liquid Bulk Temperature	32.0	35.2	46.0	55.3	63.8	70.9	74.7	73.5	67.6	56.1	46.5	36.9
Vapor Molecular Weight, lb/lbmol	36.46	36.46	36.46	36.46	36.46	36.46	36.46	36.46	36.46	36.46	36.46	36.46
Antoine's Coefficient A	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25
Antoine's Coefficient B	764.84	764.84	764.84	764.84	764.84	764.84	764.84	764.84	764.84	764.84	764.84	764.84
Antoine's Coefficient C	259.93	259.93	259.93	259.93	259.93	259.93	259.93	259.93	259.93	259.93	259.93	259.93
Vapor Pressure at Daily Av. Liquid Surf. Temp., psia	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100
Vapor Pressure at Daily Min. Liquid Surf. Temp., psia	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100
Vapor Pressure at Daily Max. Liquid Surf. Temp., psia	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100
Vapor Density, lb/ft^3	0.00007	0.00007	0.00007	0.00007	0.00006	0.00006	0.00006	0.00006	0.00006	0.00007	0.00007	0.00007
Daily Vapor Pressure range, psi	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Breather Vent Pressure Setting, psig	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300
Breather Vent Vacuum Setting, psig	-0.0300	-0.0300	-0.0300	-0.0300	-0.0300	-0.0300	-0.0300	-0.0300	-0.0300	-0.0300	-0.0300	-0.0300
Breather Vent Pressure Setting Range, psi	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600
Ambient Pressure, psia	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3
Vapor Space Expansion Factor	0.028	0.0308	0.0373	0.0427	0.0448	0.0434	0.0408	0.0391	0.0388	0.0377	0.0303	0.0264
Vented Vapor Saturation Factor	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989

NUCOR - Project Honey Badger
Ancillary HCL Storage Tank Annual Emissions Calculation

Calculation performed in accordance with AP-42, November 2006, Section 7.1.3.1.

Variable	
Tank Identification	**T10**
CIN	**N/A**
Discharging to	**Atmosphere**
EPN	**T10**
Location for Calculation Purposes	**Huntington, West Virginia**
Tank/Roof Type	**Cone**
Underground?	**Aboveground**
Diameter, ft	**11.0**
Shell Height or Length, ft	**40.0**
Nominal Capacity, gal	**26400.0**
Breather Vent Type	**Combination Vent Valve**
Shell Paint Color	**White**
Shell Paint Condition	**Good**
Roof Paint Color	**White**
Roof Paint Condition	**Good**

	January	February	March	April	May	June	July	August	September	October	November	December
Annual Turnovers	42.20	42.20	42.20	42.20	42.20	42.20	42.20	42.20	42.20	42.20	42.20	42.20
Turnover Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Working Loss Product Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Standing Storage Loss, lb/mo	0.1127	0.1112	0.1458	0.1587	0.1689	0.1563	0.1508	0.1448	0.1409	0.1447	0.1147	0.1054
Working Loss, lb/mo	0.7586	0.7586	0.7586	0.7586	0.7586	0.7586	0.7586	0.7586	0.7586	0.7586	0.7586	0.7586
Total Losses, lb/mo	0.8714	0.8699	0.9044	0.9174	0.9275	0.9150	0.9094	0.9034	0.8996	0.9033	0.8733	0.8640

Standing Storage Loss, lb/yr	1.6549
Working Loss, lb/yr	9.1037
Total Losses, lb/yr	10.7586

Sample Calculations

Emissions were calculated on a pounds per month basis. The emissions for each month were then summed in order to estimate annual emissions. Monthly emissions were calculated according to the calculation methodology for fixed roof tanks explained in EPA AP-42 Chapter 7 for Organic Liquid Storage Tanks.

A sample calculation has been provided for the tank, material, and month which had the highest emissions. All Input data and intermediate calculation information has been provided.

Estimating Monthly Emissions from Fixed Roof Tanks

[LT] = [LS] + [LW]

[LS] = [MD] x [VV] x [WV] x [KE] x [KS]

[LW] = 0.001 x [MV] x [PVA] x [Q] x [KN] x [KP]

Where:

LT	Total Losses, lb/mo
LS	Standing Storage Loss, lb/mo
LW	Working Loss, lb/mo
MD	Days in month
VV	Vapor Space Volume, ft^3
WV	Vapor Density, lb/ft^3
KE	Vapor Space Expansion Factor

Where:

KS	Vented Vapor Saturation Factor
MV	Vapor Molecular Weight, lb/lbmol
PVA	Vapor Pressure at Daily Av. Liquid Surf. Temp., psia
Q	Throughput, gallons/month
KN	Turnover Factor
KP	Working Loss Product Factor

Maximum Monthly Emissions:

Material	HCl Acid
Month	July

[LT] = [0.1508] + [0.7586] = 0.9094 lbs

[LS] = [31] x [1911.5528] x [0.0001] x [0.0408] x [0.9895] = 0.1508 lbs

[LW] = 0.001 x [36.46] x [0.0100] x [100,000] x [0.8776] x [1] = 0.7586 lbs

Values for Sample Calculation

LT	0.9094	KS	0.9895
LS	0.1508	MV	36.46
LW	0.7586	PVA	0.0100
MD	31	Q	100,000
VV	1911.5528	KN	0.8776
WV	0.0001	KP	1
KE	0.0408		

NUCOR - Project Honey Badger
Ancillary Oil/Grease Storage Tank Annual Emissions Calculation

Calculation performed in accordance with AP-42, November 2006, Section 7.1.3.1.

Variable	
Tank Identification	**T24**
CIN	**N/A**
Discharging to	**Atmosphere**
EPN	**T24**
Location for Calculation Purposes	**Huntington, West Virginia**
Tank/Roof Type	**Cone**
Underground?	**Aboveground**
Diameter, ft	**5.0**
Shell Height or Length, ft	**8.0**
Nominal Capacity, gal	**5,000**
Breather Vent Type	**Combination Vent Valve**
Shell Paint Color	**White**
Shell Paint Condition	**Good**
Roof Paint Color	**White**
Roof Paint Condition	**Good**

	January	February	March	April	May	June	July	August	September	October	November	December
Type of Substance	**Organic Liquid**	**Organic Liquid**	**Organic Liquid**	**Organic Liquid**	**Organic Liquid**	**Organic Liquid**	**Organic Liquid**	**Organic Liquid**	**Organic Liquid**	**Organic Liquid**	**Organic Liquid**	**Organic Liquid**
Contents of Tank	**Used Oil**	**Used Oil**	**Used Oil**	**Used Oil**	**Used Oil**	**Used Oil**	**Used Oil**	**Used Oil**	**Used Oil**	**Used Oil**	**Used Oil**	**Used Oil**
Throughput, gallons/month	**30,000**	**30,000**	**30,000**	**30,000**	**30,000**	**30,000**	**30,000**	**30,000**	**30,000**	**30,000**	**30,000**	**30,000**
Effective Diameter, ft	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Effective Height, ft	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Working Capacity, gal	1,175	1,175	1,175	1,175	1,175	1,175	1,175	1,175	1,175	1,175	1,175	1,175
Maximum Liquid Height, ft	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Liquid Height, ft	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average Liquid Height, ft	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Vapor Space Outage, ft	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05
Vapor Space Volume, ft^3	80	80	80	80	80	80	80	80	80	80	80	80
Average Daily Minimum Ambient Temperature, F	23.20	26.10	35.50	43.80	52.40	60.40	65.00	63.90	57.10	45.00	37.00	28.40
Average Daily Maximum Ambient Temperature, F	40.70	44.20	56.50	66.80	75.20	81.30	84.30	83.10	78.00	67.20	55.90	45.30
Daily Total Solar Insolation Factor, Btu/ft^2/day	619	856	1174	1509	1776	1905	1842	1657	1371	1044	677	526
Daily Average Ambient Temperature, F	32.0	35.2	46.0	55.3	63.8	70.9	74.7	73.5	67.6	56.1	46.5	36.9
Tank Paint Solar Absorbance, dimensionless	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170
Daily Vapor Temperature Range, R	15.5	17.1	20.7	23.7	24.9	24.1	22.7	21.7	21.6	21.0	16.8	14.7
Daily Average Liquid Surf. Temperature, F	32.8	36.3	47.6	57.3	66.2	73.4	77.1	75.7	69.4	57.5	47.4	37.6
Daily Minimum Liquid Surf. Temperature, F	28.9	32.0	42.4	51.4	60.0	67.4	71.5	70.3	64.0	52.3	43.2	33.9
Daily Maximum Liquid Surf. Temperature, F	36.7	40.6	52.8	63.3	72.4	79.4	82.8	81.2	74.8	62.8	51.6	41.2
Liquid Bulk Temperature	32.0	35.2	46.0	55.3	63.8	70.9	74.7	73.5	67.6	56.1	46.5	36.9
Vapor Molecular Weight, lb/lbmol	226.45	226.45	226.45	226.45	226.45	226.45	226.45	226.45	226.45	226.45	226.45	226.45
Antoine's Coefficient A	7.59	7.59	7.59	7.59	7.59	7.59	7.59	7.59	7.59	7.59	7.59	7.59
Antoine's Coefficient B	2071.60	2071.60	2071.60	2071.60	2071.60	2071.60	2071.60	2071.60	2071.60	2071.60	2071.60	2071.60
Antoine's Coefficient C	185.27	185.27	185.27	185.27	185.27	185.27	185.27	185.27	185.27	185.27	185.27	185.27
Vapor Pressure at Daily Av. Liquid Surf. Temp., psia	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000
Vapor Pressure at Daily Min. Liquid Surf. Temp., psia	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000
Vapor Pressure at Daily Max. Liquid Surf. Temp., psia	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000
Vapor Density, lb/ft^3	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily Vapor Pressure range, psi	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000
Breather Vent Pressure Setting, psig	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300
Breather Vent Vacuum Setting, psig	-0.0300	-0.0300	-0.0300	-0.0300	-0.0300	-0.0300	-0.0300	-0.0300	-0.0300	-0.0300	-0.0300	-0.0300
Breather Vent Pressure Setting Range, psi	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600
Ambient Pressure, psia	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3
Vapor Space Expansion Factor	0.028	0.0308	0.0373	0.0427	0.0448	0.0434	0.0408	0.0391	0.0388	0.0377	0.0303	0.0264
Vented Vapor Saturation Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

NUCOR - Project Honey Badger
Ancillary Oil/Grease Storage Tank Annual Emissions Calculation

Calculation performed in accordance with AP-42, November 2006, Section 7.1.3.1.

Variable	
Tank Identification	**T24**
CIN	**N/A**
Discharging to	**Atmosphere**
EPN	**T24**
Location for Calculation Purposes	**Huntington, West Virginia**
Tank/Roof Type	**Cone**
Underground?	**Aboveground**
Diameter, ft	**5.0**
Shell Height or Length, ft	**8.0**
Nominal Capacity, gal	**5,000**
Breather Vent Type	**Combination Vent Valve**
Shell Paint Color	**White**
Shell Paint Condition	**Good**
Roof Paint Color	**White**
Roof Paint Condition	**Good**

	January	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**
Annual Turnovers	306.37	306.37	306.37	306.37	306.37	306.37	306.37	306.37	306.37	306.37	306.37	306.37
Turnover Factor	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26
Working Loss Product Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Standing Storage Loss, lb/mo	0.0000	0.0000	0.0001	0.0001	0.0002	0.0003	0.0004	0.0004	0.0002	0.0001	0.0000	0.0000
Working Loss, lb/mo	0.0002	0.0003	0.0007	0.0013	0.0023	0.0036	0.0046	0.0042	0.0028	0.0013	0.0007	0.0003
Total Losses, lb/mo	0.0002	0.0003	0.0007	0.0014	0.0026	0.0040	0.0050	0.0046	0.0031	0.0014	0.0007	0.0003

Standing Storage Loss, lb/yr	0.0020
Working Loss, lb/yr	0.0224
Total Losses, lb/yr	0.0244

Sample Calculations

Emissions were calculated on a pounds per month basis. The emissions for each month were then summed in order to estimate annual emissions. Monthly emissions were calculated according to the calculation methodology for fixed roof tanks explained in EPA AP-42 Chapter 7 for Organic Liquid Storage Tanks.

A sample calculation has been provided for the tank, material, and month which had the highest emissions. All Input data and intermediate calculation information has been provided.

Estimating Monthly Emissions from Fixed Roof Tanks

[LT] = [LS] + [LW]

[LS] = [MD] x [VV] x [WV] x [KE] x [KS]

[LW] = 0.001 x [MV] x [PVA] x [Q] x [KN] x [KP]

Where:

LT	Total Losses, lb/mo
LS	Standing Storage Loss, lb/mo
LW	Working Loss, lb/mo
MD	Days in month
VV	Vapor Space Volume, ft^3
WV	Vapor Density, lb/ft^3
KE	Vapor Space Expansion Factor

Where:

KS	Vented Vapor Saturation Factor
MV	Vapor Molecular Weight, lb/lbmol
PVA	Vapor Pressure at Daily Av. Liquid Surf. Temp., psia
Q	Throughput, gallons/month
KN	Turnover Factor
KP	Working Loss Product Factor

Maximum Monthly Emissions:

Material	Used Oil
Month	July

Values for Sample Calculation

LT	0.0050	KS	1.0000
LS	0.0004	MV	226.45
LW	0.0046	PVA	0.0001
MD	31	Q	30,000
VV	79.5625	KN	0.2646
WV	0.0000	KP	1
KE	0.0408		

[LT] = [0.0004] + [0.0046] = 0.0050 lbs

[LS] = [31] x [79.5625] x [0.0000] x [0.0408] x [1.0000] = 0.0004 lbs

[LW] = 0.001 x [226.45] x [0.0001] x [30,000] x [0.2646] x [1] = 0.0046 lbs

NUCOR - Project Honey Badger
Ancillary Oil/Grease Storage Tank Annual Emissions Calculation

Calculation performed in accordance with AP-42, November 2006, Section 7.1.3.1.

Variable	
Tank Identification	**T16**
CIN	**N/A**
Discharging to	**Atmosphere**
EPN	**T16**
Location for Calculation Purposes	**Huntington, West Virginia**
Tank/Roof Type	**Cone**
Underground?	**Aboveground**
Diameter, ft	**11.0**
Shell Height or Length, ft	**40.0**
Nominal Capacity, gal	**26,400**
Breather Vent Type	**Combination Vent Valve**
Shell Paint Color	**White**
Shell Paint Condition	**Good**
Roof Paint Color	**White**
Roof Paint Condition	**Good**

	January	February	March	April	May	June	July	August	September	October	November	December
Type of Substance	**Organic Liquid**	**Organic Liquid**	**Organic Liquid**	**Organic Liquid**	**Organic Liquid**	**Organic Liquid**	**Organic Liquid**	**Organic Liquid**	**Organic Liquid**	**Organic Liquid**	**Organic Liquid**	**Organic Liquid**
Contents of Tank	**Spent Pickle Liquor**	**Spent Pickle Liquor**	**Spent Pickle Liquor**	**Spent Pickle Liquor**	**Spent Pickle Liquor**	**Spent Pickle Liquor**	**Spent Pickle Liquor**	**Spent Pickle Liquor**	**Spent Pickle Liquor**	**Spent Pickle Liquor**	**Spent Pickle Liquor**	**Spent Pickle Liquor**
Throughput, gallons/month	**75,000**	**75,000**	**75,000**	**75,000**	**75,000**	**75,000**	**75,000**	**75,000**	**75,000**	**75,000**	**75,000**	**75,000**
Effective Diameter, ft	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Effective Height, ft	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
Working Capacity, gal	28,436	28,436	28,436	28,436	28,436	28,436	28,436	28,436	28,436	28,436	28,436	28,436
Maximum Liquid Height, ft	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
Minimum Liquid Height, ft	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average Liquid Height, ft	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
Vapor Space Outage, ft	20.11	20.11	20.11	20.11	20.11	20.11	20.11	20.11	20.11	20.11	20.11	20.11
Vapor Space Volume, ft^3	1912	1912	1912	1912	1912	1912	1912	1912	1912	1912	1912	1912
Average Daily Minimum Ambient Temperature, F	23.20	26.10	35.50	43.80	52.40	60.40	65.00	63.90	57.10	45.00	37.00	28.40
Average Daily Maximum Ambient Temperature, F	40.70	44.20	56.50	66.80	75.20	81.30	84.30	83.10	78.00	67.20	55.90	45.30
Daily Total Solar Insolation Factor, Btu/ft^2/day	619	856	1174	1509	1776	1905	1842	1657	1371	1044	677	526
Daily Average Ambient Temperature, F	32.0	35.2	46.0	55.3	63.8	70.9	74.7	73.5	67.6	56.1	46.5	36.9
Tank Paint Solar Absorbance, dimensionless	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170
Daily Vapor Temperature Range, R	15.5	17.1	20.7	23.7	24.9	24.1	22.7	21.7	21.6	21.0	16.8	14.7
Daily Average Liquid Surf. Temperature, F	32.8	36.3	47.6	57.3	66.2	73.4	77.1	75.7	69.4	57.5	47.4	37.6
Daily Minimum Liquid Surf. Temperature, F	28.9	32.0	42.4	51.4	60.0	67.4	71.5	70.3	64.0	52.3	43.2	33.9
Daily Maximum Liquid Surf. Temperature, F	36.7	40.6	52.8	63.3	72.4	79.4	82.8	81.2	74.8	62.8	51.6	41.2
Liquid Bulk Temperature	32.0	35.2	46.0	55.3	63.8	70.9	74.7	73.5	67.6	56.1	46.5	36.9
Vapor Molecular Weight, lb/lbmol	36.46	36.46	36.46	36.46	36.46	36.46	36.46	36.46	36.46	36.46	36.46	36.46
Antoine's Coefficient A	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25
Antoine's Coefficient B	764.84	764.84	764.84	764.84	764.84	764.84	764.84	764.84	764.84	764.84	764.84	764.84
Antoine's Coefficient C	259.93	259.93	259.93	259.93	259.93	259.93	259.93	259.93	259.93	259.93	259.93	259.93
Vapor Pressure at Daily Av. Liquid Surf. Temp., psia	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100
Vapor Pressure at Daily Min. Liquid Surf. Temp., psia	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100
Vapor Pressure at Daily Max. Liquid Surf. Temp., psia	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100
Vapor Density, lb/ft^3	0.00007	0.00007	0.00007	0.00007	0.00006	0.00006	0.00006	0.00006	0.00006	0.00007	0.00007	0.00007
Daily Vapor Pressure range, psi	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Breather Vent Pressure Setting, psig	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300
Breather Vent Vacuum Setting, psig	-0.0300	-0.0300	-0.0300	-0.0300	-0.0300	-0.0300	-0.0300	-0.0300	-0.0300	-0.0300	-0.0300	-0.0300
Breather Vent Pressure Setting Range, psi	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600
Ambient Pressure, psia	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3
Vapor Space Expansion Factor	0.028	0.0308	0.0373	0.0427	0.0448	0.0434	0.0408	0.0391	0.0388	0.0377	0.0303	0.0264
Vented Vapor Saturation Factor	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989

NUCOR - Project Honey Badger
Ancillary Oil/Grease Storage Tank Annual Emissions Calculation

Calculation performed in accordance with AP-42, November 2006, Section 7.1.3.1.

Variable	
Tank Identification	T16
CIN	N/A
Discharging to	Atmosphere
EPN	T16
Location for Calculation Purposes	Huntington, West Virginia
Tank/Roof Type	Cone
Underground?	Aboveground
Diameter, ft	11.0
Shell Height or Length, ft	40.0
Nominal Capacity, gal	26,400
Breather Vent Type	Combination Vent Valve
Shell Paint Color	White
Shell Paint Condition	Good
Roof Paint Color	White
Roof Paint Condition	Good

	January	February	March	April	May	June	July	August	September	October	November	December
Annual Turnovers	31.65	31.65	31.65	31.65	31.65	31.65	31.65	31.65	31.65	31.65	31.65	31.65
Turnover Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Working Loss Product Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Standing Storage Loss, lb/mo	0.1127	0.1112	0.1458	0.1587	0.1689	0.1563	0.1508	0.1448	0.1409	0.1447	0.1147	0.1054
Working Loss, lb/mo	0.6484	0.6484	0.6484	0.6484	0.6484	0.6484	0.6484	0.6484	0.6484	0.6484	0.6484	0.6484
Total Losses, lb/mo	0.7611	0.7596	0.7942	0.8071	0.8172	0.8047	0.7991	0.7932	0.7893	0.7930	0.7631	0.7537

Standing Storage Loss, lb/yr	1.6549
Working Loss, lb/yr	7.7804
Total Losses, lb/yr	9.4353

Sample Calculations

Emissions were calculated on a pounds per month basis. The emissions for each month were then summed in order to estimate annual emissions. Monthly emissions were calculated according to the calculation methodology for fixed roof tanks explained in EPA AP-42 Chapter 7 for Organic Liquid Storage Tanks.

A sample calculation has been provided for the tank, material, and month which had the highest emissions. All Input data and intermediate calculation information has been provided.

Estimating Monthly Emissions from Fixed Roof Tanks

[LT] = [LS] + [LW]

[LS] = [MD] x [VV] x [WV] x [KE] x [KS]

[LW] = 0.001 x [MV] x [PVA] x [Q] x [KN] x [KP]

Where:

LT	Total Losses, lb/mo
LS	Standing Storage Loss, lb/mo
LW	Working Loss, lb/mo
MD	Days in month
VV	Vapor Space Volume, ft^3
WV	Vapor Density, lb/ft^3
KE	Vapor Space Expansion Factor

Where:

KS	Vented Vapor Saturation Factor
MV	Vapor Molecular Weight, lb/lbmol
PVA	Vapor Pressure at Daily Av. Liquid Surf. Temp., psia
Q	Throughput, gallons/month
KN	Turnover Factor
KP	Working Loss Product Factor

Maximum Monthly Emissions:

Material	Spent Pickle Liquor
Month	July

[LT] = [0.1508] + [0.6484] = 0.7991 lbs

[LS] = [31] x [1911.5528] x [0.0001] x [0.0408] x [0.9895] = 0.1508 lbs

[LW] = 0.001 x [36.46] x [0.0100] x [75,000] x [1.0000] x [1] = 0.6484 lbs

Values for Sample Calculation

LT	0.7991	KS	0.9895
LS	0.1508	MV	36.46
LW	0.6484	PVA	0.0100
MD	31	Q	75,000
VV	1911.5528	KN	1.0000
WV	0.0001	KP	1
KE	0.0408		

NUCOR - Project Honey Badger
Open Solvent Storage Tanks Emissions Calculation

Open Tank Emission Calculations

EPN	Description	Product Stored	Diameter (ft)	Top Area (ft^2)	Vapor Pressure[1] (psia)	Temperature[2] (°R)	Molecular Weight[3] (lb/lb-mol)	Gas Constant (psia-ft^3/lbmol-°R)	Gas Mass Transfer Coefficient[4] (ft/min)	Vapor Generation Rate[5] (lb/min)	Hourly Emissions[6] (lb/hr)	Annual Emissions[7] (tpy)
T25	Cold Degreaser	Solvent	2	3.14	0.019	563.67	130	10.731	0.85	0.001	0.07	0.29
T26	Cold Degreaser	Solvent	2	3.14	0.019	563.67	130	10.731	0.85	0.001	0.07	0.29
T27	Cold Degreaser	Solvent	2	3.14	0.019	563.67	130	10.731	0.85	0.001	0.07	0.29
T28	Cold Degreaser	Solvent	2	3.14	0.019	563.67	130	10.731	0.85	0.001	0.07	0.29
T29	Cold Degreaser	Solvent	2	3.14	0.019	563.67	130	10.731	0.85	0.001	0.07	0.29

[1] Vapor pressure obtained from solvent MSDS.

[2] Maximum daily liquid surface temperature is conservatively assumed to be 105°F.

[3] Molecular weight obtained from AP-42 Table 7.1-2 for distillate fuel oil No. 2.

[4] Obtained from Section 3.7.1. Evaporation from an Open Top Vessel or a Spil. Volume II: Chapter 16 Methods for Estimating Air Emissions from Chemical Manufacturing Facilities (August 2007).

$K = K_w(M_w/M)^{(1/3)}$

K: mass transfer coefficient, ft/min
K_w: mass transfer coefficient of water, 1.64 ft/min
M: molecular weight of the volatile substance, lb/lb-mol
M_w: molecular weight of water, 18.02 lb/lb-mol

E = MKAP/RT

E: Vapor Generation Rate, lb/minute
M: molecular weight of the volatile substance, lb/lb-mol
K: mass transfer coefficient, ft/min
A: top area, ft^2
P: vapor pressure of the volatile substance, psia
R: Gas constant, 10.731 psia $ft^3/^0R$ lb-mol
T: temperature of the liquid, ^0R

[3] Hourly emissions based on evaporation for a full hour.

[3] Annual emissions based on tanks remaining open and with material 8,760 hours a year.

Speciated Emissions Per Tank

Component[1]	CAS	Vapor Weight Percent (wt%)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
Hydrotreated light distillates	64742-47-8	96.55	0.06	0.28
Tetrachloroethylene	127-18-4	3.45	2.29E-03	0.01

[1] Maximum weight percents from MSDS used to calculate speciated emissions.

Attachment O: Monitoring / Recordkeeping / Reporting / Testing Plans

Section 3 of the application narrative provides a state and federal regulatory applicability analysis and summary of compliance requirements that will apply to the West Virginia Steel Mill.

Attachment P: Public Notice

AFFP

Affidavit of Publication

STATE OF WEST VIRGINIA } SS
COUNTY OF MASON }

Brenda Davis, being duly sworn, says:

That she is Customer Service of the POINT PLEASANT REGISTER, a daily newspaper of general circulation, printed and published in POINT PLEASANT, MASON County, WEST VIRGINIA; that the publication, a copy of which is attached hereto, was published in the said newspaper on the following dates:

Jan 27,2022

That said newspaper was regularly issued and circulated on those dates.

SIGNED:

Subscribed to and sworn to me this 27th day of Jan 2022

Patricia Y. Wamsley, MASON County, WEST VIRGINIA

My commission expires: Feb. 17, 2025

$ 42.98

50034342 90141074 614-433-0733

Trinity Consultants
William Bruscino, P.E.
110 Polaris Pkwy, Suite 200

Westerville, OH 43082

NOTICE OF APPLICATION

Notice is given that Nucor Steel West Virginia LLC has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a Construction Permit for a sheet steel mill to be located across from 28995 Huntington Road near Apple Grove, in Mason County, West Virginia. The latitude and longitude coordinates are: 38.655361 degrees latitude and -82.168528 degrees longitude. The applicant estimates the potential to discharge the following Regulated Air Pollutants will be: 489 tons of particulate matter, 731 tons of particulate matter 10 microns or less in aerodynamic diameter, 700 tons of particulate matter 2.5 microns or less in aerodynamic diameter, 850 tons of nitrogen oxides, 3,413 tons of carbon monoxide, 362 tons of sulfur dioxide, 728 tons of volatile organic compounds, 14 tons of hazardous air pollutants, and 0.68 tons of lead per year. Startup of operation is planned to begin on or about the 1st day of January, 2024. Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57th Street, SE, Charleston, West Virginia, 25304, for at least 30 calendar days from the date of publication of this notice. Written comments will also be received via email at DEPAirQualityPermitting@WV.gov. Any questions regarding this permit application should be directed to the DAQ at (304) 926-0499, extension 41281 during normal business hours.

Dated this the 21st day of January 2022.

By: Nucor Corporation
John Farris
Vice President & General Manager
1915 Rexford Road
Charlotte, NC 28211

1/27/22

Attachment Q: Business Confidential Claims (Not Applicable)

Attachment R: Authority Forms (Not Applicable)

Attachment S: Title V Permit Revision Information (Not Applicable)

APPENDIX C. BACT ANALYSIS SUPPORTING DOCUMENTATION

Process	Pollutant
Casting Operations	$PM/PM_{10}/PM_{2.5}$

		Control Technology	Baghouse / Fabric Filter[a]	Electrostatic Precipitator (ESP)[b,c,d,e]	Incinerator[f]	Wet Scrubber[h]	Cyclone[i]	Full / Partial Enclosures[j]	Good Process Operation
Step 1.	IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES	Control Technology Description	Process exhaust gas passes through a tightly woven or felted fabric arranged in sheets, cartridges, or bags that collect PM via sieving and other mechanisms. The dust cake that accumulates on the filters increases collection efficiency. Various cleaning techniques include pulse-jet, reverse-air, and shaker technologies.	Electrodes stimulate the waste gas and induce an electrical charge in the entrained particles. The resulting electrical field forces the charged particles to the collector walls from which the material may be mechanically dislodged and collected in dry systems or washed with a water deluge in wet systems.	The combustion of auxiliary fuel heats a combustion chamber to promote the thermal oxidation of partially combusted particulate hydrocarbons in the exhaust stream. Recuperative incinerators utilize heat exchangers to recover heat from the outlet gas which is used to pre-heat the incoming waste stream.	A scrubbing liquid introduced into the gas stream captures and collects entrained particles. In the case of a venturi scrubber, the turbulent airflow atomizes the scrubbing liquid to increase droplet-particle interaction. The droplets containing particles are typically separated from the exhaust gas in a downstream cyclonic separator and/or mist eliminator.	Centrifugal forces drive particles in the gas stream toward the cyclone walls as the waste gas flows through the conical unit. The captured particles are collected in a material hopper below the unit.	Walls, buildings, ductwork, and other structures limit the escape of fugitive particulate material.	Operate and maintain the equipment in accordance with good air pollution control practices.
		Typical Operating Temperature	Up to 500 °F (Typical)	Up to 1,300 °F (dry) Lower than 170 - 190 °F (wet)	1,100 to 1,200 °F	40 to 750 °F	Up to 1,000 °F	N/A	N/A
		Typical Waste Stream Inlet Flow Rate	100 - 100,000 scfm (Standard) 100,000 - 1,000,000 scfm (Custom)	1,000 - 100,000 scfm (Wire-Pipe) 100,000 - 1,000,000 scfm (Wire-Plate)	500 - 50,000 scfm	500 - 100,000 scfm (units in parallel can operate at greater flowrates)	1.1 - 63,500 scfm (single) Up to 106,000 scfm (in parallel)	N/A	N/A
		Typical Waste Stream Inlet Pollutant Concentration	0.5 - 10 gr/dscf (Typical) 0.05 - 100 gr/dscf (Achievable)	0.5 - 5 gr/dscf (Wire-Pipe) 1 - 50 gr/dscf (Wire-Plate)	As low as 100 ppmv or less (for VOC)[g]	0.1 - 50 gr/dscf	0.44 - 7,000 gr/dscf	N/A	N/A
		Other Considerations	Fabric filters are susceptible to corrosion and blinding by moisture. Appropriate fabrics must be selected for specific process conditions. Accumulations of dust may present fire or explosion hazards.	Dry ESP efficiency varies significantly with dust resistivity. Air leakage and acid condensation may cause corrosion. ESPs are not generally suitable for highly variable processes. Equipment footprint is often substantial.	Incinerators may not effectively control highly-variable waste streams. Halogenated or sulfurous compounds may cause corrosion within the incinerator.	Effluent stream requires wastewater treatment and solid was disposal. Sludge disposal may be costly. Wet scrubbers are particularly susceptible to corrosion.	Cyclones typically exhibit lower efficiencies when collecting smaller particles. High-efficiency units may require substantial pressure drop. Unable to handle sticky and tacky materials.	N/A	N/A
Step 2.	ELIMINATE TECHNICALLY INFEASIBLE OPTIONS	RBLC Database Information	Included in RBLC for steel mills as a means of control for PM from casting operations.	Not included in RBLC for steel mills as a means of control for PM from casting operations.	Not included in RBLC for steel mills as a means of control for PM from casting operations.	Not included in RBLC for steel mills as a means of control for PM from casting operations.	Not included in RBLC for steel mills as a means of control for PM from casting operations.	Included in RBLC for steel mills as a means of control for PM from casting operations.	Not included in RBLC for steel mills as a means of control for PM from casting operations.
		Feasibility Discussion	Feasible	Potentially feasible	Potentially feasible	Potentially feasible	Potentially feasible	Potentially feasible	Feasible
Step 3.	RANK REMAINING CONTROL TECHNOLOGIES	Overall Control Efficiency	99 - 99.9%	99 - 99.9%	70 - 99.9%	70 - 99%	70 - 99%	70%	Base Case
Step 4.	EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS	Cost Effectiveness ($/ton)							
Step 5.	SELECT BACT		**BACT Limit for PM (filterable): 0.0018 gr/dscf** **BACT Limit for PM_{10}: 0.0052 gr/dscf** **BACT Limit for $PM_{2.5}$: 0.0052 gr/dscf**						

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Fabric Filter - Pulse-Jet Cleaned Type)," EPA-452/F-03-025.
b. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Dry Electrostatic Precipitator (ESP) - Wire-Pipe Type)," EPA-452/F-03-027.
c. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Dry Electrostatic Precipitator (ESP) - Wire-Plate Type)," EPA-452/F-03-028.
d. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Wet Electrostatic Precipitator(ESP) - Wire-Pipe Type)," EPA-452/F-03-029.
e. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Wet Electrostatic Precipitator (ESP) - Wire-Plate Type)," EPA-452/F-03-030.
f. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Incinerator - Recuperative Type)," EPA-452/F-03-020.
g. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Incinerator - Regenerative Type)," EPA-452/F-03-021.
h. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Venturi Scrubber)," EPA-452/F-03-017.
i. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Cyclone)," EPA-452/F-03-005.
j. Ohio EPA, "Reasonably Available Control Measures for Fugitive Dust Sources," Section 2.1 - General Fugitive Dust Sources

Nucor Corporation | West Virginia Steel Mill
RBLC Entries for Casting Operations

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	PM Limit	PM Limit Unit	PM Control Technique	Limit 2	Limit 2 Unit	PM10 Limit	PM10 Limit Unit	PM10 Control Technique	Limit 2	Limit 2 Unit	PM2.5 Limit	PM2.5 Limit Unit	PM2.5 Control Technique	Limit 2	Limit 2 Unit
0883-AOP-R15	6/1/2018	NUCOR YAMATO STEEL COMPANY (LIMITED PARTNERSHIP)	AR	Steel Mill	SN-23 Continuous Caster	250	tons per hour	0.0019	GR/DSCF	Baghouse	-	-	0.0052	GR/DSCF	Baghouse	-	-	0.0052	-	baghouse	-	-
102-12	1/4/2013	GERDAU MACSTEEL, INC.	MI	Steel Mill	Caster (EUCASTER)	130	T/H liquid steel	-	-	-	-	-	-	-	Permanent ladle cover, tapping ladles from the bottom, use of an enclosed tundish and	-	-	-	-	-	-	-
102-12A	10/27/2014	GERDAU MACSTEEL, INC.	MI	Steel Mill	EUCASTER	130	Tons liquid steel per hour	-	-	-	-	-	-	-	-	-	-	-	-	Permanent ladle cover, tapping ladles from the bottom, use of an enclosed tundish and	-	-
107-32615-00038	9/17/2013	NUCOR STEEL	IN	Steel Mini Mill	CASTRIP	270	T/H	0.0018	GR/DSCF	BAGHOUSE	3.08	LB/H	0.0052	GR/DSCF	BAGHOUSE	8.9	LB/H	0.0052	GR/DSCF	BAGHOUSE	8.9	LB/H
123-39589-00019	6/25/2018	WAUPACA FOUNDRY, INC. PLANT 5	IN	Steel Mill/Foundry	Casting Lines 1, 5, 7	43	tph	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2015-0643-C PSD	1/19/2016	CMC STEEL OKLAHOMA	OK	Steel Mill	Casting	Unspecified	-	52.66	TPY LUBE OIL	Lube oil/vegetable oil usage.	-	-	-	-	-	-	-	-	-	-	-	-
PSDTX708M6 8248	7/24/2014	STEEL MINIMILL FACILITY	TX	Steel Mill	Casting Operations	1300000	tons/year	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2305-AOP-R6	6/9/2019	BIG RIVER STEEL LLC	AR		Steel Casters	Unspecified	-	0.062	LB/TON LIQUID STEEL	Good operating practices	-	-	0.062	LB/TON LIQUID STEEL	Good operating practices	-	-	0.062	LB/TON LIQUID STEEL	Good operating practices	-	-
1139-AOP-R24	2/14/2019	NUCOR STEEL ARKANSAS	AR	Scrap Steel Mill	SN-131 and 145 Caster Spray Vents	Unspecified	-	0.012	GR/DSCF	Good work practices	-	-	0.004	GR/DSCF	Good work practices	-	-	0.0025	GR/DSCF	Good work practices	-	-
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY		EP 01-05 - Caster Spray Vent	1750000	tons steel produced/yr	9.38	LB/HR	This EP is required to have a Good Work Practices (GWP) Plan.	41.09	TON/YR	1.5	LB/HR	This EP is required to have a Good Work Practices (GWP) Plan.	6.57	TON/YR	0.19	LB/HR	This EP is required to have a Good Work Practices (GWP) Plan.	0.82	TON/YR
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		A-Line Caster Spray Vent (EP 01-14)	2000000	tons steel cast/yr	0.003	GR/DSCF	The permittee must develop a Good Work Practices (GWP) Plan to minimize emissions	8.08	TONS/YR	0.0005	GR/DSCF	The permittee must develop a Good Work Practices (GWP) Plan to minimize emissions	1.29	TONS/YR	0.0001	GR/DSCF	The permittee must develop a Good Work Practices (GWP) Plan to minimize emissions	0.16	TON/YR
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH	Steel Mill	Caster #2 (P907)	250	T/H	19.93	LB/H	Operation of a baghouse control system a consisting of the following:	87.69	T/YR	26.57	LB/H	Operation of a baghouse control system a consisting of the following:	116.38	T/YR	26.57	LB/H	Operation of a baghouse control system a consisting of the following:	116.38	T/YR
2448 AND PSDTX1560	1/2/2020	STEEL MANUFACTURING FACILITY	TX		CASTING	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX	Steel Mini Mill	CASTING	400	T/HR	-	-	-	-	-	0.12	LB/TON	WET MATERIAL, PARTIAL ENCLOSURE	-	-	0.12	LB/TON	WET MATERIAL, PARTIAL ENCLOSURE	-	-
139-36453-00011	8/25/2016	INTAT PRECISION, INC.	IN		CASTING LINE 2	15	T/H OF METAL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0820-0001-DI	4/29/2019	NUCOR CORPORATION - DARLINGTON PLANT	SC		Melt Shop Equipment (Caster Spray Vents 1)	Unspecified	-	2.35	LB/H	Good work practices - monthly monitoring of conductivity of cooling tower water systems	-	-	-	-	-	-	-	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Melt Shop Equipment (casters-fugitives)	Unspecified	-	-	-	Good Work Practice Standards and Proper Operation and Maintenance	-	-	-	-	Good Work Practice Standards and Proper Operation and Maintenance	-	-	-	-	Good Work Practice Standards and Proper Operation and Maintenance	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Melt Shop Equipment (beam mill caster spray vent)	Unspecified	-	0.0046	GR/DSCF	Proper Operation and Maintenance	3.42	LB/HR	-	-	-	-	-	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Melt Shop Equipment (caster spray vent 2)	Unspecified	-	0.003	GR/DSCF	Proper Operation and Maintenance	1.72	LB/HR	-	-	-	-	-	0.0001	GR/DSCF	Proper Operation and Maintenance	0.034	LB/HR
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Melt Shop Equipment (caster spray vent 1)	Unspecified	-	1.43	LB/HR	Proper Operation and Maintenance of Caster Spray Vent 1.	-	-	-	-	-	-	-	-	-	-	-	-

Nucor Corporation | West Virginia Steel Mill
RBLC Entries for Casting Operations

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	PM Limit	PM Limit Unit	PM Control Technique	Limit 2	Limit 2 Unit	PM10 Limit	PM10 Limit Unit	PM10 Control Technique	Limit 2	Limit 2 Unit	PM2.5 Limit	PM2.5 Limit Unit	PM2.5 Control Technique	Limit 2	Limit 2 Unit
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Melt Shop Equipment (Caster Spray Vents 1)	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
53581 AND PSDTX1029M3	12/20/2019	STEEL MILL	TX		CASTER	Unspecified	-	0.0032	GR/DSCF	Use roof canopy hood with 95% capture. Also use baghouse as add on control.	-	-	0.0032	GR/DSCF	Use roof canopy hood with 95% capture. Also use baghouse as add on control.	-	-	0.0032	GR/DSCF	Use roof canopy hood with 95% capture. Also use baghouse as add on control.	-	-

Process	Pollutant
Cold Mill	$PM/PM_{10}/PM_{2.5}$

		Control Technology	Baghouse / Fabric Filter[a]	Electrostatic Precipitator (ESP)[b,c,d,e]	Wet Scrubber[f]	Cyclone[g]	Good Process Operation
Step 1.	IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES	**Control Technology Description**	Process exhaust gas passes through a tightly woven or felted fabric arranged in sheets, cartridges, or bags that collect PM via sieving and other mechanisms. The dust cake that accumulates on the filters increases collection efficiency. Various cleaning techniques include pulse-jet, reverse-air, and shaker technologies.	Electrodes stimulate the waste gas and induce an electrical charge in the entrained particles. The resulting electrical field forces the charged particles to the collector walls from which the material may be mechanically dislodged and collected in dry systems or washed with a water deluge in wet systems.	A scrubbing liquid introduced into the gas stream captures and collects entrained particles. In the case of a venturi scrubber, the turbulent airflow atomizes the scrubbing liquid to increase droplet-particle interaction. The droplets containing particles are typically separated from the exhaust gas in a downstream cyclonic separator and/or mist eliminator.	Centrifugal forces drive particles in the gas stream toward the cyclone walls as the waste gas flows through the conical unit. The captured particles are collected in a material hopper below the unit.	Operate and maintain the equipment in accordance with good air pollution control practices.
		Typical Operating Temperature	Up to 500 °F (Typical)	Up to 1,300 °F (dry) Lower than 170 - 190 °F (wet)	40 to 750 °F	Up to 1,000 °F	N/A
		Typical Waste Stream Inlet Flow Rate	100 - 100,000 scfm (Standard) 100,000 - 1,000,000 scfm (Custom)	1,000 - 100,000 scfm (Wire-Pipe) 100,000 - 1,000,000 scfm (Wire-Plate)	500 - 100,000 scfm (units in parallel can operate at greater flowrates)	1.1 - 63,500 scfm (single) Up to 106,000 scfm (in parallel)	N/A
		Typical Waste Stream Inlet Pollutant Concentration	0.5 - 10 gr/dscf (Typical) 0.05 - 100 gr/dscf (Achievable)	0.5 - 5 gr/dscf (Wire-Pipe) 1 - 50 gr/dscf (Wire-Plate)	0.1 - 50 gr/dscf	0.44 - 7,000 gr/dscf	N/A
		Other Considerations	Fabric filters are susceptible to corrosion and blinding by moisture. Appropriate fabrics must be selected for specific process conditions. Accumulations of dust may present fire or explosion hazards.	Dry ESP efficiency varies significantly with dust resistivity. Air leakage and acid condensation may cause corrosion. ESPs are not generally suitable for highly variable processes. Equipment footprint is often substantial.	Effluent stream requires wastewater treatment and solid was disposal. Sludge disposal may be costly. Wet scrubbers are particularly susceptible to corrosion.	Cyclones typically exhibit lower efficiencies when collecting smaller particles. High-efficiency units may require substantial pressure drop. Unable to handle sticky and tacky materials.	N/A
Step 2.	ELIMINATE TECHNICALLY INFEASIBLE OPTIONS	**RBLC Database Information**	Not included in RBLC for mini-mill pickling lines.	Not included in RBLC for mini-mill pickling lines.	Included in RBLC as a common form of control for PM from mini-mill pickling lines.	Not included in RBLC for mini-mill pickling lines.	N/A
		Feasibility Discussion	Technically infeasible. Emissions of HCl would be expected to corrode a fabric filter unit.	Technically infeasible. Emissions of HCl would be expected to corrode an ESP unit.	Feasible. Typical applications include processes in the iron and steel industries.	Technically infeasible. Emissions of HCl would be expected to corrode a cyclone unit.	Feasible
Step 3.	RANK REMAINING CONTROL TECHNOLOGIES	**Overall Control Efficiency**			70 - 99%		Base Case
Step 4.	EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS	**Cost Effectiveness ($/ton)**					
Step 5.	SELECT BACT				**PM BACT Limit: 0.01 gr/dscf** **PM10/2.5 BACT Limit: 0.0066 gr/dscf**		

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Fabric Filter - Pulse-Jet Cleaned Type)," EPA-452/F-03-025.
b. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Dry Electrostatic Precipitator (ESP) - Wire-Pipe Type)," EPA-452/F-03-027.
c. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Dry Electrostatic Precipitator (ESP) - Wire-Plate Type)," EPA-452/F-03-028.
d. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Wet Electrostatic Precipitator(ESP) - Wire-Pipe Type)," EPA-452/F-03-029.
e. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Wet Electrostatic Precipitator (ESP) - Wire-Plate Type)," EPA-452/F-03-030.
f. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Venturi Scrubber)," EPA-452/F-03-017.
g. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Cyclone)," EPA-452/F-03-005.

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	PM Limit	PM Limit Unit	PM Control Technique	Limit 2	Limit 2 Unit	PM10 Limit	PM10 Limit Unit	PM10 Control Technique	Limit 2	Limit 2 Unit	PM2.5 Limit	PM2.5 Limit Unit	PM2.5 Control Technique	Limit 2	Limit 2 Unit
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	COLD MILL REVERSING COLD MILL AND SKIN PASS MILL SN-25, 38, 44, 45, AND 46	Unspecified	-	0.0025	GR/DSCF	MIST ELIMINATOR	0	0	0.007	GR/DSCF	MIST ELIMINATOR	0.000	0	0.007	GR/DSCF	MIST ELIMINATOR	0.000	0
1139-AOP-R24	2/14/2019	NUCOR STEEL ARKANSAS	AR		SN-138 Cold Mill No. 1 Monovent	Unspecified	-	0.0002	LB/HR	Good work practices	0	0	0.000	LB/HR	Good work practices	0.000	0	0.000	LB/HR	Good work practices	0.000	0
1139-AOP-R26	9/1/2021	NUCOR STEEL ARKANSAS	AR		SN-208 Cold Mill 2 Monovent	Unspecified	-	0.0002	GR/DSCF	Good Work Practices	0	0	0.0002	GR/DSCF	Good Work Practices	0.000	0	0.000	GR/DSCF	Good Work Practices	0.000	0
V-20-004	12/27/2020	LOGAN ALUMINUM, INC.	KY		EP 161-01/02 (3050-1) Cold Mill 4 with Heavy Oil Scrubber	350	tons aluminum/hr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Cold Reversing Mills/Cold Mill (cold mill monovent)	Unspecified	-	0.0002	GR/DSCF	Proper Operation and Maintenance	2.79	LB/HR	-	-	-	-	-	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Cold Reversing Mills/Cold Mill (cold reversing mill no. 1)	Unspecified	-	0.01	GR/DSCF	Fan with Mist Eliminator No.1 (existing) and Fan with Mist Eliminator No. 2	7.2	LB/HR	-	-	-	-	-	-	-	-	-	-
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX		TANDUM COLD MILL	Unspecified	-	0.01	GR/DSCF	Mist Eliminator Scrubber	0	0	0.01	GR/DSCF	Mist Eliminator Scrubber	0.000	0	0.007	GR/DSCF	Mist Eliminator Scrubber	0.000	0

Nucor Corporation | West Virginia Steel Mill
Top Down BACT Analysis

Process	Pollutant
Temper Mill	$PM/PM_{10}/PM_{2.5}$

		Control Technology	Baghouse / Fabric Filter[a]	Electrostatic Precipitator (ESP)[b,c,d,e]	Wet Scrubber[f]	Cyclone[g]	Good Process Operation
Step 1.	**IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES**	**Control Technology Description**	Process exhaust gas passes through a tightly woven or felted fabric arranged in sheets, cartridges, or bags that collect PM via sieving and other mechanisms. The dust cake that accumulates on the filters increases collection efficiency. Various cleaning techniques include pulse-jet, reverse-air, and shaker technologies.	Electrodes stimulate the waste gas and induce an electrical charge in the entrained particles. The resulting electrical field forces the charged particles to the collector walls from which the material may be mechanically dislodged and collected in dry systems or washed with a water deluge in wet systems.	A scrubbing liquid introduced into the gas stream captures and collects entrained particles. In the case of a venturi scrubber, the turbulent airflow atomizes the scrubbing liquid to increase droplet-particle interaction. The droplets containing particles are typically separated from the exhaust gas in a downstream cyclonic separator and/or mist eliminator.	Centrifugal forces drive particles in the gas stream toward the cyclone walls as the waste gas flows through the conical unit. The captured particles are collected in a material hopper below the unit.	Operate and maintain the equipment in accordance with good air pollution control practices.
		Typical Operating Temperature	Up to 500 °F (Typical)	Up to 1,300 °F (dry) Lower than 170 - 190 °F (wet)	40 to 750 °F	Up to 1,000 °F	N/A
		Typical Waste Stream Inlet Flow Rate	100 - 100,000 scfm (Standard) 100,000 - 1,000,000 scfm (Custom)	1,000 - 100,000 scfm (Wire-Pipe) 100,000 - 1,000,000 scfm (Wire-Plate)	500 - 100,000 scfm (units in parallel can operate at greater flowrates)	1.1 - 63,500 scfm (single) Up to 106,000 scfm (in parallel)	N/A
		Typical Waste Stream Inlet Pollutant Concentration	0.5 - 10 gr/dscf (Typical) 0.05 - 100 gr/dscf (Achievable)	0.5 - 5 gr/dscf (Wire-Pipe) 1 - 50 gr/dscf (Wire-Plate)	0.1 - 50 gr/dscf	0.44 - 7,000 gr/dscf	N/A
		Other Considerations	Fabric filters are susceptible to corrosion and blinding by moisture. Appropriate fabrics must be selected for specific process conditions. Accumulations of dust may present fire or explosion hazards.	Dry ESP efficiency varies significantly with dust resistivity. Air leakage and acid condensation may cause corrosion. ESPs are not generally suitable for highly variable processes. Equipment footprint is often substantial.	Effluent stream requires wastewater treatment and solid was disposal. Sludge disposal may be costly. Wet scrubbers are particularly susceptible to corrosion.	Cyclones typically exhibit lower efficiencies when collecting smaller particles. High-efficiency units may require substantial pressure drop. Unable to handle sticky and tacky materials.	N/A
Step 2.	**ELIMINATE TECHNICALLY INFEASIBLE OPTIONS**	**RBLC Database Information**	Not included in RBLC for mini-mill pickling lines.	Not included in RBLC for mini-mill pickling lines.	Included in RBLC as a common form of control for PM from mini-mill pickling lines.	Not included in RBLC for mini-mill pickling lines.	N/A
		Feasibility Discussion	Technically infeasible. Emissions of HCl would be expected to corrode a fabric filter unit.	Technically infeasible. Emissions of HCl would be expected to corrode an ESP unit.	Feasible. Typical applications include processes in the iron and steel industries.	Technically infeasible. Emissions of HCl would be expected to corrode a cyclone unit.	Feasible
Step 3.	**RANK REMAINING CONTROL TECHNOLOGIES**	**Overall Control Efficiency**			70 - 99%		Base Case
Step 4.	**EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS**	**Cost Effectiveness ($/ton)**					
Step 5.	**SELECT BACT**				**BACT Limit: 0.01 gr/dscf**		

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Fabric Filter - Pulse-Jet Cleaned Type)," EPA-452/F-03-025.
b. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Dry Electrostatic Precipitator (ESP) - Wire-Pipe Type)," EPA-452/F-03-027.
c. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Dry Electrostatic Precipitator (ESP) - Wire-Plate Type)," EPA-452/F-03-028.
d. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Wet Electrostatic Precipitator(ESP) - Wire-Pipe Type)," EPA-452/F-03-029.
e. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Wet Electrostatic Precipitator (ESP) - Wire-Plate Type)," EPA-452/F-03-030.
f. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Venturi Scrubber)," EPA-452/F-03-017.
g. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Cyclone)," EPA-452/F-03-005.

Nucor Corporation | West Virginia Steel Mill
RBLC Entries for Temper Mill

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	PM Limit	PM Limit Unit	PM Control Technique	Limit 2	Limit 2 Unit	PM10 Limit	PM10 Limit Unit	PM10 Control Technique	Limit 2	Limit 2 Unit	PM2.5 Limit	PM2.5 Limit Unit	PM2.5 Control Technique	Limit 2	Limit 2 Unit
1139-AOP-R24	2/14/2019	NUCOR STEEL ARKANSAS	AR		SN-140 Tempering Mill Oiler	Unspecified	-	3	LB/HR	Use of electrostatic oiler for good transfer Good work practices	12.8	TPY	3.000	LB/HR	Use of electrostatic oiler for good transfer Good work practices	12.800	TPY	1.500	LB/HR	Use of electrostatic oiler for good transfer Good work practices	6.400	TPY
1139-AOP-R26	9/1/2021	NUCOR STEEL ARKANSAS	AR		SN-53. SM-206, SN-207 Cold Tempering and Reversing Mills	Unspecified	-	0.0012	GR/DSCF	Mist Eliminator	0	0	0.0022	GR/DSCF	Mist Eliminator	0.000	0	0.002	GR/DSCF	Mist Eliminator	0.000	0
147-33607-00041	2/24/2015	AK STEEL CORPORATION ROCKPORT WORKS	IN		TEMPER MILL	300	T/H	-	-	-	-	-	12.525	LB/H	MIST ELIMINATOR	0.016	GR/DSCF	-	-	-	-	-
147-33607-00041	2/24/2015	AK STEEL CORPORATION ROCKPORT WORKS	IN		APL: SKIN PASS TEMPER MILL & ROLL CLEANING DUST COLLECTION	130	T/H	-	-	-	-	-	0.459	LB/H	BAGHOUSE	0.018	GR/DSCF	-	-	-	-	-
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Galv Line #2 Temper Mill (EP 21-12)	876,000	tons/yr	0.0025	GR/DSCF	The permittee must develop a Good Work Practices (GWP) Plan to minimize emissions	1.69	TON/YR	0.0024	GR/DSCF	The permittee must develop a Good Work Practices (GWP) Plan to minimize emissions	1.600	TON/YR	0.0013	GR/DSCF	The permittee must develop a Good Work Practices (GWP) Plan to minimize emissions	0.840	TON/YR
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Pickle Line Equipment (pickle line no. 3 temper mill)	Unspecified	-	0.00	0	Proper Operation and Maintenance through Good Housekeeping Practices	0	0	-	-	-	-	-	-	-	-	-	-

Process	Pollutant
Rolling Mill	$PM/PM_{10}/PM_{2.5}$

		Control Technology	Baghouse / Fabric Filter[a]	Electrostatic Precipitator (ESP)[b,c,d,e]	Wet Scrubber[f]	Cyclone[g]	Good Process Operation
Step 1.	IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES	Control Technology Description	Process exhaust gas passes through a tightly woven or felted fabric arranged in sheets, cartridges, or bags that collect PM via sieving and other mechanisms. The dust cake that accumulates on the filters increases collection efficiency. Various cleaning techniques include pulse-jet, reverse-air, and shaker technologies.	Electrodes stimulate the waste gas and induce an electrical charge in the entrained particles. The resulting electrical field forces the charged particles to the collector walls from which the material may be mechanically dislodged and collected in dry systems or washed with a water deluge in wet systems.	A scrubbing liquid introduced into the gas stream captures and collects entrained particles. In the case of a venturi scrubber, the turbulent airflow atomizes the scrubbing liquid to increase droplet-particle interaction. The droplets containing particles are typically separated from the exhaust gas in a downstream cyclonic separator and/or mist eliminator.	Centrifugal forces drive particles in the gas stream toward the cyclone walls as the waste gas flows through the conical unit. The captured particles are collected in a material hopper below the unit.	Operate and maintain the equipment in accordance with good air pollution control practices.
		Typical Operating Temperature	Up to 500 °F (Typical)	Up to 1,300 °F (dry) Lower than 170 - 190 °F (wet)	40 to 750 °F	Up to 1,000 °F	N/A
		Typical Waste Stream Inlet Flow Rate	100 - 100,000 scfm (Standard) 100,000 - 1,000,000 scfm (Custom)	1,000 - 100,000 scfm (Wire-Pipe) 100,000 - 1,000,000 scfm (Wire-Plate)	500 - 100,000 scfm (units in parallel can operate at greater flowrates)	1.1 - 63,500 scfm (single) Up to 106,000 scfm (in parallel)	N/A
		Typical Waste Stream Inlet Pollutant Concentration	0.5 - 10 gr/dscf (Typical) 0.05 - 100 gr/dscf (Achievable)	0.5 - 5 gr/dscf (Wire-Pipe) 1 - 50 gr/dscf (Wire-Plate)	0.1 - 50 gr/dscf	0.44 - 7,000 gr/dscf	N/A
		Other Considerations	Fabric filters are susceptible to corrosion and blinding by moisture. Appropriate fabrics must be selected for specific process conditions. Accumulations of dust may present fire or explosion hazards.	Dry ESP efficiency varies significantly with dust resistivity. Air leakage and acid condensation may cause corrosion. ESPs are not generally suitable for highly variable processes. Equipment footprint is often substantial.	Effluent stream requires wastewater treatment and solid was disposal. Sludge disposal may be costly. Wet scrubbers are particularly susceptible to corrosion.	Cyclones typically exhibit lower efficiencies when collecting smaller particles. High-efficiency units may require substantial pressure drop. Unable to handle sticky and tacky materials.	N/A
Step 2.	ELIMINATE TECHNICALLY INFEASIBLE OPTIONS	RBLC Database Information	N/A	N/A	N/A	N/A	N/A
		Feasibility Discussion	Feasible	Feasible. Typical applications include processes in the metallurgical industry.	Feasible. Typical applications include processes in the iron and steel industries.	Feasible. Typical applications include first-stage PM control for ferrous metallurgical activities.	Feasible
Step 3.	RANK REMAINING CONTROL TECHNOLOGIES	Overall Control Efficiency	99 - 99.9%	99 - 99.9%	70 - 99%	70 - 99%	Base Case
Step 4.	EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS	Cost Effectiveness ($/ton)					
Step 5.	SELECT BACT		**PM/PM10 BACT Limit: 0.01 gr/dscf** **PM2.5 BACT Limit: 0.005 gr/dscf**				

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Fabric Filter - Pulse-Jet Cleaned Type)," EPA-452/F-03-025.
b. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Dry Electrostatic Precipitator (ESP) - Wire-Pipe Type)," EPA-452/F-03-027.
c. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Dry Electrostatic Precipitator (ESP) - Wire-Plate Type)," EPA-452/F-03-028.
d. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Wet Electrostatic Precipitator(ESP) - Wire-Pipe Type)," EPA-452/F-03-029.
e. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Wet Electrostatic Precipitator (ESP) - Wire-Plate Type)," EPA-452/F-03-030.
f. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Venturi Scrubber)," EPA-452/F-03-017.
g. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Cyclone)," EPA-452/F-03-005.

RBLC Entries for Rolling Mill

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	PM Limit	PM Limit Unit	PM Control Technique	Limit 2	Limit 2 Unit	PM10 Limit	PM10 Limit Unit	PM10 Control Technique	Limit 2	Limit 2 Unit	PM2.5 Limit	PM2.5 Limit Unit	PM2.5 Control Technique	Limit 2	Limit 2 Unit
701-0007-X121-X126	10/9/2015	ALLOYS PLANT	AL		120" HOT ROLLING MILL	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
701-0007-X121-X126	10/9/2015	ALLOYS PLANT	AL		130" HOT ROLLING MILL	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
701-0007-X121-X126	10/9/2015	ALLOYS PLANT	AL		170" HOT ROLLING MILL	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1050472-001-AC	2/14/2019	NUCOR STEEL FLORIDA FACILITY	FL		Rolling Operations	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18060014	11/1/2018	NUCOR STEEL KANKAKEE, INC.	IL		Rolling Mill and Cutting Torches	500,000	tons/yr	6.6500	TON/YR	Good industry practices for a rolling mill	0	0	6.6500	TON/YR	Good industry practice for a rolling mill	0.000	0	2.4600	TON/YR	Good industry practice for a rolling mill.	0.000	0
P0122542	8/29/2017	NUCOR STEEL MARION, INC.	OH		Rolling Mill (P009)	155	MMBTU/H	3.59	T/YR	0	0	0	3.59	T/YR	0	0.000	0	3.590	T/YR	0	0.000	0

Process	Pollutant
Cooling Tower	$PM/PM_{10}/PM_{2.5}$

		Control Technology	Baghouse / Fabric Filter[a]	Cyclone[b]	Dry Cooling Towers	Drift / Mist Eliminators[c]	Good Process Operation
Step 1.	IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES	Control Technology Description	Process exhaust gas passes through a tightly woven or felted fabric arranged in sheets, cartridges, or bags that collect PM via sieving and other mechanisms. The dust cake that accumulates on the filters increases collection efficiency. Various cleaning techniques include pulse-jet, reverse-air, and shaker technologies.	Centrifugal forces drive particles in the gas stream toward the cyclone walls as the waste gas flows through the conical unit. The captured particles are collected in a material hopper below the unit.	Heat transfer tubes or fins separate the cooling water from the ambient air, effectively eliminating drift losses.	An array of baffles in the cooling tower removes as many droplets as practical from the air stream before exiting the tower.	Operate and maintain the equipment in accordance with good air pollution control practices.
		Typical Operating Temperature	Up to 500 °F (Typical)	Up to 1,000 °F	N/A	N/A	N/A
		Typical Waste Stream Inlet Flow Rate	100 - 100,000 scfm (Standard) 100,000 - 1,000,000 scfm (Custom)	1.1 - 63,500 scfm (single) Up to 106,000 scfm (in parallel)	N/A	N/A	N/A
		Typical Waste Stream Inlet Pollutant Concentration	0.5 - 10 gr/dscf (Typical) 0.05 - 100 gr/dscf (Achievable)	0.44 - 7,000 gr/dscf	N/A	N/A	N/A
		Other Considerations	Fabric filters are susceptible to corrosion and blinding by moisture. Appropriate fabrics must be selected for specific process conditions. Accumulations of dust may present fire or explosion hazards.	Cyclones typically exhibit lower efficiencies when collecting smaller particles. High-efficiency units may require substantial pressure drop. Unable to handle sticky and tacky materials.	N/A	N/A	N/A
Step 2.	ELIMINATE TECHNICALLY INFEASIBLE OPTIONS	RBLC Database Information	Not included in RBLC for steel mills as a means of control for PM from cooling towers.	Not included in RBLC for steel mills as a means of control for PM from cooling towers.	Not included in RBLC for steel mills as a means of control for PM from cooling towers.	Included in RBLC for steel mills as a common means of control for PM from cooling towers.	N/A
		Feasibility Discussion	Technically infeasible. Cooling towers must be open to the atmosphere to function properly. Excessive moisture could lead to blinding of the fabric filter.	Technically infeasible. Cooling towers must be open to the atmosphere to function properly.	Technically infeasible. Has not been demonstrated for use at steel mini-mills.	Feasible	Feasible
Step 3.	RANK REMAINING CONTROL TECHNOLOGIES	Overall Control Efficiency				N/A	Base Case
Step 4.	EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS	Cost Effectiveness ($/ton)					
Step 5.	SELECT BACT					BACT Limit: 0.0005% Drift Rate	

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Fabric Filter - Pulse-Jet Cleaned Type)," EPA-452/F-03-025.
b. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Cyclone)," EPA-452/F-03-005.
c. U.S. EPA AP-42 Section 13.4 Wet Cooling Towers.

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	PM Limit	PM Limit Unit	PM Control Technique	Limit 2	Limit 2 Unit	PM10 Limit	PM10 Limit Unit	PM10 Control Technique	Limit 2	Limit 2 Unit	PM2.5 Limit	PM2.5 Limit Unit	PM2.5 Control Technique	Limit 2	Limit 2 Unit
183-27145-00030	12/21/2012	STEEL DYNAMICS, INC. - STRUCTURAL AND RAIL DIVISION	IN	Stationary Steel Beam Mini Mill	COOLING TOWER: ROLLING MILL/CASTER (NON-CONTACT) ID#15E	18000	GAL/MIN	0.003	% DRIFT RATE	DRIFT ELIMINATOR; DO NOT USE CHROMIUM-BASED WATER TREATMENT CHEMICALS IN ANY OF THE COOLING TOWERS.	0	0	0.003	% DRIFT RATE	DRIFT ELIMINATOR; DO NOT USE CHROMIUM-BASED WATER TREATMENT CHEMICALS IN ANY OF THE COOLING TOWERS.	0	0	-	-	-	-	-
183-27145-00030	12/21/2012	STEEL DYNAMICS, INC. - STRUCTURAL AND RAIL DIVISION	IN	Stationary Steel Beam Mini Mill	COOLING TOWER: CASTER SPRAYS (CONTACT) ID#15F	3500	GAL/MIN	0.001	% DRIFT RATE	DRIFT ELIMINATOR; DO NOT USE CHROMIUM-BASED WATER TREATMENT CHEMICALS IN ANY OF THE COOLING TOWERS.	0	0	0.001	% DRIFT RATE	DRIFT ELIMINATOR; DO NOT USE CHROMIUM-BASED WATER TREATMENT CHEMICALS IN ANY OF THE COOLING TOWERS.	0	0	-	-	-	-	-
183-27145-00030	12/21/2012	STEEL DYNAMICS, INC. - STRUCTURAL AND RAIL DIVISION	IN	Stationary Steel Beam Mini Mill	COOLING TOWER: ROLLING MILL (CONTACT) ID#15A	8000	GAL/MIN	0.001	% DRIFT RATE	DRIFT ELIMINATOR; DO NOT USE CHROMIUM-BASED WATER TREATMENT CHEMICALS IN ANY OF THE COOLING TOWERS.	0	0	0.001	% DRIFT RATE	DRIFT ELIMINATOR; DO NOT USE CHROMIUM-BASED WATER TREATMENT CHEMICALS IN ANY OF THE COOLING TOWERS.	0	0	-	-	-	-	-
183-27145-00030	12/21/2012	STEEL DYNAMICS, INC. - STRUCTURAL AND RAIL DIVISION	IN	Stationary Steel Beam Mini Mill	COOLING TOWER: LVD BOILER (CONTACT) ID#15G	2500	GAL/MIN	0.005	% DRIFT RATE	DRIFT ELIMINATOR; DO NOT USE CHROMIUM-BASED WATER TREATMENT CHEMICALS IN ANY OF THE COOLING TOWERS.	0	0	0.005	% DRIFT RATE	DRIFT ELIMINATOR; DO NOT USE CHROMIUM-BASED WATER TREATMENT CHEMICALS IN ANY OF THE COOLING TOWERS.	0	0	-	-	-	-	-
183-27145-00030	12/21/2012	STEEL DYNAMICS, INC. - STRUCTURAL AND RAIL DIVISION	IN	Stationary Steel Beam Mini Mill	COOLING TOWER: ROLLING MILL (CONTACT) ID#15B	4000	GAL/MIN	0.001	% DRIFT RATE	DRIFT ELIMINATOR; DO NOT USE CHROMIUM-BASED WATER TREATMENT CHEMICALS IN ANY OF THE COOLING TOWERS	0	0	0.001	% DRIFT RATE	DRIFT ELIMINATOR; DO NOT USE CHROMIUM-BASED WATER TREATMENT CHEMICALS IN ANY OF THE COOLING TOWERS	0	0	-	-	-	-	-
183-27145-00030	12/21/2012	STEEL DYNAMICS, INC. - STRUCTURAL AND RAIL DIVISION	IN	Stationary Steel Beam Mini Mill	COOLING TOWER: ROLLING MILL ID#15C (NONCONTACT)	81250	GAL/MIN	0.001	% DRIFT RATE	DRIFT ELIMINATOR; DO NOT USE CHROMIUM-BASED WATER TREATMENT CHEMICALS IN ANY OF THE COOLING TOWERS.	0	0	0.001	% DRIFT RATE	DRIFT ELIMINATOR; DO NOT USE CHROMIUM-BASED WATER TREATMENT CHEMICALS IN ANY OF THE COOLING TOWERS.	0	0	-	-	-	-	-
183-27145-00030	12/21/2012	STEEL DYNAMICS, INC. - STRUCTURAL AND RAIL DIVISION	IN	Stationary Steel Beam Mini Mill	COOLING TOWER: #1 CAST ID#15D (CONTACT)	5000	GAL/MIN	0.001	% DRAFT RATE	DRIFT ELIMINATOR; DO NOT USE CHROMIUM-BASED WATER TREATMENT CHEMICALS IN ANY OF THE COOLING TOWERS	0	0	0.001	% DRAFT RATE	DRIFT ELIMINATOR; DO NOT USE CHROMIUM-BASED WATER TREATMENT CHEMICALS IN ANY OF THE COOLING TOWERS.	0	0	-	-	-	-	-
102-12	1/4/2013	GERDAU MACSTEEL, INC.	MI	Steel Mill	Caster Cooling Tower (EUCASTERCOOLTWR)	1630	GAL/MIN	-	-	-	-	-	0.0005	% DRIFT LOSS	Drift eliminator	0	0	-	-	-	-	-
102-12A	10/27/2014	GERDAU MACSTEEL, INC.	MI	Steel Mill	EUCASTERCOOLTWR (Caster cooling tower)	1630	GAL/MIN	-	-	-	-	-	-	-	-	-	-	0.0005	%	Drift eliminator	0	0
PSD-LA-774(M1)	6/4/2015	BENTELER STEEL TUBE FACILITY	LA	Steel Pipe Manufacturing Facility	Cooling Towers	Unspecified	-	-	-	-	-	-	0.0005	% DRIFT RATE	drift eliminators	0	0	0.0005	% DRIFT RATE	drift eliminators	0	0
107-36834-00038	9/21/2016	NUCOR STEEL	IN	Steel Mill	HOT MILL CONTACT COOLING TOWER	25000	GAL/MIN	0.001	% DRIFT	DRIFT ELIMINATORS	0.38	LB/H	0.001	% DRIFT	DRIFT ELIMINATORS	0.19	LB/H	0.001	% DRIFT	DRIFT ELIMINATORS	0.001	LB/H
2305-AOP-R7	3/17/2021	BIG RIVER STEEL LLC	AR		Contact Cooling Tower	75000	gal/hr	0.001	% DRIFT LOSS	Drift Eliminators Low TDS	0	0	0.001	% DRIFT LOSS	Drift Eliminators Low TDS	0	0	0.001	% DRIFT LOSS	Drift Eliminators Low TDS	0	0
1139-AOP-R24	2/14/2019	NUCOR STEEL ARKANSAS	AR		SN-49 Cooling Tower 4	Unspecified	-	0.0005	% EFFECIENCY	High Efficiency Drift Eliminator	0	0	0.0005	% EFFECIENCY	0	0	0	0.0001	% EFFECIENCY	High Efficiency Drift Eliminator	0	0
1139-AOP-R24	2/14/2019	NUCOR STEEL ARKANSAS	AR		SN-125 Contact Cooling Tower	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1139-AOP-R26	9/1/2021	NUCOR STEEL ARKANSAS	AR		SN-212 Cooling Tower	Unspecified	-	0.0005	% DRIFT LOSS	High efficiency Drift/mist eliminator	0	0	0.0005	% DRIFT LOSS	High efficiency Drift/mist eliminator	0	0	0.0005	% DRIFT LOSS	High efficiency Drift/mist eliminator	0	0
18060014	11/1/2018	NUCOR STEEL KANKAKEE, INC.	IL		Cooling Towers	4500	gallons/minute	0.001	WEIGHT PERCENT	Drift eliminators	4000	TOTAL DISOLVED SOLID	-	-	-	-	-	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Cooling Towers	Unspecified	-	0.66	LB/HR	Proper Equipment Design, Operation and Maintenance	0	0	-	-	-	-	-	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Cooling Towers (non-contact cooling tower)	Unspecified	-	0.12	LB/HR	Proper Equipment Design, Operation and Maintenance	0	0	-	-	-	-	-	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Cooling Towers (contact cooling tower)	Unspecified	-	0.13	LB/HR	Proper Equipment Design, Operation and Maintenance	0	0	-	-	-	-	-	-	-	-	-	-
0820-0001-DI	4/29/2019	NUCOR CORPORATION - DARLINGTON PLANT	SC		Cooling Tower (Reheat #1 Cooling Tower)	Unspecified	-	0.0025	LB/H	Proper equipment design, operation, and maintenance.	0	0	0.0023	LB/H	Proper equipment design, operation, and maintenance.	0	0	0.0001	LB/H	Proper equipment design, operation, and maintenance.	0	0

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	PM Limit	PM Limit Unit	PM Control Technique	Limit 2	Limit 2 Unit	PM10 Limit	PM10 Limit Unit	PM10 Control Technique	Limit 2	Limit 2 Unit	PM2.5 Limit	PM2.5 Limit Unit	PM2.5 Control Technique	Limit 2	Limit 2 Unit
0820-0001-DI	4/29/2019	NUCOR CORPORATION - DARLINGTON PLANT	SC		Cooling Tower (Reheat #2 Cooling Tower)	Unspecified	-	0.0032	LB/H	Proper equipment design, operation, and maintenance.	0	0	0.0028	LB/H	Proper equipment design, operation, and maintenance	0	0	0	LB/H	Proper equipment design, operation, and maintenance.	0	0
0820-0001-DI	4/29/2019	NUCOR CORPORATION - DARLINGTON PLANT	SC		Cooling Tower (Rod Line Cooling Tower)	Unspecified	-	0.0026	LB/H	Proper equipment design, operation, and maintenance.	0	0	0.0025	LB/H	Proper equipment design, operation, and maintenance.	0	0	0.0001	LB/H	Proper equipment design, operation, and maintenance.	0	0
PSDTX1344 AND 108113	3/13/2014	DIRECT REDUCED IRON AND HOT BRIQUETTING FACILITY	TX		Cooling Tower	2205000	0	0.0005	DRIFT LOSS	A cooling tower with a drift loss of 0.0005%.	0	0	0.0005	DRIFT LOSS	A cooling tower with a drift loss of 0.0005%.	0	0	0.0005	DRIFT LOSS	A cooling tower with a drift loss of 0.0005%.	0	0
1050472-001-AC	2/14/2019	NUCOR STEEL FLORIDA FACILITY	FL		Two Cooling Towers	19650	gal/min	0.001	% DRIFT RATE	Drift eliminators	0	0	-	-	-	-	-	-	-	-	-	-
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY		EP 09-01 - Melt Shop ICW Cooling Tower	52000	gal/min	0.36	LB/HR	High Efficiency Mist Eliminator. The mist eliminator drift loss shall be maintained at 0.001% or less to total gpm.	1.56	TON/YR	0.27	LB/HR	High Efficiency Mist Eliminator. The mist eliminator drift loss shall be maintained at 0.001% or less to total gpm.	1.16	TON/YR	0.0008	LB/HR	High Efficiency Mist Eliminator. The mist eliminator drift loss shall be maintained at 0.001% or less to total gpm.	0.0035	TON/YR
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY		EP 09-02 - Melt Shop DCW Cooling Tower	5900	gal/min	0.04	LB/HR	High Efficiency Mist Eliminator. The mist eliminator drift loss shall be maintained at 0.001% or less to total gpm.	0.19	TON/YR	0.03	LB/HR	High Efficiency Mist Eliminator. The mist eliminator drift loss shall be maintained at 0.001% or less to total gpm.	0.14	TON/YR	0.0001	LB/HR	High Efficiency Mist Eliminator. The mist eliminator drift loss shall be maintained at 0.001% or less to total gpm.	0.0004	TON/YR
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY		EP 09-03 - Rolling Mill ICW Cooling Tower	8500	gal/min	0.06	LB/HR	High Efficiency Mist Eliminator. The mist eliminator drift loss shall be maintained at 0.001% or less to total gpm.	0.25	TON/YR	0.04	LB/HR	High Efficiency Mist Eliminator. The mist eliminator drift loss shall be maintained at 0.001% or less to total gpm.	0.19	TON/YR	0.0001	LB/HR	High Efficiency Mist Eliminator. The mist eliminator drift loss shall be maintained at 0.001% or less to total gpm.	0.0006	TON/YR
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY		EP 09-04 - Rolling Mill DCW Cooling Tower	22750	gal/min	0.17	LB/HR	High Efficiency Mist Eliminator. The mist eliminator drift loss shall be maintained at 0.001% or less to total gpm.	0.75	TON/YR	0.12	LB/HR	High Efficiency Mist Eliminator. The mist eliminator drift loss shall be maintained at 0.001% or less to total gpm.	0.51	TON/YR	0.0004	LB/HR	High Efficiency Mist Eliminator. The mist eliminator drift loss shall be maintained at 0.001% or less to total gpm.	0.0016	TON/YR
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY		EP 09-05 - Rolling Mill Quench/ACC Cooling Tower	90000	gal/min	0.78	LB/HR	High Efficiency Mist Eliminator. The mist eliminator drift loss shall be maintained at 0.001% or less to total gpm.	3.41	TON/YR	0.54	LB/HR	High Efficiency Mist Eliminator. The mist eliminator drift loss shall be maintained at 0.001% or less to total gpm.	2.35	TON/YR	0.0017	LB/HR	High Efficiency Mist Eliminator. The mist eliminator drift loss shall be maintained at 0.001% or less to total gpm.	0.0075	TON/YR
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY		EP 09-06 - Light Plate Quench DCW Cooling Tower	8000	gal/min	0.06	LB/HR	High Efficiency Mist Eliminator. The mist eliminator drift loss shall be maintained at 0.001% or less to total gpm.	0.26	TON/YR	0.04	LB/HR	High Efficiency Mist Eliminator. The mist eliminator drift loss shall be maintained at 0.001% or less to total gpm.	0.19	TON/YR	0.0001	LB/HR	High Efficiency Mist Eliminator. The mist eliminator drift loss shall be maintained at 0.001% or less to total gpm.	0.0006	TON/YR
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY		EP 09-07 - Heavy Plate Quench DCW Cooling Tower	3000	gal/min	0.02	LB/HR	High Efficiency Mist Eliminator. The mist eliminator drift loss shall be maintained at 0.001% or less to total gpm.	0.1	TON/YR	0.02	LB/HR	High Efficiency Mist Eliminator. The mist eliminator drift loss shall be maintained at 0.001% or less to total gpm.	0.07	TON/YR	0.0001	LB/HR	High Efficiency Mist Eliminator. The mist eliminator drift loss shall be maintained at 0.001% or less to total gpm.	0.0002	TON/YR
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY		EP 09-08 - Air Separation Plant Cooling Tower	14000	gal/min	0.1	LB/HR	High Efficiency Mist Eliminator. The mist eliminator drift loss shall be maintained at 0.001% or less to total gpm.	0.46	TON/YR	0.08	LB/HR	High Efficiency Mist Eliminator. The mist eliminator drift loss shall be maintained at 0.001% or less to total gpm.	0.34	TON/YR	0.0002	LB/HR	High Efficiency Mist Eliminator. The mist eliminator drift loss shall be maintained at 0.001% or less to total gpm.	0.001	TON/YR
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Laminar Cooling Tower - Hot Mill Cells (EP 03-09)	35000	gal/min	0.27	LB/HR	Mist Eliminator, 0.001% drift loss	1.18	TON/YR	0.19	LB/HR	Mist Eliminator, 0.001% drift loss	0.87	TON/YR	0.0006	LB/HR	Mist Eliminator, 0.001% drift loss	0.0026	TON/YR
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Direct Cooling Tower-Caster & Roughing Mill Cells (EP 03-10)	26300	gal/min	0.17	LB/HR	Mist Eliminator, 0.001% drift loss	0.75	TON/YR	0.12	LB/HR	Mist Eliminator, 0.001% drift loss	0.55	TON/YR	0.0004	LB/HR	Mist Eliminator, 0.001% drift loss	0.002	TON/YR
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Melt Shop #2 Cooling Tower (indirect) (EP 03-11)	59500	gal/min	0.39	LB/HR	Mist Eliminator, 0.001% drift loss	1.71	TONS/YR	0.29	LB/HR	Mist Eliminator, 0.001% drift loss	1.27	TONS/YR	0.0008	LB/HR	Mist Eliminator, 0.001% drift loss	0.003	TON/YR
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Cold Mill Cooling Tower (EP 03-12)	20000	gal/min	0.14	LB/HR	Mist Eliminator, 0.001% drift loss	0.6	TON/YR	0.094	LB/HR	Mist Eliminator, 0.001% drift loss	0.41	TON/YR	0.0003	LB/HR	Mist Eliminator, 0.001% drift loss	0.0013	TON/YR
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Air Separation Plant Cooling Tower (EP 03-13)	15000	gal/min	0.08	LB/HR	Mist Eliminator, 0.001% drift loss	0.37	TON/YR	0.07	LB/HR	Mist Eliminator, 0.001% drift loss	0.32	TON/YR	0.0002	LB/HR	Mist Eliminator, 0.001% drift loss	0.0008	TON/YR
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		DCW Auxiliary Cooling Tower (EP 03-14)	9250	gal/min	0.06	LB/HR	Mist Eliminator, 0.001% drift loss	0.27	TON/YR	0.05	LB/HR	Mist Eliminator, 0.001% drift loss	0.21	TON/YR	0.0001	LB/HR	Mist Eliminator, 0.001% drift loss	0.0006	TON/YR

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	PM Limit	PM Limit Unit	PM Control Technique	Limit 2	Limit 2 Unit	PM10 Limit	PM10 Limit Unit	PM10 Control Technique	Limit 2	Limit 2 Unit	PM2.5 Limit	PM2.5 Limit Unit	PM2.5 Control Technique	Limit 2	Limit 2 Unit
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH		Contact Cooling Towers - Melt Shop 2 (P027)	2.7	MMGAL/H	1.17	T/YR	i.Use of drift eliminator(s) designed to achieve a 0.001% drift rate; ii.maintenance of a total dissolved solids (TDS) content (for the 5 individual cooling towers) not to exceed the ppm in the circulating cooling water based on a rolling 12-month average as indicated in the table below: Cooling Tower - TDS (ppm) Meltshop 2 Cooling Tower - 1000 Caster Mold Water Cooling Tower - 800 Tunnel Furnace Cooling Tower - 800 Caster Non-Contact 2 Cooling Tower - 800 Caster Contact 2 Cooling Tower - 1400	0	0	0.93	T/YR	i.Use of drift eliminator(s) designed to achieve a 0.001% drift rate; ii.maintenance of a total dissolved solids (TDS) content (for the 5 individual cooling towers) not to exceed the ppm in the circulating cooling water based on a rolling 12-month average as indicated in the table below: Cooling Tower - TDS (ppm) Meltshop 2 Cooling Tower - 1000 Caster Mold Water Cooling Tower - 800 Tunnel Furnace Cooling Tower - 800 Caster Non-Contact 2 Cooling Tower - 800 Caster Contact 2 Cooling Tower - 1400	0	0	-	-	-	-	-
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH		Contact Cooling Towers (P014)	6.41	MMGAL/H	8.7	T/YR	i.Use of drift eliminator(s) designed to achieve a 0.003% drift rate; ii.maintenance of a total dissolved solids (TDS) content (for the 5 individual cooling towers) not to exceed the ppm in the circulating cooling water based on a rolling 12-month average as indicated in the table below: Cooling Tower - TDS (ppm) Meltshop Cooling Tower (501) - 800 Caster Non-Contact Cooling Tower (6 Cell) - 800 Caster Contact Cooling Tower (503) - 1100 Mill Contact Cooling Tower (505) - 2000 Laminar Flow Cooling Tower (506) - 1400	0	0	6.95	T/YR	i.Use of drift eliminator(s) designed to achieve a 0.003% drift rate; ii.maintenance of a total dissolved solids (TDS) content (for the 5 individual cooling towers) not to exceed the ppm in the circulating cooling water based on a rolling 12-month average as indicated in the table below: Cooling Tower - TDS (ppm) Meltshop Cooling Tower (501) - 800 Caster Non-Contact Cooling Tower (6 Cell) - 800 Caster Contact Cooling Tower (503) - 1100 Mill Contact Cooling Tower (505) - 2000 Laminar Flow Cooling Tower (506) - 1400	0	0	0.02	T/YR	i.Use of drift eliminator(s) designed to achieve a 0.003% drift rate; ii.maintenance of a total dissolved solids (TDS) content (for the 5 individual cooling towers) not to exceed the ppm in the circulating cooling water based on a rolling 12-month average as indicated in the table below: Cooling Tower - TDS (ppm) Meltshop Cooling Tower (501) - 800 Caster Non-Contact Cooling Tower (6 Cell) - 800 Caster Contact Cooling Tower (503) - 1100 Mill Contact Cooling Tower (505) - 2000 Laminar Flow Cooling Tower (506) - 1400	0	0
1050472-001-AC	2/14/2019	NUCOR STEEL FLORIDA FACILITY	FL		Two Cooling Towers	19650	gal/min	0.001	% DRIFT RATE	Drift eliminators	0	0	-	-	-	-	-	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Cooling Towers	Unspecified	-	0.66	LB/HR	Proper Equipment Design, Operation and Maintenance	0	0	0.33	LB/HR	Proper Equipment Design, Operation and Maintenance	0	0	0.0013	LB/HR	Proper Equipment Design, Operation and Maintenance	0	0
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Cooling Towers (non-contact cooling tower)	Unspecified	-	0.12	LB/HR	Proper Equipment Design, Operation and Maintenance	0	0	0.05	LB/HR	Proper Equipment Design, Operation and Maintenance	0	0	0.0003	LB/HR	Proper Equipment Design, Operation and Maintenance	0	0
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Cooling Towers (contact cooling tower)	Unspecified	-	0.13	LB/HR	Proper Equipment Design, Operation and Maintenance	0	0	0.06	LB/HR	Proper Equipment Design, Operation and Maintenance	0	0	0.0003	LB/HR	Proper Equipment Design, Operation and Maintenance	0	0

Process	Pollutant
Electric Arc Furnace	NO_X

		Control Technology	Selective Catalytic Reduction (SCR)[a]	Selective Non-Catalytic Reduction (SNCR)[b]	Non-Selective Catalytic Reduction (NSCR)[c,d]	SCONOX Catalytic Absorption System[e]	Xonon Cool Combustion[e]	Low-NOX Burners (LNBs)[c]	Oxy-Fuel Burners[c]	Good Process Operation
Step 1.	**IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES**	**Control Technology Description**	A nitrogen-based reagent (e.g., ammonia, urea) is injected into the exhaust stream downstream of the combustion unit. The reagent reacts selectively with NOX to produce molecular N2 and water in a reactor vessel containing a metallic or ceramic catalyst.	A nitrogen-based reagent (e.g., ammonia, urea) is injected into the exhaust stream and reacts selectively with NOX to produce molecular N2 and water within the combustion unit.	Metallic catalysts convert NOX, CO, and hydrocarbons to water, nitrogen, and CO2.	Utilizes a single catalyst to remove NOX, CO, and VOC through oxidation.	A catalyst integrated into gas turbine combustors limits the production of NOX through temperature control also resulting in reduced emissions of CO and VOC.	Low-NOX burners employ multi-staged combustion to inhibit the formation of NOX. Primary combustion occurs at lower temperatures under oxygen-deficient conditions; secondary combustion occurs in the presence of excess air.	Oxy-fired burners achieve combustion using oxygen rather than air, which reduces nitrogen levels in the furnace. The lower nitrogen levels result in a reduction in NOX emissions.	Operate and maintain the equipment in accordance with good air pollution control practices and with good combustion practices.
		Typical Operating Temperature	480 - 800 °F (typical SCR systems tolerate temperature variations of ± 200 °F)	1,600 - 2,100 °F (chemical additives can lower reaction temp.)	700 - 1,500 °F	300 - 700 °F	N/A	N/A	N/A	N/A
		Typical Waste Stream Inlet Flow Rate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Typical Waste Stream Inlet Pollutant Concentration	As low as 20 ppm (efficiency improves with increased concentration up to 150 ppm)	200 - 400 ppm	N/A	N/A	N/A	N/A	N/A	N/A
		Other Considerations	Unreacted reagent (ammonia slip) may form ammonium sulfates that may plug or corrode downstream equipment. Ammonia absorption into fly ash may affect ash disposal. Particulate-laden streams may blind the catalyst and may require a sootblower.	Unreacted reagent (ammonia slip) may form ammonium sulfates that may plug or corrode downstream equipment. Ammonia absorption into fly ash may affect ash disposal. The SNCR process produces N2O as a byproduct.	This technique uses a fuel rich mixture that, combined with back pressure from exhaust flow through the catalyst, increases the brake specific fuel consumption of the engine	The SCONOX Catalyst is sensitive to contamination by sulfur, so it must be used in conjunction with the SCOSOX catalyst, which favors sulfur compound absorption.	N/A	N/A	Oxy-fuel burners must be properly applied to prevent the formation of NOX due to the elevated flame temperatures.	N/A
Step 2.	**ELIMINATE TECHNICALLY INFEASIBLE OPTIONS**	**RBLC Database Information**	Not included in RBLC for mini-mill EAF.	Not included in RBLC for mini-mill EAF.	Not included in RBLC for mini-mill EAF.	Not included in RBLC for mini-mill EAF.	Not included in RBLC for mini-mill EAF.	Included in RBLC for mini-mill EAF.	Included in RBLC for mini-mill EAF.	Included in RBLC for mini-mill EAF.
		Feasibility Discussion	Technically infeasible. Locating unit downstream of PM control device would decrease inlet temperature to 300 °F. Heating high-volume exhaust stream to proper temperature would result in increased emissions of NOX. Also, the reagent-to-NOX ratio cannot be feasibly maintained under the significant variation in NOX loading associated with EAFs.	Technically infeasible. Locating unit downstream of PM control device would decrease inlet temperature to 300 °F. Heating high-volume exhaust stream to proper temperature would result in increased emissions of NOX. Also, the reagent-to-NOX ratio cannot be feasibly maintained under the significant variation in NOX loading associated with EAFs.	Technically infeasible. Typically applied only to rich burn engine emissions.	Technically infeasible. Typically applied to power generation turbines.	Technically infeasible. Integrated only in gas turbine combustors.	Feasible	Feasible	Feasible
Step 3.	**RANK REMAINING CONTROL TECHNOLOGIES**	**Overall Control Efficiency**						Up to 80%	20%	Base Case
Step 4.	**EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS**	**Cost Effectiveness ($/ton)**								
Step 5.	**SELECT BACT**							**BACT Limit: 0.3 lb/ton steel**	**BACT Limit: 0.3 lb/ton steel**	

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Selective Catalytic Reduction (SCR))," EPA-452/F-03-032.
b. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Selective Non-Catalytic Reduction (SNCR))," EPA-452/F-03-031.
c. U.S. EPA, "Nitrogen Oxides (NOX), Why and How they are Controlled," EPA-456/F-99-006R
d. U.S. EPA, "CAM Technical Guidance Document" Section B-16, January 2005
e. California EPA, Air Resources Board, "Report to the Legislature: Gas-Fired Power Plant NOX Emission Controls and Related Environmental Impacts," http://www.arb.ca.gov/research/apr/reports/l2069.pdf

Process	Pollutant
Electric Arc Furnace	CO

		Control Technology	Non-Selective Catalytic Reduction (NSCR)[a,b]	SCONOX Catalytic Absorption System[c]	Xonon Cool Combustion[c]	Recuperative Thermal Oxidation[d,e]	Regenerative Thermal Oxidation[f]	Catalytic Oxidation[g]	Good Process Operation
Step 1.	**IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES**	**Control Technology Description**	Metallic catalysts convert NOX, CO, and hydrocarbons to water, nitrogen, and CO2.	Utilizes a single catalyst to remove NOX, CO, and VOC through oxidation.	A catalyst integrated into gas turbine combustors limits the production of NOX through temperature control also resulting in reduced emissions of CO and VOC.	Oxidizes combustible materials by raising the temperature of the material above the auto-ignition point in the presence of oxygen and maintaining the high temperature for sufficient time to complete combustion.	Oxidizes combustible materials by raising the temperature of the material above the auto-ignition point in the presence of oxygen and maintaining the high temperature for sufficient time to complete combustion.	Similar to thermal incineration; waste stream is heated by a flame and then passes through a catalyst bed that increases the oxidation rate more quickly and at lower temperatures.	Operate and maintain the equipment in accordance with good air pollution control practices and with good combustion practices.
		Typical Operating Temperature	700 - 1,500 °F	300 - 700 °F	N/A	1,100 - 1,200 °F	1,400 - 2,000 °F (RTO) 800 °F (RCO)	600 - 800 °F (not to exceed 1,250 °F)	N/A
		Typical Waste Stream Inlet Flow Rate	N/A	N/A	N/A	500 - 50,000 scfm	5,000 - 500,000 scfm	700 - 50,000 scfm	N/A
		Typical Waste Stream Inlet Pollutant Concentration	N/A	N/A	N/A	Best performance at 1,500 - 3,000 ppmv	As low as 100 ppmv or less	As low as 1 ppmv	N/A
		Other Considerations	This technique uses a fuel rich mixture that, combined with back pressure from exhaust flow through the catalyst, increases the brake specific fuel consumption of the engine	The SCONOX Catalyst is sensitive to contamination by sulfur, so it must be used in conjunction with the SCOSOX catalyst, which favors sulfur compound absorption.	N/A	Additional fuel is required to reach the ignition temperature of the waste gas stream. Oxidizers are not recommended for controlling gases with halogen or sulfur containing compounds due to the formation of highly corrosive acid gases.	Pretreatment to remove PM may be necessary for clogging prevention and/or catalyst poisoning. Additional fuel is required to reach the ignition temperature of the waste gas stream.[a]	Catalyst can be deactivated by certain catalyst poisons or other fouling contaminants such as silicone, sulfur, heavy hydrocarbons, and particulates.	N/A
Step 2.	**ELIMINATE TECHNICALLY INFEASIBLE OPTIONS**	**RBLC Database Information**	Not included in RBLC for mini-mill EAF.	Not included in RBLC for mini-mill EAF.	Not included in RBLC for mini-mill EAF.	Post-combustion chambers with burners included in RBLC for mini-mill EAF.	Post-combustion chambers with burners included in RBLC for mini-mill EAF.	Not included in RBLC for mini-mill EAF.	Included in RBLC for mini-mill EAF.
		Feasibility Discussion	Technically infeasible. Typically applied only to rich burn engine emissions.	Technically infeasible. Typically applied to power generation turbines.	Technically infeasible. Integrated only in gas turbine combustors.	Technically infeasible. Locating unit downstream of PM control device would decrease inlet temperature to 300 °F. Heating high-volume exhaust stream to proper temperature would result in increased emissions of NOX (ozone, PM2.5 precursor) and secondary CO emissions.	Technically infeasible. Locating unit downstream of PM control device would decrease inlet temperature to 300 °F. Heating high-volume exhaust stream to proper temperature would result in increased emissions of NOX (ozone, PM2.5 precursor) and secondary CO emissions.	Technically infeasible. Locating unit downstream of PM control device would decrease inlet temperature to 300 °F. Heating high-volume exhaust stream to proper temperature would result in increased emissions of NOX (ozone, PM2.5 precursor) and secondary CO emissions.	Feasible
Step 3.	**RANK REMAINING CONTROL TECHNOLOGIES**	**Overall Control Efficiency**							Base Case
Step 4.	**EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS**	**Cost Effectiveness ($/ton)**							
Step 5.	**SELECT BACT**								**BACT Limit: 2.0 lb/ton**

a. U.S. EPA, "Nitrogen Oxides (NOX), Why and How they are Controlled," EPA-456/F-99-006R
b. U.S. EPA, "CAM Technical Guidance Document" Section B-16, January 2005
c. California EPA, Air Resources Board, "Report to the Legislature: Gas-Fired Power Plant NOX Emission Controls and Related Environmental Impacts," http://www.arb.ca.gov/research/apr/reports/l2069.pdf
d. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Thermal Incinerator)," EPA-452/F-03-022.
e. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Incinerator - Recuperative Type)," EPA-452/F-03-020.
f. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Regenerative Incinerator)," EPA-452/F-03-021.
g. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Catalytic Incinerator)," EPA-452/F-03-018.

Process	Pollutant
Electric Arc Furnace	SO_2

Step		Control Technology	Impingement-Plate/Tray-Tower Scrubber[a]	Packed-Bed/Packed-Tower Wet Scrubber[b]	Spray-Chamber/Spray-Tower Wet Scrubber[c]	Flue Gas Desulfurization[d]	Good Process Operation
Step 1.	IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES	**Control Technology Description**	An impingement-plate scrubber promotes contact between the flue gas and a sorbent slurry in a vertical column with transversely mounted perforated trays. Absorption of SO2 is accomplished by countercurrent contact between the flue gas and reagent slurry.	Scrubbing liquid (e.g., NaOH), which is introduced above layers of variously-shaped packing material, flows concurrently against the flue gas stream. The acid gases are absorbed into the scrubbing solution and react with alkaline compounds to produce neutral salts.	Spray tower scrubbers introduce a reagent slurry as atomized droplets through an array of spray nozzles within the scrubbing chamber. The waste gas enters the bottom of the column and travels upward in a countercurrent flow. Absorption of SO2 is accomplished by the contact between the gas and reagent slurry, which results in the formation of neutral salts.	An alkaline reagent is introduced in a spray tower as an aqueous slurry (for wet systems) or is pneumatically injected as a powder in the waste gas ductwork (for dry systems). Absorption of SO2 is accomplished by the contact between the gas and reagent slurry or powder, which results in the formation of neutral salts.	Operate and maintain the equipment in accordance with good air pollution control practices and with good combustion practices, including the use of natural gas.
		Typical Operating Temperature	40 - 100 °F	40 - 100 °F	40 - 100 °F	300 - 700 °F (wet) 300 - 1,830 °F (dry)	N/A
		Typical Waste Stream Inlet Flow Rate	1,000 - 75,000 scfm	500 - 75,000 scfm	1,500 to 100,000 scfm	N/A	N/A
		Typical Waste Stream Inlet Pollutant Concentration	N/A	250 - 10,000 ppmv	250 - 10,000 ppmv	2,000 ppmv	N/A
		Other Considerations	Waste slurry formed in the bottom of the scrubber requires disposal.	To avoid clogging, packed bed wet scrubbers are generally limited to applications in which PM concentrations are less than 0.20 gr/scf)	Waste slurry formed in the bottom of the scrubber requires disposal.	Chlorine emissions can result in salt deposition on the absorber and downstream equipment. Wet systems may require flue gas re-heating downstream of the absorber to prevent corrosive condensation. Dry systems may require cooling inlet streams to minimize deposits.	N/A
Step 2.	ELIMINATE TECHNICALLY INFEASIBLE OPTIONS	**RBLC Database Information**	Not included in RBLC for mini-mill EAF.	Not included in RBLC for mini-mill EAF.	Not included in RBLC for mini-mill EAF.	Not included in RBLC for mini-mill EAF.	Included in RBLC for mini-mill EAF.
		Feasibility Discussion	Technically infeasible. EAF exhaust temperatures exceed the typical operating ranges provided for wet scrubbers.	Technically infeasible. EAF exhaust temperatures exceed the typical operating ranges provided for wet scrubbers.	Technically infeasible. EAF exhaust temperatures exceed the typical operating ranges provided for wet scrubbers.	Technically infeasible. Concentrations of SO2 in the waste gas fall below the levels typically controlled by FGDs.	Feasible
Step 3.	RANK REMAINING CONTROL TECHNOLOGIES	**Overall Control Efficiency**					Base Case
Step 4.	EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS	**Cost Effectiveness ($/ton)**					
Step 5.	SELECT BACT						**BACT Limit: 0.20 lb/ton**

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Impingement-Plate/Tray-Tower Scrubber)," EPA-452/F-03-012.
b. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Packed-Bed/Packed-Tower Wet Scrubber)," EPA-452/F-03-015.
c. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Spray-Chamber/Spray-Tower Wet Scrubber)," EPA-452/F-03-016.
d. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Flue Gas Desulfurization)," EPA-452/F-03-034.

Process	Pollutant
Electric Arc Furnace	VOC

		Control Technology	Recuperative Thermal Oxidation[a,b]	Regenerative Thermal Oxidation[c]	Catalytic Oxidation[d]	Carbon / Zeolite Adsorption[e]	Biofiltration[f]	Condenser[g]	Good Process Operation
Step 1.	IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES	Control Technology Description	Oxidizes combustible materials by raising the temperature of the material above the auto-ignition point in the presence of oxygen and maintaining the high temperature for sufficient time to complete combustion.	Oxidizes combustible materials by raising the temperature of the material above the auto-ignition point in the presence of oxygen and maintaining the high temperature for sufficient time to complete combustion.	Similar to thermal incineration; waste stream is heated by a flame and then passes through a catalyst bed that increases the oxidation rate more quickly and at lower temperatures.	Adsorption technology utilizes a porous solid to selectively collect VOC from the gas stream. Adsorption collects VOC, but does not destroy it.	Exhaust gases containing biodegradable organic compounds are vented, under controlled temperature and humidity, through biologically active material. The microorganisms contained in the bed of bio-material digest or biodegrade the organics to CO2 and water.	Condensers convert a gas or vapor stream to a liquid, allowing the organics within the stream to be recovered, refined, or reused and preventing the release of organic streams into the ambient air.	Operate and maintain the equipment in accordance with good air pollution control practices and with good combustion practices.
		Typical Operating Temperature	1,100 - 1,200 °F	1,400 - 2,000 °F (RTO) 800 °F (RCO)	600 - 800 °F (not to exceed 1,250 °F)	N/A	60 - 105 °F	Hydrocarbon dew point (may be as low as -100 °F)	N/A
		Typical Waste Stream Inlet Flow Rate	500 - 50,000 scfm	5,000 - 500,000 scfm	700 - 50,000 scfm	N/A	600 - 600,000 acfm	Up to 2,000 cfm (10,000 cfm cryogenic)	N/A
		Typical Waste Stream Inlet Pollutant Concentration	Best performance at 1,500 - 3,000 ppmv	As low as 100 ppmv or less	As low as 1 ppmv	As low as 20 ppm	N/A	High concentrations required for efficient control	N/A
		Other Considerations	Additional fuel is required to reach the ignition temperature of the waste gas stream. Oxidizers are not recommended for controlling gases with halogen or sulfur containing compounds due to the formation of highly corrosive acid gases.	Pretreatment to remove PM may be necessary for clogging prevention and/or catalyst poisoning. Additional fuel is required to reach the ignition temperature of the waste gas stream.[a]	Catalyst can be deactivated by certain catalyst poisons or other fouling contaminants such as silicone, sulfur, heavy hydrocarbons, and particulates.	Excessive temperatures may cause desorption of the hydrocarbons or may melt the adsorbent. Adsorbed hydrocarbons may oxidize and cause bed fires.	Temperatures outside the specified range, acidic deposition, or dry exhaust streams will kill or deactivate the microorganisms. Biofiltration systems occupy a large equipment footprint. Large land requirement for traditional design.	Energy required to drive the refrigeration system. Certain compounds may corrode the cooling coils and associated equipment. Particulate material may accumulate within the cooling chamber.	N/A
Step 2.	ELIMINATE TECHNICALLY INFEASIBLE OPTIONS	RBLC Database Information	Post-combustion chambers with burners included in RBLC for mini-mill EAF.	Post-combustion chambers with burners included in RBLC for mini-mill EAF.	Not included in RBLC for mini-mill EAF.	Not included in RBLC for mini-mill EAF.	Not included in RBLC for mini-mill EAF.	Not included in RBLC for mini-mill EAF.	Included in RBLC for mini-mill EAF.
		Feasibility Discussion	Technically infeasible. Locating unit downstream of PM control device would decrease inlet temperature to 300 °F. Heating high-volume exhaust stream to proper temperature would result in increased emissions of NOX (ozone, PM2.5 precursor) and secondary CO emissions.	Technically infeasible. Locating unit downstream of PM control device would decrease inlet temperature to 300 °F. Heating high-volume exhaust stream to proper temperature would result in increased emissions of NOX (ozone, PM2.5 precursor) and secondary CO emissions.	Technically infeasible. Locating unit downstream of PM control device would decrease inlet temperature to 300 °F. Heating high-volume exhaust stream to proper temperature would result in increased emissions of NOX (ozone, PM2.5 precursor) and secondary CO emissions.	Technically infeasible. Exhaust gas temperatures exceed typical adsorption temperatures.	Technically infeasible. Exhaust gas temperatures exceed acceptable levels for biofiltration.	Technically infeasible. Exhaust gas flow rates exceed acceptable levels for effective condensation.	Feasible
Step 3.	RANK REMAINING CONTROL TECHNOLOGIES	Overall Control Efficiency							Base Case
Step 4.	EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS	Cost Effectiveness ($/ton)							
Step 5.	SELECT BACT								**BACT Limit: 0.093 lb/ton**

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Thermal Incinerator)," EPA-452/F-03-022.
b. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Incinerator - Recuperative Type)," EPA-452/F-03-020.
c. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Regenerative Incinerator)," EPA-452/F-03-021.
d. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Catalytic Incinerator)," EPA-452/F-03-018.
e. U.S. EPA, "Choosing an Adsorption System for VOC: Carbon, Zeolite, or Polymers?" EPA-456/F-99-004
f. U.S. EPA, "Using Bioreactors to Control Air Pollution," EPA-456/F-03-003
g. U.S. EPA, "Refrigerated Condensers for Control of Organic Air Emissions," EPA-456/F-01-004

Process	Pollutant
Electric Arc Furnace	$PM/PM_{10}/PM_{2.5}$

		Control Technology	Baghouse / Fabric Filter[a]	Electrostatic Precipitator (ESP)[b,c,d,e]	Incinerator[f]	Wet Scrubber[h]	Cyclone[i]	Good Process Operation
Step 1.	IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES	Control Technology Description	Process exhaust gas passes through a tightly woven or felted fabric arranged in sheets, cartridges, or bags that collect PM via sieving and other mechanisms. The dust cake that accumulates on the filters increases collection efficiency. Various cleaning techniques include pulse-jet, reverse-air, and shaker technologies.	Electrodes stimulate the waste gas and induce an electrical charge in the entrained particles. The resulting electrical field forces the charged particles to the collector walls from which the material may be mechanically dislodged and collected in dry systems or washed with a water deluge in wet systems.	The combustion of auxiliary fuel heats a combustion chamber to promote the thermal oxidation of partially combusted particulate hydrocarbons in the exhaust stream. Recuperative incinerators utilize heat exchangers to recover heat from the outlet gas which is used to pre-heat the incoming waste stream.	A scrubbing liquid introduced into the gas stream captures and collects entrained particles. In the case of a venturi scrubber, the turbulent airflow atomizes the scrubbing liquid to increase droplet-particle interaction. The droplets containing particles are typically separated from the exhaust gas in a downstream cyclonic separator and/or mist eliminator.	Centrifugal forces drive particles in the gas stream toward the cyclone walls as the waste gas flows through the conical unit. The captured particles are collected in a material hopper below the unit.	Operate and maintain the equipment in accordance with good air pollution control practices.
		Typical Operating Temperature	Up to 500 °F (Typical)	Up to 1,300 °F (dry) Lower than 170 - 190 °F (wet)	1,100 to 1,200 °F	40 to 750 °F	Up to 1,000 °F	N/A
		Typical Waste Stream Inlet Flow Rate	100 - 100,000 scfm (Standard) 100,000 - 1,000,000 scfm (Custom)	1,000 - 100,000 scfm (Wire-Pipe) 100,000 - 1,000,000 scfm (Wire-Plate)	500 - 50,000 scfm	500 - 100,000 scfm (units in parallel can operate at greater flowrates)	1.1 - 63,500 scfm (single) Up to 106,000 scfm (in parallel)	N/A
		Typical Waste Stream Inlet Pollutant Concentration	0.5 - 10 gr/dscf (Typical) 0.05 - 100 gr/dscf (Achievable)	0.5 - 5 gr/dscf (Wire-Pipe) 1 - 50 gr/dscf (Wire-Plate)	As low as 100 ppmv or less (for VOC)[g]	0.1 - 50 gr/dscf	0.44 - 7,000 gr/dscf	N/A
		Other Considerations	Fabric filters are susceptible to corrosion and blinding by moisture. Appropriate fabrics must be selected for specific process conditions. Accumulations of dust may present fire or explosion hazards.	Dry ESP efficiency varies significantly with dust resistivity. Air leakage and acid condensation may cause corrosion. ESPs are not generally suitable for highly variable processes. Equipment footprint is often substantial.	Incinerators may not effectively control highly-variable waste streams. Halogenated or sulfurous compounds may cause corrosion within the incinerator.	Effluent stream requires wastewater treatment and solid was disposal. Sludge disposal may be costly. Wet scrubbers are particularly susceptible to corrosion.	Cyclones typically exhibit lower efficiencies when collecting smaller particles. High-efficiency units may require substantial pressure drop. Unable to handle sticky and tacky materials.	N/A
Step 2.	ELIMINATE TECHNICALLY INFEASIBLE OPTIONS	RBLC Database Information	Baghouses with Direct Evacuation Canopies (DECs) are included in the RBLC as a common form of control for PM from EAF.	Not included in RBLC for mini-mill EAF.	Not included in RBLC for mini-mill EAF.	Not included in RBLC for mini-mill EAF.	Not included in RBLC for mini-mill EAF.	Not included in RBLC for mini-mill EAF.
		Feasibility Discussion	Feasible. Typical applications include ferrous metals processing.	Feasible. Typical applications include processes in the metallurgical industry.	Technically infeasible. Concentrations of total particulate in the waste gas fall below the levels typically controlled by incinerators.	Technically infeasible. Concentrations of total particulate in the waste gas fall below the levels typically controlled by wet scrubbers.	Feasible. Typical applications include first-stage PM control for ferrous metallurgical activities.	Feasible
Step 3.	RANK REMAINING CONTROL TECHNOLOGIES	Overall Control Efficiency	99 - 99.9%	99 - 99.9%			70 - 99%	Base Case
Step 4.	EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS	Cost Effectiveness ($/ton)						
Step 5.	SELECT BACT		**BACT Limit: 0.0018 PM (filterable)/dscf** **0.0052 PM_{10} (total)/dscf** **0.0052 $PM_{2.5}$ (total)/dscf**					

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Fabric Filter - Pulse-Jet Cleaned Type)," EPA-452/F-03-025.
b. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Dry Electrostatic Precipitator (ESP) - Wire-Pipe Type)," EPA-452/F-03-027.
c. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Dry Electrostatic Precipitator (ESP) - Wire-Plate Type)," EPA-452/F-03-028.
d. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Wet Electrostatic Precipitator(ESP) - Wire-Pipe Type)," EPA-452/F-03-029.
e. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Wet Electrostatic Precipitator (ESP) - Wire-Plate Type)," EPA-452/F-03-030.
f. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Incinerator - Recuperative Type)," EPA-452/F-03-020.
g. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Incinerator - Regenerative Type)," EPA-452/F-03-021.
h. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Venturi Scrubber)," EPA-452/F-03-017.
i. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Cyclone)," EPA-452/F-03-005.

Process	Pollutant
Electric Arc Furnace	Pb

		Control Technology	Baghouse / Fabric Filter[a]	Electrostatic Precipitator (ESP)[b,c,d,e]	Incinerator[f]	Wet Scrubber[h]	Cyclone[i]	Good Process Operation
Step 1.	IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES	Control Technology Description	Process exhaust gas passes through a tightly woven or felted fabric arranged in sheets, cartridges, or bags that collect PM via sieving and other mechanisms. The dust cake that accumulates on the filters increases collection efficiency. Various cleaning techniques include pulse-jet, reverse-air, and shaker technologies.	Electrodes stimulate the waste gas and induce an electrical charge in the entrained particles. The resulting electrical field forces the charged particles to the collector walls from which the material may be mechanically dislodged and collected in dry systems or washed with a water deluge in wet systems.	The combustion of auxiliary fuel heats a combustion chamber to promote the thermal oxidation of partially combusted particulate hydrocarbons in the exhaust stream. Recuperative incinerators utilize heat exchangers to recover heat from the outlet gas which is used to pre-heat the incoming waste stream.	A scrubbing liquid introduced into the gas stream captures and collects entrained particles. In the case of a venturi scrubber, the turbulent airflow atomizes the scrubbing liquid to increase droplet-particle interaction. The droplets containing particles are typically separated from the exhaust gas in a downstream cyclonic separator and/or mist eliminator.	Centrifugal forces drive particles in the gas stream toward the cyclone walls as the waste gas flows through the conical unit. The captured particles are collected in a material hopper below the unit.	Operate and maintain the equipment in accordance with good air pollution control practices.
		Typical Operating Temperature	Up to 500 °F (Typical)	Up to 1,300 °F (dry) Lower than 170 - 190 °F (wet)	1,100 to 1,200 °F	40 to 750 °F	Up to 1,000 °F	N/A
		Typical Waste Stream Inlet Flow Rate	100 - 100,000 scfm (Standard) 100,000 - 1,000,000 scfm (Custom)	1,000 - 100,000 scfm (Wire-Pipe) 100,000 - 1,000,000 scfm (Wire-Plate)	500 - 50,000 scfm	500 - 100,000 scfm (units in parallel can operate at greater flowrates)	1.1 - 63,500 scfm (single) Up to 106,000 scfm (in parallel)	N/A
		Typical Waste Stream Inlet Pollutant Concentration	0.5 - 10 gr/dscf (Typical) 0.05 - 100 gr/dscf (Achievable)	0.5 - 5 gr/dscf (Wire-Pipe) 1 - 50 gr/dscf (Wire-Plate)	As low as 100 ppmv or less (for VOC)[g]	0.1 - 50 gr/dscf	0.44 - 7,000 gr/dscf	N/A
		Other Considerations	Fabric filters are susceptible to corrosion and blinding by moisture. Appropriate fabrics must be selected for specific process conditions. Accumulations of dust may present fire or explosion hazards.	Dry ESP efficiency varies significantly with dust resistivity. Air leakage and acid condensation may cause corrosion. ESPs are not generally suitable for highly variable processes. Equipment footprint is often substantial.	Incinerators may not effectively control highly-variable waste streams. Halogenated or sulfurous compounds may cause corrosion within the incinerator.	Effluent stream requires wastewater treatment and solid was disposal. Sludge disposal may be costly. Wet scrubbers are particularly susceptible to corrosion.	Cyclones typically exhibit lower efficiencies when collecting smaller particles. High-efficiency units may require substantial pressure drop. Unable to handle sticky and tacky materials.	N/A
Step 2.	ELIMINATE TECHNICALLY INFEASIBLE OPTIONS	RBLC Database Information	Baghouses with Direct Evacuation Canopies (DECs) are included in the RBLC as a common form of control for PM from EAF.	Not included in RBLC for mini-mill EAF.	Not included in RBLC for mini-mill EAF.	Not included in RBLC for mini-mill EAF.	Not included in RBLC for mini-mill EAF.	Not included in RBLC for mini-mill EAF.
		Feasibility Discussion	Feasible	Feasible	Potentially Feasible	Potentially Feasible	Feasible	Feasible
Step 3.	RANK REMAINING CONTROL TECHNOLOGIES	Overall Control Efficiency	99 - 99.9%	99 - 99.9%	70 - 99.9%	70 - 99%	70 - 99%	Base Case
Step 4.	EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS	Cost Effectiveness ($/ton)						
Step 5.	SELECT BACT		**BACT Limit: 0.0035 lb/ton**					

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Fabric Filter - Pulse-Jet Cleaned Type)," EPA-452/F-03-025.
b. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Dry Electrostatic Precipitator (ESP) - Wire-Pipe Type)," EPA-452/F-03-027.
c. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Dry Electrostatic Precipitator (ESP) - Wire-Plate Type)," EPA-452/F-03-028.
d. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Wet Electrostatic Precipitator(ESP) - Wire-Pipe Type)," EPA-452/F-03-029.
e. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Wet Electrostatic Precipitator (ESP) - Wire-Plate Type)," EPA-452/F-03-030.
f. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Incinerator - Recuperative Type)," EPA-452/F-03-020.
g. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Incinerator - Regenerative Type)," EPA-452/F-03-021.
h. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Venturi Scrubber)," EPA-452/F-03-017.
i. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Cyclone)," EPA-452/F-03-005.

Nucor Corporation | West Virginia Steel Mill
RBLC Entries for Electric Arc Furnace (EAF)

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	NOx Limit	NOx Limit Unit	NOx Control Technique	Limit 2	Limit 2 Unit
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	EAFS SN-01 AND SN-02	Unspecified	-	0.3	LB/TON	-	-	-
2015-0643-C PSD	1/19/2016	CMC STEEL OKLAHOMA	OK	Steel Mill	Electric Arc Furnace	Unspecified	-	0.3	LB/TON OF STEEL	Oxy-firing.	-	-
53581 & PSDTX 1029M2	10/2/2013	STEEL MILL	TX	Scrap Steel Mill	ELECTRIC ARC FURNACE	316	TPH	0.9	LB/TON OF STEEL	OXY FIRED BURNERS	-	-
P0109191	7/18/2012	REPUBLIC STEEL	OH	Steel Mill	Electric Arc Furnace	150	T/H	0.5	LB/T	-	300	T/YR
413-0033-X014, X015, X016, X02	3/9/2017	NUCOR STEEL TUSCALOOSA, INC.	AL	Steel Mill	Electric Arc Furnace	Unspecified	-	105	LB/HR	-	0.35	LB/TON
413-0033	7/22/2014	NUCOR STEEL TUSCALOOSA, INC.	AL	Scrap Steel Mill	Electric Arc Furnace	Unspecified	-	-	-	-	-	-
413-0033-X014 - X020	7/22/2014	NUCOR STEEL TUSCALOOSA, INC.	AL	Steel Mill	ELECTRIC ARC FURNACE BAGHOUSE # 2	600000	LB/H	-	-	-	-	-
PSD-LA-774(M1)	6/4/2015	BENTELER STEEL TUBE FACILITY	LA	Seamless Steel Pipe Mill	Fume Treatment Plant (EAF)	90	tons/hr	0.35	LB/TON	-	-	-
12-027	10/9/2013	NUCOR STEEL	NE	Steel Mill	ELECTRIC ARC FURNACE	206	tons of scrap processed per hour	0.28	LB/T	-	53.67	LB/H
712-0037-X001 & X016	3/2/2016	NUCOR STEEL DECATUR, LLC	AL	Steel Mill	TWO (2) ELECTRIC ARC FURNACES WITH TWO (2) MELTSHOP BAGHOUSES	Unspecified	-	0.42	LB/TON OF STEEL	OXY-FUEL BURNERS	184.8	LB/H
102-12	1/4/2013	GERDAU MACSTEEL, INC.	MI	Steel Mill	Melt Shop (FG-MELTSHOP)	130	T liquid steel per H	0.2	LB/T LIQUID STEEL	Real time process optimization (combustion controls) and the use of oxy-fuel burners.	26	LB/H
PSDTX708M6 8248	7/24/2014	STEEL MINIMILL FACILITY	TX	Steel Mill	Electric Arc Furnace	1300000	tons/year	0.2159	LB/T	Good Combustion and/or Process Operation including an EAF carbon injection and furnace burner system that injects carbon and oxygen into the metal/slag interface.	-	-
102-12A	10/27/2014	GERDAU MACSTEEL, INC.	MI	Steel Mill	FG-MELTSHOP (Melt Shop)	130	T/H	0.2	LB/T	No controls. Real time process optimization (combustion controls) and the use of oxy-fuel burners.	26	LB/H
503-0106-X001	6/13/2017	OUTOKUMPU STAINLESS USA, LLC	AL	Stainless Steel Mill	Electric Arc Furnace	Unspecified	-	0.6	LB/TON	Direct Evacuation Control	75.6	LB/HR
35677P07	11/7/2017	NUCOR STEEL DIVISION	NE	Steel Recycling Facility	ELECTRIC ARC FURNACE	1350000	TON/YR	0.42	LB	BAGHOUSE	-	-
712-0037-X001 & X020	8/14/2019	NUCOR STEEL DECATUR, LLC	AL	Steel Mill	Electric Arc Furnaces	Unspecified	-	0.42	LB/TON	Oxy-fuel fired burners	226.8	LB/HR
1139-AOP-R24	2/14/2019	NUCOR STEEL ARKANSAS	AR	Steel Mill	SN-01 EAF	585	tons steel per hour	0.51	LB/TON	Natural Gas Fired Oxy Fuel Burners	-	-
1139-AOP-R26	9/1/2021	NUCOR STEEL ARKANSAS	AR	Steel Mill	SN-01 EAF	585	tons steel per hour	0.51	LB/TON	Low NOx Burners	-	-
1050472-001-AC	2/14/2019	NUCOR STEEL FLORIDA FACILITY	FL	Micro Steel Mill	Meltshop Baghouse & Fugitives	450000	tons of steel per year	0.3	LB/TON OF STEEL	Oxy-fuel burners on the EAF, DEC System and baghouse controls.	18	LB/HOUR
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY	Steel Mill	Melt Shop (EU 01) & Melt Shop Combustion Sources (EU 02)	1750000	tons steel produced/yr	0.42	LB/TON	The facility is equipped with Continuous Emission Monitors (CEMS) to enable real-time monitoring of NOx emissions, allowing adjustments to the process as needed to reduce emissions. Additionally, All EPs are required to have with a Good Work Practices (GWP) Plan or a Good Combustion and Operating Practices (GCOP) Plan.	363.8	TON/YR

Nucor Corporation | West Virginia Steel Mill
RBLC Entries for Electric Arc Furnace (EAF)

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	NOx Limit	NOx Limit Unit	NOx Control Technique	Limit 2	Limit 2 Unit
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY	Steel Mini Mill	Melt Shop #1 (EU 01 Baghouse #1 & #2 Stack)	2000000	tons steel/yr	0.42	LB/TON	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).	420	TONS/YR
75-18	10/29/2018	GERDAU MACSTEEL MONROE	MI	Steel Mill	EUEAF (Electric arc furnace)	130	tons/hour	0.27	LB/T	Real time process optimization (RTPO) combustion controls and oxy-fuel burners.	35.1	LB/H
P0120585	10/2/2017	CHARTER STEEL - CLEVELAND INC	OH	Steel Mill	Electric Arc Furnace (P900)	110	T/H	-	-	-	-	-
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH	Steel Mill	Electric Arc Furnace #2 (P905)	250	T/H	105	LB/H	DEC systems with air gap	828.5	T/YR
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC	Steel Mill	Melt Shop Equipment (furnace baghouse)	175	2	-	-	-	-	-
1560-0087-CW	10/3/2017	CMC STEEL SOUTH CAROLINA	SC	Steel Mill	Melt Shop	1000000	billet tons/year	-	-	-	-	-
0820-0001-DI	4/29/2019	NUCOR CORPORATION - DARLINGTON PLANT	SC	Steel Mill	Meltshop (Furnace and Canopy Baghouses)	1314000	billet tons/year	0.35	LB/BILLET TON	-	0.41	LB/BILLET TON
0820-0001-DK	12/17/2019	NUCOR CORPORATION - DARLINGTON PLANT	SC	Steel Mill	Melt Shop Equipment (Furnace and Canopy Baghouses)	1314000	tons/year	0.41	LB/BILLET TON STEEL	-	-	-
2448 AND PSDTX1560	1/2/2020	STEEL MANUFACTURING FACILITY	TX	Steel Mill	ELECTRIC ARC FURNACE	Unspecified	-	0.58	LB/TON	GOOD COMBUSTION PRACTICES	-	-
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX	Steel Mini Mill	Electric Arc Furnaces (EAF)	Unspecified	-	0.35	LB/TON	ELECTRIC	-	-
16-043	12/30/2018	NUCOR STEEL	NE	Steel Mill	Electric Arc Furnace	206	tons of scrap processed per hour	-	-	-	-	-
7-0501-00009/00007	8/1/2016	NUCOR STEEL AUBURN INC.	NY	Steel Mill	Baghouse	Unspecified	-	-	-	-	-	-
149341, PSDTX1532, GHGPSDTX181	9/14/2018	STEEL MILL	TX	Steel Mill	Electric Arc Furnace and Ladle Metallurgy Furnace	Unspecified	-	0.158	LB/TON STEEL	Oxy-fuel burners	-	-
53581 AND PSDTX1029M3	12/20/2019	STEEL MILL	TX	Steel Mill	ELECTRIC ARC FURNACE	1500000	T/YR	0.3	LB/TON	Oxy-fuel burners	-	-

Nucor Corporation | West Virginia Steel Mill
RBLC Entries for Electric Arc Furnace (EAF)

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	CO Limit	CO Limit Unit	CO Control Technique	Limit 2	Limit 2 Unit
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	EAFS SN-01 AND SN-02	Unspecified	-	2	LB/TON STEEL	-	-	-
2015-0643-C PSD	1/19/2016	CMC STEEL OKLAHOMA	OK	Steel Mill	Electric Arc Furnace	Unspecified	-	4	LB/TON OF STEEL	Pre-cleaned scrap.	-	-
53581 & PSDTX 1029M2	10/2/2013	STEEL MILL	TX	Scrap Steel Mill	ELECTRIC ARC FURNACE	316	TPH	2.27	LB/T OF STEEL	GOOD COMBUSTION PRACTICE	-	-
P0109191	7/18/2012	REPUBLIC STEEL	OH	Steel Mill	Electric Arc Furnace	150	T/H	2	LB/T	Direct-Shell Evacuation Control system with adjustable air gap and water-cooled elbow and duct.	1200	T/YR
413-0033-X014, X015, X016, X02	3/9/2017	NUCOR STEEL TUSCALOOSA, INC.	AL	Steel Mill	Electric Arc Furnace	Unspecified	-	2.2	LB/TON	-	660	LBS/HR
413-0033	7/22/2014	NUCOR STEEL TUSCALOOSA, INC.	AL	Scrap Steel Mill	Electric Arc Furnace	Unspecified	-	-	-	-	-	-
413-0033-X014 - X020	7/22/2014	NUCOR STEEL TUSCALOOSA, INC.	AL	Steel Mill	ELECTRIC ARC FURNACE BAGHOUSE # 2	600000	LB/H	-	-	-	-	-
PSD-LA-774(M1)	6/4/2015	BENTELER STEEL TUBE FACILITY	LA	Seamless Steel Pipe Mill	Fume Treatment Plant (EAF)	90	tons/hr	4.8	LB/TON	-	-	-
12-027	10/9/2013	NUCOR STEEL	NE	Steel Mill	ELECTRIC ARC FURNACE	206	tons of scrap processed per hour	2	LB/T	-	383.3	LB/H
712-0037-X001 & X016	3/2/2016	NUCOR STEEL DECATUR, LLC	AL	Steel Mill	TWO (2) ELECTRIC ARC FURNACES WITH TWO (2) MELTSHOP BAGHOUSES	Unspecified	-	2.3	LB/TON OF STEEL	DIRECT EVACUATION CONTROL	1012	LB/H
102-12	1/4/2013	GERDAU MACSTEEL, INC.	MI	Steel Mill	Melt Shop (FG-MELTSHOP)	130	T liquid steel per H	2	LB/T LIQUID STEEL	Direct Evacuation Control (DEC) and Co Reaction Chamber	260	LB/H
PSDTX708M6 8248	7/24/2014	STEEL MINIMILL FACILITY	TX	Steel Mill	Electric Arc Furnace	1300000	tons/year	1.3273	LB/T	Good combustion practices with the operation of a DEC as the method typically employed to control CO.	-	-
102-12A	10/27/2014	GERDAU MACSTEEL, INC.	MI	Steel Mill	FG-MELTSHOP (Melt Shop)	130	T/H	2	LB/T	Direct Evacuation Control (DEC) and Co Reaction Chamber	260	LB/H
503-0106-X001	6/13/2017	OUTOKUMPU STAINLESS USA, LLC	AL	Stainless Steel Mill	Electric Arc Furnace	Unspecified	-	-	-	-	-	-
35677P07	11/7/2017	NUCOR STEEL DIVISION	NE	Steel Recycling Facility	ELECTRIC ARC FURNACE	1350000	TON/YR	3.1	LB	BAGHOUSE	-	-
712-0037-X001 & X020	8/14/2019	NUCOR STEEL DECATUR, LLC	AL	Steel Mill	Electric Arc Furnaces	Unspecified	-	2.3	LB/TON	Direct evacuation control	1240	LB/HR
1139-AOP-R24	2/14/2019	NUCOR STEEL ARKANSAS	AR	Steel Mill	SN-01 EAF	585	tons steel per hour	3	LB/TON	Direct Shell Evacuation	-	-
1139-AOP-R26	9/1/2021	NUCOR STEEL ARKANSAS	AR	Steel Mill	SN-01 EAF	585	tons steel per hour	3	LB/TON	Direct Shell Evacuation	-	-
1050472-001-AC	2/14/2019	NUCOR STEEL FLORIDA FACILITY	FL	Micro Steel Mill	Meltshop Baghouse & Fugitives	450000	tons of steel per year	3.5	LB/TON OF STEEL	DEC system, use of a scrap management plan & good combustion practices	210	LB/HOUR
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY	Steel Mill	Melt Shop (EU 01) & Melt Shop Combustion Sources (EU 02)	1750000	tons steel produced/yr	1.98	LB/TON	The facility is equipped with Continuous Emission Monitors (CEMS) to enable real-time monitoring of CO emissions, allowing adjustments to the process as needed to reduce emissions. Additionally, All EPs are required to have with a Good Work Practices (GWP) Plan or a Good Combustion and Operating Practices (GCOP) Plan.	1733	TON/YR

Nucor Corporation | West Virginia Steel Mill
RBLC Entries for Electric Arc Furnace (EAF)

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	CO Limit	CO Limit Unit	CO Control Technique	Limit 2	Limit 2 Unit
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY	Steel Mini Mill	Melt Shop #1 (EU 01 Baghouse #1 & #2 Stack)	2000000	tons steel/yr	2	LB/TON	Combustion processes must develop a Good Combustion and Operating Practices (GCOP) Plan.	2000	TONS/YR
75-18	10/29/2018	GERDAU MACSTEEL MONROE	MI	Steel Mill	EUEAF (Electric arc furnace)	130	tons/hour	2	LB/T	Direct-Shell Evacuation Control and CO reaction chamber	260	LB/H
P0120585	10/2/2017	CHARTER STEEL - CLEVELAND INC	OH	Steel Mill	Electric Arc Furnace (P900)	110	T/H	356.4	LB/H	Direct Evacuation Control (DEC) system with adjustable air gap and water-cooled elbow and duct	3.24	LB/T
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH	Steel Mill	Electric Arc Furnace #2 (P905)	250	T/H	500	LB/H	DEC systems with air gap	11603.57	T/YR
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC	Steel Mill	Melt Shop Equipment (furnace baghouse)	175	2	-	-	-	-	-
1560-0087-CW	10/3/2017	CMC STEEL SOUTH CAROLINA	SC	Steel Mill	Melt Shop	1000000	billet tons/year	1.7	LB/TON OF STEEL	Good combustion practices with the use of Direct Evacuation Control (DEC)	-	-
0820-0001-DI	4/29/2019	NUCOR CORPORATION - DARLINGTON PLANT	SC	Steel Mill	Meltshop (Furnace and Canopy Baghouses)	1314000	billet tons/year	3.13	LB/BILLET TON	-	2.76	LB/BILLET TON
0820-0001-DK	12/17/2019	NUCOR CORPORATION - DARLINGTON PLANT	SC	Steel Mill	Melt Shop Equipment (Furnace and Canopy Baghouses)	1314000	tons/year	3.13	LB/BILLET TON STEEL	-	-	-
2448 AND PSDTX1560	1/2/2020	STEEL MANUFACTURING FACILITY	TX	Steel Mill	ELECTRIC ARC FURNACE	Unspecified	-	3.275	LB/TON	GOOD COMBUSTION PRACTICES	-	-
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX	Steel Mini Mill	Electric Arc Furnaces (EAF)	Unspecified	-	2.02	LB/TON	GOOD COMBUSTION PRACTICES, CLEAN FUEL	-	-
16-043	12/30/2018	NUCOR STEEL	NE	Steel Mill	Electric Arc Furnace	206	tons of scrap processed per hour	-	-	-	-	-
7-0501-00009/00007	8/1/2016	NUCOR STEEL AUBURN INC.	NY	Steel Mill	Baghouse	Unspecified	-	-	-	-	-	-
149341, PSDTX1532, GHGPSDTX181	9/14/2018	STEEL MILL	TX	Steel Mill	Electric Arc Furnace and Ladle Metallurgy Furnace	Unspecified	-	2	LB/TON	good combustion	-	-
53581 AND PSDTX1029M3	12/20/2019	STEEL MILL	TX	Steel Mill	ELECTRIC ARC FURNACE	1500000	T/YR	2	LB/TON	GOOD COMBUSTRION PRACTICES	-	-

Nucor Corporation | West Virginia Steel Mill
RBLC Entries for Electric Arc Furnace (EAF)

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	SO_2 Limit	SO_2 Limit Unit	SO_2 Control Technique	Limit 2	Limit 2 Unit
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	EAFS SN-01 AND SN-02	Unspecified	-	0.18	LB/TON	SCRAP MANAGEMENT PLAN	-	-
2015-0643-C PSD	1/19/2016	CMC STEEL OKLAHOMA	OK	Steel Mill	Electric Arc Furnace	Unspecified	-	0.6	LB/TON OF STEEL	-	-	-
53581 & PSDTX 1029M2	10/2/2013	STEEL MILL	TX	Scrap Steel Mill	ELECTRIC ARC FURNACE	316	TPH	1.76	LB/TON OF STEEL	GOOD PROCESS OPERATION AND SCRAP MANAGEMENT	-	-
P0109191	7/18/2012	REPUBLIC STEEL	OH	Steel Mill	Electric Arc Furnace	150	T/H	0.39	LB/T	-	234	T/YR
413-0033-X014, X015, X016, X02	3/9/2017	NUCOR STEEL TUSCALOOSA, INC.	AL	Steel Mill	Electric Arc Furnace	Unspecified	-	0.44	LB/TON	-	132	LB/HR
413-0033	7/22/2014	NUCOR STEEL TUSCALOOSA, INC.	AL	Scrap Steel Mill	Electric Arc Furnace	Unspecified	-	-	-	-	-	-
413-0033-X014 - X020	7/22/2014	NUCOR STEEL TUSCALOOSA, INC.	AL	Steel Mill	ELECTRIC ARC FURNACE BAGHOUSE # 2	600000	LB/H	-	-	-	-	-
PSD-LA-774(M1)	6/4/2015	BENTELER STEEL TUBE FACILITY	LA	Seamless Steel Pipe Mill	Fume Treatment Plant (EAF)	90	tons/hr	0.6	LB/TONS	Scrap management plan	-	-
12-027	10/9/2013	NUCOR STEEL	NE	Steel Mill	ELECTRIC ARC FURNACE	206	tons of scrap processed per hour	1.5	LB/T	-	546.26	LB/H
712-0037-X001 & X016	3/2/2016	NUCOR STEEL DECATUR, LLC	AL	Steel Mill	TWO (2) ELECTRIC ARC FURNACES WITH TWO (2) MELTSHOP BAGHOUSES	Unspecified	-	0.35	LB/TON OF STEEL	LOW SULFUR CHARGE CARBON (< 2.0 % SULFUR BY WEIGHT)	154	LB/H
102-12	1/4/2013	GERDAU MACSTEEL, INC.	MI	Steel Mill	Melt Shop (FG-MELTSHOP)	130	T liquid steel per H	0.2	LB/T LIQUID STEEL	-	26	LB/H
PSDTX708M6 8248	7/24/2014	STEEL MINIMILL FACILITY	TX	Steel Mill	Electric Arc Furnace	1300000	tons/year	0.4	LB/T	The EAF currently combusts sweet natural gas and low-sulfur carbon feedstock, and uses good management practices to prevent feeding unnecessary sulfur containing materials to the steel producing process.	-	-
102-12A	10/27/2014	GERDAU MACSTEEL, INC.	MI	Steel Mill	FG-MELTSHOP (Melt Shop)	130	T/H	0.2	LB/T	-	26	LB/H
503-0106-X001	6/13/2017	OUTOKUMPU STAINLESS USA, LLC	AL	Stainless Steel Mill	Electric Arc Furnace	Unspecified	-	0.375	LB/TON	-	47.25	LB/HR
35677P07	11/7/2017	NUCOR STEEL DIVISION	NE	Steel Recycling Facility	ELECTRIC ARC FURNACE	1350000	TON/YR	-	-	-	-	-
712-0037-X001 & X020	8/14/2019	NUCOR STEEL DECATUR, LLC	AL	Steel Mill	Electric Arc Furnaces	Unspecified	-	0.35	LB/TON OF STEEL	Low sulfur injection carbon (less than or equal to 2% sulfur)	189	LB/HR
1139-AOP-R24	2/14/2019	NUCOR STEEL ARKANSAS	AR	Steel Mill	SN-01 EAF	585	tons steel per hour	0.2	LB/TON	Good Operating Practices	-	-
1139-AOP-R26	9/1/2021	NUCOR STEEL ARKANSAS	AR	Steel Mill	SN-01 EAF	585	tons steel per hour	0.2	LB/TON	Good Operating Practices	-	-
1050472-001-AC	2/14/2019	NUCOR STEEL FLORIDA FACILITY	FL	Micro Steel Mill	Meltshop Baghouse & Fugitives	450000	tons of steel per year	0.6	LB/TON OF STEEL	Use of natural gas fuel, low-sulfur available carbon-based feed and charge material, as well	36	LB/HOUR
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY	Steel Mill	Melt Shop (EU 01) & Melt Shop Combustion Sources (EU 02)	1750000	tons steel produced/yr	0.35	LB/TON	The facility is equipped with Continuous Emission Monitors (CEMS) to enable real-time monitoring of SO2 emissions, allowing adjustments to the process as needed to reduce emissions. Additionally, All EPs are required to have with a Good Work Practices (GWP) Plan or a Good Combustion and Operating Practices (GCOP) Plan.	303.2	TON/YR

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	SO_2 Limit	SO_2 Limit Unit	SO_2 Control Technique	Limit 2	Limit 2 Unit
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY	Steel Mini Mill	Melt Shop #1 (EU 01 Baghouse #1 & #2 Stack)	2000000	tons steel/yr	0.35	LB/TON	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.	350	TONS/YR
75-18	10/29/2018	GERDAU MACSTEEL MONROE	MI	Steel Mill	EUEAF (Electric arc furnace)	130	tons/hour	0.25	LB/T	lime coating of the baghouse bags.	32.5	LB/H
P0120585	10/2/2017	CHARTER STEEL - CLEVELAND INC	OH	Steel Mill	Electric Arc Furnace (P900)	110	T/H	166.16	LB/H	Melt Shop Sulfur-based Good Operating Practices: The permittee shall follow the melt shopâ€™s standard operating procedures as it relates to achieving each heatâ€™s final elemental chemistry specification for sulfur content. This includes any procedures for adjusting the sulfur content in the EAF, LMF and/or VTD.	1.51	LB/T
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH	Steel Mill	Electric Arc Furnace #2 (P905)	250	T/H	87.5	LB/H	The development, implementation, and maintenance of: (a)�scrap management plan; and (b)�work practice plan addressing â€œargon stirringâ€� during LMF desulfurization process.	575.9	T/YR
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC	Steel Mill	Melt Shop Equipment (furnace baghouse)	175	2	-	-	-	-	-
1560-0087-CW	10/3/2017	CMC STEEL SOUTH CAROLINA	SC	Steel Mill	Melt Shop	1000000	billet tons/year	-	-	-	-	-
0820-0001-DI	4/29/2019	NUCOR CORPORATION - DARLINGTON PLANT	SC	Steel Mill	Meltshop (Furnace and Canopy Baghouses)	1314000	billet tons/year	0.35	LB/BILLET TON	-	0.67	LB/BILLET TON
0820-0001-DK	12/17/2019	NUCOR CORPORATION - DARLINGTON PLANT	SC	Steel Mill	Melt Shop Equipment (Furnace and Canopy Baghouses)	1314000	tons/year	-	-	-	-	-
2448 AND PSDTX1560	1/2/2020	STEEL MANUFACTURING FACILITY	TX	Steel Mill	ELECTRIC ARC FURNACE	Unspecified	-	0.216	LB/TON	CLEAN SCRAP	-	-
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX	Steel Mini Mill	Electric Arc Furnaces (EAF)	Unspecified	-	0.24	LB/TON	CLEAN SCRAP	-	-
16-043	12/30/2018	NUCOR STEEL	NE	Steel Mill	Electric Arc Furnace	206	tons of scrap processed per hour	-	-	-	-	-
7-0501-00009/00007	8/1/2016	NUCOR STEEL AUBURN INC.	NY	Steel Mill	Baghouse	Unspecified	-	-	-	-	-	-
149341, PSDTX1532, GHGPSDTX181	9/14/2018	STEEL MILL	TX	Steel Mill	Electric Arc Furnace and Ladle Metallurgy Furnace	Unspecified	-	0.23	LB/TON	scrap management	-	-
53581 AND PSDTX1029M3	12/20/2019	STEEL MILL	TX	Steel Mill	ELECTRIC ARC FURNACE	1500000	T/YR	0.35	LB/TON	SCRAP MANAGEMENT PROGRAM	-	-

Nucor Corporation | West Virginia Steel Mill
RBLC Entries for Electric Arc Furnace (EAF)

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	VOC Limit	VOC Limit Unit	VOC Control Technique	Limit 2	Limit 2 Unit
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	EAFS SN-01 AND SN-02	Unspecified	-	0.088	-	-	-	-
2015-0643-C PSD	1/19/2016	CMC STEEL OKLAHOMA	OK	Steel Mill	Electric Arc Furnace	Unspecified	-	0.3	LB/TON OF STEEL	Pre-cleaned scrap	-	-
53581 & PSDTX 1029M2	10/2/2013	STEEL MILL	TX	Scrap Steel Mill	ELECTRIC ARC FURNACE	316	TPH	0.43	LB/TON OF STEEL	GOOD COMBUSTION PRACTICE AND PROCESS CONTROL	-	-
P0109191	7/18/2012	REPUBLIC STEEL	OH	Steel Mill	Electric Arc Furnace	150	T/H	0.1	LB/T	Scrap management and Direct-Shell Evacuation Control system with adjustable air gap and water-cooled elbow and duct.	60	T/YR
413-0033-X014, X015, X016, X02	3/9/2017	NUCOR STEEL TUSCALOOSA, INC.	AL	Steel Mill	Electric Arc Furnace	Unspecified	-	0.13	LB/TON	-	39	LB/HR
413-0033	7/22/2014	NUCOR STEEL TUSCALOOSA, INC.	AL	Scrap Steel Mill	Electric Arc Furnace	Unspecified	-	-	-	-	-	-
413-0033-X014 - X020	7/22/2014	NUCOR STEEL TUSCALOOSA, INC.	AL	Steel Mill	ELECTRIC ARC FURNACE BAGHOUSE # 2	600000	LB/H	-	-	-	-	-
PSD-LA-774(M1)	6/4/2015	BENTELER STEEL TUBE FACILITY	LA	Seamless Steel Pipe Mill	Fume Treatment Plant (EAF)	90	tons/hr	0.37	LB/TON	scrap management plan and good combustion techniques	-	-
12-027	10/9/2013	NUCOR STEEL	NE	Steel Mill	ELECTRIC ARC FURNACE	206	tons of scrap processed per hour	-	-	-	-	-
712-0037-X001 & X016	3/2/2016	NUCOR STEEL DECATUR, LLC	AL	Steel Mill	TWO (2) ELECTRIC ARC FURNACES WITH TWO (2) MELTSHOP BAGHOUSES	Unspecified	-	0.13	LB/TON	SCRAP MANAGEMENT PROGRAM	57.2	LB/H
102-12	1/4/2013	GERDAU MACSTEEL, INC.	MI	Steel Mill	Melt Shop (FG-MELTSHOP)	130	T liquid steel per H	0.13	LB/T LIQUID STEEL	Direct Evacuation Control (DEC) and VOC Reaction Chamber.	16.9	LB/H
PSDTX708M6 8248	7/24/2014	STEEL MINIMILL FACILITY	TX	Steel Mill	Electric Arc Furnace	1300000	tons/year	0.225	LB/T	Good Combustion and/or Process Control.	-	-
102-12A	10/27/2014	GERDAU MACSTEEL, INC.	MI	Steel Mill	FG-MELTSHOP (Melt Shop)	130	T/H	-	-	-	-	-
503-0106-X001	6/13/2017	OUTOKUMPU STAINLESS USA, LLC	AL	Stainless Steel Mill	Electric Arc Furnace	Unspecified	-	-	-	-	-	-
35677P07	11/7/2017	NUCOR STEEL DIVISION	NE	Steel Recycling Facility	ELECTRIC ARC FURNACE	1350000	TON/YR	-	-	-	-	-
712-0037-X001 & X020	8/14/2019	NUCOR STEEL DECATUR, LLC	AL	Steel Mill	Electric Arc Furnaces	Unspecified	-	0.13	LB/TON	Scrap management program	70.2	LB/HR
1139-AOP-R24	2/14/2019	NUCOR STEEL ARKANSAS	AR	Steel Mill	SN-01 EAF	585	tons steel per hour	0.13	LB/TON	Scrap Management system	-	-
1139-AOP-R26	9/1/2021	NUCOR STEEL ARKANSAS	AR	Steel Mill	SN-01 EAF	585	tons steel per hour	0.13	LB/TON	Scrap Management System	-	-
1050472-001-AC	2/14/2019	NUCOR STEEL FLORIDA FACILITY	FL	Micro Steel Mill	Meltshop Baghouse & Fugitives	450000	tons of steel per year	0.3	LB/TON OF STEEL	Good combustion practice and process control along with a scrap management	18	LB/HOUR
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY	Steel Mill	Melt Shop (EU 01) & Melt Shop Combustion Sources (EU 02)	1750000	tons steel produced/yr	0.09	LB/TON	All EPs are required to have either a Good Work Practices (GWP) Plan or a Good Combustion & Operating Practices (GCOP) Plan.	77.96	TON/YR

Nucor Corporation | West Virginia Steel Mill
RBLC Entries for Electric Arc Furnace (EAF)

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	VOC Limit	VOC Limit Unit	VOC Control Technique	Limit 2	Limit 2 Unit
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY	Steel Mini Mill	Melt Shop #1 (EU 01 Baghouse #1 & #2 Stack)	2000000	tons steel/yr	0.09	LB/TON	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.	90	TONS/YR
75-18	10/29/2018	GERDAU MACSTEEL MONROE	MI	Steel Mill	EUEAF (Electric arc furnace)	130	tons/hour	-	-	-	-	-
P0120585	10/2/2017	CHARTER STEEL - CLEVELAND INC	OH	Steel Mill	Electric Arc Furnace (P900)	110	T/H	-	-	-	-	-
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH	Steel Mill	Electric Arc Furnace #2 (P905)	250	T/H	87.5	LB/H	The development, implementation, and maintenance of a scrap management plan.	712.25	T/YR
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC	Steel Mill	Melt Shop Equipment (furnace baghouse)	175	2	-	-	-	-	-
1560-0087-CW	10/3/2017	CMC STEEL SOUTH CAROLINA	SC	Steel Mill	Melt Shop	1000000	billet tons/year	-	-	-	-	-
0820-0001-DI	4/29/2019	NUCOR CORPORATION - DARLINGTON PLANT	SC	Steel Mill	Meltshop (Furnace and Canopy Baghouses)	1314000	billet tons/year	0.35	LB/BILLET TON	-	63	LB/H
0820-0001-DK	12/17/2019	NUCOR CORPORATION - DARLINGTON PLANT	SC	Steel Mill	Melt Shop Equipment (Furnace and Canopy Baghouses)	1314000	tons/year	-	-	-	-	-
2448 AND PSDTX1560	1/2/2020	STEEL MANUFACTURING FACILITY	TX	Steel Mill	ELECTRIC ARC FURNACE	Unspecified	-	0.22	LB/TON	work practices and material inspections, minimize any chlorinated plastics and free organic liquids, including draining any used oil filters	-	-
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX	Steel Mini Mill	Electric Arc Furnaces (EAF)	Unspecified	-	0.093	LB/TON	CLEAN SCRAP	-	-
16-043	12/30/2018	NUCOR STEEL	NE	Steel Mill	Electric Arc Furnace	206	tons of scrap processed per hour	-	-	-	-	-
7-0501-00009/00007	8/1/2016	NUCOR STEEL AUBURN INC.	NY	Steel Mill	Baghouse	Unspecified	-	-	-	-	-	-
149341, PSDTX1532, GHGPSDTX181	9/14/2018	STEEL MILL	TX	Steel Mill	Electric Arc Furnace and Ladle Metallurgy Furnace	Unspecified	-	0.097	LB/TON	scrap management	-	-
53581 AND PSDTX1029M3	12/20/2019	STEEL MILL	TX	Steel Mill	ELECTRIC ARC FURNACE	1500000	T/YR	0.427	LB/TON	SCRAP MANAGEMENT PROGRAM	-	-

Nucor Corporation | West Virginia Steel Mill
RBLC Entries for Electric Arc Furnace (EAF)

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	PM Limit	PM Limit Unit	PM Control Technique	Limit 2	Limit 2 Unit
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	EAFS SN-01 AND SN-02	Unspecified	-	0.0018	GR/DSCF	BAGHOUSE	-	-
2015-0643-C PSD	1/19/2016	CMC STEEL OKLAHOMA	OK	Steel Mill	Electric Arc Furnace	Unspecified	-	-	-	-	-	-
53581 & PSDTX 1029M2	10/2/2013	STEEL MILL	TX	Scrap Steel Mill	ELECTRIC ARC FURNACE	316	TPH	-	-	-	-	-
P0109191	7/18/2012	REPUBLIC STEEL	OH	Steel Mill	Electric Arc Furnace	150	T/H	0.0052	GR/DSCF	Direct-Shell Evacuation Control system with adjustable air gap and water-cooled elbow and duct to Baghouse	-	-
413-0033-X014, X015, X016, X02	3/9/2017	NUCOR STEEL TUSCALOOSA, INC.	AL	Steel Mill	Electric Arc Furnace	Unspecified	-	0.0018	GR/DSCF	-	-	-
413-0033	7/22/2014	NUCOR STEEL TUSCALOOSA, INC.	AL	Scrap Steel Mill	Electric Arc Furnace	Unspecified	-	0.0018	GR	Baghouse	-	-
413-0033-X014 - X020	7/22/2014	NUCOR STEEL TUSCALOOSA, INC.	AL	Steel Mill	ELECTRIC ARC FURNACE BAGHOUSE # 2	600000	LB/H	0.0018	GR/DSCF	BAGHOUSE	-	-
PSD-LA-774(M1)	6/4/2015	BENTELER STEEL TUBE FACILITY	LA	Seamless Steel Pipe Mill	Fume Treatment Plant (EAF)	90	tons/hr	-	-	-	-	-
12-027	10/9/2013	NUCOR STEEL	NE	Steel Mill	ELECTRIC ARC FURNACE	206	tons of scrap processed per hour	0.0008	GR/DSCF	The EAF and melthshop will be controlled by two baghouse. The existing positive pressure baghouse has a maximum design value of 965,000 acfm. The project will require Nucor to add a second negative pressure baghouse rated at 630,000 acfm. The source will also use Direct Evacuation Control to capture emissions.	-	-
712-0037-X001 & X016	3/2/2016	NUCOR STEEL DECATUR, LLC	AL	Steel Mill	TWO (2) ELECTRIC ARC FURNACES WITH TWO (2) MELTSHOP BAGHOUSES	Unspecified	-	0.0018	GR/DSCF	BAGHOUSE	43.22	LB/H
102-12	1/4/2013	GERDAU MACSTEEL, INC.	MI	Steel Mill	Melt Shop (FG-MELTSHOP)	130	T liquid steel per H	-	-	-	-	-
PSDTX708M6 8248	7/24/2014	STEEL MINIMILL FACILITY	TX	Steel Mill	Electric Arc Furnace	1300000	tons/year	-	-	-	-	-
102-12A	10/27/2014	GERDAU MACSTEEL, INC.	MI	Steel Mill	FG-MELTSHOP (Melt Shop)	130	T/H	-	-	-	-	-
503-0106-X001	6/13/2017	OUTOKUMPU STAINLESS USA, LLC	AL	Stainless Steel Mill	Electric Arc Furnace	Unspecified	-	-	-	-	-	-
35677P07	11/7/2017	NUCOR STEEL DIVISION	NE	Steel Recycling Facility	ELECTRIC ARC FURNACE	1350000	TON/YR	-	-	-	-	-
712-0037-X001 & X020	8/14/2019	NUCOR STEEL DECATUR, LLC	AL	Steel Mill	Electric Arc Furnaces	Unspecified	-	0.0018	GR/DSCF	Baghouse	33.9	LB/HR
1139-AOP-R24	2/14/2019	NUCOR STEEL ARKANSAS	AR	Steel Mill	SN-01 EAF	585	tons steel per hour	0.0018	GR/DSCF	Baghouse	-	-
1139-AOP-R26	9/1/2021	NUCOR STEEL ARKANSAS	AR	Steel Mill	SN-01 EAF	585	tons steel per hour	0.0018	GR/DSCF	Fabric Filter	99	% CAPTURE
1050472-001-AC	2/14/2019	NUCOR STEEL FLORIDA FACILITY	FL	Micro Steel Mill	Meltshop Baghouse & Fugitives	450000	tons of steel per year	0.0018	GR/DSCF	Baghouse	9.24	LB/HOUR
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY	Steel Mill	Melt Shop (EU 01) & Melt Shop Combustion Sources (EU 02)	1750000	tons steel produced/yr	0.0018	GR/DSCF	Negative Pressure Pulse-Jet Baghouse (C0101). The Melt Shop is equipped with canopy hoods to capture and vent emissions that are not captured by the direct shell evacuation system (DEC or DSE). The melt shop has an overall capture efficiency of 99% of emissions generated within the melt shop. Additionally, all EPs have a Good Work Practices (GWP) Plan or a Good Combustion and Operation Practices (GCOP) Plan	111.64	TON/YR

Nucor Corporation | West Virginia Steel Mill
RBLC Entries for Electric Arc Furnace (EAF)

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	PM Limit	PM Limit Unit	PM Control Technique	Limit 2	Limit 2 Unit
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY	Steel Mini Mill	Melt Shop #1 (EU 01 Baghouse #1 & #2 Stack)	2000000	tons steel/yr	31.49	LB/HR	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.	137.9	TONS/YR
75-18	10/29/2018	GERDAU MACSTEEL MONROE	MI	Steel Mill	EUEAF (Electric arc furnace)	130	tons/hour	7.84	LB/H	Direct-Shell Evacuation Control, reaction chamber, and baghouse with high temperature fabric filter bags.	32.15	T/YR
P0120585	10/2/2017	CHARTER STEEL - CLEVELAND INC	OH	Steel Mill	Electric Arc Furnace (P900)	110	T/H	-	-	-	-	-
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH	Steel Mill	Electric Arc Furnace #2 (P905)	250	T/H	19.93	LB/H	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;	87.69	T/YR
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC	Steel Mill	Melt Shop Equipment (furnace baghouse)	175	2	0.0031	GR/DSCF	Direct shell evacuation furnace baghouse	37.3	LB/HR
1560-0087-CW	10/3/2017	CMC STEEL SOUTH CAROLINA	SC	Steel Mill	Melt Shop	1000000	billet tons/year	-	-	-	-	-
0820-0001-DI	4/29/2019	NUCOR CORPORATION - DARLINGTON PLANT	SC	Steel Mill	Meltshop (Furnace and Canopy Baghouses)	1314000	billet tons/year	-	-	-	-	-
0820-0001-DK	12/17/2019	NUCOR CORPORATION - DARLINGTON PLANT	SC	Steel Mill	Melt Shop Equipment (Furnace and Canopy Baghouses)	1314000	tons/year	-	-	-	-	-
2448 AND PSDTX1560	1/2/2020	STEEL MANUFACTURING FACILITY	TX	Steel Mill	ELECTRIC ARC FURNACE	Unspecified	-	-	-	-	-	-
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX	Steel Mini Mill	Electric Arc Furnaces (EAF)	Unspecified	-	0.0052	GR/DSCF	BAGHOUSE	-	-
16-043	12/30/2018	NUCOR STEEL	NE	Steel Mill	Electric Arc Furnace	206	tons of scrap processed per hour	-	-	-	-	-
7-0501-00009/00007	8/1/2016	NUCOR STEEL AUBURN INC.	NY	Steel Mill	Baghouse	Unspecified	-	0.0018	GR/DSCF	Fabric filtration	-	-
149341, PSDTX1532, GHGPSDTX181	9/14/2018	STEEL MILL	TX	Steel Mill	Electric Arc Furnace and Ladle Metallurgy Furnace	Unspecified	-	-	-	-	-	-
53581 AND PSDTX1029M3	12/20/2019	STEEL MILL	TX	Steel Mill	ELECTRIC ARC FURNACE	1500000	T/YR	0.0032	GR/DSCF	Use direct shell evacuation system with 99% capture, canopy hood with 95% capture	-	-

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	PM_{10} Limit	PM_{10} Limit Unit	PM_{10} Control Technique	Limit 2	Limit 2 Unit
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	EAFS SN-01 AND SN-02	Unspecified	-	0.0024	GR/DSCF	BAGHOUSE FOR FILTERABLE	-	-
2015-0643-C PSD	1/19/2016	CMC STEEL OKLAHOMA	OK	Steel Mill	Electric Arc Furnace	Unspecified	-	0.0024	GR/DSCF	P2 - Pre-cleaned Scrap Add-on - Baghouse	-	-
53581 & PSDTX 1029M2	10/2/2013	STEEL MILL	TX	Scrap Steel Mill	ELECTRIC ARC FURNACE	316	TPH	0.0052	GR/DSCF	ENCLOSURE, CAPTURE, FABRIC FILTER	-	-
P0109191	7/18/2012	REPUBLIC STEEL	OH	Steel Mill	Electric Arc Furnace	150	T/H	0.0034	GR/DSCF	Direct-Shell Evacuation Control system with adjustable air gap and water-cooled elbow and duct to Baghouse	-	-
413-0033-X014, X015, X016, X02	3/9/2017	NUCOR STEEL TUSCALOOSA, INC.	AL	Steel Mill	Electric Arc Furnace	Unspecified	-	0.0052	GR/DSCF	Baghouse	-	-
413-0033	7/22/2014	NUCOR STEEL TUSCALOOSA, INC.	AL	Scrap Steel Mill	Electric Arc Furnace	Unspecified	-	-	-	-	-	-
413-0033-X014 - X020	7/22/2014	NUCOR STEEL TUSCALOOSA, INC.	AL	Steel Mill	ELECTRIC ARC FURNACE BAGHOUSE # 2	600000	LB/H	0.0052	GR/DSCF	Agency did not provide any information.	-	-
PSD-LA-774(M1)	6/4/2015	BENTELER STEEL TUBE FACILITY	LA	Seamless Steel Pipe Mill	Fume Treatment Plant (EAF)	90	tons/hr	0.0052	GR/DSCF	baghouse	-	-
12-027	10/9/2013	NUCOR STEEL	NE	Steel Mill	ELECTRIC ARC FURNACE	206	tons of scrap processed per hour	0.0052	GRAIN/DSCF	The EAF and melthshop will be controlled by two baghouse. The existing positive pressure baghouse has a maximum design value of 965,000 acfm. The project will require Nucor to add a second negative pressure baghouse rated at 630,000 acfm. The source will also use Direct Evacuation Control to capture emissions.	-	-
712-0037-X001 & X016	3/2/2016	NUCOR STEEL DECATUR, LLC	AL	Steel Mill	TWO (2) ELECTRIC ARC FURNACES WITH TWO (2) MELTSHOP BAGHOUSES	Unspecified	-	-	-	-	-	-
102-12	1/4/2013	GERDAU MACSTEEL, INC.	MI	Steel Mill	Melt Shop (FG-MELTSHOP)	130	T liquid steel per H	0.1	LB/T LIQUID STEEL	Direct Evacuation Control (DEC), hood, and baghouse	13	LB/H
PSDTX708M6 8248	7/24/2014	STEEL MINIMILL FACILITY	TX	Steel Mill	Electric Arc Furnace	1300000	tons/year	-	-	-	-	-
102-12A	10/27/2014	GERDAU MACSTEEL, INC.	MI	Steel Mill	FG-MELTSHOP (Melt Shop)	130	T/H	-	-	-	-	-
503-0106-X001	6/13/2017	OUTOKUMPU STAINLESS USA, LLC	AL	Stainless Steel Mill	Electric Arc Furnace	Unspecified	-	-	-	-	-	-
35677P07	11/7/2017	NUCOR STEEL DIVISION	NE	Steel Recycling Facility	ELECTRIC ARC FURNACE	1350000	TON/YR	-	-	-	-	-
712-0037-X001 & X020	8/14/2019	NUCOR STEEL DECATUR, LLC	AL	Steel Mill	Electric Arc Furnaces	Unspecified	-	-	-	-	-	-
1139-AOP-R24	2/14/2019	NUCOR STEEL ARKANSAS	AR	Steel Mill	SN-01 EAF	585	tons steel per hour	0.0052	GR/DSCF	Baghouse	-	-
1139-AOP-R26	9/1/2021	NUCOR STEEL ARKANSAS	AR	Steel Mill	SN-01 EAF	585	tons steel per hour	0.0052	GR/DSCF	Baghouse	-	-
1050472-001-AC	2/14/2019	NUCOR STEEL FLORIDA FACILITY	FL	Micro Steel Mill	Meltshop Baghouse & Fugitives	450000	tons of steel per year	-	-	-	-	-
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY	Steel Mill	Melt Shop (EU 01) & Melt Shop Combustion Sources (EU 02)	1750000	tons steel produced/yr	0.0052	GR/DSCF	Negative Pressure Pulse-Jet Baghouse (C0101). The Melt Shop is equipped with canopy hoods to capture and vent emissions that are not captured by the direct shell evacuation system (DEC or DSE). The melt shop has an overall capture efficiency of 99% of emissions generated within the melt shop. Additionally, all EPs have either a Good Work Practices (GWP) Plan or a Good Combustion and Operating Practices (GCOP) Plan.	322.53	TON/YR

Nucor Corporation | West Virginia Steel Mill
RBLC Entries for Electric Arc Furnace (EAF)

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	PM_{10} Limit	PM_{10} Limit Unit	PM_{10} Control Technique	Limit 2	Limit 2 Unit
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY	Steel Mini Mill	Melt Shop #1 (EU 01 Baghouse #1 & #2 Stack)	2000000	tons steel/yr	90.97	LB/HR	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.	398.4	TONS/YR
75-18	10/29/2018	GERDAU MACSTEEL MONROE	MI	Steel Mill	EUEAF (Electric arc furnace)	130	tons/hour	12.91	LB/H	Direct-Shell Evacuation Control, reaction chamber, and baghouse with high temperature fabric filter bags.	49.7	T/YR
P0120585	10/2/2017	CHARTER STEEL - CLEVELAND INC	OH	Steel Mill	Electric Arc Furnace (P900)	110	T/H	-	-	-	-	-
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH	Steel Mill	Electric Arc Furnace #2 (P905)	250	T/H	26.57	LB/H	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;	116.38	T/YR
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC	Steel Mill	Melt Shop Equipment (furnace baghouse)	175	2	-	-	-	-	-
1560-0087-CW	10/3/2017	CMC STEEL SOUTH CAROLINA	SC	Steel Mill	Melt Shop	1000000	billet tons/year	-	-	-	-	-
0820-0001-DI	4/29/2019	NUCOR CORPORATION - DARLINGTON PLANT	SC	Steel Mill	Meltshop (Furnace and Canopy Baghouses)	1314000	billet tons/year	-	-	-	-	-
0820-0001-DK	12/17/2019	NUCOR CORPORATION - DARLINGTON PLANT	SC	Steel Mill	Melt Shop Equipment (Furnace and Canopy Baghouses)	1314000	tons/year	-	-	-	-	-
2448 AND PSDTX1560	1/2/2020	STEEL MANUFACTURING FACILITY	TX	Steel Mill	ELECTRIC ARC FURNACE	Unspecified	-	-	-	-	-	-
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX	Steel Mini Mill	Electric Arc Furnaces (EAF)	Unspecified	-	-	-	-	-	-
16-043	12/30/2018	NUCOR STEEL	NE	Steel Mill	Electric Arc Furnace	206	tons of scrap processed per hour	-	-	-	-	-
7-0501-00009/00007	8/1/2016	NUCOR STEEL AUBURN INC.	NY	Steel Mill	Baghouse	Unspecified	-	0.0043	GR/DSCF	Fabric filtration	-	-
149341, PSDTX1532, GHGPSDTX181	9/14/2018	STEEL MILL	TX	Steel Mill	Electric Arc Furnace and Ladle Metallurgy Furnace	Unspecified	-	0.0024	GR/DSCF	baghouse	-	-
53581 AND PSDTX1029M3	12/20/2019	STEEL MILL	TX	Steel Mill	ELECTRIC ARC FURNACE	1500000	T/YR	-	-	-	-	-

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	$PM_{2.5}$ Limit	$PM_{2.5}$ Limit Unit	$PM_{2.5}$ Control Technique	Limit 2	Limit 2 Unit
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	EAFS SN-01 AND SN-02	Unspecified	-	0.0024	GR/SDCF	FABRIC FILTER	-	-
2015-0643-C PSD	1/19/2016	CMC STEEL OKLAHOMA	OK	Steel Mill	Electric Arc Furnace	Unspecified	-	0.0024	GR/DSCF	P2 - Pre-cleaned scrap Add-on - Baghouse	-	-
53581 & PSDTX 1029M2	10/2/2013	STEEL MILL	TX	Scrap Steel Mill	ELECTRIC ARC FURNACE	316	TPH	0.0052	GR/DSCF	ENCLOSURE, CAPTURE, FABRIC FILTER	-	-
P0109191	7/18/2012	REPUBLIC STEEL	OH	Steel Mill	Electric Arc Furnace	150	T/H	0.0033	GR/DSCF	Direct-Shell Evacuation Control system with adjustable air gap and water-cooled elbow and duct to Baghouse	-	-
413-0033-X014, X015, X016, X02	3/9/2017	NUCOR STEEL TUSCALOOSA, INC.	AL	Steel Mill	Electric Arc Furnace	Unspecified	-	0.0049	GR/DSCF	Baghouse	-	-
413-0033	7/22/2014	NUCOR STEEL TUSCALOOSA, INC.	AL	Scrap Steel Mill	Electric Arc Furnace	Unspecified	-	-	-	-	-	-
413-0033-X014 - X020	7/22/2014	NUCOR STEEL TUSCALOOSA, INC.	AL	Steel Mill	ELECTRIC ARC FURNACE BAGHOUSE # 2	600000	LB/H	0.0049	GR/DSCF	Agency did not provide any information.	-	-
PSD-LA-774(M1)	6/4/2015	BENTELER STEEL TUBE FACILITY	LA	Seamless Steel Pipe Mill	Fume Treatment Plant (EAF)	90	tons/hr	0.0052	GR/DSCF	baghouse	-	-
12-027	10/9/2013	NUCOR STEEL	NE	Steel Mill	ELECTRIC ARC FURNACE	206	tons of scrap processed per hour	0.0052	GRAIN/DSCF	The EAF and melthshop will be controlled by two baghouse. The existing positive pressure baghouse has a maximum design value of 965,000 acfm. The project will require Nucor to add a second negative pressure baghouse rated at 630,000 acfm. The source will also use Direct Evacuation Control to capture emissions.	-	-
712-0037-X001 & X016	3/2/2016	NUCOR STEEL DECATUR, LLC	AL	Steel Mill	TWO (2) ELECTRIC ARC FURNACES WITH TWO (2) MELTSHOP BAGHOUSES	Unspecified	-	-	-	-	-	-
102-12	1/4/2013	GERDAU MACSTEEL, INC.	MI	Steel Mill	Melt Shop (FG-MELTSHOP)	130	T liquid steel per H	-	-	-	-	-
PSDTX708M6 8248	7/24/2014	STEEL MINIMILL FACILITY	TX	Steel Mill	Electric Arc Furnace	1300000	tons/year	-	-	-	-	-
102-12A	10/27/2014	GERDAU MACSTEEL, INC.	MI	Steel Mill	FG-MELTSHOP (Melt Shop)	130	T/H	0.1	LB/T	Direct evacuation control (DEC), hood, and baghouse.	10.9	LB/H
503-0106-X001	6/13/2017	OUTOKUMPU STAINLESS USA, LLC	AL	Stainless Steel Mill	Electric Arc Furnace	Unspecified	-	-	-	-	-	-
35677P07	11/7/2017	NUCOR STEEL DIVISION	NE	Steel Recycling Facility	ELECTRIC ARC FURNACE	1350000	TON/YR	-	-	-	-	-
712-0037-X001 & X020	8/14/2019	NUCOR STEEL DECATUR, LLC	AL	Steel Mill	Electric Arc Furnaces	Unspecified	-	-	-	-	-	-
1139-AOP-R24	2/14/2019	NUCOR STEEL ARKANSAS	AR	Steel Mill	SN-01 EAF	585	tons steel per hour	-	-	-	-	-
1139-AOP-R26	9/1/2021	NUCOR STEEL ARKANSAS	AR	Steel Mill	SN-01 EAF	585	tons steel per hour	0.0052	GR/DSCF	Baghouse	-	-
1050472-001-AC	2/14/2019	NUCOR STEEL FLORIDA FACILITY	FL	Micro Steel Mill	Meltshop Baghouse & Fugitives	450000	tons of steel per year	-	-	-	-	-
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY	Steel Mill	Melt Shop (EU 01) & Melt Shop Combustion Sources (EU 02)	1750000	tons steel produced/yr	0.0034	GR/DSCF	Negative Pressure Pulse-Jet Baghouse (C0101). The Melt Shop is equipped with canopy hoods to capture and vent emissions that are not captured by the direct shell evacuation system (DEC or DSE). The melt shop has an overall capture efficiency of 99% of emissions generated within the melt shop. Additionally, All EPs are required to have either a Good Work Practices (GWP) Plan or a Good Combustion and Operating Practices (GCOP) Plan.	210.88	TON/YR

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	$PM_{2.5}$ Limit	$PM_{2.5}$ Limit Unit	$PM_{2.5}$ Control Technique	Limit 2	Limit 2 Unit
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY	Steel Mini Mill	Melt Shop #1 (EU 01 Baghouse #1 & #2 Stack)	2000000	tons steel/yr	59.48	LB/HR	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.	260.5	TONS/YR
75-18	10/29/2018	GERDAU MACSTEEL MONROE	MI	Steel Mill	EUEAF (Electric arc furnace)	130	tons/hour	12.91	LB/H	Direct-Shell Evacuation Control, reaction chamber, and baghouse with high temperature fabric filter bags.	49.7	T/YR
P0120585	10/2/2017	CHARTER STEEL - CLEVELAND INC	OH	Steel Mill	Electric Arc Furnace (P900)	110	T/H	-	-	-	-	-
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH	Steel Mill	Electric Arc Furnace #2 (P905)	250	T/H	26.57	LB/H	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;	116.38	T/YR
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC	Steel Mill	Melt Shop Equipment (furnace baghouse)	175	2	-	-	-	-	-
1560-0087-CW	10/3/2017	CMC STEEL SOUTH CAROLINA	SC	Steel Mill	Melt Shop	1000000	billet tons/year	-	-	-	-	-
0820-0001-DI	4/29/2019	NUCOR CORPORATION - DARLINGTON PLANT	SC	Steel Mill	Meltshop (Furnace and Canopy Baghouses)	1314000	billet tons/year	-	-	-	-	-
0820-0001-DK	12/17/2019	NUCOR CORPORATION - DARLINGTON PLANT	SC	Steel Mill	Melt Shop Equipment (Furnace and Canopy Baghouses)	1314000	tons/year	-	-	-	-	-
2448 AND PSDTX1560	1/2/2020	STEEL MANUFACTURING FACILITY	TX	Steel Mill	ELECTRIC ARC FURNACE	Unspecified	-	-	-	-	-	-
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX	Steel Mini Mill	Electric Arc Furnaces (EAF)	Unspecified	-	-	-	-	-	-
16-043	12/30/2018	NUCOR STEEL	NE	Steel Mill	Electric Arc Furnace	206	tons of scrap processed per hour	-	-	-	-	-
7-0501-00009/00007	8/1/2016	NUCOR STEEL AUBURN INC.	NY	Steel Mill	Baghouse	Unspecified	-	0.004	GR/DSCF	Fabric filtration	-	-
149341, PSDTX1532, GHGPSDTX181	9/14/2018	STEEL MILL	TX	Steel Mill	Electric Arc Furnace and Ladle Metallurgy Furnace	Unspecified	-	0.002	GR/DSCF	baghouse	-	-
53581 AND PSDTX1029M3	12/20/2019	STEEL MILL	TX	Steel Mill	ELECTRIC ARC FURNACE	1500000	T/YR	-	-	-	-	-

Nucor Corporation | West Virginia Steel Mill
RBLC Entries for Electric Arc Furnace (EAF)

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	Lead Limit	Lead Limit Unit	Lead Control Technique	Limit 2	Limit 2 Unit
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	EAFS SN-01 AND SN-02	Unspecified	-	5.6	X10^-4 LB/TON STEEL	FABRIC FILTER	-	-
2015-0643-C PSD	1/19/2016	CMC STEEL OKLAHOMA	OK	Steel Mill	Electric Arc Furnace	Unspecified	-	-	-	-	-	-
53581 & PSDTX 1029M2	10/2/2013	STEEL MILL	TX	Scrap Steel Mill	ELECTRIC ARC FURNACE	316	TPH	0.0032	GR/DSCF	EMCLOSURE, CAPTURE, FABRIC FILTER	-	-
P0109191	7/18/2012	REPUBLIC STEEL	OH	Steel Mill	Electric Arc Furnace	150	T/H	0.7	E-5 GR/SCF	Direct-Shell Evacuation Control system with adjustable air gap and water-cooled elbow and duct to Baghouse	0.23	T/YR
413-0033-X014, X015, X016, X02	3/9/2017	NUCOR STEEL TUSCALOOSA, INC.	AL	Steel Mill	Electric Arc Furnace	Unspecified	-	0.6	LB/HR	-	-	-
413-0033	7/22/2014	NUCOR STEEL TUSCALOOSA, INC.	AL	Scrap Steel Mill	Electric Arc Furnace	Unspecified	-	-	-	-	-	-
413-0033-X014 - X020	7/22/2014	NUCOR STEEL TUSCALOOSA, INC.	AL	Steel Mill	ELECTRIC ARC FURNACE BAGHOUSE # 2	600000	LB/H	-	-	-	-	-
PSD-LA-774(M1)	6/4/2015	BENTELER STEEL TUBE FACILITY	LA	Seamless Steel Pipe Mill	Fume Treatment Plant (EAF)	90	tons/hr	-	-	-	-	-
12-027	10/9/2013	NUCOR STEEL	NE	Steel Mill	ELECTRIC ARC FURNACE	206	tons of scrap processed per hour	-	-	-	-	-
712-0037-X001 & X016	3/2/2016	NUCOR STEEL DECATUR, LLC	AL	Steel Mill	TWO (2) ELECTRIC ARC FURNACES WITH TWO (2) MELTSHOP BAGHOUSES	Unspecified	-	-	-	-	-	-
102-12	1/4/2013	GERDAU MACSTEEL, INC.	MI	Steel Mill	Melt Shop (FG-MELTSHOP)	130	T liquid steel per H	-	-	-	-	-
PSDTX708M6 8248	7/24/2014	STEEL MINIMILL FACILITY	TX	Steel Mill	Electric Arc Furnace	1300000	tons/year	-	-	-	-	-
102-12A	10/27/2014	GERDAU MACSTEEL, INC.	MI	Steel Mill	FG-MELTSHOP (Melt Shop)	130	T/H	-	-	-	-	-
503-0106-X001	6/13/2017	OUTOKUMPU STAINLESS USA, LLC	AL	Stainless Steel Mill	Electric Arc Furnace	Unspecified	-	-	-	-	-	-
35677P07	11/7/2017	NUCOR STEEL DIVISION	NE	Steel Recycling Facility	ELECTRIC ARC FURNACE	1350000	TON/YR	-	-	-	-	-
712-0037-X001 & X020	8/14/2019	NUCOR STEEL DECATUR, LLC	AL	Steel Mill	Electric Arc Furnaces	Unspecified	-	0.002	LB/TON	Baghouses	1.08	LB/HR
1139-AOP-R24	2/14/2019	NUCOR STEEL ARKANSAS	AR	Steel Mill	SN-01 EAF	585	tons steel per hour	-	-	Baghouse	-	-
1139-AOP-R26	9/1/2021	NUCOR STEEL ARKANSAS	AR	Steel Mill	SN-01 EAF	585	tons steel per hour	0.0004	LB/TON	Baghouse	-	-
1050472-001-AC	2/14/2019	NUCOR STEEL FLORIDA FACILITY	FL	Micro Steel Mill	Meltshop Baghouse & Fugitives	450000	tons of steel per year	-	-	-	-	-
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY	Steel Mill	Melt Shop (EU 01) & Melt Shop Combustion Sources (EU 02)	1750000	tons steel produced/yr	-	-	-	-	-

Nucor Corporation | West Virginia Steel Mill
RBLC Entries for Electric Arc Furnace (EAF)

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	Lead Limit	Lead Limit Unit	Lead Control Technique	Limit 2	Limit 2 Unit
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY	Steel Mini Mill	Melt Shop #1 (EU 01 Baghouse #1 & #2 Stack)	2000000	tons steel/yr	0.0004	LB/TON	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.	0.45	TON/YR
75-18	10/29/2018	GERDAU MACSTEEL MONROE	MI	Steel Mill	EUEAF (Electric arc furnace)	130	tons/hour	-	-	-	-	-
P0120585	10/2/2017	CHARTER STEEL - CLEVELAND INC	OH	Steel Mill	Electric Arc Furnace (P900)	110	T/H	-	-	-	-	-
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH	Steel Mill	Electric Arc Furnace #2 (P905)	250	T/H	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC	Steel Mill	Melt Shop Equipment (furnace baghouse)	175	2	-	-	-	-	-
1560-0087-CW	10/3/2017	CMC STEEL SOUTH CAROLINA	SC	Steel Mill	Melt Shop	1000000	billet tons/year	-	-	-	-	-
0820-0001-DI	4/29/2019	NUCOR CORPORATION - DARLINGTON PLANT	SC	Steel Mill	Meltshop (Furnace and Canopy Baghouses)	1314000	billet tons/year	-	-	-	-	-
0820-0001-DK	12/17/2019	NUCOR CORPORATION - DARLINGTON PLANT	SC	Steel Mill	Melt Shop Equipment (Furnace and Canopy Baghouses)	1314000	tons/year	-	-	-	-	-
2448 AND PSDTX1560	1/2/2020	STEEL MANUFACTURING FACILITY	TX	Steel Mill	ELECTRIC ARC FURNACE	Unspecified	-	-	-	-	-	-
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX	Steel Mini Mill	Electric Arc Furnaces (EAF)	Unspecified	-	0.0006	LB/TON	BAGHOUSE	-	-
16-043	12/30/2018	NUCOR STEEL	NE	Steel Mill	Electric Arc Furnace	206	tons of scrap processed per hour	-	-	-	-	-
7-0501-00009/00007	8/1/2016	NUCOR STEEL AUBURN INC.	NY	Steel Mill	Baghouse	Unspecified	-	-	-	-	-	-
149341, PSDTX1532, GHGPSDTX181	9/14/2018	STEEL MILL	TX	Steel Mill	Electric Arc Furnace and Ladle Metallurgy Furnace	Unspecified	-	0.31	T/YR	scrap management	-	-
53581 AND PSDTX1029M3	12/20/2019	STEEL MILL	TX	Steel Mill	ELECTRIC ARC FURNACE	1500000	T/YR	-	-	-	-	-

RBLC Entries for Electric Arc Furnace (EAF)

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	Fluoride Limit	Fluoride Limit Unit	Fluoride Control Technique	Limit 2	Limit 2 Unit
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	EAFS SN-01 AND SN-02	Unspecified	-	-	-	-	-	-
2015-0643-C PSD	1/19/2016	CMC STEEL OKLAHOMA	OK	Steel Mill	Electric Arc Furnace	Unspecified	-	-	-	-	-	-
53581 & PSDTX 1029M2	10/2/2013	STEEL MILL	TX	Scrap Steel Mill	ELECTRIC ARC FURNACE	316	TPH	-	-	-	-	-
P0109191	7/18/2012	REPUBLIC STEEL	OH	Steel Mill	Electric Arc Furnace	150	T/H	-	-	-	-	-
413-0033-X014, X015, X016, X02	3/9/2017	NUCOR STEEL TUSCALOOSA, INC.	AL	Steel Mill	Electric Arc Furnace	Unspecified	-	-	-	-	-	-
413-0033	7/22/2014	NUCOR STEEL TUSCALOOSA, INC.	AL	Scrap Steel Mill	Electric Arc Furnace	Unspecified	-	-	-	-	-	-
413-0033-X014 - X020	7/22/2014	NUCOR STEEL TUSCALOOSA, INC.	AL	Steel Mill	ELECTRIC ARC FURNACE BAGHOUSE # 2	600000	LB/H	-	-	-	-	-
PSD-LA-774(M1)	6/4/2015	BENTELER STEEL TUBE FACILITY	LA	Seamless Steel Pipe Mill	Fume Treatment Plant (EAF)	90	tons/hr	-	-	-	-	-
12-027	10/9/2013	NUCOR STEEL	NE	Steel Mill	ELECTRIC ARC FURNACE	206	tons of scrap processed per hour	-	-	-	-	-
712-0037-X001 & X016	3/2/2016	NUCOR STEEL DECATUR, LLC	AL	Steel Mill	TWO (2) ELECTRIC ARC FURNACES WITH TWO (2) MELTSHOP BAGHOUSES	Unspecified	-	-	-	-	-	-
102-12	1/4/2013	GERDAU MACSTEEL, INC.	MI	Steel Mill	Melt Shop (FG-MELTSHOP)	130	T liquid steel per H	-	-	-	-	-
PSDTX708M6 8248	7/24/2014	STEEL MINIMILL FACILITY	TX	Steel Mill	Electric Arc Furnace	1300000	tons/year	-	-	-	-	-
102-12A	10/27/2014	GERDAU MACSTEEL, INC.	MI	Steel Mill	FG-MELTSHOP (Melt Shop)	130	T/H	-	-	-	-	-
503-0106-X001	6/13/2017	OUTOKUMPU STAINLESS USA, LLC	AL	Stainless Steel Mill	Electric Arc Furnace	Unspecified	-	-	-	-	-	-
35677P07	11/7/2017	NUCOR STEEL DIVISION	NE	Steel Recycling Facility	ELECTRIC ARC FURNACE	1350000	TON/YR	-	-	-	-	-
712-0037-X001 & X020	8/14/2019	NUCOR STEEL DECATUR, LLC	AL	Steel Mill	Electric Arc Furnaces	Unspecified	-	-	-	-	-	-
1139-AOP-R24	2/14/2019	NUCOR STEEL ARKANSAS	AR	Steel Mill	SN-01 EAF	585	tons steel per hour	-	-	-	-	-
1139-AOP-R26	9/1/2021	NUCOR STEEL ARKANSAS	AR	Steel Mill	SN-01 EAF	585	tons steel per hour	-	-	-	-	-
1050472-001-AC	2/14/2019	NUCOR STEEL FLORIDA FACILITY	FL	Micro Steel Mill	Meltshop Baghouse & Fugitives	450000	tons of steel per year	0.059	LB/TON OF STEEL	Roof canopy hood fume collection system with DEC to baghouse	3.54	LB/HOUR
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY	Steel Mill	Melt Shop (EU 01) & Melt Shop Combustion Sources (EU 02)	1750000	tons steel produced/yr	-	-	-	-	-

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	Fluoride Limit	Fluoride Limit Unit	Fluoride Control Technique	Limit 2	Limit 2 Unit
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY	Steel Mini Mill	Melt Shop #1 (EU 01 Baghouse #1 & #2 Stack)	2000000	tons steel/yr	0.0035	LB/TON	Emissions are controlled by 2 baghouses (combined stack). Non-combustion processes must develop a Good Work Practices (GWP) Plan to minimize emissions.	3.52	TONS/YR
75-18	10/29/2018	GERDAU MACSTEEL MONROE	MI	Steel Mill	EUEAF (Electric arc furnace)	130	tons/hour	-	-	-	-	-
P0120585	10/2/2017	CHARTER STEEL - CLEVELAND INC	OH	Steel Mill	Electric Arc Furnace (P900)	110	T/H	-	-	-	-	-
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH	Steel Mill	Electric Arc Furnace #2 (P905)	250	T/H	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC	Steel Mill	Melt Shop Equipment (furnace baghouse)	175	2	0.09	LB/HR	Direct shell evacuation furnace baghouse.	1.57	LB/HR
1560-0087-CW	10/3/2017	CMC STEEL SOUTH CAROLINA	SC	Steel Mill	Melt Shop	1000000	billet tons/year	-	-	-	-	-
0820-0001-DI	4/29/2019	NUCOR CORPORATION - DARLINGTON PLANT	SC	Steel Mill	Meltshop (Furnace and Canopy Baghouses)	1314000	billet tons/year	1.91	LB/H	Baghouse and minimize calcium fluoride use	-	-
0820-0001-DK	12/17/2019	NUCOR CORPORATION - DARLINGTON PLANT	SC	Steel Mill	Melt Shop Equipment (Furnace and Canopy Baghouses)	1314000	tons/year	-	-	-	-	-
2448 AND PSDTX1560	1/2/2020	STEEL MANUFACTURING FACILITY	TX	Steel Mill	ELECTRIC ARC FURNACE	Unspecified	-	-	-	-	-	-
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX	Steel Mini Mill	Electric Arc Furnaces (EAF)	Unspecified	-	0.01	LB/TON	BAGHOUSE	-	-
16-043	12/30/2018	NUCOR STEEL	NE	Steel Mill	Electric Arc Furnace	206	tons of scrap processed per hour	0.0059	LB/TON	-	-	-
7-0501-00009/00007	8/1/2016	NUCOR STEEL AUBURN INC.	NY	Steel Mill	Baghouse	Unspecified	-	-	-	-	-	-
149341, PSDTX1532, GHGPSDTX181	9/14/2018	STEEL MILL	TX	Steel Mill	Electric Arc Furnace and Ladle Metallurgy Furnace	Unspecified	-	-	-	-	-	-
53581 AND PSDTX1029M3	12/20/2019	STEEL MILL	TX	Steel Mill	ELECTRIC ARC FURNACE	1500000	T/YR	-	-	-	-	-

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	CO_2 Limit	CO_2 Limit Unit	CO_2 Control Technique	Limit 2	Limit 2 Unit	CH_4 Limit	CH_4 Limit Unit	CH_4 Control Technique	Limit 2	Limit 2 Unit	N_2O Limit	N_2O Limit Unit	N_2O Control Technique	Limit 2	Limit 2 Unit	CO_2e Limit	CO_2e Limit Unit	CO_2e Control Technique	Limit 2	Limit 2 Unit
413-0033-X014, X015, X016, X02	3/9/2017	NUCOR STEEL TUSCALOOSA, INC.	AL	Steel Mill	Electric Arc Furnace	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	378621	TON/YEAR	-	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	Melt Shop	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
102-12	1/4/2013	GERDAU MACSTEEL, INC.	MI	Steel Mini Mill	Melt Shop (FG-MELTSHOP)	130	T liquid steel per H	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.16	LB/T LIQUID STEEL	-	157365	T/YR
102-12A	10/27/2014	GERDAU MACSTEEL, INC.	MI	Steel Mini Mill	FG-MELTSHOP (Melt Shop)	130	T/H	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	320	LB/T	-	134396	T/YR
2015-0643-C PSD	1/19/2016	CMC STEEL OKLAHOMA	OK	Steel Mill	Electric Arc Furnace	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	535	LB/TON OF STEEL	Pre-heating scrap with exhausts from furnace	-	-
PSD-LA-774(M1)	6/4/2015	BENTELER STEEL TUBE FACILITY	LA	Seamless Steel Pipe Mill	Fume Treatment Plant (EAF)	90	tons/hr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	designs and work practices	-	-
53581 & PSDTX 1029M2	10/2/2013	STEEL MILL	TX	Steel Mill	ELECTRIC ARC FURNACE	316	TPH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P0109191	7/18/2012	REPUBLIC STEEL	OH	Scrap Steel Mill	Electric Arc Furnace	150	T/H	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
413-0033	7/22/2014	NUCOR STEEL TUSCALOOSA, INC.	AL	Steel Mill	Electric Arc Furnace	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
413-0033-X014 - X020	7/22/2014	NUCOR STEEL TUSCALOOSA, INC.	AL	Steel Mill	ELECTRIC ARC FURNACE BAGHOUSE # 2	600000	LB/H	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12-027	10/9/2013	NUCOR STEEL	NE	Steel Mill	ELECTRIC ARC FURNACE	206	tons of scrap processed per hour	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
712-0037-X001 & X016	3/2/2016	NUCOR STEEL DECATUR, LLC	AL	Steel Mill	TWO (2) ELECTRIC ARC FURNACES WITH TWO (2) MELTSHOP BAGHOUSES	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PSDTX708M6 8248	7/24/2014	STEEL MINIMILL FACILITY	TX	Stainless Steel Mill	Electric Arc Furnace	1300000	tons/year	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
503-0106-X001	6/13/2017	OUTOKUMPU STAINLESS USA, LLC	AL	Steel Recycling Facility	Electric Arc Furnace	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35677P07	11/7/2017	NUCOR STEEL DIVISION	NE	Steel Mill	ELECTRIC ARC FURNACE	1350000	TON/YR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
712-0037-X001 & X020	8/14/2019	NUCOR STEEL DECATUR, LLC	AL	Steel Mill	Electric Arc Furnaces	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	504000	TONS/YEAR	-	-	-
1139-AOP-R24	2/14/2019	NUCOR STEEL ARKANSAS	AR	Steel Mill	SN-01 EAF	585	tons steel per hour	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	535	TON PER TON STEEL	Improved Process Control, Variable Speed Drives, Transformer	-	-
1139-AOP-R26	9/1/2021	NUCOR STEEL ARKANSAS	AR	Micro Steel Mill	SN-01 EAF	585	tons steel per hour	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	535	LB/TON	Improved process Control, variable speed drives, transformer efficiency, foamy slag	-	-
1050472-001-AC	2/14/2019	NUCOR STEEL FLORIDA FACILITY	FL	Steel Mill	Meltshop Baghouse & Fugitives	450000	tons of steel per year	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	438	LB/TON OF STEEL	Scrap preheating & an energy monitoring and management system	26280	LB/HOUR
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY	Steel Mini Mill	Melt Shop (EU 01) & Melt Shop Combustion Sources (EU 02)	1750000	tons steel produced/yr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	463444	TON/YR	All EPs must have wither a Good Work Practices (GWP) Plan or a Goff Combustion	-	-
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY	Steel Mill	Melt Shop #1 (EU 01 Baghouse #1 & #2 Stack)	2000000	tons steel/yr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	535000	TONS/YR	Good Combustion and Operating Practices (GCOP) Plan and specific design and	-	-
75-18	10/29/2018	GERDAU MACSTEEL MONROE	MI	Steel Mill	EUEAF (Electric arc furnace)	130	tons/hour	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P0120585	10/2/2017	CHARTER STEEL - CLEVELAND INC	OH	Steel Mill	Electric Arc Furnace (P900)	110	T/H	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH	Steel Mill	Electric Arc Furnace #2 (P905)	250	T/H	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	73000	LB/H	Implementation of the following low-emitting processes, system designs, management	594220	T/YR
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC	Steel Mill	Melt Shop Equipment (furnace baghouse)	175	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Nucor Corporation | West Virginia Steel Mill
RBLC Entries for Electric Arc Furnace (EAF)

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	CO_2 Limit	CO_2 Limit Unit	CO_2 Control Technique	Limit 2	Limit 2 Unit	CH_4 Limit	CH_4 Limit Unit	CH_4 Control Technique	Limit 2	Limit 2 Unit	N_2O Limit	N_2O Limit Unit	N_2O Control Technique	Limit 2	Limit 2 Unit	CO_2e Limit	CO_2e Limit Unit	CO_2e Control Technique	Limit 2	Limit 2 Unit
1560-0087-CW	10/3/2017	CMC STEEL SOUTH CAROLINA	SC	Steel Mill	Melt Shop	1000000	billet tons/year	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0820-0001-DI	4/29/2019	NUCOR CORPORATION - DARLINGTON PLANT	SC	Steel Mill	Meltshop (Furnace and Canopy Baghouses)	1314000	billet tons/year	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0820-0001-DK	12/17/2019	NUCOR CORPORATION - DARLINGTON PLANT	SC	Steel Mill	Melt Shop Equipment (Furnace and Canopy Baghouses)	1314000	tons/year	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2448 AND PSDTX1560	1/2/2020	STEEL MANUFACTURING FACILITY	TX	Steel Mini Mill	ELECTRIC ARC FURNACE	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX	Steel Mill	Electric Arc Furnaces (EAF)	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	GOOD COMBUSTION PRACTICES, CLEAN FUEL	-	-
16-043	12/30/2018	NUCOR STEEL	NE	Steel Mill	Electric Arc Furnace	206	tons of scrap processed per hour	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7-0501-00009/00007	8/1/2016	NUCOR STEEL AUBURN INC.	NY	Steel Mill	Baghouse	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
149341, PSDTX1532, GHGPSDTX181	9/14/2018	STEEL MILL	TX	Steel Mill	Electric Arc Furnace and Ladle Metallurgy Furnace	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	scrap management, good combustion	-	-
53581 AND PSDTX1029M3	12/20/2019	STEEL MILL	TX	#N/A	ELECTRIC ARC FURNACE	1500000	T/YR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Process	Pollutant
NG-Fired Emergency Engines	NO_X

		Control Technology	Selective Catalytic Reduction (SCR)[a]	Selective Non-Catalytic Reduction (SNCR)[b]	Non-Selective Catalytic Reduction (NSCR)[c,d]	Lean NOX Catalyst	NOX Adsorber	Usage Limitation	Good Process Operation
Step 1.	IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES	**Control Technology Description**	A nitrogen-based reagent (e.g., ammonia, urea) is injected into the exhaust stream downstream of the combustion unit. The reagent reacts selectively with NOX to produce molecular N2 and water in a reactor vessel containing a metallic or ceramic catalyst.	A nitrogen-based reagent (e.g., ammonia, urea) is injected into the exhaust stream and reacts selectively with NOX to produce molecular N2 and water within the combustion unit.	Metallic catalysts convert NOX, CO, and hydrocarbons to water, nitrogen, and CO2.	Lean NOX Catalysts exist in two forms: "active" catalysts and "passive" catalysts. Active catalyst systems operate by injecting a reducing agent (e.g., diesel fuel) into the exhaust stream. Passive catalyst systems operate by using the unburned hydrocarbons in the exhaust stream.	NOX adsorbers are a further development on the three-way catalysts used in gasoline-powered engines to allow use of such technology on lean burn engines. NOX adsorbers control NOX emissions by storing NOX on the surface of a catalyst as a metallic nitrate during lean burn operation. To reduce the NOX emissions, the engine must operate for a short period of time in rich burn mode where VOC and CO are emitted in higher amounts while NOX is released from the adsorber bed. The NOX is then reduced by the VOC and CO over the catalyst bed in the same manner as in a catalytic converter.	Usage limitation involves accepting a limit on the maximum hours of operation on the generators, which results in lower emissions.	Operate and maintain the equipment in accordance with good air pollution control practices and with good combustion practices.
		Typical Operating Temperature	480 - 800 °F (typical SCR systems tolerate temperature variations of ± 200 °F)	1,600 - 2,100 °F (chemical additives can lower reaction temp.)	700 - 1,500 °F	N/A	N/A	N/A	N/A
		Typical Waste Stream Inlet Flow Rate	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Typical Waste Stream Inlet Pollutant Concentration	As low as 20 ppm (efficiency improves with increased concentration up to 150 ppm)	200 - 400 ppm	N/A	N/A	N/A	N/A	N/A
		Other Considerations	Unreacted reagent (ammonia slip) may form ammonium sulfates that may plug or corrode downstream equipment. Ammonia absorption into fly ash may affect ash disposal. Particulate-laden streams may blind the catalyst and may require a sootblower.	Unreacted reagent (ammonia slip) may form ammonium sulfates that may plug or corrode downstream equipment. Ammonia absorption into fly ash may affect ash disposal. The SNCR process produces N2O as a byproduct.	This technique uses a fuel rich mixture that, combined with back pressure from exhaust flow through the catalyst, increases the brake specific fuel consumption of the engine	Lean NOX catalysts are in development as a means of meeting the upcoming Tier 4 requirements for mobile sources; however, this technology is currently unproven for both mobile and stationary sources.	NOX adsorbers have been in development as a means of meeting the upcoming Tier 4 requirements for mobile sources; however, this technology is currently unproven for both mobile and stationary sources.	N/A	N/A
Step 2.	ELIMINATE TECHNICALLY INFEASIBLE OPTIONS	**RBLC Database Information**	Not included in RBLC for emergency generators.	Not included in RBLC for emergency generators.	Not included in RBLC for emergency generators.	Not included in RBLC for emergency generators.	Not included in RBLC for emergency generators.	N/A	N/A
		Feasibility Discussion	Technically infeasible. Small and intermittent combustion units for which add-on controls are not appropriate.	Technically infeasible. Small and intermittent combustion units for which add-on controls are not appropriate.	Technically infeasible. Typically applied only to rich burn engine emissions.	Technically infeasible. Technology is currently unproven for both mobile and stationary sources.	Technically infeasible. Technology is currently unproven for both mobile and stationary sources.	Feasible	Feasible
Step 3.	RANK REMAINING CONTROL TECHNOLOGIES	**Overall Control Efficiency**						Base Case	Base Case
Step 4.	EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS	**Cost Effectiveness ($/ton)**							
Step 5.	SELECT BACT							**BACT Limit: Comply with operating hour restrictions in NSPS JJJJ**	

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Selective Catalytic Reduction (SCR))," EPA-452/F-03-032.
b. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Selective Non-Catalytic Reduction (SNCR))," EPA-452/F-03-031.
c. U.S. EPA, "Nitrogen Oxides (NOX), Why and How they are Controlled," EPA-456/F-99-006R
d. U.S. EPA, "CAM Technical Guidance Document" Section B-16, January 2005

Process	Pollutant
NG-Fired Emergency Engines	CO

		Control Technology	Non-Selective Catalytic Reduction (NSCR)[a,b]	SCONOX Catalytic Absorption System[c]	Xonon Cool Combustion[c]	Recuperative Thermal Oxidation[d,e]	Regenerative Thermal Oxidation[f]	Catalytic Oxidation[g]	Usage Limitation	Good Process Operation
Step 1.	IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES	Control Technology Description	Metallic catalysts convert NOX, CO, and hydrocarbons to water, nitrogen, and CO2.	Utilizes a single catalyst to remove NOX, CO, and VOC through oxidation.	A catalyst integrated into gas turbine combustors limits the production of NOX through temperature control also resulting in reduced emissions of CO and VOC.	Oxidizes combustible materials by raising the temperature of the material above the auto-ignition point in the presence of oxygen and maintaining the high temperature for sufficient time to complete combustion.	Oxidizes combustible materials by raising the temperature of the material above the auto-ignition point in the presence of oxygen and maintaining the high temperature for sufficient time to complete combustion.	Similar to thermal incineration; waste stream is heated by a flame and then passes through a catalyst bed that increases the oxidation rate more quickly and at lower temperatures.	Usage limitation involves accepting a limit on the maximum hours of operation on the generators, which results in lower emissions.	Operate and maintain the equipment in accordance with good air pollution control practices and with good combustion practices.
		Typical Operating Temperature	700 - 1,500 °F	300 - 700 °F	N/A	1,100 - 1,200 °F	1,400 - 2,000 °F (RTO) 800 °F (RCO)	600 - 800 °F (not to exceed 1,250 °F)	N/A	N/A
		Typical Waste Stream Inlet Flow Rate	N/A	N/A	N/A	500 - 50,000 scfm	5,000 - 500,000 scfm	700 - 50,000 scfm	N/A	N/A
		Typical Waste Stream Inlet Pollutant Concentration	N/A	N/A	N/A	Best performance at 1,500 - 3,000 ppmv	As low as 100 ppmv or less	As low as 1 ppmv	N/A	N/A
		Other Considerations	This technique uses a fuel rich mixture that, combined with back pressure from exhaust flow through the catalyst, increases the brake specific fuel consumption of the engine	The SCONOX Catalyst is sensitive to contamination by sulfur, so it must be used in conjunction with the SCOSOX catalyst, which favors sulfur compound absorption.	N/A	Additional fuel is required to reach the ignition temperature of the waste gas stream. Oxidizers are not recommended for controlling gases with halogen or sulfur containing compounds due to the formation of highly corrosive acid gases.	Pretreatment to remove PM may be necessary for clogging prevention and/or catalyst poisoning. Additional fuel is required to reach the ignition temperature of the waste gas stream.[a]	Catalyst can be deactivated by certain catalyst poisons or other fouling contaminants such as silicone, sulfur, heavy hydrocarbons, and particulates.	N/A	N/A
Step 2.	ELIMINATE TECHNICALLY INFEASIBLE OPTIONS	RBLC Database Information	Not included in RBLC for emergency generators.	Not included in RBLC for emergency generators.	Not included in RBLC for emergency generators.	Not included in RBLC for emergency generators.	Not included in RBLC for emergency generators.	Not included in RBLC for emergency generators.	N/A	N/A
		Feasibility Discussion	Technically infeasible. Typically applied only to rich burn engine emissions.	Technically infeasible. Typically applied to power generation turbines.	Technically infeasible. Integrated only in gas turbine combustors.	Technically infeasible. Small and intermittent combustion units for which add-on controls are not appropriate.	Technically infeasible. Small and intermittent combustion units for which add-on controls are not appropriate.	Technically infeasible. Small and intermittent combustion units for which add-on controls are not appropriate.	Feasible	Feasible
Step 3.	RANK REMAINING CONTROL TECHNOLOGIES	Overall Control Efficiency							Base Case	Base Case
Step 4.	EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS	Cost Effectiveness ($/ton)								
Step 5.	SELECT BACT								**BACT Limit: Comply with operating hour restrictions in NSPS JJJJ**	

a. U.S. EPA, "Nitrogen Oxides (NOX), Why and How they are Controlled," EPA-456/F-99-006R
b. U.S. EPA, "CAM Technical Guidance Document" Section B-16, January 2005
c. California EPA, Air Resources Board, "Report to the Legislature: Gas-Fired Power Plant NOX Emission Controls and Related Environmental Impacts," http://www.arb.ca.gov/research/apr/reports/l2069.pdf
d. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Thermal Incinerator)," EPA-452/F-03-022.
e. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Incinerator - Recuperative Type)," EPA-452/F-03-020.
f. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Regenerative Incinerator)," EPA-452/F-03-021.
g. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Catalytic Incinerator)," EPA-452/F-03-018.

Process	Pollutant
NG-Fired Emergency Engines	SO_2

		Control Technology	Impingement-Plate/Tray-Tower Scrubber[a]	Packed-Bed/Packed-Tower Wet Scrubber[b]	Spray-Chamber/Spray-Tower Wet Scrubber[c]	Flue Gas Desulfurization[d]	Usage Limitation	Good Process Operation
Step 1.	IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES	Control Technology Description	An impingement-plate scrubber promotes contact between the flue gas and a sorbent slurry in a vertical column with transversely mounted perforated trays. Absorption of SO2 is accomplished by countercurrent contact between the flue gas and reagent slurry.	Scrubbing liquid (e.g., NaOH), which is introduced above layers of variously-shaped packing material, flows concurrently against the flue gas stream. The acid gases are absorbed into the scrubbing solution and react with alkaline compounds to produce neutral salts.	Spray tower scrubbers introduce a reagent slurry as atomized droplets through an array of spray nozzles within the scrubbing chamber. The waste gas enters the bottom of the column and travels upward in a countercurrent flow. Absorption of SO2 is accomplished by the contact between the gas and reagent slurry, which results in the formation of neutral salts.	An alkaline reagent is introduced in a spray tower as an aqueous slurry (for wet systems) or is pneumatically injected as a powder in the waste gas ductwork (for dry systems). Absorption of SO2 is accomplished by the contact between the gas and reagent slurry or powder, which results in the formation of neutral salts.	Usage limitation involves accepting a limit on the maximum hours of operation on the generators, which results in lower emissions.	Operate and maintain the equipment in accordance with good air pollution control practices and with good combustion practices, including the use of natural gas.
		Typical Operating Temperature	40 - 100 °F	40 - 100 °F	40 - 100 °F	300 - 700 °F (wet) 300 - 1,830 °F (dry)	N/A	N/A
		Typical Waste Stream Inlet Flow Rate	1,000 - 75,000 scfm	500 - 75,000 scfm	1,500 to 100,000 scfm	N/A	N/A	N/A
		Typical Waste Stream Inlet Pollutant Concentration	N/A	250 - 10,000 ppmv	250 - 10,000 ppmv	2,000 ppmv	N/A	N/A
		Other Considerations	Waste slurry formed in the bottom of the scrubber requires disposal.	To avoid clogging, packed bed wet scrubbers are generally limited to applications in which PM concentrations are less than 0.20 gr/scf)	Waste slurry formed in the bottom of the scrubber requires disposal.	Chlorine emissions can result in salt deposition on the absorber and downstream equipment. Wet systems may require flue gas re-heating downstream of the absorber to prevent corrosive condensation. Dry systems may require cooling inlet streams to minimize deposits.	N/A	N/A
Step 2.	ELIMINATE TECHNICALLY INFEASIBLE OPTIONS	RBLC Database Information	Not included in RBLC for emergency generators.	Not included in RBLC for emergency generators.	Not included in RBLC for emergency generators.	Not included in RBLC for emergency generators.	N/A	Included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnances etc.
		Feasibility Discussion	Technically infeasible. Small and intermittent combustion units for which add-on controls are not appropriate.	Technically infeasible. Small and intermittent combustion units for which add-on controls are not appropriate.	Technically infeasible. Small and intermittent combustion units for which add-on controls are not appropriate.	Technically infeasible. Small and intermittent combustion units for which add-on controls are not appropriate.	Feasible	Feasible
Step 3.	RANK REMAINING CONTROL TECHNOLOGIES	Overall Control Efficiency					Base Case	Base Case
Step 4.	EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS	Cost Effectiveness ($/ton)						
Step 5.	SELECT BACT						BACT Limit: Comply with operating hour restrictions in NSPS JJJJ	

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Impingement-Plate/Tray-Tower Scrubber)," EPA-452/F-03-012.
b. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Packed-Bed/Packed-Tower Wet Scrubber)," EPA-452/F-03-015.
c. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Spray-Chamber/Spray-Tower Wet Scrubber)," EPA-452/F-03-016.
d. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Flue Gas Desulfurization)," EPA-452/F-03-034.

Nucor Corporation | West Virginia Steel Mill
Top Down BACT Analysis

Process	Pollutant
NG-Fired Emergency Engines	VOC

		Control Technology	Recuperative Thermal Oxidation[a,b]	Regenerative Thermal Oxidation[c]	Catalytic Oxidation[d]	Carbon / Zeolite Adsorption[e]	Biofiltration[f]	Condenser[g]	Usage Limitation	Good Process Operation
Step 1.	**IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES**	**Control Technology Description**	Oxidizes combustible materials by raising the temperature of the material above the auto-ignition point in the presence of oxygen and maintaining the high temperature for sufficient time to complete combustion.	Oxidizes combustible materials by raising the temperature of the material above the auto-ignition point in the presence of oxygen and maintaining the high temperature for sufficient time to complete combustion.	Similar to thermal incineration; waste stream is heated by a flame and then passes through a catalyst bed that increases the oxidation rate more quickly and at lower temperatures.	Adsorption technology utilizes a porous solid to selectively collect VOC from the gas stream. Adsorption collects VOC, but does not destroy it.	Exhaust gases containing biodegradable organic compounds are vented, under controlled temperature and humidity, through biologically active material. The microorganisms contained in the bed of bio-material digest or biodegrade the organics to CO2 and water.	Condensers convert a gas or vapor stream to a liquid, allowing the organics within the stream to be recovered, refined, or reused and preventing the release of organic streams into the ambient air.	Usage limitation involves accepting a limit on the maximum hours of operation on the generators, which results in lower emissions.	Operate and maintain the equipment in accordance with good air pollution control practices and with good combustion practices.
		Typical Operating Temperature	1,100 - 1,200 °F	1,400 - 2,000 °F (RTO) 800 °F (RCO)	600 - 800 °F (not to exceed 1,250 °F)	N/A	60 - 105 °F	Hydrocarbon dew point (may be as low as -100 °F)	N/A	N/A
		Typical Waste Stream Inlet Flow Rate	500 - 50,000 scfm	5,000 - 500,000 scfm	700 - 50,000 scfm	N/A	600 - 600,000 acfm	Up to 2,000 cfm (10,000 cfm cryogenic)	N/A	N/A
		Typical Waste Stream Inlet Pollutant Concentration	Best performance at 1,500 - 3,000 ppmv	As low as 100 ppmv or less	As low as 1 ppmv	As low as 20 ppm	N/A	High concentrations required for efficient control	N/A	N/A
		Other Considerations	Additional fuel is required to reach the ignition temperature of the waste gas stream. Oxidizers are not recommended for controlling gases with halogen or sulfur containing compounds due to the formation of highly corrosive acid gases.	Pretreatment to remove PM may be necessary for clogging prevention and/or catalyst poisoning. Additional fuel is required to reach the ignition temperature of the waste gas stream.[a]	Catalyst can be deactivated by certain catalyst poisons or other fouling contaminants such as silicone, sulfur, heavy hydrocarbons, and particulates.	Excessive temperatures may cause desorption of the hydrocarbons or may melt the adsorbent. Adsorbed hydrocarbons may oxidize and cause bed fires.	Temperatures outside the specified range, acidic deposition, or dry exhaust streams will kill or deactivate the microorganisms. Biofiltration systems occupy a large equipment footprint. Large land requirement for traditional design.	Energy required to drive the refrigeration system. Certain compounds may corrode the cooling coils and associated equipment. Particulate material may accumulate within the cooling chamber.	N/A	N/A
Step 2.	**ELIMINATE TECHNICALLY INFEASIBLE OPTIONS**	**RBLC Database Information**	Not included in RBLC for emergency generators.	Not included in RBLC for emergency generators.	Not included in RBLC for emergency generators.	Not included in RBLC for emergency generators.	Not included in RBLC for emergency generators.	Not included in RBLC for emergency generators.	N/A	N/A
		Feasibility Discussion	Technically infeasible. Small and intermittent combustion units for which add-on controls are not appropriate.	Technically infeasible. Small and intermittent combustion units for which add-on controls are not appropriate.	Technically infeasible. Small and intermittent combustion units for which add-on controls are not appropriate.	Technically infeasible. Small and intermittent combustion units for which add-on controls are not appropriate.	Technically infeasible. Small and intermittent combustion units for which add-on controls are not appropriate.	Technically infeasible. Small and intermittent combustion units for which add-on controls are not appropriate.	Feasible	Feasible
Step 3.	**RANK REMAINING CONTROL TECHNOLOGIES**	**Overall Control Efficiency**								Base Case
Step 4.	**EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS**	**Cost Effectiveness ($/ton)**								
Step 5.	**SELECT BACT**								**BACT Limit: Comply with operating hour restrictions in NSPS JJJJ**	

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Thermal Incinerator)," EPA-452/F-03-022.
b. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Incinerator - Recuperative Type)," EPA-452/F-03-020.
c. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Regenerative Incinerator)," EPA-452/F-03-021.
d. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Catalytic Incinerator)," EPA-452/F-03-018.
e. U.S. EPA, "Choosing an Adsorption System for VOC: Carbon, Zeolite, or Polymers?" EPA-456/F-99-004
f. U.S. EPA, "Using Bioreactors to Control Air Pollution," EPA-456/F-03-003
g. U.S. EPA, "Refrigerated Condensers for Control of Organic Air Emissions," EPA-456/F-01-004

Process	Pollutant
NG-Fired Emergency Engines	$PM/PM_{10}/PM_{2.5}$

		Control Technology	Baghouse / Fabric Filter[a]	Electrostatic Precipitator (ESP)[b,c,d,e]	Incinerator[f]	Wet Scrubber[h]	Cyclone[i]	Usage Limitation	Good Process Operation
Step 1.	IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES	Control Technology Description	Process exhaust gas passes through a tightly woven or felted fabric arranged in sheets, cartridges, or bags that collect PM via sieving and other mechanisms. The dust cake that accumulates on the filters increases collection efficiency. Various cleaning techniques include pulse-jet, reverse-air, and shaker technologies.	Electrodes stimulate the waste gas and induce an electrical charge in the entrained particles. The resulting electrical field forces the charged particles to the collector walls from which the material may be mechanically dislodged and collected in dry systems or washed with a water deluge in wet systems.	The combustion of auxiliary fuel heats a combustion chamber to promote the thermal oxidation of partially combusted particulate hydrocarbons in the exhaust stream. Recuperative incinerators utilize heat exchangers to recover heat from the outlet gas which is used to pre-heat the incoming waste stream.	A scrubbing liquid introduced into the gas stream captures and collects entrained particles. In the case of a venturi scrubber, the turbulent airflow atomizes the scrubbing liquid to increase droplet-particle interaction. The droplets containing particles are typically separated from the exhaust gas in a downstream cyclonic separator and/or mist eliminator.	Centrifugal forces drive particles in the gas stream toward the cyclone walls as the waste gas flows through the conical unit. The captured particles are collected in a material hopper below the unit.	Usage limitation involves accepting a limit on the maximum hours of operation on the generators, which results in lower emissions.	Operate and maintain the equipment in accordance with good air pollution control practices.
		Typical Operating Temperature	Up to 500 °F (Typical)	Up to 1,300 °F (dry) Lower than 170 - 190 °F (wet)	1,100 to 1,200 °F	40 to 750 °F	Up to 1,000 °F	N/A	N/A
		Typical Waste Stream Inlet Flow Rate	100 - 100,000 scfm (Standard) 100,000 - 1,000,000 scfm (Custom)	1,000 - 100,000 scfm (Wire-Pipe) 100,000 - 1,000,000 scfm (Wire-Plate)	500 - 50,000 scfm	500 - 100,000 scfm (units in parallel can operate at greater flowrates)	1.1 - 63,500 scfm (single) Up to 106,000 scfm (in parallel)	N/A	N/A
		Typical Waste Stream Inlet Pollutant Concentration	0.5 - 10 gr/dscf (Typical) 0.05 - 100 gr/dscf (Achievable)	0.5 - 5 gr/dscf (Wire-Pipe) 1 - 50 gr/dscf (Wire-Plate)	As low as 100 ppmv or less (for VOC)[g]	0.1 - 50 gr/dscf	0.44 - 7,000 gr/dscf	N/A	N/A
		Other Considerations	Fabric filters are susceptible to corrosion and blinding by moisture. Appropriate fabrics must be selected for specific process conditions. Accumulations of dust may present fire or explosion hazards.	Dry ESP efficiency varies significantly with dust resistivity. Air leakage and acid condensation may cause corrosion. ESPs are not generally suitable for highly variable processes. Equipment footprint is often substantial.	Incinerators may not effectively control highly-variable waste streams. Halogenated or sulfurous compounds may cause corrosion within the incinerator.	Effluent stream requires wastewater treatment and solid was disposal. Sludge disposal may be costly. Wet scrubbers are particularly susceptible to corrosion.	Cyclones typically exhibit lower efficiencies when collecting smaller particles. High-efficiency units may require substantial pressure drop. Unable to handle sticky and tacky materials.	N/A	N/A
Step 2.	ELIMINATE TECHNICALLY INFEASIBLE OPTIONS	RBLC Database Information	Not included in RBLC for emergency generators.	Not included in RBLC for emergency generators.	Not included in RBLC for emergency generators.	Not included in RBLC for emergency generators.	Not included in RBLC for emergency generators.	N/A	N/A
		Feasibility Discussion	Technically infeasible. Small and intermittent combustion units for which add-on controls are not appropriate.	Technically infeasible. Small and intermittent combustion units for which add-on controls are not appropriate.	Technically infeasible. Small and intermittent combustion units for which add-on controls are not appropriate.	Technically infeasible. Small and intermittent combustion units for which add-on controls are not appropriate.	Technically infeasible. Small and intermittent combustion units for which add-on controls are not appropriate.	Feasible	Feasible
Step 3.	RANK REMAINING CONTROL TECHNOLOGIES	Overall Control Efficiency						Base Case	Base Case
Step 4.	EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS	Cost Effectiveness ($/ton)							
Step 5.	SELECT BACT							**BACT Limit: Comply with operating hour restrictions in NSPS JJJJ**	

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Fabric Filter - Pulse-Jet Cleaned Type)," EPA-452/F-03-025.
b. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Dry Electrostatic Precipitator (ESP) - Wire-Pipe Type)," EPA-452/F-03-027.
c. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Dry Electrostatic Precipitator (ESP) - Wire-Plate Type)," EPA-452/F-03-028.
d. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Wet Electrostatic Precipitator(ESP) - Wire-Pipe Type)," EPA-452/F-03-029.
e. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Wet Electrostatic Precipitator (ESP) - Wire-Plate Type)," EPA-452/F-03-030.
f. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Incinerator - Recuperative Type)," EPA-452/F-03-020.
g. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Incinerator - Regenerative Type)," EPA-452/F-03-021.
h. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Venturi Scrubber)," EPA-452/F-03-017.
i. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Cyclone)," EPA-452/F-03-005.

Nucor Corporation | West Virginia Steel Mill
RBLC Entries for NG-Fired Emergency Engines

Permit No.	Permit Issuance Date	Facility Name	State	Process	Throughput	Unit	NOx Limit	NOx Limit Unit	NOx Control Technique	NOx Limit 2	NOx Limit 2 Unit
1050472-001-AC	2/14/2019	NUCOR STEEL FLORIDA FACILITY	FL	Emergency Engines	Unspecified	-	2	G/HP-HR	Good combustion practices	-	-
181-32081-00054	4/16/2013	MAGNETATION LLC	IN	EMERGENCY GENERATOR	620	HP	0.5	G/HP-H	USE OF NATURAL GAS AND GOOD COMBUSTION PRACTICES	500	H/YR
C-13309	3/31/2016	MID-KANSAS ELECTRIC COMPANY, LLC - RUBART STATION	KS	Spark ignition RICE emergency AC generators	450	kW	2	G/HP-HR	-	-	-
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY	EP 10-05 - Austenitizing Furnace Rolls Emergency Generator	636	HP	2	G/HP-HR	This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan.	-	-
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY	EP 10-06 - Tempering Furnace Rolls Emergency Generator	636	HP	2	G/HP-HR	This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan.	-	-
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY	EP 10-06 - Tempering Furnace Rolls Emergency Generator	636	HP	2	G/HP-HR	This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan.	-	-
PSD-LA-787	7/21/2014	ALEXANDRIA COMPRESSOR STATION	LA	Emergency Generator Reciprocating Engine (G30, EQT 15)	1175	HP	5.18	LB/HR	Good combustion practices; use of natural gas as fuel; limit non-emergency use to <= 100 hours per year; adherence to the permittee's operating and maintenance practices	0.26	TPY
PSD-LA-772	7/15/2013	DONALDSONVILLE NITROGEN COMPLEX	LA	No. 5 Urea Plant Emergency Generator B (33-13, EQT 182)	2500	HP	-	-	-	-	-
107-13	12/4/2013	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET	MI	Emergency Engine--natural gas (EUNGENGINE)	1000	kW	2	G/HP-H	Good combustion practices	-	-
182-05C	5/12/2014	AK STEEL	MI	FG-ENG2007>500 â€" Two natural gas fired SI engines greater than 500 hp	Unspecified	-	-	-	-	-	-
185-15	6/3/2016	DTE GAS COMPANY--MILFORD COMPRESSOR STATION	MI	EUN_EM_GEN	225	H/YR	4.8	LB/H	Low NOx design (turbo charger and after cooler) and good combustion practices.	-	-
107-13C	12/5/2016	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET	MI	EUNGENGINE (Emergency engine--natural gas)	500	H/YR	2	G/HP-H	Good combustion practices.	-	-
185-15A	3/24/2017	DTE GAS COMPANY - MILFORD COMPRESSOR STATION	MI	EUN_EM_GEN (Natural gas emergency engine).	205	H/YR	4	LB/H	Low NOx design (turbo charger and after cooler) and good combustion practices.	-	-
74-18	12/21/2018	LBWL--ERICKSON STATION	MI	EUEMGNG1--A 1500 HP natural gas fueled emergency engine	1500	HP	2	G/HP-H	Burn natural gas and be NSPS compliant.	160	PPM
74-18	12/21/2018	LBWL--ERICKSON STATION	MI	EUEMGNG2	6000	HP	2	G/HP-H	Burn natural gas and be NSPS compliant	160	PPM
14-19	4/26/2019	MACK AVENUE ASSEMBLY PLANT	MI	EUEMERGEN1	500	h/yr	-	-	-	-	-
14-19	4/26/2019	MACK AVENUE ASSEMBLY PLANT	MI	EUEMERGEN2	500	h/yr	-	-	-	-	-
14-19	4/26/2019	MACK AVENUE ASSEMBLY PLANT	MI	EUEMERGEN3	500	h/yr	-	-	-	-	-
13-19A	8/26/2019	WARREN TRUCK ASSEMBLY PLANT	MI	FGNGEMENG (multiple emission units in this flexible group)	Unspecified	-	-	-	-	-	-
14-19A	10/30/2020	MACK AVENUE ASSEMBLY PLANT	MI	EUEMERGEN1	500	h/yr	-	-	-	-	-
14-19A	10/30/2020	MACK AVENUE ASSEMBLY PLANT	MI	EUEMERGEN2	500	h/yr	-	-	-	-	-
2012-1393-C PSD	3/1/2013	ROSE VALLEY PLANT	OK	EMERGENCY GENERATORS 2,889-HP CAT G3520C IM	2889	HP	0.5	GM/HP-HR	LEAN-BURN COMBUSTION.	3.18	LB/HR
53-00003D	2/2/2012	NATL FUEL GAS SUPPLY/ELLISBURG STA	PA	Emergency Generator Set, Rich Burn, 850 BHP	Unspecified	-	0.5	G/BHP-HR	Miratech model IQ-24-10-EC1 NSCR system	0.24	TPY
PSDTX1304	12/20/2013	SINTON COMPRESSOR STATION	TX	Emergency Engine	1328	hp	2	G/HP-H	-	-	-
PSD-TX-104511-GHG	3/13/2014	APEX BETHEL ENERGY CENTER	TX	Emergency Generator	8600	scf/hr	-	-	-	-	-
147681, PSDTX1522, GHGPSDTX172	10/19/2021	CENTURION BROWNSVILLE	TX	Firewater Pumps	800	HP	-	-	Use of well-designed and properly maintained engines. Good combustion practices. Limited to 52 hours per year of non-emergency operation. Equipped with non-resettable runtime meter.	-	-
R14-0033	6/14/2018	MOCKINGBIRD HILL COMPRESSOR STATION	WV	EG-1 - Auxiliary (Emergency) Generator	755	hp	-	-	-	-	-

Permit No.	Permit Issuance Date	Facility Name	State	Process	Throughput	Unit	CO Limit	CO Limit Unit	CO Control Technique	CO Limit 2	CO Limit 2 Unit
1050472-001-AC	2/14/2019	NUCOR STEEL FLORIDA FACILITY	FL	Emergency Engines	Unspecified	-	4	G-HP-HR	good combustion practices	-	-
181-32081-00054	4/16/2013	MAGNETATION LLC	IN	EMERGENCY GENERATOR	620	HP	-	-	-	-	-
C-13309	3/31/2016	MID-KANSAS ELECTRIC COMPANY, LLC - RUBART STATION	KS	Spark ignition RICE emergency AC generators	450	kW	4	G/HP-HR	-	-	-
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY	EP 10-05 - Austenitizing Furnace Rolls Emergency Generator	636	HP	4	G/HP-HR	This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan.	-	-
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY	EP 10-06 - Tempering Furnace Rolls Emergency Generator	636	HP	4	G/HP-HR	This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan.	-	-
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY	EP 10-06 - Tempering Furnace Rolls Emergency Generator	636	HP	4	G/HP-HR	This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan.	-	-
PSD-LA-787	7/21/2014	ALEXANDRIA COMPRESSOR STATION	LA	Emergency Generator Reciprocating Engine (G30, EQT 15)	1175	HP	-	-	-	-	-
PSD-LA-772	7/15/2013	DONALDSONVILLE NITROGEN COMPLEX	LA	No. 5 Urea Plant Emergency Generator B (33-13, EQT 182)	2500	HP	27.56	LB/HR	Good combustion practices; proper equipment design consistent with 40 CFR 60 Subpart JJJJ	4.96	TPY
107-13	12/4/2013	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET	MI	Emergency Engine--natural gas (EUNGENGINE)	1000	kW	0.8	G/HP-H	Oxidation catalyst and good combustion practices.	-	-
182-05C	5/12/2014	AK STEEL	MI	FG-ENG2007>500 â€“ Two natural gas fired SI engines greater than 500 hp	Unspecified	-	-	-	-	-	-
185-15	6/3/2016	DTE GAS COMPANY--MILFORD COMPRESSOR STATION	MI	EUN_EM_GEN	225	H/YR	9.6	LB/H	Good combustion practices and clean burn fuel (pipeline quality natural gas).	-	-
107-13C	12/5/2016	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET	MI	EUNGENGINE (Emergency engine--natural gas)	500	H/YR	0.8	G/HP-H	Oxidation catalyst and good combustion practices.	-	-
185-15A	3/24/2017	DTE GAS COMPANY - MILFORD COMPRESSOR STATION	MI	EUN_EM_GEN (Natural gas emergency engine).	205	H/YR	11	LB/H	Good combustion practices and clean burn fuel (pipeline quality natural gas).	-	-
74-18	12/21/2018	LBWL--ERICKSON STATION	MI	EUEMGNG1--A 1500 HP natural gas fueled emergency engine	1500	HP	4	G/HP-H	Burn natural gas and be NSPS compliant	540	PPM
74-18	12/21/2018	LBWL--ERICKSON STATION	MI	EUEMGNG2	6000	HP	4	G/HP-H	Burn natural gas and be NSPS compliant.	540	PPM
14-19	4/26/2019	MACK AVENUE ASSEMBLY PLANT	MI	EUEMERGEN1	500	h/yr	-	-	-	-	-
14-19	4/26/2019	MACK AVENUE ASSEMBLY PLANT	MI	EUEMERGEN2	500	h/yr	-	-	-	-	-
14-19	4/26/2019	MACK AVENUE ASSEMBLY PLANT	MI	EUEMERGEN3	500	h/yr	-	-	-	-	-
13-19A	8/26/2019	WARREN TRUCK ASSEMBLY PLANT	MI	FGNGEMENG (multiple emission units in this flexible group)	Unspecified	-	-	-	-	-	-
14-19A	10/30/2020	MACK AVENUE ASSEMBLY PLANT	MI	EUEMERGEN1	500	h/yr	-	-	-	-	-
14-19A	10/30/2020	MACK AVENUE ASSEMBLY PLANT	MI	EUEMERGEN2	500	h/yr	-	-	-	-	-
2012-1393-C PSD	3/1/2013	ROSE VALLEY PLANT	OK	EMERGENCY GENERATORS 2,889-HP CAT G3520C IM	2889	HP	0.43	GM/HP-HR	OXIDATION CATALYST	2.73	LB/HR
53-00003D	2/2/2012	NATL FUEL GAS SUPPLY/ELLISBURG STA	PA	Emergency Generator Set, Rich Burn, 850 BHP	Unspecified	-	-	-	-	-	-
PSDTX1304	12/20/2013	SINTON COMPRESSOR STATION	TX	Emergency Engine	1328	hp	1.3	G/HP-H	-	-	-
PSD-TX-104511-GHG	3/13/2014	APEX BETHEL ENERGY CENTER	TX	Emergency Generator	8600	scf/hr	-	-	-	-	-
147681, PSDTX1522, GHGPSDTX172	10/19/2021	CENTURION BROWNSVILLE	TX	Firewater Pumps	800	HP	-	-	Use of well-designed and properly maintained engines. Good combustion practices. Limited to 52 hours per year of non-emergency operation. Equipped with non-resettable runtime meter.	-	-
R14-0033	6/14/2018	MOCKINGBIRD HILL COMPRESSOR STATION	WV	EG-1 - Auxiliary (Emergency) Generator	755	hp	-	-	-	-	-

Permit No.	Permit Issuance Date	Facility Name	State	Process	Throughput	Unit	SO_2 Limit	SO_2 Limit Unit	SO_2 Control Technique	SO_2 Limit 2	SO_2 Limit 2 Unit
1050472-001-AC	2/14/2019	NUCOR STEEL FLORIDA FACILITY	FL	Emergency Engines	Unspecified	-	-	-	-	-	-
181-32081-00054	4/16/2013	MAGNETATION LLC	IN	EMERGENCY GENERATOR	620	HP	0.0015	G/KW-H	USE OF NATRUAL GAS AND GOOD COMBUSTION PRACTICES	500	H/YR
C-13309	3/31/2016	MID-KANSAS ELECTRIC COMPANY, LLC - RUBART STATION	KS	Spark ignition RICE emergency AC generators	450	kW	-	-	-	-	-
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY	EP 10-05 - Austenitizing Furnace Rolls Emergency Generator	636	HP	-	-	This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan.	-	-
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY	EP 10-06 - Tempering Furnace Rolls Emergency Generator	636	HP	-	-	This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan.	-	-
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY	EP 10-06 - Tempering Furnace Rolls Emergency Generator	636	HP	-	-	This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan.	-	-
PSD-LA-787	7/21/2014	ALEXANDRIA COMPRESSOR STATION	LA	Emergency Generator Reciprocating Engine (G30, EQT 15)	1175	HP	-	-	-	-	-
PSD-LA-772	7/15/2013	DONALDSONVILLE NITROGEN COMPLEX	LA	No. 5 Urea Plant Emergency Generator B (33-13, EQT 182)	2500	HP	-	-	-	-	-
107-13	12/4/2013	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET	MI	Emergency Engine--natural gas (EUNGENGINE)	1000	kW	-	-	-	-	-
182-05C	5/12/2014	AK STEEL	MI	FG-ENG2007>500 â€" Two natural gas fired SI engines greater than 500 hp	Unspecified	-	-	-	-	-	-
185-15	6/3/2016	DTE GAS COMPANY--MILFORD COMPRESSOR STATION	MI	EUN_EM_GEN	225	H/YR	-	-	-	-	-
107-13C	12/5/2016	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET	MI	EUNGENGINE (Emergency engine--natural gas)	500	H/YR	-	-	-	-	-
185-15A	3/24/2017	DTE GAS COMPANY - MILFORD COMPRESSOR STATION	MI	EUN_EM_GEN (Natural gas emergency engine).	205	H/YR	-	-	-	-	-
74-18	12/21/2018	LBWL--ERICKSON STATION	MI	EUEMGNG1--A 1500 HP natural gas fueled emergency engine	1500	HP	-	-	-	-	-
74-18	12/21/2018	LBWL--ERICKSON STATION	MI	EUEMGNG2	6000	HP	-	-	-	-	-
14-19	4/26/2019	MACK AVENUE ASSEMBLY PLANT	MI	EUEMERGEN1	500	h/yr	-	-	-	-	-
14-19	4/26/2019	MACK AVENUE ASSEMBLY PLANT	MI	EUEMERGEN2	500	h/yr	-	-	-	-	-
14-19	4/26/2019	MACK AVENUE ASSEMBLY PLANT	MI	EUEMERGEN3	500	h/yr	-	-	-	-	-
13-19A	8/26/2019	WARREN TRUCK ASSEMBLY PLANT	MI	FGNGEMENG (multiple emission units in this flexible group)	Unspecified	-	-	-	-	-	-
14-19A	10/30/2020	MACK AVENUE ASSEMBLY PLANT	MI	EUEMERGEN1	500	h/yr	-	-	-	-	-
14-19A	10/30/2020	MACK AVENUE ASSEMBLY PLANT	MI	EUEMERGEN2	500	h/yr	-	-	-	-	-
2012-1393-C PSD	3/1/2013	ROSE VALLEY PLANT	OK	EMERGENCY GENERATORS 2,889-HP CAT G3520C IM	2889	HP	-	-	-	-	-
53-00003D	2/2/2012	NATL FUEL GAS SUPPLY/ELLISBURG STA	PA	Emergency Generator Set, Rich Burn, 850 BHP	Unspecified	-	-	-	-	-	-
PSDTX1304	12/20/2013	SINTON COMPRESSOR STATION	TX	Emergency Engine	1328	hp	-	-	-	-	-
PSD-TX-104511-GHG	3/13/2014	APEX BETHEL ENERGY CENTER	TX	Emergency Generator	8600	scf/hr	-	-	-	-	-
147681, PSDTX1522, GHGPSDTX172	10/19/2021	CENTURION BROWNSVILLE	TX	Firewater Pumps	800	HP	-	-	Use of well-designed and properly maintained engines. Good combustion practices. Limited to 52 hours per year of non-emergency operation. Equipped with non-resettable runtime meter.	-	-
R14-0033	6/14/2018	MOCKINGBIRD HILL COMPRESSOR STATION	WV	EG-1 - Auxiliary (Emergency) Generator	755	hp	-	-	-	-	-

Permit No.	Permit Issuance Date	Facility Name	State	Process	Throughput	Unit	VOC Limit	VOC Limit Unit	VOC Control Technique	VOC Limit 2	VOC Limit 2 Unit
1050472-001-AC	2/14/2019	NUCOR STEEL FLORIDA FACILITY	FL	Emergency Engines	Unspecified	-	1	G/HP-HR	Good combustion practices	-	-
181-32081-00054	4/16/2013	MAGNETATION LLC	IN	EMERGENCY GENERATOR	620	HP	-	-	-	-	-
C-13309	3/31/2016	MID-KANSAS ELECTRIC COMPANY, LLC - RUBART STATION	KS	Spark ignition RICE emergency AC generators	450	kW	1	G/HP-HR	-	-	-
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY	EP 10-05 - Austenitizing Furnace Rolls Emergency Generator	636	HP	1	G/HP-HR	This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan.	-	-
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY	EP 10-06 - Tempering Furnace Rolls Emergency Generator	636	HP	1	G/HP-HR	This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan.	-	-
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY	EP 10-06 - Tempering Furnace Rolls Emergency Generator	636	HP	1	G/HP-HR	This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan.	-	-
PSD-LA-787	7/21/2014	ALEXANDRIA COMPRESSOR STATION	LA	Emergency Generator Reciprocating Engine (G30, EQT 15)	1175	HP	-	-	-	-	-
PSD-LA-772	7/15/2013	DONALDSONVILLE NITROGEN COMPLEX	LA	No. 5 Urea Plant Emergency Generator B (33-13, EQT 182)	2500	HP	-	-	-	-	-
107-13	12/4/2013	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET	MI	Emergency Engine--natural gas (EUNGENGINE)	1000	kW	0.5	G/HP-H	Oxidation catalyst and good combustion practices	-	-
182-05C	5/12/2014	AK STEEL	MI	FG-ENG2007>500 â€" Two natural gas fired SI engines greater than 500 hp	Unspecified	-	-	-	-	-	-
185-15	6/3/2016	DTE GAS COMPANY--MILFORD COMPRESSOR STATION	MI	EUN_EM_GEN	225	H/YR	-	-	-	-	-
107-13C	12/5/2016	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET	MI	EUNGENGINE (Emergency engine--natural gas)	500	H/YR	0.5	G/HP-H	Oxidation catalyst and good combustion practices.	-	-
185-15A	3/24/2017	DTE GAS COMPANY - MILFORD COMPRESSOR STATION	MI	EUN_EM_GEN (Natural gas emergency engine).	205	H/YR	-	-	-	-	-
74-18	12/21/2018	LBWL--ERICKSON STATION	MI	EUEMGNG1--A 1500 HP natural gas fueled emergency engine	1500	HP	1	G/HP-H	Burn natural gas and be NSPS compliant	86	PPM
74-18	12/21/2018	LBWL--ERICKSON STATION	MI	EUEMGNG2	6000	HP	1	G/HP-H	Burn natural gas and be NSPS compliant.	86	PPM
14-19	4/26/2019	MACK AVENUE ASSEMBLY PLANT	MI	EUEMERGEN1	500	h/yr	0.5	G/HP-H	-	-	-
14-19	4/26/2019	MACK AVENUE ASSEMBLY PLANT	MI	EUEMERGEN2	500	h/yr	0.5	G/HP-H	-	-	-
14-19	4/26/2019	MACK AVENUE ASSEMBLY PLANT	MI	EUEMERGEN3	500	h/yr	0.5	G/HP-H	-	-	-
13-19A	8/26/2019	WARREN TRUCK ASSEMBLY PLANT	MI	FGNGEMENG (multiple emission units in this flexible group)	Unspecified	-	0.5	G/HP-H	Combustion of pipeline quality natural gas only.	-	-
14-19A	10/30/2020	MACK AVENUE ASSEMBLY PLANT	MI	EUEMERGEN1	500	h/yr	0.5	G/HP-H	-	-	-
14-19A	10/30/2020	MACK AVENUE ASSEMBLY PLANT	MI	EUEMERGEN2	500	h/yr	0.5	G/HP-H	-	-	-
2012-1393-C PSD	3/1/2013	ROSE VALLEY PLANT	OK	EMERGENCY GENERATORS 2,889-HP CAT G3520C IM	2889	HP	0.44	GM/HP-HR	OXIDATION CATALYST	3.51	LB/HR
53-00003D	2/2/2012	NATL FUEL GAS SUPPLY/ELLISBURG STA	PA	Emergency Generator Set, Rich Burn, 850 BHP	Unspecified	-	-	-	-	-	-
PSDTX1304	12/20/2013	SINTON COMPRESSOR STATION	TX	Emergency Engine	1328	hp	-	-	-	-	-
PSD-TX-104511-GHG	3/13/2014	APEX BETHEL ENERGY CENTER	TX	Emergency Generator	8600	scf/hr	-	-	-	-	-
147681, PSDTX1522, GHGPSDTX172	10/19/2021	CENTURION BROWNSVILLE	TX	Firewater Pumps	800	HP	-	-	Use of well-designed and properly maintained engines. Good combustion practices. Limited to 52 hours per year of non-emergency operation. Equipped with non-resettable runtime meter.	-	-
R14-0033	6/14/2018	MOCKINGBIRD HILL COMPRESSOR STATION	WV	EG-1 - Auxiliary (Emergency) Generator	755	hp	-	-	-	-	-

Permit No.	Permit Issuance Date	Facility Name	State	Process	Throughput	Unit	PM Limit	PM Limit Unit	PM Control Technique	PM Limit 2	PM Limit 2 Unit
1050472-001-AC	2/14/2019	NUCOR STEEL FLORIDA FACILITY	FL	Emergency Engines	Unspecified	-	0.048	G/HP-HR	Good combustion practices	-	-
181-32081-00054	4/16/2013	MAGNETATION LLC	IN	EMERGENCY GENERATOR	620	HP	500	H/YR	RESTRICTED TO USE OF NATURAL GAS AND GOOD COMBUSTION PRACTICES	0.2	G/KW-H
C-13309	3/31/2016	MID-KANSAS ELECTRIC COMPANY, LLC - RUBART STATION	KS	Spark ignition RICE emergency AC generators	450	kW	-	-	-	-	-
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY	EP 10-05 - Austenitizing Furnace Rolls Emergency Generator	636	HP	-	-	This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan.	-	-
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY	EP 10-06 - Tempering Furnace Rolls Emergency Generator	636	HP	-	-	This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan.	-	-
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY	EP 10-06 - Tempering Furnace Rolls Emergency Generator	636	HP	-	-	This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan.	-	-
PSD-LA-787	7/21/2014	ALEXANDRIA COMPRESSOR STATION	LA	Emergency Generator Reciprocating Engine (G30, EQT 15)	1175	HP	-	-	-	-	-
PSD-LA-772	7/15/2013	DONALDSONVILLE NITROGEN COMPLEX	LA	No. 5 Urea Plant Emergency Generator B (33-13, EQT 182)	2500	HP	-	-	-	-	-
107-13	12/4/2013	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET	MI	Emergency Engine--natural gas (EUNGENGINE)	1000	kW	0.0001	LB/MMBTU	Good combustion practices	-	-
182-05C	5/12/2014	AK STEEL	MI	FG-ENG2007>500 â€" Two natural gas fired SI engines greater than 500 hp	Unspecified	-	-	-	-	-	-
185-15	6/3/2016	DTE GAS COMPANY--MILFORD COMPRESSOR STATION	MI	EUN_EM_GEN	225	H/YR	-	-	-	-	-
107-13C	12/5/2016	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET	MI	EUNGENGINE (Emergency engine--natural gas)	500	H/YR	0.0001	LB/MMBTU	Good combustion practices.	-	-
185-15A	3/24/2017	DTE GAS COMPANY - MILFORD COMPRESSOR STATION	MI	EUN_EM_GEN (Natural gas emergency engine).	205	H/YR	-	-	-	-	-
74-18	12/21/2018	LBWL--ERICKSON STATION	MI	EUEMGNG1--A 1500 HP natural gas fueled emergency engine	1500	HP	-	-	-	-	-
74-18	12/21/2018	LBWL--ERICKSON STATION	MI	EUEMGNG2	6000	HP	-	-	-	-	-
14-19	4/26/2019	MACK AVENUE ASSEMBLY PLANT	MI	EUEMERGEN1	500	h/yr	-	-	-	-	-
14-19	4/26/2019	MACK AVENUE ASSEMBLY PLANT	MI	EUEMERGEN2	500	h/yr	-	-	-	-	-
14-19	4/26/2019	MACK AVENUE ASSEMBLY PLANT	MI	EUEMERGEN3	500	h/yr	-	-	-	-	-
13-19A	8/26/2019	WARREN TRUCK ASSEMBLY PLANT	MI	FGNGEMENG (multiple emission units in this flexible group)	Unspecified	-	-	-	-	-	-
14-19A	10/30/2020	MACK AVENUE ASSEMBLY PLANT	MI	EUEMERGEN1	500	h/yr	-	-	-	-	-
14-19A	10/30/2020	MACK AVENUE ASSEMBLY PLANT	MI	EUEMERGEN2	500	h/yr	-	-	-	-	-
2012-1393-C PSD	3/1/2013	ROSE VALLEY PLANT	OK	EMERGENCY GENERATORS 2,889-HP CAT G3520C IM	2889	HP	-	-	-	-	-
53-00003D	2/2/2012	NATL FUEL GAS SUPPLY/ELLISBURG STA	PA	Emergency Generator Set, Rich Burn, 850 BHP	Unspecified	-	-	-	-	-	-
PSDTX1304	12/20/2013	SINTON COMPRESSOR STATION	TX	Emergency Engine	1328	hp	-	-	-	-	-
PSD-TX-104511-GHG	3/13/2014	APEX BETHEL ENERGY CENTER	TX	Emergency Generator	8600	scf/hr	-	-	-	-	-
147681, PSDTX1522, GHGPSDTX172	10/19/2021	CENTURION BROWNSVILLE	TX	Firewater Pumps	800	HP	-	-	Use of well-designed and properly maintained engines. Good combustion practices. Limited to 52 hours per year of non-emergency operation. Equipped with non-resettable runtime meter.	-	-
R14-0033	6/14/2018	MOCKINGBIRD HILL COMPRESSOR STATION	WV	EG-1 - Auxiliary (Emergency) Generator	755	hp	-	-	-	-	-

Nucor Corporation | West Virginia Steel Mill

RBLC Entries for NG-Fired Emergency Engines

Permit No.	Permit Issuance Date	Facility Name	State	Process	Throughput	Unit	PM_{10} Limit	PM_{10} Limit Unit	PM_{10} Control Technique	PM_{10} Limit 2	PM_{10} Limit 2 Unit
1050472-001-AC	2/14/2019	NUCOR STEEL FLORIDA FACILITY	FL	Emergency Engines	Unspecified	-	-	-	-	-	-
181-32081-00054	4/16/2013	MAGNETATION LLC	IN	EMERGENCY GENERATOR	620	HP	500	H/YR	USE OF NATURAL GAS AND GOOD COMBUSTION PRACTICES	0.2	G/KW-H
C-13309	3/31/2016	MID-KANSAS ELECTRIC COMPANY, LLC - RUBART STATION	KS	Spark ignition RICE emergency AC generators	450	kW	0.0001	G/HP-HR	-	-	-
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY	EP 10-05 - Austenitizing Furnace Rolls Emergency Generator	636	HP	-	-	This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan.	-	-
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY	EP 10-06 - Tempering Furnace Rolls Emergency Generator	636	HP	-	-	This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan.	-	-
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY	EP 10-06 - Tempering Furnace Rolls Emergency Generator	636	HP	-	-	This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan.	-	-
PSD-LA-787	7/21/2014	ALEXANDRIA COMPRESSOR STATION	LA	Emergency Generator Reciprocating Engine (G30, EQT 15)	1175	HP	0.004	LB/HR	Good combustion practices; use of natural gas as fuel; limit non-emergency use to <= 100 hours per year; adherence to the permittee's operating and maintenance practices	0.01	TPY
PSD-LA-772	7/15/2013	DONALDSONVILLE NITROGEN COMPLEX	LA	No. 5 Urea Plant Emergency Generator B (33-13, EQT 182)	2500	HP	-	-	-	-	-
107-13	12/4/2013	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET	MI	Emergency Engine--natural gas (EUNGENGINE)	1000	kW	0.01	LB/MMBTU	Good combustion practices	-	-
182-05C	5/12/2014	AK STEEL	MI	FG-ENG2007>500 â€“ Two natural gas fired SI engines greater than 500 hp	Unspecified	-	-	-	-	-	-
185-15	6/3/2016	DTE GAS COMPANY--MILFORD COMPRESSOR STATION	MI	EUN_EM_GEN	225	H/YR	0.01	LB/MMBTU	Good combustion practices and low sulfur fuel (pipeline quality natural gas).	-	-
107-13C	12/5/2016	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET	MI	EUNGENGINE (Emergency engine--natural gas)	500	H/YR	0.01	LB/MMBTU	Good combustion practices.	-	-
185-15A	3/24/2017	DTE GAS COMPANY - MILFORD COMPRESSOR STATION	MI	EUN_EM_GEN (Natural gas emergency engine).	205	H/YR	0.01	LB/MMBTU	Good combustion practices and low sulfur fuel (pipeline quality natural gas).	-	-
74-18	12/21/2018	LBWL--ERICKSON STATION	MI	EUEMGNG1--A 1500 HP natural gas fueled emergency engine	1500	HP	0.13	LB/H	Burn pipeline quality natural gas	-	-
74-18	12/21/2018	LBWL--ERICKSON STATION	MI	EUEMGNG2	6000	HP	0.5	LB/H	Burn pipeline quality natural gas.	-	-
14-19	4/26/2019	MACK AVENUE ASSEMBLY PLANT	MI	EUEMERGEN1	500	h/yr	-	-	-	-	-
14-19	4/26/2019	MACK AVENUE ASSEMBLY PLANT	MI	EUEMERGEN2	500	h/yr	-	-	-	-	-
14-19	4/26/2019	MACK AVENUE ASSEMBLY PLANT	MI	EUEMERGEN3	500	h/yr	-	-	-	-	-
13-19A	8/26/2019	WARREN TRUCK ASSEMBLY PLANT	MI	FGNGEMENG (multiple emission units in this flexible group)	Unspecified	-	-	-	-	-	-
14-19A	10/30/2020	MACK AVENUE ASSEMBLY PLANT	MI	EUEMERGEN1	500	h/yr	-	-	-	-	-
14-19A	10/30/2020	MACK AVENUE ASSEMBLY PLANT	MI	EUEMERGEN2	500	h/yr	-	-	-	-	-
2012-1393-C PSD	3/1/2013	ROSE VALLEY PLANT	OK	EMERGENCY GENERATORS 2,889-HP CAT G3520C IM	2889	HP	-	-	-	-	-
53-00003D	2/2/2012	NATL FUEL GAS SUPPLY/ELLISBURG STA	PA	Emergency Generator Set, Rich Burn, 850 BHP	Unspecified	-	-	-	-	-	-
PSDTX1304	12/20/2013	SINTON COMPRESSOR STATION	TX	Emergency Engine	1328	hp	-	-	-	-	-
PSD-TX-104511-GHG	3/13/2014	APEX BETHEL ENERGY CENTER	TX	Emergency Generator	8600	scf/hr	-	-	-	-	-
147681, PSDTX1522, GHGPSDTX172	10/19/2021	CENTURION BROWNSVILLE	TX	Firewater Pumps	800	HP	-	-	-	-	-
R14-0033	6/14/2018	MOCKINGBIRD HILL COMPRESSOR STATION	WV	EG-1 - Auxiliary (Emergency) Generator	755	hp	-	-	-	-	-

RBLC Entries for NG-Fired Emergency Engines

Permit No.	Permit Issuance Date	Facility Name	State	Process	Throughput	Unit	$PM_{2.5}$ Limit	$PM_{2.5}$ Limit Unit	$PM_{2.5}$ Control Technique	$PM_{2.5}$ Limit 2	$PM_{2.5}$ Limit 2 Unit
1050472-001-AC	2/14/2019	NUCOR STEEL FLORIDA FACILITY	FL	Emergency Engines	Unspecified	-	-	-	-	-	-
181-32081-00054	4/16/2013	MAGNETATION LLC	IN	EMERGENCY GENERATOR	620	HP	500	H/YR	USE OF NATURAL GAS AND GOOD COMBUSTION PRACTICES	0.2	G/KW-H
C-13309	3/31/2016	MID-KANSAS ELECTRIC COMPANY, LLC - RUBART STATION	KS	Spark ignition RICE emergency AC generators	450	kW	0.0001	G/HP-HR	-	-	-
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY	EP 10-05 - Austenitizing Furnace Rolls Emergency Generator	636	HP	-	-	This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan.	-	-
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY	EP 10-06 - Tempering Furnace Rolls Emergency Generator	636	HP	-	-	This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan.	-	-
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY	EP 10-06 - Tempering Furnace Rolls Emergency Generator	636	HP	-	-	This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan.	-	-
PSD-LA-787	7/21/2014	ALEXANDRIA COMPRESSOR STATION	LA	Emergency Generator Reciprocating Engine (G30, EQT 15)	1175	HP	0.004	LB/HR	Good combustion practices; use of natural gas as fuel; limit non-emergency use to <= 100 hours per year; adherence to the permittee's operating and maintenance practices	0.01	TPY
PSD-LA-772	7/15/2013	DONALDSONVILLE NITROGEN COMPLEX	LA	No. 5 Urea Plant Emergency Generator B (33-13, EQT 182)	2500	HP	-	-	-	-	-
107-13	12/4/2013	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET	MI	Emergency Engine--natural gas (EUNGENGINE)	1000	kW	0.01	LB/MMBTU	Good combustion practices	-	-
182-05C	5/12/2014	AK STEEL	MI	FG-ENG2007>500 â€“ Two natural gas fired SI engines greater than 500 hp	Unspecified	-	-	-	-	-	-
185-15	6/3/2016	DTE GAS COMPANY--MILFORD COMPRESSOR STATION	MI	EUN_EM_GEN	225	H/YR	0.01	LB/MMBTU	Good combustion practices and low sulfur fuel (pipeline quality natural gas).	-	-
107-13C	12/5/2016	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET	MI	EUNGENGINE (Emergency engine--natural gas)	500	H/YR	0.01	LB/MMBTU	Good combustion practices.	-	-
185-15A	3/24/2017	DTE GAS COMPANY - MILFORD COMPRESSOR STATION	MI	EUN_EM_GEN (Natural gas emergency engine).	205	H/YR	0.01	LB/MMBTU	Good combustion practices and low sulfur fuel (pipeline quality natural gas).	-	-
74-18	12/21/2018	LBWL--ERICKSON STATION	MI	EUEMGNG1--A 1500 HP natural gas fueled emergency engine	1500	HP	0.13	LB/H	Burn pipeline quality natural gas	-	-
74-18	12/21/2018	LBWL--ERICKSON STATION	MI	EUEMGNG2	6000	HP	0.5	LB/H	Burn pipeline quality natural gas.	-	-
14-19	4/26/2019	MACK AVENUE ASSEMBLY PLANT	MI	EUEMERGEN1	500	h/yr	-	-	-	-	-
14-19	4/26/2019	MACK AVENUE ASSEMBLY PLANT	MI	EUEMERGEN2	500	h/yr	-	-	-	-	-
14-19	4/26/2019	MACK AVENUE ASSEMBLY PLANT	MI	EUEMERGEN3	500	h/yr	-	-	-	-	-
13-19A	8/26/2019	WARREN TRUCK ASSEMBLY PLANT	MI	FGNGEMENG (multiple emission units in this flexible group)	Unspecified	-	-	-	-	-	-
14-19A	10/30/2020	MACK AVENUE ASSEMBLY PLANT	MI	EUEMERGEN1	500	h/yr	-	-	-	-	-
14-19A	10/30/2020	MACK AVENUE ASSEMBLY PLANT	MI	EUEMERGEN2	500	h/yr	-	-	-	-	-
2012-1393-C PSD	3/1/2013	ROSE VALLEY PLANT	OK	EMERGENCY GENERATORS 2,889-HP CAT G3520C IM	2889	HP	0.01	LB/MMBTU	NATURAL GAS COMBUSTION	-	-
53-00003D	2/2/2012	NATL FUEL GAS SUPPLY/ELLISBURG STA	PA	Emergency Generator Set, Rich Burn, 850 BHP	Unspecified	-	-	-	-	-	-
PSDTX1304	12/20/2013	SINTON COMPRESSOR STATION	TX	Emergency Engine	1328	hp	-	-	-	-	-
PSD-TX-104511-GHG	3/13/2014	APEX BETHEL ENERGY CENTER	TX	Emergency Generator	8600	scf/hr	-	-	-	-	-
147681, PSDTX1522, GHGPSDTX172	10/19/2021	CENTURION BROWNSVILLE	TX	Firewater Pumps	800	HP	-	-	-	-	-
R14-0033	6/14/2018	MOCKINGBIRD HILL COMPRESSOR STATION	WV	EG-1 - Auxiliary (Emergency) Generator	755	hp	-	-	-	-	-

Permit No.	Permit Issuance Date	Facility Name	State	Process	Throughput	Unit	CO_2 Limit	CO_2 Limit Unit	CO_2 Control Technique	Limit 2	Limit 2 Unit	CH_4 Limit	CH_4 Limit Unit	CH_4 Control Technique	Limit 2	Limit 2 Unit	N_2O Limit	N_2O Limit Unit	N_2O Control Technique	Limit 2	Limit 2 Unit	CO_2e Limit	CO_2e Limit Unit	CO_2e Control Technique	Limit 2	Limit 2 Unit
1050472-001-AC	2/14/2019	NUCOR STEEL FLORIDA FACILITY	FL	Emergency Engines	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	117.1	LB/MMBTU	Good combustion practices	-	-
181-32081-00054	4/16/2013	MAGNETATION LLC	IN	EMERGENCY GENERATOR	620	HP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	144	T/YR	USE OF NATURAL GAS AND GOOD COMBUSTION PRACTICES	500	H/YR
C-13309	3/31/2016	MID-KANSAS ELECTRIC COMPANY, LLC - RUBART STATION	KS	Spark ignition RICE emergency AC generators	450	kW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY	EP 10-05 - Austenitizing Furnace Rolls Emergency Generator	636	HP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan.	-	-
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY	EP 10-06 - Tempering Furnace Rolls Emergency Generator	636	HP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan.	-	-
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY	EP 10-06 - Tempering Furnace Rolls Emergency Generator	636	HP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan.	-	-
PSD-LA-787	7/21/2014	ALEXANDRIA COMPRESSOR STATION	LA	Emergency Generator Reciprocating Engine (G30, EQT 15)	1175	HP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1160	LB/HR	Good combustion practices and use of natural gas as fuel	58	TONS
PSD-LA-772	7/15/2013	DONALDSONVILLE NITROGEN COMPLEX	LA	No. 5 Urea Plant Emergency Generator B (33-13, EQT 182)	2500	HP	526	TPY	Proper combustion controls (electronic air-to-fuel ratio controller, timing control, pre-chamber ignition, and turbochargers); selecting a fuel efficient engine; using natural gas as fuel.	-	-	0.01	TPY	Proper combustion controls (electronic air-to-fuel ratio controller, timing control, pre-chamber ignition, and turbochargers); selecting a fuel efficient engine; using natural gas as fuel.	-	-	0.001	TPY	Proper combustion controls (electronic air-to-fuel ratio controller, timing control, pre-chamber ignition, and turbochargers); selecting a fuel efficient engine; using natural gas as fuel.	-	-	526.51	TPY	Proper combustion controls (electronic air-to-fuel ratio controller, timing control, pre-chamber ignition, and turbochargers); selecting a fuel efficient engine; using natural gas as fuel.	-	-
107-13	12/4/2013	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET	MI	Emergency Engine--natural gas (EUNGENGINE)	1000	kW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	116	T/YR	Good combustion practices	-	-
182-05C	5/12/2014	AK STEEL	MI	FG-ENG2007>500 â€" Two natural gas fired SI engines greater than 500 hp	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
185-15	6/3/2016	DTE GAS COMPANY--MILFORD COMPRESSOR STATION	MI	EUN_EM_GEN	225	H/YR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	198	T/YR	Use of pipeline quality natural gas and energy efficiency measures.	-	-
107-13C	12/5/2016	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET	MI	EUNGENGINE (Emergency engine--natural gas)	500	H/YR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	116	T/YR	Good combustion practices.	-	-
185-15A	3/24/2017	DTE GAS COMPANY - MILFORD COMPRESSOR STATION	MI	EUN_EM_GEN (Natural gas emergency engine).	205	H/YR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	247	T/YR	Use of pipeline quality natural gas and energy efficiency measures.	-	-
74-18	12/21/2018	LBWL--ERICKSON STATION	MI	EUEMGNG1--A 1500 HP natural gas fueled emergency engine	1500	HP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	300	T/YR	Burn pipeline quality natural gas	-	-
74-18	12/21/2018	LBWL--ERICKSON STATION	MI	EUEMGNG2	6000	HP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1171	T/YR	Burn pipeline quality natural gas.	-	-
14-19	4/26/2019	MACK AVENUE ASSEMBLY PLANT	MI	EUEMERGEN1	500	h/yr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14-19	4/26/2019	MACK AVENUE ASSEMBLY PLANT	MI	EUEMERGEN2	500	h/yr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14-19	4/26/2019	MACK AVENUE ASSEMBLY PLANT	MI	EUEMERGEN3	500	h/yr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13-19A	8/26/2019	WARREN TRUCK ASSEMBLY PLANT	MI	FGNGEMENG (multiple emission units in this flexible group)	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14-19A	10/30/2020	MACK AVENUE ASSEMBLY PLANT	MI	EUEMERGEN1	500	h/yr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14-19A	10/30/2020	MACK AVENUE ASSEMBLY PLANT	MI	EUEMERGEN2	500	h/yr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2012-1393-C PSD	3/1/2013	ROSE VALLEY PLANT	OK	EMERGENCY GENERATORS 2,889-HP CAT G3520C IM	2889	HP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8212	BTU/BHP-HR	EFFICIENT DESIGN AND COMBUSTION.	-	-
53-00003D	2/2/2012	NATL FUEL GAS SUPPLY/ELLISBURG STA	PA	Emergency Generator Set, Rich Burn, 850 BHP	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PSDTX1304	12/20/2013	SINTON COMPRESSOR STATION	TX	Emergency Engine	1328	hp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PSD-TX-104511-GHG	3/13/2014	APEX BETHEL ENERGY CENTER	TX	Emergency Generator	8600	scf/hr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23	TPY OF CO2E	-	-	-

Permit No.	Permit Issuance Date	Facility Name	State	Process	Throughput	Unit	CO_2 Limit	CO_2 Limit Unit	CO_2 Control Technique	Limit 2	Limit 2 Unit	CH_4 Limit	CH_4 Limit Unit	CH_4 Control Technique	Limit 2	Limit 2 Unit	N_2O Limit	N_2O Limit Unit	N_2O Control Technique	Limit 2	Limit 2 Unit	CO_2e Limit	CO_2e Limit Unit	CO_2e Control Technique	Limit 2	Limit 2 Unit
147681, PSDTX1522, GHGPSDTX172	10/19/2021	CENTURION BROWNSVILLE	TX	Firewater Pumps	800	HP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Use of well-designed and properly maintained engines. Good combustion practices. Limited to 52 hours per year of non-emergency operation. Equipped with non-resettable runtime meter.	-	-
R14-0033	6/14/2018	MOCKINGBIRD HILL COMPRESSOR STATION	WV	EG-1 - Auxiliary (Emergency) Generator	755	hp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Engine Manufacturer's design; limited to natural gas; and tune-up the engine once every five years.	-	-

Process	Pollutant
Galvanizing Line	$PM/PM_{10}/PM_{2.5}$

		Control Technology	Baghouse / Fabric Filter[a]	Electrostatic Precipitator (ESP)[b,c,d,e]	Wet Scrubber[f]	Cyclone[g]	Good Process Operation
Step 1.	IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES	Control Technology Description	Process exhaust gas passes through a tightly woven or felted fabric arranged in sheets, cartridges, or bags that collect PM via sieving and other mechanisms. The dust cake that accumulates on the filters increases collection efficiency. Various cleaning techniques include pulse-jet, reverse-air, and shaker technologies.	Electrodes stimulate the waste gas and induce an electrical charge in the entrained particles. The resulting electrical field forces the charged particles to the collector walls from which the material may be mechanically dislodged and collected in dry systems or washed with a water deluge in wet systems.	A scrubbing liquid introduced into the gas stream captures and collects entrained particles. In the case of a venturi scrubber, the turbulent airflow atomizes the scrubbing liquid to increase droplet-particle interaction. The droplets containing particles are typically separated from the exhaust gas in a downstream cyclonic separator and/or mist eliminator.	Centrifugal forces drive particles in the gas stream toward the cyclone walls as the waste gas flows through the conical unit. The captured particles are collected in a material hopper below the unit.	Operate and maintain the equipment in accordance with good air pollution control practices.
		Typical Operating Temperature	Up to 500 °F (Typical)	Up to 1,300 °F (dry) Lower than 170 - 190 °F (wet)	40 to 750 °F	Up to 1,000 °F	N/A
		Typical Waste Stream Inlet Flow Rate	100 - 100,000 scfm (Standard) 100,000 - 1,000,000 scfm (Custom)	1,000 - 100,000 scfm (Wire-Pipe) 100,000 - 1,000,000 scfm (Wire-Plate)	500 - 100,000 scfm (units in parallel can operate at greater flowrates)	1.1 - 63,500 scfm (single) Up to 106,000 scfm (in parallel)	N/A
		Typical Waste Stream Inlet Pollutant Concentration	0.5 - 10 gr/dscf (Typical) 0.05 - 100 gr/dscf (Achievable)	0.5 - 5 gr/dscf (Wire-Pipe) 1 - 50 gr/dscf (Wire-Plate)	0.1 - 50 gr/dscf	0.44 - 7,000 gr/dscf	N/A
		Other Considerations	Fabric filters are susceptible to corrosion and blinding by moisture. Appropriate fabrics must be selected for specific process conditions. Accumulations of dust may present fire or explosion hazards.	Dry ESP efficiency varies significantly with dust resistivity. Air leakage and acid condensation may cause corrosion. ESPs are not generally suitable for highly variable processes. Equipment footprint is often substantial.	Effluent stream requires wastewater treatment and solid was disposal. Sludge disposal may be costly. Wet scrubbers are particularly susceptible to corrosion.	Cyclones typically exhibit lower efficiencies when collecting smaller particles. High-efficiency units may require substantial pressure drop. Unable to handle sticky and tacky materials.	N/A
Step 2.	ELIMINATE TECHNICALLY INFEASIBLE OPTIONS	RBLC Database Information	Not included in RBLC for galvanizing lines in steel mills.	Not included in RBLC for galvanizing lines in steel mills.	Included in RBLC for galvanizing lines in steel mills.	Not included in RBLC for galvanizing lines in steel mills.	Not included in RBLC for galvanizing lines in steel mills.
		Feasibility Discussion	Technically infeasible. Exhaust contains nickel which would be expected to corrode a fabric filter unit.	Technically infeasible. Exhaust contains nickel which would be expected to corrode an ESP unit.	Feasible. Typical control option for galvanizing lines in steel mills.	Technically infeasible. Exhaust contains nickel which would be expected to corrode a cyclone.	Feasible
Step 3.	RANK REMAINING CONTROL TECHNOLOGIES	Overall Control Efficiency			70 - 99%		Base Case
Step 4.	EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS	Cost Effectiveness ($/ton)					
Step 5.	SELECT BACT				**BACT Limit: 0.003 gr/dscf**		

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Fabric Filter - Pulse-Jet Cleaned Type)," EPA-452/F-03-025.
b. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Dry Electrostatic Precipitator (ESP) - Wire-Pipe Type)," EPA-452/F-03-027.
c. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Dry Electrostatic Precipitator (ESP) - Wire-Plate Type)," EPA-452/F-03-028.
d. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Wet Electrostatic Precipitator(ESP) - Wire-Pipe Type)," EPA-452/F-03-029.
e. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Wet Electrostatic Precipitator (ESP) - Wire-Plate Type)," EPA-452/F-03-030.
f. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Venturi Scrubber)," EPA-452/F-03-017.
g. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Cyclone)," EPA-452/F-03-005.

RBLC Entries for Galvanizing Line

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	PM Limit	PM Limit Unit	PM Control Technique	Limit 2	Limit 2 Unit	PM10 Limit	PM10 Limit Unit	PM10 Control Technique	Limit 2	Limit 2 Unit	PM2.5 Limit	PM2.5 Limit Unit	PM2.5 Control Technique	Limit 2	Limit 2 Unit
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	GALVANIZING LINE CAUSTIC CLEANING AND POST TREATMENT SN-34 THROUGH 37	Unspecified	-	0.003	GR/DSCF	MIST ELIMINATOR	-	-	0.003	GR/DSCF	MIST ELIMINATOR	-	-	0.003	GR/DSCF	MIST ELIMINATOR	-	-
147-33607-00041	2/24/2015	AK STEEL CORPORATION ROCKPORT WORKS	IN	Steel Coil Finishing Plant	CGL: GALVANIZING LINE ALKALINE CLEANING	184	T/H	-	-	-	-	-	0.551	LB/H	WET SCRUBBER	0.0092	GR/DSCF	-	-	-	-	-
712-0037-X001 & X020	8/14/2019	NUCOR STEEL DECATUR, LLC	AL		120 MMBtu/hr Galvanizing Line	Unspecified	-	0.0075	LB/MMBTU	Good combustion practice and burn natural gas only	0.89	LB/HR	-	-	-	-	-	-	-	-	-	-
2305-AOP-R7	3/17/2021	BIG RIVER STEEL LLC	AR		Galvanizing Line Caustic Cleaning #1 and #2 Pre-Cleaning			0.003	GR/DSCF	Mist Eliminator	-	-	0.030	GR/DSCF	Mist Eliminator	-	-	0.030	GR/DSCF	Mist Eliminator	-	-
1139-AOP-R24	2/14/2019	NUCOR STEEL ARKANSAS	AR		SN-227 Galvanizing Line Zinc Dip			0.1	LB/HR	-	0.44	TPY	0.100	LB/HR	-	0.44	TPY	0.100	LB/HR	-	0.440	TPY
1139-AOP-R24	2/14/2019	NUCOR STEEL ARKANSAS	AR		SN-223 Galvanizing Line Electro Static Olier			0.5	LB/HR	Use of electrostatic oiler for good transfer, Good work practices	-	-	0.500	LB/HR	Use of electrostatic oiler for good transfer Good work practices	2	TPY	0.300	LB/HR	Use of electrostatic oiler for good transfer Good work practices	1.000	TPY
1139-AOP-R24	2/14/2019	NUCOR STEEL ARKANSAS	AR		SN-221 Galvanizing Line Alkali Wash			0.003	GR/DSCF	Mist Eliminator	-	-	0.003	GR/DSCF	-	-	-	0.003	GR/DSCF	Mist Eliminator	-	-
1139-AOP-R24	2/14/2019	NUCOR STEEL ARKANSAS	AR		SN-133 Galv Line No. 1 Electrostatic Oiler			0.5	LB/HR	Use of electrostatic oiler for good transfer Good work practices	2.3	LB/MMBTU	0.500	LB/HR	Use of electrostatic oiler for good transfer Good work practices	2.3	TPY	0.300	LB/HR	Use of electrostatic oiler for good transfer Good work practices	1.200	TPY
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Galv Line #2 Alkali Wash Station (EP 21-07A)			0.003	GR/DSCF	The permittee must develop a Good Work Practices (GWP) Plan to minimize emissions	0.83	TON/YR	0.003	GR/DSCF	The permittee must develop a Good Work Practices (GWP) Plan to minimize emissions	0.83	TON/YR	0.003	GR/DSCF	The permittee must develop a Good Work Practices (GWP) Plan to minimize emissions	0.830	TON/YR
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Galv Line #2 Zinc Dip (EP 21-10)			0.1	LB/HR	The permittee must develop a Good Work Practices (GWP) Plan to minimize emissions	0.44	TON/YR	0.100	LB/HR	The permittee must develop a Good Work Practices (GWP) Plan to minimize emissions	0.44	TON/YR	0.100	LB/HR	The permittee must develop a Good Work Practices (GWP) Plan to minimize emissions	0.440	TON/YR
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Galv Line #2 Electrostatic Oiler (EP 21-14)			0.02	LB/HR	The permittee must develop a Good Work Practices (GWP) Plan to minimize emissions	0.087	TON/YR	0.020	LB/HR	The permittee must develop a Good Work Practices (GWP) Plan to minimize emissions	0.087	TON/YR	0.010	LB/HR	The permittee must develop a Good Work Practices (GWP) Plan to minimize emissions	0.043	TON/YR
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Galvanizing Line Equipment (galvanizing line 2 cleaning section)			0.003	GR/DSCF	Mist Eliminator; Proper Operation and Maintenance	0.19	LB/HR	0.003	GR/DSCF	Mist Eliminator; Proper Operation and Maintenance	0.19	LB/HR	0.003	GR/DSCF	Mist Eliminator; Proper Operation and Maintenance	0.190	LB/HR
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Galvanizing Line Equipment (galvanizing line 2 electrostatic oiler)			0.01	LB/HR	Proper Equipment Design, Operation and Maintenance	-	-	0.010	LB/HR	Proper Equipment Design, Operation and Maintenance	-	-	0.004	LB/HR	Proper Equipment Design, Operation and Maintenance	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Galvanizing Line Equipment (galvanizing line no.2 zinc dipping)			-	-	Proper Operation and Maintenance through Good Housekeeping Practices	-	-	-	-	Proper Operation and Maintenance through Good Housekeeping Practices	-	-	-	-	Proper Operation and Maintenance through Good Housekeeping Practices	-	-
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX		GALVANIZING LINE			0.003	GR/DSCF	Mist Eliminator Scrubber	-	-	0.003	GR/DSCF	Mist Eliminator Scrubber	-	-	0.003	GR/DSCF	Mist Eliminator Scrubber	-	-

Nucor Corporation | West Virginia Steel Mill
Top Down BACT Analysis

Process	Pollutant
Ladle Metallurgical Station	NO_X

		Control Technology	Selective Catalytic Reduction (SCR)[a]	Selective Non-Catalytic Reduction (SNCR)[b]	Non-Selective Catalytic Reduction (NSCR)[c,d]	SCONOX Catalytic Absorption System[e]	Xonon Cool Combustion[e]	Low-NOX Burners (LNBs)[c]	Oxy-Fuel Burners[c]	Good Process Operation
Step 1.	**IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES**	**Control Technology Description**	A nitrogen-based reagent (e.g., ammonia, urea) is injected into the exhaust stream downstream of the combustion unit. The reagent reacts selectively with NOX to produce molecular N2 and water in a reactor vessel containing a metallic or ceramic catalyst.	A nitrogen-based reagent (e.g., ammonia, urea) is injected into the exhaust stream and reacts selectively with NOX to produce molecular N2 and water within the combustion unit.	Metallic catalysts convert NOX, CO, and hydrocarbons to water, nitrogen, and CO2.	Utilizes a single catalyst to remove NOX, CO, and VOC through oxidation.	A catalyst integrated into gas turbine combustors limits the production of NOX through temperature control also resulting in reduced emissions of CO and VOC.	Low-NOX burners employ multi-staged combustion to inhibit the formation of NOX. Primary combustion occurs at lower temperatures under oxygen-deficient conditions; secondary combustion occurs in the presence of excess air.	Oxy-fired burners achieve combustion using oxygen rather than air, which reduces nitrogen levels in the furnace. The lower nitrogen levels result in a reduction in NOX emissions.	Operate and maintain the equipment in accordance with good air pollution control practices and with good combustion practices.
		Typical Operating Temperature	480 - 800 °F (typical SCR systems tolerate temperature variations of ± 200 °F)	1,600 - 2,100 °F (chemical additives can lower reaction temp.)	700 - 1,500 °F	300 - 700 °F	N/A	N/A	N/A	N/A
		Typical Waste Stream Inlet Flow Rate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Typical Waste Stream Inlet Pollutant Concentration	As low as 20 ppm (efficiency improves with increased concentration up to 150 ppm)	200 - 400 ppm	N/A	N/A	N/A	N/A	N/A	N/A
		Other Considerations	Unreacted reagent (ammonia slip) may form ammonium sulfates that may plug or corrode downstream equipment. Ammonia absorption into fly ash may affect ash disposal. Particulate-laden streams may blind the catalyst and may require a sootblower.	Unreacted reagent (ammonia slip) may form ammonium sulfates that may plug or corrode downstream equipment. Ammonia absorption into fly ash may affect ash disposal. The SNCR process produces N2O as a byproduct.	This technique uses a fuel rich mixture that, combined with back pressure from exhaust flow through the catalyst, increases the brake specific fuel consumption of the engine	The SCONOX Catalyst is sensitive to contamination by sulfur, so it must be used in conjunction with the SCOSOX catalyst, which favors sulfur compound absorption.	N/A	N/A	Oxy-fuel burners must be properly applied to prevent the formation of NOX due to the elevated flame temperatures.	N/A
Step 2.	**ELIMINATE TECHNICALLY INFEASIBLE OPTIONS**	**RBLC Database Information**	Not included in RBLC for mini-mill LMF.	Not included in RBLC for mini-mill LMF.	Not included in RBLC for mini-mill LMF.	Not included in RBLC for mini-mill LMF.	Not included in RBLC for mini-mill LMF.	Included in RBLC for mini-mill LMF.	Included in RBLC for mini-mill LMF.	Included in RBLC for mini-mill LMF.
		Feasibility Discussion	Technically infeasible. Locating unit downstream of PM control device would decrease inlet temperature to 300 °F. Heating high-volume exhaust stream to proper temperature would result in increased emissions of NOX. Also, the reagent-to-NOX ratio cannot be feasibly maintained under the significant variation in NOX loading associated with LMS process.	Technically infeasible. Locating unit downstream of PM control device would decrease inlet temperature to 300 °F. Heating high-volume exhaust stream to proper temperature would result in increased emissions of NOX. Also, the reagent-to-NOX ratio cannot be feasibly maintained under the significant variation in NOX loading associated with LMS process.	Technically infeasible. Typically applied only to rich burn engine emissions.	Technically infeasible. Typically applied to power generation turbines.	Technically infeasible. Integrated only in gas turbine combustors.	Feasible	Feasible	Feasible
Step 3.	**RANK REMAINING CONTROL TECHNOLOGIES**	**Overall Control Efficiency**						Up to 80%	20%	Base Case
Step 4.	**EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS**	**Cost Effectiveness ($/ton)**								
Step 5.	**SELECT BACT**							**BACT Limit: 0.05 lb/ton steel**		

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Selective Catalytic Reduction (SCR))," EPA-452/F-03-032.
b. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Selective Non-Catalytic Reduction (SNCR))," EPA-452/F-03-031.
c. U.S. EPA, "Nitrogen Oxides (NOX), Why and How they are Controlled," EPA-456/F-99-006R
d. U.S. EPA, "CAM Technical Guidance Document" Section B-16, January 2005
e. California EPA, Air Resources Board, "Report to the Legislature: Gas-Fired Power Plant NOX Emission Controls and Related Environmental Impacts," http://www.arb.ca.gov/research/apr/reports/l2069.pdf

Process	Pollutant
Ladle Metallurgical Station	CO

		Control Technology	**Non-Selective Catalytic Reduction (NSCR)**[a,b]	**SCONOX Catalytic Absorption System**[c]	**Xonon Cool Combustion**[c]	**Recuperative Thermal Oxidation**[d,e]	**Regenerative Thermal Oxidation**[f]	**Catalytic Oxidation**[g]	**Good Process Operation**
Step 1.	**IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES**	**Control Technology Description**	Metallic catalysts convert NOX, CO, and hydrocarbons to water, nitrogen, and CO2.	Utilizes a single catalyst to remove NOX, CO, and VOC through oxidation.	A catalyst integrated into gas turbine combustors limits the production of NOX through temperature control also resulting in reduced emissions of CO and VOC.	Oxidizes combustible materials by raising the temperature of the material above the auto-ignition point in the presence of oxygen and maintaining the high temperature for sufficient time to complete combustion.	Oxidizes combustible materials by raising the temperature of the material above the auto-ignition point in the presence of oxygen and maintaining the high temperature for sufficient time to complete combustion.	Similar to thermal incineration; waste stream is heated by a flame and then passes through a catalyst bed that increases the oxidation rate more quickly and at lower temperatures.	Operate and maintain the equipment in accordance with good air pollution control practices and with good combustion practices.
		Typical Operating Temperature	700 - 1,500 °F	300 - 700 °F	N/A	1,100 - 1,200 °F	1,400 - 2,000 °F (RTO) 800 °F (RCO)	600 - 800 °F (not to exceed 1,250 °F)	N/A
		Typical Waste Stream Inlet Flow Rate	N/A	N/A	N/A	500 - 50,000 scfm	5,000 - 500,000 scfm	700 - 50,000 scfm	N/A
		Typical Waste Stream Inlet Pollutant Concentration	N/A	N/A	N/A	Best performance at 1,500 - 3,000 ppmv	As low as 100 ppmv or less	As low as 1 ppmv	N/A
		Other Considerations	This technique uses a fuel rich mixture that, combined with back pressure from exhaust flow through the catalyst, increases the brake specific fuel consumption of the engine	The SCONOX Catalyst is sensitive to contamination by sulfur, so it must be used in conjunction with the SCOSOX catalyst, which favors sulfur compound absorption.	N/A	Additional fuel is required to reach the ignition temperature of the waste gas stream. Oxidizers are not recommended for controlling gases with halogen or sulfur containing compounds due to the formation of highly corrosive acid gases.	Pretreatment to remove PM may be necessary for clogging prevention and/or catalyst poisoning. Additional fuel is required to reach the ignition temperature of the waste gas stream.[a]	Catalyst can be deactivated by certain catalyst poisons or other fouling contaminants such as silicone, sulfur, heavy hydrocarbons, and particulates.	N/A
Step 2.	**ELIMINATE TECHNICALLY INFEASIBLE OPTIONS**	**RBLC Database Information**	Not included in RBLC for mini-mill LMF.	Not included in RBLC for mini-mill LMF.	Not included in RBLC for mini-mill LMF.	Not included in RBLC for mini-mill LMF.	Not included in RBLC for mini-mill LMF.	Not included in RBLC for mini-mill LMF.	Included in RBLC for mini-mill LMF.
		Feasibility Discussion	Technically infeasible. Typically applied only to rich burn engine emissions.	Technically infeasible. Typically applied to power generation turbines.	Technically infeasible. Integrated only in gas turbine combustors.	Technically infeasible. Locating unit downstream of PM control device would decrease inlet temperature to 300 °F. Heating high-volume exhaust stream to proper temperature would result in increased emissions of NOX (ozone, PM2.5 precursor) and secondary CO emissions.	Technically infeasible. Locating unit downstream of PM control device would decrease inlet temperature to 300 °F. Heating high-volume exhaust stream to proper temperature would result in increased emissions of NOX (ozone, PM2.5 precursor) and secondary CO emissions.	Technically infeasible. Locating unit downstream of PM control device would decrease inlet temperature to 300 °F. Heating high-volume exhaust stream to proper temperature would result in increased emissions of NOX (ozone, PM2.5 precursor) and secondary CO emissions.	Feasible
Step 3.	**RANK REMAINING CONTROL TECHNOLOGIES**	**Overall Control Efficiency**							Base Case
Step 4.	**EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS**	**Cost Effectiveness ($/ton)**							
Step 5.	**SELECT BACT**								**BACT Limit: 0.02 lb/ton**

a. U.S. EPA, "Nitrogen Oxides (NOX), Why and How they are Controlled," EPA-456/F-99-006R
b. U.S. EPA, "CAM Technical Guidance Document" Section B-16, January 2005
c. California EPA, Air Resources Board, "Report to the Legislature: Gas-Fired Power Plant NOX Emission Controls and Related Environmental Impacts," http://www.arb.ca.gov/research/apr/reports/l2069.pdf
d. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Thermal Incinerator)," EPA-452/F-03-022.
e. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Incinerator - Recuperative Type)," EPA-452/F-03-020.
f. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Regenerative Incinerator)," EPA-452/F-03-021.
g. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Catalytic Incinerator)," EPA-452/F-03-018.

Nucor Corporation | West Virginia Steel Mill
Top Down BACT Analysis

Process	Pollutant
Ladle Metallurgical Station	SO_2

		Control Technology	Impingement-Plate/Tray-Tower Scrubber[a]	Packed-Bed/Packed-Tower Wet Scrubber[b]	Spray-Chamber/Spray-Tower Wet Scrubber[c]	Flue Gas Desulfurization[d]	Good Process Operation
Step 1.	IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES	Control Technology Description	An impingement-plate scrubber promotes contact between the flue gas and a sorbent slurry in a vertical column with transversely mounted perforated trays. Absorption of SO2 is accomplished by countercurrent contact between the flue gas and reagent slurry.	Scrubbing liquid (e.g., NaOH), which is introduced above layers of variously-shaped packing material, flows concurrently against the flue gas stream. The acid gases are absorbed into the scrubbing solution and react with alkaline compounds to produce neutral salts.	Spray tower scrubbers introduce a reagent slurry as atomized droplets through an array of spray nozzles within the scrubbing chamber. The waste gas enters the bottom of the column and travels upward in a countercurrent flow. Absorption of SO2 is accomplished by the contact between the gas and reagent slurry, which results in the formation of neutral salts.	An alkaline reagent is introduced in a spray tower as an aqueous slurry (for wet systems) or is pneumatically injected as a powder in the waste gas ductwork (for dry systems). Absorption of SO2 is accomplished by the contact between the gas and reagent slurry or powder, which results in the formation of neutral salts.	Operate and maintain the equipment in accordance with good air pollution control practices and with good combustion practices, including the use of natural gas.
		Typical Operating Temperature	40 - 100 °F	40 - 100 °F	40 - 100 °F	300 - 700 °F (wet) 300 - 1,830 °F (dry)	N/A
		Typical Waste Stream Inlet Flow Rate	1,000 - 75,000 scfm	500 - 75,000 scfm	1,500 to 100,000 scfm	N/A	N/A
		Typical Waste Stream Inlet Pollutant Concentration	N/A	250 - 10,000 ppmv	250 - 10,000 ppmv	2,000 ppmv	N/A
		Other Considerations	Waste slurry formed in the bottom of the scrubber requires disposal.	To avoid clogging, packed bed wet scrubbers are generally limited to applications in which PM concentrations are less than 0.20 gr/scf)	Waste slurry formed in the bottom of the scrubber requires disposal.	Chlorine emissions can result in salt deposition on the absorber and downstream equipment. Wet systems may require flue gas re-heating downstream of the absorber to prevent corrosive condensation. Dry systems may require cooling inlet streams to minimize deposits.	N/A
Step 2.	ELIMINATE TECHNICALLY INFEASIBLE OPTIONS	RBLC Database Information	Not included in RBLC for mini-mill LMF.	Not included in RBLC for mini-mill LMF.	Not included in RBLC for mini-mill LMF.	Not included in RBLC for mini-mill LMF.	Included in RBLC for mini-mill LMF.
		Feasibility Discussion	Technically infeasible. LMF exhaust temperatures exceed the typical operating ranges provided for wet scrubbers.	Technically infeasible. LMF exhaust temperatures exceed the typical operating ranges provided for wet scrubbers.	Technically infeasible. LMF exhaust temperatures exceed the typical operating ranges provided for wet scrubbers.	Technically infeasible. Concentrations of SO2 in the waste gas fall below the levels typically controlled by FGDs.	Feasible
Step 3.	RANK REMAINING CONTROL TECHNOLOGIES	Overall Control Efficiency					Base Case
Step 4.	EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS	Cost Effectiveness ($/ton)					
Step 5.	SELECT BACT						**BACT Limit: 0.04 lb/ton**

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Impingement-Plate/Tray-Tower Scrubber)," EPA-452/F-03-012.
b. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Packed-Bed/Packed-Tower Wet Scrubber)," EPA-452/F-03-015.
c. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Spray-Chamber/Spray-Tower Wet Scrubber)," EPA-452/F-03-016.
d. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Flue Gas Desulfurization)," EPA-452/F-03-034.

Process	Pollutant
Ladle Metallurgical Station	VOC

		Control Technology	Recuperative Thermal Oxidation[a,b]	Regenerative Thermal Oxidation[c]	Catalytic Oxidation[d]	Carbon / Zeolite Adsorption[e]	Biofiltration[f]	Condenser[g]	Good Process Operation
Step 1.	**IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES**	**Control Technology Description**	Oxidizes combustible materials by raising the temperature of the material above the auto-ignition point in the presence of oxygen and maintaining the high temperature for sufficient time to complete combustion.	Oxidizes combustible materials by raising the temperature of the material above the auto-ignition point in the presence of oxygen and maintaining the high temperature for sufficient time to complete combustion.	Similar to thermal incineration; waste stream is heated by a flame and then passes through a catalyst bed that increases the oxidation rate more quickly and at lower temperatures.	Adsorption technology utilizes a porous solid to selectively collect VOC from the gas stream. Adsorption collects VOC, but does not destroy it.	Exhaust gases containing biodegradable organic compounds are vented, under controlled temperature and humidity, through biologically active material. The microorganisms contained in the bed of bio-material digest or biodegrade the organics to CO2 and water.	Condensers convert a gas or vapor stream to a liquid, allowing the organics within the stream to be recovered, refined, or reused and preventing the release of organic streams into the ambient air.	Operate and maintain the equipment in accordance with good air pollution control practices and with good combustion practices.
		Typical Operating Temperature	1,100 - 1,200 °F	1,400 - 2,000 °F (RTO) 800 °F (RCO)	600 - 800 °F (not to exceed 1,250 °F)	N/A	60 - 105 °F	Hydrocarbon dew point (may be as low as -100 °F)	N/A
		Typical Waste Stream Inlet Flow Rate	500 - 50,000 scfm	5,000 - 500,000 scfm	700 - 50,000 scfm	N/A	600 - 600,000 acfm	Up to 2,000 cfm (10,000 cfm cryogenic)	N/A
		Typical Waste Stream Inlet Pollutant Concentration	Best performance at 1,500 - 3,000 ppmv	As low as 100 ppmv or less	As low as 1 ppmv	As low as 20 ppm	N/A	High concentrations required for efficient control	N/A
		Other Considerations	Additional fuel is required to reach the ignition temperature of the waste gas stream. Oxidizers are not recommended for controlling gases with halogen or sulfur containing compounds due to the formation of highly corrosive acid gases.	Pretreatment to remove PM may be necessary for clogging prevention and/or catalyst poisoning. Additional fuel is required to reach the ignition temperature of the waste gas stream.[a]	Catalyst can be deactivated by certain catalyst poisons or other fouling contaminants such as silicone, sulfur, heavy hydrocarbons, and particulates.	Excessive temperatures may cause desorption of the hydrocarbons or may melt the adsorbent. Adsorbed hydrocarbons may oxidize and cause bed fires.	Temperatures outside the specified range, acidic deposition, or dry exhaust streams will kill or deactivate the microorganisms. Biofiltration systems occupy a large equipment footprint. Large land requirement for traditional design.	Energy required to drive the refrigeration system. Certain compounds may corrode the cooling coils and associated equipment. Particulate material may accumulate within the cooling chamber.	N/A
Step 2.	**ELIMINATE TECHNICALLY INFEASIBLE OPTIONS**	**RBLC Database Information**	Not included in RBLC for mini-mill LMF.	Not included in RBLC for mini-mill LMF.	Not included in RBLC for mini-mill LMF.	Not included in RBLC for mini-mill LMF.	Not included in RBLC for mini-mill LMF.	Not included in RBLC for mini-mill LMF.	Included in RBLC for mini-mill LMF.
		Feasibility Discussion	Technically infeasible. Locating unit downstream of PM control device would decrease inlet temperature to 300 °F. Heating high-volume exhaust stream to proper temperature would result in increased emissions of NOX (ozone, PM2.5 precursor) and secondary CO emissions.	Technically infeasible. Locating unit downstream of PM control device would decrease inlet temperature to 300 °F. Heating high-volume exhaust stream to proper temperature would result in increased emissions of NOX (ozone, PM2.5 precursor) and secondary CO emissions.	Technically infeasible. Locating unit downstream of PM control device would decrease inlet temperature to 300 °F. Heating high-volume exhaust stream to proper temperature would result in increased emissions of NOX (ozone, PM2.5 precursor) and secondary CO emissions.	Technically infeasible. Exhaust gas temperatures exceed typical adsorption temperatures.	Technically infeasible. Exhaust gas temperatures exceed acceptable levels for biofiltration.	Technically infeasible. Exhaust gas flow rates exceed acceptable levels for effective condensation.	Feasible
Step 3.	**RANK REMAINING CONTROL TECHNOLOGIES**	**Overall Control Efficiency**							Base Case
Step 4.	**EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS**	**Cost Effectiveness ($/ton)**							
Step 5.	**SELECT BACT**								**BACT Limit: 0.005 lb/ton**

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Thermal Incinerator)," EPA-452/F-03-022.
b. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Incinerator - Recuperative Type)," EPA-452/F-03-020.
c. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Regenerative Incinerator)," EPA-452/F-03-021.
d. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Catalytic Incinerator)," EPA-452/F-03-018.
e. U.S. EPA, "Choosing an Adsorption System for VOC: Carbon, Zeolite, or Polymers?" EPA-456/F-99-004
f. U.S. EPA, "Using Bioreactors to Control Air Pollution," EPA-456/F-03-003
g. U.S. EPA, "Refrigerated Condensers for Control of Organic Air Emissions," EPA-456/F-01-004

Process	Pollutant
Ladle Metallurgical Station	$PM/PM_{10}/PM_{2.5}$

		Control Technology	Baghouse / Fabric Filter[a]	Electrostatic Precipitator (ESP)[b,c,d,e]	Incinerator[f]	Wet Scrubber[h]	Cyclone[i]	Good Process Operation
Step 1.	IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES	**Control Technology Description**	Process exhaust gas passes through a tightly woven or felted fabric arranged in sheets, cartridges, or bags that collect PM via sieving and other mechanisms. The dust cake that accumulates on the filters increases collection efficiency. Various cleaning techniques include pulse-jet, reverse-air, and shaker technologies.	Electrodes stimulate the waste gas and induce an electrical charge in the entrained particles. The resulting electrical field forces the charged particles to the collector walls from which the material may be mechanically dislodged and collected in dry systems or washed with a water deluge in wet systems.	The combustion of auxiliary fuel heats a combustion chamber to promote the thermal oxidation of partially combusted particulate hydrocarbons in the exhaust stream. Recuperative incinerators utilize heat exchangers to recover heat from the outlet gas which is used to pre-heat the incoming waste stream.	A scrubbing liquid introduced into the gas stream captures and collects entrained particles. In the case of a venturi scrubber, the turbulent airflow atomizes the scrubbing liquid to increase droplet-particle interaction. The droplets containing particles are typically separated from the exhaust gas in a downstream cyclonic separator and/or mist eliminator.	Centrifugal forces drive particles in the gas stream toward the cyclone walls as the waste gas flows through the conical unit. The captured particles are collected in a material hopper below the unit.	Operate and maintain the equipment in accordance with good air pollution control practices.
		Typical Operating Temperature	Up to 500 °F (Typical)	Up to 1,300 °F (dry) Lower than 170 - 190 °F (wet)	1,100 to 1,200 °F	40 to 750 °F	Up to 1,000 °F	N/A
		Typical Waste Stream Inlet Flow Rate	100 - 100,000 scfm (Standard) 100,000 - 1,000,000 scfm (Custom)	1,000 - 100,000 scfm (Wire-Pipe) 100,000 - 1,000,000 scfm (Wire-Plate)	500 - 50,000 scfm	500 - 100,000 scfm (units in parallel can operate at greater flowrates)	1.1 - 63,500 scfm (single) Up to 106,000 scfm (in parallel)	N/A
		Typical Waste Stream Inlet Pollutant Concentration	0.5 - 10 gr/dscf (Typical) 0.05 - 100 gr/dscf (Achievable)	0.5 - 5 gr/dscf (Wire-Pipe) 1 - 50 gr/dscf (Wire-Plate)	As low as 100 ppmv or less (for VOC)[g]	0.1 - 50 gr/dscf	0.44 - 7,000 gr/dscf	N/A
		Other Considerations	Fabric filters are susceptible to corrosion and blinding by moisture. Appropriate fabrics must be selected for specific process conditions. Accumulations of dust may present fire or explosion hazards.	Dry ESP efficiency varies significantly with dust resistivity. Air leakage and acid condensation may cause corrosion. ESPs are not generally suitable for highly variable processes. Equipment footprint is often substantial.	Incinerators may not effectively control highly-variable waste streams. Halogenated or sulfurous compounds may cause corrosion within the incinerator.	Effluent stream requires wastewater treatment and solid was disposal. Sludge disposal may be costly. Wet scrubbers are particularly susceptible to corrosion.	Cyclones typically exhibit lower efficiencies when collecting smaller particles. High-efficiency units may require substantial pressure drop. Unable to handle sticky and tacky materials.	N/A
Step 2.	ELIMINATE TECHNICALLY INFEASIBLE OPTIONS	**RBLC Database Information**	Baghouses are included in the RBLC as a common form of control for PM from LMF.	Not included in RBLC for mini-mill LMF.	Not included in RBLC for mini-mill LMF.	Not included in RBLC for mini-mill LMF.	Not included in RBLC for mini-mill LMF.	Not included in RBLC for mini-mill LMF.
		Feasibility Discussion	Feasible. Typical applications include ferrous metals processing.	Feasible. Typical applications include processes in the metallurgical industry.	Technically infeasible. Concentrations of total particulate in the waste gas fall below the levels typically controlled by incinerators.	Technically infeasible. Concentrations of total particulate in the waste gas fall below the levels typically controlled by wet scrubbers.	Feasible. Typical applications include first-stage PM control for ferrous metallurgical activities.	Feasible
Step 3.	RANK REMAINING CONTROL TECHNOLOGIES	**Overall Control Efficiency**	99 - 99.9%	99 - 99.9%			70 - 99%	Base Case
Step 4.	EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS	**Cost Effectiveness ($/ton)**						
Step 5.	SELECT BACT		**BACT Limit: 0.0018 PM (filterable)/dscf** **0.0052 PM_{10} (total)/dscf** **0.0052 $PM_{2.5}$ (total)/dscf**					

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Fabric Filter - Pulse-Jet Cleaned Type)," EPA-452/F-03-025.
b. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Dry Electrostatic Precipitator (ESP) - Wire-Pipe Type)," EPA-452/F-03-027.
c. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Dry Electrostatic Precipitator (ESP) - Wire-Plate Type)," EPA-452/F-03-028.
d. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Wet Electrostatic Precipitator(ESP) - Wire-Pipe Type)," EPA-452/F-03-029.
e. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Wet Electrostatic Precipitator (ESP) - Wire-Plate Type)," EPA-452/F-03-030.
f. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Incinerator - Recuperative Type)," EPA-452/F-03-020.
g. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Incinerator - Regenerative Type)," EPA-452/F-03-021.
h. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Venturi Scrubber)," EPA-452/F-03-017.
i. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Cyclone)," EPA-452/F-03-005.

Nucor Corporation | West Virginia Steel Mill
RBLC Entries for Ladle Metallurgical Furnace (LMF)

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	NOx Limit	NOx Limit Unit	NOx Control Technique	Limit 2	Limit 2 Unit
53581 & PSDTX 1029M2	10/2/2013	STEEL MILL	TX	Scrap Steel Mill	LADLE FURNACE	316	TPH	0.548	LB/TON OF STEEL	GOOD COMBUSTION PRACTICE	-	-
1139-AOP-R14	2/17/2012	NUCOR CORPORATION - NUCOR STEEL, ARKANSAS	AR	Scrap Steel Mill	LADLE METALLURGY SN-01	Unspecified	-	-	-	-	-	-
75-18	10/29/2018	GERDAU MACSTEEL MONROE	MI	Steel Mill	Ladle metallurgy furnace (EULMF) and two vacuum tank degassers (EUVTD)	130	T/H	10.3	LB/H	-	42.23	T/YR
P0120585	10/2/2017	CHARTER STEEL - CLEVELAND INC	OH	Steel Mill	Ladle Metallurgy Furnace (P901)	110	T/H	-	-	-	-	-
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH	Steel Mini Mill	Twin-Station Ladle Metallurgy Facility (LMF 3/4) (P906)	250	T/H	105	LB/H	DEC systems with air gap	828.5	T/YR
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX	Steel Mini Mill	Ladle Metallurgical Stations (LMS)	Unspecified	-	0.35	LB/TON	GOOD COMBUSTION PRACTICES, CLEAN FUEL	-	-
53581 AND PSDTX1029M3	12/20/2019	STEEL MILL	TX	Steel Mill	Ladle Metallurgy Station	Unspecified	-	0.548	LB/TON	GOOD COMBUSTION PRACTICES	-	-

Nucor Corporation | West Virginia Steel Mill
RBLC Entries for Ladle Metallurgical Furnace (LMF)

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	CO Limit	CO Limit Unit	CO Control Technique	Limit 2	Limit 2 Unit
53581 & PSDTX 1029M2	10/2/2013	STEEL MILL	TX	Scrap Steel Mill	LADLE FURNACE	316	TPH	0.174	LB/TON OF STEEL	GOOD COMBUSTION PRACTICE	-	-
1139-AOP-R14	2/17/2012	NUCOR CORPORATION - NUCOR STEEL, ARKANSAS	AR	Scrap Steel Mill	LADLE METALLURGY SN-01	Unspecified	-	0.02	LB/TON	-	-	-
75-18	10/29/2018	GERDAU MACSTEEL MONROE	MI	Steel Mill	Ladle metallurgy furnace (EULMF) and two vacuum tank degassers (EUVTD)	130	T/H	18.55	LB/H	-	70.69	T/YR
P0120585	10/2/2017	CHARTER STEEL - CLEVELAND INC	OH	Steel Mill	Ladle Metallurgy Furnace (P901)	110	T/H	33	LB/H	-	126.32	T/YR
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH	Steel Mini Mill	Twin-Station Ladle Metallurgy Facility (LMF 3/4) (P906)	250	T/H	500	LB/H	DEC systems with air gap	11603.57	T/YR
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX	Steel Mini Mill	Ladle Metallurgical Stations (LMS)	Unspecified	-	2.02	LB/TON	GOOD COMBUSTION PRACTICES, CLEAN FUEL	-	-
53581 AND PSDTX1029M3	12/20/2019	STEEL MILL	TX	Steel Mill	Ladle Metallurgy Station	Unspecified	-	0.174	LB/TON	GOOD COMBUSTION PRACTICES	-	-

Nucor Corporation | West Virginia Steel Mill
RBLC Entries for Ladle Metallurgical Furnace (LMF)

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	SO2 Limit	SO2 Limit Unit	SO2 Control Technique	Limit 2	Limit 2 Unit
53581 & PSDTX 1029M2	10/2/2013	STEEL MILL	TX	Scrap Steel Mill	LADLE FURNACE	316	TPH	1.41	LB/TON OF STEEL	GOOD PROCESS OPERATION AND SCRAP MANAGEMENT	-	-
1139-AOP-R14	2/17/2012	NUCOR CORPORATION - NUCOR STEEL, ARKANSAS	AR	Scrap Steel Mill	LADLE METALLURGY SN-01	Unspecified	-	0.102	LB/TON	-	-	-
75-18	10/29/2018	GERDAU MACSTEEL MONROE	MI	Steel Mill	Ladle metallurgy furnace (EULMF) and two vacuum tank degassers (EUVTD)	130	T/H	13.05	LB/H	lime coated baghouse bags	45.22	T/YR
P0120585	10/2/2017	CHARTER STEEL - CLEVELAND INC	OH	Steel Mill	Ladle Metallurgy Furnace (P901)	110	T/H	166.16	LB/H	Melt Shop Sulfur-based Good Operating Practices: The permittee shall follow the melt shopâ€™s standard operating procedures as it relates to achieving each heatâ€™s final elemental chemistry specification for sulfur content. This includes any procedures for adjusting the sulfur content in the EAF, LMF and/or VTD.	1.51	LB/T
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH	Steel Mini Mill	Twin-Station Ladle Metallurgy Facility (LMF 3/4) (P906)	250	T/H	87.5	LB/H	The development, implementation, and maintenance of: (a)�scrap management plan; and (b)�work practice plan addressing â€œargon stirringâ€� during LMF desulfurization process.	575.9	T/YR
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX	Steel Mini Mill	Ladle Metallurgical Stations (LMS)	Unspecified	-	0.24	LB/TON	CLEAN SCRAP	-	-
53581 AND PSDTX1029M3	12/20/2019	STEEL MILL	TX	Steel Mill	Ladle Metallurgy Station	Unspecified	-	1.407	LB/TON	SCRAP MANAGEMENT PROGRAM	-	-

Nucor Corporation | West Virginia Steel Mill
RBLC Entries for Ladle Metallurgical Furnace (LMF)

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	VOC Limit	VOC Limit Unit	VOC Control Technique	Limit 2	Limit 2 Unit
53581 & PSDTX 1029M2	10/2/2013	STEEL MILL	TX	Scrap Steel Mill	LADLE FURNACE	316	TPH	0.004	LB/TON OF STEEL	GOOD COMBUSTION PRACTICE AND PROCESS CONTROL	-	-
1139-AOP-R14	2/17/2012	NUCOR CORPORATION - NUCOR STEEL, ARKANSAS	AR	Scrap Steel Mill	LADLE METALLURGY SN-01	Unspecified	-	-	-	-	-	-
75-18	10/29/2018	GERDAU MACSTEEL MONROE	MI	Steel Mill	Ladle metallurgy furnace (EULMF) and two vacuum tank degassers (EUVTD)	130	T/H	-	-	-	-	-
P0120585	10/2/2017	CHARTER STEEL - CLEVELAND INC	OH	Steel Mill	Ladle Metallurgy Furnace (P901)	110	T/H	-	-	-	-	-
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH	Steel Mini Mill	Twin-Station Ladle Metallurgy Facility (LMF 3/4) (P906)	250	T/H	87.5	LB/H	The development, implementation, and maintenance of a scrap management plan.	712.25	T/YR
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX	Steel Mini Mill	Ladle Metallurgical Stations (LMS)	Unspecified	-	0.093	LB/TON	CLEAN SCRAP	-	-
53581 AND PSDTX1029M3	12/20/2019	STEEL MILL	TX	Steel Mill	Ladle Metallurgy Station	Unspecified	-	-	-	-	-	-

Nucor Corporation | West Virginia Steel Mill
RBLC Entries for Ladle Metallurgical Furnace (LMF)

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	PM Limit	PM Limit Unit	PM Control Technique	Limit 2	Limit 2 Unit
53581 & PSDTX 1029M2	10/2/2013	STEEL MILL	TX	Scrap Steel Mill	LADLE FURNACE	316	TPH	-	-	-	-	-
1139-AOP-R14	2/17/2012	NUCOR CORPORATION - NUCOR STEEL, ARKANSAS	AR	Scrap Steel Mill	LADLE METALLURGY SN-01	Unspecified	-	-	-	-	-	-
75-18	10/29/2018	GERDAU MACSTEEL MONROE	MI	Steel Mill	Ladle metallurgy furnace (EULMF) and two vacuum tank degassers (EUVTD)	130	T/H	0.0018	GR/DSCF	Baghouse and evacuation system	3.88	LB/H
P0120585	10/2/2017	CHARTER STEEL - CLEVELAND INC	OH	Steel Mill	Ladle Metallurgy Furnace (P901)	110	T/H	-	-	-	-	-
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH	Steel Mini Mill	Twin-Station Ladle Metallurgy Facility (LMF 3/4) (P906)	250	T/H	19.93	LB/H	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;	87.69	T/YR
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX	Steel Mini Mill	Ladle Metallurgical Stations (LMS)	Unspecified	-	0.0052	GR/DSCF	BAGHOUSE	-	-
53581 AND PSDTX1029M3	12/20/2019	STEEL MILL	TX	Steel Mill	Ladle Metallurgy Station	Unspecified	-	0.0032	GR/DSCF	Use close capture hood 99% efficiency, roof canopy hood with 75% capture. Also use baghouse as add on control.	-	-

RBLC Entries for Ladle Metallurgical Furnace (LMF)

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	PM10 Limit	PM10 Limit Unit	PM10 Control Technique	Limit 2	Limit 2 Unit
53581 & PSDTX 1029M2	10/2/2013	STEEL MILL	TX	Scrap Steel Mill	LADLE FURNACE	316	TPH	0.0052	GR/DSCF	ENCLOSURE, CAPTURE, FABRIC FILTER	-	-
1139-AOP-R14	2/17/2012	NUCOR CORPORATION - NUCOR STEEL, ARKANSAS	AR	Scrap Steel Mill	LADLE METALLURGY SN-01	Unspecified	-	-	-	-	-	-
75-18	10/29/2018	GERDAU MACSTEEL MONROE	MI	Steel Mill	Ladle metallurgy furnace (EULMF) and two vacuum tank degassers (EUVTD)	130	T/H	8.95	LB/H	Baghouse and evacuation system	33.47	T/YR
P0120585	10/2/2017	CHARTER STEEL - CLEVELAND INC	OH	Steel Mill	Ladle Metallurgy Furnace (P901)	110	T/H	-	-	-	-	-
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH	Steel Mini Mill	Twin-Station Ladle Metallurgy Facility (LMF 3/4) (P906)	250	T/H	26.57	LB/H	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;	116.38	T/YR
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX	Steel Mini Mill	Ladle Metallurgical Stations (LMS)	Unspecified	-	0.0052	GR/DSCF	BAGHOUSE	-	-
53581 AND PSDTX1029M3	12/20/2019	STEEL MILL	TX	Steel Mill	Ladle Metallurgy Station	Unspecified	-	-	-	-	-	-

Nucor Corporation | West Virginia Steel Mill
RBLC Entries for Ladle Metallurgical Furnace (LMF)

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	PM2.5 Limit	PM2.5 Limit Unit	PM2.5 Control Technique	Limit 2	Limit 2 Unit
53581 & PSDTX 1029M2	10/2/2013	STEEL MILL	TX	Scrap Steel Mill	LADLE FURNACE	316	TPH	0.0052	GR.DSCF	ENCLOSURE, CAPTURE, FABRIC FILTER	-	-
1139-AOP-R14	2/17/2012	NUCOR CORPORATION - NUCOR STEEL, ARKANSAS	AR	Scrap Steel Mill	LADLE METALLURGY SN-01	Unspecified	-	-	-	-	-	-
75-18	10/29/2018	GERDAU MACSTEEL MONROE	MI	Steel Mill	Ladle metallurgy furnace (EULMF) and two vacuum tank degassers (EUVTD)	130	T/H	0.0018	GR/DSCF	Baghouse and evacuation system	3.88	LB/H
P0120585	10/2/2017	CHARTER STEEL - CLEVELAND INC	OH	Steel Mill	Ladle Metallurgy Furnace (P901)	110	T/H	-	-	-	-	-
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH	Steel Mini Mill	Twin-Station Ladle Metallurgy Facility (LMF 3/4) (P906)	250	T/H	26.57	LB/H	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;	116.38	T/YR
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX	Steel Mini Mill	Ladle Metallurgical Stations (LMS)	Unspecified	-	-	-	-	-	-
53581 AND PSDTX1029M3	12/20/2019	STEEL MILL	TX	Steel Mill	Ladle Metallurgy Station	Unspecified	-	-	-	-	-	-

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	CO_2 Limit	CO_2 Limit Unit	CO_2 Control Technique	Limit 2	Limit 2 Unit	CH_4 Limit	CH_4 Limit Unit	CH_4 Control Technique	Limit 2	Limit 2 Unit	N_2O Limit	N_2O Limit Unit	N_2O Control Technique	Limit 2	Limit 2 Unit	CO_2e Limit	CO_2e Limit Unit	CO_2e Control Technique	Limit 2	Limit 2 Unit
53581 & PSDTX 1029M2	10/2/2013	STEEL MILL	TX	Scrap Steel Mill	LADLE FURNACE	316	TPH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1139-AOP-R14	2/17/2012	NUCOR CORPORATION - NUCOR STEEL, ARKANSAS	AR	Scrap Steel Mill	LADLE METALLURGY SN-01	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
75-18	10/29/2018	GERDAU MACSTEEL MONROE	MI	Steel Mill	Ladle metallurgy furnace (EULMF) and two vacuum tank degassers (EUVTD)	130	T/H	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P0120585	10/2/2017	CHARTER STEEL - CLEVELAND INC	OH	Steel Mill	Ladle Metallurgy Furnace (P901)	110	T/H	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH	Steel Mini Mill	Twin-Station Ladle Metallurgy Facility (LMF 3/4) (P906)	250	T/H	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	73000	LB/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 â€“ single bucket batch charging; (b)oxy-fuel burners â€“ supplement of chemical energy thru scrap preheating and carbon/oxygen injection; (c)foamy slag practice â€“ 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 â€“ regulates energy input and post-combustion temperature and composition; (e)ultra-high-power transformer â€“ lower power-on times due to faster melting of scrap; (f)eccentric bottom tapping â€“ lower treatment requirements in LMF due to reduced slag carryover from tapping; (g)heel practice â€“ higher retention of liquid heel heats scrap faster resulting in quick arc stabilization	594220	T/YR
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX	Steel Mini Mill	Ladle Metallurgical Stations (LMS)	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	GOOD COMBUSTION PRACTICES, CLEAN FUEL	-	-
53581 AND PSDTX1029M3	12/20/2019	STEEL MILL	TX	Steel Mill	Ladle Metallurgy Station	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Nucor Corporation | West Virginia Steel Mill
Top Down BACT Analysis

Process	Pollutant
Scrap Handling	$PM/PM_{10}/PM_{2.5}$

		Control Technology	Baghouse / Fabric Filter[a]	Cyclone[b]	Full / Partial Enclosures[c,d]	Watering / Material Moisture Content[c,d]	Good Process Operation
Step 1.	IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES	Control Technology Description	Process exhaust gas passes through a tightly woven or felted fabric arranged in sheets, cartridges, or bags that collect PM via sieving and other mechanisms. The dust cake that accumulates on the filters increases collection efficiency. Various cleaning techniques include pulse-jet, reverse-air, and shaker technologies.	Centrifugal forces drive particles in the gas stream toward the cyclone walls as the waste gas flows through the conical unit. The captured particles are collected in a material hopper below the unit.	Walls, buildings, ductwork, and other structures limit the escape of fugitive particulate material.	The inherent moisture content of certain materials may limit the generation and dispersion of fugitive dust. For dry materials, spray bars or spray nozzles may be utilized to apply water as necessary throughout the process.	Operate and maintain the equipment in accordance with good air pollution control practices.
		Typical Operating Temperature	Up to 500 °F (Typical)	Up to 1,000 °F	N/A	N/A	N/A
		Typical Waste Stream Inlet Flow Rate	100 - 100,000 scfm (Standard) 100,000 - 1,000,000 scfm (Custom)	1.1 - 63,500 scfm (single) Up to 106,000 scfm (in parallel)	N/A	N/A	N/A
		Typical Waste Stream Inlet Pollutant Concentration	0.5 - 10 gr/dscf (Typical) 0.05 - 100 gr/dscf (Achievable)	0.44 - 7,000 gr/dscf	N/A	N/A	N/A
		Other Considerations	Fabric filters are susceptible to corrosion and blinding by moisture. Appropriate fabrics must be selected for specific process conditions. Accumulations of dust may present fire or explosion hazards.	Cyclones typically exhibit lower efficiencies when collecting smaller particles. High-efficiency units may require substantial pressure drop. Unable to handle sticky and tacky materials.	N/A	N/A	N/A
Step 2.	ELIMINATE TECHNICALLY INFEASIBLE OPTIONS	RBLC Database Information	Included in RBLC for steel mills as a means of control for PM from slag handling activities.	Not included in RBLC for steel mills as a means of control for PM from slag handling activities.	Included in RBLC for steel mills as a means of control for PM from slag handling activities.	Included in RBLC for steel mills as a means of control for PM from slag handling activities.	N/A
		Feasibility Discussion	Technically infeasible. Emissions are fugitive in nature, and equipment is moved within the slag handling area to meet processing needs. Enclosures and capture/control systems may not be feasibly utilized.	Technically infeasible. Emissions are fugitive in nature, and equipment is moved within the slag handling area to meet processing needs. Enclosures and capture/control systems may not be feasibly utilized.	Technically infeasible. Emissions are fugitive in nature, and equipment is moved within the slag handling area to meet processing needs. Enclosures may not be feasibly utilized.	Feasible. Water sprays are applied as needed to prevent emissions of fugitive dust.	Feasible
Step 3.	RANK REMAINING CONTROL TECHNOLOGIES	Overall Control Efficiency				70%	Base Case
Step 4.	EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS	Cost Effectiveness ($/ton)					
Step 5.	SELECT BACT					**BACT Limit: Varies. See BACT Summary in Application Narrative.**	

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Fabric Filter - Pulse-Jet Cleaned Type)," EPA-452/F-03-025.
b. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Cyclone)," EPA-452/F-03-005.
c. Ohio EPA, "Reasonably Available Control Measures for Fugitive Dust Sources," Section 2.1 - General Fugitive Dust Sources
d. Texas Commission on Environmental Quality, "Technical Guidance for Rock Crushing Plants", Draft RG058.

Nucor Corporation | West Virginia Steel Mill
RBLC Entries for Scrap Handling

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	PM Limit	PM Limit Unit	PM Control Technique	Limit 2	Limit 2 Unit	PM_{10} Limit	PM_{10} Limit Unit	PM_{10} Control Technique	Limit 2	Limit 2 Unit	$PM_{2.5}$ Limit	$PM_{2.5}$ Limit Unit	$PM_{2.5}$ Control Technique	Limit 2	Limit 2 Unit
503-0106-X001	3/25/2010	THYSSENKRUP STAINLESS USA, LLC	AL		Alloy, scrap and lime hoppers vented to baghouse (L012)	Unspecified	-	0.0018	GR/DSCF	-	2.09	LB/H	-	-	-	-	-	-	-	-	-	-
503-0106-X001	3/25/2010	THYSSENKRUP STAINLESS USA, LLC	AL		Alloys, scrap and lime hoppers (L05)	Unspecified	-	0.0018	GR/DSCF	Direct control and baghouse.	2.09	LB/H	-	-	-	-	-	-	-	-	-	-
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY		EP 08-01 - Barge Scrap Unloading	1443750	ton/yr	0.003	LB/TON	-	0.22	TON/YR	0.0001	LB/TON	-	0.11	TON/YR	-	LB/TON	-	0.030	TON/YR
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY		EP 08-02 - Rail Scrap Unloading	192500	ton/yr	0.003	LB/TON	-	0.03	TON/YR	0.0001	LB/TON	-	0.01	TON/YR	-	LB/TON	-	0.004	TON/YR
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY		EP 08-03 - Scrap Pile Loading & Unloading	1925000	ton/yr	0.0009	LB/TON	-	1.71	TON/YR	0.0004	LB/TON	-	0.81	TON/YR	0.000	LB/TON	-	0.120	TON/YR
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH		Scrap Unloading (F008)	4070000	T/YR	-	-	-	-	-	1.63	T/YR	Minimization of drop height and the inherent nature of the scrap material in the storage piles.	-	-	0.200	T/YR	Minimization of drop height and the inherent nature of the scrap material in the storage piles.	-	-
2448 AND PSDTX1560	1/2/2020	STEEL MANUFACTURING FACILITY	TX		SCRAP HANDLING	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Nucor Corporation | West Virginia Steel Mill
Top Down BACT Analysis

Process	Pollutant
Slag Processing Equipment	$PM/PM_{10}/PM_{2.5}$

		Control Technology	Baghouse / Fabric Filter[a]	Cyclone[b]	Full / Partial Enclosures[c,d]	Watering / Material Moisture Content[c,d]	Good Process Operation
Step 1.	**IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES**	**Control Technology Description**	Process exhaust gas passes through a tightly woven or felted fabric arranged in sheets, cartridges, or bags that collect PM via sieving and other mechanisms. The dust cake that accumulates on the filters increases collection efficiency. Various cleaning techniques include pulse-jet, reverse-air, and shaker technologies.	Centrifugal forces drive particles in the gas stream toward the cyclone walls as the waste gas flows through the conical unit. The captured particles are collected in a material hopper below the unit.	Walls, buildings, ductwork, and other structures limit the escape of fugitive particulate material.	The inherent moisture content of certain materials may limit the generation and dispersion of fugitive dust. For dry materials, spray bars or spray nozzles may be utilized to apply water as necessary throughout the process.	Operate and maintain the equipment in accordance with good air pollution control practices.
		Typical Operating Temperature	Up to 500 °F (Typical)	Up to 1,000 °F	N/A	N/A	N/A
		Typical Waste Stream Inlet Flow Rate	100 - 100,000 scfm (Standard) 100,000 - 1,000,000 scfm (Custom)	1.1 - 63,500 scfm (single) Up to 106,000 scfm (in parallel)	N/A	N/A	N/A
		Typical Waste Stream Inlet Pollutant Concentration	0.5 - 10 gr/dscf (Typical) 0.05 - 100 gr/dscf (Achievable)	0.44 - 7,000 gr/dscf	N/A	N/A	N/A
		Other Considerations	Fabric filters are susceptible to corrosion and blinding by moisture. Appropriate fabrics must be selected for specific process conditions. Accumulations of dust may present fire or explosion hazards.	Cyclones typically exhibit lower efficiencies when collecting smaller particles. High-efficiency units may require substantial pressure drop. Unable to handle sticky and tacky materials.	N/A	N/A	N/A
Step 2.	**ELIMINATE TECHNICALLY INFEASIBLE OPTIONS**	**RBLC Database Information**	Included in RBLC for steel mills as a means of control for PM from slag handling activities.	Not included in RBLC for steel mills as a means of control for PM from slag handling activities.	Included in RBLC for steel mills as a means of control for PM from slag handling activities.	Included in RBLC for steel mills as a means of control for PM from slag handling activities.	N/A
		Feasibility Discussion	Technically infeasible. Emissions are fugitive in nature, and equipment is moved within the slag handling area to meet processing needs. Enclosures and capture/control systems may not be feasibly utilized.	Technically infeasible. Emissions are fugitive in nature, and equipment is moved within the slag handling area to meet processing needs. Enclosures and capture/control systems may not be feasibly utilized.	Technically infeasible. Emissions are fugitive in nature, and equipment is moved within the slag handling area to meet processing needs. Enclosures may not be feasibly utilized.	Feasible. Water sprays are applied as needed to prevent emissions of fugitive dust.	Feasible
Step 3.	**RANK REMAINING CONTROL TECHNOLOGIES**	**Overall Control Efficiency**				70%	Base Case
Step 4.	**EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS**	**Cost Effectiveness ($/ton)**					
Step 5.	**SELECT BACT**					**BACT Limit: Varies. See BACT Summary in Application Narrative.**	

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Fabric Filter - Pulse-Jet Cleaned Type)," EPA-452/F-03-025.
b. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Cyclone)," EPA-452/F-03-005.
c. Ohio EPA, "Reasonably Available Control Measures for Fugitive Dust Sources," Section 2.1 - General Fugitive Dust Sources
d. Texas Commission on Environmental Quality, "Technical Guidance for Rock Crushing Plants", Draft RG058.

Nucor Corporation | West Virginia Steel Mill
RBLC Entries for Slag Processing Equipment

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	PM Limit	PM Limit Unit	PM Control Technique	Limit 2	Limit 2 Unit	PM_{10} Limit	PM_{10} Limit Unit	PM_{10} Control Technique	Limit 2	Limit 2 Unit	$PM_{2.5}$ Limit	$PM_{2.5}$ Limit Unit	$PM_{2.5}$ Control Technique	Limit 2	Limit 2 Unit
PSD-LA-740	5/24/2010	NUCOR STEEL LOUISIANA	LA	Steel Mill	SLG-401 - SLAG MILL WET SLAG FEED BIN	75.4	T/H	0.03	LB/H	BACT is selected to be wet suppression of dust generating sources (slag granulation) by water sprays. This technology is inherent to the granulated slag process	0.11	T/YR	-	-	-	-	-	-	-	-	-	-
PSD-LA-740	5/24/2010	NUCOR STEEL LOUISIANA	LA	Steel Mill	SLG-402 - SLAG MILL DRYER STACK	75.4	T/H	0.2	LB/H	BACT is selected to be good combustion practices during the operation of the dryer	0.89	T/YR	-	-	-	-	-	-	-	-	-	-
PSD-LA-740	5/24/2010	NUCOR STEEL LOUISIANA	LA	Steel Mill	SLG-403 - SLAG MILL DRYER BAGHOUSE VENT	75.4	T/H	1.79	LB/H	Particulate matter (10 microns or less) >= 99.5 % removal efficiency from filter manufacturer's certification.	7.85	T/YR	-	-	-	-	-	-	-	-	-	-
PSD-LA-740	5/24/2010	NUCOR STEEL LOUISIANA	LA	Steel Mill	SLG-404 - SLAG MILL DRY SLAG FEED BIN BAGHOUSE VENT	75.4	T/H	0.01	LB/H	Particulate matter (10 microns or less) >= 99.5 % removal efficiency from filter manufacturer's certification.	0.05	T/YR	-	-	-	-	-	-	-	-	-	-
PSD-LA-740	5/24/2010	NUCOR STEEL LOUISIANA	LA	Steel Mill	SLG-405 - SLAG MILL CRUSHERS/SCREENERS BAGHOUSE VENT	75.4	T/H	0.5	LB/H	Particulate matter (10 microns or less) >= 99.5 % removal efficiency from filter manufacturer's certification.	2.21	T/YR	-	-	-	-	-	-	-	-	-	-
PSD-LA-740	5/24/2010	NUCOR STEEL LOUISIANA	LA	Steel Mill	SLG-406 - SLAG MILL BUILDING BAGHOUSE VENT	75.4	T/H	4.74	LB/H	Particulate matter (10 microns or less) >= 99.5 % removal efficiency from filter manufacturer's certification.	20.76	T/YR	-	-	-	-	-	-	-	-	-	-
PSD-LA-740	5/24/2010	NUCOR STEEL LOUISIANA	LA	Steel Mill	SLG-407 - SLAG MILL TRANSFER POINTS BAGHOUSE VENT	75.4	T/H	0.01	LB/H	Particulate matter (10 microns or less) >= 99.5 % removal efficiency from filter manufacturer's certification.	0.05	T/YR	-	-	-	-	-	-	-	-	-	-
PSD-LA-740	5/24/2010	NUCOR STEEL LOUISIANA	LA	Steel Mill	SLG-408 - SLAG MILL PRODUCT SILO BAGHOUSE VENT	75.4	T/H	0.75	LB/H	Particulate matter (10 microns or less) >= 99.5 % removal efficiency from filter manufacturer's certification.	3.27	T/YR	-	-	-	-	-	-	-	-	-	-
PSD-LA-740	5/24/2010	NUCOR STEEL LOUISIANA	LA	Steel Mill	SLG-409 - SLAG MILL LOADING COLLECTOR BAGHOUSE VENT	75.4	T/H	1.12	LB/H	Particulate matter (10 microns or less) >= 99.5 % removal efficiency from filter manufacturer's certification.	4.92	T/YR	-	-	-	-	-	-	-	-	-	-
PSD-LA-740	5/24/2010	NUCOR STEEL LOUISIANA	LA	Steel Mill	SLG-101 - Slag Granulator 1 Granulation Tank 1	34.17	T/H	6.16	LB/H	BACT is selected to be wet suppression of dust generating sources (slag granulation) by water sprays. This technology is inherent to the granulated slag process.	-	-	-	-	-	-	-	-	-	-	-	-
PSD-LA-740	5/24/2010	NUCOR STEEL LOUISIANA	LA	Steel Mill	SLG-102 - SLAG GRANULATOR 1 GRANULATION TANK 2	34.17	T/H	3.08	LB/H	BACT is selected to be wet suppression of dust generating sources (slag granulation) by water sprays. This technology is inherent to the granulated slag process.	-	-	-	-	-	-	-	-	-	-	-	-
PSD-LA-740	5/24/2010	NUCOR STEEL LOUISIANA	LA	Steel Mill	SLG-201 - SLAG GRANULATOR 2 GRANULATION TANK 1	34.17	T/H	6.16	LB/H	BACT is selected to be wet suppression of dust generating sources (slag granulation) by water sprays. This technology is inherent to the granulated slag process.	-	-	-	-	-	-	-	-	-	-	-	-
PSD-LA-740	5/24/2010	NUCOR STEEL LOUISIANA	LA	Steel Mill	SLG-202 - SLAG GRANULATOR 2 GRANULATION TANK 2	34.17	T/H	3.08	LB/H	BACT is selected to be wet suppression of dust generating sources (slag granulation) by water sprays. This technology is inherent to the granulated slag process.	-	-	-	-	-	-	-	-	-	-	-	-
PSD-LA-740	5/24/2010	NUCOR STEEL LOUISIANA	LA	Steel Mill	SLG-301 - AIR-COOLED SLAG PROCESSING LOAD BIN	6.83	LB/H	0.01	LB/H	BACT is selected to be wet suppression of dust generating sources (slag granulation) by water sprays. This technology is inherent to the granulated slag process.	0.04	T/YR	-	-	-	-	-	-	-	-	-	-
PSD-LA-740	5/24/2010	NUCOR STEEL LOUISIANA	LA	Steel Mill	SLG-302 - AIR-COOLED SLAG PROCESSING PRIMARY CRUSHER	6.83	T/H	0.04	LB/H	BACT is selected to be wet suppression of dust generating sources (slag granulation) by water sprays. This technology is inherent to the granulated slag process.	0.02	T/YR	-	-	-	-	-	-	-	-	-	-
PSD-LA-740	5/24/2010	NUCOR STEEL LOUISIANA	LA	Steel Mill	SLG-303 - AIR-COOLED SLAG PROCESSING PRIMARY SCREENING	6.83	T/H	0.019	LB/H	BACT is selected to be wet suppression of dust generating sources (slag granulation) by water sprays. This technology is inherent to the granulated slag process.	0.08	T/YR	-	-	-	-	-	-	-	-	-	-
PSD-LA-740	5/24/2010	NUCOR STEEL LOUISIANA	LA	Steel Mill	SLG-304 - AIR-COOLED SLAG PROCESSING SECONDARY CRUSHER	6.83	T/H	0.005	LB/H	BACT is selected to be wet suppression of dust generating sources (slag granulation) by water sprays. This technology is inherent to the granulated slag process.	0.02	T/YR	-	-	-	-	-	-	-	-	-	-
PSD-LA-740	5/24/2010	NUCOR STEEL LOUISIANA	LA	Steel Mill	SLG-305 - AIR-COOLED SLAG PROCESSING SECONDARY SCREEN	6.83	T/H	0.031	LB/H	BACT is selected to be wet suppression of dust generating sources (slag granulation) by water sprays. This technology is inherent to the granulated slag process.	0.14	T/YR	-	-	-	-	-	-	-	-	-	-

RBLC Entries for Slag Processing Equipment

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	PM Limit	PM Limit Unit	PM Control Technique	Limit 2	Limit 2 Unit	PM_{10} Limit	PM_{10} Limit Unit	PM_{10} Control Technique	Limit 2	Limit 2 Unit	$PM_{2.5}$ Limit	$PM_{2.5}$ Limit Unit	$PM_{2.5}$ Control Technique	Limit 2	Limit 2 Unit
PSD-LA-740	5/24/2010	NUCOR STEEL LOUISIANA	LA	Steel Mill	SLG-105 - Blast Furnace 1 Slag Pit 2	28.66	T/H	8.32	LB/H	BACT is determined to be wet suppression of dust generating sources by water sprays at the slag pits after air cooling and prior to removal by a mechanical loader.	2.21	T/YR	-	-	-	-	-	-	-	-	-	-
PSD-LA-740	5/24/2010	NUCOR STEEL LOUISIANA	LA	Steel Mill	SLG-106 - Blast Furnace 1 Slag Pit 3	28.66	T/H	8.32	LB/H	BACT is determined to be wet suppression of dust generating sources by water sprays at the slag pits after air cooling and prior to removal by a mechanical loader.	2.21	T/YR	-	-	-	-	-	-	-	-	-	-
PSD-LA-740	5/24/2010	NUCOR STEEL LOUISIANA	LA	Steel Mill	SLG-204 - Blast Furnace 2 Slag Pit 1	28.66	T/h	8.32	LB/H	BACT is determined to be wet suppression of dust generating sources by water sprays at the slag pits after air cooling and prior to removal by a mechanical loader.	2.21	T/YR	-	-	-	-	-	-	-	-	-	-
PSD-LA-740	5/24/2010	NUCOR STEEL LOUISIANA	LA	Steel Mill	SLG-205 - Blast Furnace 2 Slag Pit 2	28.66	t/h	3.37	LB/H	BACT is determined to be wet suppression of dust generating sources by water sprays at the slag pits after air cooling and prior to removal by a mechanical loader.	2.21	T/YR	-	-	-	-	-	-	-	-	-	-
PSD-LA-740	5/24/2010	NUCOR STEEL LOUISIANA	LA	Steel Mill	SLG-206 - Blast Furnace 2 Slag Pit 3	28.66	t/h	3.37	LB/H	BACT is determined to be wet suppression of dust generating sources by water sprays at the slag pits after air cooling and prior to removal by a mechanical loader.	2.21	T/YR	-	-	-	-	-	-	-	-	-	-
PSD-LA-740	5/24/2010	NUCOR STEEL LOUISIANA	LA	Steel Mill	PIL-105 - Granulated Slag Storage Piles	661	T/H	1.56	LB/H	BACT is selected to be implementation of wet suppression of dust generating sources by water sprays at each storage pile site	3.68	T/YR	-	-	-	-	-	-	-	-	-	-
1050472-001-AC	2/14/2019	NUCOR STEEL FLORIDA FACILITY	FL		Raw and Waste Material Storage and Handling & Slag Yard	Unspecified	-	-	-	Equipment enclosures, water sprays and minimizing wind erosion and drop points	-	-	-	-	-	-	-	-	-	-	-	-
T147-30464-00060	6/27/2012	INDIANA GASIFICATION, LLC	IN		FRONT-END LOADER SLAG HANDLING AND VEHICLE DUST ON SLAG PILE	1440	T/DAY	90	% CONTROL	WET OR CHEMICAL SUPPRESSION	-	-	90	% CONTROL	WET OR CHEMICAL SUPPRESSION	-	-	90.000	% CONTROL	WET OR CHEMICAL SUPPRESSION	-	-
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY		EP 12-01 - Slag Processing Equipment	262500	ton/yr	0.012	LB/TON	Slag Processing (EP 12-01) shall only be performed on wetted material.	1.55	TON/YR	0.005	LB/TON	Slag Processing (EP 12-01) shall only be performed on wetted material.	0.68	TON/YR	0.003	LB/TON	Slag Processing (EP 12-01) shall only be performed on wetted material.	0.390	TON/YR
052016-003	5/12/2016	OWENS CORNING INSULATION SYSTEMS, LLC	MO		cupola, open top, slag as a raw material	Unspecified	-	-	LB/T	good combustion, cyclone, thermal oxidizer, dry sorbent injection, baghouse	-	-	-	LB/T	good combustion, cyclone, thermal oxidizer, dry sorbent injection, baghouse	-	LB/T	-	LB/T	good combustion, cyclone, thermal oxidizer, dry sorbent injection, baghouse	-	LB/T
03-17463	1/11/2010	AK STEEL CORPORATION MANSFIELD WORKS	OH		Slag Skimming and handling operations	270	T/D	-	-	-	-	-	0.19	LB/T	Building enclosure	2.81	T/YR	-	-	-	-	-
03-17463	1/11/2010	AK STEEL CORPORATION MANSFIELD WORKS	OH		Slag handling for ladle metallurgical furnace and argon-O2 decarburization	520	T/D	-	-	-	-	-	0.19	LB/T	Buidling enclosure	4.87	T/YR	-	-	-	-	-

Process	Pollutant
Lime/Carbon/Alloy Handling Systems and DRI Handling System	$PM/PM_{10}/PM_{2.5}$

		Control Technology	Baghouse / Fabric Filter[a]	Cyclone[b]	Full / Partial Enclosures[c,d]	Watering / Material Moisture Content[c,d]	Good Process Operation
Step 1.	IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES	Control Technology Description	Process exhaust gas passes through a tightly woven or felted fabric arranged in sheets, cartridges, or bags that collect PM via sieving and other mechanisms. The dust cake that accumulates on the filters increases collection efficiency. Various cleaning techniques include pulse-jet, reverse-air, and shaker technologies.	Centrifugal forces drive particles in the gas stream toward the cyclone walls as the waste gas flows through the conical unit. The captured particles are collected in a material hopper below the unit.	Walls, buildings, ductwork, and other structures limit the escape of fugitive particulate material.	The inherent moisture content of certain materials may limit the generation and dispersion of fugitive dust. For dry materials, spray bars or spray nozzles may be utilized to apply water as necessary throughout the process.	Operate and maintain the equipment in accordance with good air pollution control practices.
		Typical Operating Temperature	Up to 500 °F (Typical)	Up to 1,000 °F	N/A	N/A	N/A
		Typical Waste Stream Inlet Flow Rate	100 - 100,000 scfm (Standard) 100,000 - 1,000,000 scfm (Custom)	1.1 - 63,500 scfm (single) Up to 106,000 scfm (in parallel)	N/A	N/A	N/A
		Typical Waste Stream Inlet Pollutant Concentration	0.5 - 10 gr/dscf (Typical) 0.05 - 100 gr/dscf (Achievable)	0.44 - 7,000 gr/dscf	N/A	N/A	N/A
		Other Considerations	Fabric filters are susceptible to corrosion and blinding by moisture. Appropriate fabrics must be selected for specific process conditions. Accumulations of dust may present fire or explosion hazards.	Cyclones typically exhibit lower efficiencies when collecting smaller particles. High-efficiency units may require substantial pressure drop. Unable to handle sticky and tacky materials.	N/A	N/A	N/A
Step 2.	ELIMINATE TECHNICALLY INFEASIBLE OPTIONS	RBLC Database Information	Included in RBLC for steel mills as a means of control for PM from material handling.	Not included in RBLC for steel mills as a means of control for PM from slag handling activities.	Included in RBLC for steel mills as a means of control for PM from slag handling activities.	Included in RBLC for steel mills as a means of control for PM from slag handling activities.	N/A
		Feasibility Discussion	Feasible	Potentially feasible	Technically infeasible. Emissions are fugitive in nature, and equipment is moved within the material handling area to meet processing needs. Enclosures may not be feasibly utilized.	Feasible. Water sprays are applied as needed to prevent emissions of fugitive dust.	Feasible
Step 3.	RANK REMAINING CONTROL TECHNOLOGIES	Overall Control Efficiency	99 - 99.9%	70 - 99%		70%	Base Case
Step 4.	EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS	Cost Effectiveness ($/ton)					
Step 5.	SELECT BACT		**BACT Limit: Varies. See BACT Summary in Application Narrative.**			**BACT Limit: Only used for specific emission units. See BACT Summary in Application Narrative.**	

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Fabric Filter - Pulse-Jet Cleaned Type)," EPA-452/F-03-025.

b. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Dry Electrostatic Precipitator (ESP) - Wire-Pipe Type)," EPA-452/F-03-027.
c. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Dry Electrostatic Precipitator (ESP) - Wire-Plate Type)," EPA-452/F-03-028.
d. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Wet Electrostatic Precipitator(ESP) - Wire-Pipe Type)," EPA-452/F-03-029.
e. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Wet Electrostatic Precipitator (ESP) - Wire-Plate Type)," EPA-452/F-03-030.
f. Ohio EPA, "Reasonably Available Control Measures for Fugitive Dust Sources," Section 2.1 - General Fugitive Dust Sources
g. Texas Commission on Environmental Quality, "Technical Guidance for Rock Crushing Plants", Draft RG058.
h. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Venturi Scrubber)," EPA-452/F-03-017.
i. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Cyclone)," EPA-452/F-03-005.

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	PM Limit	PM Limit Unit	PM Control Technique	Limit 2	Limit 2 Unit	PM_{10} Limit	PM_{10} Limit Unit	PM_{10} Control Technique	Limit 2	Limit 2 Unit	$PM_{2.5}$ Limit	$PM_{2.5}$ Limit Unit	$PM_{2.5}$ Control Technique	Limit 2	Limit 2 Unit
AQ0934CPT01	6/30/2017	DONLIN GOLD PROJECT	AK		Mill Reagents Handling	3002	ACFM	0.02	GR/DSCF	Dust Collector	-	-	0.02	GR/DSCF	Dust Collector	-	-	0.020	GR/DSCF	Dust Collector	-	-
411-0008	5/4/2016	MONTEVALLO PLANT	AL		PRODUCT HANDLING SYSTEM	55000	LB/H OF LIME	-	-	-	-	-	0.002	GR/DSCF	FABRIC FILTER BAGHOUSE	-	-	0.002	GR/DSCF	FABRIC FILTER BAGHOUSE	-	-
0310583-001-AC	2/20/2014	JACKSONVILLE LIME	FL		Material Handling Operations	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1050472-001-AC	2/14/2019	NUCOR STEEL FLORIDA FACILITY	FL		Raw and Waste Material Storage and Handling & Slag Yard	Unspecified	-	-	-	r sprays and minimizing v	-	-	-	-	-	-	-	-	-	-	-	-
8100063	9/29/2015	MISSISSIPPI LIME COMPANY	IL		Limestone Handling Operations (Stack Emissions)	Unspecified	-	0.014	GR/DSCF	-	-	-	-	-	-	-	-	-	-	-	-	-
8100063	9/29/2015	MISSISSIPPI LIME COMPANY	IL		Limestone Handling Operations (Fugitive Emissions)	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8100063	9/29/2015	MISSISSIPPI LIME COMPANY	IL		Limestone Handling Operations (Enclosed Building Emissions)	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8100063	9/29/2015	MISSISSIPPI LIME COMPANY	IL		Solid Fuel Handling	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T147-30464-00060	6/27/2012	INDIANA GASIFICATION, LLC	IN		INCOMING SOLID FEEDSTOCK MATERIAL HANDLING SYSTEM - BARGE UNLOADING TO HOPPER TRANSFER POINT	750	T/H	90	% CONTROL	OR CHEMICAL SUPPRES	-	-	90	% CONTROL	WET OR CHEMICAL SUPPRESSION	-	-	90.000	% CONTROL	WET OR CHEMICAL SUPPRESSION	-	-
T147-30464-00060	6/27/2012	INDIANA GASIFICATION, LLC	IN		FRONT-END LOADER SLAG HANDLING AND VEHICLE DUST ON SLAG PILE	1440	T/DAY	90	% CONTROL	OR CHEMICAL SUPPRES	-	-	90	% CONTROL	WET OR CHEMICAL SUPPRESSION	-	-	90.000	% CONTROL	WET OR CHEMICAL SUPPRESSION	-	-
181-32081-00054	4/16/2013	MAGNETATION LLC	IN		MIXING AREA MATERIAL HANDLING SYSTEM	780	T/H	0.002	GR/DSCF	BAGHOUSE CE011	0.34	LB/H	0.002	GR/DSCF	BAGHOUSE CE011	0.34	LB/H	0.002	GR/DSCF	BAGHOUSE CE011	0.340	LB/H
T147-39554-00065	6/11/2019	RIVERVIEW ENERGY CORPORATION	IN		fine additive handling system EU-2007	3.28	TONS/H	0.002	GR/DSCF	Filter EU-2007	0.004	LB/HR	0.002	GR/DSCF	Filter EU-2007	0.004	LB/HR	0.002	GR/DSCF	Filter EU-2007	0.004	LB/HR
T147-39554-00065	6/11/2019	RIVERVIEW ENERGY CORPORATION	IN		sodium sulfide handling system EU-2008	0.08	TONS/H	0.002	GR/DSCF	Filter EU-2008	0.001	LB/HR	0.002	GR/DSCF	EU-2008	0.001	LB/HR	0.002	GR/DSCF	Filter EU-2008	0.001	LB/HR
C-13055	12/14/2015	CHS MCPHERSON REFINERY, INC.	KS		Petroleum Coke Handling System	Unspecified	-	-	-	-	-	-	0.005	GR/DSCF	-	-	-	-	-	-	-	-
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY		EP 06-01 - Lime Handling System (dump station & material transfer)	70000	ton/yr	0.005	GR/DSCF	rate, and maintain a dust	1.16	TON/YR	0.005	GR/DSCF	For the Lime Handling System (dump station & material transfer) (EP 06-01): 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 2000 dscf/min.	0.75	TON/YR	0.005	GR/DSCF	For the Lime Handling System (dump station & material transfer) (EP 06-01): 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 2000 dscf/min.	0.430	TON/YR
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY		EP 06-03 - Carbon Handling System (dump station & material transfer)	35000	ton/yr	0.005	GR/DSCF	erate, and maintain a bin	0.76	TON/YR	0.005	GR/DSCF	For the Carbon Handling System (dump station & material transfer) (EP 06-03): The permittee shall install, operate, and maintain a bin vent filter designed to control particulate grain loading to 0.005 grain/dscf and the flow rate to 2000 dscf/min.	0.56	TON/YR	0.005	GR/DSCF	For the Carbon Handling System (dump station & material transfer) (EP 06-03): The permittee shall install, operate, and maintain a bin vent filter designed to control particulate grain loading to 0.005 grain/dscf and the flow rate to 2000 dscf/min.	0.400	TON/YR
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY		EP 06-05 - Alloy Handling System (dump station & material transfer)	62000	ton/yr	0.005	GR/DSCF	culate grain loading to 0.0	1.41	TON/YR	0.005	GR/DSCF	For the Alloy Handling System (dump station & material transfer) (EP 06-05): The permittee shall install, operate, and maintain dust collectors at the dump station and at the two (2) conveyor transfer points each designed to control particulate grain loading to 0.005 grain/dscf and the flow rate to 1,200 dscf/min and at the storage bins (16 bins) located inside the melt shop building, passive bin vents designed to control particulate grain loading to 0.005 grain/dscf and the flow rate to 200 dscf/min.	1.04	TON/YR	0.005	GR/DSCF	For the Alloy Handling System (dump station & material transfer) (EP 06-05): The permittee shall install, operate, and maintain dust collectors at the dump station and at the two (2) conveyor transfer points each designed to control particulate grain loading to 0.005 grain/dscf and the flow rate to 1,200 dscf/min and at the storage bins (16 bins) located inside the melt shop building, passive bin vents designed to control particulate grain loading to 0.005 grain/dscf and the flow rate to 200 dscf/min.	0.760	TON/YR

RBLC Entries for Lime/Carbon/Alloy Handling Systems and DRI Handling System

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	PM Limit	PM Limit Unit	PM Control Technique	Limit 2	Limit 2 Unit	PM_{10} Limit	PM_{10} Limit Unit	PM_{10} Control Technique	Limit 2	Limit 2 Unit	$PM_{2.5}$ Limit	$PM_{2.5}$ Limit Unit	$PM_{2.5}$ Control Technique	Limit 2	Limit 2 Unit
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY		EP 01-07 - Melt Shop Baghouse Dust Silo & Dust Handling System	43750	tons dust/yr	0.005	GR/DSCF	r designed to control par	0.02	TON/YR	0.005	GR/DSCF	The conveyors are enclosed and the silo is vented to a passive bin vent filter designed to control particulate grain loading to 0.005 grain/dscf and the flow rate to 100 dscf/min.	0.02	TON/YR	0.005	GR/DSCF	The conveyors are enclosed and the silo is vented to a passive bin vent filter designed to control particulate grain loading to 0.005 grain/dscf and the flow rate to 100 dscf/min.	0.020	TON/YR
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Material Handling Sample Line Plasma Cutter (EP 02-06)	3500000	tons steel/yr	0.04	LB/HR	;WP) Plan to minimize er	0.19	TON/YR	0.04	LB/HR	The permittee must develop a Good Work Practices (GWP) Plan to minimize emissions. Equipped with a RoboVent air filtration unit.	0.19	TON/YR	0.040	LB/HR	The permittee must develop a Good Work Practices (GWP) Plan to minimize emissions. Equipped with a RoboVent air filtration unit.	0.190	TON/YR
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		DRI Handling System for Melt Shop #2 (EP 13-11)	1322760	tons/yr	0.001	GR/DSCF	Two powered bin vent filters	0.09	TON/YR	0.001	GR/DSCF	Two powered bin vent filters	0.09	TON/YR	0.001	GR/DSCF	Two powered bin vent filters	0.040	TON/YR
PSD-LA-803(M1)	6/30/2016	LAKE CHARLES METHANOL FACILITY	LA		Coke Handling	Unspecified	-	-	-	-	-	-	0.005	GR/DSCF	baghouses	-	-	0.005	GR/DSCF	baghouses	-	-
PSD-LA-774(M1)	6/4/2015	BENTELER STEEL TUBE FACILITY	LA		Material Handling	Unspecified	-	-	-	-	-	-	0.005	GR/DSCF	baghouses	-	-	0.005	GR/DSCF	baghouses	-	-
PSD-LA-709(M-3)	5/2/2018	PLAQUEMINES PLANT 1	LA		Material Handling and Storage (P-32, P-33, and P-34)	815	MM LB/YR	-	-	-	-	-	0.01	GR/DSCF	Cyclone and Fabric Filter	-	-	0.010	GR/DSCF	Cyclone and Fabric Filter	-	-
PSD-LA-709(M-3)	5/2/2018	PLAQUEMINES PLANT 1	LA		Material Handling and Storage (P-38)	460	ACFM	-	-	-	-	-	0.01	GR/DSCF	Dust Collector	-	-	0.010	GR/DSCF	Dust Collector	-	-
PSD-LA-751(M3)	6/13/2019	DIRECT REDUCED IRON FACILITY	LA		bulk materials storage piles and handling	Unspecified	-	-	-	-	-	-	-	-	Wet suppression and minimizing the handling	-	-	-	-	Wet suppression and minimizing the handling	-	-
PSD-LA-727(M4)	4/25/2019	RED RIVER PLANT	LA		Coal/Activated Carbon handling and storage	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PSD-LA-822(M1)	9/6/2018	GARYVILLE REFINERY	LA		Coke handling and Railcar/truck/barge loading	Unspecified	-	-	-	-	-	-	-	-	Enclosing and wetting	-	-	-	-	Enclosing and wetting	-	-
PSD-LA-822(M2)	9/27/2019	GARYVILLE REFINERY	LA		Coke Handling	Unspecified	-	-	-	-	-	-	-	-	Enclosure and maintaining a minimum moisture content of 8%	-	-	-	-	Enclosure and maintaining a minimum moisture content of 8%	-	-
PSD-LA-779(M7)	7/11/2019	LAKE CHARLES CHEMICAL COMPLEX - ALUMINA UNIT	LA		Material storage, process, and handling	Unspecified	-	-	-	-	-	-	0.02	GR/DSCF	Fabic filters	-	-	0.020	GR/DSCF	Fabric Filter	-	-
PSD-LA-751(M3)	6/13/2019	DIRECT REDUCED IRON FACILITY	LA		Bulk Material Storage Piles and Handling (FUG0023 - FUG0026)	Unspecified	-	-	-	-	-	-	-	-	Wet suppression and minimize handling	-	-	-	-	Wet suppression and minimize handling	-	-
185-16	4/27/2017	EAST JORDAN FOUNDRY LLC	MI		EUWASTESAND (Baghouse waste sand handling)	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
185-16	4/27/2017	EAST JORDAN FOUNDRY LLC	MI		EUCHRGHAND (Charge handling)	128000	T/YR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
185-16	4/27/2017	EAST JORDAN FOUNDRY LLC	MI		EUSHMM (Sand handling & mold making)	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
03700011- 101	1/13/2017	FLINT HILLS RESOURCES PINE BEND REFINERY	MN		#4 Coker Petroleum Coke Handling / FUGI24FUGPM (FUGI133)	Unspecified	-	-	-	-	-	-	8	PERCENT MINIMUM	Enclosed conveyor & coke pit (walls on all four sides) Minimum coke moisture content	-	-	8.000	PERCENT MINIMUM	Enclosed conveyor & coke pit (walls on all four sides) Minimum coke moisture content	-	-
052016-003	5/12/2016	OWENS CORNING INSULATION SYSTEMS, LLC	MO		charge material, solid fuel handling	Unspecified	-	-	-	water spray	-	-	-	-	watering	-	-	-	-	watering	-	-
P0109191	7/18/2012	REPUBLIC STEEL	OH		Flux and Carbon storage material handling	Unspecified	-	-	-	-	-	-	2.4	LB/H	Enclosures and baghouse	1	T/YR	0.370	LB/H	Enclosures and Baghouse	0.200	T/YR
P0123395	2/9/2018	IRONUNITS LLC - TOLEDO HBI	OH		Oxide Handling, Bins, Screens (P901)	Unspecified	-	-	-	-	-	-	1.92	LB/H	baghouses	5.5	T/YR	1.320	LB/H	baghouses	5.190	T/YR
P0125024	2/6/2019	PETMIN USA INCORPORATED	OH		Material Handling (P902)	788000	T/YR	-	-	-	-	-	-	-	Outdoor material handling operations: covered conveyors and transfer points. Indoor material handling operations at the screen building: use baghouse with a design efficiency of 99.9% for PM10/PM2.5. Indoor material handling operations at the EAF building: use baghouse with a design efficiency of 99.9% for PM10/PM2.5	-	-	-	-	Outdoor material handling operations: covered conveyors and transfer points. Indoor material handling operations at the screen building: use baghouse with a design efficiency of 99.9% for PM10/PM2.5. Indoor material handling operations at the EAF building: use baghouse with a design efficiency of 99.9% for PM10/PM2.5	-	-

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	PM Limit	PM Limit Unit	PM Control Technique	Limit 2	Limit 2 Unit	PM_{10} Limit	PM_{10} Limit Unit	PM_{10} Control Technique	Limit 2	Limit 2 Unit	$PM_{2.5}$ Limit	$PM_{2.5}$ Limit Unit	$PM_{2.5}$ Control Technique	Limit 2	Limit 2 Unit
P0125944	8/7/2019	AMG VANADIUM LLC	OH		Melt Shop Feed Handling (P902)	Unspecified	-	0.002	GR/DSCF	g 99% capture efficiency	7.96	T/YR	0.33	T/YR	Vent PM/PM10/PM2.5 emissions from capture emissions points to a baghouse, capable of achieving 99% capture efficiency for fully enclosed transfer points and 90% capture efficiency for partially enclosed transfer points. Fully enclose all uncontrolled transfer points associated with the melt shop feed handling operations in a building. Minimize the drop heights of the material transfer points to the extent possible.	0.002	GR/DSCF	0.050	T/YR	Vent PM/PM10/PM2.5 emissions from capture emissions points to a baghouse, capable of achieving 99% capture efficiency for fully enclosed transfer points and 90% capture efficiency for partially enclosed transfer points. Fully enclose all uncontrolled transfer points associated with the melt shop feed handling operations in a building. Minimize the drop heights of the material transfer points to the extent possible.	0.002	GR/DSCF
P0125944	8/7/2019	AMG VANADIUM LLC	OH		Revan Handling (P907)	90	T/H	0.0018	GR/DSCF	extent possible. iii.Opera	19.41	T/YR	0.0018	GR/DSCF	i.The transfer points associated with the RevanTM handling operations shall occur inside a fully enclosed building. ii.The drop heights of the material transfer points shall be minimized to the extent possible. iii.Operate a hood above the final truck loading transfer point which shall be routed to a baghouse capable of achieving a capture efficiency of 90%, routed to a baghouse with 99.9% efficiency	19.41	T/YR	0.002	GR/DSCF	i.The transfer points associated with the RevanTM handling operations shall occur inside a fully enclosed building. ii.The drop heights of the material transfer points shall be minimized to the extent possible. iii.Operate a hood above the final truck loading transfer point which shall be routed to a baghouse capable of achieving a capture efficiency of 90%, routed to a baghouse with 99.9% efficiency	19.410	T/YR
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH		Baghouse Dust Handling Melt Shop 2 (P031)	Unspecified	-	0.03	LB/H	Bin vent	0.15	T/YR	0.01	LB/H	Bin vent	0.08	T/YR	0.010	LB/H	Bin vent	0.080	T/YR
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH		North Alloy Storage and Handling (F006)	Unspecified	-	0.0024	GR/DSCF	Fabric filter	0.68	LB/H	0.0024	GR/DSCF	Fabric filter	0.68	LB/H	0.002	GR/DSCF	Fabric filter	0.680	LB/H
P0127678	7/17/2020	PETMIN USA INCORPORATED	OH		Material Handling (P902)	850000	T/YR	-	-	-	-	-	-	-	Outdoor material handling operations: covered conveyors and transfer points. The baghouse shall be designed to meet an outlet concentration of 2.5E-3 gr/dscf of PM10.	-	-	-	-	Outdoor material handling operations: covered conveyors and transfer points. The baghouse shall be designed to meet an outlet concentration of 2.5E-3 gr/dscf of PM10.	-	-
2011-441-C(M-2)PSD	5/29/2014	ENID NITROGEN PLANT	OK		Solids Handling and Loading	1600	T/YR	-	-	-	-	-	-	-	Conditioning Agents and Process Enclosures	-	-	-	-	Conditioning Agents and Process Enclosures	-	-
R2-PSD 1	4/10/2014	ENERGY ANSWERS ARECIBO PUERTO RICO RENEWABLE ENERGY PROJECT	PR		Ash Handling System and Storage Silos	Unspecified	-	0.017	MG/DSCM	Fabric Filters	-	-	-	-	-	-	-	-	-	-	-	-
0160-0023	2/8/2012	PYRAMAX CERAMICS, LLC	SC		MATERIAL HANDLING	23.3	T/H	-	-	-	-	-	0.005	GR/DSCF	BAGHOUSE	-	-	0.005	GR/DSCF	BAGHOUSE	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Raw Material Handling and Processing (carbon dump fugitives)	Unspecified	-	-	-	ndards and Proper Oper	-	-	-	-	-	-	-	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Raw Material Handling and Processing (lime dump fugitives)	Unspecified	-	-	-	andards and Proper Oper	-	-	-	-	-	-	-	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Raw Material Handling and Processing (alloy grizzly fugitives)	Unspecified	-	-	-	ndards and Proper Oper	-	-	-	-	-	-	-	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Raw Material Handling and Processing (misc. debris handling)	Unspecified	-	-	-	ndards and Proper Oper	-	-	-	-	-	-	-	-	-	-	-	-
0820-0001-DI	4/29/2019	NUCOR CORPORATION - DARLINGTON PLANT	SC		Raw Material Handling and Maintenance Activities	Unspecified	-	-	-	ctices and follow dust mi	-	-	-	-	Good work practices and follow dust minimization plan.	-	-	-	-	-	-	-
108113/PSDTX1344	3/18/2014	DIRECT REDUCED IRON AND HOT BRIQUETTING FACILITY	TX		MISCELLANEOUS MATERIAL HANDLING PROCESSES	Unspecified	-	-	-	-	-	-	0.0079	GR/DSCF	WATER SPRAYS, ENCLOSED HANDLING, WET SCRUBBERS, FABRIC FILTERS	0.002	GR/DSCF	-	-	-	-	-
6758, PSDTX145M2, GHGPSDTX143,	6/13/2017	ALAMO CEMENT 1604 PLANT	TX		RAW MATERIAL HANDLING	155	T/HR	-	-	-	-	-	-	-	WATER SPRAYS, PARTIAL ENCLOSURE	-	-	-	-	WATER SPRAYS, ENCLOSRE	-	-
7369, PSDTX120M4, AND GHGPSDTX	6/30/2017	CEMENT PLANT	TX		Raw Material Handling Operations and Storage Piles	Unspecified	-	-	-	ER SPRAYS AND ENCLOS	-	-	-	-	WATER SPRAYS AND ENCLOSURES	-	-	-	-	WATER SPRAYS AND ENCLOSURES	-	-

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	PM Limit	PM Limit Unit	PM Control Technique	Limit 2	Limit 2 Unit	PM_{10} Limit	PM_{10} Limit Unit	PM_{10} Control Technique	Limit 2	Limit 2 Unit	$PM_{2.5}$ Limit	$PM_{2.5}$ Limit Unit	$PM_{2.5}$ Control Technique	Limit 2	Limit 2 Unit
7369, PSDTX120M4, AND GHGPSDTX	6/30/2017	CEMENT PLANT	TX		Material Handling, Transport, and Transfer Sources	Unspecified	-	0.01	GR/DSCF	BAGHOUSE	-	-	0.01	GR/DSCF	BAGHOUSE	-	-	0.010	GR/DSCF	BAGHOUSE	-	-
5933, PSDTX63M4, O1120	11/7/2017	PORTLAND CEMENT PLANT	TX		Portland Cement Kiln, Clinker Conveying and Storage, Material Handling	1320000	T / YR	0.01	GR/DSCF	BAGHOUSE	-	-	0.01	GF/DSCF	BAGHOUSE	-	-	0.010	GR/DSCF	BAGHOUSE	-	-
5933, PSDTX63M4, O1120	11/7/2017	PORTLAND CEMENT PLANT	TX		Non-metallic mineral processing, Raw material handling operations and storage piles	Unspecified	-	-	-	AYS AND FULL/PARTIAL	-	-	-	-	WATER SPRAYS AND FULL/PARTIAL ENCLOSURES	-	-	-	-	WATER SPRAYS, FULL/PARTIAL ENCLOSURES	-	-
5296, PSDTX024M2, AND GHGPSDTX	12/6/2017	PORTLAND CEMENT PLANT	TX		Portland Cement Kiln: Material Handling, Transport, and Transfer Sources	3300	TON CLINKER /DAY	0.01	GR/DSCF	BAGHOUSE	-	-	0.01	GR/DSCF	BAGHOUSE	-	-	0.010	GR/DSCF	BAGHOUSE	-	-
5296, PSDTX024M2, AND GHGPSDTX	12/6/2017	PORTLAND CEMENT PLANT	TX		Raw Material Handling Operations and Storage Piles	1000	TON/H	-	-	prays and full or partial e	-	-	-	-	Water sprays and full or partial enclosure	-	-	-	-	Water sprays and full or partial enclosure	-	-
6825A, N65, PSDTX49M1, GHGPSDT	9/16/2018	VALERO PORT ARTHUR REFINERY	TX		Coke Handling	500	t/hr/coke r	-	-	-	-	-	-	-	Maintain coke moisture content of 8% for soft coke and 4.8% for hard coke	-	-	-	-	Maintain coke moisture content of 8% for soft coke and 4.8% for hard coke	-	-
N266, PSDTX1542, GHGPSDTX183	9/9/2019	EQUISTAR CHEMICALS CHANNELVIEW COMPLEX	TX		PRODUCT HANDLING	Unspecified	-	0.005	GR/DSCF	BAGHOUSE	-	-	0.005	GR/DSCF	BAGHOUSE	-	-	0.005	GR/DSCF	BAGHOUSE	-	-
PSDTX1552, GHGPSDTX189	10/24/2019	PORTLAND CEMENT PRODUCTION PLANT	TX		FUEL HOPPER MATERIAL HANDLING	Unspecified	-	0.0044	GR/DSCF	BAGHOUSE	-	-	0.0044	GR/DSCF	BAGHOUSE	-	-	0.004	GR/DSCF	BAGHOUSE	-	-
PSDTX1552, GHGPSDTX189	10/24/2019	PORTLAND CEMENT PRODUCTION PLANT	TX		MATERIAL HANDLING	Unspecified	-	0.0044	GR/DSCF	BAGHOUSE	-	-	0.0044	GR/DSCF	BAGHOUSE	-	-	0.004	GR/DSCF	BAGHOUSE	-	-
PSDTX1552, GHGPSDTX189	10/24/2019	PORTLAND CEMENT PRODUCTION PLANT	TX		RAW MATERIAL HANDLING	Unspecified	-	0.01	GR/DSCF	BAGHOUSE	-	-	0.01	GR/DSCF	BAGHOUSE	-	-	0.010	GR/DSCF	BAGHOUSE	-	-
PSDTX1552, GHGPSDTX189	10/24/2019	PORTLAND CEMENT PRODUCTION PLANT	TX		CLINKER MATERIAL HANDLING	Unspecified	-	0.01	GR/DSCF	BAGHOUSE	-	-	0.01	GR/DSCF	BAGHOUSE	-	-	0.010	GR/DSCF	BAGHOUSE	-	-
PSDTX1552, GHGPSDTX189	10/24/2019	PORTLAND CEMENT PRODUCTION PLANT	TX		FUEL UNLOADING MATERIAL HANDLING	Unspecified	-	0.01	GR/DSCF	BAGHOUSE	-	-	0.01	GR/DSCF	BAGHOUSE	-	-	0.010	GR/DSCF	BAGHOUSE	-	-
PSDTX1552, GHGPSDTX189	10/24/2019	PORTLAND CEMENT PRODUCTION PLANT	TX		PRODUCT FINISH MILL MATERIAL HANDLING	Unspecified	-	0.002	GR/DSCF	BAGHOUSE	-	-	0.002	GR/DSCF	BAGHOUSE	-	-	0.002	GR/DSCF	BAGHOUSE	-	-
PSDTX1552, GHGPSDTX189	10/24/2019	PORTLAND CEMENT PRODUCTION PLANT	TX		FUEL DROP POINTS MATERIAL HANDLING	Unspecified	-	-	-	3 SIDED ENCLOSURE	-	-	-	-	3 SIDED ENCLOSURE	-	-	-	-	3 SIDED ENCLOSURE	-	-
PSDTX1552, GHGPSDTX189	10/24/2019	PORTLAND CEMENT PRODUCTION PLANT	TX		CLINKER DROP POINTS HANDLING	Unspecified	-	-	-	- 4 SIDES AND ROOF WI	-	-	-	-	FULL ENCLOSURE 4 SIDES WITH ROOF AND MINIMAL GAPS	-	-	-	-	FULL ENCLOSURE 4 SIDES AND ROOF WITH MINIMAL GAPS	-	-
2448 AND PSDTX1560	1/2/2020	STEEL MANUFACTURING FACILITY	TX		SCRAP HANDLING	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7808, PSDTX256M3, GHGPSDTX187	11/6/2019	LIME MANUFACTURING PLANT	TX		Material Handling (Conveyors and Feeders)	Unspecified	-	0.005	GR/DSCF	BAGHOUSE	-	-	0.005	GR/DSCF	BAGHOUSE	-	-	0.005	GR/DSCF	BAGHOUSE	-	-
7808, PSDTX256M3, GHGPSDTX187	11/6/2019	LIME MANUFACTURING PLANT	TX		Stone Handling Area Crusher	1428	TON/H	-	-	WATER SPRAYS	-	-	-	-	WATER SPRAYS	-	-	-	-	WATER SPRAYS	-	-
53581 AND PSDTX1029M3	12/20/2019	STEEL MILL	TX		Alloy Transfer Hopper/Handling	Unspecified	-	0.0003	LB/TON	Partial building enclosure	-	-	0.0003	LB/TON	Partial building enclosure	-	-	0.000	LB/TON	Partial building enclosure	-	-
103832 AND N166M3	10/30/2020	CHEVRON PHILLIPS CHEMICAL SWEENY COMPLEX	TX		MELT Handling and Loading (EPN MELT)	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
160299, PSDTX1576, GHGPSDTX200	9/16/2020	DIAMOND GREEN DIESEL PORT ARTHUR FACILITY	TX		MATERIAL HANDLING	Unspecified	-	0.01	GR/DSCF	f 10% or greater are expe	-	-	0.01	GR/DSCF	Emissions from unloading of raw materials and transfer to storage silos and catalyst loading will be controlled by dust collectors with 99% reduction of PM and outlet grain loading of 0.01 gr/dscf. Control emissions from material transfer based upon moisture content of material. Materials with a moisture content of 10% or greater are expected to generate minimal emissions during transfer. Materials with a moisture content less than 10%: will control emissions from transfer points using fabric filters with a 90% control efficiency. Best management practices will be implemented for all materials, including minimization of the number of transfer points	-	-	0.010	GR/DSCF	Emissions from unloading of raw materials and transfer to storage silos and catalyst loading will be controlled by dust collectors with 99% reduction of PM and outlet grain loading of 0.01 gr/dscf. Control emissions from material transfer based upon moisture content of material. Materials with a moisture content of 10% or greater are expected to generate minimal emissions during transfer. Materials with a moisture content less than 10%: will control emissions from transfer points using fabric filters with a 90% control efficiency. Best management practices will be implemented for all materials, including minimization of the number of transfer points	-	-
P0021348	3/27/2017	BIG ISLAND MINE & REFINERY	WY		DC-95 Product Handling Rail Loadout	Unspecified	-	1.03	LB/H	baghouse	-	-	-	-	-	-	-	-	-	-	-	-

Process	Pollutant
Stockpile	$PM/PM_{10}/PM_{2.5}$

		Control Technology	Baghouse / Fabric Filter[a]	Cyclone[b]	Full / Partial Enclosures[c,d]	Watering / Material Moisture Content[c,d]	Good Process Operation
Step 1.	**IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES**	**Control Technology Description**	Process exhaust gas passes through a tightly woven or felted fabric arranged in sheets, cartridges, or bags that collect PM via sieving and other mechanisms. The dust cake that accumulates on the filters increases collection efficiency. Various cleaning techniques include pulse-jet, reverse-air, and shaker technologies.	Centrifugal forces drive particles in the gas stream toward the cyclone walls as the waste gas flows through the conical unit. The captured particles are collected in a material hopper below the unit.	Walls, buildings, ductwork, and other structures limit the escape of fugitive particulate material.	The inherent moisture content of certain materials may limit the generation and dispersion of fugitive dust. For dry materials, spray bars or spray nozzles may be utilized to apply water as necessary throughout the process.	Operate and maintain the equipment in accordance with good air pollution control practices.
		Typical Operating Temperature	Up to 500 °F (Typical)	Up to 1,000 °F	N/A	N/A	N/A
		Typical Waste Stream Inlet Flow Rate	100 - 100,000 scfm (Standard) 100,000 - 1,000,000 scfm (Custom)	1.1 - 63,500 scfm (single) Up to 106,000 scfm (in parallel)	N/A	N/A	N/A
		Typical Waste Stream Inlet Pollutant Concentration	0.5 - 10 gr/dscf (Typical) 0.05 - 100 gr/dscf (Achievable)	0.44 - 7,000 gr/dscf	N/A	N/A	N/A
		Other Considerations	Fabric filters are susceptible to corrosion and blinding by moisture. Appropriate fabrics must be selected for specific process conditions. Accumulations of dust may present fire or explosion hazards.	Cyclones typically exhibit lower efficiencies when collecting smaller particles. High-efficiency units may require substantial pressure drop. Unable to handle sticky and tacky materials.	N/A	N/A	N/A
Step 2.	**ELIMINATE TECHNICALLY INFEASIBLE OPTIONS**	**RBLC Database Information**	Not included in RBLC for steel mills as a means of control for PM from stockpiles.	Not included in RBLC for steel mills as a means of control for PM from stockpiles.	Not included in RBLC for steel mills as a means of control for PM from stockpiles.	Included in RBLC for steel mills as a means of control for PM from stockpiles.	N/A
		Feasibility Discussion	Technically infeasible. Material must be accessible by crane and truck. Enclosures and capture/control systems may not be feasibly utilized.	Technically infeasible. Material must be accessible by crane and truck. Enclosures and capture/control systems may not be feasibly utilized.	Technically infeasible. Material must be accessible by crane and truck. Enclosures systems may not be feasibly utilized.	Feasible. Water sprays are applied as needed to prevent emissions of fugitive dust.	Feasible
Step 3.	**RANK REMAINING CONTROL TECHNOLOGIES**	**Overall Control Efficiency**				70%	Base Case
Step 4.	**EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS**	**Cost Effectiveness ($/ton)**					
Step 5.	**SELECT BACT**					**BACT Limit: Varies. See BACT Summary in Application Narrative.**	

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Fabric Filter - Pulse-Jet Cleaned Type)," EPA-452/F-03-025.
b. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Cyclone)," EPA-452/F-03-005.
c. Ohio EPA, "Reasonably Available Control Measures for Fugitive Dust Sources," Section 2.1 - General Fugitive Dust Sources
d. Texas Commission on Environmental Quality, "Technical Guidance for Rock Crushing Plants", Draft RG058.

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	PM Limit	PM Limit Unit	PM Control Technique	Limit 2	Limit 2 Unit	PM_{10} Limit	PM_{10} Limit Unit	PM_{10} Control Technique	Limit 2	Limit 2 Unit	$PM_{2.5}$ Limit	$PM_{2.5}$ Limit Unit	$PM_{2.5}$ Control Technique	Limit 2	Limit 2 Unit
2348-AOP-R0	8/3/2015	EL DORADO SAWMILL	AR		STORAGE PILES FOR BARK, SAWDUST, WOOD CHIPS SN-12	Unspecified	-	0.02	LB/T	WATERING PILES	-	-	-	-	-	-	-	-	-	-	-	-
98PB0893	7/9/2012	RIO GRANDE CEMENT PLANT	CO		Storage Piles	Unspecified	-	-	-	-	-	-	-	-	Plant storage â€“ BACT is determined to be use of enclosure (covering the storage pile with tarps) Quarry storage â€“ BACT is determined to be use of the inherent moisture content supplemented with water application as needed.	-	-	-	-	-	-	-
8100063	9/29/2015	MISSISSIPPI LIME COMPANY	IL		Limestone and solid fuel storage piles	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T147-30464-00060	6/27/2012	INDIANA GASIFICATION, LLC	IN		TRANSFER SYSTEMS CONSISTING OF HOPPERS AND CONVEYOR BELTS TRANSFERRING FEED STOCK FROM THE PILES TO CLASSIFICATION TOWERS; CLASSIFICATION TOWERS; AND	750	T/H	0.003	GR/DSCF	WET DUST EXTRACTION OR A BAGHOUSE	-	-	0.003	GR/DSCF	WET DUST EXTRACTION OR A BAGHOUSE	-	-	0.0015	GR/DSCF	WET DUST EXTRACTION OR A BAGHOUSE	-	-
T147-30464-00060	6/27/2012	INDIANA GASIFICATION, LLC	IN		TWO (2) RADIAL STACKERS TO THE PILE	3000	T/H	0.003	GR/DSCF	TELESCOPING CHUTE WITH DUST COLLECTION	-	-	0.003	GR/DSCF	TELESCOPING CHUTE WITH DUST COLLECTION	-	-	0.0015	GR/DSCF	TELESCOPING CHUTE WITH DUST COLLECTION	-	-
T147-30464-00060	6/27/2012	INDIANA GASIFICATION, LLC	IN		TWO (2) STORAGE PILES	300000	TONS EACH	90	% CONTROL	WET SUPPRESSION WITH PILE COMPACTION	-	-	90	% CONTROL	WET SUPPRESSION WITH PILE COMPACTION	-	-	90	% CONTROL	WET SUPPRESSION WITH PILE COMPACTION	-	-
T147-30464-00060	6/27/2012	INDIANA GASIFICATION, LLC	IN		FRONT-END LOADER SLAG HANDLING AND VEHICLE DUST ON SLAG PILE	1440	T/DAY	90	% CONTROL	WET OR CHEMICAL SUPPRESSION	-	-	90	% CONTROL	WET OR CHEMICAL SUPPRESSION	-	-	90	% CONTROL	WET OR CHEMICAL SUPPRESSION	-	-
181-32081-00054	4/16/2013	MAGNETATION LLC	IN		LIMESTONE CONVEYOR & ENCLOSED STORAGE (PILE)	495	T/H	0.05	LB/H	DEVELOPMENT, MAINTENANCE, AND IMPLEMENTATION OF A SITE-SPECIFIC FUGITIVE DUST CONTROL PLAN AND ENCLOSURE	0.1	T/YR	0.02	LB/H	DEVELOPMENT, MAINTENANCE, AND IMPLEMENTATION OF A SITE-SPECIFIC FUGITIVE DUST CONTROL PLAN AND ENCLOSURE	0.04	T/YR	0.02	LB/H	DEVELOPMENT, MAINTENANCE, AND IMPLEMENTATION OF A SITE-SPECIFIC FUGITIVE DUST CONTROL PLAN AND ENCLOSURE	0.04	T/YR
T147-39554-00065	6/11/2019	RIVERVIEW ENERGY CORPORATION	IN		coal stockpiles	5000	TONS/H	0.002	GR/DSCF	negative pressure enclosure and baghouse EU-1006	0.11	LB/HR	0.002	GR/DSCF	negative pressure enclosure and baghouse EU-1006	0.11	LB/HR	0.002	GR/DSCF	negative pressure enclosure and baghouse EU-1006	0.11	LB/HR
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY		EP 08-03 - Scrap Pile Loading & Unloading	1925000	ton/yr	0.0009	LB/TON	-	1.71	TON/YR	0.0004	LB/TON	-	0.81	TON/YR	0.0001	LB/TON	-	0.12	TON/YR
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY		EP 12-02 - Slag Processing Piles	262500	tons/yr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PSD-LA-751(M3)	6/13/2019	DIRECT REDUCED IRON FACILITY	LA		bulk materials storage piles and handling	Unspecified	-	-	-	-	-	-	-	-	Wet suppression and minimizing the handling	-	-	-	-	Wet suppression and minimizing the handling	-	-
PSD-LA-751(M3)	6/13/2019	DIRECT REDUCED IRON FACILITY	LA		Bulk Material Storage Piles and Handling (FUG0023 - FUG0026)	Unspecified	-	-	-	-	-	-	-	-	Wet suppression and minimize handling	-	-	-	-	Wet suppression and minimize handling	-	-
06100067-004	5/10/2012	ESSAR STEEL MINNESOTA LLC	MN		OXIDE PELLET STOCKPILE CONVEYOR GALLERY	Unspecified	-	-	-	-	-	-	0.002	GR/DSCF	FABRIC FILTER WITH LEAK DETECTION	0.77	LB/H	0.002	GR/DSCF	FABRIC FILTER WITH LEAK DETECTION	0.77	LB/H
06100067-004	5/10/2012	ESSAR STEEL MINNESOTA LLC	MN		120K TON CONCENTRATE STOCKPILE LOADING	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P0123395	2/9/2018	IRONUNITS LLC - TOLEDO HBI	OH		Oxide storage piles (F002)	Unspecified	-	-	-	-	-	-	1.52	T/YR	Use of water or chemical suppressant and minimize drop height	-	-	0.33	T/YR	Use of water or chemical suppressant and minimize drop height	-	-
2015-0643-C PSD	1/19/2016	CMC STEEL OKLAHOMA	OK		Storage Piles : Refractory and Slag	Unspecified	-	-	-	One BACT determination for outdoor material piles: minimizing drop height. In addition, use of windbreaks and watering of piles may be used, although watering may result in unacceptable solidification of slag or other materials discharged from high-temperature operations. Most of the outdoor piles materials are scrap steel which has very little brittle materials susceptible to becoming fugitive dust.	-	-	-	-	-	-	-	-	-	-	-	-
PSDTX1344 AND 108113	3/13/2014	DIRECT REDUCED IRON AND HOT BRIQUETTING FACILITY	TX		Oxide Pellet Pile Transfer and Dedusting (Pre-Enclosure)	3197250	tons per year	0.002	GR/DSCF	Capture and exhausting through a fabric filter having a design outlet grain loading not greater than 0.002 grains per dry standard cubic foot (gr/dscf) of air flow. Also, hooded conveyors and enclosed transfer points will be installed to limit emissions from material handling.	-	-	0.002	GR/DSCF	Capture and exhausting through a fabric filter having a design outlet grain loading not greater than 0.002 grains per dry standard cubic foot (gr/dscf) of air flow. Also, hooded conveyors and enclosed transfer points will be installed to limit emissions from material handling.	-	-	0.002	GR/DSCF	Capture and exhausting through a fabric filter having a design outlet grain loading not greater than 0.002 grains per dry standard cubic foot (gr/dscf) of air flow. Also, hooded conveyors and enclosed transfer points will be installed to limit emissions from material handling.	-	-

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	PM Limit	PM Limit Unit	PM Control Technique	Limit 2	Limit 2 Unit	PM_{10} Limit	PM_{10} Limit Unit	PM_{10} Control Technique	Limit 2	Limit 2 Unit	$PM_{2.5}$ Limit	$PM_{2.5}$ Limit Unit	$PM_{2.5}$ Control Technique	Limit 2	Limit 2 Unit
PSDTX1344 AND 108113	3/13/2014	DIRECT REDUCED IRON AND HOT BRIQUETTING FACILITY	TX		Oxide Pellet Pile Transfer and Dedusting (Post-Enclosure)	3197250	tons per year	0.002	GR/DSCF	Capture and exhausting through a fabric filter having a design outlet grain loading not greater than 0.002 grains per dry standard cubic foot (gr/dscf) of air flow. Also, hooded conveyors and enclosed transfer points will be installed to limit emissions from material handling.	-	-	0.002	GR/DSCF	Capture and exhausting through a fabric filter having a design outlet grain loading not greater than 0.002 grains per dry standard cubic foot (gr/dscf) of air flow. Also, hooded conveyors and enclosed transfer points will be installed to limit emissions from material handling.	-	-	0.002	GR/DSCF	Capture and exhausting through a fabric filter having a design outlet grain loading not greater than 0.002 grains per dry standard cubic foot (gr/dscf) of air flow. Also, hooded conveyors and enclosed transfer points will be installed to limit emissions from material handling.	-	-
PSDTX1344 AND 108113	3/13/2014	DIRECT REDUCED IRON AND HOT BRIQUETTING FACILITY	TX		Transfer and Product Screening Station No. 1 (Pre-Pile)	2205000	-	0.002	GR/DSCF	Fabric filter baghouse with an OLGL not greater than 0.002 gr/dscf with hooded conveyors and enclosed transfer points.	-	-	0.002	GR/DSCF	Fabric filter baghouse with an OLGL not greater than 0.002 gr/dscf with hooded conveyors and enclosed transfer points.	-	-	0.002	GR/DSCF	Fabric filter baghouse with an OLGL not greater than 0.002 gr/dscf with hooded conveyors and enclosed transfer points.	-	-
PSDTX1344 AND 108113	3/13/2014	DIRECT REDUCED IRON AND HOT BRIQUETTING FACILITY	TX		Transfer and Product Screening Station No. 2 (Post Pile)	2205000	tons per year	0.002	GR/DSCF	Fabric filter baghouse with an OLGL not greater than 0.002 gr/dscf with hooded conveyors and enclosed transfer points.	-	-	0.002	GR/DSCF	Fabric filter baghouse with an OLGL not greater than 0.002 gr/dscf with hooded conveyors and enclosed transfer points.	-	-	0.002	GR/DSCF	Fabric filter baghouse with an OLGL not greater than 0.002 gr/dscf with hooded conveyors and enclosed transfer points.	-	-
PSDTX1344 AND 108113	3/13/2014	DIRECT REDUCED IRON AND HOT BRIQUETTING FACILITY	TX		HBI Product Storage Piles	2205000	tons per year	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7369, PSDTX120M4, AND GHGPSDTX	6/30/2017	CEMENT PLANT	TX		Raw Material Handling Operations and Storage Piles	Unspecified	-	-	-	WATER SPRAYS AND ENCLOSURES	-	-	-	-	WATER SPRAYS AND ENCLOSURES	-	-	-	-	WATER SPRAYS AND ENCLOSURES	-	-
5933, PSDTX63M4, O1120	11/7/2017	PORTLAND CEMENT PLANT	TX		Non-metallic mineral processing, Raw material handling operations and storage piles	Unspecified	-	-	-	WATER SPRAYS AND FULL/PARTIAL ENCLOSURES	-	-	-	-	WATER SPRAYS AND FULL/PARTIAL ENCLOSURES	-	-	-	-	WATER SPRAYS, FULL/PARTIAL ENCLOSURES	-	-
5296, PSDTX024M2, AND GHGPSDTX	12/6/2017	PORTLAND CEMENT PLANT	TX		Raw Material Handling Operations and Storage Piles	1000	TON/H	-	-	Water sprays and full or partial enclosure	-	-	-	-	Water sprays and full or partial enclosure	-	-	-	-	Water sprays and full or partial enclosure	-	-
PSDTX1552, GHGPSDTX189	10/24/2019	PORTLAND CEMENT PRODUCTION PLANT	TX		RAW MATERIAL STOCKPILES	Unspecified	-	-	-	BUILDING ENCLOSURE	-	-	-	-	BUILDING ENCLOSURE	-	-	-	-	BUILDING ENCLOSURE	-	-

Process	Pollutant
Lime/Carbon/Alloy/DRI Silos and Bins	$PM/PM_{10}/PM_{2.5}$

		Control Technology	Baghouse / Fabric Filter[a]	Electrostatic Precipitator (ESP)[b,c,d,e]	Material Moisture Content[f,g]	Wet Scrubber[h]	Cyclone[i]	Good Process Operation
Step 1.	IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES	**Control Technology Description**	Process exhaust gas passes through a tightly woven or felted fabric arranged in sheets, cartridges, or bags that collect PM via sieving and other mechanisms. The dust cake that accumulates on the filters increases collection efficiency. Various cleaning techniques include pulse-jet, reverse-air, and shaker technologies.	Electrodes stimulate the waste gas and induce an electrical charge in the entrained particles. The resulting electrical field forces the charged particles to the collector walls from which the material may be mechanically dislodged and collected in dry systems or washed with a water deluge in wet systems.	The inherent moisture content of certain materials may limit the generation and dispersion of fugitive dust. For dry materials, spray bars or spray nozzles may be utilized to apply water as necessary throughout the process.	A scrubbing liquid introduced into the gas stream captures and collects entrained particles. In the case of a venturi scrubber, the turbulent airflow atomizes the scrubbing liquid to increase droplet-particle interaction. The droplets containing particles are typically separated from the exhaust gas in a downstream cyclonic separator and/or mist eliminator.	Centrifugal forces drive particles in the gas stream toward the cyclone walls as the waste gas flows through the conical unit. The captured particles are collected in a material hopper below the unit.	Operate and maintain the equipment in accordance with good air pollution control practices.
		Typical Operating Temperature	Up to 500 °F (Typical)	Up to 1,300 °F (dry) Lower than 170 - 190 °F (wet)	N/A	40 to 750 °F	Up to 1,000 °F	N/A
		Typical Waste Stream Inlet Flow Rate	100 - 100,000 scfm (Standard) 100,000 - 1,000,000 scfm (Custom)	1,000 - 100,000 scfm (Wire-Pipe) 100,000 - 1,000,000 scfm (Wire-Plate)	N/A	500 - 100,000 scfm (units in parallel can operate at greater flowrates)	1.1 - 63,500 scfm (single) Up to 106,000 scfm (in parallel)	N/A
		Typical Waste Stream Inlet Pollutant Concentration	0.5 - 10 gr/dscf (Typical) 0.05 - 100 gr/dscf (Achievable)	0.5 - 5 gr/dscf (Wire-Pipe) 1 - 50 gr/dscf (Wire-Plate)	N/A	0.1 - 50 gr/dscf	0.44 - 7,000 gr/dscf	N/A
		Other Considerations	Fabric filters are susceptible to corrosion and blinding by moisture. Appropriate fabrics must be selected for specific process conditions. Accumulations of dust may present fire or explosion hazards.	Dry ESP efficiency varies significantly with dust resistivity. Air leakage and acid condensation may cause corrosion. ESPs are not generally suitable for highly variable processes. Equipment footprint is often substantial.	N/A	Effluent stream requires wastewater treatment and solid was disposal. Sludge disposal may be costly. Wet scrubbers are particularly susceptible to corrosion.	Cyclones typically exhibit lower efficiencies when collecting smaller particles. High-efficiency units may require substantial pressure drop. Unable to handle sticky and tacky materials.	N/A
Step 2.	ELIMINATE TECHNICALLY INFEASIBLE OPTIONS	**RBLC Database Information**	Included in RBLC for steel mills as a means of control for PM from storage silos/bins.	Not included in RBLC for steel mills as a means of control for PM from storage silos/bins.	Included in RBLC for steel mills as a means of control for PM from storage silos/bins.	Not included in RBLC for steel mills as a means of control for PM from storage silos/bins.	Not included in RBLC for steel mills as a means of control for PM from storage silos/bins.	N/A
		Feasibility Discussion	Feasible	Potentially feasible	Feasible	Potentially feasible	Potentially feasible	Feasible
Step 3.	RANK REMAINING CONTROL TECHNOLOGIES	**Overall Control Efficiency**	99 - 99.9%	99 - 99.9%	70%	70 - 99%	70 - 99%	Base Case
Step 4.	EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS	**Cost Effectiveness ($/ton)**						
Step 5.	SELECT BACT		**BACT Limit: 0.005 gr/dscf**					

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Fabric Filter - Pulse-Jet Cleaned Type)," EPA-452/F-03-025.
b. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Dry Electrostatic Precipitator (ESP) - Wire-Pipe Type)," EPA-452/F-03-027.
c. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Dry Electrostatic Precipitator (ESP) - Wire-Plate Type)," EPA-452/F-03-028.
d. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Wet Electrostatic Precipitator(ESP) - Wire-Pipe Type)," EPA-452/F-03-029.
e. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Wet Electrostatic Precipitator (ESP) - Wire-Plate Type)," EPA-452/F-03-030.
f. Ohio EPA, "Reasonably Available Control Measures for Fugitive Dust Sources," Section 2.1 - General Fugitive Dust Sources
g. Texas Commission on Environmental Quality, "Technical Guidance for Rock Crushing Plants", Draft RG058.
h. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Venturi Scrubber)," EPA-452/F-03-017.
i. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Cyclone)," EPA-452/F-03-005.

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	PM Limit	PM Limit Unit	PM Control Technique	Limit 2	Limit 2 Unit	PM_{10} Limit	PM_{10} Limit Unit	PM_{10} Control Technique	Limit 2	Limit 2 Unit	$PM_{2.5}$ Limit	$PM_{2.5}$ Limit Unit	$PM_{2.5}$ Control Technique	Limit 2	Limit 2 Unit
183-27145-00030	12/21/2012	STEEL DYNAMICS, INC. - STRUCTURAL AND RAIL DIVISION	IN	Stationary Steel Beam Mini Mill	Three Storage Bin/Silos Id#12a, 12b, and 12c	Unspecified	-	0.01	GR/DSCF	BIN VENT FILTER	3	% OPACITY	0.01	GR/DSCF	BIN VENT FILTER	3	% OPACITY	-	-	-	-	-
033-34498-00043	11/5/2015	STEEL DYNAMICS INC. - FLAT ROLL DIVISION	IN	Steel Mini Mill	Cold Mill Water Treatment Storage Silo	Unspecified	-	0.01	GR/DSCF	BIN VENT	3	% OPACITY	0.01	GR/DSCF	BIN VENT	3	% OPACITY	-	-	-	-	-
033-34498-00043	11/5/2015	STEEL DYNAMICS INC. - FLAT ROLL DIVISION	IN	Steel Mini Mill	Lime / Carbon Storage Silos	Unspecified	-	0.01	GR/DSCF	BIN VENT	3	% OPACITY	0.01	GR/DSCF	BIN VENT	3	% OPACITY	-	-	-	-	-
502-0001-X047	6/11/2014	GEORGIA PACIFIC BRETON LLC	AL		Fresh Lime Silo - Lime Storage Silos	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
502-0001-X047	6/11/2014	GEORGIA PACIFIC BRETON LLC	AL		Re-Burned Lime - Lime Storage Silos	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
309-0072-X001	6/24/2015	RESOLUTE FOREST PRODUCTS - ALABAMA SAWMILL	AL		Sawmill operations including chipper, debarker and kiln fuel silos.	325	mmbf/yr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1139-AOP-R24	2/14/2019	NUCOR STEEL ARKANSAS	AR		SN-136 SN-144 DRI Conveyors/SIlos DRI Unloading	Unspecified	-	0.001	GR/DSCF	Fabric Filter	-	-	0.001	GR/DSCF	Fabric Filter	-	-	0.001	GR/DSCF	Fabric Filter	-	-
0890444-001-AC	10/18/2016	LIGNOTECH FLORIDA	FL		Storage silos and packaging bins	7.2	tons per hour	0.002	GRAINS PER DSCF	Baghouse or bin-vent filters	-	-	0.002	GRAINS PER DSCF	Baghouse or bin-vent filters	-	-	0.002	GRAINS PER DSCF	Baghouse or bin-vent filters	-	-
1050472-001-AC	2/14/2019	NUCOR STEEL FLORIDA FACILITY	FL		Silos	Unspecified	-	0.005	GR/DSCF	Bin vent filters	-	-	-	-	-	-	-	-	-	-	-	-
183-27145-00030	12/21/2012	STEEL DYNAMICS, INC. - STRUCTURAL AND RAIL DIVISION	IN		THREE STORAGE BIN/SILOS ID#12A, 12B, AND 12C	Unspecified	-	0.01	GR/DSCF	BIN VENT FILTER	3	% OPACITY	0.01	GR/DSCF	BIN VENT FILTER	3	% OPACITY	-	-	-	-	-
033-34498-00043	11/5/2015	STEEL DYNAMICS INC. - FLAT ROLL DIVISION	IN		COLD MILL WATER TREATMENT STORAGE SILO	0.01	GR/DSCF	0.01	GR/DSCF	BIN VENT	3	% OPACITY	0.01	GR/DSCF	BIN VENT	3	% OPACITY	-	-	-	-	-
033-34498-00043	11/5/2015	STEEL DYNAMICS INC. - FLAT ROLL DIVISION	IN		LIME / CARBON STORAGE SILOS	0.01	GR/DSCF	0.01	GR/DSCF	BIN VENT	3	% OPACITY	0.01	GR/DSCF	BIN VENT	3	% OPACITY	-	-	-	-	-
T147-39554-00065	6/11/2019	RIVERVIEW ENERGY CORPORATION	IN		Lime silo EU-6501	20	TONS/H	0.002	GR/DSCF	Filter EU-6501	0.01	LB/HR	0.002	GR/DSCF	Filter EU-6501	0.01	LB/HR	0.002	GR/DSCF	Filter EU-6501	0.010	LB/HR
V-16-022 R1	10/24/2016	FRITZ WINTER NORTH AMERICA, LP	KY		Foundry Operation Silos (EU17, EU19, EU20, EU21, EU35A, EU35B, EU57, EU58, & EU63)	91586	ton gray iron/yr	0.015	LB/HR	Bin vent filter with grain loading of 0.0030 for PM. 100% capture.	0.067	TON/YR	0.015	LB/HR	Bin vent filter with grain loading of 0.0030 for PM10. 100% capture.	0.067	TON/YR	0.009	LB/HR	Bin vent filter with grain loading of 0.0018 for PM2.5. 100% capture.	0.040	TON/YR
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY		EP 06-02 A & B - Lime Silos A & B	70000	ton/yr	0.005	GR/DSCF	For Lime Silos A & B (EP 06-02A & B): 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 900 dscf/min.	0.17	TON/YR	0.005	GR/DSCF	For Lime Silos A & B (EP 06-02A & B): 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 900 dscf/min.	0.17	TON/YR	0.005	GR/DSCF	For Lime Silos A & B (EP 06-02A & B): 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 900 dscf/min.	0.170	TON/YR
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY		EP 06-04 - Carbon Silo #1	35000	ton/yr	0.005	GR/DSCF	For Carbon Silo #1 (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 900 dscf/min.	0.17	TON/YR	0.005	GR/DSCF	For Carbon Silo #1 (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 900 dscf/min.	0.17	TON/YR	0.005	GR/DSCF	For Carbon Silo #1 (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 900 dscf/min.	0.170	TON/YR
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY		EP 07-03 - DRI Storage Silo #2	288750	ton/yr	0.001	GR/DSCF	For DRI Storage Silo #2 (EP 07-03): The permittee shall install, operate, and maintain a dust collector for the silo designed to control particulate grain loading to 0.001 grain/dscf and the flow rate to 1200 dscf/min and a passive bin vent for the silo designed to control particulate grain loading to 0.001 grain/dscf and the flow rate to 148 dscf/min.	0.051	TON/YR	0.001	GR/DSCF	For DRI Storage Silo #2 (EP 07-03): The permittee shall install, operate, and maintain a dust collector for the silo designed to control particulate grain loading to 0.001 grain/dscf and the flow rate to 1200 dscf/min and a passive bin vent for the silo designed to control particulate grain loading to 0.001 grain/dscf and the flow rate to 148 dscf/min.	0.051	TON/YR	0.001	GR/DSCF	For DRI Storage Silo #2 (EP 07-03): The permittee shall install, operate, and maintain a dust collector for the silo designed to control particulate grain loading to 0.001 grain/dscf and the flow rate to 1200 dscf/min and a passive bin vent for the silo designed to control particulate grain loading to 0.001 grain/dscf and the flow rate to 148 dscf/min.	0.025	TON/YR
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY		EP 07-04 - DRI Storage Silo Loadout	577500	ton/yr	0.38	LB/HR	-	0.21	TON/YR	0.18	LB/HR	-	0.1	TON/YR	0.027	LB/HR	-	0.015	TON/YR

Nucor Corporation | West Virginia Steel Mill

RBLC Entries for Lime/Carbon/Alloy/DRI Silos and Bins

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	PM Limit	PM Limit Unit	PM Control Technique	Limit 2	Limit 2 Unit	PM_{10} Limit	PM_{10} Limit Unit	PM_{10} Control Technique	Limit 2	Limit 2 Unit	$PM_{2.5}$ Limit	$PM_{2.5}$ Limit Unit	$PM_{2.5}$ Control Technique	Limit 2	Limit 2 Unit
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY		EP 07-02 - DRI Storage Silo #1	288750	ton/yr	0.001	GR/DSCF	For DRI Storage Silo #1 (EP 07-02): The permittee shall install, operate, and maintain a dust collector for the silo designed to control particulate grain loading to 0.001 grain/dscf and the flow rate to 1200 dscf/min and a passive bin vent for the silo designed to control particulate grain loading to 0.001 grain/dscf and the flow rate to 148 dscf/min.	0.051	TON/YR	0.001	GR/DSCF	For DRI Storage Silo #1 (EP 07-02): The permittee shall install, operate, and maintain a dust collector for the silo designed to control particulate grain loading to 0.001 grain/dscf and the flow rate to 1200 dscf/min and a passive bin vent for the silo designed to control particulate grain loading to 0.001 grain/dscf and the flow rate to 148 dscf/min.	0.051	TON/YR	0.001	GR/DSCF	For DRI Storage Silo #1 (EP 07-02): The permittee shall install, operate, and maintain a dust collector for the silo designed to control particulate grain loading to 0.001 grain/dscf and the flow rate to 1200 dscf/min and a passive bin vent for the silo designed to control particulate grain loading to 0.001 grain/dscf and the flow rate to 148 dscf/min.	0.025	TON/YR
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY		EP 01-07 - Melt Shop Baghouse Dust Silo & Dust Handling System	43750	tons dust/yr	0.005	GR/DSCF	The conveyors are enclosed and the silo is vented to a passive bin vent filter designed to control particulate grain loading to 0.005 grain/dscf and the flow rate to 100 dscf/min.	0.02	TON/YR	0.005	GR/DSCF	The conveyors are enclosed and the silo is vented to a passive bin vent filter designed to control particulate grain loading to 0.005 grain/dscf and the flow rate to 100 dscf/min.	0.02	TON/YR	0.005	GR/DSCF	The conveyors are enclosed and the silo is vented to a passive bin vent filter designed to control particulate grain loading to 0.005 grain/dscf and the flow rate to 100 dscf/min.	0.020	TON/YR
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Carbon Silo #3 (EP 12-53)	35000	tons/yr	0.005	GR/DSCF	Passive Bin Vent Filter	0.045	TON/YR	0.005	GR/DSCF	Passive Bin Vent Filter	0.045	TON/YR	0.005	GR/DSCF	Passive Bin Vent Filter	0.045	TON/YR
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Melt Shop #2 Baghouse #3 Dust Silo & Railcar Loading (EP 10-07)	35000	tons dust/yr	0.005	GR/DSCF	Controlled by a Dust Collector/Passive Bin Vent Filter	0.02	TON/YR	0.005	GR/DSCF	Controlled by Dust Collector/Passive Bin Vent Filter	0.02	TON/YR	0.005	GR/DSCF	Controlled by Dust Collector/Passive Bin Vent Filter	0.020	TON/YR
PSD-LA-779	5/23/2014	LAKE CHARLES CHEMICAL COMPLEX ALUMINA UNIT	LA		Spray Dryer #3, Silo Baghouses #1 & #2 (EQTs 1000 & 1001)	3902	CFM	-	-	-	-	-	0.33	LB/HR	Fabric filter to limit PM10 emissions to 0.02 gr/dscf	0.99	TPY	0.330	LB/HR	Fabric filter to limit PM2.5 emissions to 0.02 gr/dscf	0.990	TPY
PSD-LA-709(M-3)	5/2/2018	PLAQUEMINES PLANT 1	LA		H/C Cleaning Silo 2 (P-40)	1	MM LB/YR	-	-	-	-	-	0.01	GR/DSCF	Fabric Filter/Baghouse	-	-	0.010	GR/DSCF	Fabric Filter/Baghouse	-	-
PSD-LA-834	10/2/2019	HOLDEN WOOD PRODUCTS MILL	LA		CDK Fuel Silo Cyclones A and B (03-19 and 04-19)	27	tons/hr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PSD-LA-553(M-8)	11/17/2020	TITANIUM DIOXIDE PLANT	LA		Big Bag Packing Silo Dust Collector	2195	cfm	-	-	-	-	-	99.5	%	Baghouse filters.	-	-	99.500	%	Baghouse filters	-	-
PSD-LA-709(M-4)	5/4/2021	SHINTECH PLAQUEMINES PLANT 1	LA		H/C Cleaning Silo	1	mm lb/yr	0.01	GR/DSCF	Cyclone/baghouse	-	-	0.01	GR/DSCF	Cyclone/baghouse	-	-	-	-	-	-	-
59-16	8/26/2016	GRAYLING PARTICLEBOARD	MI		EURMSILO in FGFINISH (Raw material sawdust silo)	Unspecified	-	0.12	LB/H	Baghouse/fabric filters	0.002	GR/DSCF	0.12	LB/H	Baghouse/fabric filter	-	-	0.120	LB/H	Baghouse/fabric filter	-	-
59-16A	5/9/2017	GRAYLING PARTICLEBOARD	MI		EURMSILO in FGFINISH (Raw material sawdust silo)	Unspecified	-	0.06	LB/H	Baghouse/fabric filters	0.002	GR/DSCF	0.06	LB/H	Baghouse/fabric filters	-	-	0.060	LB/H	Baghouse/fabric filters	-	-
P0125944	8/7/2019	AMG VANADIUM LLC	OH		Hydrated Lime Silo (P003)	Unspecified	-	0.005	GR/DSCF	Bin vent filter with 100% capture efficiency and 0.005 gr/dscf.	0.25	T/YR	0.005	GR/DSCF	Bin vent filter with 100% capture efficiency and 0.005 gr/dscf.	0.25	T/YR	0.005	GR/DSCF	Bin vent filter with 100% capture efficiency and 0.005 gr/dscf.	0.250	T/YR
P0125944	8/7/2019	AMG VANADIUM LLC	OH		LimeAdd Silo (P910)	Unspecified	-	0.005	GR/DSCF	i.Minimize the drop height of the material at the transfer point to the extent possible; ii.Ensure the transfer chute from the silo to the truck is vented back to the silo and associated bin vent filter with a minimum capture efficiency of 90%; and iii.PM/PM10/PM2.5 from this emissions unit shall be vented to a bin vent filter, which shall be capable of achieving the emissions limitations at all times during operation.	1.93	T/YR	0.005	GR/DSCF	i.Minimize the drop height of the material at the transfer point to the extent possible; ii.Ensure the transfer chute from the silo to the truck is vented back to the silo and associated bin vent filter with a minimum capture efficiency of 90%; and iii.PM/PM10/PM2.5 from this emissions unit shall be vented to a bin vent filter, which shall be capable of achieving the emissions limitations at all times during operation.	1.56	T/YR	0.005	GR/DSCF	i.Minimize the drop height of the material at the transfer point to the extent possible; ii.Ensure the transfer chute from the silo to the truck is vented back to the silo and associated bin vent filter with a minimum capture efficiency of 90%; and iii.PM/PM10/PM2.5 from this emissions unit shall be vented to a bin vent filter, which shall be capable of achieving the emissions limitations at all times during operation.	1.000	T/YR
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH		LMF Silo #2 & Lime/Carbon Silo: P032,P033,P034	Unspecified	-	0.02	GR/DSCF	Fabric filter	0.57	T/YR	0.02	GR/DSCF	Fabric filter	0.57	T/YR	0.020	GR/DSCF	Fabric filter	0.570	T/YR
2015-0643-C PSD	1/19/2016	CMC STEEL OKLAHOMA	OK		Materials Storage Silos	Unspecified	-	-	-	-	-	-	0.01	GR/DSCF	Baghouses.	-	-	0.010	GR/DSCF	Baghouses.	-	-
R2-PSD 1	4/10/2014	ENERGY ANSWERS ARECIBO PUERTO RICO RENEWABLE ENERGY PROJECT	PR		Ash Handling System and Storage Silos	Unspecified	-	0.017	MG/DSCM	Fabric Filters	-	-	-	-	-	-	-	-	-	-	-	-
1860-0128-CA	1/3/2013	KLAUSNER HOLDING USA, INC	SC		DRY SHAVING STORAGE SILO EU009	Unspecified	-	0.004	GR/DSCF	BAGHOUSE	-	-	0.004	GR/DSCF	BAGHOUSE	-	-	0.004	GR/DSCF	BAGHOUSE	-	-
1860-0128-CA	1/3/2013	KLAUSNER HOLDING USA, INC	SC		FLY ASH STORAGE SILO EU012	Unspecified	-	0.005	GR/DSCF	BAGHOUSE	-	-	0.005	GR/DSCF	BAGHOUSE	-	-	0.005	GR/DSCF	BAGHOUSE	-	-
1860-0128-CA	1/3/2013	KLAUSNER HOLDING USA, INC	SC		DRY SHAVINGS STORAGE SILO EU010	Unspecified	-	0.004	GR/DSCF	BAGHOUSE	-	-	0.004	GR/DSCF	BAGHOUSE	-	-	0.004	GR/DSCF	BAGHOUSE	-	-
2440-0216-CA	11/3/2017	RESOLUTE FP US INC. - CATAWBA LUMBER MILL	SC		3 Kiln Fuel Silos, KFS-1, KFS-2, KFS-3	Unspecified	-	0.01	GR/DSCF	Proper maintenance and good operating practices, including inherent cyclones.	-	-	0.0035	GR/DSCF	Proper maintenance and good operating practices, including inherent cyclones.	-	-	0.001	GR/DSCF	Proper maintenance and good operating practices, including inherent cyclones.	-	-

Nucor Corporation | West Virginia Steel Mill
RBLC Entries for Lime/Carbon/Alloy/DRI Silos and Bins

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	PM Limit	PM Limit Unit	PM Control Technique	Limit 2	Limit 2 Unit	PM_{10} Limit	PM_{10} Limit Unit	PM_{10} Control Technique	Limit 2	Limit 2 Unit	$PM_{2.5}$ Limit	$PM_{2.5}$ Limit Unit	$PM_{2.5}$ Control Technique	Limit 2	Limit 2 Unit
2440-0216-CA	11/3/2017	RESOLUTE FP US INC. - CATAWBA LUMBER MILL	SC		Dry Shavings Storage Silo	Unspecified	-	0.002	GR/DSCF	Proper maintenance and good operating practices, including inherent bin vent filter.	-	-	0.0007	LB/DSCF	Proper maintenance and good operating practices, including inherent bin vent filter.	-	-	0.000	GR/DSCF	Proper maintenance and good operating practices, including inherent bin vent filter.	-	-
0820-0079.CA.R2	10/31/2017	FIBER INDUSTRIES LLC	SC		Silos	Unspecified	-	0.01	GR/DSCF	Good Housekeeping Practices	-	-	0.01	GR/DSCF	Good Housekeeping Practices	-	-	0.010	GR/DSCF	Good Housekeeping Practices	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Pickle Line Equipment (pickle line no.3 water treatement lime storage silo)	Unspecified	-	-	-	Bin Vent Filter; Proper Operation and Maintenance through Good Housekeeping	-	-	-	-	Bin Vent Filter; Proper Operation and Maintenance through Good Housekeeping	-	-	-	-	Bin Vent Filter; Proper Operation and Maintenance through Good Housekeeping	-	-
PSDTX1344 AND 108113	3/13/2014	DIRECT REDUCED IRON AND HOT BRIQUETTING FACILITY	TX		Furnace Charge Hopper Loading Silos	3197250	tons per year	0.002	GR/DSCF	Capture and exhausting through a fabric filter having a design outlet grain loading not greater than 0.002 grains per dry standard cubic foot (gr/dscf) of air flow. Also, hooded conveyors and enclosed transfer points will be installed to limit emissions from material handling.	-	-	0.002	GR/DSCF	Capture and exhausting through a fabric filter having a design outlet grain loading not greater than 0.002 grains per dry standard cubic foot (gr/dscf) of air flow. Also, hooded conveyors and enclosed transfer points will be installed to limit emissions from material handling.	-	-	0.002	GR/DSCF	Capture and exhausting through a fabric filter having a design outlet grain loading not greater than 0.002 grains per dry standard cubic foot (gr/dscf) of air flow. Also, hooded conveyors and enclosed transfer points will be installed to limit emissions from material handling.	-	-
1360A AND PSDTX632M2	6/21/2019	CEMENT PLANT	TX		SILO TRUCK LOADOUT	Unspecified	-	-	-	-	-	-	0.005	GR/DSCF	BAGHOUSE & PARTIAL ENCLOSURE	-	-	0.005	GR/DSCF	PARTIAL ENCLOSURE & BAGHOUSE	-	-
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX		STORAGE SILOS	Unspecified	-	0.01	GR/DSCF	BAGHOUSE	-	-	0.01	GR/DSCF	BAGHOUSE	-	-	0.010	GR/DSCF	BAGHOUSE	-	-
17-DCF-070	6/30/2017	WPL - COLOMBIA ENERGY CENTER	WI		Tripper room, Unit 1 and Unit 2 coal silos; P08, P09	1600	tons per hour	1.11	LBS/HR	Building enclosure. Use of existing coal dust collection systems with two new baghouses.	0.003	GR/DSCF	1.11	LBS/HR	Building enclosure. Existing dust collection systems, two new baghouses.	0.003	GR/DSCF	-	-	-	-	-
18-DMM-174	4/8/2019	WISCONSIN PUBLIC SERVICE CORPORATION â€" FOX ENERGY CENTER	WI		P08 & P09 Lime/Soda Ash Silos	Unspecified	-	0.04	LB/HR	Fabric Filter	-	-	0.04	LB/HR	Fabric Filters	-	-	-	-	-	-	-

Process	Pollutant
Annealing Furnace	NO_X

		Control Technology	Selective Catalytic Reduction (SCR)[a]	Selective Non-Catalytic Reduction (SNCR)[b]	Non-Selective Catalytic Reduction (NSCR)[c,d]	SCONOX Catalytic Absorption System[e]	Xonon Cool Combustion[e]	Low-NOX Burners (LNBs)[c]	Oxy-Fuel Burners[c]	Good Process Operation
Step 1.	IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES	Control Technology Description	A nitrogen-based reagent (e.g., ammonia, urea) is injected into the exhaust stream downstream of the combustion unit. The reagent reacts selectively with NOX to produce molecular N2 and water in a reactor vessel containing a metallic or ceramic catalyst.	A nitrogen-based reagent (e.g., ammonia, urea) is injected into the exhaust stream and reacts selectively with NOX to produce molecular N2 and water within the combustion unit.	Metallic catalysts convert NOX, CO, and hydrocarbons to water, nitrogen, and CO2.	Utilizes a single catalyst to remove NOX, CO, and VOC through oxidation.	A catalyst integrated into gas turbine combustors limits the production of NOX through temperature control also resulting in reduced emissions of CO and VOC.	Low-NOX burners employ multi-staged combustion to inhibit the formation of NOX. Primary combustion occurs at lower temperatures under oxygen-deficient conditions; secondary combustion occurs in the presence of excess air.	Oxy-fired burners achieve combustion using oxygen rather than air, which reduces nitrogen levels in the furnace. The lower nitrogen levels result in a reduction in NOX emissions.	Operate and maintain the equipment in accordance with good air pollution control practices and with good combustion practices.
		Typical Operating Temperature	480 - 800 °F (typical SCR systems tolerate temperature variations of ± 200 °F)	1,600 - 2,100 °F (chemical additives can lower reaction temp.)	700 - 1,500 °F	300 - 700 °F	N/A	N/A	N/A	N/A
		Typical Waste Stream Inlet Flow Rate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Typical Waste Stream Inlet Pollutant Concentration	As low as 20 ppm (efficiency improves with increased concentration up to 150 ppm)	200 - 400 ppm	N/A	N/A	N/A	N/A	N/A	N/A
		Other Considerations	Unreacted reagent (ammonia slip) may form ammonium sulfates that may plug or corrode downstream equipment. Ammonia absorption into fly ash may affect ash disposal. Particulate-laden streams may blind the catalyst and may require a sootblower.	Unreacted reagent (ammonia slip) may form ammonium sulfates that may plug or corrode downstream equipment. Ammonia absorption into fly ash may affect ash disposal. The SNCR process produces N2O as a byproduct.	This technique uses a fuel rich mixture that, combined with back pressure from exhaust flow through the catalyst, increases the brake specific fuel consumption of the engine	The SCONOX Catalyst is sensitive to contamination by sulfur, so it must be used in conjunction with the SCOSOX catalyst, which favors sulfur compound absorption.	N/A	N/A	Oxy-fuel burners must be properly applied to prevent the formation of NOX due to the elevated flame temperatures.	N/A
Step 2.	ELIMINATE TECHNICALLY INFEASIBLE OPTIONS	RBLC Database Information	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.	Included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.	Included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.
		Feasibility Discussion	Technically infeasible. Furnace outlet temperature is above the normal operating range.	Technically infeasible. The reagent-to-NOX ratio cannot be feasibly maintained under the significant variation in NOX loading associated with the furnace.	Technically infeasible. Typically applied only to rich burn engine emissions.	Technically infeasible. Typically applied to power generation turbines.	Technically infeasible. Integrated only in gas turbine combustors.	Feasible	Potentially Feasible	Feasible
Step 3.	RANK REMAINING CONTROL TECHNOLOGIES	Overall Control Efficiency						Up to 80%	20%	Base Case
Step 4.	EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS	Cost Effectiveness ($/ton)								
Step 5.	SELECT BACT							**BACT Limit: 0.05 lb/MMBtu**		

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Selective Catalytic Reduction (SCR))," EPA-452/F-03-032.
b. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Selective Non-Catalytic Reduction (SNCR))," EPA-452/F-03-031.
c. U.S. EPA, "Nitrogen Oxides (NOX), Why and How they are Controlled," EPA-456/F-99-006R
d. U.S. EPA, "CAM Technical Guidance Document" Section B-16, January 2005
e. California EPA, Air Resources Board, "Report to the Legislature: Gas-Fired Power Plant NOX Emission Controls and Related Environmental Impacts," http://www.arb.ca.gov/research/apr/reports/l2069.pdf

Process	Pollutant
Annealing Furnace	CO

		Control Technology	Non-Selective Catalytic Reduction (NSCR)[a,b]	SCONOX Catalytic Absorption System[c]	Xonon Cool Combustion[c]	Recuperative Thermal Oxidation[d,e]	Regenerative Thermal Oxidation[f]	Catalytic Oxidation[g]	Good Process Operation
Step 1.	IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES	**Control Technology Description**	Metallic catalysts convert NOX, CO, and hydrocarbons to water, nitrogen, and CO2.	Utilizes a single catalyst to remove NOX, CO, and VOC through oxidation.	A catalyst integrated into gas turbine combustors limits the production of NOX through temperature control also resulting in reduced emissions of CO and VOC.	Oxidizes combustible materials by raising the temperature of the material above the auto-ignition point in the presence of oxygen and maintaining the high temperature for sufficient time to complete combustion.	Oxidizes combustible materials by raising the temperature of the material above the auto-ignition point in the presence of oxygen and maintaining the high temperature for sufficient time to complete combustion.	Similar to thermal incineration; waste stream is heated by a flame and then passes through a catalyst bed that increases the oxidation rate more quickly and at lower temperatures.	Operate and maintain the equipment in accordance with good air pollution control practices and with good combustion practices.
		Typical Operating Temperature	700 - 1,500 °F	300 - 700 °F	N/A	1,100 - 1,200 °F	1,400 - 2,000 °F (RTO) 800 °F (RCO)	600 - 800 °F (not to exceed 1,250 °F)	N/A
		Typical Waste Stream Inlet Flow Rate	N/A	N/A	N/A	500 - 50,000 scfm	5,000 - 500,000 scfm	700 - 50,000 scfm	N/A
		Typical Waste Stream Inlet Pollutant Concentration	N/A	N/A	N/A	Best performance at 1,500 - 3,000 ppmv	As low as 100 ppmv or less	As low as 1 ppmv	N/A
		Other Considerations	This technique uses a fuel rich mixture that, combined with back pressure from exhaust flow through the catalyst, increases the brake specific fuel consumption of the engine	The SCONOX Catalyst is sensitive to contamination by sulfur, so it must be used in conjunction with the SCOSOX catalyst, which favors sulfur compound absorption.	N/A	Additional fuel is required to reach the ignition temperature of the waste gas stream. Oxidizers are not recommended for controlling gases with halogen or sulfur containing compounds due to the formation of highly corrosive acid gases.	Pretreatment to remove PM may be necessary for clogging prevention and/or catalyst poisoning. Additional fuel is required to reach the ignition temperature of the waste gas stream.[a]	Catalyst can be deactivated by certain catalyst poisons or other fouling contaminants such as silicone, sulfur, heavy hydrocarbons, and particulates.	N/A
Step 2.	ELIMINATE TECHNICALLY INFEASIBLE OPTIONS	**RBLC Database Information**	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.	Included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.
		Feasibility Discussion	Technically infeasible. Typically applied only to rich burn engine emissions.	Technically infeasible. Typically applied to power generation turbines.	Technically infeasible. Integrated only in gas turbine combustors.	Technically infeasible. Thermal oxidizers do not reduce emissions of CO from properly operated natural gas combustion units without the use of a catalyst.	Technically infeasible. Thermal oxidizers do not reduce emissions of CO from properly operated natural gas combustion units without the use of a catalyst.	Technically infeasible. Furnace outlet temperature is above the normal operating range and is close to the not to exceed level for catalytic oxidation.	Feasible
Step 3.	RANK REMAINING CONTROL TECHNOLOGIES	**Overall Control Efficiency**							Base Case
Step 4.	EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS	**Cost Effectiveness ($/ton)**							
Step 5.	SELECT BACT								**BACT Limit: 0.082 lb/MMBtu**

a. U.S. EPA, "Nitrogen Oxides (NOX), Why and How they are Controlled," EPA-456/F-99-006R
b. U.S. EPA, "CAM Technical Guidance Document" Section B-16, January 2005
c. California EPA, Air Resources Board, "Report to the Legislature: Gas-Fired Power Plant NOX Emission Controls and Related Environmental Impacts," http://www.arb.ca.gov/research/apr/reports/l2069.pdf
d. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Thermal Incinerator)," EPA-452/F-03-022.
e. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Incinerator - Recuperative Type)," EPA-452/F-03-020.
f. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Regenerative Incinerator)," EPA-452/F-03-021.
g. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Catalytic Incinerator)," EPA-452/F-03-018.

Process	Pollutant
Annealing Furnace	SO_2

		Control Technology	Impingement-Plate/Tray-Tower Scrubber[a]	Packed-Bed/Packed-Tower Wet Scrubber[b]	Spray-Chamber/Spray-Tower Wet Scrubber[c]	Flue Gas Desulfurization[d]	Good Process Operation
Step 1.	IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES	**Control Technology Description**	An impingement-plate scrubber promotes contact between the flue gas and a sorbent slurry in a vertical column with transversely mounted perforated trays. Absorption of SO2 is accomplished by countercurrent contact between the flue gas and reagent slurry.	Scrubbing liquid (e.g., NaOH), which is introduced above layers of variously-shaped packing material, flows concurrently against the flue gas stream. The acid gases are absorbed into the scrubbing solution and react with alkaline compounds to produce neutral salts.	Spray tower scrubbers introduce a reagent slurry as atomized droplets through an array of spray nozzles within the scrubbing chamber. The waste gas enters the bottom of the column and travels upward in a countercurrent flow. Absorption of SO2 is accomplished by the contact between the gas and reagent slurry, which results in the formation of neutral salts.	An alkaline reagent is introduced in a spray tower as an aqueous slurry (for wet systems) or is pneumatically injected as a powder in the waste gas ductwork (for dry systems). Absorption of SO2 is accomplished by the contact between the gas and reagent slurry or powder, which results in the formation of neutral salts.	Operate and maintain the equipment in accordance with good air pollution control practices and with good combustion practices, including the use of natural gas.
		Typical Operating Temperature	40 - 100 °F	40 - 100 °F	40 - 100 °F	300 - 700 °F (wet) 300 - 1,830 °F (dry)	N/A
		Typical Waste Stream Inlet Flow Rate	1,000 - 75,000 scfm	500 - 75,000 scfm	1,500 to 100,000 scfm	N/A	N/A
		Typical Waste Stream Inlet Pollutant Concentration	N/A	250 - 10,000 ppmv	250 - 10,000 ppmv	2,000 ppmv	N/A
		Other Considerations	Waste slurry formed in the bottom of the scrubber requires disposal.	To avoid clogging, packed bed wet scrubbers are generally limited to applications in which PM concentrations are less than 0.20 gr/scf)	Waste slurry formed in the bottom of the scrubber requires disposal.	Chlorine emissions can result in salt deposition on the absorber and downstream equipment. Wet systems may require flue gas re-heating downstream of the absorber to prevent corrosive condensation. Dry systems may require cooling inlet streams to minimize deposits.	N/A
Step 2.	ELIMINATE TECHNICALLY INFEASIBLE OPTIONS	**RBLC Database Information**	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnances etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnances etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnances etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnances etc.	Included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnances etc.
		Feasibility Discussion	Technically infeasible. Furnace outlet temperature is above the normal operating range.	Technically infeasible. Furnace outlet temperature is above the normal operating range.	Technically infeasible. Furnace outlet temperature is above the normal operating range.	Technically infeasible. Concentrations of SO2 in the waste gas fall below the levels typically controlled by FGDs.	Feasible
Step 3.	RANK REMAINING CONTROL TECHNOLOGIES	**Overall Control Efficiency**					Base Case
Step 4.	EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS	**Cost Effectiveness ($/ton)**					
Step 5.	SELECT BACT						**BACT Limit: 0.0006 lb/MMBtu**

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Impingement-Plate/Tray-Tower Scrubber)," EPA-452/F-03-012.
b. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Packed-Bed/Packed-Tower Wet Scrubber)," EPA-452/F-03-015.
c. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Spray-Chamber/Spray-Tower Wet Scrubber)," EPA-452/F-03-016.
d. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Flue Gas Desulfurization)," EPA-452/F-03-034.

Process	Pollutant
Annealing Furnace	VOC

		Control Technology	Recuperative Thermal Oxidation[a,b]	Regenerative Thermal Oxidation[c]	Catalytic Oxidation[d]	Carbon / Zeolite Adsorption[e]	Biofiltration[f]	Condenser[g]	Good Process Operation
Step 1.	**IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES**	**Control Technology Description**	Oxidizes combustible materials by raising the temperature of the material above the auto-ignition point in the presence of oxygen and maintaining the high temperature for sufficient time to complete combustion.	Oxidizes combustible materials by raising the temperature of the material above the auto-ignition point in the presence of oxygen and maintaining the high temperature for sufficient time to complete combustion.	Similar to thermal incineration; waste stream is heated by a flame and then passes through a catalyst bed that increases the oxidation rate more quickly and at lower temperatures.	Adsorption technology utilizes a porous solid to selectively collect VOC from the gas stream. Adsorption collects VOC, but does not destroy it.	Exhaust gases containing biodegradable organic compounds are vented, under controlled temperature and humidity, through biologically active material. The microorganisms contained in the bed of bio-material digest or biodegrade the organics to CO2 and water.	Condensers convert a gas or vapor stream to a liquid, allowing the organics within the stream to be recovered, refined, or reused and preventing the release of organic streams into the ambient air.	Operate and maintain the equipment in accordance with good air pollution control practices and with good combustion practices.
		Typical Operating Temperature	1,100 - 1,200 °F	1,400 - 2,000 °F (RTO) 800 °F (RCO)	600 - 800 °F (not to exceed 1,250 °F)	N/A	60 - 105 °F	Hydrocarbon dew point (may be as low as -100 °F)	N/A
		Typical Waste Stream Inlet Flow Rate	500 - 50,000 scfm	5,000 - 500,000 scfm	700 - 50,000 scfm	N/A	600 - 600,000 acfm	Up to 2,000 cfm (10,000 cfm cryogenic)	N/A
		Typical Waste Stream Inlet Pollutant Concentration	Best performance at 1,500 - 3,000 ppmv	As low as 100 ppmv or less	As low as 1 ppmv	As low as 20 ppm	N/A	High concentrations required for efficient control	N/A
		Other Considerations	Additional fuel is required to reach the ignition temperature of the waste gas stream. Oxidizers are not recommended for controlling gases with halogen or sulfur containing compounds due to the formation of highly corrosive acid gases.	Pretreatment to remove PM may be necessary for clogging prevention and/or catalyst poisoning. Additional fuel is required to reach the ignition temperature of the waste gas stream.[a]	Catalyst can be deactivated by certain catalyst poisons or other fouling contaminants such as silicone, sulfur, heavy hydrocarbons, and particulates.	Excessive temperatures may cause desorption of the hydrocarbons or may melt the adsorbent. Adsorbed hydrocarbons may oxidize and cause bed fires.	Temperatures outside the specified range, acidic deposition, or dry exhaust streams will kill or deactivate the microorganisms. Biofiltration systems occupy a large equipment footprint. Large land requirement for traditional design.	Energy required to drive the refrigeration system. Certain compounds may corrode the cooling coils and associated equipment. Particulate material may accumulate within the cooling chamber.	N/A
Step 2.	**ELIMINATE TECHNICALLY INFEASIBLE OPTIONS**	**RBLC Database Information**	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.	Included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.
		Feasibility Discussion	Technically infeasible. Thermal oxidizers do not reduce levels of VOC from properly operated natural gas combustion units without use of a catalyst.	Technically infeasible. Thermal oxidizers do not reduce levels of VOC from properly operated natural gas combustion units without use of a catalyst.	Technically infeasible. Furnace outlet temperature is above the normal operating range.	Technically infeasible. Furnace outlet temperature is above the normal operating range.	Technically infeasible. Furnace outlet temperature is above the normal operating range.	Technically infeasible. Furnace exhaust gas flowrates exceed acceptable levels for effective condensation.	Feasible
Step 3.	**RANK REMAINING CONTROL TECHNOLOGIES**	**Overall Control Efficiency**							Base Case
Step 4.	**EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS**	**Cost Effectiveness ($/ton)**							
Step 5.	**SELECT BACT**								**BACT Limit: 0.0054 lb/MMBtu**

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Thermal Incinerator)," EPA-452/F-03-022.
b. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Incinerator - Recuperative Type)," EPA-452/F-03-020.
c. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Regenerative Incinerator)," EPA-452/F-03-021.
d. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Catalytic Incinerator)," EPA-452/F-03-018.
e. U.S. EPA, "Choosing an Adsorption System for VOC: Carbon, Zeolite, or Polymers?" EPA-456/F-99-004
f. U.S. EPA, "Using Bioreactors to Control Air Pollution," EPA-456/F-03-003
g. U.S. EPA, "Refrigerated Condensers for Control of Organic Air Emissions," EPA-456/F-01-004

Process	Pollutant
Annealing Furnace	$PM/PM_{10}/PM_{2.5}$

		Control Technology	Baghouse / Fabric Filter[a]	Electrostatic Precipitator (ESP)[b,c,d,e]	Incinerator[f]	Wet Scrubber[h]	Cyclone[i]	Good Process Operation
Step 1.	IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES	Control Technology Description	Process exhaust gas passes through a tightly woven or felted fabric arranged in sheets, cartridges, or bags that collect PM via sieving and other mechanisms. The dust cake that accumulates on the filters increases collection efficiency. Various cleaning techniques include pulse-jet, reverse-air, and shaker technologies.	Electrodes stimulate the waste gas and induce an electrical charge in the entrained particles. The resulting electrical field forces the charged particles to the collector walls from which the material may be mechanically dislodged and collected in dry systems or washed with a water deluge in wet systems.	The combustion of auxiliary fuel heats a combustion chamber to promote the thermal oxidation of partially combusted particulate hydrocarbons in the exhaust stream. Recuperative incinerators utilize heat exchangers to recover heat from the outlet gas which is used to pre-heat the incoming waste stream.	A scrubbing liquid introduced into the gas stream captures and collects entrained particles. In the case of a venturi scrubber, the turbulent airflow atomizes the scrubbing liquid to increase droplet-particle interaction. The droplets containing particles are typically separated from the exhaust gas in a downstream cyclonic separator and/or mist eliminator.	Centrifugal forces drive particles in the gas stream toward the cyclone walls as the waste gas flows through the conical unit. The captured particles are collected in a material hopper below the unit.	Operate and maintain the equipment in accordance with good air pollution control practices.
		Typical Operating Temperature	Up to 500 °F (Typical)	Up to 1,300 °F (dry) Lower than 170 - 190 °F (wet)	1,100 to 1,200 °F	40 to 750 °F	Up to 1,000 °F	N/A
		Typical Waste Stream Inlet Flow Rate	100 - 100,000 scfm (Standard) 100,000 - 1,000,000 scfm (Custom)	1,000 - 100,000 scfm (Wire-Pipe) 100,000 - 1,000,000 scfm (Wire-Plate)	500 - 50,000 scfm	500 - 100,000 scfm (units in parallel can operate at greater flowrates)	1.1 - 63,500 scfm (single) Up to 106,000 scfm (in parallel)	N/A
		Typical Waste Stream Inlet Pollutant Concentration	0.5 - 10 gr/dscf (Typical) 0.05 - 100 gr/dscf (Achievable)	0.5 - 5 gr/dscf (Wire-Pipe) 1 - 50 gr/dscf (Wire-Plate)	As low as 100 ppmv or less (for VOC)[g]	0.1 - 50 gr/dscf	0.44 - 7,000 gr/dscf	N/A
		Other Considerations	Fabric filters are susceptible to corrosion and blinding by moisture. Appropriate fabrics must be selected for specific process conditions. Accumulations of dust may present fire or explosion hazards.	Dry ESP efficiency varies significantly with dust resistivity. Air leakage and acid condensation may cause corrosion. ESPs are not generally suitable for highly variable processes. Equipment footprint is often substantial.	Incinerators may not effectively control highly-variable waste streams. Halogenated or sulfurous compounds may cause corrosion within the incinerator.	Effluent stream requires wastewater treatment and solid was disposal. Sludge disposal may be costly. Wet scrubbers are particularly susceptible to corrosion.	Cyclones typically exhibit lower efficiencies when collecting smaller particles. High-efficiency units may require substantial pressure drop. Unable to handle sticky and tacky materials.	N/A
Step 2.	ELIMINATE TECHNICALLY INFEASIBLE OPTIONS	RBLC Database Information	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnances etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnances etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnances etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnances etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnances etc.	Included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnances etc.
		Feasibility Discussion	Technically infeasible. Concentrations of particulate in the waste gas fall below the levels typically controlled by baghouse.	Technically infeasible. Concentrations of particulate in the waste gas fall below the levels typically controlled by ESP.	Technically infeasible. Incinerators do not reduce emissions from properly operated natural gas combustion units without the use of a catalyst.	Technically infeasible. Concentrations of particulate in the waste gas fall below the levels typically controlled by wet scrubbers.	Technically infeasible. Concentrations of particulate in the waste gas fall below the levels typically controlled by cyclone.	Feasible
Step 3.	RANK REMAINING CONTROL TECHNOLOGIES	Overall Control Efficiency						Base Case
Step 4.	EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS	Cost Effectiveness ($/ton)						
Step 5.	SELECT BACT							**BACT Limit: 1.86E-3 lb/MMBtu (PM Filterable) 7.45E-3 lb/MMBtu (PM_{10} and $PM_{2.5}$)**

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Fabric Filter - Pulse-Jet Cleaned Type)," EPA-452/F-03-025.
b. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Dry Electrostatic Precipitator (ESP) - Wire-Pipe Type)," EPA-452/F-03-027.
c. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Dry Electrostatic Precipitator (ESP) - Wire-Plate Type)," EPA-452/F-03-028.
d. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Wet Electrostatic Precipitator(ESP) - Wire-Pipe Type)," EPA-452/F-03-029.
e. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Wet Electrostatic Precipitator (ESP) - Wire-Plate Type)," EPA-452/F-03-030.
f. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Incinerator - Recuperative Type)," EPA-452/F-03-020.
g. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Incinerator - Regenerative Type)," EPA-452/F-03-021.
h. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Venturi Scrubber)," EPA-452/F-03-017.
i. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Cyclone)," EPA-452/F-03-005.

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	NOx Limit	NOx Limit Unit	NOx Control Technique	Limit 2	Limit 2 Unit
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	FURNACES SN-39, ANNEALING	98.25	MMBTU/H	0.1	LB/MMBTU	LOW NOX BURNERS COMBUSTION OF CLEAN FUEL GOOD COMBUSTION PRACTICES	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	FURNACE, ANNEALING PICKLING LINE	66	MMBTU/H	0.1	LB/MMBTU	LOW NOX BURNERS SCR COMBUSTION OF CLEAN FUEL GOOD COMBUSTION PRACTICES	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	ANNEALING COATING LINE FURNACE SECTION	50	MMBTU/H	0.1	LB/MMBTU	LOW NOX BURNERS COMBUSTION OF CLEAN FUEL GOOD COMBUSTION PRACTICES	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	FURNACE, SN-53, ANNEALING COATING LINE DRYING	38	MMBTU/H	0.1	LB/MMBTU	LOW NOX BURNERS COMBUSTION OF CLEAN FUEL GOOD COMBUSTION PRACTICES	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	FURNACES SN-58 AND 60, FINAL ANNEALING AND COATING LINE	32	MMBTU/H	0.1	LB/MMBTU	LOW NOX BURNERS SCR COMBUSTION OF CLEAN FUEL GOOD COMBUSTION PRACTICES	-	-
1139-AOP-R16	2/11/2013	NUCOR CORPORATION - NUCOR STEEL, ARKANSAS	AR	Scrap Steel Mill	ANNEALING FURNACE SN-61	4.8	MMBTU/H	-	-	-	-	-
147-33607-00041	2/24/2015	AK STEEL CORPORATION ROCKPORT WORKS	IN	Steel Coil Finishing Plant	HYDROGEN BATCH ANNEALING FURNACES NOS. 16, 17, AND 18	6.75	MMBTU/H EACH	0.1	LB/MMBTU	LOW NOX BURNERS	2.025	LB/H
701-0007-X121-X126	10/9/2015	ALLOYS PLANT	AL		ANNEALING FURNACE	8.3	MMBTU/H	0.1	LB/MMBTU	LOW NOX BURNER	0.66	LB/H
2035-AOP-R2	11/7/2018	BIG RIVER STEEL LLC	AR		FURNACES SN-39, ANNEALING	85.15	MMBTU/HR	0.1	LB/MMBTU	LOW NOX BURNERS COMBUSTION OF CLEAN FUEL GOOD COMBUSTION PRACTICES	-	-
2305-AOP-R4	4/5/2019	BIG RIVER STEEL LLC	AR		BOILER, ANNEALING PICKLE LINE	Unspecified	-	0.0	LB/MMBTU	Low NOx burners, Combustion of clean fuel, and Good Combustion Practices	-	-
2305-AOP-R7	3/17/2021	BIG RIVER STEEL LLC	AR		Annealing and Coating Line Drying Furnace	15	MMBtu/hr	0.3	LB/MMBTU	Low NOx burners Combustion of clean fuel Good Combustion Practices	-	-
2305-AOP-R7	3/17/2021	BIG RIVER STEEL LLC	AR		Annealing Furnaces	117.9	MMBtu/hr	0.1	LB/MMBTU	Low NOx burners Combustion of clean fuel Good Combustion Practices	-	-
2305-AOP-R7	3/17/2021	BIG RIVER STEEL LLC	AR		Annealing Pickling Line Furnace Section	66	MMBtu/hr	0.1	LB/MMBTU	Low NOx burners SCR Combustion of clean fuel Good Combustion Practices	-	-
2305-AOP-R7	3/17/2021	BIG RIVER STEEL LLC	AR		Annealing and Coating Line Furnace Section	13	MMBtu/hr	0.1	LB/MMBTU	Low NOx burners SCR Combustion of clean fuel Good Combustion Practices	-	-
1139-AOP-R26	9/1/2021	NUCOR STEEL ARKANSAS	AR		SN-209 Annealing Furnaces	Unspecified	-	0.1	LB/MMBTU	Low NOx burners	-	-
11-322	2/1/2012	DAVENPORT WORKS	IA		Annealing Furnace	12	MMBTU/h	-	-	-	-	-
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Galvanizing Line #2 Annealing Furnaces (15) (EP 21-15)	4.8	MMBtu/hr, each	50.0	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan. This unit is equipped with low-NOx burners.	15.57	TON/YR
PSD-LA-774(M1)	6/4/2015	BENTELER STEEL TUBE FACILITY	LA		Annealing Furnace - S10	13.5	mm btu/hr	0.1	LB/MM BTU	ULNB + FGR	-	-
PSD-LA-744(M2)	3/28/2018	BENTELER STEEL TUBE FACILITY	LA		Continuous Annealing Furnace - EQT0010	13.5	mm btu/hr	0.1	LB/MM BTU	LNB+FGR	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Galvanizing Line Equipment (galvanizing line/galvanneal furnace)	21.4	MMBtu/hr	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Galvanizing Line Equipment (galvanneal furnace 2)	Unspecified	-	50.0	LB/MMSCF	Use of Low NOx Burners and Good Combustion Practices	-	-
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX		Annealing Furnace AND Tunnel Furnaces	Unspecified	-	0.1	LB/MMBTU	GOOD COMBUSTION PRACTICES, CLEAN FUEL	-	-

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	CO Limit	CO Limit Unit	CO Control Technique	Limit 2	Limit 2 Unit
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	FURNACES SN-39, ANNEALING	98.25	MMBTU/H	0.0824	LB/MMBTU	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	FURNACE, ANNEALING PICKLING LINE	66	MMBTU/H	0.0824	LB/MMBTU	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	ANNEALING COATING LINE FURNACE SECTION	50	MMBTU/H	0.0824	LB/MMBTU	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	FURNACE, SN-53, ANNEALING COATING LINE DRYING	38	MMBTU/H	0.0824	LB/MMBTU	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	FURNACES SN-58 AND 60, FINAL ANNEALING AND COATING LINE	32	MMBTU/H	0.0824	LB/MMBTU	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	-	-
1139-AOP-R16	2/11/2013	NUCOR CORPORATION - NUCOR STEEL, ARKANSAS	AR	Scrap Steel Mill	ANNEALING FURNACE SN-61	4.8	MMBTU/H	3.3	LB/H	GOOD COMBUSTION PRACTICE	14.1	T/YR
147-33607-00041	2/24/2015	AK STEEL CORPORATION ROCKPORT WORKS	IN	Steel Coil Finishing Plant	HYDROGEN BATCH ANNEALING FURNACES NOS. 16, 17, AND 18	6.75	MMBTU/H EACH	0.084	LB/MMBTU	GOOD COMBUSTION PRACTICES	0.57	LB/H
701-0007-X121-X126	10/9/2015	ALLOYS PLANT	AL		ANNEALING FURNACE	8.3	MMBTU/H	-	-	GCP	-	-
2035-AOP-R2	11/7/2018	BIG RIVER STEEL LLC	AR		FURNACES SN-39, ANNEALING	85.15	MMBTU/HR	0.0824	LB/MMBTU	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	-	-
2305-AOP-R4	4/5/2019	BIG RIVER STEEL LLC	AR		BOILER, ANNEALING PICKLE LINE	Unspecified	-	0.0824	LB/MMBTU	Combustion of Natural gas and Good Combustion Practice	-	-
2305-AOP-R7	3/17/2021	BIG RIVER STEEL LLC	AR		Annealing and Coating Line Drying Furnace	15	MMBtu/hr	0.45	LB/MMBTU	Combustion of Natural gas and Good Combustion Practice	-	-
2305-AOP-R7	3/17/2021	BIG RIVER STEEL LLC	AR		Annealing Furnaces	117.9	MMBtu/hr	0.0824	LB/MMBTU	Combustion of Natural gas and Good Combustion Practice	-	-
2305-AOP-R7	3/17/2021	BIG RIVER STEEL LLC	AR		Annealing Pickling Line Furnace Section	66	MMBtu/hr	-	-	-	-	-
2305-AOP-R7	3/17/2021	BIG RIVER STEEL LLC	AR		Annealing and Coating Line Furnace Section	13	MMBtu/hr	0.0824	LB/MMBTU	Combustion of Natural gas and Good Combustion Practice	-	-
1139-AOP-R26	9/1/2021	NUCOR STEEL ARKANSAS	AR		SN-209 Annealing Furnaces	Unspecified	-	0.084	LB/MMBTU	Good Combustion Practice	-	-
11-322	2/1/2012	DAVENPORT WORKS	IA		Annealing Furnace	12	MMBTU/h	-	-	-	-	-
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Galvanizing Line #2 Annealing Furnaces (15) (EP 21-15)	4.8	MMBtu/hr, each	84	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	26.15	TON/YR
PSD-LA-774(M1)	6/4/2015	BENTELER STEEL TUBE FACILITY	LA		Annealing Furnace - S10	13.5	mm btu/hr	-	-	good combustion practices	-	-
PSD-LA-744(M2)	3/28/2018	BENTELER STEEL TUBE FACILITY	LA		Continuous Annealing Furnace - EQT0010	13.5	mm btu/hr	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Galvanizing Line Equipment (galvanizing line/galvanneal furnace)	21.4	MMBtu/hr	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Galvanizing Line Equipment (galvanneal furnace 2)	Unspecified	-	84	LB/MMSCF	Good Combustion Practices	-	-
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX		Annealing Furnace AND Tunnel Furnaces	Unspecified	-	0.082	LB/MMBTU	GOOD COMBUSTION PRACTICES, CLEAN FUEL	-	-

Nucor Corporation | West Virginia Steel Mill
RBLC Entries for Annealing Furnace

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	SO2 Limit	SO2 Limit Unit	SO2 Control Technique	Limit 2	Limit 2 Unit
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	FURNACES SN-39, ANNEALING	98.25	MMBTU/H	5.88	X10^-4 LB/MMBTU	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	FURNACE, ANNEALING PICKLING LINE	66	MMBTU/H	5.88	X10^-4 LB/MMBTU	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	ANNEALING COATING LINE FURNACE SECTION	50	MMBTU/H	5.88	X10^-4 LB/MMBTU	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	FURNACE, SN-53, ANNEALING COATING LINE DRYING	38	MMBTU/H	5.88	X10^-4 LB/MMBTU	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	FURNACES SN-58 AND 60, FINAL ANNEALING AND COATING LINE	32	MMBTU/H	5.88	X10^-4 LB/MMBTU	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	-	-
1139-AOP-R16	2/11/2013	NUCOR CORPORATION - NUCOR STEEL, ARKANSAS	AR	Scrap Steel Mill	ANNEALING FURNACE SN-61	4.8	MMBTU/H	0.1	LB/H	FUEL SPECIFICATION NATURAL GAS	0.1	T/YR
147-33607-00041	2/24/2015	AK STEEL CORPORATION ROCKPORT WORKS	IN	Steel Coil Finishing Plant	HYDROGEN BATCH ANNEALING FURNACES NOS. 16, 17, AND 18	6.75	MMBTU/H EACH	-	-	-	-	-
701-0007-X121-X126	10/9/2015	ALLOYS PLANT	AL		ANNEALING FURNACE	8.3	MMBTU/H	-	-	-	-	-
2035-AOP-R2	11/7/2018	BIG RIVER STEEL LLC	AR		FURNACES SN-39, ANNEALING	85.15	MMBTU/HR	-	-	-	-	-
2305-AOP-R4	4/5/2019	BIG RIVER STEEL LLC	AR		BOILER, ANNEALING PICKLE LINE	Unspecified	-	0.0006	LB/MMBTU	Combustion of Natural gas and Good Combustion Practice	-	-
2305-AOP-R7	3/17/2021	BIG RIVER STEEL LLC	AR		Annealing and Coating Line Drying Furnace	15	MMBtu/hr	0.0006	LB/MMBTU	Combustion of Natural gas and Good Combustion Practice	-	-
2305-AOP-R7	3/17/2021	BIG RIVER STEEL LLC	AR		Annealing Furnaces	117.9	MMBtu/hr	0.0006	LB/MMBTU	Combustion of Natural gas and Good Combustion Practice	-	-
2305-AOP-R7	3/17/2021	BIG RIVER STEEL LLC	AR		Annealing Pickling Line Furnace Section	66	MMBtu/hr	0.0006	LB/MMBTU	Combustion of Natural gas and Good Combustion Practice	-	-
2305-AOP-R7	3/17/2021	BIG RIVER STEEL LLC	AR		Annealing and Coating Line Furnace Section	13	MMBtu/hr	0.0006	LB/MMBTU	Combustion of Natural gas and Good Combustion Practice	-	-
1139-AOP-R26	9/1/2021	NUCOR STEEL ARKANSAS	AR		SN-209 Annealing Furnaces	Unspecified	-	0.0006	LB/MMBTU	Low Sulfur Fuel	-	-
11-322	2/1/2012	DAVENPORT WORKS	IA		Annealing Furnace	12	MMBTU/h	-	-	-	-	-
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Galvanizing Line #2 Annealing Furnaces (15) (EP 21-15)	4.8	MMBtu/hr, each	0.6	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	0.19	TON/YR
PSD-LA-774(M1)	6/4/2015	BENTELER STEEL TUBE FACILITY	LA		Annealing Furnace - S10	13.5	mm btu/hr	-	-	-	-	-
PSD-LA-744(M2)	3/28/2018	BENTELER STEEL TUBE FACILITY	LA		Continuous Annealing Furnace - EQT0010	13.5	mm btu/hr	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Galvanizing Line Equipment (galvanizing line/galvanneal furnace)	21.4	MMBtu/hr	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Galvanizing Line Equipment (galvanneal furnace 2)	Unspecified	-	0.6	LB/MMSCF	Good Combustion Practices	-	-
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX		Annealing Furnace AND Tunnel Furnaces	Unspecified	-	0.0006	LB/MMBTU	GOOD COMBUSTION PRACTICES, CLEAN FUEL	-	-

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	VOC Limit	VOC Limit Unit	VOC Control Technique	Limit 2	Limit 2 Unit
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	FURNACES SN-39, ANNEALING	98.25	MMBTU/H	0.0054	LB/MMBTU	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	FURNACE, ANNEALING PICKLING LINE	66	MMBTU/H	5.4	X10^-4 LB/MMBTU	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	ANNEALING COATING LINE FURNACE SECTION	50	MMBTU/H	0.0054	LB/MMBTU	RTO	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	FURNACE, SN-53, ANNEALING COATING LINE DRYING	38	MMBTU/H	0.0054	LB/MMBTU	RTO	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	FURNACES SN-58 AND 60, FINAL ANNEALING AND COATING LINE	32	MMBTU/H	0.0054	LB/MMBTU	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	-	-
1139-AOP-R16	2/11/2013	NUCOR CORPORATION - NUCOR STEEL, ARKANSAS	AR	Scrap Steel Mill	ANNEALING FURNACE SN-61	4.8	MMBTU/H	-	-	-	-	-
147-33607-00041	2/24/2015	AK STEEL CORPORATION ROCKPORT WORKS	IN	Steel Coil Finishing Plant	HYDROGEN BATCH ANNEALING FURNACES NOS. 16, 17, AND 18	6.75	MMBTU/H EACH	0.0055	LB/MMBTU	GOOD COMBUSTION PRACTICES	0.037	LB/H
701-0007-X121-X126	10/9/2015	ALLOYS PLANT	AL		ANNEALING FURNACE	8.3	MMBTU/H	-	-	GCP	-	-
2035-AOP-R2	11/7/2018	BIG RIVER STEEL LLC	AR		FURNACES SN-39, ANNEALING	85.15	MMBTU/HR	0.0054	LB/MMBTU	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	-	-
2305-AOP-R4	4/5/2019	BIG RIVER STEEL LLC	AR		BOILER, ANNEALING PICKLE LINE	Unspecified	-	0.0054	LB/MMBTU	Combustion of Natural gas and Good Combustion Practice	-	-
2305-AOP-R7	3/17/2021	BIG RIVER STEEL LLC	AR		Annealing and Coating Line Drying Furnace	15	MMBtu/hr	0.0054	LB/MMBTU	Combustion of Natural gas RTO	-	-
2305-AOP-R7	3/17/2021	BIG RIVER STEEL LLC	AR		Annealing Furnaces	117.9	MMBtu/hr	0.0054	LB/MMBTU	Combustion of Natural gas and Good Combustion Practice	-	-
2305-AOP-R7	3/17/2021	BIG RIVER STEEL LLC	AR		Annealing Pickling Line Furnace Section	66	MMBtu/hr	0.0054	LB/MMBTU	Combustion of Natural gas and Good Combustion Practice	-	-
2305-AOP-R7	3/17/2021	BIG RIVER STEEL LLC	AR		Annealing and Coating Line Furnace Section	13	MMBtu/hr	0.0054	LB/MMBTU	Combustion of Natural gas and Good Combustion Practice	-	-
1139-AOP-R26	9/1/2021	NUCOR STEEL ARKANSAS	AR		SN-209 Annealing Furnaces	Unspecified	-	0.0055	LB/MMBTU	Good Combustion Practice	-	-
11-322	2/1/2012	DAVENPORT WORKS	IA		Annealing Furnace	12	MMBTU/h	-	-	The company is required to limit the amount of oils & coolants used in earlier processes and apply good combustion practices to the furnace. There are no numerical limits for VOCs.	-	-
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Galvanizing Line #2 Annealing Furnaces (15) (EP 21-15)	4.8	MMBtu/hr, each	5.5	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	1.71	TON/YR
PSD-LA-774(M1)	6/4/2015	BENTELER STEEL TUBE FACILITY	LA		Annealing Furnace - S10	13.5	mm btu/hr	-	-	good combustion practices	-	-
PSD-LA-744(M2)	3/28/2018	BENTELER STEEL TUBE FACILITY	LA		Continuous Annealing Furnace - EQT0010	13.5	mm btu/hr	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Galvanizing Line Equipment (galvanizing line/galvanneal furnace)	21.4	MMBtu/hr	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Galvanizing Line Equipment (galvanneal furnace 2)	Unspecified	-	5.5	LB/MMSCF	Good Combustion Practices	-	-
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX		Annealing Furnace AND Tunnel Furnaces	Unspecified	-	0.0054	LB/MMBTU	GOOD COMBUSTION PRACTICES, CLEAN FUEL	-	-

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	PM Limit	PM Limit Unit	PM Control Technique	Limit 2	Limit 2 Unit
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	FURNACES SN-39, ANNEALING	98.25	MMBTU/H	5.2	X10^-4 LB/MMBTU	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	FURNACE, ANNEALING PICKLING LINE	66	MMBTU/H	5.2	X10^-4 LB/MMBTU	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	ANNEALING COATING LINE FURNACE SECTION	50	MMBTU/H	5.2	X10^-4 LB/MMBTU	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	FURNACE, SN-53, ANNEALING COATING LINE DRYING	38	MMBTU/H	5.2	X10^-4 LB/MMBTU	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	FURNACES SN-58 AND 60, FINAL ANNEALING AND COATING LINE	32	MMBTU/H	5.2	X10^-4 LB/MMBTU	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	-	-
1139-AOP-R16	2/11/2013	NUCOR CORPORATION - NUCOR STEEL, ARKANSAS	AR	Scrap Steel Mill	ANNEALING FURNACE SN-61	4.8	MMBTU/H	-	-	-	-	-
147-33607-00041	2/24/2015	AK STEEL CORPORATION ROCKPORT WORKS	IN	Steel Coil Finishing Plant	HYDROGEN BATCH ANNEALING FURNACES NOS. 16, 17, AND 18	6.75	MMBTU/H EACH	0.0019	LB/MMBTU	GOOD COMBUSTION PRACTICES	0.013	LB/H
701-0007-X121-X126	10/9/2015	ALLOYS PLANT	AL		ANNEALING FURNACE	8.3	MMBTU/H	-	-	-	-	-
2035-AOP-R2	11/7/2018	BIG RIVER STEEL LLC	AR		FURNACES SN-39, ANNEALING	85.15	MMBTU/HR	0.0075	LB/MMBTU	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	-	-
2305-AOP-R4	4/5/2019	BIG RIVER STEEL LLC	AR		BOILER, ANNEALING PICKLE LINE	Unspecified	-	0.0019	LB/MMBTU	Combustion of Natural gas and Good Combustion Practice	-	-
2305-AOP-R7	3/17/2021	BIG RIVER STEEL LLC	AR		Annealing and Coating Line Drying Furnace	15	MMBtu/hr	-	-	-	-	-
2305-AOP-R7	3/17/2021	BIG RIVER STEEL LLC	AR		Annealing Furnaces	117.9	MMBtu/hr	-	-	-	-	-
2305-AOP-R7	3/17/2021	BIG RIVER STEEL LLC	AR		Annealing Pickling Line Furnace Section	66	MMBtu/hr	-	-	-	-	-
2305-AOP-R7	3/17/2021	BIG RIVER STEEL LLC	AR		Annealing and Coating Line Furnace Section	13	MMBtu/hr	-	-	-	-	-
1139-AOP-R26	9/1/2021	NUCOR STEEL ARKANSAS	AR		SN-209 Annealing Furnaces	Unspecified	-	0.0019	LB/MMBTU	Good Combustion Practice	-	-
11-322	2/1/2012	DAVENPORT WORKS	IA		Annealing Furnace	12	MMBTU/h	-	-	-	-	-
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Galvanizing Line #2 Annealing Furnaces (15) (EP 21-15)	4.8	MMBtu/hr, each	1.9	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	0.59	TON/YR
PSD-LA-774(M1)	6/4/2015	BENTELER STEEL TUBE FACILITY	LA		Annealing Furnace - S10	13.5	mm btu/hr	-	-	-	-	-
PSD-LA-744(M2)	3/28/2018	BENTELER STEEL TUBE FACILITY	LA		Continuous Annealing Furnace - EQT0010	13.5	mm btu/hr	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Galvanizing Line Equipment (galvanizing line/galvanneal furnace)	21.4	MMBtu/hr	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Galvanizing Line Equipment (galvanneal furnace 2)	Unspecified	-	1.9	LB/MMSCF	Good Combustion Practices	-	-
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX		Annealing Furnace AND Tunnel Furnaces	Unspecified	-	0.0075	LB/MMBTU	GOOD COMBUSTION PRACTICES, CLEAN FUEL	-	-

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	PM10 Limit	PM10 Limit Unit	PM10 Control Technique	Limit 2	Limit 2 Unit
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	FURNACES SN-39, ANNEALING	98.25	MMBTU/H	5.2	X10^-4 LB/MMBTU	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	FURNACE, ANNEALING PICKLING LINE	66	MMBTU/H	5.2	X10^-4 LB/MMBTU	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	ANNEALING COATING LINE FURNACE SECTION	50	MMBTU/H	5.2	X10^-4 LB/MMBTU	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	FURNACE, SN-53, ANNEALING COATING LINE DRYING	38	MMBTU/H	5.2	X10^-4 LB/MMBTU	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	FURNACES SN-58 AND 60, FINAL ANNEALING AND COATING LINE	32	MMBTU/H	5.2	X10^-4 LB/MMBTU	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	-	-
1139-AOP-R16	2/11/2013	NUCOR CORPORATION - NUCOR STEEL, ARKANSAS	AR	Scrap Steel Mill	ANNEALING FURNACE SN-61	4.8	MMBTU/H	-	-	-	-	-
147-33607-00041	2/24/2015	AK STEEL CORPORATION ROCKPORT WORKS	IN	Steel Coil Finishing Plant	HYDROGEN BATCH ANNEALING FURNACES NOS. 16, 17, AND 18	6.75	MMBTU/H EACH	0.0076	LB/MMBTU	GOOD COMBUSTION PRACTICES	0.051	LB/H
701-0007-X121-X126	10/9/2015	ALLOYS PLANT	AL		ANNEALING FURNACE	8.3	MMBTU/H	-	-	-	-	-
2035-AOP-R2	11/7/2018	BIG RIVER STEEL LLC	AR		FURNACES SN-39, ANNEALING	85.15	MMBTU/HR	0.0075	LB/MMBTU	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	-	-
2305-AOP-R4	4/5/2019	BIG RIVER STEEL LLC	AR		BOILER, ANNEALING PICKLE LINE	Unspecified	-	0.0019	LB/MMBTU	Combustion of Natural gas and Good Combustion Practice	-	-
2305-AOP-R7	3/17/2021	BIG RIVER STEEL LLC	AR		Annealing and Coating Line Drying Furnace	15	MMBtu/hr	0.016	LB/MMBTU	Combustion of Natural gas and Good Combustion Practice	-	-
2305-AOP-R7	3/17/2021	BIG RIVER STEEL LLC	AR		Annealing Furnaces	117.9	MMBtu/hr	0.0075	LB/MMBTU	Combustion of Natural gas and Good Combustion Practice	-	-
2305-AOP-R7	3/17/2021	BIG RIVER STEEL LLC	AR		Annealing Pickling Line Furnace Section	66	MMBtu/hr	0.013	LB/MMBTU	Combustion of Natural gas and Good Combustion Practice	-	-
2305-AOP-R7	3/17/2021	BIG RIVER STEEL LLC	AR		Annealing and Coating Line Furnace Section	13	MMBtu/hr	0.013	LB/MMBTU	Combustion of Natural gas and Good Combustion Practice	-	-
1139-AOP-R26	9/1/2021	NUCOR STEEL ARKANSAS	AR		SN-209 Annealing Furnaces	Unspecified	-	0.0076	LB/MMBTU	Good Combustion Practice	-	-
11-322	2/1/2012	DAVENPORT WORKS	IA		Annealing Furnace	12	MMBTU/h	-	-	-	-	-
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Galvanizing Line #2 Annealing Furnaces (15) (EP 21-15)	4.8	MMBtu/hr, each	7.6	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	2.37	TON/YR
PSD-LA-774(M1)	6/4/2015	BENTELER STEEL TUBE FACILITY	LA		Annealing Furnace - S10	13.5	mm btu/hr	0.0076	LB/MM BTU	good combustion techniques	-	-
PSD-LA-744(M2)	3/28/2018	BENTELER STEEL TUBE FACILITY	LA		Continuous Annealing Furnace - EQT0010	13.5	mm btu/hr	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Galvanizing Line Equipment (galvanizing line/galvanneal furnace)	21.4	MMBtu/hr	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Galvanizing Line Equipment (galvanneal furnace 2)	Unspecified	-	7.6	LB/MMSCF	Good Combustion Practices	-	-
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX		Annealing Furnace AND Tunnel Furnaces	Unspecified	-	0.0075	LB/MMBTU	GOOD COMBUSTION PRACTICES, CLEAN FUEL	-	-

Nucor Corporation | West Virginia Steel Mill
RBLC Entries for Annealing Furnace

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	PM2.5 Limit	PM2.5 Limit Unit	PM2.5 Control Technique	Limit 2	Limit 2 Unit
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	FURNACES SN-39, ANNEALING	98.25	MMBTU/H	5.2	X10^-4 LB/MMBTU	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	FURNACE, ANNEALING PICKLING LINE	66	MMBTU/H	5.2	X10^-4 LB/MMBTU	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	ANNEALING COATING LINE FURNACE SECTION	50	MMBTU/H	5.2	X10^-4 LB/MMBTU	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	FURNACE, SN-53, ANNEALING COATING LINE DRYING	38	MMBTU/H	5.2	X10^-4 LB/MMBTU	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	FURNACES SN-58 AND 60, FINAL ANNEALING AND COATING LINE	32	MMBTU/H	5.2	X10^-4 LB/MMBTU	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	-	-
1139-AOP-R16	2/11/2013	NUCOR CORPORATION - NUCOR STEEL, ARKANSAS	AR	Scrap Steel Mill	ANNEALING FURNACE SN-61	4.8	MMBTU/H	-	-	-	-	-
147-33607-00041	2/24/2015	AK STEEL CORPORATION ROCKPORT WORKS	IN	Steel Coil Finishing Plant	HYDROGEN BATCH ANNEALING FURNACES NOS. 16, 17, AND 18	6.75	MMBTU/H EACH	-	-	-	-	-
701-0007-X121-X126	10/9/2015	ALLOYS PLANT	AL		ANNEALING FURNACE	8.3	MMBTU/H	-	-	-	-	-
2035-AOP-R2	11/7/2018	BIG RIVER STEEL LLC	AR		FURNACES SN-39, ANNEALING	85.15	MMBTU/HR	0.0075	LB/MMBTU	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	-	-
2305-AOP-R4	4/5/2019	BIG RIVER STEEL LLC	AR		BOILER, ANNEALING PICKLE LINE	Unspecified	-	0.0019	LB/MMBTU	Combustion of Natural gas and Good Combustion Practice	-	-
2305-AOP-R7	3/17/2021	BIG RIVER STEEL LLC	AR		Annealing and Coating Line Drying Furnace	15	MMBtu/hr	0.016	LB/MMBTU	Combustion of Natural gas and Good Combustion Practice	-	-
2305-AOP-R7	3/17/2021	BIG RIVER STEEL LLC	AR		Annealing Furnaces	117.9	MMBtu/hr	0.0075	LB/MMBTU	Combustion of Natural gas and Good Combustion Practice	-	-
2305-AOP-R7	3/17/2021	BIG RIVER STEEL LLC	AR		Annealing Pickling Line Furnace Section	66	MMBtu/hr	0.013	LB/MMBTU	Combustion of Natural gas and Good Combustion Practice	-	-
2305-AOP-R7	3/17/2021	BIG RIVER STEEL LLC	AR		Annealing and Coating Line Furnace Section	13	MMBtu/hr	0.013	LB/MMBTU	Combustion of Natural gas and Good Combustion Practice	-	-
1139-AOP-R26	9/1/2021	NUCOR STEEL ARKANSAS	AR		SN-209 Annealing Furnaces	Unspecified	-	0.0076	LB/MMBTU	Good Combustion Practice	-	-
11-322	2/1/2012	DAVENPORT WORKS	IA		Annealing Furnace	12	MMBTU/h	-	-	-	-	-
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Galvanizing Line #2 Annealing Furnaces (15) (EP 21-15)	4.8	MMBtu/hr, each	7.6	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	2.37	TON/YR
PSD-LA-774(M1)	6/4/2015	BENTELER STEEL TUBE FACILITY	LA		Annealing Furnace - S10	13.5	mm btu/hr	0.0076	LB/MM BTU	good combustion techniques	-	-
PSD-LA-744(M2)	3/28/2018	BENTELER STEEL TUBE FACILITY	LA		Continuous Annealing Furnace - EQT0010	13.5	mm btu/hr	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Galvanizing Line Equipment (galvanizing line/galvanneal furnace)	21.4	MMBtu/hr	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Galvanizing Line Equipment (galvanneal furnace 2)	Unspecified	-	7.6	LB/MMSCF	Good Combustion Practices	-	-
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX		Annealing Furnace AND Tunnel Furnaces	Unspecified	-	0.0075	LB/MMBTU	GOOD COMBUSTION PRACTICES, CLEAN FUEL	-	-

Nucor Corporation | West Virginia Steel Mill
RBLC Entries for Annealing Furnace

								Carbon Dioxide	Carbon Dioxide	Carbon Dioxide	Carbon Dioxide	Carbon Dioxic	Methane	Methane	Methane	Methane	Methane	:rous Oxide (N	Nitrous Oxide (N2	Nitrous Oxide (N2O)	:rous Oxide (N	ous Oxide (N	oxide Equival	ioxide Equivale	on Dioxide Equivalent (	ioxide Equival	oxide Equival
Permit No.	**Permit Issuance Date**	**Facility Name**	**State**	**Facility Type**	**Process**	**Throughput**	**Unit**	**CO_2 Limit**	**CO_2 Limit Unit**	**CO_2 Control Technique**	**Limit 2**	**Limit 2 Unit**	**CH_4 Limit**	**CH_4 Limit Unit**	**CH_4 Control Technique**	**Limit 2**	**Limit 2 Unit**	**N_2O Limit**	**N_2O Limit Unit**	**N_2O Control Technique**	**Limit 2**	**Limit 2 Unit**	**CO_2e Limit**	**CO_2e Limit Unit**	**CO_2e Control Technique**	**Limit 2**	**Limit 2 Unit**
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	FURNACES SN-39, ANNEALING	98.25	MMBTU/H	117	LB/MMBTU	GOOD OPERATING PRACTICES	-	-	0.0022	LB/MMBTU	GOOD OPERATING PRACTICES	-	-	0.0002	LB/MMBTU	GOOD OPERATING PRACTICES	-	-	-	-	-	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	FURNACE, ANNEALING PICKLING LINE	66	MMBTU/H	117	LB/MMBTU	GOOD OPERATING PRACTICES	-	-	0.0022	LB/MMBTU	GOOD OPERATING PRACTICES	-	-	0.0002	LB/MMBTU	GOOD OPERATING PRACTICES	-	-	-	-	-	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	ANNEALING COATING LINE FURNACE SECTION	50	MMBTU/H	117	LB/MMBTU	GOOD OPERATING PRACTICES	-	-	0.0022	LB/MMBTU	GOOD OPERATING PRACTICES	-	-	0.0002	LB/MMBTU	GOOD OPERATING PRACTICES	-	-	-	-	-	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	FURNACE, SN-53, ANNEALING COATING LINE DRYING	38	MMBTU/H	117	LB/MMBTU	GOOD OPERATING PRACTICES	-	-	0.0022	LB/MMBTU	GOOD OPERATING PRACTICES	-	-	0.0002	LB/MMBTU	GOOD OPERATING PRACTICES	-	-	-	-	-	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	FURNACES SN-58 AND 60, FINAL ANNEALING AND COATING LINE	32	MMBTU/H	117	LB/MMBTU	GOOD OPERATING PRACTICES	-	-	0.0022	LB/MMBTU	GOOD OPERATING PRACTICES	-	-	0.0002	LB/MMBTU	GOOD OPERATING PRACTICES	-	-	-	-	-	-	-
1139-AOP-R16	2/11/2013	NUCOR CORPORATION - NUCOR STEEL, ARKANSAS	AR	Scrap Steel Mill	ANNEALING FURNACE SN-61	4.8	MMBTU/H	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
147-33607-00041	2/24/2015	AK STEEL CORPORATION ROCKPORT WORKS	IN	Steel Coil Finishing Plant	HYDROGEN BATCH ANNEALING FURNACES NOS. 16, 17, AND 18	6.75	MMBTU/H EACH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
701-0007-X121-X126	10/9/2015	ALLOYS PLANT	AL		ANNEALING FURNACE	8.3	MMBTU/H	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4256	T/YR	-	-	-
2035-AOP-R2	11/7/2018	BIG RIVER STEEL LLC	AR		FURNACES SN-39, ANNEALING	85.15	MMBTU/HR	117	LB/MMBTU	GOOD OPERATING PRACTICES	-	-	0.0022	LB/MMBTU	GOOD OPERATING PRACTICES	-	-	0.0002	LB/MMBTU	GOOD OPERATING PRACTICES	-	-	-	-	-	-	-
2305-AOP-R4	4/5/2019	BIG RIVER STEEL LLC	AR		BOILER, ANNEALING PICKLE LINE	Unspecified	-	117	LB/MMBTU	GOOD OPERATING PRACTICES MINIMUM BOILER EFFICIENCY 75%	-	-	0.0022	LB/MMBTU	GOOD OPERATING PRACTICES MINIMUM BOILER EFFICIENCY 75%	-	-	0.0002	LB/MMBTU	GOOD OPERATING PRACTICES MINIMUM BOILER EFFICIENCY 75%	-	-	-	-	-	-	-
2305-AOP-R7	3/17/2021	BIG RIVER STEEL LLC	AR		Annealing and Coating Line Drying Furnace	15	MMBtu/hr	117	LB/MMBTU	Good operating practices	-	-	0.0022	LB/MMBTU	Good operating practices	-	-	0.0002	LB/MMBTU	Good operating practices	-	-	-	-	-	-	-
2305-AOP-R7	3/17/2021	BIG RIVER STEEL LLC	AR		Annealing Furnaces	117.9	MMBtu/hr	117	LB/MMBTU	Good operating practices	-	-	0.0022	LB/MMBTU	Good operating practices	-	-	0.0002	LB/MMBTU	Good operating practices	-	-	-	-	-	-	-
2305-AOP-R7	3/17/2021	BIG RIVER STEEL LLC	AR		Annealing Pickling Line Furnace Section	66	MMBtu/hr	117	LB/MMBTU	Good operating practices	-	-	0.0022	LB/MMBTU	Good operating practices	-	-	0.0002	LB/MMBTU	Good operating practices	-	-	-	-	-	-	-
2305-AOP-R7	3/17/2021	BIG RIVER STEEL LLC	AR		Annealing and Coating Line Furnace Section	13	MMBtu/hr	117	LB/MMBTU	Good operating practices	-	-	0.0022	LB/MMBTU	Good operating practices	-	-	0.0002	LB/MMBTU	Good operating practices	-	-	-	-	-	-	-
1139-AOP-R26	9/1/2021	NUCOR STEEL ARKANSAS	AR		SN-209 Annealing Furnaces	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	121	LB/MMBTU	Good Combustion Practices	-	-
11-322	2/1/2012	DAVENPORT WORKS	IA		Annealing Furnace	12	MMBTU/h	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Galvanizing Line #2 Annealing Furnaces (15) (EP 21-15)	4.8	MMBtu/hr, each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	37581	TONS/YR	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan and implement various design and operational efficiency requirements.	-	-
PSD-LA-774(M1)	6/4/2015	BENTELER STEEL TUBE FACILITY	LA		Annealing Furnace - S10	13.5	mm btu/hr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	designs and work practices	-	-
PSD-LA-744(M2)	3/28/2018	BENTELER STEEL TUBE FACILITY	LA		Continuous Annealing Furnace - EQT0010	13.5	mm btu/hr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Galvanizing Line Equipment (galvanizing line/galvanneal furnace)	21.4	MMBtu/hr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Galvanizing Line Equipment (galvanneal furnace 2)	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11404	TPY	Use of natural gas and efficient combustion technology through good combustion practices.	-	-
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX		Annealing Furnace AND Tunnel Furnaces	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	117.1	LB/MMBTU	GOOD COMBUSTION PRACTICES, CLEAN FUEL	-	-

Process	Pollutant
Miscellaneous NG Combustion Units (including Small Heaters and Dryers (< 100 MMBtu/hr))	NO_X

		Control Technology	Selective Catalytic Reduction (SCR)[a]	Selective Non-Catalytic Reduction (SNCR)[b]	Non-Selective Catalytic Reduction (NSCR)[c,d]	SCONOX Catalytic Absorption System[e]	Xonon Cool Combustion[e]	Low-NOX Burners (LNBs)[c]	Oxy-Fuel Burners[c]	Good Process Operation
Step 1.	IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES	Control Technology Description	A nitrogen-based reagent (e.g., ammonia, urea) is injected into the exhaust stream downstream of the combustion unit. The reagent reacts selectively with NOX to produce molecular N2 and water in a reactor vessel containing a metallic or ceramic catalyst.	A nitrogen-based reagent (e.g., ammonia, urea) is injected into the exhaust stream and reacts selectively with NOX to produce molecular N2 and water within the combustion unit.	Metallic catalysts convert NOX, CO, and hydrocarbons to water, nitrogen, and CO2.	Utilizes a single catalyst to remove NOX, CO, and VOC through oxidation.	A catalyst integrated into gas turbine combustors limits the production of NOX through temperature control also resulting in reduced emissions of CO and VOC.	Low-NOX burners employ multi-staged combustion to inhibit the formation of NOX. Primary combustion occurs at lower temperatures under oxygen-deficient conditions; secondary combustion occurs in the presence of excess air.	Oxy-fired burners achieve combustion using oxygen rather than air, which reduces nitrogen levels in the furnace. The lower nitrogen levels result in a reduction in NOX emissions.	Operate and maintain the equipment in accordance with good air pollution control practices and with good combustion practices.
		Typical Operating Temperature	480 - 800 °F (typical SCR systems tolerate temperature variations of ± 200 °F)	1,600 - 2,100 °F (chemical additives can lower reaction temp.)	700 - 1,500 °F	300 - 700 °F	N/A	N/A	N/A	N/A
		Typical Waste Stream Inlet Flow Rate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Typical Waste Stream Inlet Pollutant Concentration	As low as 20 ppm (efficiency improves with increased concentration up to 150 ppm)	200 - 400 ppm	N/A	N/A	N/A	N/A	N/A	N/A
		Other Considerations	Unreacted reagent (ammonia slip) may form ammonium sulfates that may plug or corrode downstream equipment. Ammonia absorption into fly ash may affect ash disposal. Particulate-laden streams may blind the catalyst and may require a sootblower.	Unreacted reagent (ammonia slip) may form ammonium sulfates that may plug or corrode downstream equipment. Ammonia absorption into fly ash may affect ash disposal. The SNCR process produces N2O as a byproduct.	This technique uses a fuel rich mixture that, combined with back pressure from exhaust flow through the catalyst, increases the brake specific fuel consumption of the engine	The SCONOX Catalyst is sensitive to contamination by sulfur, so it must be used in conjunction with the SCOSOX catalyst, which favors sulfur compound absorption.	N/A	N/A	Oxy-fuel burners must be properly applied to prevent the formation of NOX due to the elevated flame temperatures.	N/A
Step 2.	ELIMINATE TECHNICALLY INFEASIBLE OPTIONS	RBLC Database Information	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnances etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnances etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnances etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnances etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnances etc.	Included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnances etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnances etc.	Included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnances etc.
		Feasibility Discussion	Technically infeasible. Small combustion units ≤ 100 MMBtu/hr for which add-on controls are not appropriate.	Technically infeasible. Small combustion units ≤ 100 MMBtu/hr for which add-on controls are not appropriate.	Technically infeasible. Typically applied only to rich burn engine emissions.	Technically infeasible. Typically applied to power generation turbines.	Technically infeasible. Integrated only in gas turbine combustors.	Feasible	Potentially Feasible	Feasible
Step 3.	RANK REMAINING CONTROL TECHNOLOGIES	Overall Control Efficiency						Up to 80%	20%	Base Case
Step 4.	EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS	Cost Effectiveness ($/ton)	See BACT Summary in Application Narrative for Galvanizing Line Furnace	See BACT Summary in Application Narrative for Galvanizing Line Furnace						
Step 5.	SELECT BACT							**BACT Limit: 0.05 lb/MMBtu (Galvanizing Furnaces) 0.1 lb/MMBtu (All Other Sources)**		

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Selective Catalytic Reduction (SCR))," EPA-452/F-03-032.
b. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Selective Non-Catalytic Reduction (SNCR))," EPA-452/F-03-031.
c. U.S. EPA, "Nitrogen Oxides (NOX), Why and How they are Controlled," EPA-456/F-99-006R
d. U.S. EPA, "CAM Technical Guidance Document" Section B-16, January 2005
e. California EPA, Air Resources Board, "Report to the Legislature: Gas-Fired Power Plant NOX Emission Controls and Related Environmental Impacts," http://www.arb.ca.gov/research/apr/reports/l2069.pdf

Process	Pollutant
Miscellaneous NG Combustion Units (including Small Heaters and Dryers (< 100 MMBtu/hr))	CO

		Control Technology	**Non-Selective Catalytic Reduction (NSCR)[a,b]**	**SCONOX Catalytic Absorption System[c]**	**Xonon Cool Combustion[c]**	**Recuperative Thermal Oxidation[d,e]**	**Regenerative Thermal Oxidation[f]**	**Catalytic Oxidation[g]**	**Good Process Operation**
Step 1.	**IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES**	**Control Technology Description**	Metallic catalysts convert NOX, CO, and hydrocarbons to water, nitrogen, and CO2.	Utilizes a single catalyst to remove NOX, CO, and VOC through oxidation.	A catalyst integrated into gas turbine combustors limits the production of NOX through temperature control also resulting in reduced emissions of CO and VOC.	Oxidizes combustible materials by raising the temperature of the material above the auto-ignition point in the presence of oxygen and maintaining the high temperature for sufficient time to complete combustion.	Oxidizes combustible materials by raising the temperature of the material above the auto-ignition point in the presence of oxygen and maintaining the high temperature for sufficient time to complete combustion.	Similar to thermal incineration; waste stream is heated by a flame and then passes through a catalyst bed that increases the oxidation rate more quickly and at lower temperatures.	Operate and maintain the equipment in accordance with good air pollution control practices and with good combustion practices.
		Typical Operating Temperature	700 - 1,500 °F	300 - 700 °F	N/A	1,100 - 1,200 °F	1,400 - 2,000 °F (RTO) 800 °F (RCO)	600 - 800 °F (not to exceed 1,250 °F)	N/A
		Typical Waste Stream Inlet Flow Rate	N/A	N/A	N/A	500 - 50,000 scfm	5,000 - 500,000 scfm	700 - 50,000 scfm	N/A
		Typical Waste Stream Inlet Pollutant Concentration	N/A	N/A	N/A	Best performance at 1,500 - 3,000 ppmv	As low as 100 ppmv or less	As low as 1 ppmv	N/A
		Other Considerations	This technique uses a fuel rich mixture that, combined with back pressure from exhaust flow through the catalyst, increases the brake specific fuel consumption of the engine	The SCONOX Catalyst is sensitive to contamination by sulfur, so it must be used in conjunction with the SCOSOX catalyst, which favors sulfur compound absorption.	N/A	Additional fuel is required to reach the ignition temperature of the waste gas stream. Oxidizers are not recommended for controlling gases with halogen or sulfur containing compounds due to the formation of highly corrosive acid gases.	Pretreatment to remove PM may be necessary for clogging prevention and/or catalyst poisoning. Additional fuel is required to reach the ignition temperature of the waste gas stream.[a]	Catalyst can be deactivated by certain catalyst poisons or other fouling contaminants such as silicone, sulfur, heavy hydrocarbons, and particulates.	N/A
Step 2.	**ELIMINATE TECHNICALLY INFEASIBLE OPTIONS**	**RBLC Database Information**	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.	Included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.
		Feasibility Discussion	Technically infeasible. Typically applied only to rich burn engine emissions.	Technically infeasible. Typically applied to power generation turbines.	Technically infeasible. Integrated only in gas turbine combustors.	Technically infeasible. Thermal oxidizers do not reduce emissions of CO from properly operated natural gas combustion units without the use of a catalyst.	Technically infeasible. Thermal oxidizers do not reduce emissions of CO from properly operated natural gas combustion units without the use of a catalyst.	Technically infeasible. Exhaust temperatures are outside the operating range for catalytic oxidation.	Feasible
Step 3.	**RANK REMAINING CONTROL TECHNOLOGIES**	**Overall Control Efficiency**							Base Case
Step 4.	**EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS**	**Cost Effectiveness ($/ton)**							
Step 5.	**SELECT BACT**								**BACT Limit: 0.082 lb/MMBtu**

a. U.S. EPA, "Nitrogen Oxides (NOX), Why and How they are Controlled," EPA-456/F-99-006R
b. U.S. EPA, "CAM Technical Guidance Document" Section B-16, January 2005
c. California EPA, Air Resources Board, "Report to the Legislature: Gas-Fired Power Plant NOX Emission Controls and Related Environmental Impacts," http://www.arb.ca.gov/research/apr/reports/l2069.pdf
d. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Thermal Incinerator)," EPA-452/F-03-022.
e. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Incinerator - Recuperative Type)," EPA-452/F-03-020.
f. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Regenerative Incinerator)," EPA-452/F-03-021.
g. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Catalytic Incinerator)," EPA-452/F-03-018.

Process	Pollutant
Miscellaneous NG Combustion Units (including Small Heaters and Dryers (< 100 MMBtu/hr))	SO_2

		Control Technology	Impingement-Plate/Tray-Tower Scrubber[a]	Packed-Bed/Packed-Tower Wet Scrubber[b]	Spray-Chamber/Spray-Tower Wet Scrubber[c]	Flue Gas Desulfurization[d]	Good Process Operation
Step 1.	IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES	Control Technology Description	An impingement-plate scrubber promotes contact between the flue gas and a sorbent slurry in a vertical column with transversely mounted perforated trays. Absorption of SO2 is accomplished by countercurrent contact between the flue gas and reagent slurry.	Scrubbing liquid (e.g., NaOH), which is introduced above layers of variously-shaped packing material, flows concurrently against the flue gas stream. The acid gases are absorbed into the scrubbing solution and react with alkaline compounds to produce neutral salts.	Spray tower scrubbers introduce a reagent slurry as atomized droplets through an array of spray nozzles within the scrubbing chamber. The waste gas enters the bottom of the column and travels upward in a countercurrent flow. Absorption of SO2 is accomplished by the contact between the gas and reagent slurry, which results in the formation of neutral salts.	An alkaline reagent is introduced in a spray tower as an aqueous slurry (for wet systems) or is pneumatically injected as a powder in the waste gas ductwork (for dry systems). Absorption of SO2 is accomplished by the contact between the gas and reagent slurry or powder, which results in the formation of neutral salts.	Operate and maintain the equipment in accordance with good air pollution control practices and with good combustion practices, including the use of natural gas.
		Typical Operating Temperature	40 - 100 °F	40 - 100 °F	40 - 100 °F	300 - 700 °F (wet) 300 - 1,830 °F (dry)	N/A
		Typical Waste Stream Inlet Flow Rate	1,000 - 75,000 scfm	500 - 75,000 scfm	1,500 to 100,000 scfm	N/A	N/A
		Typical Waste Stream Inlet Pollutant Concentration	N/A	250 - 10,000 ppmv	250 - 10,000 ppmv	2,000 ppmv	N/A
		Other Considerations	Waste slurry formed in the bottom of the scrubber requires disposal.	To avoid clogging, packed bed wet scrubbers are generally limited to applications in which PM concentrations are less than 0.20 gr/scf)	Waste slurry formed in the bottom of the scrubber requires disposal.	Chlorine emissions can result in salt deposition on the absorber and downstream equipment. Wet systems may require flue gas re-heating downstream of the absorber to prevent corrosive condensation. Dry systems may require cooling inlet streams to minimize deposits.	N/A
Step 2.	ELIMINATE TECHNICALLY INFEASIBLE OPTIONS	RBLC Database Information	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnances etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnances etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnances etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnances etc.	Included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnances etc.
		Feasibility Discussion	Technically infeasible. Small combustion units ≤ 100 MMBtu/hr for which add-on controls are not appropriate.	Technically infeasible. Small combustion units ≤ 100 MMBtu/hr for which add-on controls are not appropriate.	Technically infeasible. Small combustion units ≤ 100 MMBtu/hr for which add-on controls are not appropriate.	Technically infeasible. Small combustion units ≤ 100 MMBtu/hr for which add-on controls are not appropriate.	Feasible
Step 3.	RANK REMAINING CONTROL TECHNOLOGIES	Overall Control Efficiency					Base Case
Step 4.	EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS	Cost Effectiveness ($/ton)					
Step 5.	SELECT BACT						**BACT Limit: 0.0006 lb/MMBtu**

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Impingement-Plate/Tray-Tower Scrubber)," EPA-452/F-03-012.
b. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Packed-Bed/Packed-Tower Wet Scrubber)," EPA-452/F-03-015.
c. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Spray-Chamber/Spray-Tower Wet Scrubber)," EPA-452/F-03-016.
d. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Flue Gas Desulfurization)," EPA-452/F-03-034.

Nucor Corporation | West Virginia Steel Mill
Top Down BACT Analysis

Process	Pollutant
Miscellaneous NG Combustion Units (including Small Heaters and Dryers (< 100 MMBtu/hr))	VOC

		Control Technology	Recuperative Thermal Oxidation[a,b]	Regenerative Thermal Oxidation[c]	Catalytic Oxidation[d]	Carbon / Zeolite Adsorption[e]	Biofiltration[f]	Condenser[g]	Good Process Operation
Step 1.	IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES	Control Technology Description	Oxidizes combustible materials by raising the temperature of the material above the auto-ignition point in the presence of oxygen and maintaining the high temperature for sufficient time to complete combustion.	Oxidizes combustible materials by raising the temperature of the material above the auto-ignition point in the presence of oxygen and maintaining the high temperature for sufficient time to complete combustion.	Similar to thermal incineration; waste stream is heated by a flame and then passes through a catalyst bed that increases the oxidation rate more quickly and at lower temperatures.	Adsorption technology utilizes a porous solid to selectively collect VOC from the gas stream. Adsorption collects VOC, but does not destroy it.	Exhaust gases containing biodegradable organic compounds are vented, under controlled temperature and humidity, through biologically active material. The microorganisms contained in the bed of bio-material digest or biodegrade the organics to CO2 and water.	Condensers convert a gas or vapor stream to a liquid, allowing the organics within the stream to be recovered, refined, or reused and preventing the release of organic streams into the ambient air.	Operate and maintain the equipment in accordance with good air pollution control practices and with good combustion practices.
		Typical Operating Temperature	1,100 - 1,200 °F	1,400 - 2,000 °F (RTO) 800 °F (RCO)	600 - 800 °F (not to exceed 1,250 °F)	N/A	60 - 105 °F	Hydrocarbon dew point (may be as low as -100 °F)	N/A
		Typical Waste Stream Inlet Flow Rate	500 - 50,000 scfm	5,000 - 500,000 scfm	700 - 50,000 scfm	N/A	600 - 600,000 acfm	Up to 2,000 cfm (10,000 cfm cryogenic)	N/A
		Typical Waste Stream Inlet Pollutant Concentration	Best performance at 1,500 - 3,000 ppmv	As low as 100 ppmv or less	As low as 1 ppmv	As low as 20 ppm	N/A	High concentrations required for efficient control	N/A
		Other Considerations	Additional fuel is required to reach the ignition temperature of the waste gas stream. Oxidizers are not recommended for controlling gases with halogen or sulfur containing compounds due to the formation of highly corrosive acid gases.	Pretreatment to remove PM may be necessary for clogging prevention and/or catalyst poisoning. Additional fuel is required to reach the ignition temperature of the waste gas stream.[a]	Catalyst can be deactivated by certain catalyst poisons or other fouling contaminants such as silicone, sulfur, heavy hydrocarbons, and particulates.	Excessive temperatures may cause desorption of the hydrocarbons or may melt the adsorbent. Adsorbed hydrocarbons may oxidize and cause bed fires.	Temperatures outside the specified range, acidic deposition, or dry exhaust streams will kill or deactivate the microorganisms. Biofiltration systems occupy a large equipment footprint. Large land requirement for traditional design.	Energy required to drive the refrigeration system. Certain compounds may corrode the cooling coils and associated equipment. Particulate material may accumulate within the cooling chamber.	N/A
Step 2.	ELIMINATE TECHNICALLY INFEASIBLE OPTIONS	RBLC Database Information	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.	Included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.
		Feasibility Discussion	Technically infeasible. Small combustion units ≤ 100 MMBtu/hr for which add-on controls are not appropriate.	Technically infeasible. Small combustion units ≤ 100 MMBtu/hr for which add-on controls are not appropriate.	Technically infeasible. Small combustion units ≤ 100 MMBtu/hr for which add-on controls are not appropriate.	Technically infeasible. Small combustion units ≤ 100 MMBtu/hr for which add-on controls are not appropriate.	Technically infeasible. Small combustion units ≤ 100 MMBtu/hr for which add-on controls are not appropriate.	Technically infeasible. Small combustion units ≤ 100 MMBtu/hr for which add-on controls are not appropriate.	Feasible
Step 3.	RANK REMAINING CONTROL TECHNOLOGIES	Overall Control Efficiency							Base Case
Step 4.	EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS	Cost Effectiveness ($/ton)							
Step 5.	SELECT BACT								BACT Limit: 0.0054 lb/MMBtu

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Thermal Incinerator)," EPA-452/F-03-022.
b. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Incinerator - Recuperative Type)," EPA-452/F-03-020.
c. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Regenerative Incinerator)," EPA-452/F-03-021.
d. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Catalytic Incinerator)," EPA-452/F-03-018.
e. U.S. EPA, "Choosing an Adsorption System for VOC: Carbon, Zeolite, or Polymers?" EPA-456/F-99-004
f. U.S. EPA, "Using Bioreactors to Control Air Pollution," EPA-456/F-03-003
g. U.S. EPA, "Refrigerated Condensers for Control of Organic Air Emissions," EPA-456/F-01-004

Process	Pollutant
Miscellaneous NG Combustion Units (including Small Heaters and Dryers (< 100 MMBtu/hr))	$PM/PM_{10}/PM_{2.5}$

		Control Technology	Baghouse / Fabric Filter[a]	Electrostatic Precipitator (ESP)[b,c,d,e]	Incinerator[f]	Wet Scrubber[h]	Cyclone[i]	Good Process Operation
Step 1.	IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES	Control Technology Description	Process exhaust gas passes through a tightly woven or felted fabric arranged in sheets, cartridges, or bags that collect PM via sieving and other mechanisms. The dust cake that accumulates on the filters increases collection efficiency. Various cleaning techniques include pulse-jet, reverse-air, and shaker technologies.	Electrodes stimulate the waste gas and induce an electrical charge in the entrained particles. The resulting electrical field forces the charged particles to the collector walls from which the material may be mechanically dislodged and collected in dry systems or washed with a water deluge in wet systems.	The combustion of auxiliary fuel heats a combustion chamber to promote the thermal oxidation of partially combusted particulate hydrocarbons in the exhaust stream. Recuperative incinerators utilize heat exchangers to recover heat from the outlet gas which is used to pre-heat the incoming waste stream.	A scrubbing liquid introduced into the gas stream captures and collects entrained particles. In the case of a venturi scrubber, the turbulent airflow atomizes the scrubbing liquid to increase droplet-particle interaction. The droplets containing particles are typically separated from the exhaust gas in a downstream cyclonic separator and/or mist eliminator.	Centrifugal forces drive particles in the gas stream toward the cyclone walls as the waste gas flows through the conical unit. The captured particles are collected in a material hopper below the unit.	Operate and maintain the equipment in accordance with good air pollution control practices.
		Typical Operating Temperature	Up to 500 °F (Typical)	Up to 1,300 °F (dry) Lower than 170 - 190 °F (wet)	1,100 to 1,200 °F	40 to 750 °F	Up to 1,000 °F	N/A
		Typical Waste Stream Inlet Flow Rate	100 - 100,000 scfm (Standard) 100,000 - 1,000,000 scfm (Custom)	1,000 - 100,000 scfm (Wire-Pipe) 100,000 - 1,000,000 scfm (Wire-Plate)	500 - 50,000 scfm	500 - 100,000 scfm (units in parallel can operate at greater flowrates)	1.1 - 63,500 scfm (single) Up to 106,000 scfm (in parallel)	N/A
		Typical Waste Stream Inlet Pollutant Concentration	0.5 - 10 gr/dscf (Typical) 0.05 - 100 gr/dscf (Achievable)	0.5 - 5 gr/dscf (Wire-Pipe) 1 - 50 gr/dscf (Wire-Plate)	As low as 100 ppmv or less (for VOC)[g]	0.1 - 50 gr/dscf	0.44 - 7,000 gr/dscf	N/A
		Other Considerations	Fabric filters are susceptible to corrosion and blinding by moisture. Appropriate fabrics must be selected for specific process conditions. Accumulations of dust may present fire or explosion hazards.	Dry ESP efficiency varies significantly with dust resistivity. Air leakage and acid condensation may cause corrosion. ESPs are not generally suitable for highly variable processes. Equipment footprint is often substantial.	Incinerators may not effectively control highly-variable waste streams. Halogenated or sulfurous compounds may cause corrosion within the incinerator.	Effluent stream requires wastewater treatment and solid was disposal. Sludge disposal may be costly. Wet scrubbers are particularly susceptible to corrosion.	Cyclones typically exhibit lower efficiencies when collecting smaller particles. High-efficiency units may require substantial pressure drop. Unable to handle sticky and tacky materials.	N/A
Step 2.	ELIMINATE TECHNICALLY INFEASIBLE OPTIONS	RBLC Database Information	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.	Included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.
		Feasibility Discussion	Technically infeasible. Small combustion units ≤ 100 MMBtu/hr for which add-on controls are not appropriate.	Technically infeasible. Small combustion units ≤ 100 MMBtu/hr for which add-on controls are not appropriate.	Technically infeasible. Small combustion units ≤ 100 MMBtu/hr for which add-on controls are not appropriate.	Technically infeasible. Small combustion units ≤ 100 MMBtu/hr for which add-on controls are not appropriate.	Technically infeasible. Small combustion units ≤ 100 MMBtu/hr for which add-on controls are not appropriate.	Feasible
Step 3.	RANK REMAINING CONTROL TECHNOLOGIES	Overall Control Efficiency						Base Case
Step 4.	EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS	Cost Effectiveness ($/ton)						
Step 5.	SELECT BACT							**BACT Limit: 1.86E-3 lb/MMBtu (PM Filterable) 7.45E-3 lb/MMBtu (PM_{10} and $PM_{2.5}$)**

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Fabric Filter - Pulse-Jet Cleaned Type)," EPA-452/F-03-025.
b. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Dry Electrostatic Precipitator (ESP) - Wire-Pipe Type)," EPA-452/F-03-027.
c. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Dry Electrostatic Precipitator (ESP) - Wire-Plate Type)," EPA-452/F-03-028.
d. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Wet Electrostatic Precipitator(ESP) - Wire-Pipe Type)," EPA-452/F-03-029.
e. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Wet Electrostatic Precipitator (ESP) - Wire-Plate Type)," EPA-452/F-03-030.
f. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Incinerator - Recuperative Type)," EPA-452/F-03-020.
g. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Incinerator - Regenerative Type)," EPA-452/F-03-021.
h. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Venturi Scrubber)," EPA-452/F-03-017.
i. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Cyclone)," EPA-452/F-03-005.

Nucor Corporation | West Virginia Steel Mill

RBLC Entries for Miscellaneous NG Combustion Units (including Small Heaters and Dryers (< 100 MMBtu/hr))

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	NOx Limit	NOx Limit Unit	NOx Control Technique	Limit 2	Limit 2 Unit
413-0033-X014, X015, X016, X02	3/9/2017	NUCOR STEEL TUSCALOOSA, INC.	AL	Steel Mill	TK Engergizer Ladle Heater	5	MMBtu/hr	0.1	lb/MMBtu	Unspecified	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	Vacuum Degasser Boiler	51.2	MMBtu/hr	0.035	lb/MMBtu	Low NOx Burner, Good Combustion Practice	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	Small Heaters and Dryers SN-05 thru 19 (each)	Unspecified	-	0.08	lb/MMBtu	Low NOx Burner, Good Combustion Practice	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	Pickle Line Boiler	67	MMBtu/hr	0.035	lb/MMBtu	Low NOx Burner, Good Combustion Practice	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	Galvanizing Line Boilers SN-26 and 27	24.5	MMBtu/hr	0.035	lb/MMBtu	Low NOx Burner, Good Combustion Practice	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	MGO Coating Line Dryers	38	MMBtu/hr	0.1	lb/MMBtu	Low NOx Burner, Good Combustion Practice	-	-
102-12	1/4/2013	GERDAU MACSTEEL, INC.	MI	Steel Mill	Slidegate Heater (Euslidegateheater)	Unspecified	-	-	-	Good Combustion Practice	-	-
102-12A	10/27/2014	GERDAU MACSTEEL, INC.	MI	Steel Mill	Slidegate Heater (Euslidegateheater)	Unspecified	-	-	-	Good Combustion Practice	-	-
P0109191	7/18/2012	REPUBLIC STEEL	OH	Steel Mill	Steam Boiler	65	MMBtu/hr	0.07	lb/MMBtu	Unspecified	-	-
107-32615-00038	9/17/2013	NUCOR STEEL	IN	Steel Mini Mill	TUNDISH NOZZLE PREHEATERS	6.4	MMBtu/hr	100	lb/MMscf	Unspecified	0.63	lb/hr
107-32615-00038	9/17/2013	NUCOR STEEL	IN	Steel Mini Mill	TUNDISH PREHEATERS	12	MMBtu/hr	100	lb/MMscf	Unspecified	5.9	lb/hr
20-14	9/10/2014	SEVERSTAL DEARBORN, INC./AK STEEL CORPORATION	MI	Iron and Steel Manufacturing	Miscellaneous Natural Gas Fired Units	4.84	MMBtu/hr	-	-	-	-	-
1139-AOP-R14	2/17/2012	NUCOR CORPORATION - NUCOR STEEL, ARKANSAS	AR	Scrap Steel Mill	VTD Boiler	50.4	MMBtu/hr	-	-	-	-	-
2015-0643-C PSD	1/19/2016	CMC STEEL OKLAHOMA	OK	Steel Mill	Gas-Fired Heaters	Unspecified	-	0.1	lb/MMBtu	Unspecified	-	-
1050472-001-AC	2/14/2019	NUCOR STEEL FLORIDA FACILITY	FL		Ladle and Tundish Preheaters, Dryers and Skull Cutting	45.75	MMBtu/hour	0.1	LB/MMBTU	Good combustion practices	-	-
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH		Tundish Dryer #2 (P030)	1.2	MMBTU/H	0.12	LB/H	Use of natural gas, good combustion practices and design	0.53	T/YR
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH		Ladle Preheaters and Dryers (P021-023, P025-026)	16	MMBTU/H	1.6	LB/H	Use of natural gas, good combustion practices and design	7.01	T/YR
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH		Tundish Preheaters #3 and #4 (P028 and P029)	9.5	mmbtu/hr	0.95	LB/H	Use of natural gas, good combustion practices and design	4.16	T/YR
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Ancillary Equipment (tundish preheaters/dryers)	Unspecified	-	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Ancillary Equipment (ladle preheaters/dryers)	Unspecified	-	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Galvanizing Line Equipment (galvanizing line/galvanneal furnace)	21.4	MMBtu/hr	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Galvanizing Line Equipment (galvanneal furnace 2)	Unspecified	-	50	LB/MMSCF	Use of Low NOx Burners and Good Combustion Practices	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Galvanizing Line Equipment (galvanizing line 2 furnace)	Unspecified	-	7.5	LB/MMSCF	Use of SCR/SNCR, Low NOX Burners, and Good Combustion Practices	-	-
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX		Tundish Dryer and Tundish Preheaters	Unspecified	-	0.1	LB/MMBTU	GOOD COMBUSTION PRACTICES, CLEAN FUEL	-	-
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX		LADLE DRYERS AND PREHEATERS	Unspecified	-	0.1	LB/MMBTU	GOOD COMBUSTION PRACTICES, CLEAN FUEL	-	-
701-0006-X027-X030	10/9/2015	ELEMENT 13	AL		DUAL LADLE PREHEAT STATION	8	MMBTU/H	0.05	LB/MMBTU	LOW NOX BURNER	0.43	LB/H
2035-AOP-R2	11/7/2018	BIG RIVER STEEL LLC	AR		PREHEATER, GALVANIZING LINE SN-28	78.2	MMBTU/HR	0.035	LB/MMBTU	SCR, LOW NOX BURNERS, AND COMBUSTION OF CLEAN FUEL AND GOOD COMBUSTION PRACTICES	-	-
2305-AOP-R4	4/5/2019	BIG RIVER STEEL LLC	AR		PREHEATERS, GALVANIZING LINE SN-28 and SN-29	Unspecified	-	0.035	LB/MMBTU	SCR, LOW NOX BURNERS, AND COMBUSTION OF CLEAN FUEL AND GOOD COMBUSTION PRACTICES	-	-
1139-AOP-R24	2/14/2019	NUCOR STEEL ARKANSAS	AR		SN-228 and SN-229 Zinc Dryer and Zinc Pot Preheat	3	MMBTU/hr each	0.1	LB/MMBTU	Low Nox Burners	-	-
1139-AOP-R24	2/14/2019	NUCOR STEEL ARKANSAS	AR		SN-219 Galvanizing Line No, 2 Furnace	128	MMBTU/hr	0.0075	LB/MMBTU	Low Nox Burners, SCR/SNCR	0.063	LB/MMBTU
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Galvanizing Line #2 Preheat Furnace (EP 21-08A)	94	MMBtu/hr	7.5	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan. This unit is also equipped with a SCR/SNCR system to control emissions. During a cold start, SCR does not reach operating temperature for approximately 30 minutes. During this time, only low-NOx burners are controlling emissions of NOx. NSG estimates the unit may undergo 1 cold start every two (2) weeks.	3.03	TON/YR

Nucor Corporation | West Virginia Steel Mill
RBLC Entries for Miscellaneous NG Combustion Units (including Small Heaters and Dryers (< 100 MMBtu/hr))

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	NOx Limit	NOx Limit Unit	NOx Control Technique	Limit 2	Limit 2 Unit
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Galvanizing Line #2 Zinc Pot Preheater (EP 21-09)	3	MMBtu/hr	70	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan. This unit is equipped with a low-NOx burner.	0.017	TON/YR
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Galvanizing Line #2 Radiant Tube Furnace (EP 21-08B)	36	MMBtu/hr	7.5	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan. This unit is also equipped with a SCR/SNCR system to control emissions. During a cold start, SCR does not reach operating temperature for approximately 30 minutes. During this time, only low-NOx burners are controlling emissions of NOx. NSG estimates the unit may undergo 1 cold start every two (2) weeks.	1.16	TON/YR
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Galvanizing Line #2 Preheat Furnace (EP 21-08A)	94	MMBtu/hr	7.5	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan. This unit is also equipped with a SCR/SNCR system to control emissions. During a cold start, SCR does not reach operating temperature for approximately 30 minutes. During this time, only low-NOx burners are controlling emissions of NOx. NSG estimates the unit may undergo 1 cold start every two (2) weeks.	3.03	TON/YR
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Air Separation Unit Water Bath Vaporizer (2 indirect burners) (EP 23-01)	14.5	MMBtu/hr, each	50	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan. Equipped with low-NOx burners.	6.23	TON/YR
75-18	10/29/2018	GERDAU MACSTEEL MONROE	MI		Ladle preheater	30	mmbtu/h	0.08	LB/MMBTU	Low NOx burners, use of NG fuel, and good combustion practices.	-	-
P0112127	5/7/2013	GENERAL ELECTRIC AVIATION, EVENDALE PLANT	OH		4 Indirect-Fired Air Preheaters	Unspecified	-	0.14	LB/MMBTU	-	3.9	T/YR
P0125024	2/6/2019	PETMIN USA INCORPORATED	OH		Ladle Preheaters (P002, P003 and P004)	15	MMBTU/H	2.12	LB/H	Good combustion practices and the use of natural gas	9.29	T/YR
P0127678	7/17/2020	PETMIN USA INCORPORATED	OH		Ladle Preheaters (P002, P003 and P004)	15	MMBTU/H	-	-	-	-	-
2448 AND PSDTX1560	1/2/2020	STEEL MANUFACTURING FACILITY	TX		MELT SHOP LADLE PREHEATERS	Unspecified	-	-	-	GOOD COMBUSTION PRACTICES	-	-
2305-AOP-R7	3/17/2021	BIG RIVER STEEL LLC	AR		Galvanizing Line #2 Furnace	150.5	MMBtu/hr	0.035	LB/MMBTU	SCR, Low NOx burners Combustion of clean fuel Good Combustion Practices	-	-
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY		EP 13-01 - Water Bath Vaporizer	22	MMBtu/hr, combined	50	LB/MMSCF	Low-Nox Burners (Designed to maintain 0.05 lb/MMBtu); and a Good Combustion and Operating Practices (GCOP) Plan.	4.72	TON/YR
18-00033A	1/26/2018	RENOVO ENERGY CENTER, LLC	PA		Water Bath Heater	15	MMBtu	0.01	LB	-	0.66	TPY

Nucor Corporation | West Virginia Steel Mill

RBLC Entries for Miscellaneous NG Combustion Units (including Small Heaters and Dryers (< 100 MMBtu/hr))

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	CO Limit	CO Limit Unit	CO Control Technique	Limit 2	Limit 2 Unit
413-0033-X014, X015, X016, X02	3/9/2017	NUCOR STEEL TUSCALOOSA, INC.	AL	Steel Mill	TK Engergizer Ladle Heater	5	MMBtu/hr	0.084	lb/MMBtu	Unspecified	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	Vacuum Degasser Boiler	51.2	MMBtu/hr	0.0824	lb/MMBtu	Good Combustion Practice	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	Small Heaters and Dryers SN-05 thru 19 (each)	Unspecified	-	0.0824	lb/MMBtu	Good Combustion Practice	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	Pickle Line Boiler	67	MMBtu/hr	0.0824	lb/MMBtu	Good Combustion Practice	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	Galvanizing Line Boilers SN-26 and 27	24.5	MMBtu/hr	0.0824	lb/MMBtu	Good Combustion Practice	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	MGO Coating Line Dryers	38	MMBtu/hr	0.0824	lb/MMBtu	Good Combustion Practice	-	-
102-12	1/4/2013	GERDAU MACSTEEL, INC.	MI	Steel Mill	Slidegate Heater (Euslidegateheater)	Unspecified	-	-	-	Good Combustion Practice	-	-
102-12A	10/27/2014	GERDAU MACSTEEL, INC.	MI	Steel Mill	Slidegate Heater (Euslidegateheater)	Unspecified	-	-	-	Good Combustion Practice	-	-
P0109191	7/18/2012	REPUBLIC STEEL	OH	Steel Mill	Steam Boiler	65	MMBtu/hr	0.04	lb/MMBtu	Good Combustion Practice	11.4	tpy
107-32615-00038	9/17/2013	NUCOR STEEL	IN	Steel Mini Mill	TUNDISH NOZZLE PREHEATERS	6.4	MMBtu/hr	84	lb/MMscf	Unspecified	0.53	lb/hr
107-32615-00038	9/17/2013	NUCOR STEEL	IN	Steel Mini Mill	TUNDISH PREHEATERS	12	MMBtu/hr	84	lb/MMscf	Unspecified	4.94	lb/hr
20-14	9/10/2014	SEVERSTAL DEARBORN, INC./AK STEEL CORPORATION	MI	Iron and Steel Manufacturing	Miscellaneous Natural Gas Fired Units	4.84	MMBtu/hr	-	-	-	-	-
1139-AOP-R14	2/17/2012	NUCOR CORPORATION - NUCOR STEEL, ARKANSAS	AR	Scrap Steel Mill	VTD Boiler	50.4	MMBtu/hr	3.1	lb/hr	Good Combustion Practice	0.061	lb/MMBtu
2015-0643-C PSD	1/19/2016	CMC STEEL OKLAHOMA	OK	Steel Mill	Gas-Fired Heaters	Unspecified	-	0.084	lb/MMBtu	Unspecified	-	-
1050472-001-AC	2/14/2019	NUCOR STEEL FLORIDA FACILITY	FL		Ladle and Tundish Preheaters, Dryers and Skull Cutting	45.75	MMBtu/hour	0.084	LB/MMBTU	Good combustion practices	-	-
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH		Tundish Dryer #2 (P030)	1.2	MMBTU/H	0.02	LB/H	Use of natural gas, good combustion practices and design	0.09	T/YR
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH		Ladle Preheaters and Dryers (P021-023, P025-026)	16	MMBTU/H	0.32	LB/H	Use of natural gas, good combustion practices and design	1.4	T/YR
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH		Tundish Preheaters #3 and #4 (P028 and P029)	9.5	mmbtu/hr	0.19	LB/H	Use of natural gas, good combustion practices and design	0.83	T/YR
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Ancillary Equipment (tundish preheaters/dryers)	Unspecified	-	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Ancillary Equipment (ladle preheaters/dryers)	Unspecified	-	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Galvanizing Line Equipment (galvanizing line/galvanneal furnace)	21.4	MMBtu/hr	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Galvanizing Line Equipment (galvanneal furnace 2)	Unspecified	-	84	LB/MMSCF	Good Combustion Practices	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Galvanizing Line Equipment (galvanizing line 2 furnace)	Unspecified	-	84	LB/MMSCF	Good combustion practices	-	-
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX		Tundish Dryer and Tundish Preheaters	Unspecified	-	0.082	LB/MMBTU	GOOD COMBUSTION PRACTICES, CLEAN FUEL	-	-
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX		LADLE DRYERS AND PREHEATERS	Unspecified	-	0.082	LB/MMBTU	GOOD COMBUSTION PRACTICES, CLEAN FUEL	-	-
701-0006-X027-X030	10/9/2015	ELEMENT 13	AL		DUAL LADLE PREHEAT STATION	8	MMBTU/H	-	-	GCP	-	-
2035-AOP-R2	11/7/2018	BIG RIVER STEEL LLC	AR		PREHEATER, GALVANIZING LINE SN-28	78.2	MMBTU/HR	0.0824	LB/MMBTU	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	-	-
2305-AOP-R4	4/5/2019	BIG RIVER STEEL LLC	AR		PREHEATERS, GALVANIZING LINE SN-28 and SN-29	Unspecified	-	0.0824	LB/MMBTU	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	-	-
1139-AOP-R24	2/14/2019	NUCOR STEEL ARKANSAS	AR		SN-228 and SN-229 Zinc Dryer and Zinc Pot Preheat	3	MMBTU/hr each	0.084	LB/MMBTU	Good Combustion Practices	-	-
1139-AOP-R24	2/14/2019	NUCOR STEEL ARKANSAS	AR		SN-219 Galvanizing Line No, 2 Furnace	128	MMBTU/hr	0.084	LB/MMBTU	Good Combustion Practices	-	-
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Galvanizing Line #2 Preheat Furnace (EP 21-08A)	94	MMBtu/hr	84	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan.	33.91	TON/YR

RBLC Entries for Miscellaneous NG Combustion Units (including Small Heaters and Dryers (< 100 MMBtu/hr))

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	CO Limit	CO Limit Unit	CO Control Technique	Limit 2	Limit 2 Unit
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Galvanizing Line #2 Zinc Pot Preheater (EP 21-09)	3	MMBtu/hr	84	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	0.021	TON/YR
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Galvanizing Line #2 Radiant Tube Furnace (EP 21-08B)	36	MMBtu/hr	84	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	12.98	TON/YR
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Galvanizing Line #2 Preheat Furnace (EP 21-08A)	94	MMBtu/hr	84	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan.	33.91	TON/YR
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Air Separation Unit Water Bath Vaporizer (2 indirect burners) (EP 23-01)	14.5	MMBtu/hr, each	84	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	10.46	TON/YR
75-18	10/29/2018	GERDAU MACSTEEL MONROE	MI		Ladle preheater	30	mmbtu/h	0.084	LB/MMBTU	Use of NG fuel, and good combustion practices.	-	-
P0112127	5/7/2013	GENERAL ELECTRIC AVIATION, EVENDALE PLANT	OH		4 Indirect-Fired Air Preheaters	Unspecified	-	0.15	LB/MMBTU	-	99.9	T/YR
P0125024	2/6/2019	PETMIN USA INCORPORATED	OH		Ladle Preheaters (P002, P003 and P004)	15	MMBTU/H	-	-	-	-	-
P0127678	7/17/2020	PETMIN USA INCORPORATED	OH		Ladle Preheaters (P002, P003 and P004)	15	MMBTU/H	0.521	LB/H	Good combustion practices and the use of natural gas	2.26	T/YR
2448 AND PSDTX1560	1/2/2020	STEEL MANUFACTURING FACILITY	TX		MELT SHOP LADLE PREHEATERS	Unspecified	-	-	-	GOOD COMBUSTION PRACTICES	-	-
2305-AOP-R7	3/17/2021	BIG RIVER STEEL LLC	AR		Galvanizing Line #2 Furnace	150.5	MMBtu/hr	0.0824	LB/MMBTU	Combustion of Natural gas and Good Combustion Practice	-	-
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY		EP 13-01 - Water Bath Vaporizer	22	MMBtu/hr, combined	84	LB/MMSCF	This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan.	7.94	TON/YR
18-00033A	1/26/2018	RENOVO ENERGY CENTER, LLC	PA		Water Bath Heater	15	MMBtu	-	-	-	-	-

Nucor Corporation | West Virginia Steel Mill

RBLC Entries for Miscellaneous NG Combustion Units (including Small Heaters and Dryers (< 100 MMBtu/hr))

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	SO2 Limit	SO2 Limit Unit	SO2 Control Technique	Limit 2	Limit 2 Unit
413-0033-X014, X015, X016, X02	3/9/2017	NUCOR STEEL TUSCALOOSA, INC.	AL	Steel Mill	TK Engergizer Ladle Heater	5	MMBtu/hr	0.0006	lb/MMBtu	Unspecified	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	Vacuum Degasser Boiler	51.2	MMBtu/hr	0.000588	lb/MMBtu	Good Combustion Practice, Only Combust Natural Gas	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	Small Heaters and Dryers SN-05 thru 19 (each)	Unspecified	-	0.000588	lb/MMBtu	Good Combustion Practice, Only Combust Natural Gas	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	Pickle Line Boiler	67	MMBtu/hr	0.000588	lb/MMBtu	Good Combustion Practice, Only Combust Natural Gas	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	Galvanizing Line Boilers SN-26 and 27	24.5	MMBtu/hr	0.000588	lb/MMBtu	Good Combustion Practice, Only Combust Natural Gas	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	MGO Coating Line Dryers	38	MMBtu/hr	0.000588	lb/MMBtu	Good Combustion Practice, Only Combust Natural Gas	-	-
102-12	1/4/2013	GERDAU MACSTEEL, INC.	MI	Steel Mill	Slidegate Heater (Euslidegateheater)	Unspecified	-	-	-	Only Combust Natural Gas	-	-
102-12A	10/27/2014	GERDAU MACSTEEL, INC.	MI	Steel Mill	Slidegate Heater (Euslidegateheater)	Unspecified	-	0.001	-	Only Combust Natural Gas	-	-
P0109191	7/18/2012	REPUBLIC STEEL	OH	Steel Mill	Steam Boiler	65	MMBtu/hr	0.037	lb/hr	Unspecified	0.16	tpy
107-32615-00038	9/17/2013	NUCOR STEEL	IN	Steel Mini Mill	TUNDISH NOZZLE PREHEATERS	6.4	MMBtu/hr	0.6	lb/MMscf	Unspecified	0.004	lb/hr
107-32615-00038	9/17/2013	NUCOR STEEL	IN	Steel Mini Mill	TUNDISH PREHEATERS	12	MMBtu/hr	0.6	lb/MMscf	Unspecified	0.035	lb/hr
20-14	9/10/2014	SEVERSTAL DEARBORN, INC./AK STEEL CORPORATION	MI	Iron and Steel Manufacturing	Miscellaneous Natural Gas Fired Units	4.84	MMBtu/hr	-	-	-	-	-
1139-AOP-R14	2/17/2012	NUCOR CORPORATION - NUCOR STEEL, ARKANSAS	AR	Scrap Steel Mill	VTD Boiler	50.4	MMBtu/hr	0.1	lb/hr	Only Combust Natural Gas	0.0006	lb/MMBtu
2015-0643-C PSD	1/19/2016	CMC STEEL OKLAHOMA	OK	Steel Mill	Gas-Fired Heaters	Unspecified	-	-	-	-	-	-
1050472-001-AC	2/14/2019	NUCOR STEEL FLORIDA FACILITY	FL		Ladle and Tundish Preheaters, Dryers and Skull Cutting	45.75	MMBtu/hour	0.0006	LB/MMBTU	Natural gas with a sulfur content less than 2.0 gr./100 scf	-	-
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH		Tundish Dryer #2 (P030)	1.2	MMBTU/H	0.001	LB/H	Use of natural gas, good combustion practices and design	0.004	T/YR
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH		Ladle Preheaters and Dryers (P021-023, P025-026)	16	MMBTU/H	0.01	LB/H	Use of natural gas, good combustion practices and design	0.04	T/YR
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH		Tundish Preheaters #3 and #4 (P028 and P029)	9.5	mmbtu/hr	0.01	LB/H	Use of natural gas, good combustion practices and design	0.04	T/YR
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Ancillary Equipment (tundish preheaters/dryers)	Unspecified	-	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Ancillary Equipment (ladle preheaters/dryers)	Unspecified	-	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Galvanizing Line Equipment (galvanizing line/galvanneal furnace)	21.4	MMBtu/hr	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Galvanizing Line Equipment (galvanneal furnace 2)	Unspecified	-	0.6	LB/MMSCF	Good Combustion Practices	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Galvanizing Line Equipment (galvanizing line 2 furnace)	Unspecified	-	0.6	LB/MMSCF	Good Combustion Practices	-	-
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX		Tundish Dryer and Tundish Preheaters	Unspecified	-	0.0006	LB/MMBTU	GOOD C OMBUSTION PRACTICES, CLEAN FUEL	-	-
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX		LADLE DRYERS AND PREHEATERS	Unspecified	-	0.0006	LB/MMBTU	GOOD COMBUSTION PRACTICES, CLEAN FUEL	-	-
701-0006-X027-X030	10/9/2015	ELEMENT 13	AL		DUAL LADLE PREHEAT STATION	8	MMBTU/H	-	-	-	-	-
2035-AOP-R2	11/7/2018	BIG RIVER STEEL LLC	AR		PREHEATER, GALVANIZING LINE SN-28	78.2	MMBTU/HR	-	-	-	-	-
2305-AOP-R4	4/5/2019	BIG RIVER STEEL LLC	AR		PREHEATERS, GALVANIZING LINE SN-28 and SN-29	Unspecified	-	0.0006	LB/MMBTU	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	-	-
1139-AOP-R24	2/14/2019	NUCOR STEEL ARKANSAS	AR		SN-228 and SN-229 Zinc Dryer and Zinc Pot Preheat	3	MMBTU/hr each	0.0006	LB/MMBTU	Good Combustion Practices	-	-
1139-AOP-R24	2/14/2019	NUCOR STEEL ARKANSAS	AR		SN-219 Galvanizing Line No, 2 Furnace	128	MMBTU/hr	0.0006	LB/MMBTU	Good Combustion Practices	-	-
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Galvanizing Line #2 Preheat Furnace (EP 21-08A)	94	MMBtu/hr	0.6	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	0.24	TON/YR

Nucor Corporation | West Virginia Steel Mill
RBLC Entries for Miscellaneous NG Combustion Units (including Small Heaters and Dryers (< 100 MMBtu/hr))

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	SO2 Limit	SO2 Limit Unit	SO2 Control Technique	Limit 2	Limit 2 Unit
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Galvanizing Line #2 Zinc Pot Preheater (EP 21-09)	3	MMBtu/hr	0.6	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	0.0001	TON/YR
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Galvanizing Line #2 Radiant Tube Furnace (EP 21-08B)	36	MMBtu/hr	0.6	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	0.093	TON/YR
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Galvanizing Line #2 Preheat Furnace (EP 21-08A)	94	MMBtu/hr	0.6	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	0.24	TON/YR
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Air Separation Unit Water Bath Vaporizer (2 indirect burners) (EP 23-01)	14.5	MMBtu/hr, each	0.6	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	0.075	TON/YR
75-18	10/29/2018	GERDAU MACSTEEL MONROE	MI		Ladle preheater	30	mmbtu/h	0.0006	LB/MMBTU	Use of NG fuel and good combustion practices.	-	-
P0112127	5/7/2013	GENERAL ELECTRIC AVIATION, EVENDALE PLANT	OH		4 Indirect-Fired Air Preheaters	Unspecified	-	0.001	LB/MMBTU	-	24.9	T/YR
P0125024	2/6/2019	PETMIN USA INCORPORATED	OH		Ladle Preheaters (P002, P003 and P004)	15	MMBTU/H	-	-	-	-	-
P0127678	7/17/2020	PETMIN USA INCORPORATED	OH		Ladle Preheaters (P002, P003 and P004)	15	MMBTU/H	-	-	-	-	-
2448 AND PSDTX1560	1/2/2020	STEEL MANUFACTURING FACILITY	TX		MELT SHOP LADLE PREHEATERS	Unspecified	-	-	-	CLEAN FUEL AND SCRAP	-	-
2305-AOP-R7	3/17/2021	BIG RIVER STEEL LLC	AR		Galvanizing Line #2 Furnace	150.5	MMBtu/hr	0.0006	LB/MMBTU	Combustion of Natural gas and Good Combustion Practice	-	-
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY		EP 13-01 - Water Bath Vaporizer	22	MMBtu/hr, combined	0.6	LB/MMSCF	This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan.	0.06	TON/YR
18-00033A	1/26/2018	RENOVO ENERGY CENTER, LLC	PA		Water Bath Heater	15	MMBtu	-	-	-	-	-

RBLC Entries for Miscellaneous NG Combustion Units (including Small Heaters and Dryers (< 100 MMBtu/hr))

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	VOC Limit	VOC Limit Unit	VOC Control Technique	Limit 2	Limit 2 Unit
413-0033-X014, X015, X016, X02	3/9/2017	NUCOR STEEL TUSCALOOSA, INC.	AL	Steel Mill	TK Engergizer Ladle Heater	5	MMBtu/hr	0.0055	lb/MMBtu	Unspecified	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	Vacuum Degasser Boiler	51.2	MMBtu/hr	0.0054	lb/MMBtu	Good Combustion Practice, Only Combust Natural Gas	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	Small Heaters and Dryers SN-05 thru 19 (each)	Unspecified	-	0.0054	lb/MMBtu	Good Combustion Practice, Only Combust Natural Gas	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	Pickle Line Boiler	67	MMBtu/hr	-	-	-	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	Galvanizing Line Boilers SN-26 and 27	24.5	MMBtu/hr	0.0054	lb/MMBtu	Good Combustion Practice, Only Combust Natural Gas	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	MGO Coating Line Dryers	38	MMBtu/hr	0.0054	lb/MMBtu	Good Combustion Practice, Only Combust Natural Gas	-	-
102-12	1/4/2013	GERDAU MACSTEEL, INC.	MI	Steel Mill	Slidegate Heater (Euslidegateheater)	Unspecified	-	-	-	Good Combustion Practice, Only Combust Natural Gas	-	-
102-12A	10/27/2014	GERDAU MACSTEEL, INC.	MI	Steel Mill	Slidegate Heater (Euslidegateheater)	Unspecified	-	-	-	Good Combustion Practice, Only Combust Natural Gas	-	-
P0109191	7/18/2012	REPUBLIC STEEL	OH	Steel Mill	Steam Boiler	65	MMBtu/hr	0.35	lb/hr	Good Combustion Practice	1.52	tpy
107-32615-00038	9/17/2013	NUCOR STEEL	IN	Steel Mini Mill	TUNDISH NOZZLE PREHEATERS	6.4	MMBtu/hr	5.5	lb/MMscf	Unspecified	0.035	lb/hr
107-32615-00038	9/17/2013	NUCOR STEEL	IN	Steel Mini Mill	TUNDISH PREHEATERS	12	MMBtu/hr	5.5	lb/MMscf	Unspecified	0.32	lb/hr
20-14	9/10/2014	SEVERSTAL DEARBORN, INC./AK STEEL CORPORATION	MI	Iron and Steel Manufacturing	Miscellaneous Natural Gas Fired Units	4.84	MMBtu/hr	-	-	-	-	-
1139-AOP-R14	2/17/2012	NUCOR CORPORATION - NUCOR STEEL, ARKANSAS	AR	Scrap Steel Mill	VTD Boiler	50.4	MMBtu/hr	-	-	-	-	-
2015-0643-C PSD	1/19/2016	CMC STEEL OKLAHOMA	OK	Steel Mill	Gas-Fired Heaters	Unspecified	-	0.0055	lb/MMBtu	Only Combust Natural Gas	-	-
1050472-001-AC	2/14/2019	NUCOR STEEL FLORIDA FACILITY	FL		Ladle and Tundish Preheaters, Dryers and Skull Cutting	45.75	MMBtu/hour	0.0055	LB/MMBTU	Good combustion practices and using pipeline quality natural gas	-	-
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH		Tundish Dryer #2 (P030)	1.2	MMBTU/H	0.01	LB/H	Use of natural gas, good combustion practices and design	0.03	T/YR
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH		Ladle Preheaters and Dryers (P021-023, P025-026)	16	MMBTU/H	0.09	LB/H	Use of natural gas, good combustion practices and design	0.39	T/YR
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH		Tundish Preheaters #3 and #4 (P028 and P029)	9.5	mmbtu/hr	0.05	LB/H	Use of natural gas, good combustion practices and design	0.22	T/YR
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Ancillary Equipment (tundish preheaters/dryers)	Unspecified	-	-	-	Good combustion practices	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Ancillary Equipment (ladle preheaters/dryers)	Unspecified	-	-	-	Good Combustion Practices	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Galvanizing Line Equipment (galvanizing line/galvanneal furnace)	21.4	MMBtu/hr	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Galvanizing Line Equipment (galvanneal furnace 2)	Unspecified	-	5.5	LB/MMSCF	Good Combustion Practices	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Galvanizing Line Equipment (galvanizing line 2 furnace)	Unspecified	-	5.5	LB/MMSCF	Good Combustion Practices	-	-
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX		Tundish Dryer and Tundish Preheaters	Unspecified	-	0.0054	LB/MMBTU	GOOD COMBUSTION PRACTICES, CLEAN FUEL	-	-
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX		LADLE DRYERS AND PREHEATERS	Unspecified	-	0.0054	LB/MMBTU	GOOD COMBUSTION PRACTICES, CLEAN FUEL	-	-
701-0006-X027-X030	10/9/2015	ELEMENT 13	AL		DUAL LADLE PREHEAT STATION	8	MMBTU/H	-	-	GCP	-	-
2035-AOP-R2	11/7/2018	BIG RIVER STEEL LLC	AR		PREHEATER, GALVANIZING LINE SN-28	78.2	MMBTU/HR	0.0054	LB/MMBTU	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	-	-
2305-AOP-R4	4/5/2019	BIG RIVER STEEL LLC	AR		PREHEATERS, GALVANIZING LINE SN-28 and SN-29	Unspecified	-	0.0054	LB/MMBTU	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	-	-
1139-AOP-R24	2/14/2019	NUCOR STEEL ARKANSAS	AR		SN-228 and SN-229 Zinc Dryer and Zinc Pot Preheat	3	MMBTU/hr each	0.0076	LB/MMBTU	Good Combustion Practices	-	-
1139-AOP-R24	2/14/2019	NUCOR STEEL ARKANSAS	AR		SN-219 Galvanizing Line No, 2 Furnace	128	MMBTU/hr	0.0055	LB/MMBTU	Good Combustion Practices	-	-
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Galvanizing Line #2 Preheat Furnace (EP 21-08A)	94	MMBtu/hr	5.5	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	2.22	TON/YR

RBLC Entries for Miscellaneous NG Combustion Units (including Small Heaters and Dryers (< 100 MMBtu/hr))

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	VOC Limit	VOC Limit Unit	VOC Control Technique	Limit 2	Limit 2 Unit
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Galvanizing Line #2 Zinc Pot Preheater (EP 21-09)	3	MMBtu/hr	5.5	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	0.0013	TON/YR
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Galvanizing Line #2 Radiant Tube Furnace (EP 21-08B)	36	MMBtu/hr	5.5	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	0.85	TON/YR
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Galvanizing Line #2 Preheat Furnace (EP 21-08A)	94	MMBtu/hr	5.5	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	2.22	TON/YR
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Air Separation Unit Water Bath Vaporizer (2 indirect burners) (EP 23-01)	14.5	MMBtu/hr, each	5.5	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	0.68	TON/YR
75-18	10/29/2018	GERDAU MACSTEEL MONROE	MI		Ladle preheater	30	mmbtu/h	-	-	-	-	-
P0112127	5/7/2013	GENERAL ELECTRIC AVIATION, EVENDALE PLANT	OH		4 Indirect-Fired Air Preheaters	Unspecified	-	0.005	LB/MMBTU	-	39.9	T/YR
P0125024	2/6/2019	PETMIN USA INCORPORATED	OH		Ladle Preheaters (P002, P003 and P004)	15	MMBTU/H	-	-	-	-	-
P0127678	7/17/2020	PETMIN USA INCORPORATED	OH		Ladle Preheaters (P002, P003 and P004)	15	MMBTU/H	-	-	-	-	-
2448 AND PSDTX1560	1/2/2020	STEEL MANUFACTURING FACILITY	TX		MELT SHOP LADLE PREHEATERS	Unspecified	-	-	-	GOOD COMBUSTION PRACTICES	-	-
2305-AOP-R7	3/17/2021	BIG RIVER STEEL LLC	AR		Galvanizing Line #2 Furnace	150.5	MMBtu/hr	0.0054	LB/MMBTU	Combustion of Natural gas and Good Combustion Practice	-	-
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY		EP 13-01 - Water Bath Vaporizer	22	MMBtu/hr, combined	5.5	LB/MMSCF	This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan.	0.52	TON/YR
18-00033A	1/26/2018	RENOVO ENERGY CENTER, LLC	PA		Water Bath Heater	15	MMBtu	0.005	LB	-	0.33	TPY

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	PM Limit	PM Limit Unit	PM Control Technique	Limit 2	Limit 2 Unit
413-0033-X014, X015, X016, X02	3/9/2017	NUCOR STEEL TUSCALOOSA, INC.	AL	Steel Mill	TK Engergizer Ladle Heater	5	MMBtu/hr	0.0076	lb/MMBtu	Unspecified	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	Vacuum Degasser Boiler	51.2	MMBtu/hr	0.00052	lb/MMBtu	Good Combustion Practice, Only Combust Natural Gas	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	Small Heaters and Dryers SN-05 thru 19 (each)	Unspecified	-	0.00052	lb/MMBtu	Good Combustion Practice, Only Combust Natural Gas	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	Pickle Line Boiler	67	MMBtu/hr	0.00052	lb/MMBtu	Good Combustion Practice, Only Combust Natural Gas	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	Galvanizing Line Boilers SN-26 and 27	24.5	MMBtu/hr	0.00052	lb/MMBtu	Good Combustion Practice, Only Combust Natural Gas	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	MGO Coating Line Dryers	38	MMBtu/hr	0.00052	lb/MMBtu	Good Combustion Practice, Only Combust Natural Gas	-	-
102-12	1/4/2013	GERDAU MACSTEEL, INC.	MI	Steel Mill	Slidegate Heater (Euslidegateheater)	Unspecified	-	-	-	-	-	-
102-12A	10/27/2014	GERDAU MACSTEEL, INC.	MI	Steel Mill	Slidegate Heater (Euslidegateheater)	Unspecified	-	-	-	-	-	-
P0109191	7/18/2012	REPUBLIC STEEL	OH	Steel Mill	Steam Boiler	65	MMBtu/hr	-	-	-	-	-
107-32615-00038	9/17/2013	NUCOR STEEL	IN	Steel Mini Mill	TUNDISH NOZZLE PREHEATERS	6.4	MMBtu/hr	7.6	lb/MMscf	Unspecified	-	-
107-32615-00038	9/17/2013	NUCOR STEEL	IN	Steel Mini Mill	TUNDISH PREHEATERS	12	MMBtu/hr	7.6	lb/MMscf	Unspecified	-	-
20-14	9/10/2014	SEVERSTAL DEARBORN, INC./AK STEEL CORPORATION	MI	Iron and Steel Manufacturing	Miscellaneous Natural Gas Fired Units	4.84	MMBtu/hr	-	-	-	-	-
1139-AOP-R14	2/17/2012	NUCOR CORPORATION - NUCOR STEEL, ARKANSAS	AR	Scrap Steel Mill	VTD Boiler	50.4	MMBtu/hr	-	-	-	-	-
2015-0643-C PSD	1/19/2016	CMC STEEL OKLAHOMA	OK	Steel Mill	Gas-Fired Heaters	Unspecified	-	-	-	-	-	-
1050472-001-AC	2/14/2019	NUCOR STEEL FLORIDA FACILITY	FL		Ladle and Tundish Preheaters, Dryers and Skull Cutting	45.75	MMBtu/hour	-	-	-	-	-
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH		Tundish Dryer #2 (P030)	1.2	MMBTU/H	-	-	-	-	-
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH		Ladle Preheaters and Dryers (P021-023, P025-026)	16	MMBTU/H	-	-	-	-	-
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH		Tundish Preheaters #3 and #4 (P028 and P029)	9.5	mmbtu/hr	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Ancillary Equipment (tundish preheaters/dryers)	Unspecified	-	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Ancillary Equipment (ladle preheaters/dryers)	Unspecified	-	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Galvanizing Line Equipment (galvanizing line/galvanneal furnace)	21.4	MMBtu/hr	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Galvanizing Line Equipment (galvanneal furnace 2)	Unspecified	-	1.9	LB/MMSCF	Good Combustion Practices	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Galvanizing Line Equipment (galvanizing line 2 furnace)	Unspecified	-	1.9	LB/MMSCF	Good Combustion Practices	-	-
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX		Tundish Dryer and Tundish Preheaters	Unspecified	-	-	-	-	-	-
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX		LADLE DRYERS AND PREHEATERS	Unspecified	-	-	-	-	-	-
701-0006-X027-X030	10/9/2015	ELEMENT 13	AL		DUAL LADLE PREHEAT STATION	8	MMBTU/H	-	-	-	-	-
2035-AOP-R2	11/7/2018	BIG RIVER STEEL LLC	AR		PREHEATER, GALVANIZING LINE SN-28	78.2	MMBTU/HR	0.0012	LB/MMBTU	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	-	-
2305-AOP-R4	4/5/2019	BIG RIVER STEEL LLC	AR		PREHEATERS, GALVANIZING LINE SN-28 and SN-29	Unspecified	-	0.0012	LB/MMBTU	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	-	-
1139-AOP-R24	2/14/2019	NUCOR STEEL ARKANSAS	AR		SN-228 and SN-229 Zinc Dryer and Zinc Pot Preheat	3	MMBTU/hr each	0.0019	LB/MMBTU	Good Combustion Practices	-	-
1139-AOP-R24	2/14/2019	NUCOR STEEL ARKANSAS	AR		SN-219 Galvanizing Line No, 2 Furnace	128	MMBTU/hr	0.0019	LB/MMBTU	Good Combustion Practices	-	-
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Galvanizing Line #2 Preheat Furnace (EP 21-08A)	94	MMBtu/hr	1.9	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	0.77	TON/YR

RBLC Entries for Miscellaneous NG Combustion Units (including Small Heaters and Dryers (< 100 MMBtu/hr))

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	PM Limit	PM Limit Unit	PM Control Technique	Limit 2	Limit 2 Unit
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Galvanizing Line #2 Zinc Pot Preheater (EP 21-09)	3	MMBtu/hr	1.9	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	0.0005	TON/YR
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Galvanizing Line #2 Radiant Tube Furnace (EP 21-08B)	36	MMBtu/hr	1.9	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	0.29	TON/YR
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Galvanizing Line #2 Preheat Furnace (EP 21-08A)	94	MMBtu/hr	1.9	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	0.77	TON/YR
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Air Separation Unit Water Bath Vaporizer (2 indirect burners) (EP 23-01)	14.5	MMBtu/hr, each	1.9	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	0.24	TON/YR
75-18	10/29/2018	GERDAU MACSTEEL MONROE	MI		Ladle preheater	30	mmbtu/h	0.0076	LB/MMBTU	Use of NG fuel and good combustion practices.	-	-
P0112127	5/7/2013	GENERAL ELECTRIC AVIATION, EVENDALE PLANT	OH		4 Indirect-Fired Air Preheaters	Unspecified	-	-	-	-	-	-
P0125024	2/6/2019	PETMIN USA INCORPORATED	OH		Ladle Preheaters (P002, P003 and P004)	15	MMBTU/H	-	-	-	-	-
P0127678	7/17/2020	PETMIN USA INCORPORATED	OH		Ladle Preheaters (P002, P003 and P004)	15	MMBTU/H	-	-	-	-	-
2448 AND PSDTX1560	1/2/2020	STEEL MANUFACTURING FACILITY	TX		MELT SHOP LADLE PREHEATERS	Unspecified	-	-	-	-	-	-
2305-AOP-R7	3/17/2021	BIG RIVER STEEL LLC	AR		Galvanizing Line #2 Furnace	150.5	MMBtu/hr	-	-	-	-	-
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY		EP 13-01 - Water Bath Vaporizer	22	MMBtu/hr, combined	1.9	LB/MMSCF	This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan.	0.18	TON/YR
18-00033A	1/26/2018	RENOVO ENERGY CENTER, LLC	PA		Water Bath Heater	15	MMBtu	-	-	-	-	-

RBLC Entries for Miscellaneous NG Combustion Units (including Small Heaters and Dryers (< 100 MMBtu/hr))

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	PM10 Limit	PM10 Limit Unit	PM10 Control Technique	Limit 2	Limit 2 Unit
413-0033-X014, X015, X016, X02	3/9/2017	NUCOR STEEL TUSCALOOSA, INC.	AL	Steel Mill	TK Engergizer Ladle Heater	5	MMBtu/hr	-	-	-	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	Vacuum Degasser Boiler	51.2	MMBtu/hr	0.00052	lb/MMBtu	Good Combustion Practice, Only Combust Natural Gas	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	Small Heaters and Dryers SN-05 thru 19 (each)	Unspecified	-	0.00052	lb/MMBtu	Good Combustion Practice, Only Combust Natural Gas	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	Pickle Line Boiler	67	MMBtu/hr	0.00052	lb/MMBtu	Good Combustion Practice, Only Combust Natural Gas	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	Galvanizing Line Boilers SN-26 and 27	24.5	MMBtu/hr	0.00052	lb/MMBtu	Good Combustion Practice, Only Combust Natural Gas	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	MGO Coating Line Dryers	38	MMBtu/hr	0.00052	lb/MMBtu	Good Combustion Practice, Only Combust Natural Gas	-	-
102-12	1/4/2013	GERDAU MACSTEEL, INC.	MI	Steel Mill	Slidegate Heater (Euslidegateheater)	Unspecified	-	-	-	Good Combustion Practice, Only Combust Natural Gas	-	-
102-12A	10/27/2014	GERDAU MACSTEEL, INC.	MI	Steel Mill	Slidegate Heater (Euslidegateheater)	Unspecified	-	-	-	Good Combustion Practice, Only Combust Natural Gas	-	-
P0109191	7/18/2012	REPUBLIC STEEL	OH	Steel Mill	Steam Boiler	65	MMBtu/hr	0.48	lb/hr	Unspecified	2.1	tpy
107-32615-00038	9/17/2013	NUCOR STEEL	IN	Steel Mini Mill	TUNDISH NOZZLE PREHEATERS	6.4	MMBtu/hr	7.6	lb/MMscf	Unspecified	0.05	lb/hr
107-32615-00038	9/17/2013	NUCOR STEEL	IN	Steel Mini Mill	TUNDISH PREHEATERS	12	MMBtu/hr	7.6	lb/MMscf	Unspecified	0.45	lb/hr
20-14	9/10/2014	SEVERSTAL DEARBORN, INC./AK STEEL CORPORATION	MI	Iron and Steel Manufacturing	Miscellaneous Natural Gas Fired Units	4.84	MMBtu/hr	-	-	Good Combustion Practice	-	-
1139-AOP-R14	2/17/2012	NUCOR CORPORATION - NUCOR STEEL, ARKANSAS	AR	Scrap Steel Mill	VTD Boiler	50.4	MMBtu/hr	-	-	-	-	-
2015-0643-C PSD	1/19/2016	CMC STEEL OKLAHOMA	OK	Steel Mill	Gas-Fired Heaters	Unspecified	-	0.0076	lb/MMBtu	Only Combust Natural Gas	-	-
1050472-001-AC	2/14/2019	NUCOR STEEL FLORIDA FACILITY	FL		Ladle and Tundish Preheaters, Dryers and Skull Cutting	45.75	MMBtu/hour	0.0076	LB/MMBTU	Use of natural gas	-	-
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH		Tundish Dryer #2 (P030)	1.2	MMBTU/H	0.004	LB/H	Use of natural gas, good combustion practices and design	0.02	T/YR
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH		Ladle Preheaters and Dryers (P021-023, P025-026)	16	MMBTU/H	0.05	LB/H	Use of natural gas, good combustion practices and design	0.22	T/YR
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH		Tundish Preheaters #3 and #4 (P028 and P029)	9.5	mmbtu/hr	0.03	LB/H	Use of natural gas, good combustion practices and design	0.13	T/YR
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Ancillary Equipment (tundish preheaters/dryers)	Unspecified	-	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Ancillary Equipment (ladle preheaters/dryers)	Unspecified	-	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Galvanizing Line Equipment (galvanizing line/galvanneal furnace)	21.4	MMBtu/hr	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Galvanizing Line Equipment (galvanneal furnace 2)	Unspecified	-	7.6	LB/MMSCF	Good Combustion Practices	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Galvanizing Line Equipment (galvanizing line 2 furnace)	Unspecified	-	7.6	LB/MMSCF	Good Combustion Practices	-	-
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX		Tundish Dryer and Tundish Preheaters	Unspecified	-	0.0075	LB/MMBTU	GOOD COMBUSTION PRACTICES, CLEAN FUEL	-	-
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX		LADLE DRYERS AND PREHEATERS	Unspecified	-	0.0075	LB/MMBTU	GOOD COMBUSTION PRACTICES, CLEAN FUEL	-	-
701-0006-X027-X030	10/9/2015	ELEMENT 13	AL		DUAL LADLE PREHEAT STATION	8	MMBTU/H	-	-	-	-	-
2035-AOP-R2	11/7/2018	BIG RIVER STEEL LLC	AR		PREHEATER, GALVANIZING LINE SN-28	78.2	MMBTU/HR	-	-	-	-	-
2305-AOP-R4	4/5/2019	BIG RIVER STEEL LLC	AR		PREHEATERS, GALVANIZING LINE SN-28 and SN-29	Unspecified	-	0.0012	LB/MMBTU	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	-	-
1139-AOP-R24	2/14/2019	NUCOR STEEL ARKANSAS	AR		SN-228 and SN-229 Zinc Dryer and Zinc Pot Preheat	3	MMBTU/hr each	0.0076	LB/MMBTU	Good Combustion Practices	-	-
1139-AOP-R24	2/14/2019	NUCOR STEEL ARKANSAS	AR		SN-219 Galvanizing Line No, 2 Furnace	128	MMBTU/hr	0.0076	LB/MMBTU	Good Combustion Practices	-	-
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Galvanizing Line #2 Preheat Furnace (EP 21-08A)	94	MMBtu/hr	7.6	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	3.07	TON/YR

Nucor Corporation | West Virginia Steel Mill

RBLC Entries for Miscellaneous NG Combustion Units (including Small Heaters and Dryers (< 100 MMBtu/hr))

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	PM10 Limit	PM10 Limit Unit	PM10 Control Technique	Limit 2	Limit 2 Unit
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Galvanizing Line #2 Zinc Pot Preheater (EP 21-09)	3	MMBtu/hr	7.6	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	0.0019	TON/YR
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Galvanizing Line #2 Radiant Tube Furnace (EP 21-08B)	36	MMBtu/hr	7.6	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	1.17	TON/YR
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Galvanizing Line #2 Preheat Furnace (EP 21-08A)	94	MMBtu/hr	7.6	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	3.07	TON/YR
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Air Separation Unit Water Bath Vaporizer (2 indirect burners) (EP 23-01)	14.5	MMBtu/hr, each	7.6	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	0.95	TON/YR
75-18	10/29/2018	GERDAU MACSTEEL MONROE	MI		Ladle preheater	30	mmbtu/h	0.0076	LB/MMBTU	Use of NG fuel and good combustion practices.	-	-
P0112127	5/7/2013	GENERAL ELECTRIC AVIATION, EVENDALE PLANT	OH		4 Indirect-Fired Air Preheaters	Unspecified	-	0.007	LB/MMBTU	-	9.9	T/YR
P0125024	2/6/2019	PETMIN USA INCORPORATED	OH		Ladle Preheaters (P002, P003 and P004)	15	MMBTU/H	0.112	LB/H	Good combustion practices and the use of natural gas	0.49	T/YR
P0127678	7/17/2020	PETMIN USA INCORPORATED	OH		Ladle Preheaters (P002, P003 and P004)	15	MMBTU/H	-	-	-	-	-
2448 AND PSDTX1560	1/2/2020	STEEL MANUFACTURING FACILITY	TX		MELT SHOP LADLE PREHEATERS	Unspecified	-	-	-	-	-	-
2305-AOP-R7	3/17/2021	BIG RIVER STEEL LLC	AR		Galvanizing Line #2 Furnace	150.5	MMBtu/hr	0.0012	LB/MMBTU	Combustion of Natural gas and Good Combustion Practice	-	-
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY		EP 13-01 - Water Bath Vaporizer	22	MMBtu/hr, combined	7.6	LB/MMSCF	This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan.	0.72	TON/YR
18-00033A	1/26/2018	RENOVO ENERGY CENTER, LLC	PA		Water Bath Heater	15	MMBtu	-	-	-	-	-

Nucor Corporation | West Virginia Steel Mill

RBLC Entries for Miscellaneous NG Combustion Units (including Small Heaters and Dryers (< 100 MMBtu/hr))

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	PM2.5 Limit	PM2.5 Limit Unit	PM2.5 Control Technique	Limit 2	Limit 2 Unit
413-0033-X014, X015, X016, X02	3/9/2017	NUCOR STEEL TUSCALOOSA, INC.	AL	Steel Mill	TK Engergizer Ladle Heater	5	MMBtu/hr	-	-	-	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	Vacuum Degasser Boiler	51.2	MMBtu/hr	0.00052	lb/MMBtu	Good Combustion Practice, Only Combust Natural Gas	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	Small Heaters and Dryers SN-05 thru 19 (each)	Unspecified	-	0.00052	lb/MMBtu	Good Combustion Practice, Only Combust Natural Gas	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	Pickle Line Boiler	67	MMBtu/hr	0.00052	lb/MMBtu	Good Combustion Practice, Only Combust Natural Gas	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	Galvanizing Line Boilers SN-26 and 27	24.5	MMBtu/hr	0.00052	lb/MMBtu	Good Combustion Practice, Only Combust Natural Gas	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	MGO Coating Line Dryers	38	MMBtu/hr	0.00052	lb/MMBtu	Good Combustion Practice, Only Combust Natural Gas	-	-
102-12	1/4/2013	GERDAU MACSTEEL, INC.	MI	Steel Mill	Slidegate Heater (Euslidegateheater)	Unspecified	-	-	-	-	-	-
102-12A	10/27/2014	GERDAU MACSTEEL, INC.	MI	Steel Mill	Slidegate Heater (Euslidegateheater)	Unspecified	-	-	-	-	-	-
P0109191	7/18/2012	REPUBLIC STEEL	OH	Steel Mill	Steam Boiler	65	MMBtu/hr	-	-	-	-	-
107-32615-00038	9/17/2013	NUCOR STEEL	IN	Steel Mini Mill	TUNDISH NOZZLE PREHEATERS	6.4	MMBtu/hr	7.6	lb/MMscf	Unspecified	0.05	lb/hr
107-32615-00038	9/17/2013	NUCOR STEEL	IN	Steel Mini Mill	TUNDISH PREHEATERS	12	MMBtu/hr	7.6	lb/MMscf	Unspecified	0.45	lb/hr
20-14	9/10/2014	SEVERSTAL DEARBORN, INC./AK STEEL CORPORATION	MI	Iron and Steel Manufacturing	Miscellaneous Natural Gas Fired Units	4.84	MMBtu/hr	-	-	Good Combustion Practice	-	-
1139-AOP-R14	2/17/2012	NUCOR CORPORATION - NUCOR STEEL, ARKANSAS	AR	Scrap Steel Mill	VTD Boiler	50.4	MMBtu/hr	-	-	-	-	-
2015-0643-C PSD	1/19/2016	CMC STEEL OKLAHOMA	OK	Steel Mill	Gas-Fired Heaters	Unspecified	-	0.0076	lb/MMBtu	Only Combust Natural Gas	-	-
1050472-001-AC	2/14/2019	NUCOR STEEL FLORIDA FACILITY	FL		Ladle and Tundish Preheaters, Dryers and Skull Cutting	45.75	MMBtu/hour	0.0076	LB/MMBTU	Use of natural gas	-	-
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH		Tundish Dryer #2 (P030)	1.2	MMBTU/H	0.004	LB/H	Use of natural gas, good combustion practices and design	0.02	T/YR
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH		Ladle Preheaters and Dryers (P021-023, P025-026)	16	MMBTU/H	0.05	LB/H	Use of natural gas, good combustion practices and design	0.22	T/YR
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH		Tundish Preheaters #3 and #4 (P028 and P029)	9.5	mmbtu/hr	0.03	LB/H	Use of natural gas, good combustion practices and design	0.13	T/YR
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Ancillary Equipment (tundish preheaters/dryers)	Unspecified	-	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Ancillary Equipment (ladle preheaters/dryers)	Unspecified	-	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Galvanizing Line Equipment (galvanizing line/galvanneal furnace)	21.4	MMBtu/hr	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Galvanizing Line Equipment (galvanneal furnace 2)	Unspecified	-	7.6	LB/MMSCF	Good Combustion Practices	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Galvanizing Line Equipment (galvanizing line 2 furnace)	Unspecified	-	7.6	LB/MMSCF	Good Combustion Practices	-	-
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX		Tundish Dryer and Tundish Preheaters	Unspecified	-	0.0075	LB/MMBTU	GOOD COMBUSTION PRACTICES, CLEAN FUEL	-	-
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX		LADLE DRYERS AND PREHEATERS	Unspecified	-	0.0075	LB/MMBTU	GOOD COMBUSTION PRACTICES, CLEAN FUEL	-	-
701-0006-X027-X030	10/9/2015	ELEMENT 13	AL		DUAL LADLE PREHEAT STATION	8	MMBTU/H	-	-	-	-	-
2035-AOP-R2	11/7/2018	BIG RIVER STEEL LLC	AR		PREHEATER, GALVANIZING LINE SN-28	78.2	MMBTU/HR	0.0012	LB/MMBTU	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	-	-
2305-AOP-R4	4/5/2019	BIG RIVER STEEL LLC	AR		PREHEATERS, GALVANIZING LINE SN-28 and SN-29	Unspecified	-	0.0012	LB/MMBTU	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	-	-
1139-AOP-R24	2/14/2019	NUCOR STEEL ARKANSAS	AR		SN-228 and SN-229 Zinc Dryer and Zinc Pot Preheat	3	MMBTU/hr each	0.0076	LB/MMBTU	Good Combustion Practices	-	-
1139-AOP-R24	2/14/2019	NUCOR STEEL ARKANSAS	AR		SN-219 Galvanizing Line No, 2 Furnace	128	MMBTU/hr	0.0076	LB/MMBTU	Good Combustion Practices	-	-
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Galvanizing Line #2 Preheat Furnace (EP 21-08A)	94	MMBtu/hr	7.6	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	3.07	TON/YR

Nucor Corporation | West Virginia Steel Mill
RBLC Entries for Miscellaneous NG Combustion Units (including Small Heaters and Dryers (< 100 MMBtu/hr))

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	PM2.5 Limit	PM2.5 Limit Unit	PM2.5 Control Technique	Limit 2	Limit 2 Unit
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Galvanizing Line #2 Zinc Pot Preheater (EP 21-09)	3	MMBtu/hr	7.6	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	0.0019	TON/YR
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Galvanizing Line #2 Radiant Tube Furnace (EP 21-08B)	36	MMBtu/hr	7.6	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	1.17	TON/YR
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Galvanizing Line #2 Preheat Furnace (EP 21-08A)	94	MMBtu/hr	7.6	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	3.07	TON/YR
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Air Separation Unit Water Bath Vaporizer (2 indirect burners) (EP 23-01)	14.5	MMBtu/hr, each	7.6	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	0.95	TON/YR
75-18	10/29/2018	GERDAU MACSTEEL MONROE	MI		Ladle preheater	30	mmbtu/h	0.0076	LB/MMBTU	Use of NG fuel and good combustion practices.	-	-
P0112127	5/7/2013	GENERAL ELECTRIC AVIATION, EVENDALE PLANT	OH		4 Indirect-Fired Air Preheaters	Unspecified	-	-	-	-	-	-
P0125024	2/6/2019	PETMIN USA INCORPORATED	OH		Ladle Preheaters (P002, P003 and P004)	15	MMBTU/H	0.112	LB/H	Good combustion practices and the use of natural gas	0.49	T/YR
P0127678	7/17/2020	PETMIN USA INCORPORATED	OH		Ladle Preheaters (P002, P003 and P004)	15	MMBTU/H	-	-	-	-	-
2448 AND PSDTX1560	1/2/2020	STEEL MANUFACTURING FACILITY	TX		MELT SHOP LADLE PREHEATERS	Unspecified	-	-	-	-	-	-
2305-AOP-R7	3/17/2021	BIG RIVER STEEL LLC	AR		Galvanizing Line #2 Furnace	150.5	MMBtu/hr	0.0012	LB/MMBTU	Combustion of Natural gas and Good Combustion Practice	-	-
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY		EP 13-01 - Water Bath Vaporizer	22	MMBtu/hr, combined	7.6	LB/MMSCF	This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan.	0.72	TON/YR
18-00033A	1/26/2018	RENOVO ENERGY CENTER, LLC	PA		Water Bath Heater	15	MMBtu	-	-	-	-	-

RBLC Entries for Miscellaneous NG Combustion Units (including Small Heaters and Dryers (< 100 MMBtu/hr))

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	CO_2 Limit	CO_2 Limit Unit	CO_2 Control Technique	Limit 2	Limit 2 Unit	CH_4 Limit	CH_4 Limit Unit	CH_4 Control Technique	Limit 2	Limit 2 Unit	N_2O Limit	N_2O Limit Unit	N_2O Control Technique	Limit 2	Limit 2 Unit	CO_2e Limit	CO_2e Limit Unit	CO_2e Control Technique	Limit 2	Limit 2 Unit
413-0033-X014, X015, X016, X02	3/9/2017	NUCOR STEEL TUSCALOOSA, INC.	AL	Steel Mill	TK Engergizer Ladle Heater (5 MMBtu/hr)	5	MMBtu/hr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2565	TONS/YEAR	-	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	BOILER, VACUUM DEGASSER	51.2	MMBTU/H	117	LB/MMBTU	GOOD OPERATING PRACTICES MINIMUM BOILER EFFICIENCY 75%	-	-	0.0022	LB/MMBTU	GOOD OPERATING PRACTICES MINIMUM BOILER EFFICIENCY 75%	-	-	0.0002	LB/MMBTU	GOOD OPERATING PRACTICES MINIMUM BOILER EFFICIENCY 75%	-	-	-	-	-	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	SMALL HEATERS AND DRYERS SN-05 THROUGH 19	Unspecified	-	117	LB/MMBTU	GOOD OPERATING PRACTICES	-	-	0.0022	LB/MMBTU	GOOD OPERATING PRACTICES	-	-	0.0002	LB/MMBTU	GOOD OPERATING PRACTICES	-	-	-	-	-	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	BOILER, PICKLE LINE	67	MMBTU/H	-	-	-	-	-	0.0022	LB/MMBTU	GOOD OPERATING PRACTICES MINIMUM BOILER EFFICIENCY 75%	-	-	0.0002	LB/MMBTU	GOOD OPERATING PRACTICES MINIMUM BOILER EFFICIENCY 75%	-	-	117	LB/MMBTU	GOOD OPERATING PRACTICES MINIMUM BOILER EFFICIENCY 75%	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	BOILERS SN-26 AND 27, GALVANIZING LINE	24.5	MMBTU/H	117	LB/MMBTU	GOOD OPERATING PRACTICES MINIMUM BOILER EFFICIENCY 75%	-	-	0.0022	LB/MMBTU	GOOD OPERATING PRACTICES MINIMUM BOILER EFFICIENCY 75%	-	-	0.0002	LB/MMBTU	GOOD OPERATING PRACTICES MINIMUM BOILER EFFICIENCY 75%	-	-	-	-	-	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	DRYERS, MGO COATING LINE	38	MMBTU/H	117	LB/MMBTU	GOOD OPERATING PRACTICES	-	-	0.0022	LB/MMBTU	GOOD OPERATING PRACTICES	-	-	0.0002	LB/MMBTU	GOOD OPERATING PRACTICES	-	-	-	-	-	-	-
102-12	1/4/2013	GERDAU MACSTEEL, INC.	MI	Steel Mill	Slidegate Heater (EUSLIDEGATEHEATER)	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	nergy efficiency practice	-	-
102-12A	10/27/2014	GERDAU MACSTEEL, INC.	MI	Steel Mill	EUSLIDEGATEHEATER (Slidegate Heater)	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Energy efficiency practices	-	-
P0109191	7/18/2012	REPUBLIC STEEL	OH	Steel Mill	Steam Boiler	65	MMBtu/H	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
107-32615-00038	9/17/2013	NUCOR STEEL	IN	Steel Mini Mill	TUNDISH NOZZLE PREHEATERS	6.4	MMBTU/H	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
107-32615-00038	9/17/2013	NUCOR STEEL	IN	Steel Mini Mill	TUNDISH PREHEATERS	12	MMBTU/HR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-14	9/10/2014	SEVERSTAL DEARBORN, INC./AK STEEL CORPORATION	MI	Iron and Steel Manufacturing	EUBLDGHEAT	4.84	MMBTU/H	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1139-AOP-R14	2/17/2012	NUCOR CORPORATION - NUCOR STEEL, ARKANSAS	AR	Scrap Steel Mill	VTD BOILER	50.4	MMBTU/H	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2015-0643-C PSD	1/19/2016	CMC STEEL OKLAHOMA	OK	Steel Mill	Heaters (Gas-Fired)	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	120	LB/MMBTU	Natural Gas Fuel	-	-
1050472-001-AC	2/14/2019	NUCOR STEEL FLORIDA FACILITY	FL		Ladle and Tundish Preheaters, Dryers and Skull Cutting	45.75	MMBtu/hour	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	120	LB/MMBTU	Good combustion practices and using pipeline quality natural gas	-	-
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH		Tundish Dryer #2 (P030)	1.2	MMBTU/H	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	140.22	LB/H	Use of natural gas and energy efficient design	614.18	T/YR
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH		Ladle Preheaters and Dryers (P021-023, P025-026)	16	MMBTU/H	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1869.65	LB/H	Use of natural gas and energy efficient design	8189.03	T/YR
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH		Tundish Preheaters #3 and #4 (P028 and P029)	9.5	mmbtu/hr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1110.1	LB/H	Use of natural gas and energy efficient design	4862.24	T/YR
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Ancillary Equipment (tundish preheaters/dryers)	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Ancillary Equipment (ladle preheaters/dryers)	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Galvanizing Line Equipment (galvanizing line/galvanneal furnace)	21.4	MMBtu/hr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Galvanizing Line Equipment (galvanneal furnace 2)	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11404	TPY	Use of natural gas and efficient combustion technology through good combustion practices.	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Galvanizing Line Equipment (galvanizing line 2 furnace)	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	51162	TPY	Use of natural gas and efficient combustion technology through good combustion practices.	-	-
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX		Tundish Dryer and Tundish Preheaters	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	117.1	LB/MMBTU	GOOD COMBUSTION PRACTICES, CLEAN FUEL	-	-
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX		LADLE DRYERS AND PREHEATERS	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	117.1	LB/MMBTU	GOOD COMBUSTION PRACTICES, CLEAN FUEL	-	-
701-0006-X027-X030	10/9/2015	ELEMENT 13	AL		DUAL LADLE PREHEAT STATION	8	MMBTU/H	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4098	T/YR	-	-	-
2035-AOP-R2	11/7/2018	BIG RIVER STEEL LLC	AR		PREHEATER, GALVANIZING LINE SN-28	78.2	MMBTU/HR	117	LB/MMBTU	GOOD OPERATING PRACTICES	-	-	0.0022	LB/MMBTU	GOOD OPERATING PRACTICES	-	-	0.0002	LB/MMBTU	GOOD OPERATING PRACTICES	-	-	-	-	-	-	-
2305-AOP-R4	4/5/2019	BIG RIVER STEEL LLC	AR		PREHEATERS, GALVANIZING LINE SN-28 and SN-29	Unspecified	-	117	LB/MMBTU	GOOD OPERATING PRACTICES	-	-	0.0022	LB/MMBTU	GOOD OPERATING PRACTICES	-	-	0.0002	LB/MMBTU	GOOD OPERATING PRACTICES	-	-	-	-	-	-	-

RBLC Entries for Miscellaneous NG Combustion Units (including Small Heaters and Dryers (< 100 MMBtu/hr))

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	CO_2 Limit	CO_2 Limit Unit	CO_2 Control Technique	Limit 2	Limit 2 Unit	CH_4 Limit	CH_4 Limit Unit	CH_4 Control Technique	Limit 2	Limit 2 Unit	N_2O Limit	N_2O Limit Unit	N_2O Control Technique	Limit 2	Limit 2 Unit	CO_2e Limit	CO_2e Limit Unit	CO_2e Control Technique	Limit 2	Limit 2 Unit
1139-AOP-R24	2/14/2019	NUCOR STEEL ARKANSAS	AR		SN-228 and SN-229 Zinc Dryer and Zinc Pot Preheat	3	MMBTU/hr each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	121	LB/MMBTU	Good Combustion Practices	-	-
1139-AOP-R24	2/14/2019	NUCOR STEEL ARKANSAS	AR		SN-219 Galvanizing Line No, 2 Furnace	128	MMBTU/hr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	121	LB/MMBTU	Good Combustion Practices	-	-
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Galvanizing Line #2 Preheat Furnace (EP 21-08A)	94	MMBtu/hr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	48725	TONS/YR	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan and implement various design and operational efficiency requirements.	-	-
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Galvanizing Line #2 Zinc Pot Preheater (EP 21-09)	3	MMBtu/hr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30	TONS/YR	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan and implement various design and operational efficiency requirements.	-	-
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Galvanizing Line #2 Radiant Tube Furnace (EP 21-08B)	36	MMBtu/hr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18660	TONS/YR	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan and implement various design and operational efficiency requirements.	-	-
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Galvanizing Line #2 Preheat Furnace (EP 21-08A)	94	MMBtu/hr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	48725	TONS/YR	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan and implement various design and operational efficiency requirements.	-	-
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Air Separation Unit Water Bath Vaporizer (2 indirect burners) (EP 23-01)	14.5	MMBtu/hr, each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15032	TONS/YR	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan and implement various design and operational efficiency requirements.	-	-
75-18	10/29/2018	GERDAU MACSTEEL MONROE	MI		Ladle preheater	30	mmbtu/h	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P0112127	5/7/2013	GENERAL ELECTRIC AVIATION, EVENDALE PLANT	OH		4 Indirect-Fired Air Preheaters	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74000	T/YR	-	-	-
P0125024	2/6/2019	PETMIN USA INCORPORATED	OH		Ladle Preheaters (P002, P003 and P004)	15	MMBTU/H	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1764	LB/H	Good combustion practices and the use of natural gas	7726	T/YR
P0127678	7/17/2020	PETMIN USA INCORPORATED	OH		Ladle Preheaters (P002, P003 and P004)	15	MMBTU/H	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2448 AND PSDTX1560	1/2/2020	STEEL MANUFACTURING FACILITY	TX		MELT SHOP LADLE PREHEATERS	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2305-AOP-R7	3/17/2021	BIG RIVER STEEL LLC	AR		Galvanizing Line #2 Furnace	150.5	MMBtu/hr	117	LB/MMBTU	Good operating practices	-	-	0.0022	LB/MMBTU	Good operating practices	-	-	0.0002	LB/MMBTU	Good operating practices	-	-	-	-	-	-	-
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY		EP 13-01 - Water Bath Vaporizer	22	MMBtu/hr, combined	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11404	TON/YR	This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan and implement design standards.	-	-
18-00033A	1/26/2018	RENOVO ENERGY CENTER, LLC	PA		Water Bath Heater	15	MMBtu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Process	Pollutant
Paved/Unpaved Roads	$PM/PM_{10}/PM_{2.5}$

		Control Technology	Baghouse / Fabric Filter[a]	Cyclone[b]	Full / Partial Enclosures[c]	Watering, Wet/Chemical Suppressant[c]	Good Process Operation
Step 1.	IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES	**Control Technology Description**	Process exhaust gas passes through a tightly woven or felted fabric arranged in sheets, cartridges, or bags that collect PM via sieving and other mechanisms. The dust cake that accumulates on the filters increases collection efficiency. Various cleaning techniques include pulse-jet, reverse-air, and shaker technologies.	Centrifugal forces drive particles in the gas stream toward the cyclone walls as the waste gas flows through the conical unit. The captured particles are collected in a material hopper below the unit.	Walls, buildings, ductwork, and other structures limit the escape of fugitive particulate material.	The inherent moisture content of certain materials may limit the generation and dispersion of fugitive dust. For dry materials, spray bars or spray nozzles may be utilized to apply water as necessary throughout the process.	Operate and maintain the equipment in accordance with good air pollution control practices.
		Typical Operating Temperature	Up to 500 °F (Typical)	Up to 1,000 °F	N/A	N/A	N/A
		Typical Waste Stream Inlet Flow Rate	100 - 100,000 scfm (Standard) 100,000 - 1,000,000 scfm (Custom)	1.1 - 63,500 scfm (single) Up to 106,000 scfm (in parallel)	N/A	N/A	N/A
		Typical Waste Stream Inlet Pollutant Concentration	0.5 - 10 gr/dscf (Typical) 0.05 - 100 gr/dscf (Achievable)	0.44 - 7,000 gr/dscf	N/A	N/A	N/A
		Other Considerations	Fabric filters are susceptible to corrosion and blinding by moisture. Appropriate fabrics must be selected for specific process conditions. Accumulations of dust may present fire or explosion hazards.	Cyclones typically exhibit lower efficiencies when collecting smaller particles. High-efficiency units may require substantial pressure drop. Unable to handle sticky and tacky materials.	N/A	N/A	N/A
Step 2.	ELIMINATE TECHNICALLY INFEASIBLE OPTIONS	**RBLC Database Information**	Not included in RBLC as a means of control for PM from paved/unpaved roads.	Not included in RBLC as a means of control for PM from paved/unpaved roads.	Not included in RBLC as a means of control for PM from paved/unpaved roads.	Included in RBLC for steel mills as a means of control for PM from slag handling activities.	N/A
		Feasibility Discussion	Technically infeasible. Emissions are fugitive in nature, enclosures and capture/control systems may not be feasibly utilized.	Technically infeasible. Emissions are fugitive in nature, enclosures and capture/control systems may not be feasibly utilized.	Technically infeasible. Emissions are fugitive in nature, enclosures and capture/control systems may not be feasibly utilized.	Feasible. Water sprays are applied as needed to prevent emissions of fugitive dust.	Feasible
Step 3.	RANK REMAINING CONTROL TECHNOLOGIES	**Overall Control Efficiency**				70 - 90%	Base Case
Step 4.	EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS	**Cost Effectiveness ($/ton)**					
Step 5.	SELECT BACT					**BACT established as combination of wet suppression and good housekeeping practices**	

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Fabric Filter - Pulse-Jet Cleaned Type)," EPA-452/F-03-025.
b. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Cyclone)," EPA-452/F-03-005.
c. Ohio EPA, "Reasonably Available Control Measures for Fugitive Dust Sources," Section 2.1 - General Fugitive Dust Sources

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	PM Limit	PM Limit Unit	PM Control Technique	Limit 2	Limit 2 Unit	PM_{10} Limit	PM_{10} Limit Unit	PM_{10} Control Technique	Limit 2	Limit 2 Unit	$PM_{2.5}$ Limit	$PM_{2.5}$ Limit Unit	$PM_{2.5}$ Control Technique	Limit 2	Limit 2 Unit
102-12	1/4/2013	GERDAU MACSTEEL, INC.	MI	Steel Mill	Roads and packaging (EUROADS&PKG01)	Unspecified	-	-	-	-	-	-	-	-	Fugitive dust plan	-	-	-	-	-	-	-
102-12A	10/27/2014	GERDAU MACSTEEL, INC.	MI	Steel Mill	EUROADS&PKG01 (Roads and packaging)	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	Fugitive Dust Plan	-	-
12-219	10/26/2012	IOWA FERTILIZER COMPANY	IA	Nitrogenous Fertilizer Manufacturing	Haul Roads	Unspecified	-	-	-	paved road, water flushing, and sweeping	-	-	-	-	paved road, water flushing, and sweeping	-	-	-	-	paved road, water flushing, and sweeping	-	-
PN 13-037	7/12/2013	CF INDUSTRIES NITROGEN, LLC - PORT NEAL NITROGEN COMPLEX	IA	Nitrogenous Fertilizer Manufacturing	New Plant Haul Road	Unspecified	-	-	-	paved road, water flushing, and sweeping	-	-	-	-	paved road, water flushing, and sweeping	-	-	-	-	paved road, water flushing, and sweeping	-	-
T147-30464-00060	6/27/2012	INDIANA GASIFICATION, LLC	IN	Substitute Natural Gas and Liquefied CO2 Production Plant	FUGITIVE DUST FROM PAVED ROADS	Unspecified	-	90	% CONTROL	PAVING ALL PLANT HAUL ROADS, USE OF WET OR CHEMICAL SUPPRESSION, AND PROMPT CLEANUP OF ANY SPILLED MATERIALS.	-	-	90	% CONTROL	PAVING ALL PLANT HAUL ROADS, USE OF WET OR CHEMICAL SUPPRESSION, AND PROMPT CLEANUP OF ANY SPILLED MATERIALS.	-	-	90	% CONTROL	PAVING ALL PLANT HAUL ROADS, USE OF WET OR CHEMICAL SUPPRESSION, AND PROMPT CLEANUP OF ANY SPILLED MATERIALS.	-	-
129-33576-00059	6/4/2014	MIDWEST FERTILIZER CORPORATION	IN	Nitrogen Fertilizer Manufacturing Facility	FUGITIVE DUST FROM PAVED ROADS AND PARKING LOTS	10402	VEHICLE MILES TRAVELED	90	% CONTROL	PAVE ALL HAUL ROADS, DAILY SWEEPING WITH WET SUPPRESSION	-	-	90	% CONTROL	PAVE ALL HAUL ROADS, DAILY SWEEPING WITH WET SUPPRESSION	-	-	90	% CONTROL	PAVE ALL HAUL ROADS, DAILY SWEEPING WITH WET SUPPRESSION	-	-
147-32322-00062	9/25/2013	OHIO VALLEY RESOURCES, LLC	IN	Nitrogenous Fertilizer Production Plant	PAVED ROADWAYS AND PARKING LOTS WITH PUBLIC ACCESS	17160	VEHICLE MILES TRAVELED	90	% CONTROL	PAVE ALL PLANT HAUL ROADS, DAILY SWEEPING AND WET SUPPRESSION.	-	-	90	% CONTROL	PAVE ALL PLANT HAUL ROADS, DAILY SWEEPING AND WET SUPPRESSION.	-	-	90	% CONTROL	PAVE ALL PLANT HAUL ROADS, DAILY SWEEPING AND WET SUPPRESSION.	-	-
C-11396	5/27/2014	ABENGOA BIOENERGY BIOMASS OF KANSAS (ABBK)	KS	Biomass-To-Ethanol and Biomass-To-Energy Production Facility	Paved Haul Roads	Unspecified	-	148	TRUCKS/DAY	Truck traffic fugitive control strategy and monitoring plan, including sweeping and speed limits	-	-	148	TRUCKS/DAY	Truck traffic fugitive control strategy and monitoring plan, including sweeping and speed limits	-	-	148	TRUCKS/DAY	Truck traffic fugitive control strategy and monitoring plan, including sweeping and speed limits	-	-
C-11396	5/27/2014	ABENGOA BIOENERGY BIOMASS OF KANSAS (ABBK)	KS	Biomass-To-Ethanol and Biomass-To-Energy Production Facility	Biomass Laydown Roads (Unpaved)	Unspecified	-	109	TRUCKS/DAY	Truck traffic fugitive control strategy and monitoring plan, including sweeping and speed limits	-	-	109	TRUCKS/DAY	Truck traffic fugitive control strategy and monitoring plan, including sweeping and speed limits	-	-	109	TRUCKS/DAY	Truck traffic fugitive control strategy and monitoring plan, including sweeping and speed limits	-	-
PSC CASE NO. 9280	4/23/2014	CPV ST. CHARLES	MD	Combined-Cycle Natural Gas-Fired Power Plant	ROADWAYS	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
052016-003	5/12/2016	OWENS CORNING INSULATION SYSTEMS, LLC	MO		haul roads	Unspecified	-	-	-	vacuum sweep, wash, etc	-	-	-	-	-	-	-	-	-	-	-	-
2013-0109-C PSD	7/31/2013	NORTHSTAR AGRI IND ENID	OK	Facility Converting Seeds into Crude Oil and RBD Oil.	Haul Roads	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2440-0216-CA	11/3/2017	RESOLUTE FP US INC. - CATAWBA LUMBER MILL	SC	Lumber Mill	Roads	Unspecified	-	0.13	LB/VMT	Good housekeeping practices.	-	-	0.03	LB/VMT	Good housekeeping practices.	-	-	0.01	LB/VMT	Good housekeeping practices.	-	-
AQ0934CPT01	6/30/2017	DONLIN GOLD PROJECT	AK	Gold Mine	Fugitive Dust from Unpaved Roads	5024900	VMT/yr	3500	TPY	Water and Chemical Suppressant Spray	-	-	3500	TPY	Water and Chemical Suppressant Spray	-	-	3500	TPY	Water and Chemical Suppressant Spray	-	-
2348-AOP-R0	8/3/2015	EL DORADO SAWMILL	AR	Saw Mill	Haul Roads SN-09	Unspecified	-	12.7	LB/H	ROAD WATERING PLAN + 0% OFF-SITE OPACITY	-	-	-	-	-	-	-	-	-	-	-	-
98PB0893	7/9/2012	RIO GRANDE CEMENT PLANT	CO	Portland Cement Manufacturing	Haul Roads	Unspecified	-	-	-	-	-	-	-	-	Plant roads â€" since almost all plant roads are already paved and are actively swept	-	-	-	-	-	-	-
2015-0643-C PSD	1/19/2016	CMC STEEL OKLAHOMA	OK	Steel Mill	Unpaved Roads	Unspecified	-	-	-	-	-	-	-	-	BACT for PM emissions from roads is selected as work-practice standards of paving	-	-	-	-	-	-	-
129-36943-00059	3/23/2017	MIDWEST FERTILIZER COMPANY LLC	IN	Nitrogen Fertilizer Manufacturing Facility	PAVED ROADS AND PARKING LOTS	Unspecified	-	-	-	PAVING ALL PLANT HAUL ROADS, WET SUPPRESSION, PROMPT CLEANUP OF	-	-	-	-	PAVING ALL PLANT HAUL ROADS, WET SUPPRESSION, PROMPT CLEANUP OF	-	-	-	-	PAVING ALL PLANT HAUL ROADS, WET SUPPRESSION, PROMPT CLEANUP OF	-	-
CPCN CASE NO. 9327	4/8/2014	WILDCAT POINT GENERATION FACILITY	MD	Combined Cycle Natural Gas-Fired Power Plant	PAVED AND UNPAVED ROADS	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PSC CASE NO. 9297	10/31/2014	KEYS ENERGY CENTER	MD	Combined Cycle Natural Gas-Fired Power Plant	ON-SITE PAVED AND UNPAVED ROADS	Unspecified	-	-	-	MINIMIZE EMISSIONS BY TAKING REASONABLE PRECAUTIONS TO	-	-	-	-	MINIMIZE EMISSIONS BY TAKING RESAONABLE PRECAUTIONS TO	-	-	-	-	-	-	-
0463-AOP-R17	11/22/2019	GP WOOD PRODUCTS SOUTH LLC GURDON PLYWOOD & LUMBER COMPLEX	AR		Plant Haul Roads	2011179	tons of logs per consecutive 12	8.5	LB/HR	-	33.5	TPY	1.7	LB/HR	-	6.8	TPY	-	-	-	-	-
1139-AOP-R24	2/14/2019	NUCOR STEEL ARKANSAS	AR		SN-121 Unpaved Roads	Unspecified	-	74.8	LB/HR	Dust Control Plan, Wet Spray, and chemical stabilizers	327.6	TPY	20	LB/HR	Dust Control Plan Wet spray and chemical stabilizers.	87.3	TPY	8.8	LB/HR	Dust Control Plan Wet spray and chemical stabilizers.	2	TPY

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	PM Limit	PM Limit Unit	PM Control Technique	Limit 2	Limit 2 Unit	PM_{10} Limit	PM_{10} Limit Unit	PM_{10} Control Technique	Limit 2	Limit 2 Unit	$PM_{2.5}$ Limit	$PM_{2.5}$ Limit Unit	$PM_{2.5}$ Control Technique	Limit 2	Limit 2 Unit
1139-AOP-R26	9/1/2021	NUCOR STEEL ARKANSAS	AR		SN-121 SN-211 Unpaved Roads	Unspecified	-	136	LB/HR	Water Sprays, low silt surface	595.3	TPY	36.2	LB/HR	Water Sprays, low silt surface	158.5	TPY	3.7	LB/HR	Water Sprays, low silt surface	16	TPY
1139-AOP-R26	9/1/2021	NUCOR STEEL ARKANSAS	AR		SN-122 SN-210 Paved Roads	Unspecified	-	15.2	LB/HR	Water Sprays, sweeping,	66.3	TPY	3.9	LB/HR	Water Sprays, sweeping,	17.1	TPY	0.5	LB/HR	Water Sprays, sweeping,	2	TPY
1050472-001-AC	2/14/2019	NUCOR STEEL FLORIDA FACILITY	FL		Roads	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-A-288-P	3/17/2021	SHELL ROCK SOY PROCESSING	IA		Paved Road Fugitives	Unspecified	-	2.97	TONS PER YEAR	sweeping	0.59	TONS PER YEAR	-	-	-	-	-	-	-	-	-	-
8100063	9/29/2015	MISSISSIPPI LIME COMPANY	IL		roadways	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18060014	11/1/2018	NUCOR STEEL KANKAKEE, INC.	IL		Roadways	Unspecified	-	2.39	TON/YR	Roadways must be paved; Preventative measures, including posted 15 MPH speed	-	-	0.48	TON/YR	Roadways must be paved; Preventative measures, including posted 15 MPH speed	-	-	0.12	TON/YR	Roadways must be paved; Preventative measures, including posted 15 MPH speed	-	-
16060032	7/30/2018	CPV THREE RIVERS ENERGY CENTER	IL		Roadways	Unspecified	-	10	% OPACITY	Paving is required for roads used by trucks transporting bulk materials	-	-	-	-	-	-	-	-	-	-	-	-
17040013	12/31/2018	JACKSON ENERGY CENTER	IL		Roadways	Unspecified	-	10	PERCENT OPACITY	-	-	-	-	-	-	-	-	-	-	-	-	-
19120024	1/25/2021	NUCOR STEEL KANKAKEE, INC.	IL		New and Modified Roadways	Unspecified	-	-	-	Roadways shall be paved; speed limit posting of 15 miles/hour; best	-	-	-	-	Roadways shall be paved; speed limit posting of 15 miles/hour; best	-	-	-	-	Roadways shall be paved; speed limit posting of 15 miles/hour; best	-	-
T147-39554-00065	6/11/2019	RIVERVIEW ENERGY CORPORATION	IN		Paved roads	Unspecified	-	1	MIN	Fugitive dust control plan	-	-	1	MIN	Fugitive dust control plan	-	-	1	MIN	Fugitive dust control plan	-	-
V-16-022 R1	10/24/2016	FRITZ WINTER NORTH AMERICA, LP	KY		Paved Roadways (EU76)	0.43	Miles (length)	-	-	The permittee shall vacuum sweep the pavement at least weekly, except during	-	-	-	-	The permittee shall vacuum sweep the pavement at least weekly, except during	-	-	-	-	The permittee shall vacuum sweep the pavement at least weekly, except during	-	-
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY		EP 14-01 - Paved Roadways	374840	VMT/yr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY		EP 14-02 - Unpaved Roadways	69905	VMT/yr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Paved Roads & Satellite Coil Yard (EPs 04-01 & 04-04)	Unspecified	-	-	-	Sweeping & Watering	-	-	-	-	Sweeping & Watering	-	-	-	-	Sweeping & Watering	-	-
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Unpaved Roads (EP 04-02)	127567	VMT/yr	-	-	Wetting/Dust suppressants	-	-	-	-	Wetting/Dust suppressants	-	-	-	-	Wetting/Dust suppressants	-	-
PSD-LA-709(M-4)	5/4/2021	SHINTECH PLAQUEMINES PLANT 1	LA		Fugitive Dust (Paved Roads)	Unspecified	-	0.08	LB/HR	Paving plant road as much as practicable.	0.34	T/YR	0.08	LB/HR	Paving plant road as much as practicable.	0.34	T/YR	-	-	-	-	-
PSD-LA-781(M1)	4/25/2019	BIG LAKE FUELS METHANOL PLANT	LA		Paved Roads (FUG0004)	Unspecified	-	-	-	-	-	-	-	-	Proper maintenance	-	-	-	-	Proper maintenance	-	-
185-16	4/27/2017	EAST JORDAN FOUNDRY LLC	MI		FGFACILITY--Roadways and Parking Areas	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P0118959	4/19/2017	PALLAS NITROGEN LLC	OH		Paved Roadways (F001)	70000	MI/YR	-	-	-	-	-	2.6	T/YR	i.Paving of all plant roads that will be used for raw material and product transport;	-	-	-	-	-	-	-
P0123395	2/9/2018	IRONUNITS LLC - TOLEDO HBI	OH		Paved roads (F001)	Unspecified	-	-	-	-	-	-	0.63	T/YR	water flushing and sweeping	-	-	0.15	T/YR	water flushing and sweeping	-	-
P0124972	12/21/2018	PTTGCA PETROCHEMICAL COMPLEX	OH		Facility Roadways (F001)	182865	MI/YR	-	-	-	-	-	0.38	T/YR	i.Pave all in-plant haul roads and parking areas; ii.Implement best	-	-	0.09	T/YR	i.Pave all in-plant haul roads and parking areas; ii.Implement best	-	-
P0125024	2/6/2019	PETMIN USA INCORPORATED	OH		Plant Roadways (F001)	4195	MI/YR	-	-	-	-	-	0.21	T/YR	Use of wet suppression and commercial dust suppressants.	-	-	0.02	T/YR	Use of wet suppression and commercial dust suppressants.	-	-
P0125944	8/7/2019	AMG VANADIUM LLC	OH		Paved Roadways (F001)	31689	MI/YR	-	-	-	-	-	0.06	T/YR	Pave all in-plant haul roads and parking areas. Implement best	-	-	0.01	T/YR	Pave all in-plant haul roads and parking areas. Implement best	-	-
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH		Plant Roadways & Parking Areas (F005)	686399	MI/YR	-	-	-	-	-	3.55	T/YR	Paved: sweeping, vacuuming, washing with water, and posted speed limits to comply	-	-	0.75	T/YR	Paved: sweeping, vacuuming, washing with water, and posted speed limits to comply	-	-

Nucor Corporation | West Virginia Steel Mill
RBLC Entries for Paved/Unpaved Roads

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	PM Limit	PM Limit Unit	PM Control Technique	Limit 2	Limit 2 Unit	PM_{10} Limit	PM_{10} Limit Unit	PM_{10} Control Technique	Limit 2	Limit 2 Unit	$PM_{2.5}$ Limit	$PM_{2.5}$ Limit Unit	$PM_{2.5}$ Control Technique	Limit 2	Limit 2 Unit
0560-0385-CA	4/15/2016	MERCEDES BENZ VANS, LLC	SC		Paved Roads	10.66	VMT/hr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Process	Pollutant
Pickling Lines	$PM/PM_{10}/PM_{2.5}$

		Control Technology	Baghouse / Fabric Filter[a]	Electrostatic Precipitator (ESP)[b,c,d,e]	Wet Scrubber[f]	Cyclone[g]	Good Process Operation
Step 1.	IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES	Control Technology Description	Process exhaust gas passes through a tightly woven or felted fabric arranged in sheets, cartridges, or bags that collect PM via sieving and other mechanisms. The dust cake that accumulates on the filters increases collection efficiency. Various cleaning techniques include pulse-jet, reverse-air, and shaker technologies.	Electrodes stimulate the waste gas and induce an electrical charge in the entrained particles. The resulting electrical field forces the charged particles to the collector walls from which the material may be mechanically dislodged and collected in dry systems or washed with a water deluge in wet systems.	A scrubbing liquid introduced into the gas stream captures and collects entrained particles. In the case of a venturi scrubber, the turbulent airflow atomizes the scrubbing liquid to increase droplet-particle interaction. The droplets containing particles are typically separated from the exhaust gas in a downstream cyclonic separator and/or mist eliminator.	Centrifugal forces drive particles in the gas stream toward the cyclone walls as the waste gas flows through the conical unit. The captured particles are collected in a material hopper below the unit.	Operate and maintain the equipment in accordance with good air pollution control practices.
		Typical Operating Temperature	Up to 500 °F (Typical)	Up to 1,300 °F (dry) Lower than 170 - 190 °F (wet)	40 to 750 °F	Up to 1,000 °F	N/A
		Typical Waste Stream Inlet Flow Rate	100 - 100,000 scfm (Standard) 100,000 - 1,000,000 scfm (Custom)	1,000 - 100,000 scfm (Wire-Pipe) 100,000 - 1,000,000 scfm (Wire-Plate)	500 - 100,000 scfm (units in parallel can operate at greater flowrates)	1.1 - 63,500 scfm (single) Up to 106,000 scfm (in parallel)	N/A
		Typical Waste Stream Inlet Pollutant Concentration	0.5 - 10 gr/dscf (Typical) 0.05 - 100 gr/dscf (Achievable)	0.5 - 5 gr/dscf (Wire-Pipe) 1 - 50 gr/dscf (Wire-Plate)	0.1 - 50 gr/dscf	0.44 - 7,000 gr/dscf	N/A
		Other Considerations	Fabric filters are susceptible to corrosion and blinding by moisture. Appropriate fabrics must be selected for specific process conditions. Accumulations of dust may present fire or explosion hazards.	Dry ESP efficiency varies significantly with dust resistivity. Air leakage and acid condensation may cause corrosion. ESPs are not generally suitable for highly variable processes. Equipment footprint is often substantial.	Effluent stream requires wastewater treatment and solid was disposal. Sludge disposal may be costly. Wet scrubbers are particularly susceptible to corrosion.	Cyclones typically exhibit lower efficiencies when collecting smaller particles. High-efficiency units may require substantial pressure drop. Unable to handle sticky and tacky materials.	N/A
Step 2.	ELIMINATE TECHNICALLY INFEASIBLE OPTIONS	RBLC Database Information	Not included in RBLC for mini-mill pickling lines.	Not included in RBLC for mini-mill pickling lines.	Included in RBLC as a common form of control for PM from mini-mill pickling lines.	Not included in RBLC for mini-mill pickling lines.	N/A
		Feasibility Discussion	Technically infeasible. Emissions of HCl would be expected to corrode a fabric filter unit.	Technically infeasible. Emissions of HCl would be expected to corrode an ESP unit.	Feasible. Typical applications include processes in the iron and steel industries.	Technically infeasible. Emissions of HCl would be expected to corrode a cyclone unit.	Feasible
Step 3.	RANK REMAINING CONTROL TECHNOLOGIES	Overall Control Efficiency			70 - 99%		Base Case
Step 4.	EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS	Cost Effectiveness ($/ton)					
Step 5.	SELECT BACT				**BACT Limit: 0.01 gr/dscf**		

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Fabric Filter - Pulse-Jet Cleaned Type)," EPA-452/F-03-025.
b. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Dry Electrostatic Precipitator (ESP) - Wire-Pipe Type)," EPA-452/F-03-027.
c. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Dry Electrostatic Precipitator (ESP) - Wire-Plate Type)," EPA-452/F-03-028.
d. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Wet Electrostatic Precipitator(ESP) - Wire-Pipe Type)," EPA-452/F-03-029.
e. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Wet Electrostatic Precipitator (ESP) - Wire-Plate Type)," EPA-452/F-03-030.
f. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Venturi Scrubber)," EPA-452/F-03-017.
g. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Cyclone)," EPA-452/F-03-005.

Nucor Corporation | West Virginia Steel Mill

RBLC Entries for Pickling Lines

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	PM Limit	PM Limit Unit	PM Control Technique	Limit 2	Limit 2 Unit	PM10 Limit	PM10 Limit Unit	PM10 Control Technique	Limit 2	Limit 2 Unit	PM2.5 Limit	PM2.5 Limit Unit	PM2.5 Control Technique	Limit 2	Limit 2 Unit
147-33607-00041	2/24/2015	AK STEEL CORPORATION ROCKPORT WORKS	IN	Steel Coil Finishing Plant	APL: ELECTROLYTIC PICKLING	130	T/H	-	-	-	-	-	2.605	LB/H	WET SCRUBBER	0.036	GR/DSCF	-	-	-	-	-
147-33607-00041	2/24/2015	AK STEEL CORPORATION ROCKPORT WORKS	IN	Steel Coil Finishing Plant	CPL: HCL PICKLE BATHS AND RINSE TANKS	476	T/H	-	-	-	-	-	1.135	LB/H	WET SCRUBBER SYSTEM (WET SCRUBBER AND MIST ELIMINATOR) AND	0.016	GR/DSCF	-	-	-	-	-
147-33607-00041	2/24/2015	AK STEEL CORPORATION ROCKPORT WORKS	IN	Steel Coil Finishing Plant	APL: MIXED ACID PICKLE AND RINSE TANK	130	T/H	-	-	-	-	-	0.683	LB/H	WET SCRUBBER SYSTEM (WET SCRUBBER AND MIST ELIMINATOR) & MIXED	0.013	GR/DSCF	-	-	-	-	-
107-32615-00038	9/17/2013	NUCOR STEEL	IN	Steel Mini Mill	PICKLE LINE #2	250	T/H	0.010	GR/DSCF	SCRUBBER AND MIST ELIMINATORS	0	0	0.010	GR/DSCF	SCRUBBER AND MIST ELIMINATORS	0.000	0	0.010	GR/DSCF	SCRUBBER AND MIST ELIMINATORS	0.000	0
1139-AOP-R24	2/14/2019	NUCOR STEEL ARKANSAS	AR		SN-132 Pickle Line No. 1 Electrostatic Oiler	Unspecified	-	0.4000	LB/HR	Use of electrostatic oiler for good transfer Good work practices	1.6000	TPY	0.400	LB/HR	Use of electrostatic oiler for good transfer Good work practices	1.600	TPY	0.2000	LB/HR	Use of electrostatic oiler for good transfer Good work practices	0.8000	TPY
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Pickling Line #2 (including storage tanks) (EP 21-02)	1,314,000	tons/yr	0.0015	GR/DSCF	The permittee must develop a Good Work Practices (GWP) Plan to minimize emissions. This unit is equipped with a	0.6200	TONS/YR	0.0013	GR/DSCF	The permittee must develop a Good Work Practices (GWP) Plan to minimize emissions.	0.540	TON/YR	0.0012	GR/DSCF	The permittee must develop a Good Work Practices (GWP) Plan to minimize emissions.	0.5000	TON/YR
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Pickling Line #2 Electrostatic Oiler (EP 21-06)	1,314,000	tons/yr	0.0170	LB/HR	The permittee must develop a Good Work Practices (GWP) Plan to minimize emissions. The unit is required to achieve	0.0730	TON/YR	0.017	LB/HR	The permittee must develop a Good Work Practices (GWP) Plan to minimize emissions.	0.073	TON/YR	0.0080	LB/HR	The permittee must develop a Good Work Practices (GWP) Plan to minimize emissions.	0.0360	TON/YR
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Pickle Line Equipment (pickle line no. 3)	Unspecified	-	0.0100	GR/DSCF	Wet Scrubber and Mist Eliminator; Proper Operation and Maintenance	0.8600	LB/HR	0.032	GR/DSCF	Wet Scrubber and Mist Eliminator; Proper Operation and Maintenance	2.720	LB/HR	0.0290	GR/DSCF	Wet Scrubber and Mist Eliminator; Proper Operation and Maintenance	2.5100	LB/HR
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Pickle Line Equipment (pickle line no. 3 electrostatic oiler)	Unspecified	-	0.1110	LB/HR	Proper Equipment Design, Operation and Maintenance	0.0000	0.0000	-	-	-	-	-	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Pickle Line Equipment (pickle line no. 1)	Unspecified	-	0.0100	GR/DSCF	Wet Fume Scrubber No. 1, contains 4 trays and a mist eliminator. Proper Operation and Maintenance.	0.7700	LB/HR	-	-	-	-	-	-	-	-	-	-
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX		PICKLING OPERATIONS	Unspecified	-	-	-	-	-	-	0.010	GR/DSCF	Mist Eliminator Scrubber	0.000	0	0.0100	GR/DSCF	Mist Eliminator Scrubber	0.0000	0

Process	Pollutant
Pickling Scale Breaker	$PM/PM_{10}/PM_{2.5}$

		Control Technology	Baghouse / Fabric Filter[a]	Electrostatic Precipitator (ESP)[b,c,d,e]	Wet Scrubber[f]	Cyclone[g]	Good Process Operation
Step 1.	IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES	Control Technology Description	Process exhaust gas passes through a tightly woven or felted fabric arranged in sheets, cartridges, or bags that collect PM via sieving and other mechanisms. The dust cake that accumulates on the filters increases collection efficiency. Various cleaning techniques include pulse-jet, reverse-air, and shaker technologies.	Electrodes stimulate the waste gas and induce an electrical charge in the entrained particles. The resulting electrical field forces the charged particles to the collector walls from which the material may be mechanically dislodged and collected in dry systems or washed with a water deluge in wet systems.	A scrubbing liquid introduced into the gas stream captures and collects entrained particles. In the case of a venturi scrubber, the turbulent airflow atomizes the scrubbing liquid to increase droplet-particle interaction. The droplets containing particles are typically separated from the exhaust gas in a downstream cyclonic separator and/or mist eliminator.	Centrifugal forces drive particles in the gas stream toward the cyclone walls as the waste gas flows through the conical unit. The captured particles are collected in a material hopper below the unit.	Operate and maintain the equipment in accordance with good air pollution control practices.
		Typical Operating Temperature	Up to 500 °F (Typical)	Up to 1,300 °F (dry) Lower than 170 - 190 °F (wet)	40 to 750 °F	Up to 1,000 °F	N/A
		Typical Waste Stream Inlet Flow Rate	100 - 100,000 scfm (Standard) 100,000 - 1,000,000 scfm (Custom)	1,000 - 100,000 scfm (Wire-Pipe) 100,000 - 1,000,000 scfm (Wire-Plate)	500 - 100,000 scfm (units in parallel can operate at greater flowrates)	1.1 - 63,500 scfm (single) Up to 106,000 scfm (in parallel)	N/A
		Typical Waste Stream Inlet Pollutant Concentration	0.5 - 10 gr/dscf (Typical) 0.05 - 100 gr/dscf (Achievable)	0.5 - 5 gr/dscf (Wire-Pipe) 1 - 50 gr/dscf (Wire-Plate)	0.1 - 50 gr/dscf	0.44 - 7,000 gr/dscf	N/A
		Other Considerations	Fabric filters are susceptible to corrosion and blinding by moisture. Appropriate fabrics must be selected for specific process conditions. Accumulations of dust may present fire or explosion hazards.	Dry ESP efficiency varies significantly with dust resistivity. Air leakage and acid condensation may cause corrosion. ESPs are not generally suitable for highly variable processes. Equipment footprint is often substantial.	Effluent stream requires wastewater treatment and solid was disposal. Sludge disposal may be costly. Wet scrubbers are particularly susceptible to corrosion.	Cyclones typically exhibit lower efficiencies when collecting smaller particles. High-efficiency units may require substantial pressure drop. Unable to handle sticky and tacky materials.	N/A
Step 2.	ELIMINATE TECHNICALLY INFEASIBLE OPTIONS	RBLC Database Information	Included in RBLC as a means of control for PM from ancillary pickling activities.	Not included in RBLC for ancillary pickling activities.	Not included in RBLC for ancillary pickling activities.	Not included in RBLC for ancillary pickling activities.	N/A
		Feasibility Discussion	Feasible	Feasible. Typical applications include processes in the metallurgical industry.	Feasible. Typical applications include processes in the iron and steel industries.	Feasible. Typical applications include first-stage PM control for ferrous metallurgical activities.	Feasible
Step 3.	RANK REMAINING CONTROL TECHNOLOGIES	Overall Control Efficiency	99 - 99.9%	99 - 99.9%	70 - 99%	70 - 99%	Base Case
Step 4.	EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS	Cost Effectiveness ($/ton)					
Step 5.	SELECT BACT		**BACT Limit: 0.003 gr/dscf**				

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Fabric Filter - Pulse-Jet Cleaned Type)," EPA-452/F-03-025.
b. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Dry Electrostatic Precipitator (ESP) - Wire-Pipe Type)," EPA-452/F-03-027.
c. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Dry Electrostatic Precipitator (ESP) - Wire-Plate Type)," EPA-452/F-03-028.
d. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Wet Electrostatic Precipitator(ESP) - Wire-Pipe Type)," EPA-452/F-03-029.
e. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Wet Electrostatic Precipitator (ESP) - Wire-Plate Type)," EPA-452/F-03-030.
f. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Venturi Scrubber)," EPA-452/F-03-017.
g. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Cyclone)," EPA-452/F-03-005.

Nucor Corporation | West Virginia Steel Mill
RBLC Entries for Pickling Scale Breaker

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	PM Limit	PM Limit Unit	PM Control Technique	Limit 2	Limit 2 Unit	PM10 Limit	PM10 Limit Unit	PM10 Control Technique	Limit 2	Limit 2 Unit	PM2.5 Limit	PM2.5 Limit Unit	PM2.5 Control Technique	Limit 2	Limit 2 Unit
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mini Mill	SCALE EXHAUST, PICKLE LINE	Unspecified	-	0.003	GR/DSCF	FABRIC FILTER	0	0	0.003	GR/DSCF	FABRIC FILTER	0.000	0	0.003	GR/DSCF	FABRIC FILTER	0.000	0
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mini Mill	Annealing Pickling Line Scale Dust and Shotblast	Unspecified	-	0.003	GR/DSCF	FABRIC FILTER	0	0	0.003	GR/DSCF	FABRIC FILTER	0.000	0	0.003	GR/DSCF	FABRIC FILTER	0.000	0
147-33607-00041	2/24/2015	AK STEEL CORPORATION ROCKPORT WORKS	IN	Steel Coil Finishing Plant	CPL: STRIP LEVELLER AND MECHANICAL SCALE BREAKER	476	T/H	-	-	-	-	-	9.070	LB/H	BAGHOUSE	0.018	GR/DSCF	-	-	-	-	-
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Pickle Line #2 Scale Breaker (EP 21-01)	1,314,000	tons/yr	0.003	GR/DSCF	The permittee must develop a Good Work Practices (GWP) Plan to minimize emissions.	3.94	TONS/YR	0.003	GR/DSCF	The permittee must develop a Good Work Practices (GWP) Plan to minimize emissions.	3.940	TONS/YR	0.003	GR/DSCF	The permittee must develop a Good Work Practices (GWP) Plan to minimize emissions.	3.940	TONS/YR
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX		Pickling Scale Breaker	Unspecified	-	0.0087	GR/DSCF	BAGHOUSE	0	0	0.009	GR/DSCF	BAGHOUSE	0.000	0	0.009	GR/DSCF	BAGHOUSE	0.000	0

Process	Pollutant
Skin Pass Mill	$PM/PM_{10}/PM_{2.5}$

		Control Technology	Baghouse / Fabric Filter[a]	Electrostatic Precipitator (ESP)[b,c,d,e]	Wet Scrubber[f]	Cyclone[g]	Good Process Operation
Step 1.	**IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES**	**Control Technology Description**	Process exhaust gas passes through a tightly woven or felted fabric arranged in sheets, cartridges, or bags that collect PM via sieving and other mechanisms. The dust cake that accumulates on the filters increases collection efficiency. Various cleaning techniques include pulse-jet, reverse-air, and shaker technologies.	Electrodes stimulate the waste gas and induce an electrical charge in the entrained particles. The resulting electrical field forces the charged particles to the collector walls from which the material may be mechanically dislodged and collected in dry systems or washed with a water deluge in wet systems.	A scrubbing liquid introduced into the gas stream captures and collects entrained particles. In the case of a venturi scrubber, the turbulent airflow atomizes the scrubbing liquid to increase droplet-particle interaction. The droplets containing particles are typically separated from the exhaust gas in a downstream cyclonic separator and/or mist eliminator.	Centrifugal forces drive particles in the gas stream toward the cyclone walls as the waste gas flows through the conical unit. The captured particles are collected in a material hopper below the unit.	Operate and maintain the equipment in accordance with good air pollution control practices.
		Typical Operating Temperature	Up to 500 °F (Typical)	Up to 1,300 °F (dry) Lower than 170 - 190 °F (wet)	40 to 750 °F	Up to 1,000 °F	N/A
		Typical Waste Stream Inlet Flow Rate	100 - 100,000 scfm (Standard) 100,000 - 1,000,000 scfm (Custom)	1,000 - 100,000 scfm (Wire-Pipe) 100,000 - 1,000,000 scfm (Wire-Plate)	500 - 100,000 scfm (units in parallel can operate at greater flowrates)	1.1 - 63,500 scfm (single) Up to 106,000 scfm (in parallel)	N/A
		Typical Waste Stream Inlet Pollutant Concentration	0.5 - 10 gr/dscf (Typical) 0.05 - 100 gr/dscf (Achievable)	0.5 - 5 gr/dscf (Wire-Pipe) 1 - 50 gr/dscf (Wire-Plate)	0.1 - 50 gr/dscf	0.44 - 7,000 gr/dscf	N/A
		Other Considerations	Fabric filters are susceptible to corrosion and blinding by moisture. Appropriate fabrics must be selected for specific process conditions. Accumulations of dust may present fire or explosion hazards.	Dry ESP efficiency varies significantly with dust resistivity. Air leakage and acid condensation may cause corrosion. ESPs are not generally suitable for highly variable processes. Equipment footprint is often substantial.	Effluent stream requires wastewater treatment and solid was disposal. Sludge disposal may be costly. Wet scrubbers are particularly susceptible to corrosion.	Cyclones typically exhibit lower efficiencies when collecting smaller particles. High-efficiency units may require substantial pressure drop. Unable to handle sticky and tacky materials.	N/A
Step 2.	**ELIMINATE TECHNICALLY INFEASIBLE OPTIONS**	**RBLC Database Information**	Included in RBLC as a means of control for PM from ancillary pickling activities.	Not included in RBLC for ancillary pickling activities.	Included in RBLC as a means of control for PM from ancillary pickling activities.	Not included in RBLC for ancillary pickling activities.	N/A
		Feasibility Discussion	Feasible	Feasible. Typical applications include processes in the metallurgical industry.	Feasible. Typical applications include processes in the iron and steel industries.	Feasible. Typical applications include first-stage PM control for ferrous metallurgical activities.	Feasible
Step 3.	**RANK REMAINING CONTROL TECHNOLOGIES**	**Overall Control Efficiency**	99 - 99.9%	99 - 99.9%	70 - 99%	70 - 99%	Base Case
Step 4.	**EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS**	**Cost Effectiveness ($/ton)**					
Step 5.	**SELECT BACT**		**PM/PM10 BACT Limit: 0.01 gr/dscf** **PM2.5 BACT Limit: 0.005 gr/dscf**				

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Fabric Filter - Pulse-Jet Cleaned Type)," EPA-452/F-03-025.
b. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Dry Electrostatic Precipitator (ESP) - Wire-Pipe Type)," EPA-452/F-03-027.
c. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Dry Electrostatic Precipitator (ESP) - Wire-Plate Type)," EPA-452/F-03-028.
d. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Wet Electrostatic Precipitator(ESP) - Wire-Pipe Type)," EPA-452/F-03-029.
e. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Wet Electrostatic Precipitator (ESP) - Wire-Plate Type)," EPA-452/F-03-030.
f. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Venturi Scrubber)," EPA-452/F-03-017.
g. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Cyclone)," EPA-452/F-03-005.

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	PM Limit	PM Limit Unit	PM Control Technique	Limit 2	Limit 2 Unit	PM10 Limit	PM10 Limit Unit	PM10 Control Technique	Limit 2	Limit 2 Unit	PM2.5 Limit	PM2.5 Limit Unit	PM2.5 Control Technique	Limit 2	Limit 2 Unit
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	COLD MILL REVERSING COLD MILL AND SKIN PASS MILL SN-25, 38, 44, 45, AND 46	Unspecified	-	0.0025	GR/DSCF	MIST ELIMINATOR	0	0	0.007	GR/DSCF	MIST ELIMINATOR	0.000	0	0.007	GR/DSCF	MIST ELIMINATOR	0.000	0
147-33607-00041	2/24/2015	AK STEEL CORPORATION ROCKPORT WORKS	IN	Steel Coil Finishing Plant	APL: SKIN PASS TEMPER MILL & ROLL CLEANING DUST COLLECTION	130	T/H	-	-	-	-	-	0.459	LB/H	BAGHOUSE	0.018	GR/DSCF	-	-	-	-	-
2305-AOP-R7	3/17/2021	BIG RIVER STEEL LLC	AR		Skin Pass Mill #1 and #2	Unspecified	-	0.0025	GR/DSCF	Mist Eliminator	0	0	0.007	GR/DSCF	Mist Eliminator	0.000	0	0.007	GR/DSCF	Mist Eliminator	0.000	0
1139-AOP-R24	2/14/2019	NUCOR STEEL ARKANSAS	AR		SN-224 Galvanizing Line Skin Pass Mill	Unspecified	-	0.0025	GR/DSCF	Overspray Arrestors	0	0	0.003	GR/DSCF	Overspray Arrestors	0.000	0	0.003	GR/DSCF	Overspray Arrestors	0.000	0
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Skin Pass Mill #2 (EP 21-18)	1,314,000	tons/yr	0.0025	GR/DSCF	The permittee must develop a Good Work Practices (GWP) Plan to minimize emissions.	2.06	TON/YR	0.002	GR/DSCF	The permittee must develop a Good Work Practices (GWP) Plan to minimize emissions.	1.960	TON/YR	0.001	GR/DSCF	The permittee must develop a Good Work Practices (GWP) Plan to minimize emissions.	1.030	TONS/YR
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Galvanizing Line Equipment (galvanizing line 2 skin pass mill	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Galvanizing Line Equipment (galvanizing line 2 skin pass mill 2)	Unspecified	-	0.0025	GR/DSCF	Mist Eliminator; Proper Operation and Maintenance	0.38	LB/HR	0.001	GR/DSCF	Mist Eliminator; Proper Operation and Maintenance	0.190	LB/HR	0.001	GR/DSCF	Mist Eliminator; Proper Operation and Maintenance	0.190	LB/HR
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX		SKIN PASS MILL	Unspecified	-	0.01	GR/DSCF	BAGHOUSE	0	0	0.010	GR/DSCF	BAGHOUSE	0.000	0	0.010	GR/DSCF	BAGHOUSE	0.000	0

Process	Pollutant
Tunnel Furnace	NO_X

		Control Technology	Selective Catalytic Reduction (SCR)[a]	Selective Non-Catalytic Reduction (SNCR)[b]	Non-Selective Catalytic Reduction (NSCR)[c,d]	SCONOX Catalytic Absorption System[e]	Xonon Cool Combustion[e]	Low-NOX Burners (LNBs)[c]	Oxy-Fuel Burners[c]	Good Process Operation
Step 1.	**IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES**	**Control Technology Description**	A nitrogen-based reagent (e.g., ammonia, urea) is injected into the exhaust stream downstream of the combustion unit. The reagent reacts selectively with NOX to produce molecular N2 and water in a reactor vessel containing a metallic or ceramic catalyst.	A nitrogen-based reagent (e.g., ammonia, urea) is injected into the exhaust stream and reacts selectively with NOX to produce molecular N2 and water within the combustion unit.	Metallic catalysts convert NOX, CO, and hydrocarbons to water, nitrogen, and CO2.	Utilizes a single catalyst to remove NOX, CO, and VOC through oxidation.	A catalyst integrated into gas turbine combustors limits the production of NOX through temperature control also resulting in reduced emissions of CO and VOC.	Low-NOX burners employ multi-staged combustion to inhibit the formation of NOX. Primary combustion occurs at lower temperatures under oxygen-deficient conditions; secondary combustion occurs in the presence of excess air.	Oxy-fired burners achieve combustion using oxygen rather than air, which reduces nitrogen levels in the furnace. The lower nitrogen levels result in a reduction in NOX emissions.	Operate and maintain the equipment in accordance with good air pollution control practices and with good combustion practices.
		Typical Operating Temperature	480 - 800 °F (typical SCR systems tolerate temperature variations of ± 200 °F)	1,600 - 2,100 °F (chemical additives can lower reaction temp.)	700 - 1,500 °F	300 - 700 °F	N/A	N/A	N/A	N/A
		Typical Waste Stream Inlet Flow Rate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Typical Waste Stream Inlet Pollutant Concentration	As low as 20 ppm (efficiency improves with increased concentration up to 150 ppm)	200 - 400 ppm	N/A	N/A	N/A	N/A	N/A	N/A
		Other Considerations	Unreacted reagent (ammonia slip) may form ammonium sulfates that may plug or corrode downstream equipment. Ammonia absorption into fly ash may affect ash disposal. Particulate-laden streams may blind the catalyst and may require a sootblower.	Unreacted reagent (ammonia slip) may form ammonium sulfates that may plug or corrode downstream equipment. Ammonia absorption into fly ash may affect ash disposal. The SNCR process produces N2O as a byproduct.	This technique uses a fuel rich mixture that, combined with back pressure from exhaust flow through the catalyst, increases the brake specific fuel consumption of the engine	The SCONOX Catalyst is sensitive to contamination by sulfur, so it must be used in conjunction with the SCOSOX catalyst, which favors sulfur compound absorption.	N/A	N/A	Oxy-fuel burners must be properly applied to prevent the formation of NOX due to the elevated flame temperatures.	N/A
Step 2.	**ELIMINATE TECHNICALLY INFEASIBLE OPTIONS**	**RBLC Database Information**	Not included in RBLC for mini-mill tunnel furnaces.	Not included in RBLC for mini-mill tunnel furnaces.	Not included in RBLC for mini-mill tunnel furnaces.	Not included in RBLC for mini-mill tunnel furnaces.	Not included in RBLC for mini-mill tunnel furnaces.	Included in RBLC for mini-mill tunnel furnaces.	Not included in RBLC for mini-mill tunnel furnaces.	N/A
		Feasibility Discussion	Technically infeasible. Furnace outlet temperature is above the normal operating range.	Technically infeasible. The reagent-to-NOX ratio cannot be feasibly maintained under the significant variation in NOX loading associated with the furnace.	Technically infeasible. Typically applied only to rich burn engine emissions.	Technically infeasible. Typically applied to power generation turbines.	Technically infeasible. Integrated only in gas turbine combustors.	Feasible	Potentially Feasible	Feasible
Step 3.	**RANK REMAINING CONTROL TECHNOLOGIES**	**Overall Control Efficiency**						Up to 80%	20%	Base Case
Step 4.	**EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS**	**Cost Effectiveness ($/ton)**								
Step 5.	**SELECT BACT**							**BACT Limit: 0.07 lb/MMBtu**		

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Selective Catalytic Reduction (SCR))," EPA-452/F-03-032.
b. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Selective Non-Catalytic Reduction (SNCR))," EPA-452/F-03-031.
c. U.S. EPA, "Nitrogen Oxides (NOX), Why and How they are Controlled," EPA-456/F-99-006R
d. U.S. EPA, "CAM Technical Guidance Document" Section B-16, January 2005
e. California EPA, Air Resources Board, "Report to the Legislature: Gas-Fired Power Plant NOX Emission Controls and Related Environmental Impacts," http://www.arb.ca.gov/research/apr/reports/l2069.pdf

Process	Pollutant
Tunnel Furnace	CO

		Control Technology	Non-Selective Catalytic Reduction (NSCR)[a,b]	SCONOX Catalytic Absorption System[c]	Xonon Cool Combustion[c]	Recuperative Thermal Oxidation[d,e]	Regenerative Thermal Oxidation[f]	Catalytic Oxidation[g]	Good Process Operation
Step 1.	IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES	Control Technology Description	Metallic catalysts convert NOX, CO, and hydrocarbons to water, nitrogen, and CO2.	Utilizes a single catalyst to remove NOX, CO, and VOC through oxidation.	A catalyst integrated into gas turbine combustors limits the production of NOX through temperature control also resulting in reduced emissions of CO and VOC.	Oxidizes combustible materials by raising the temperature of the material above the auto-ignition point in the presence of oxygen and maintaining the high temperature for sufficient time to complete combustion.	Oxidizes combustible materials by raising the temperature of the material above the auto-ignition point in the presence of oxygen and maintaining the high temperature for sufficient time to complete combustion.	Similar to thermal incineration; waste stream is heated by a flame and then passes through a catalyst bed that increases the oxidation rate more quickly and at lower temperatures.	Operate and maintain the equipment in accordance with good air pollution control practices and with good combustion practices.
		Typical Operating Temperature	700 - 1,500 °F	300 - 700 °F	N/A	1,100 - 1,200 °F	1,400 - 2,000 °F (RTO) 800 °F (RCO)	600 - 800 °F (not to exceed 1,250 °F)	N/A
		Typical Waste Stream Inlet Flow Rate	N/A	N/A	N/A	500 - 50,000 scfm	5,000 - 500,000 scfm	700 - 50,000 scfm	N/A
		Typical Waste Stream Inlet Pollutant Concentration	N/A	N/A	N/A	Best performance at 1,500 - 3,000 ppmv	As low as 100 ppmv or less	As low as 1 ppmv	N/A
		Other Considerations	This technique uses a fuel rich mixture that, combined with back pressure from exhaust flow through the catalyst, increases the brake specific fuel consumption of the engine	The SCONOX Catalyst is sensitive to contamination by sulfur, so it must be used in conjunction with the SCOSOX catalyst, which favors sulfur compound absorption.	N/A	Additional fuel is required to reach the ignition temperature of the waste gas stream. Oxidizers are not recommended for controlling gases with halogen or sulfur containing compounds due to the formation of highly corrosive acid gases.	Pretreatment to remove PM may be necessary for clogging prevention and/or catalyst poisoning. Additional fuel is required to reach the ignition temperature of the waste gas stream.[a]	Catalyst can be deactivated by certain catalyst poisons or other fouling contaminants such as silicone, sulfur, heavy hydrocarbons, and particulates.	N/A
Step 2.	ELIMINATE TECHNICALLY INFEASIBLE OPTIONS	RBLC Database Information	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnances etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnances etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnances etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnances etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnances etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnances etc.	Included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnances etc.
		Feasibility Discussion	Technically infeasible. Typically applied only to rich burn engine emissions.	Technically infeasible. Typically applied to power generation turbines.	Technically infeasible. Integrated only in gas turbine combustors.	Technically infeasible. Thermal oxidizers do not reduce emissions of CO from properly operated natural gas combustion units without the use of a catalyst.	Technically infeasible. Thermal oxidizers do not reduce emissions of CO from properly operated natural gas combustion units without the use of a catalyst.	Technically infeasible. Furnace outlet temperature is above the normal operating range and is close to the not to exceed level for catalytic oxidation.	Feasible
Step 3.	RANK REMAINING CONTROL TECHNOLOGIES	Overall Control Efficiency							Base Case
Step 4.	EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS	Cost Effectiveness ($/ton)							
Step 5.	SELECT BACT								**BACT Limit: 0.082 lb/MMBtu**

a. U.S. EPA, "Nitrogen Oxides (NOX), Why and How they are Controlled," EPA-456/F-99-006R
b. U.S. EPA, "CAM Technical Guidance Document" Section B-16, January 2005
c. California EPA, Air Resources Board, "Report to the Legislature: Gas-Fired Power Plant NOX Emission Controls and Related Environmental Impacts," http://www.arb.ca.gov/research/apr/reports/l2069.pdf
d. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Thermal Incinerator)," EPA-452/F-03-022.
e. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Incinerator - Recuperative Type)," EPA-452/F-03-020.
f. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Regenerative Incinerator)," EPA-452/F-03-021.
g. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Catalytic Incinerator)," EPA-452/F-03-018.

Process	Pollutant
Tunnel Furnace	SO_2

		Control Technology	Impingement-Plate/Tray-Tower Scrubber[a]	Packed-Bed/Packed-Tower Wet Scrubber[b]	Spray-Chamber/Spray-Tower Wet Scrubber[c]	Flue Gas Desulfurization[d]	Good Process Operation
Step 1.	IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES	Control Technology Description	An impingement-plate scrubber promotes contact between the flue gas and a sorbent slurry in a vertical column with transversely mounted perforated trays. Absorption of SO2 is accomplished by countercurrent contact between the flue gas and reagent slurry.	Scrubbing liquid (e.g., NaOH), which is introduced above layers of variously-shaped packing material, flows concurrently against the flue gas stream. The acid gases are absorbed into the scrubbing solution and react with alkaline compounds to produce neutral salts.	Spray tower scrubbers introduce a reagent slurry as atomized droplets through an array of spray nozzles within the scrubbing chamber. The waste gas enters the bottom of the column and travels upward in a countercurrent flow. Absorption of SO2 is accomplished by the contact between the gas and reagent slurry, which results in the formation of neutral salts.	An alkaline reagent is introduced in a spray tower as an aqueous slurry (for wet systems) or is pneumatically injected as a powder in the waste gas ductwork (for dry systems). Absorption of SO2 is accomplished by the contact between the gas and reagent slurry or powder, which results in the formation of neutral salts.	Operate and maintain the equipment in accordance with good air pollution control practices and with good combustion practices, including the use of natural gas.
		Typical Operating Temperature	40 - 100 °F	40 - 100 °F	40 - 100 °F	300 - 700 °F (wet) 300 - 1,830 °F (dry)	N/A
		Typical Waste Stream Inlet Flow Rate	1,000 - 75,000 scfm	500 - 75,000 scfm	1,500 to 100,000 scfm	N/A	N/A
		Typical Waste Stream Inlet Pollutant Concentration	N/A	250 - 10,000 ppmv	250 - 10,000 ppmv	2,000 ppmv	N/A
		Other Considerations	Waste slurry formed in the bottom of the scrubber requires disposal.	To avoid clogging, packed bed wet scrubbers are generally limited to applications in which PM concentrations are less than 0.20 gr/scf)	Waste slurry formed in the bottom of the scrubber requires disposal.	Chlorine emissions can result in salt deposition on the absorber and downstream equipment. Wet systems may require flue gas re-heating downstream of the absorber to prevent corrosive condensation. Dry systems may require cooling inlet streams to minimize deposits.	N/A
Step 2.	ELIMINATE TECHNICALLY INFEASIBLE OPTIONS	RBLC Database Information	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnances etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnances etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnances etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnances etc.	Included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnances etc.
		Feasibility Discussion	Technically infeasible. Furnace outlet temperature is above the normal operating range.	Technically infeasible. Furnace outlet temperature is above the normal operating range.	Technically infeasible. Furnace outlet temperature is above the normal operating range.	Technically infeasible. Concentrations of SO2 in the waste gas fall below the levels typically controlled by FGDs.	Feasible
Step 3.	RANK REMAINING CONTROL TECHNOLOGIES	Overall Control Efficiency					Base Case
Step 4.	EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS	Cost Effectiveness ($/ton)					
Step 5.	SELECT BACT						**BACT Limit: 0.0006 lb/MMBtu**

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Impingement-Plate/Tray-Tower Scrubber)," EPA-452/F-03-012.
b. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Packed-Bed/Packed-Tower Wet Scrubber)," EPA-452/F-03-015.
c. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Spray-Chamber/Spray-Tower Wet Scrubber)," EPA-452/F-03-016.
d. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Flue Gas Desulfurization)," EPA-452/F-03-034.

Process	Pollutant
Tunnel Furnace	VOC

		Control Technology	Recuperative Thermal Oxidation[a,b]	Regenerative Thermal Oxidation[c]	Catalytic Oxidation[d]	Carbon / Zeolite Adsorption[e]	Biofiltration[f]	Condenser[g]	Good Process Operation
Step 1.	IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES	Control Technology Description	Oxidizes combustible materials by raising the temperature of the material above the auto-ignition point in the presence of oxygen and maintaining the high temperature for sufficient time to complete combustion.	Oxidizes combustible materials by raising the temperature of the material above the auto-ignition point in the presence of oxygen and maintaining the high temperature for sufficient time to complete combustion.	Similar to thermal incineration; waste stream is heated by a flame and then passes through a catalyst bed that increases the oxidation rate more quickly and at lower temperatures.	Adsorption technology utilizes a porous solid to selectively collect VOC from the gas stream. Adsorption collects VOC, but does not destroy it.	Exhaust gases containing biodegradable organic compounds are vented, under controlled temperature and humidity, through biologically active material. The microorganisms contained in the bed of bio-material digest or biodegrade the organics to CO2 and water.	Condensers convert a gas or vapor stream to a liquid, allowing the organics within the stream to be recovered, refined, or reused and preventing the release of organic streams into the ambient air.	Operate and maintain the equipment in accordance with good air pollution control practices and with good combustion practices.
		Typical Operating Temperature	1,100 - 1,200 °F	1,400 - 2,000 °F (RTO) 800 °F (RCO)	600 - 800 °F (not to exceed 1,250 °F)	N/A	60 - 105 °F	Hydrocarbon dew point (may be as low as -100 °F)	N/A
		Typical Waste Stream Inlet Flow Rate	500 - 50,000 scfm	5,000 - 500,000 scfm	700 - 50,000 scfm	N/A	600 - 600,000 acfm	Up to 2,000 cfm (10,000 cfm cryogenic)	N/A
		Typical Waste Stream Inlet Pollutant Concentration	Best performance at 1,500 - 3,000 ppmv	As low as 100 ppmv or less	As low as 1 ppmv	As low as 20 ppm	N/A	High concentrations required for efficient control	N/A
		Other Considerations	Additional fuel is required to reach the ignition temperature of the waste gas stream. Oxidizers are not recommended for controlling gases with halogen or sulfur containing compounds due to the formation of highly corrosive acid gases.	Pretreatment to remove PM may be necessary for clogging prevention and/or catalyst poisoning. Additional fuel is required to reach the ignition temperature of the waste gas stream.[a]	Catalyst can be deactivated by certain catalyst poisons or other fouling contaminants such as silicone, sulfur, heavy hydrocarbons, and particulates.	Excessive temperatures may cause desorption of the hydrocarbons or may melt the adsorbent. Adsorbed hydrocarbons may oxidize and cause bed fires.	Temperatures outside the specified range, acidic deposition, or dry exhaust streams will kill or deactivate the microorganisms. Biofiltration systems occupy a large equipment footprint. Large land requirement for traditional design.	Energy required to drive the refrigeration system. Certain compounds may corrode the cooling coils and associated equipment. Particulate material may accumulate within the cooling chamber.	N/A
Step 2.	ELIMINATE TECHNICALLY INFEASIBLE OPTIONS	RBLC Database Information	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.	Included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.
		Feasibility Discussion	Technically infeasible. Thermal oxidizers do not reduce levels of VOC from properly operated natural gas combustion units without use of a catalyst.	Technically infeasible. Thermal oxidizers do not reduce levels of VOC from properly operated natural gas combustion units without use of a catalyst.	Technically infeasible. Furnace outlet temperature is above the normal operating range.	Technically infeasible. Furnace outlet temperature is above the normal operating range.	Technically infeasible. Furnace outlet temperature is above the normal operating range.	Technically infeasible. Furnace exhaust gas flowrates exceed acceptable levels for effective condensation.	Feasible
Step 3.	RANK REMAINING CONTROL TECHNOLOGIES	Overall Control Efficiency							Base Case
Step 4.	EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS	Cost Effectiveness ($/ton)							
Step 5.	SELECT BACT								**BACT Limit: 0.0054 lb/MMBtu**

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Thermal Incinerator)," EPA-452/F-03-022.
b. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Incinerator - Recuperative Type)," EPA-452/F-03-020.
c. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Regenerative Incinerator)," EPA-452/F-03-021.
d. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Catalytic Incinerator)," EPA-452/F-03-018.
e. U.S. EPA, "Choosing an Adsorption System for VOC: Carbon, Zeolite, or Polymers?" EPA-456/F-99-004
f. U.S. EPA, "Using Bioreactors to Control Air Pollution," EPA-456/F-03-003
g. U.S. EPA, "Refrigerated Condensers for Control of Organic Air Emissions," EPA-456/F-01-004

Process	Pollutant
Tunnel Furnace	$PM/PM_{10}/PM_{2.5}$

		Control Technology	Baghouse / Fabric Filter[a]	Electrostatic Precipitator (ESP)[b,c,d,e]	Incinerator[f]	Wet Scrubber[h]	Cyclone[i]	Good Process Operation
Step 1.	IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES	**Control Technology Description**	Process exhaust gas passes through a tightly woven or felted fabric arranged in sheets, cartridges, or bags that collect PM via sieving and other mechanisms. The dust cake that accumulates on the filters increases collection efficiency. Various cleaning techniques include pulse-jet, reverse-air, and shaker technologies.	Electrodes stimulate the waste gas and induce an electrical charge in the entrained particles. The resulting electrical field forces the charged particles to the collector walls from which the material may be mechanically dislodged and collected in dry systems or washed with a water deluge in wet systems.	The combustion of auxiliary fuel heats a combustion chamber to promote the thermal oxidation of partially combusted particulate hydrocarbons in the exhaust stream. Recuperative incinerators utilize heat exchangers to recover heat from the outlet gas which is used to pre-heat the incoming waste stream.	A scrubbing liquid introduced into the gas stream captures and collects entrained particles. In the case of a venturi scrubber, the turbulent airflow atomizes the scrubbing liquid to increase droplet-particle interaction. The droplets containing particles are typically separated from the exhaust gas in a downstream cyclonic separator and/or mist eliminator.	Centrifugal forces drive particles in the gas stream toward the cyclone walls as the waste gas flows through the conical unit. The captured particles are collected in a material hopper below the unit.	Operate and maintain the equipment in accordance with good air pollution control practices.
		Typical Operating Temperature	Up to 500 °F (Typical)	Up to 1,300 °F (dry) Lower than 170 - 190 °F (wet)	1,100 to 1,200 °F	40 to 750 °F	Up to 1,000 °F	N/A
		Typical Waste Stream Inlet Flow Rate	100 - 100,000 scfm (Standard) 100,000 - 1,000,000 scfm (Custom)	1,000 - 100,000 scfm (Wire-Pipe) 100,000 - 1,000,000 scfm (Wire-Plate)	500 - 50,000 scfm	500 - 100,000 scfm (units in parallel can operate at greater flowrates)	1.1 - 63,500 scfm (single) Up to 106,000 scfm (in parallel)	N/A
		Typical Waste Stream Inlet Pollutant Concentration	0.5 - 10 gr/dscf (Typical) 0.05 - 100 gr/dscf (Achievable)	0.5 - 5 gr/dscf (Wire-Pipe) 1 - 50 gr/dscf (Wire-Plate)	As low as 100 ppmv or less (for VOC)[g]	0.1 - 50 gr/dscf	0.44 - 7,000 gr/dscf	N/A
		Other Considerations	Fabric filters are susceptible to corrosion and blinding by moisture. Appropriate fabrics must be selected for specific process conditions. Accumulations of dust may present fire or explosion hazards.	Dry ESP efficiency varies significantly with dust resistivity. Air leakage and acid condensation may cause corrosion. ESPs are not generally suitable for highly variable processes. Equipment footprint is often substantial.	Incinerators may not effectively control highly-variable waste streams. Halogenated or sulfurous compounds may cause corrosion within the incinerator.	Effluent stream requires wastewater treatment and solid was disposal. Sludge disposal may be costly. Wet scrubbers are particularly susceptible to corrosion.	Cyclones typically exhibit lower efficiencies when collecting smaller particles. High-efficiency units may require substantial pressure drop. Unable to handle sticky and tacky materials.	N/A
Step 2.	ELIMINATE TECHNICALLY INFEASIBLE OPTIONS	**RBLC Database Information**	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.	Not included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.	Included in RBLC for mini-mill dryers, preheaters, boilers, heaters, furnaces etc.
		Feasibility Discussion	Technically infeasible. Concentrations of particulate in the waste gas fall below the levels typically controlled by baghouse.	Technically infeasible. Concentrations of particulate in the waste gas fall below the levels typically controlled by ESP.	Technically infeasible. Incinerators do not reduce emissions from properly operated natural gas combustion units without the use of a catalyst.	Technically infeasible. Concentrations of particulate in the waste gas fall below the levels typically controlled by wet scrubbers.	Technically infeasible. Concentrations of particulate in the waste gas fall below the levels typically controlled by cyclone.	Feasible
Step 3.	RANK REMAINING CONTROL TECHNOLOGIES	**Overall Control Efficiency**						Base Case
Step 4.	EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS	**Cost Effectiveness ($/ton)**						
Step 5.	SELECT BACT							**BACT Limit: 7.45E-3 lb/MMBtu - PM10/PM2.5** **BACT Limit: 1.86E-3 lb/MMBtu - PM Filterable**

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Fabric Filter - Pulse-Jet Cleaned Type)," EPA-452/F-03-025.
b. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Dry Electrostatic Precipitator (ESP) - Wire-Pipe Type)," EPA-452/F-03-027.
c. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Dry Electrostatic Precipitator (ESP) - Wire-Plate Type)," EPA-452/F-03-028.
d. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Wet Electrostatic Precipitator(ESP) - Wire-Pipe Type)," EPA-452/F-03-029.
e. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Wet Electrostatic Precipitator (ESP) - Wire-Plate Type)," EPA-452/F-03-030.
f. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Incinerator - Recuperative Type)," EPA-452/F-03-020.
g. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Incinerator - Regenerative Type)," EPA-452/F-03-021.
h. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Venturi Scrubber)," EPA-452/F-03-017.
i. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Cyclone)," EPA-452/F-03-005.

RBLC Entries for Tunnel Furnace

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	NOx Limit	NOx Limit Unit	NOx Control Technique	Limit 2	Limit 2 Unit	CO Limit	CO Limit Unit	CO Control Technique	Limit 2	Limit 2 Unit
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	TUNNEL FURNACES SN-20 AND 21	234	MMBTU/H	0.1	LB/MMBTU	LOW NOX BURNERS COMBUSTION OF CLEAN FUEL GOOD COMBUSTION	0	0	0.0824	LB/MMBRU	NATURAL GAS AND GOOD COMBUSTION PRACTICE	0	0
107-32615-00038	9/17/2013	NUCOR STEEL	IN	Steel Mini Mill	TUNNEL FURNACES 1 AND 2, SHUTTLE FURNACES 1 AND 2	50	MMBtu/hr	100	LB/MMCF NAT GAS	USING LOW NOX BURNERS	0.013	LB/GAL PROPANE	84	LB/MMCF NAT GAS	0	0	0
2305-AOP-R6	6/9/2019	BIG RIVER STEEL LLC	AR	Steel Mill	Tunnel Furnaces	234	MMBTU/H	0.1	LB/MMBTU	Low NOx burners Combustion of clean fuel Good Combustion Practices	0	0	0.0824	LB/MMBTU	Combustion of Natural gas and Good Combustion Practice	0	0
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY	Steel Mini Mill	A-Line Tunnel Furnace (EP 02-01)	104.3	MMBtu/hr	70	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan. Equipped with Low	31.35	TONS/YR	84	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices	37.62	TON/YR
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY	Steel Mini Mill	B-Line Tunnel Furnace (EP 02-02)	163.1	MMBtu/hr	70	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan. Equipped with low	49.03	TONS/YR	84	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices	58.83	TONS/YR
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH	Steel Mill	Tunnel Furnace #2 (P018)	88	MMBTU/H	6.16	LB/H	Use of natural gas, use of low NOx burners, good combustion practices and design	26.98	T/YR	6.16	LB/H	Use natural gas, use of baffle type burners, good combustion practices and design	26.98	T/YR
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH	Steel Mill	Tunnel Furnace (P001)	112	MMBTU/H	7.84	LB/H	Use of natural gas, use of low NOx burners, good combustion practices and design	34.34	T/YR	7.84	LB/H	Use of natural gas, use of baffle type burners, good combustion practices and design	34.34	T/YR
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC	Steel Mill	Tunnel Furnaces/Hot Mill (tunnel furnace 2)	Unspecified	-	-	-	-	-	-	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC	Steel Mill	Tunnel Furnaces/Hot Mill (hot mill monovent)	Unspecified	-	-	-	-	-	-	-	-	-	-	-
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX	Steel Mini Mill	Annealing Furnace AND Tunnel Furnaces	Unspecified	-	0.1	LB/MMBTU	GOOD COMBUSTION PRACTICES, CLEAN FUEL	0	0	0.082	LB/MMBTU	GOOD COMBUSTION PRACTICES, CLEAN FUEL	0	0

Nucor Corporation | West Virginia Steel Mill

RBLC Entries for Tunnel Furnace

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	SO2 Limit	SO2 Limit Unit	SO2 Control Technique	Limit 2	Limit 2 Unit	VOC Limit	VOC Limit Unit	VOC Control Technique	Limit 2	Limit 2 Unit
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	TUNNEL FURNACES SN-20 AND 21	234	MMBTU/H	5.88	X10^-4 LB/MMBTU	NATURAL GAS AND GOOD COMBUSTION PRACTICE	0	0	0.0054	LB/MMBTU	NATURAL GAS AND GOOD COMBUSTION PRACTICE	0	0
107-32615-00038	9/17/2013	NUCOR STEEL	IN	Steel Mini Mill	TUNNEL FURNACES 1 AND 2, SHUTTLE FURNACES 1 AND 2	50	MMBtu/hr	0.6	LB/MMCF NAT GAS	0	0	0	5.5	LB/MMCF NAT GAS	0	0.001	LB/GAL PROPANE
2305-AOP-R6	6/9/2019	BIG RIVER STEEL LLC	AR	Steel Mill	Tunnel Furnaces	234	MMBTU/H	0.0006	LB/MMBTU	Combustion of Natural gas and Good Combustion Practice	0	0	0.0054	LB/MMBTU	Combustion of Natural gas and Good Combustion Practice	0	0
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY	Steel Mini Mill	A-Line Tunnel Furnace (EP 02-01)	104.3	MMBtu/hr	0.6	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices	0.27	TON/YR	5.5	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices	2.46	TONS/YR
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY	Steel Mini Mill	B-Line Tunnel Furnace (EP 02-02)	163.1	MMBtu/hr	0.6	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices	0.42	TON/YR	5.5	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices	3.85	TONS/YR
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH	Steel Mill	Tunnel Furnace #2 (P018)	88	MMBTU/H	0.05	LB/H	Use of natural gas, good combustion practices and design	0.22	T/YR	0.48	LB/H	Use of natural gas, good combustion practices and design	2.1	T/YR
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH	Steel Mill	Tunnel Furnace (P001)	112	MMBTU/H	0.07	LB/H	Use of natural gas, good combustion practices and design	0.31	T/YR	0.62	LB/H	Use of natural gas, good combustion practices and design	2.72	T/YR
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC	Steel Mill	Tunnel Furnaces/Hot Mill (tunnel furnace 2)	Unspecified	-	-	-	-	-	-	0	0	Good combustion practices	0	0
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC	Steel Mill	Tunnel Furnaces/Hot Mill (hot mill monovent)	Unspecified	-	-	-	-	-	-	6.88	LB/HR	Proper Operation and Maintenance of the Hot Mill Monovent.	0	0
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX	Steel Mini Mill	Annealing Furnace AND Tunnel Furnaces	Unspecified	-	0.0006	LB/MMBTU	GOOD COMBUSTION PRACTICES, CLEAN FUEL	0	0	0.0054	LB/MMBTU	GOOD COMBUSTION PRACTICES, CLEAN FUEL	0	0

RBLC Entries for Tunnel Furnace

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	PM Limit	PM Limit Unit	PM Control Technique	Limit 2	Limit 2 Unit	PM10 Limit	PM10 Limit Unit	PM10 Control Technique	Limit 2	Limit 2 Unit	PM2.5 Limit	PM2.5 Limit Unit	PM2.5 Control Technique	Limit 2	Limit 2 Unit
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	TUNNEL FURNACES SN-20 AND 21	234	MMBTU/H	5.2	X10^-4 LB/MMBTU	NATURAL GAS AND GOOD COMBUSTION PRACTICE	0	0	-	-	-	-	-	5.2	X10^-4 LB/MMBTU	NATURAL GAS AND GOOD COMBUSTION PRACTICE	0	0
107-32615-00038	9/17/2013	NUCOR STEEL	IN	Steel Mini Mill	TUNNEL FURNACES 1 AND 2, SHUTTLE FURNACES 1 AND 2	50	MMBtu/hr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2305-AOP-R6	6/9/2019	BIG RIVER STEEL LLC	AR	Steel Mill	Tunnel Furnaces	234	MMBTU/H	0.0075	LB/MMBTU	Combustion of Natural gas and Good Combustion Practice	0	0	0.0075	LB/MMBTU	Combustion of Natural gas and Good Combustion Practice	0	0	0.0075	LB/MMBTU	Combustion of Natural gas and Good Combustion Practice	0	0
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY	Steel Mini Mill	A-Line Tunnel Furnace (EP 02-01)	104.3	MMBtu/hr	1.9	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices	0.85	TON/YR	7.6	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices	3.4	TONS/YR	7.6	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices	3.4	TONS/YR
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY	Steel Mini Mill	B-Line Tunnel Furnace (EP 02-02)	163.1	MMBtu/hr	1.9	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices	1.33	TONS/YR	7.6	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices	5.32	TONS/YR	7.6	LB/MMSCF	The permittee must develop a Good Combustion and Operating Practices	5.32	TONS/YR
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH	Steel Mill	Tunnel Furnace #2 (P018)	88	MMBTU/H	-	-	-	-	-	0.88	LB/H	Use of natural gas, good combustion practices and design	3.85	T/YR	0.88	LB/H	Use of natural gas, good combustion practices and design	3.85	T/YR
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH	Steel Mill	Tunnel Furnace (P001)	112	MMBTU/H	1.12	LB/H	Use of natural gas, good combustion practices and design	4.91	T/YR	1.12	LB/H	Use of natural gas, good combustion practices and design	4.91	T/YR	1.12	LB/H	Use of natural gas, good combustion practices and design	4.91	T/YR
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC	Steel Mill	Tunnel Furnaces/Hot Mill (tunnel furnace 2)	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC	Steel Mill	Tunnel Furnaces/Hot Mill (hot mill monovent)	Unspecified	-	0.0002	GR/DSCF	Proper Operation and Maintenance of the Hot Mill Monovent.	1.46	LB/HR	-	-	-	-	-	-	-	-	-	-
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX	Steel Mini Mill	Annealing Furnace AND Tunnel Furnaces	Unspecified	-	-	-	-	-	-	0.0075	LB/MMBTU	GOOD COMBUSTION PRACTICES, CLEAN FUEL	0	0	0.0075	LB/MMBTU	GOOD COMBUSTION PRACTICES, CLEAN FUEL	0	0

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	CO_2 Limit	CO_2 Limit Unit	CO_2 Control Technique	CH_4 Limit	CH_4 Limit Unit	CH_4 Control Technique	N_2O Limit	N_2O Limit Unit	N_2O Control Technique	CO_2e Limit	CO_2e Limit Unit	CO_2e Control Technique	Limit 2	Limit 2 Unit
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	TUNNEL FURNACES SN-20 AND 21	234	MMBTU/H	117	LB/MMBTU	GOOD OPERATING PRACTICES	0.0022	LB/MMBTU	GOOD OPERATING PRACTICES	0.0002	LB/MMBTU	GOOD OPERATING PRACTICES	-	-	-	-	-
107-32615-00038	9/17/2013	NUCOR STEEL	IN	Steel Mini Mill	TUNNEL FURNACES 1 AND 2, SHUTTLE FURNACES 1 AND 2	50	MMBtu/hr	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2305-AOP-R6	6/9/2019	BIG RIVER STEEL LLC	AR	Steel Mill	Tunnel Furnaces	234	MMBTU/H	117	LB/MMBTU	Good operating practices	0.0022	LB/MMBTU	Good operating practices	0.0002	LB/MMBTU	Good operating practices	-	-	-	-	-
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY	Steel Mini Mill	A-Line Tunnel Furnace (EP 02-01)	104.3	MMBtu/hr	-	-	-	-	-	-	-	-	-	54065	TONS/YR	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan and implement various design and operational efficiency requirements.	-	-
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY	Steel Mini Mill	B-Line Tunnel Furnace (EP 02-02)	163.1	MMBtu/hr	-	-	-	-	-	-	-	-	-	84544	TONS/YR	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan and implement various design and operational efficiency requirements.	-	-
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH	Steel Mill	Tunnel Furnace #2 (P018)	88	MMBTU/H	-	-	-	-	-	-	-	-	-	10283.06	LB/H	Use of natural gas and energy efficient design	45039.54	T/YR
P0126431	9/27/2019	NORTHSTAR BLUESCOPE STEEL, LLC	OH	Steel Mill	Tunnel Furnace (P001)	112	MMBTU/H	-	-	-	-	-	-	-	-	-	13087.2	LB/H	Use of natural gas and energy efficient design	53321.94	T/YR
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC	Steel Mill	Tunnel Furnaces/Hot Mill (tunnel furnace 2)	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC	Steel Mill	Tunnel Furnaces/Hot Mill (hot mill monovent)	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX	Steel Mini Mill	Annealing Furnace AND Tunnel Furnaces	Unspecified	-	-	-	-	-	-	-	-	-	-	117.1	LB/MMBTU	GOOD COMBUSTION PRACTICES, CLEAN FUEL	-	-

Process	Pollutant
Vacuum Tank Degasser	CO

		Control Technology	Non-Selective Catalytic Reduction (NSCR)[a,b]	SCONOX Catalytic Absorption System[c]	Xonon Cool Combustion[c]	Recuperative Thermal Oxidation[d,e]	Regenerative Thermal Oxidation[f]	Catalytic Oxidation[g]	Flare	Good Process Operation
Step 1.	**IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES**	**Control Technology Description**	Metallic catalysts convert NOX, CO, and hydrocarbons to water, nitrogen, and CO2.	Utilizes a single catalyst to remove NOX, CO, and VOC through oxidation.	A catalyst integrated into gas turbine combustors limits the production of NOX through temperature control also resulting in reduced emissions of CO and VOC.	Oxidizes combustible materials by raising the temperature of the material above the auto-ignition point in the presence of oxygen and maintaining the high temperature for sufficient time to complete combustion.	Oxidizes combustible materials by raising the temperature of the material above the auto-ignition point in the presence of oxygen and maintaining the high temperature for sufficient time to complete combustion.	Similar to thermal incineration; waste stream is heated by a flame and then passes through a catalyst bed that increases the oxidation rate more quickly and at lower temperatures.	Waste gases are piped to a remote and elevated location and burned in an open air using a specially designed burner tip, auxiliary fuel, and steam or air to promote mixing.	Operate and maintain the equipment in accordance with good air pollution control practices and with good combustion practices.
		Typical Operating Temperature	700 - 1,500 °F	300 - 700 °F	N/A	1,100 - 1,200 °F	1,400 - 2,000 °F (RTO) 800 °F (RCO)	600 - 800 °F (not to exceed 1,250 °F)	1000 - 2000 °F	N/A
		Typical Waste Stream Inlet Flow Rate	N/A	N/A	N/A	500 - 50,000 scfm	5,000 - 500,000 scfm	700 - 50,000 scfm	0 - 1,060,000 scfm	N/A
		Typical Waste Stream Inlet Pollutant Concentration	N/A	N/A	N/A	Best performance at 1,500 - 3,000 ppmv	As low as 100 ppmv or less	As low as 1 ppmv	Up to 2 MM lb/hr	N/A
		Other Considerations	This technique uses a fuel rich mixture that, combined with back pressure from exhaust flow through the catalyst, increases the brake specific fuel consumption of the engine	The SCONOX Catalyst is sensitive to contamination by sulfur, so it must be used in conjunction with the SCOSOX catalyst, which favors sulfur compound absorption.	N/A	Additional fuel is required to reach the ignition temperature of the waste gas stream. Oxidizers are not recommended for controlling gases with halogen or sulfur containing compounds due to the formation of highly corrosive acid gases.	Pretreatment to remove PM may be necessary for clogging prevention and/or catalyst poisoning. Additional fuel is required to reach the ignition temperature of the waste gas stream.[a]	Catalyst can be deactivated by certain catalyst poisons or other fouling contaminants such as silicone, sulfur, heavy hydrocarbons, and particulates.	Auxiliary fuel is required to maintain waste gas stream heating value to be at least 300 Btu/scf.	N/A
Step 2.	**ELIMINATE TECHNICALLY INFEASIBLE OPTIONS**	**RBLC Database Information**	Not included in RBLC for vaccum tank degassers at steel mills.	Not included in RBLC for vaccum tank degassers at steel mills.	Not included in RBLC for vaccum tank degassers at steel mills.	Not included in RBLC for vaccum tank degassers at steel mills.	Not included in RBLC for vaccum tank degassers at steel mills.	Not included in RBLC for vaccum tank degassers at steel mills.	Not included in RBLC for vaccum tank degassers at steel mills.	Not included in RBLC for vaccum tank degassers at steel mills.
		Feasibility Discussion	Technically infeasible. Typically applied only to rich burn engine emissions.	Technically infeasible. Typically applied to power generation turbines.	Technically infeasible. Integrated only in gas turbine combustors.	Technically infeasible. Technology is not found applied to any vacuum tank degasser in steel mills.	Technically infeasible. Technology is not found applied to any vacuum tank degasser in steel mills.	Technically infeasible. Technology is not found applied to any vacuum tank degasser in steel mills.	Feasible. Typical control option used for vacuum tank degasser.	Feasible
Step 3.	**RANK REMAINING CONTROL TECHNOLOGIES**	**Overall Control Efficiency**							98%	Base Case
Step 4.	**EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS**	**Cost Effectiveness ($/ton)**								
Step 5.	**SELECT BACT**								**BACT Limit: 98% DRE**	

a. U.S. EPA, "Nitrogen Oxides (NOX), Why and How they are Controlled," EPA-456/F-99-006R
b. U.S. EPA, "CAM Technical Guidance Document" Section B-16, January 2005
c. California EPA, Air Resources Board, "Report to the Legislature: Gas-Fired Power Plant NOX Emission Controls and Related Environmental Impacts," http://www.arb.ca.gov/research/apr/reports/l2069.pdf
d. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Thermal Incinerator)," EPA-452/F-03-022.
e. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Incinerator - Recuperative Type)," EPA-452/F-03-020.
f. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Regenerative Incinerator)," EPA-452/F-03-021.
g. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Catalytic Incinerator)," EPA-452/F-03-018.

RBLC Entries for Vacuum Tank Degasser

Permit No.	Permit Issuance Date	Facility Name	State	Facility Type	Process	Throughput	Unit	CO Limit	CO Limit Unit	CO Control Technique	Limit 2	Limit 2 Unit
413-0033	7/22/2014	NUCOR STEEL TUSCALOOSA, INC.	AL	Steel Mill	Vacuum Degasser with flare and cooling towers	Unspecified	-	0.075	LB/T	Flare	-	-
413-0033-X014 - X020	7/22/2014	NUCOR STEEL TUSCALOOSA, INC.	AL	Steel Mill	VACUUM DEGASSER	600000	LB/H	0.075	LB/T	FLARE	-	-
2305-AOP-R0	9/18/2013	BIG RIVER STEEL LLC	AR	Steel Mill	RH DEGASSER	Unspecified	-	0.04	LB/TON OF STEEL	FLARE	-	-
0883-AOP-R15	6/1/2018	NUCOR YAMATO STEEL COMPANY (LIMITED PARTNERSHIP)	AR	Steel Mill	Vacuum tank Degasser and Flare	150	tons per hour	98	%DESTRUCTION	flare	0.062	LB/TON
1139-AOP-R14	2/17/2012	NUCOR CORPORATION - NUCOR STEEL, ARKANSAS	AR	Steel Mill	VACUUM TANK DEGASSER SN-94	Unspecified	-	0.075	LB/TON	FLARE	-	-
1139-AOP-R24	2/14/2019	NUCOR STEEL ARKANSAS	AR		SN-141 Vacuum Tank Degasser No. 2	Unspecified	-	0.062	LB/TON	Flare	0.0824	LB/MMBTU
V-20-001	7/23/2020	NUCOR STEEL BRANDENBURG	KY		EP 01-03 - Vacuum Degasser (under vacuum)	1750000	tons steel produced/yr	0.075	LB/TON	This EP is required to have a Good Work Practices (GWP) Plan.	65.63	TON/YR
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Vacuum Degasser Alloy Handling System (EP 20-14)	20000	tons/yr	-	-	-	-	-
V-20-015	4/19/2021	NUCOR STEEL GALLATIN, LLC	KY		Vacuum Degasser (incl. pilot emissions) (EP 20-12)	700000	tons steel/yr	26.89	LB/HR	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan and a Good Work Practices (GWP) Plan to	28.83	TONS/YR
75-18	10/29/2018	GERDAU MACSTEEL MONROE	MI		Ladle metallurgy furnace (EULMF) and two vacuum tank degassers (EUVTD)	130	T/H	18.55	LB/H	-	70.69	T/YR
P0120585	10/2/2017	CHARTER STEEL - CLEVELAND INC	OH		Vacuum Tank Degasser (VTD) (P043)	100	T/H	16.7	LB/H	-	0.167	LB/T
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Vacuum Tank Degasser Equipment (vaccum tank degasser flares)	Unspecified	-	-	-	-	-	-
0420-0060-DX	5/4/2018	NUCOR STEEL - BERKELEY	SC		Vacuum Tank Degasser Equipment (vacuum degasser boiler 2)	Unspecified	-	61	LB/MMSCF	Good combustion practices	-	-
0820-0001-DK	12/17/2019	NUCOR CORPORATION - DARLINGTON PLANT	SC		Vacuum Tank Degasser	Unspecified	-	0.075	LB/TON	Flare, use of clean fuel (natural gas) and good combustion practices.	-	-
53581 & PSDTX 1029M2	10/2/2013	STEEL MILL	TX		VACUUM DEGASSER	Unspecified	-	-	-	ENCLOSURE, CAPTURE, FABRIC FILTER	-	-
156458, PSDTX1562, AND GHGPSDT	1/17/2020	SDSW STEEL MILL	TX		Vacuum Tank Degassers	Unspecified	-	-	-	FLARE	-	-

APPENDIX D. PSD MODELING ANALYSIS

PSD AIR PERMIT APPLICATION
Modeling Report

Greenfield Steel Mill

NUCOR®

Nucor / Apple Grove, WV Plant

March 2022

Project 213601.0130

Trinity Consultants

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1. EXECUTIVE SUMMARY

Nucor is proposing to construct a greenfield steel making plant in Apple Grove, West Virginia. The proposed project requires a Prevention of Significant Deterioration (PSD) permit as a new PSD major source. Projected-related emissions increases are anticipated to exceed the PSD significant emission rate (SER) thresholds for particulate matter (PM), particulate matter with an aerodynamic diameter of 10 microns (PM_{10}), particulate matter with an aerodynamic diameter of 2.5 microns ($PM_{2.5}$), nitrogen oxides (NO_x), carbon monoxide (CO), sulfur dioxide (SO_2), lead (Pb), volatile organic compounds (VOCs), and greenhouse gases (GHG) in terms of carbon dioxide equivalents (CO_2e).[1] This report details the air quality analysis that was completed in support of the PSD permit application.

The area immediately surrounding the proposed facility is designated as attainment for all applicable National Ambient Air Quality Standards (NAAQS) and is designated as Class II in terms of its PSD area classification.[2] The PSD permitting requirements therefore require a Class II air quality analysis for PM_{10}, $PM_{2.5}$, CO, SO_2, NO_2, and lead. Additionally, analyses are required for secondary $PM_{2.5}$ and ozone when emissions of precursor pollutants exceed the applicable PSD Significant Emission Rates (SERs). Finally, two Class I areas, namely Otter Creek Wilderness and Dolly Sods Wilderness, are located within 300 kilometers (km) of the proposed project. Therefore, a Class I SIL analysis was performed to assess the potential impact of the proposed project on these Class I areas.

In summary, this air quality analysis demonstrates for the Class II area that emissions of the applicable pollutants from the proposed project will not: 1) Cause or significantly contribute to a violation of the NAAQS; 2) Cause or significantly contribute to a violation of incremental standards; or 3) Cause any other adverse impacts to the surrounding area (i.e., impacts on soil and vegetation, visibility degradation, etc.). As detailed in the air dispersion modeling protocol that was submitted to and approved by WVDEP,[3] the methodologies discussed in this report are consistent with applicable guidance provided at both the state and federal level for PSD projects.

The results of the air quality analysis presented in this report can be summarized as follows:

- The proposed project does not cause any ambient impacts of CO above either the 1-hr or 8-hr Class II Significant Impact Level (SIL).
- Maximum ambient impacts of SO_2 are estimated to be above the SILs for the 1-hr and 24-hr averaging periods. The proposed project does not cause or contribute to any exceedance of the 1-hr SO_2 NAAQS. Impacts are also below all applicable Class II PSD Increments for SO_2.
- Maximum ambient impacts of NO_2 are estimated to be above the SILs for both the 1-hr and annual averaging periods. The proposed project does not cause or contribute to any exceedance of the 1-hr or annual NO_2 NAAQS. Impacts are also below all applicable Class II PSD Increments for NO_2.
- Maximum ambient impacts of PM_{10} are estimated to be above the SILs for both the 24-hr and annual averaging periods. Impacts are below all applicable NAAQS and Class II PSD Increments.
- Maximum ambient impacts of $PM_{2.5}$ are estimated to be above the SILs for both the 24-hr and annual averaging period. Impacts are below the annual and 24-hr NAAQS. Additionally, impacts are below the Class II PSD Increments.

---

[1] For this project, CO_2e denotes carbon dioxide equivalents and is calculated as the sum of the four well-mixed GHGs (CO_2, CH_4, N_2O, and SF_6) with applicable global warming potentials per 40 CFR 98 applied.

[2] Attainment designations can be found at 40 CFR 81.349.

[3] Protocol approval sent via e-mail from Jon McClung of WVDEP to William Bruscino of Trinity Consultants on 1/13/2022.

- Maximum ambient impacts of lead are below the Rolling 3-Month Average NAAQS.
- Maximum ambient impacts of the proposed project on the formation of ozone result in impacts below the NAAQS.
- Maximum ambient impacts of secondary $PM_{2.5}$, when combined with concentrations from emissions of direct $PM_{2.5}$, are below NAAQS and Class II PSD Increments.
- The proposed project does not cause any ambient impacts of NO_2, SO_2, $PM_{2.5}$, or PM_{10} above their respective Class I SILs.

Nucor will provide all relevant model input and output files associated with this air quality analysis to WVDEP.

2. PSD MODELING PROCEDURES

The following sections detail the methods and models used to demonstrate that the proposed project will not cause or contribute to a violation of either the NAAQS or the PSD Class I or Class II Increment. The dispersion modeling analyses were conducted in accordance with the following guidance documents, as well as the approved modeling protocol:[4]

- *Guideline on Air Quality Models* 40 CFR 51, Appendix W (EPA, Revised, January 17, 2017)
- User's Guide for the AMS/EPA Regulatory Model – AERMOD, (EPA, April 2021)
- AERMOD Implementation Guide (EPA, July 2021)
- New Source Review Workshop Manual (EPA, Draft, October 1990)
- Modeling Procedures for Demonstrating Compliance with $PM_{2.5}$ NAAQS (EPA, Memorandum from Mr. Stephen Page, March 23, 2010)
- *Draft Guidance for Ozone and Fine Particulate Matter Modeling* (EPA, Memorandum from Mr. Richard A. Wayland, February 10, 2020)
- Revised Draft Guidance for Ozone and Fine Particulate Matter Modeling (EPA, Memorandum from Mr. Richard A. Wayland, September 20, 2021)
- *Revised Policy on Exclusions from "Ambient Air"* (EPA, Memorandum from Mr. Andrew R. Wheeler, December 2, 2019)
- *Guidance for $PM_{2.5}$ Permit Modeling* (EPA, Memorandum from Mr. Stephen Page, May 20, 2014)
- Guidance on the Development of Modeled Emission Rates for Precursors (MERPs) as a Tier I Demonstration Tool for Ozone and $PM_{2.5}$ under the PSD Permitting Program (EPA, Memorandum from Mr. Richard A Wayland, December 2, 2016) and associated errata document (February 2017)
- Guidance on the Development of Modeled Emission Rates for Precursors (MERPs) as a Tier I Demonstration Tool for Ozone and $PM_{2.5}$ under the PSD Permitting Program (EPA, Memorandum from Mr. Richard A Wayland, April 30, 2019)
- Guidance on Significant Impact Levels for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program (EPA Memorandum from Mr. Peter Tsirigotis, April 17. 2018)
- Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO_2 National Ambient Air Quality Standard (EPA, Memorandum from Mr. Tyler Fox, March 1, 2011); and
- Clarification on the Use of AERMOD Dispersion Modeling for Demonstrating Compliance with the NO_2 National Ambient Air Quality Standard (EPA, Memorandum from Mr. R. Chris Owen and Roger Brode, September 30, 2014).
- Interpretation of "Ambient Air" in Situations Involving Leased Land Under the Regulations for Prevention of Significant Deterioration (PSD) (EPA, June 22, 2007)

Part C of Title I of the Clean Air Act, 42 U.S.C. §§7470-7492, is the statutory basis for the PSD program. EPA has codified PSD definitions, applicability, and requirements in 40 CFR Part 52.21. PSD is the component of the federal New Source Review (NSR) permitting program that is applicable in areas that are not designated as in nonattainment of the NAAQS. Mason County, where the facility will be located, is currently designated as "attainment" or "unclassifiable" for all criteria pollutants.[5]

The proposed greenfield project is considered a new major source under PSD since at least one pollutant exceeds the PSD major source threshold, and the proposed project emissions increases for other criteria pollutants and GHGs exceed their respective PSD SERs.

---

[4] Protocol approval sent via e-mail from Jon McClung of WVDEP to William Bruscino of Trinity Consultants on 1/13/2022.

[5] 40 CFR 81.349

The project emission rates trigger PSD permitting for multiple criteria pollutants with established Significant Impact Levels (SILs), NAAQS, and/or PSD Increment standards, specifically CO, SO_2, NO_2, Lead, PM_{10}, and $PM_{2.5}$. [6] The project also triggers PSD permitting for NOx and VOC, which are precursors to ozone, for which a SIL and NAAQS have been established. Because sources and emissions in the proposed project are subject to the ambient air quality assessment requirements of the PSD program, modeling is required to meet specific objectives. Modeling will be used to demonstrate that emissions of CO, SO_2, NO_2, Lead, PM_{10}, and $PM_{2.5}$ pollutants after the proposed project is completed will not:

1) cause or significantly contribute to a violation of the NAAQS,

2) cause or significantly contribute to ambient concentrations that are greater than allowable PSD Increments, or

3) cause any other additional adverse impacts to the surrounding area (i.e., impairment to visibility, soils and vegetation and air quality impacts from general commercial, residential, industrial, and other growth associated with the facility expansion).

To facilitate this analysis (and allow it to be commensurate with the requirements to which the WVDEP adheres), dispersion modeling methodologies will be followed that are consistent with EPA procedures specified in the *Guideline on Air Quality Models (Guideline)*.[7]

2.1 Class II Significance and NAAQS Analysis

The Significance Analysis was conducted to determine whether the emissions associated with the proposed new construction could cause a significant impact upon the area surrounding the facility. "Significant" impacts are defined by design concentration thresholds commonly referred to as the Significant Impact Level (SIL).

For this project, as a greenfield site, significance modeling includes all new facility emission units at their potential to emit emission rates. The only exception is that only the worst-case emergency equipment (e.g., emergency generator) was modeled as part of the significance analysis. Refer to Section 3.4 for additional details about this approach.

Table 2-1 lists the SIL, NAAQS, and Class II PSD Increments for all relevant NSR regulated pollutants for this project which will be undergoing PSD permitting.[8]

[6] The pollutants PM, VOC and CO_{2e} currently have no effective NAAQS or PSD Increment standards.

[7] 40 CFR 51, Appendix W, *Guideline on Air Quality Models*, and 45 CSR 14-10

[8] Class I analyses are addressed in Sections 5. Neither PM nor CO_{2e} have any applicable NAAQS or PSD Increment standards.

Table 2-1. Significant Impact Levels, NAAQS, PSD Class II Increments, and Significant Monitoring Concentrations for Relevant Criteria Air Pollutants

Pollutant	Averaging Period	PSD Class II SIL (μg/m³)	Primary NAAQS (μg/m³)	Secondary NAAQS (μg/m³)	Class II PSD Increment (μg/m³)	Significant Monitoring Concentration (μg/m³)
PM_{10}	24-hr	5	150 (1)	--	30	10
	Annual	1	--	--	17	--
$PM_{2.5}$	24-hr	1.2 (2)	35 (4)	--	9 (3)	-- (2)
	Annual	0.2 (2)	12 (5)	15	4 (3)	--
NO_2	1-hr	7.5	188 (6)	--	N/A	--
	Annual	1	100 (7)	100	25	14
SO_2	1-hr	7.8	196 (8)	--	--	--
	3-hr	25	--	1,300 (9)	512 (9)	--
	24-hr	5	--	--	91 (9)	13
	Annual	1	--	--	20 (7)	--
CO	1-hr	2,000	40,000 (9)	--	N/A	--
	8-hr	500	10,000 (9)	--	N/A	575
Ozone (10)	8-hr	1 ppb	70 ppb	70 ppb	N/A	--
Lead	Rolling 3-Month Avg.	--	0.15	0.15	--	0.1

(1) Not to be exceeded more than three times in 3 consecutive years (highest sixth high modeled output).

(2) EPA promulgated $PM_{2.5}$ SILs, Significant Monitoring Concentrations (SMCs), and PSD Increments on October 20, 2010 [75 FR 64864, *PSD for Particulate Matter Less Than 2.5 Micrometers Increments, Significant Impact Levels (SILs) and Significant Monitoring Concentration (SMC); Final Rule*]. The SILs and SMCs became effective on December 20, 2010 (i.e., 60 days after the rule was published in the Federal Register) but the U.S. Court of Appeals decision on January 22, 2013 vacated the SMC and remanded the SIL values back to EPA for reconsideration. EPA has provided guidance (August 2016) and a finalized memo (April 2018) which recommended use of a 24-hr $PM_{2.5}$ SIL of 1.2 μg/m³, and an annual SIL of 0.2 μg/m³. EPA responded to the vacature of the SMCs by indicating that existing background monitors should be sufficient to fulfill the ambient monitoring requirements for $PM_{2.5}$.

(3) The above-mentioned court decision did not impact the promulgated increment thresholds for $PM_{2.5}$.

(4) The 3-year average of the 98th percentile 24-hr average concentration (highest eighth high modeled output).

(5) The 3-year average of the annual arithmetic average concentration (highest first high modeled output).

(6) The 3-year average of the 98th percentile of the daily maximum 1-hr average (highest eighth high modeled output).

(7) Annual arithmetic average (highest first high modeled output).

(8) 3-year average of the 99th percentile of the annual distribution of daily maximum 1-hour concentrations (highest fourth high modeled output).

(9) Not to be exceeded more than once per calendar year (highest second high modeled output).

(10) Ozone addressed through evaluation of the MERPs, as discussed in Section 7.1.

The <u>highest</u> modeled concentrations (H1H) from all given modeling years for each pollutant-averaging time is compared to the SIL level shown in Table 2-1 to determine if the ambient air impact is significant.[9] In the case of 24-hr and annual $PM_{2.5}$, 1-hr NO_2, and 1-hr SO_2 evaluations, EPA guidance states that the applicant should determine the maximum concentration at each receptor per year, then average those values on a receptor-specific basis over the 5 years of meteorological data prior to comparing with the appropriate SIL.[10]

When the highest modeled concentrations (H1H) are less than the applicable SIL, further analyses (NAAQS and PSD Increment) are not required for that pollutant-averaging period. If modeled impacts are greater than the SIL, a full NAAQS and PSD Increment analysis is required for that pollutant and averaging period to demonstrate that the project neither causes nor contributes to any exceedances.

The following modeling output options for each PSD triggering pollutant and averaging period were used to determine the design concentration in the NAAQS analysis:

- The modeled maximum annual arithmetic mean over the full five years was used to demonstrate compliance with the annual NO_2 standard.
- The five-year average of the 98th percentile daily maximum (i.e., 8th highest over full five years) 1-hr concentration was used to demonstrate compliance with the 1-hr NO_2 standard.
- The modeled maximum sixth-highest 24-hour concentration over the full five years was used to demonstrate compliance with the 24-hr PM_{10} standard.
- The five-year average of the 98th percentile daily maximum (i.e., 8th highest over full five years) 24-hr concentration was used to demonstrate compliance with the 24-hr $PM_{2.5}$ standard.
- The modeled annual maximum arithmetic mean impact at each receptor averaged over the full 5 years was used to demonstrate compliance with the annual $PM_{2.5}$ standard.
- The five-year average of the 99th percentile daily maximum (i.e., 4th highest over full five years) 1-hr concentration was used to demonstrate compliance with the 1-hr SO_2 standard.
- The modeled maximum 3-month rolling arithmetic mean concentration from among the five years were used to demonstrate compliance with the Rolling 3-Month Average Lead standards using LEADPOST software developed by U.S. EPA.[11]

2.2 Class II Increment Analysis

The PSD regulations were enacted primarily to "prevent significant deterioration" of air quality in areas of the country where the air quality was better than the NAAQS. Therefore, to promote economic growth in areas where attainment of the NAAQS occurs, some deterioration in ambient air concentrations is allowed. To achieve this goal, the EPA established PSD Increments for PM_{10}, $PM_{2.5}$, SO_2, and NO_2. The PSD Increments are further broken into Class I, II, and III Increments. SO_2, NO_2, PM_{10}, and $PM_{2.5}$ modeling yielded impacts in excess of the SIL and as such, a refined Class II Increment analysis was completed to demonstrate compliance with the Class II increments for SO_2, NO_2, PM_{10}, and $PM_{2.5}$ (shown in Table 2-1).

---

[9] Ozone is addressed through application of the MERPs as discussed in Section 7.1 and is not directly modeled. Also, for $PM_{2.5}$, the secondary $PM_{2.5}$ from applicable precursor pollutants (e.g., NO_X and SO_2) will be added to the modeled impacts for comparison to the SILs, as addressed through the MERPs discussed in Section 7.2**Error! Reference source not found.**.

[10] EPA modeling guidance for $PM_{2.5}$ (February 2020) has indicated that the same modeling procedures for the NAAQS SIL analysis should be used for the Increment SIL analysis.

[11] https://www.epa.gov/scram/air-quality-dispersion-modeling-preferred-and-recommended-models

The following modeling output options for each PSD triggering pollutant and averaging period were used to determine the design concentration in the incremental analyses:

- The modeled maximum first-highest annual concentrations over the full five years were used to demonstrate compliance with the annual NO_2, annual SO_2, annual PM_{10}, and annual $PM_{2.5}$ Class II PSD Increment standards.
- The modeled maximum second-highest 24-hour concentrations out of the five years modeled were used to demonstrate compliance with the 24-hr PM_{10}, 24-hr $PM_{2.5}$, and 24-hr SO_2 Class II Increment standards.

2.3 Background Concentrations

Ambient background monitoring concentrations are necessary for any required full NAAQS analysis for the facility. Nearby ambient background monitoring stations were reviewed, and monitors for SO_2, NO_2, PM_{10}, $PM_{2.5}$, and ozone concentrations were selected on the basis of monitor sites with data for the required pollutants, proximity, and representativeness (based on similar land use and geographical setting). The following stations were chosen as appropriately representative ambient background monitoring stations for the pollutants indicated. The monitors selected are:

- $PM_{2.5}$/Ozone/SO_2/NO_2 – Ashland Site (AQS Site ID 21-019-0017)
- PM_{10} – Ironton Site (AQS Site ID 39-087-0012)

Table 2-2 below summarizes the background concentration used in the NAAQS analysis.

Table 2-2. Selected Background Concentrations

Pollutant	Averaging Period	Monitor	Background Concentration [12] (µg/m³)
SO_2	1-Hour	Ashland (21-019-0017)	14.83
NO_2	1-Hour	Ashland (21-019-0017)	Varies
	Annual	Ashland (21-019-0017)	8.91
$PM_{2.5}$	24-Hour	Ashland (21-019-0017)	15.57
	Annual	Ashland (21-019-0017)	7.70
PM_{10}	24-Hour	Ironton (39-087-0012)	25.33
Lead	Rolling 3-Month Avg.	--	See Discussion Below
Ozone	8-Hour	Ashland (21-019-0017)	61 ppb

2.3.1 $PM_{2.5}$/PM_{10} and Ozone Background Monitors

The Huntington site (AQS Site ID 54-011-0007) was initially proposed for ozone and $PM_{2.5}$ consideration due to its proximity, about 35 km southwest, and similar geographic location to the proposed facility. However, given that it does not yet have a complete 3-yr set of measurements, Nucor has used Ashland site (AQS Site ID 21-019-0017) since it is the second closest monitor to the proposed site. It should be noted that both 24-hr and annual background values from Ashland site are higher than the previously proposed Huntington site.

[12] Values obtained from U.S. EPA AirData: https://www.epa.gov/outdoor-air-quality-data/monitor-values-report

For PM_{10} background, the Ironton monitor was chosen, as again it is the closest PM_{10} monitor to the proposed facility, about 45 km southwest, and has a similar geographic location adjacent to the Ohio River.

2.3.2 SO_2 and NO_2 Background Monitors

For SO_2 background, the nearest monitors to the proposed site are located in Cheshire, OH and Point Pleasant, WV, approximately 33 km north of the proposed facility and within the vicinity of the Gavin Power Plant. Given that the Gavin Power Plant is included in the regional inventory for the site, using the Cheshire or Point Pleasant monitors would result in "double-counting" of nearby source impacts. The next closest SO_2 monitor is in Ashland, KY approximately 46 km southwest of the proposed facility. The location of this monitor would not be subject to the same nearby source influences described above and is expected to provide a more representative estimate of SO_2 background. For NO_2 background, the Ashland, KY monitor is the closest NO_2 monitor to the proposed site, approximately 46 km southwest. Therefore, Nucor is proposing to use the Ashland monitoring station for both NO_2 and SO_2 background concentrations.

For pollutants where diurnal and seasonal patterns of monitored concentrations are frequently present (i.e., 1-hour NO_2, 1-hour SO_2, and 24-hour $PM_{2.5}$), Nucor evaluated the design values for each pollutant and averaging period for use in the modeling. Nucor relied on refined background concentrations in accordance with EPA guidance for the 1-hr NO_2 NAAQS analysis. For this pollutant, more refined "second tier" background concentrations were used. Concentration values that vary by season and hour of day were used for 1-hour NO_2. The temporarily varying concentration values were developed based on recommendations in current EPA guidance.[13,14]

2.3.3 Lead Background Monitors

For lead background, the nearest monitors to the proposed site are located in Marietta, OH (AQS Site ID 39-167-0008) and Columbus, OH (AQS Site ID 39-049-0039) approximately 104 km and 160 km away from the proposed facility, respectively. The design values for the Marietta monitor and Columbus monitor are 0.0 and 0.01 $\mu g/m^3$, respectively. Non-negligible lead emissions only occur from relatively few types of sources. Therefore, to account for the background concentration, Nucor has included relatively distant regional sources of lead in the NAAQS model in lieu of adding a background concentration. Nucor has included in the lead NAAQS analysis the regional sources that were included for the $PM_{2.5}$ 24-hr and Annual NAAQS analysis. More specifically, the Gavin Power Plant and Kyger Creek Power Plant which both emit lead are included in the lead NAAQS analysis.

As noted in Section 2.4 and shown in Table 6-3, the maximum rolling 3-month average concentration across the 5 year period modeled including regional sources is well below the significant monitoring concentration for lead (i.e., 0.1 $\mu g/m^3$). As such, Nucor believes that this approach conservatively accounts for the background lead concentration in the area.

2.4 Ambient Monitoring Requirements

Under current U.S. EPA policies, the maximum impacts attributable to the emissions increases from a project must be assessed against significant monitoring concentrations to determine whether pre-construction monitoring should be considered. A pre-construction air quality analysis using continuous monitoring data can be required for pollutants subject to PSD review per 40 CFR § 52.21(m). The significant

---

13 https://www.epa.gov/sites/default/files/2015-07/documents/appwno2_2.pdf

14 https://www.epa.gov/system/files/documents/2021-09/revised_draft_guidance_for_o3_pm25_permit_modeling.pdf

monitoring concentrations are provided in 40 CFR § 52.21(i)(5)(i) and are listed in Table 2.1. If either the predicted modeled impact from the proposed project or the existing ambient concentration is less than the significant monitoring concentration, the permitting agency has the discretionary authority to exempt an applicant from pre-construction ambient monitoring.

It should be noted that the maximum estimated rolling 3-month average concentration for lead from the NAAQS analysis (see Table 6-3 for summary of results) which includes regional sources is below the significant monitoring concentration of 0.1 $\mu g/m^3$. As such, Nucor is exempt from pre-construction ambient monitoring for lead.

When not exempt, an applicant may provide existing data representative of ambient air quality in the affected area or, if such data are not available, collect background air quality data. However, this requirement can be waived if representative background data have been collected and are available. To satisfy the PSD pre-construction monitoring requirements, Nucor proposes that existing monitoring data provide reasonable estimates of the background pollutant concentrations for the pollutants of concern. The representativeness of existing monitoring data was outlined further in Section 2.3. For this reason, Nucor believes that pre-construction monitoring will not be required for this project and formally requests that WVDEP waive this requirement.

3. MODELED EMISSION SOURCES

All emission sources of criteria pollutants for which PSD is triggered, with the exception of VOC and NO_X as a precursor to ozone which are assessed in the ozone impacts analysis presented in Section 7.1, were evaluated in the Class II Area PSD air quality analyses. A list of all emission sources at the proposed facility is included in Appendix B along with the corresponding source designation used in the modeling files, emission rates, and source parameters. The AERMOD dispersion model allows for emission points to be represented as point, area, or volume sources. The following subsections describe the source characterization and discharge parameters associated with each emissions source at the proposed facility.

3.1 Unobstructed Point Sources

For point sources with unobstructed vertical releases, it is appropriate to use actual stack parameters (i.e., height, diameter, discharge gas temperature, and gas exit velocity) in the modeling analyses. Appendix B provides the stack parameters for all emission sources represented as point sources.

3.2 Flare Sources

The two flares at the proposed facility (i.e., flares associated with Vacuum Tank Degasser #1 and #2) were modeled as point sources in accordance with the procedure outlined in Section 2.1.2 of the AERSCREEN User's Guide.[15]

3.3 Fugitive Sources

Fugitive emissions sources are modeled as volume sources requiring the release height, initial lateral dimension, σ_{y0}, and initial vertical dimension, σ_{z0}, to be specified as source parameters. These parameters vary depending on the volume source's characteristics such as whether it will be a surface-based or elevated source.

The fugitive sources included in this air dispersion modeling analysis include the facility roadways, Melt Shop fugitives, Cold Mill fugitives, Scrap Unloading, DRI Unloading, various Stockpiles, Slag Processing, and various material transfer operations. The release parameters for these sources were calculated in accordance with the guidance provided in Section 3.3.2.2. of AERMOD User's Guide.[16]

3.4 Emergency Equipment - Worst-Case Engine

The emergency engines at the proposed site will be load tested periodically (only a single engine would run at a given hour) and will only be run periodically over the course of the year for maintenance and readiness testing. Due to the intermittent operational run time of these units, Nucor has identified the engine that would result in worst-case offsite concentrations and included it in the SIL, Increment, and NAAQS analysis.

Nucor executed a model including just the 6 emergency engines each modeled at 1 g/s without any special option for NO_2 (i.e., without ARM2). Highest first high values for 1-hr, 3-hr, 8-hr, 24-hr, and annual averaging period for each engine were reviewed as a conservative estimation of the impacts. EMGEN6 was

---

[15] https://gaftp.epa.gov/Air/aqmg/SCRAM/models/screening/aerscreen/aerscreen_userguide.pdf

[16] https://gaftp.epa.gov/Air/aqmg/SCRAM/models/preferred/aermod/aermod_userguide.pdf

identified to be the worst-case engine for all averaging periods. As such, only EMGEN6 was included in the SIL, Increment, and NAAQS models.

3.5 Regional Source Inventory (Class II Modeling)

Dispersion modeling for the significance analysis was conducted for all new sources using hourly or annual potential CO, SO_2, PM_{10}, $PM_{2.5}$, lead, and NO_X emission rates, where applicable, based on the averaging period of the underlying NAAQS or PSD Increment standard. As per PSD modeling requirements, for any off-site air concentration impact calculated that is greater than the SIL for a given pollutant, the radius of the significant impact area (SIA) was determined based on the extent to where the farthest receptor is located at which the SIL is exceeded. Thus, the SIA encompasses a circle centered on the facility with a radius extending out to either (1) the farthest location where the emissions of a pollutant causes a significant ambient [i.e., modeled impact above the SIL on a high-first-high (H1H) basis] or (2) a maximum distance of 50 km, whichever is less.[17]

Under EPA's previous guidance in Section IV.C.1 of the draft *New Source Review Manual* applicable to "deterministic" NAAQS, all sources within the SIA no matter how small or distant would be included in the regional inventory, and the remaining sources outside of the SIA but within 50 km would be assumed to potentially contribute to ground-level concentrations within the SIA and would be evaluated for possible inclusion in the NAAQS analysis.[18] For deterministic NAAQS like the annual NO_2 standard, this procedure is generally still valid and was used in cases where modeled impacts from the Significance Analysis exceed the SIL. The SIA for each pollutant and averaging period was determined and results are summarized in Table 5-3 and Table 5-4. Sources in the raw inventories provided by state agencies were first screened to remove sources located outside of the radius of impact (ROI) [i.e., the significant impact area (SIA) plus 50 km (or 10 km for 1-hour NO_2 and SO_2, as discussed below)]. The remaining sources within the ROI were then screened based on an emissions (Q) over distance (d) screening technique such as the "20D" procedure to identify small and distant sources that could be excluded from the NAAQS analysis because they were not anticipated to impact receptors in the SIA.[19]

For short-term probabilistic NAAQS like the 1-hour NO_2 and 1-hr SO_2 standards, this procedure often produces an inordinately large number of regional inventory sources due to larger SIA distances caused by peak hourly impacts during certain low frequency meteorological events. Recognizing the limitations of the NSR Manual procedure developed at a time when no probabilistic 1-hour NAAQS were in effect, EPA now recommends a different regional inventory screening procedure focusing primarily on the concentration gradient of the source and professional judgement by the dispersion modeler. As indicated in Appendix W, EPA states that "the number of nearby sources to be explicitly modeled in the air quality analysis is expected to be few except in unusual situations [and] in most cases, the few nearby sources will be located within the first 10 to 20 km from the source(s) under consideration." As such, for 1-hour NO_2 and 1-hr SO_2 regional inventories, sources within SIA plus 10 km of Nucor were included in an initial regional inventory and then 20D screening is applied to arrive at final inventories.

SO_2, NO_X, PM_{10} and $PM_{2.5}$ regional source inventories were compiled for the NAAQS and PSD Increment analyses. Source locations, stack parameters, annual operating hours, and potential emissions data were

---

[17] This is the maximum extent of the applicability of the AERMOD Model as per the *Guideline on Air Quality Models*.

[18] EPA, *New Source Review Workshop Manual*, Draft October 1990, available at http://www.epa.gov/ttn/nsr/gen/wkshpman.pdf

[19] 57 FR 8079, March 6, 1992.

obtained from WVDEP, Ohio EPA (OEPA), Kentucky Division of Air Quality (KY DAQ), and/or file reviews of specific facilities. Where there were data gaps (e.g., missing stack parameters), reasonable engineering estimation was utilized.

Nucor has evaluated whether any sources eliminated by the "20D" rule were in close enough proximity to one another that they could be considered a "cluster." GIS software was used to determine whether any group of sources within the ROI should be considered a cluster. Density-Based Spatial Clustering of Applications with Noise (DBSCAN) methodology with minimum cluster size of 2 and distance of 1 km was used. Twenty (20) clusters were identified that were within the maximum ROI across different pollutants and averaging periods. Table C-5 in Appendix C summarizes the aggregated Q/d values for these clusters. The sources within the cluster excluded from the inventory on the basis of their individual facility Q/d value were further evaluated for possible inclusion in the NAAQS/PSD Increment analyses if the aggregate Q/d for a cluster exceeds 20. Cluster #2 which includes Marathon Catlettsburg Refinery (MPC CBG Refinery) was the only cluster that was identified to require further evaluation for annual NO_2 NAAQS. Given that without MPC CBG Refinery in the clusters, the Q/d will be below 20, the fact that MPC CBG Refinery is included in the Annual NO_2 NAAQS analysis, and the distance from Nucor to the cluster is 49.6 km, Nucor does not believe any other sources from this cluster should be included in the NAAQS analysis.

3.5.1 Missing Source Parameters

After completing the screening analysis, the remaining inventory sources were evaluated to determine whether any refinement to the data set was warranted or if the source could be removed from the inventory based on site-specific considerations. During the review of the regional source inventory, Nucor identified that source parameters for fugitive emissions was missing from the provided information. Following approach was used for missing data:

- For plantwide fugitive sources, a pseudo-point source was used with a stack diameter of 0.01 m and exit velocity of 0.01 m/s.
- Where no temperature information was available, ambient temperature was assumed.
- Depending on the nature of fugitive emissions (e.g., coal piles vs. process fugitives/building fugitives), a stack height of 10 ft or 30 ft was used.

3.5.2 Use of "Mitsubishi Method" for APG

The "Mitsubishi Method" was employed to demonstrate compliance at on-property receptors on APG's facility, which is located just north of the proposed Nucor facility.[20] Specifically, Nucor and all regional sources were modeled to obtain total concentrations at all receptor locations except the receptors that fall on APG's non-ambient air property (i.e., APG's property just north of the proposed site). For these receptors at APG's facility, the contribution from APG's sources was subtracted from the total concentrations (i.e., for this subset of receptors, a separate model was executed with all regional sources excluding APG's sources) because compliance with ambient air quality standards is not required for emissions from facilities within their own ambient air boundary.

[20] U.S. EPA Memorandum from Robert D. Bauman (Chief SO2/Particulate Matter Programs Branch) to Gerald Fontenot (Chief Air Programs Branch, Region VI), *Ambient Air,* October 17, 1989

3.5.3 Increment Consuming Regional Sources

Actual emissions from PSD major sources that commenced construction after the major source baseline date[21] and actual emission increases at any stationary source occurring after the minor source baseline date must be included in the increment analysis. Given that Nucor is the first major PSD source in the region, the minor source baseline date has not been established yet and the only potential emissions that would need to be evaluated in the increment analysis is any actual emissions from PSD major sources in the area that are not part of the baseline.

Nucor has reviewed the 2019 and 2020 Emission Inventory that WVDEP provided[22] and 2018 and 2019 Emission Inventory downloaded from Ohio EPA's website[23] to identify potential PSD major sources in the region. Table 3-1 below summarizes the sources that were within the maximum ROI (i.e., SIA + 50 or 10 km as discussed in Section 3.5) for all pollutants and averaging periods.

Table 3-1. List of Potential Source for Inclusions in Increment Analysis

State	Source Name	Construction Date [24]
WV	Mountaineer Power Plant	1974
WV	Appalachian Power Company – John E Amos Plant	1971-1973
OH	Kyger Creek Power Plant	1950s
OH	General James M. Gavin Power Plant	1974
WV	Felman Production – New Heaven Plant	1966

As noted above, all of the potential sources commenced construction prior to the earliest major source baseline date (i.e., 1975 for PM_{10} and SO_2) and therefore are already included in the baseline concentration. As such, no regional sources were included in the increment analysis.

[21] January 6, 1975 for PM_{10} and SO_2, February 8, 1988 for NO_2, and October 20, 2010 for $PM_{2.5}$.

[22] Provided by Stephanie Hammonds via email in response to Freedom of Information Act (FOIA) Requests submitted on 10/7/2021 and 2/16/2022.

[23] https://epa.ohio.gov/divisions-and-offices/air-pollution-control/reports-and-data/download-eis-data-and-reports

[24] Construction dates were extracted from publicly available information and/or existing permits.

4. AIR DISPERSION MODELING METHODOLOGY

This section describes the modeling procedures and data resources utilized in the setup of the Class II Area air quality modeling analyses. The techniques utilized are consistent with current EPA guidance.

4.1 Model Selection – AERMOD

For Class II area modeling, a number of modeling guidelines are available to facilitate and provide detail on the methodologies required for conducting dispersion modeling for the proposed Nucor plants.

Dispersion models estimate downwind pollutant concentrations by simulating the evolution of the pollutant plume over time and space for specific set of input data. These data inputs include the pollutant's emission rate, source parameters, terrain characteristics, and atmospheric conditions.

According to 40 CFR 51, Appendix W (the *Guideline)*, the extent to which a specific air quality model is suitable for the evaluation of source impacts depends on (1) the meteorological and topographical complexities of the area; (2) the level of detail and accuracy needed in the analysis; (3) the technical competence of those undertaking such simulation modeling; (4) the resources available; and (5) the accuracy of the database (i.e., emissions inventory, meteorological, and air quality data).

Taking these factors under consideration, Nucor used the AERMOD modeling system to represent all project emissions sources at the facility. AERMOD is the default model for evaluating impacts attributable to industrial facilities in the near-field (i.e., source receptor distances of less than 50 km), and is the recommended model in the *Guideline*.

The latest version (v21112) of the AERMOD modeling system is used to estimate maximum ground-level concentrations in all analyses conducted for this application. AERMOD is a refined, steady-state, multiple source, Gaussian dispersion model and was promulgated in December 2005 as the preferred model for use by industrial sources in this type of air quality analysis.[25] The AERMOD model has the Plume Rise Modeling Enhancements (PRIME) incorporated in the regulatory version, so the direction-specific building downwash dimensions used as inputs are determined by the Building Profile Input Program, PRIME version (BPIP PRIME), version 04274.[26] BPIP PRIME is designed to incorporate the concepts and procedures expressed in the GEP Technical Support document, the Building Downwash Guidance document, and other related documents, while incorporating the PRIME enhancements to improve prediction of ambient impacts in building cavities and wake regions.[27]

The AERMOD modeling system is composed of three modular components: AERMAP, the terrain preprocessor; AERMET, the meteorological preprocessor; and AERMOD, the dispersion and post-processing module.

---

[25] 40 CFR Part 51, Appendix W, *Guideline on Air Quality Models*, Appendix A.1 AMS/EPA Regulatory Model (AERMOD).

[26] Earth Tech, Inc., *Addendum to the ISC3 User's Guide, The PRIME Plume Rise and Building Downwash Model*, Concord, MA.

[27] U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, *Guidelines for Determination of Good Engineering Practice Stack Height (Technical Support Document for the Stack Height Regulations) (Revised)*, Research Triangle Park, North Carolina, EPA 450/4-80-023R, June 1985.

AERMAP (v18081) is the terrain pre-processor that is used to import terrain elevations for selected model objects and to generate the receptor hill height scale data that are used by AERMOD to drive advanced terrain processing algorithms. National Elevation Dataset (NED) data available from the United States Geological Survey (USGS) are utilized to interpolate surveyed elevations onto user specified receptor, building, and source locations in the absence of more accurate site-specific (i.e., site surveys, GPS analyses, etc.) elevation data.

AERMET (v21112) generates a separate surface file and vertical profile file to pass meteorological observations and turbulence parameters to AERMOD. AERMET meteorological data are refined for a particular analysis based on the choice of micrometeorological parameters that are linked to the land use and land cover (LULC) around the meteorological site shown to be representative of the application site.

Nucor used the BREEZE®-AERMOD software, developed by Trinity Consultants, to assist in developing the model input files for AERMOD. This software program incorporates the most recent versions of AERMOD (dated 21112), AERMET (dated 21112), AERMINUTE (dated 15272) and AERMAP (dated 18081) to estimate ambient impacts from the modeled sources in the Class II Area.

4.2 Tiered NO_2 Dispersion Modeling Methodology

In the "Models for Nitrogen Dioxide" section of the *Guideline* (Section 4.2.3.4), U.S. EPA recommends a tiered screening approach for estimating annual NO_2 impacts from point sources in PSD modeling analyses. Use of the tiered approach to NO_2 modeling for the 1-hour and annual NO_2 standard (SIL, NAAQS, and PSD Increment) will be considered. The approach used in each of the three tiers is described briefly below.

1. Under the initial and most conservative Tier 1 screening level, all NO_X emitted is modeled as NO_2 which assumes total conversion of NO (main chemical form of NO_X) to NO_2.
2. For the Tier 2 screening level, U.S. EPA recommends multiplying the Tier 1 results by the Ambient Ratio Method 2 (ARM2), which provides estimates of representative equilibrium ratios of NO_2/NO_X based on ambient levels of NO_2 and NO_X derived from national data from the EPA's Air Quality System (AQS). The ARM2 function, which is a default option within the latest version of AERMOD, will be used to complete this multiplication. The default minimum ambient NO_2/NO_X ratio of 0.5 and maximum ambient ratio of 0.9 will be used for this methodology.
3. Since the impact of an individual NO_X source on ambient NO_2 depends on the chemical environment into which the source's plume is emitted, modeling techniques that account for this atmospheric chemistry such as the Ozone Limiting Method (OLM) or the Plume Volume Molar Ratio Method (PVMRM) can be considered under the most accurate and refined Tier 3 approach identified by U.S. EPA. Additional model inputs required for the use of OLM or PVMRM could include source-specific in-stack NO_2/NO_X ratios, ambient equilibrium NO_2/NO_X ratios, and background ozone concentrations.

Nucor utilized ARM2 for modeling NO_2 for the 1-hr and annual SIL and 1-hr and annual NO_2 NAAQs modeling assessments using all regulatory default options.

4.3 Rural/Urban Option Selection in AERMOD

Classification of land use in the immediate area surrounding a facility is important in determining the appropriate dispersion coefficients to select for a particular modeling application. The selection of either rural or urban dispersion coefficients for a specific application should follow one of two procedures. These include a land use classification procedure or a population-based procedure to determine whether the area is primarily urban or rural.[28]

The first method discussed in Section 5.1 of the *AERMOD Implementation Guide* (and in Section 7.2.1.1.b of the Guideline on Air Quality Models, Appendix W) is called the "land use" technique because it examines the various land use within 3 km of a source and quantifies the percentage of area in various land use categories. If greater than 50% of the land use in the prescribed area is considered urban, then the urban option should be used in AERMOD. However, EPA cautions against the use of the "land use" technique for sources close to a body of water because the water body may result in a predominately rural land use classification despite being located in an urban area. If necessary, the second recommended urban/rural classification method in Appendix W Section 7.2.1.1.b is the Population Density Procedure. This technique evaluates the total population density within 3-kilometers of a source. If the population density is greater than 750 people per square kilometer, then EPA recommends the use of urban dispersion coefficients.

Of the two methods, the land use procedure is considered more definitive. The land use within the total area circumscribed by a 3-km radius circle around the facility was classified using the land use typing scheme proposed by Auer. If land use types 23 (Developed, Medium Intensity), or 24 (Developed, High Intensity) account for 50% or more of the circumscribed area, urban dispersion coefficients should be used; otherwise, rural dispersion coefficients are appropriate.

AERSURFACE (v20060) was used for the extraction of the land-use values in the domain. The results of the land use analysis evaluation are described herein. Each USGS NLCD 2016 land use class was compared to the most appropriate Auer land use category to quantify the total urban and rural area.

Table 4-1 summarizes the results of this land use analysis. As approximately 95.2% of the area can be classified as rural, rural dispersion coefficients were used. AERSURFACE files, land cover files, etc. utilized in this urban versus rural assessment will be provided to WVDEP.

Table 4-1. Summary of Land Use Analysis

Category ID	Category Description	Percent	Dispersion Class
11	Open Water	7.6%	Rural
21	Developed, Open Space	2.6%	Rural
22	Developed, Low Intensity	3.9%	Rural
23	Developed, Medium Intensity	2.9%	Urban
24	Developed, High Intensity	1.8%	Urban
31	Barren Land	0.1%	Rural
41	Deciduous Forest	48.4%	Rural
42	Evergreen Forest	0.0%	Rural
43	Mixed Forest	1.9%	Rural
52	Shrub/Scrub	1.2%	Rural
71	Grassland/Herbaceous	0.4%	Rural
81	Pasture/Hay	18.5%	Rural
82	Cultivated Crops	9.5%	Rural
90	Woody Wetlands	0.9%	Rural
95	Emergent Herbaceous Wetlands	0.0%	Rural
	Total	**100%**	

[28] 40 CFR Part 51, Appendix W, the Guideline on Air Quality Models (January 2017) – Section 7.2.1.1(b)(i)

Category ID	Category Description	Percent	Dispersion Class
	Urban	**4.8%**	
	Rural	**95.2%**	

4.4 Building Downwash Analysis

The *Guideline* requires the evaluation of the potential for physical structures to affect the dispersion of emissions from stack sources. The exhaust from stacks that are located within specified distances of buildings may be subject to "aerodynamic building downwash" under certain meteorological conditions. This determination is made by comparing actual stack height to the Good Engineering Practice (GEP) stack height. The modeled emission units were evaluated in terms of their proximity to nearby structures.

In accordance with recent AERMOD updates, an emission point is assumed to be subject to the effects of downwash at all release heights even if the stack height is above the U.S. EPA formula height, which is defined by the following formula:

$$H_{GEP} = H + 1.5L\text{, where:}$$

where,

H_{GEP} = GEP stack height,

H = structure height, and

L = lesser dimension of the structure (height or maximum projected width).

This equation is limited to stacks located within 5L of a structure. Stacks located at a distance greater than 5L are not subject to the wake effects of the structure.

Direction-specific equivalent building dimensions used as input to the AERMOD model to simulate the impacts of downwash were calculated using the U.S. EPA-sanctioned Building Profile Input Program (BPIP-PRIME), version 04274 and used in the AERMOD Model.[29] BPIP-PRIME is designed to incorporate the concepts and procedures expressed in the GEP Technical Support document, the Building Downwash Guidance document, and other related documents and has been adapted to incorporate the PRIME downwash algorithms.[30]

A GEP analysis of all modeled point sources in relation to each building was performed to evaluate which building has the greatest influence on the dispersion of each stack's emissions. The GEP height for each stack calculated using the dominant structure's height and maximum projected width will also be determined. According to U.S. EPA dispersion modeling guidance, stacks with actual heights greater than either 65 meters or the calculated GEP height, whichever is greater, generally cannot take credit for their full stack height in a PSD modeling analysis. All modeled source stacks at the proposed Nucor facility are less than 65 meters tall and therefore meet the requirements of GEP and credit for the entire actual height of each stack is used in this modeling analysis.

---

[29] Earth Tech, Inc., Addendum to the ISC3 User's Guide, The PRIME Plume Rise and Building Downwash Model, November 1997, http://www.epa.gov/scram001/7thconf/iscprime/useguide.pdf.

[30] U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, *Guidelines for Determination of Good Engineering Practice Stack Height (Technical Support Document for the Stack Height Regulations) (Revised),* Research Triangle Park, North Carolina, EPA 450/4-80-023R, June 1985.

BPIP input, output, and summary files which include all building dimensions and information included within the model, will be provided to WVDEP.

4.5 Elevated Terrain

A designation of terrain at a particular receptor is source-dependent, since it depends on an individual source's effective plume height. AERMOD is capable of estimating impacts in both simple and complex terrain. Elevations for discrete receptors required by AERMOD were determined using the AERMAP terrain preprocessor (version 18081). Common base elevation equivalent to the proposed facility final grade level was used for all sources within the proposed facility's property boundary. AERMAP also calculates receptor hill height parameters required by AERMOD. Terrain elevations from the U.S. Geological Survey (USGS) 1 arc-second National Elevation Dataset (NED) data were used for the AERMAP processing of receptors and inventory sources.[31] The data was converted from ArcGrid to GeoTIFF format in accordance with recent guidance provided by U.S. EPA.[32] The NED data extended well beyond the extent of the modeled receptor grids to properly calculate the receptor elevations and hill-height scales.

4.6 Meteorological Data

For performing the Class II modeling in AERMOD, meteorological data must be preprocessed to put it into a format that AERMOD can use. This was accomplished using the AERMET processor (Version 21112) along with nearby sets of National Weather Service (NWS) data from surface and upper air stations. The AERSURFACE program (Version 20060) was used to generate the three critical parameters used in AERMET, namely, albedo, Bowen Ratio (ratio of sensible heat to latent heat), and the surface roughness. Values for those land use parameters were tabulated for both the meteorological data site and proposed project site to confirm that the airport NWS stations are reasonably representative of the project site.

For the proposed Apple Grove location, the closest surface meteorological data station is the Huntington Tri-State Airport (KHTS, WBAN #3860) located about 46 kilometers to the southeast. Given the location of the project site, there are very few representative meteorological data options available. Figure 4-1 and Figure 4-2 present aerial images of the immediate area surrounding the airport station and project locations, respectively.

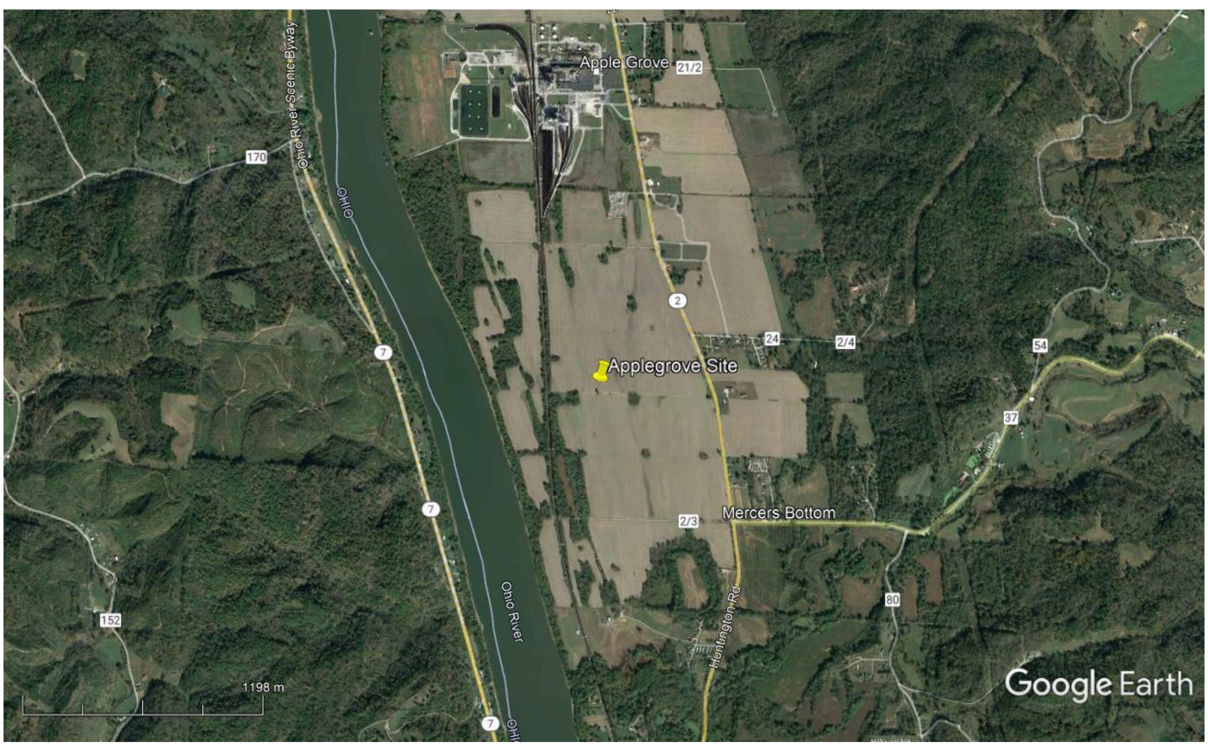
---

[31] The National Map server – available at https://viewer.nationalmap.gov/basic

[32] Interim Access and Process for Use of 1992 NLCD and NED - https://www.epa.gov/scram/interim-access-and-process-use-1992-nlcd-and-ned

Figure 4-1. Aerial Image of Huntington Airport

Figure 4-2. Aerial Image of Apple Grove Site Location



As shown, both sites are located in rural areas in rolling terrain. Table 4-2 presents a comparison of the albedo, Bowen ratio and surface roughness for each location.

Table 4-2. Comparison of Land Use Parameters – Huntington vs. Apple Grove

Sector (degrees)	Huntington Airport Albedo (unitless)	Huntington Airport Bowen Ratio (unitless)	Huntington Airport Surface Roughness (m)	Nucor Applegrove Albedo (unitless)	Nucor Applegrove Bowen Ratio (unitless)	Nucor Applegrove Surface Roughness (m)	Percent Diff. [(Facility-NWS)/Facility] [1] Albedo (%)	Percent Diff. Bowen Ratio (%)	Percent Diff. Surface Roughness (%)
0-30	0.163	0.693	0.148	0.160	0.633	0.111	-1.56%	-9.49%	-33.86%
30-60	0.163	0.693	0.274	0.160	0.633	0.112	-1.56%	-9.49%	-145.19%
60-90	0.163	0.693	0.143	0.160	0.633	0.103	-1.56%	-9.49%	-39.27%
90-120	0.163	0.693	0.127	0.160	0.633	0.109	-1.56%	-9.49%	-16.06%
120-150	0.163	0.693	0.450	0.160	0.633	0.114	-1.56%	-9.49%	-295.60%
150-180	0.163	0.693	0.358	0.160	0.633	0.121	-1.56%	-9.49%	-194.85%
180-210	0.163	0.693	0.155	0.160	0.633	0.107	-1.56%	-9.49%	-45.54%
210-240	0.163	0.693	0.232	0.160	0.633	0.027	-1.56%	-9.49%	-767.29%
240-270	0.163	0.693	0.263	0.160	0.633	0.023	-1.56%	-9.49%	-1029.03%
270-300	0.163	0.693	0.148	0.160	0.633	0.028	-1.56%	-9.49%	-423.89%
300-330	0.163	0.693	0.072	0.160	0.633	0.148	-1.56%	-9.49%	51.02%
330-360	0.163	0.693	0.096	0.160	0.633	0.109	-1.56%	-9.49%	11.90%
All	**0.163**	**0.693**	**0.205**	**0.160**	**0.632**	**0.093**	**-1.56%**	**-9.49%**	**-121.97%**

[1] Percent Difference [(Facility-NWS)/Facility] compares the average of the overall albedo, Bowen ratio, and surface roughness values for the Huntington Airport to the proposed Apple Grove site.

The albedo and Bowen ratio are very comparable at both sites. There are some sectors where the surface roughness varies between the two locations, which is almost always the case when comparing greenfield industrial sites to airports. The Huntington airport has forested areas within the 1-km surface roughness evaluation radius which is driving the average values up. In the case of the project site, the surface roughness based on the 2016 NLCD data is an underestimate since the as-built site will have numerous buildings and roughness elements. Once constructed, the site will have surface roughness even more similar to Huntington airport.

In order to evaluate the potential impact of post-construction land use changes, Nucor used the ARCVIEW GIS program to modify the land use cells in the 2016 NLCD to reflect as-built land use types. The latest version of AERSURFACE utilizes three (3) types of land use files (land cover, impervious surface, and tree canopy). Nucor revised these files to reflect the post-construction land use parameters and then ran AERSURFACE again, using the modified land use files. Table 4-3 presents the surface characteristic comparison after construction of the proposed mill.

Table 4-3. Comparison of Land Use Parameters – Huntington vs. Modified Apple Grove

Sector (degrees)	Huntington Airport Albedo (unitless)	Huntington Airport Bowen Ratio (unitless)	Huntington Airport Surface Roughness (m)	Nucor Applegrove Albedo (unitless)	Nucor Applegrove Bowen Ratio (unitless)	Nucor Applegrove Surface Roughness (m)	Percent Diff. [(Facility-NWS)/Facility][1] Albedo (%)	Percent Diff. Bowen Ratio (%)	Percent Diff. Surface Roughness (%)
0-30	0.163	0.693	0.148	0.160	0.635	0.261	-1.56%	-9.06%	43.25%
30-60	0.163	0.693	0.274	0.160	0.635	0.162	-1.56%	-9.06%	-69.14%
60-90	0.163	0.693	0.143	0.160	0.635	0.139	-1.56%	-9.06%	-3.07%
90-120	0.163	0.693	0.127	0.160	0.635	0.151	-1.56%	-9.06%	16.23%
120-150	0.163	0.693	0.450	0.160	0.635	0.188	-1.56%	-9.06%	-139.36%
150-180	0.163	0.693	0.358	0.160	0.635	0.223	-1.56%	-9.06%	-60.31%
180-210	0.163	0.693	0.155	0.160	0.635	0.126	-1.56%	-9.06%	-22.77%
210-240	0.163	0.693	0.232	0.160	0.635	0.031	-1.56%	-9.06%	-654.47%
240-270	0.163	0.693	0.263	0.160	0.635	0.026	-1.56%	-9.06%	-909.62%
270-300	0.163	0.693	0.148	0.160	0.635	0.036	-1.56%	-9.06%	-308.28%
300-330	0.163	0.693	0.072	0.160	0.635	0.204	-1.56%	-9.06%	64.50%
330-360	0.163	0.693	0.096	0.160	0.635	0.234	-1.56%	-9.06%	58.91%
All	**0.163**	**0.693**	**0.205**	**0.160**	**0.635**	**0.148**	**-1.56%**	**-9.06%**	**-38.42%**

[1] Percent Difference [(Facility-NWS)/Facility] compares the average of the overall albedo, Bowen ratio, and surface roughness values for the Huntington Airport to the proposed Apple Grove site.

As shown in Table 4-3, the land use characteristics at the airport and facility will be much more comparable when considering the changes due to construction, with the surface roughness values differing by less than 40% on average. Based on the above land use comparisons, Nucor believes the meteorological conditions at Huntington Tri-State Airport are representative of those expected at the proposed Apple Grove site location.

To further supplement these land use comparisons, Nucor conducted a sensitivity analysis as referenced in Section 3.1.1 of the *AERMOD Implementation Guide*. The analysis included two sets of meteorological data for the site, the first incorporating the land use parameters for the proposed site and the second using the land use parameters for the representative airport location. Using these sets of meteorological data, Nucor modeled representative emission sources (i.e., a volume source, a point source, an elevated point source) from the proposed facility for both short term and long-term averaging periods. Nucor compared these results to determine the significance of the differences in concentrations resulting from differences in the surface characteristics between the proposed site location and the nearby airport. Nucor validated the sensitivity analysis with WVDEP prior to conducting significance modeling and the results are provided in this report. Results of the sensitivity analysis is presented in Appendix D.

The most recent, readily available full five years of meteorological data is 2016-2020. These years will be used in the air quality modeling analysis. The latest version of AERMET (version 21112) will be used to incorporate 1-minute ASOS wind data using EPA's AERMINUTE (version 15272) meteorological data preprocessor. Standard surface NWS data will be obtained from the index of published data sets available from the National Climatic Data Center (NCDC) for the appropriate years[33]. The proposed project site utilized upper air data from Pittsburgh International Airport (KPIT, WBAN #94823). Those upper air data will be obtained from the National Oceanic and Atmospheric Administration NOAA/ESRL Radiosonde Database[34]

[33] ftp://ftp.ncdc.noaa.gov/pub/data/noaa/

[34] http://www.esrl.noaa.gov/raobs/

and the one-minute/five-minute wind speed and wind direction data for the same surface station from NCDC[35].

Because the meteorology generated by AERMET relies on the land surface in the vicinity of the NWS surface site, land cover/land use data (National Land Cover Data, NLCD) will be determined from that available from the United States Geological Survey through the MRLC Consortium viewer platform[36]. The AERSURFACE program (Version 20060) was used to generate the three critical parameters used in AERMET, namely, albedo, Bowen Ratio (ratio of sensible heat to latent heat), and the surface roughness parameter. These will be based on wet, dry, and average moisture conditions as determined by comparing the seasonal rainfall amounts to the 30-year averages and using the upper and lower 30th percentiles of average rainfall based on 1991-2020 data for the nearest recording NWS site.

A minimum threshold wind speed of 0.5 m/s (the lowest wind speed that will be allowed in the generated meteorological data set) was implemented in AERMET, as suggested in Section 4.6.2.2 of the latest *AERMET User's Guide*.[37] All hours with wind speeds below this value will be treated as "calm" in AERMOD.

As discussed in this section, Nucor utilized five years' worth of surface data from the Huntington Tri-State Airport (KHTS, WBAN #3860) and five years' worth of upper air data from the Pittsburgh International Airport (KPIT, WBAN# 94823).

4.7 Coordinate System

In all modeling analyses conducted by Nucor, the location of emission sources, structures, and receptors were represented in the Universal Transverse Mercator (UTM) coordinate system. The UTM grid divides the world into coordinates that are measured in north meters (measured from the equator) and east meters (measured from the central 500 km meridian of each UTM zone, where the world is divided into 36 north-south zones). The datum for the Nucor modeling analysis is based on North American Datum 1983 (NAD 83). UTM coordinates for this analysis all reside within UTM Zone 17 which served as the reference point for all data as well as all regional receptors and sources.

4.8 Receptor Grids

For the Class II air dispersion modeling analyses, ground-level concentrations were calculated from the fence line out to either 20 km for the 1-hour CO, 8-hour CO, 3-hour SO_2, 24-hour SO_2, annual SO_2, annual NO_2, annual PM_{10}, 24-hour PM_{10}, annual $PM_{2.5}$, 24-hour $PM_{2.5}$, and Rolling 3-Month Average Lead analyses or 50 km for the 1-hour NO_2 and SO_2 analyses using a series of nested receptor grids. These receptors were used in the Significance analysis, in the PSD increment modeling, and in the overall NAAQS modeling. The following nested grids were used to determine the extent of significance:

- **Fence Line Grid:** "Fence line" grid consisting of evenly-spaced receptors 50 meters apart placed along the main property boundary of the facility,

---

[35] ftp://ftp.ncdc.noaa.gov/pub/data/asos-onemin

[36] http://www.mrlc.gov/viewerjs/

[37] EPA, *User's Guide for the AERMOD Meteorological Preprocessor (AERMET)*, EPA-454/B-21-004, U.S. Environmental Protection Agency, Research Triangle Park, NC, April 2021.

- **Fine Cartesian Grid:** A "fine" grid containing 100-meter spaced receptors extending approximately 3 km from the center of the property and beyond the fence line,
- **Medium Cartesian Grid:** A "medium" grid containing 500-meter spaced receptors extending from 3 km to 10 km from the center of the facility, exclusive of receptors on the fine grid,
- **Coarse Cartesian Grid:** A "coarse grid" containing 1,000-meter spaced receptors extending from 10 km to 30 km from the center of the facility for 1-hr NO_2 and SO_2 OR to 20 km from the center of the facility for all other pollutants and averaging periods, exclusive of receptors on the fine and medium grids, and
- **Very Coarse Cartesian Grid:** A "very coarse grid" containing 2,500-meter spaced receptors extending from 30 km to 50 km from the center of the facility for 1-hr NO_2 and SO_2, exclusive of receptors on the fine, medium, and coarse grids.

This configuration and extent captured the area of maximum modeled concentrations which falls in an area with at least 100-meter receptor density. As such, no change to the proposed receptor grid was necessary. Concentration plots depicting the maximum modeled concentrations and surrounding impacts are presented in Appendix A and show the location of the maximum impact for each pollutant and averaging period from the SIL analyses.

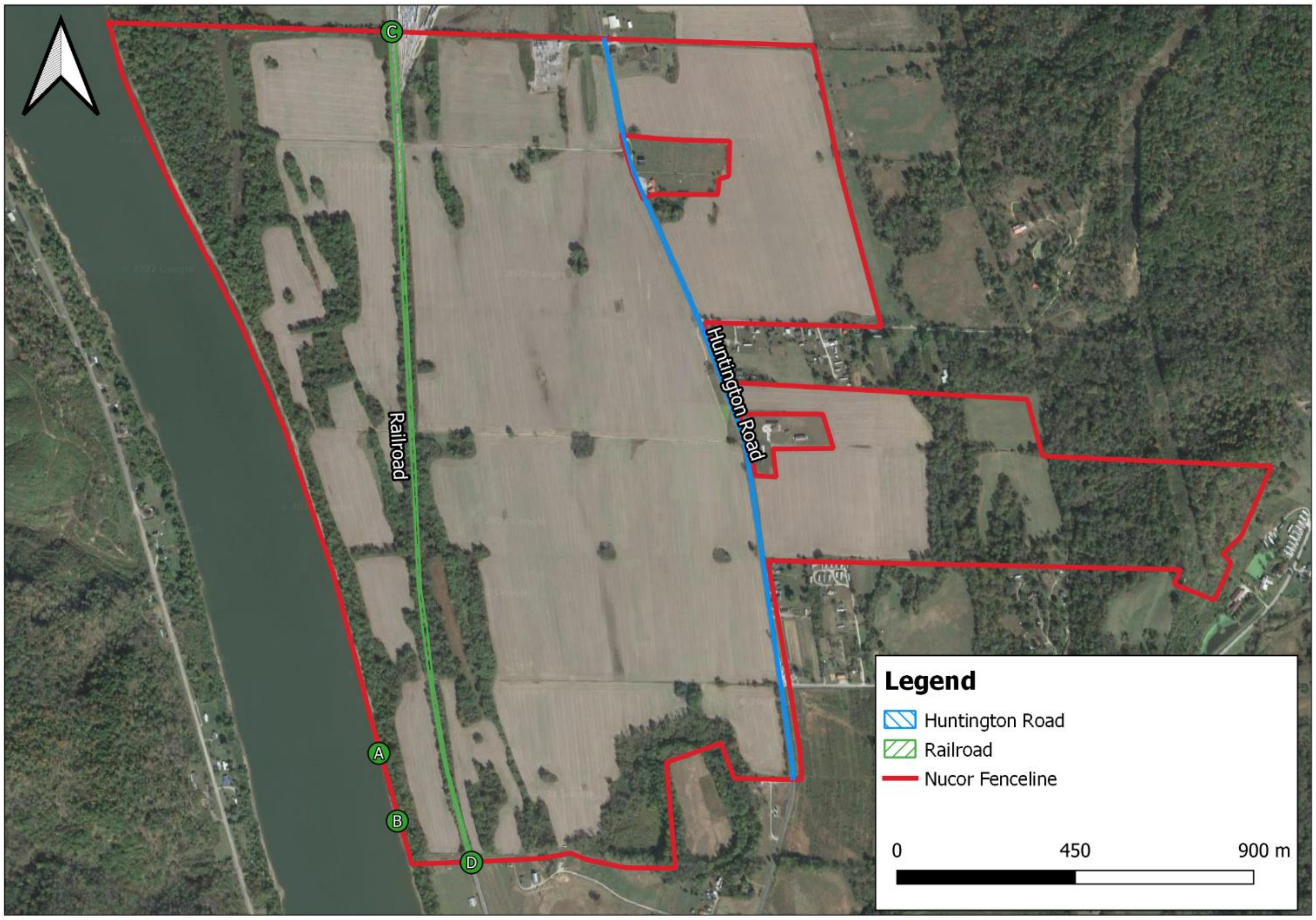
The full NAAQS and PSD increment analyses were conducted using only receptor locations at which impacts calculated for the facility sources (including secondary impacts for $PM_{2.5}$ as discussed in Section 7.2) exceed the SIL for the respective pollutant and averaging time. As compliance with the PSD increment analysis and NAAQS is only required in areas regulated as "ambient air," in developing the receptor grid for the modeling analysis, Nucor excluded all company owned property to which general public access is restricted because it is fenced or access is otherwise restricted, and thus, is not considered "ambient air."

Figure 4-3 displays the property boundaries for the proposed facility. At the Apple Grove site, a main railroad line (entry/exit points labeled "C" and "D") passes through the center of the property. Nucor notes that railroad tracks and rights-of-way are private property and access by the general public is considered trespassing per W. Va. Code § 61-3B-3. This rule states, "It is an unlawful trespass for any person to knowingly, and without being authorized, licensed or invited, to enter or remain on any property, other than a structure or conveyance, as to which notice against entering or remaining is either given by actual communication to such person or by posting, fencing or cultivation."

Additionally, points labeled "A" and "B" show the location of scrap and DRI barge unloading operations, respectively. While barges are docked at these locations, a minimum distance of 100 ft is to be maintained for any vessel traveling in the river. As such, the closest receptors are placed 100 ft away from these operations.

For the proposed facility location, Nucor will restrict general public access via physical fencing, signage at all entry and exit points, remote monitoring (e.g., 24-hour video surveillance), and on-site security staffing. Remote monitoring will provide Nucor constant surveillance of all facility access points and dedicated security staff will respond immediately to any potential trespassing incidents. Furthermore, Nucor intends to establish routine security patrols to allow passageway to authorized personnel while monitoring and further deterring unauthorized general public access at all entry and exit points. Through these security measures, Nucor will preclude general public access and minimize all transient access to the proposed facility property. Therefore, Nucor will exclude receptors from the industrial plant roadways and main line railroads that cross the facility property.

Figure 4-3. Property Boundaries of Nucor's Proposed Apple Grove, WV Property



5. CLASS I AREA DISPERSION MODELING ANALYSIS

There are two Class I areas within 300 km of the proposed facility, Otter Creek Wilderness and Dolly Sods Wilderness. Shenandoah National Park and James River Face Wilderness are located outside, but relatively close to, the 300 km screening range. The closest Class I area is Otter Creek Wilderness, approximately 200 km from the proposed location (east of Apple Grove). Class I areas are federally protected areas for which more stringent air quality standards apply to protect unique natural, cultural, recreational, and/or historic values.

5.1 Class I AQRVs

The Federal Land Managers (FLM) of these Class I areas have the authority to protect air quality related values (AQRVs) and to consider, in consultation with the permitting authority, whether a proposed major emitting facility will have an adverse impact on such values. AQRVs for which PSD modeling is typically conducted include visibility and surface deposition of sulfur and nitrogen.

Table 5-1. Class I Q/D Analysis [a]

Class I Area	NO_X Emissions (tpy)	SO_2 Emissions (tpy)	H_2SO_4 Emissions (tpy)	PM_{10} Emissions (tpy)	Sum of Emissions (tpy)	Distance to Class I Area (km)	Q/D (tpy/km)	Q/D >10?
Otter Creek Wilderness	700.86	360.99	--	624.86	1,686.71	220	7.67	No
Dolly Sods Wilderness						240	7.03	No
Shenandoah National Park						302	5.59	No
James River Face Wilderness						318	5.30	No

a. The calculated annual emissions include sum of all SO_2, NO_X, and PM_{10} emitting equipment that can operate simultaneously at the plant and assumes 8,760 hours of operation using maximum short term emission rate with the exception of emergency engines. Only 100 hours of emergency generator maintenance and testing authorized under NSPS JJJJ is included.

The new source contributions to the emissions increases are based on the maximum hourly potential emission rates extrapolated to an annual basis assuming continuous operation, and thus, are consistent with FLM guidance for establishing the Q/D ratio based on the maximum daily emission rate extrapolated to an annual basis rather than the annual potential emission rates which may consider inherent constraints on annual production of fuel usage. The FLM's AQRV Work Group (FLAG) guidance states that a Q/D value of ten (10) or less indicates that AQRV analyses will generally not be required.[38] As shown in Table 5-1, the Q/D calculations for each Class I area are less than the Q/D threshold established by the *FLAG 2010* document. Accordingly, no refined AQRV modeling was performed.

5.2 Class I Significance Analysis

In addition to the AQRV analysis, Nucor has evaluated PSD Increment consumption at the affected Class I areas. Nucor performed this evaluation using a screening methodology that is commonly applied. This

[38] National Park Service, U.S. Department of the Interior, Federal Land Mangers' Air Quality Related Values Work Group (FLAG), Phase I Report–Revised (2010), National Resource Report NPS/NRPC/NRR_2010/232, October 2010.

methodology relies on the same Significance analysis model input parameters applied for the Class II area assessments. Modeling in AERMOD will be performed by placing an arc of receptors at a distance of 50 km in the direction each Class I area within 300 km, to demonstrate that impacts are below the Class I SILs. The Class I SILs for the pollutants expected to exceed their respective SERs and for which there is a SIL are presented in Table 5-2. Nucor utilized the $PM_{2.5}$ Class I Area SIL contained in EPA's "Guidance on Significant Impact Levels for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program" (April 2018) for this PSD air quality analysis.

Table 5-2. Class I PSD SILs

Pollutant	Averaging Period	Class I SIL ($\mu g/m^3$)
NO_2	1-Hour	NA
	Annual	0.10
PM_{10}	24-Hour	0.32
	Annual	0.16
$PM_{2.5}$	24-Hour	0.27
	Annual	0.05
SO_2	1-Hour	NA
	3-Hour	1.00
	24-Hour	0.20
	Annual	0.10

A Class I area significance analysis was conducted. Secondary $PM_{2.5}$ impacts were considered for combined (primary/secondary) impacts as discussed in Section 7.2. A summary of the results of the significance analysis are provided in Table 5-3 and Table 5-4. All pollutants triggering PSD review for which there is an established PSD Class I SIL/Increment were evaluated and as shown, all of the modeled impacts were well below their respective Class I SILs. Note that this analysis is very conservative in that modeled impacts are evaluated at a distance of 50 km from the proposed source, but the closest Class I area is 200 km away.

Table 5-3. Class I Significance Results for PM_{10}, SO_2, and NO_2

Pollutant	Averaging Period	SIL ($\mu g/m^3$)	Maximum Impact ($\mu g/m^3$)	Exceed SIL?
PM_{10}	24-hr	0.32	0.29	No
	Annual	0.16	0.02	No
NO_2	Annual	0.10	0.02	No
SO_2	3-hr	1.00	0.76	No
	24-hr	0.20	0.13	No
	Annual	0.10	0.01	No

Table 5-4. Class I Significance Results for $PM_{2.5}$

Pollutant	Averaging Period	SIL ($\mu g/m^3$)	Maximum Impact ($\mu g/m^3$)	Secondary Impact [a] ($\mu g/m^3$)	Total Impact ($\mu g/m^3$)	Exceed SIL?
$PM_{2.5}$	24-hr	0.27	0.195	0.064	0.259	No
	Annual	0.05	0.015	0.002	0.017	No

b. Secondary impact based on MERP analysis. Refer to Section 7.2 for detailed discussion.

6. CLASS II AREA DISPERSION MODELING ANALYSIS

This section summarizes the results of the Class II Area modeling analyses. As discussed in Section 2, the Class II Area modeling analysis is conducted in three principal steps: 1) the Significance Analysis, 2) the NAAQS Analysis, and 3) the PSD Class II Increment Analysis. The following subsections present dispersion modeling results from each of the three components of the Class II Area modeling analysis.

6.1 Class II Significance Impact Analysis Results

As discussed in Section 2, the SIL analysis was conducted to determine if refined NAAQS and Class II Increment modeling analyses would be required. As shown in Table 6-1 and Table 6-2, the maximum modeled impacts were above the SILs for all pollutants and averaging periods with the exception of 1-hr and 8-hr CO and 3-hr and Annual SO_2. Accordingly, cumulative NAAQS and incremental analyses were conducted for $PM_{2.5}$, PM_{10}, SO_2, and NO_2.

Table 6-1. Class II Significance Results for CO, PM_{10}, SO_2, and NO_2

Pollutant	Averaging Period	SIL (µg/m³)	Maximum Impact (µg/m³)	Exceed SIL?	SIA (km)
PM_{10}	24-hr	5	28.9	**Yes**	3.15
	Annual	1	5.6	**Yes**	2.01
CO	1-hr	2,000	1,138.7	No	--
	8-hr	500	106.7	No	--
NO_2	1-hr	7.5	92.1	**Yes**	29.22
	Annual	1	5.4	**Yes**	2.62
SO_2	1-hr	7.8	19.1	**Yes**	3.38
	3-hr	25	12.5	No	--
	24-hr	5	5.5	**Yes**	0.73
	Annual	1	0.9	No	--

Table 6-2. Class II Significance Results for $PM_{2.5}$

Pollutant	Averaging Period	SIL (µg/m³)	Maximum Impact (µg/m³)	Secondary Impact [a] (µg/m³)	Total Impact (µg/m³)	Exceed SIL?	SIA (km)
$PM_{2.5}$	24-hr	1.2	7.94	0.184	8.1	**Yes**	9.71
	Annual	0.2	2.77	0.006	2.8	**Yes**	8.55

a. Secondary impact based on MERP analysis. Refer to Section 7.2 for detailed discussion.

6.2 Class II NAAQS Analysis

The NAAQS analysis for NO_2, SO_2, lead, PM_{10}, and $PM_{2.5}$ was conducted using the approach described in Section 2 with the emissions and stack parameter data shown in Appendix B for the proposed facility emission sources as well as those provided in Appendix C for nearby sources. The modeling results presented in Table 6-3 demonstrate that the NAAQS will not be exceeded in the region surrounding the proposed facility for any pollutant or averaging period.

Table 6-3. Class II NAAQS Analysis Results

Pollutant	Averaging Period	Modeled Concentration (μg/m³)	Background Concentration [a] (μg/m³)	Secondary Impact [b] (μg/m³)	Total Concentration (μg/m³)	NAAQS (μg/m³)	Exceeds NAAQS?
PM_{10}	24-hr	33.44	25.33	--	58.78	150	No
$PM_{2.5}$	24-hr	10.27	15.57	0.184	26.02	35	No
	Annual	2.86	7.70	0.006	10.56	12	No
NO_2	1-hr	140.72	Incl. in Model	--	140.72	188	No
	Annual	8.54	8.91	--	17.45	100	No
SO_2	1-hr	14.79	14.83	--	29.62	196	No
Lead	Rolling 3-Month Avg.	2.37E-03	--	--	2.37E-03	0.15	No

a. Refer to Section 2.3 for detailed discussion of selected background concentrations.
b. Secondary impact based on MERP analysis. Refer to Section 7.2 for detailed discussion.

As described in Section 3.5.2, Nucor utilized the "Mitsubishi Method" for 1-hr NO_2, 24-hr and Annual $PM_{2.5}$ NAAQS analysis. The results shown in Table 6-3 are the maximum for receptors on APG property without APG sources or all other receptors with all sources included in the analysis.

6.3 Class II Increment Analysis

A Class II Increment analysis was conducted for NO_2, SO_2, $PM_{2.5}$, and PM_{10}. As described in Section 3.5.3, there are no existing increment consuming sources in the area. As such, only Nucor sources were modeled in the Class II Increment analysis. The results of the increment analysis are detailed in Table 6-4.

Table 6-4. Class II Increment Analysis Results

Pollutant	Averaging Period	Cumulative Model Impact (μg/m³)	Secondary Impact [a] (μg/m³)	Total Concentration (μg/m³)	Class II PSD Increment (μg/m³)	Exceeds PSD Increment?
PM_{10}	24-hr	28.00	--	28.00	30	No
	Annual	5.59	--	5.59	17	No
$PM_{2.5}$	24-hr	8.15	0.184	8.34	9	No
	Annual	2.89	0.006	2.90	4	No
NO_2	Annual	5.45	--	5.45	25	No
SO_2	24-hr	3.96	--	3.96	91	No

a. Secondary impact based on MERP analysis. Refer to Section 7.2 for detailed discussion.

7. SECONDARY POLLUTANT FORMATION

Secondary pollutant formation is also required to be addressed in the PSD review process. When precursor emissions for ozone (VOC and NO_X) and/or $PM_{2.5}$ (SO_2 and NO_X) trigger PSD review, ozone and secondary $PM_{2.5}$ ambient impacts must be reviewed. Elevated ground-level ozone concentrations are the result of photochemical reactions among various chemical species. These reactions are more likely to occur under certain ambient conditions (e.g., high ground-level temperatures, light winds, and sunny conditions). The chemical species that contribute to ozone formation, referred to as ozone precursors, include NO_X and VOC emissions from both anthropogenic (e.g., mobile and stationary sources) and natural sources (e.g., vegetation).

The latest revisions to the *Guideline*, which was recently published in the Federal Register on January 17, 2017, recommend the use of Model Emissions Rate for Precursors (MERPs)[39] to evaluate a proposed project's impact on ozone levels in the surrounding airshed. The *Guideline* establishes a two-tiered demonstration approach for addressing single-source impacts on ozone. Tier 1 demonstrations involve use of technically credible relationships between emissions and ambient impacts based on existing modeling studies deemed sufficient for evaluating a project source's impacts. Tier 2 demonstrations involve case-specific application of chemical transport modeling (e.g., with an Eulerian grid or Lagrangian model). MERPs are a type of Tier 1 demonstration that represent a level of increased precursor emissions that is not expected to contribute to significant levels of ozone. In other words, project emissions are compared against MERP values to determine whether the project emissions would have a significant impact on ozone levels. To derive a MERP value, a model predicted relationship between precursor emissions from hypothetical sources and their downwind maximum impacts is combined with a critical air quality threshold using a predefined equation. In this analysis, Nucor is relying upon pre-established MERPs values based on prior photochemical grid modeling as the primary indicator that the project is not expected to cause or contribute to a violation of the ozone NAAQS.

7.1 Ozone

A Tier 1 demonstration approach in the *Guideline* relies on the use of MERPs. The U.S. EPA discusses this approach in detail in the *Guidance on the Development of Modeled Emission Rates for Precursors (MERPs) as a Tier 1 Demonstration Tool for Ozone and $PM_{2.5}$ under the PSD Permitting Program* (hereafter referred to as *MERPs Guidance*).[40] The guidance is relevant for the PSD program and focuses on assessing the ambient impacts of precursors of ozone (and $PM_{2.5}$) for purposes of that program. MERPs can be viewed as a Tier 1 demonstration tool under the PSD permitting program that provides a straightforward and representative way to relate maximum source impacts with a critical air quality threshold (e.g., a significant impact level or SIL).[41] Specifically, the MERP framework may be used to describe an emission rate of an individual precursor (such as NO_x or VOC for ozone) that is expected to result in a change in the level of ambient ozone that would be less than a specific air quality threshold for ozone that a permitting authority adopts and chooses to use in determining whether a projected impact causes or contributes to a violation of

[39] *Guidance on the Development of Modeled Emission Rates for Precursors (MERPs) as a Tier 1 Demonstration Tool for Ozone and $PM_{2.5}$ under the PSD Permitting Program*, available via:
https://www.epa.gov/sites/default/files/2019-05/documents/merps2019.pdf

[40] U.S. EPA, *Guidance on the Development of Modeled Emission Rates for Precursors (MERPs) as a Tier 1 Demonstration Tool for Ozone and $PM_{2.5}$ under the PSD Permitting Program*, EPA-454/R-19-003 (April 30, 2019). Office of Air Quality Planning and Standards, Research Triangle Park, NC.

[41] *MERPs Guidance*, pg. 5.

the ozone NAAQS, such as the ozone SIL recommended by the U.S. EPA.[42] In short, MERPs are intended to be used with SILs as analytical tools for PSD air quality analyses, and if necessary, a cumulative impacts analysis[43] including background air quality.

The nearest hypothetical source modeled by EPA to the Nucor Apple Grove facility was found in EPA's MERPs View Qlik website and was located in Boyd County, Kentucky approximately 50 km southwest of the Nucor facility location. This hypothetical source location has similar terrain and surrounding land use to the Nucor facility. The Boyd County location is also generally within the same air shed and as such is expected to be subject to similar atmospheric chemistry and secondary pollutant formation processes as the area surrounding the Nucor facility. Therefore, the Boyd County source was determined as the most representative hypothetical source in EPA's compiled photochemical modeling dataset and used in this Tier-1 modeling analysis.

The available Boyd County hypothetical source with emissions closest to source-wide emissions from the Nucor facility was used. For NO_X, the taller stack option of the two available (i.e., 90 meters) was used because the majority of emissions of NO_X from the proposed facility will be from the EAF baghouses which have release heights of 65 meters above ground level. Therefore, the 90 meter hypothetical source will better represent the majority of NO_X emissions from the facility than the 10 meter hypothetical source. For VOC, there was only a 10 meter hypothetical source for Boyd County; therefore, this hypothetical source was used.

Table 7-1 shows the selected MERPs values for the Boyd County hypothetical source, the calculated ozone MERPs, project emissions increases of NO_X and VOC, and estimated ozone impact associated with the Nucor facility. In Table 7-2 the calculated MERPs concentrations are added to the background ozone concentration taken from the Ashland, Kentucky monitor (21-016-0017), which demonstrates compliance with the Ozone 8-hour NAAQS.

Table 7-1. Ozone SIL Analysis

Averaging Period	**Precursor**	**Critical Air Quality Threshold** (ppb)	**Modeled ER from Hypo. Source**[a] (tpy)	**Modeled Impact from Hypo. Source**[a] (ppb)	**Ozone MERP** (tpy)	**Net Emissions Increase** (tpy)	**% of Critical Air Quality Threshold**	**Ozone Project Impact** (ppb)	**SIL** (ppb)
8-hour	NO_X	1.0	1,000	3.794	264	760.7	288.6	2.89	
	VOC	1.0	500	0.170	2,939	183.5	6.2	0.06	
							Total	**2.95**	**1.0**

[a] Hypothetical source is lower release height source located in Boyd County, Kentucky from EPA's MERPs View Qlik website. Hypothetical source emission rate represents the closest value available in MERPs View Qlik to the source-wide PTE for NO_X and VOC for the project.

42 *MERPs Guidance*, pg. 10.

Table 7-2. Ozone NAAQS Analysis

Averaging Period	Pollutant	Ozone Project Impact (ppb)	Ozone Background Conc.[a] (ppb)	Cumulative Ozone Impact (ppb)	NAAQS (ppb)
8-hour	Ozone	2.95	61	**63.9**	**70**

[a] Three-year average for 2018-2020 of the annual 4th highest daily maximum 8-hour concentrations measured at the Ashland, KY monitor (21-019-0017).

7.2 Secondary $PM_{2.5}$

$PM_{2.5}$ precursor pollutants (e.g., NO_X, SO_2) can undergo photochemical reactions with ambient gases such as NH_3 or VOC resulting in the formation of secondary $PM_{2.5}$ downwind of a stationary industrial source. The creation of $PM_{2.5}$ by secondary mechanisms increases the total concentration by adding to the direct emissions of $PM_{2.5}$ from a facility. Two of the largest constituents of secondarily-formed $PM_{2.5}$ are sulfates (SO_4) and nitrates (NO_3), both of which are formed from their respective precursor pollutants (SO_2 for SO_4 and NO_X for NO_3).

The current guideline model for Class II Area air dispersion modeling, AERMOD, does not account for many of the complex atmospheric physical and chemical mechanisms that influence $PM_{2.5}$ formation. For example, when run in the regulatory default mode, AERMOD does not account for the size or mass of particulate emissions and, therefore, does not account for the difference in gravitational settling and deposition rates that occur for different particle sizes. No chemical transformation schemes are implemented in AERMOD which could predict secondary $PM_{2.5}$ formation from atmospheric processes.

Based on the MERP guidance offered by EPA, Nucor has prepared a site-specific secondary $PM_{2.5}$ impact assessment to comprehensively demonstrate precursor emissions from the proposed project will not cause or contribute to a violation of the $PM_{2.5}$ NAAQS or PSD increment standards.

The nearest hypothetical source modeled by EPA to the Nucor Apple Gove facility was found in EPA's MERPs View Qlik website and was located in Boyd County, Kentucky approximately 50 km southwest of the Nucor facility location. This hypothetical source location has similar terrain and surrounding land use to the Nucor facility. The Boyd County location is also generally within the same air shed and as such is expected to be subject to similar atmospheric chemistry and secondary pollutant formation processes as the area surrounding the Nucor facility. Therefore, the Boyd County source was determined as the most representative hypothetical source in EPA's compiled photochemical modeling dataset and used in this Tier-1 modeling analysis.

The available Boyd County hypothetical source with emissions closest to source-wide emissions from the Nucor facility was used. For NO_X and SO_2 the taller stack option of the two available (i.e., 90 meters) was used because the majority of emissions of NO_X and SO_2 from the proposed facility will be from the EAF baghouses which have release heights of 65 meters above ground level. Therefore, the 90 meter hypothetical source will better represent the majority of NO_X and SO_2 emissions from the facility than the 10 meter hypothetical source.

Table 7-3 shows the selected near-field MERPs values for the Boyd County hypothetical source, the calculated $PM_{2.5}$ MERPs, project emissions increases of NO_X and SO_2, and estimated $PM_{2.5}$ impact associated with the project.

Table 7-3. $PM_{2.5}$ MERPs Analysis – Near-Field

Averaging Period	Precursor	Critical Air Quality Threshold (μg/m³)	Modeled ER from Hypo. Source[a] (tpy)	Modeled Impact from Hypo. Source[a] (μg/m³)	$PM_{2.5}$ MERP (tpy)	Net Emissions Increase (tpy)	% of Critical Air Quality Threshold	Secondary $PM_{2.5}$ Project Impact (μg/m³)
24-hour	NO_X	1.2	1,000	0.079	15,183	760.7	5.010	**0.06013**
24-hour	SO_2	1.2	1,000	0.343	3,502	362.0	10.337	**0.12404**
Annual	NO_X	0.2	1,000	0.005	44,419	760.7	1.713	**0.00343**
Annual	SO_2	0.2	1,000	0.007	26,874	362.0	1.347	**0.00269**

[a] Hypothetical source is lower release height source located in Boyd County, Kentucky from EPA's MERPs View Qlik website. Hypothetical source emission rate represents the closest value available in MERPs View Qlik to the source-wide PTE for NO_X and SO_2 for the project.

In Table 7-4 and Table 7-5 the calculated MERPs concentrations are added to the modeled NAAQS and Class II PSD Increment analysis results for $PM_{2.5}$ shown in Sections 6.2 and 6.3 to show that $PM_{2.5}$ impacts remain below relevant standards after consideration of the impacts of secondary formation of $PM_{2.5}$.

Table 7-4. $PM_{2.5}$ NAAQS Analysis Considering Secondary Formation

Averaging Period	Pollutant	Primary $PM_{2.5}$ Project Impact[1,2] (μg/m³)	Secondary $PM_{2.5}$ Project Impact (μg/m³)	$PM_{2.5}$ Background Conc.[3] (μg/m³)	Cumulative $PM_{2.5}$ Impact (μg/m³)	NAAQS (μg/m³)
24-hour	PM2.5	10.27	0.184	15.6	**26.0**	**35**
Annual	PM2.5	2.86	0.006	7.7	**10.6**	**12**

[1] Evaluated the five-year average 8th highest maximum 24-hour output for comparison against the NAAQS.

[2] Evaluated average modeled annual arithmetic mean impact over the five years modeled for comparison against the NAAQS.

[3] The 24-hour and annual average background concentrations are based on ambient monitoring data from the Ashland, Kentucky site (Site ID 21-019-0017) for the three year period from 2018 to 2020. The 24-hour average background concentration is the average 8th highest daily maximum concentration over the 2018 to 2020 period, consistent with the form of the 24-hour $PM_{2.5}$ NAAQS. The annual average background concentration is the average annual arithmetic mean concentration from 2018 to 2020.

Table 7-5. $PM_{2.5}$ PSD Increment Analysis Considering Secondary Formation

Averaging Period	Pollutant	Primary $PM_{2.5}$ Project Impact[1,2] (μg/m³)	Secondary $PM_{2.5}$ Project Impact (μg/m³)	Cumulative $PM_{2.5}$ Impact (μg/m³)	Class II PSD Increment (μg/m³)
24-hour	PM2.5	8.15	0.184	**8.34**	**9**
Annual	PM2.5	2.89	0.006	**2.90**	**4**

[1] Evaluated the 2nd highest 24-hour average modeled impact over the five years modeled for comparison against the PSD Increment.
[2] Evaluated highest modeled annual arithmetic mean impact over the five years modeled for comparison against the PSD Increment.

The closest Class I area to the proposed Nucor facility (Otter Creek Wilderness) is located 220 km distant. Table 7-6 shows the selected MERPs values for the Boyd County hypothetical source at a distance of 220 km, the calculated $PM_{2.5}$ MERPs, project emissions increases of NO_X and SO_2, and estimated Class I $PM_{2.5}$ impact associated with the project. In Table 7-7 the calculated MERPs concentrations are added to the modeled Class I PSD Increment analysis results for $PM_{2.5}$ shown in Section 1 show that $PM_{2.5}$ impacts remain below the Class I PSD Increment standards for $PM_{2.5}$ after consideration of the impacts of secondary formation of $PM_{2.5}$.

Table 7-6. $PM_{2.5}$ MERPs Analysis – Class I

Averaging Period	Precursor	Critical Air Quality Threshold (μg/m³)	Modeled ER from Hypo. Source[a] (tpy)	Modeled Impact from Hypo. Source[a] (μg/m³)	$PM_{2.5}$ MERP (tpy)	Net Emissions Increase (tpy)	% of Critical Air Quality Threshold	Secondary $PM_{2.5}$ Project Impact (μg/m³)
24-hour	NO_X	0.27	1,000	0.049	5,482	760.7	13.877	**0.03747**
24-hour	SO_2	0.27	1,000	0.073	3,690	362.0	9.811	**0.02649**
Annual	NO_X	0.05	1,000	0.0012	40,940	760.7	1.858	**0.00093**
Annual	SO_2	0.05	1,000	0.0023	21,802	362.0	1.660	**0.00083**

[a] Hypothetical source is lower release height source located in Boyd County, Kentucky from EPA's MERPs View Qlik website at a distance of 220 km (the distance to the closest Class I area from the project location). Hypothetical source emission rate represents the closest value available in MERPs View Qlik to the source-wide PTE for NO_X and SO_2 for the project.

Table 7-7. $PM_{2.5}$ Class I PSD SIL Analysis Considering Secondary Formation

Averaging Period	Pollutant	Primary $PM_{2.5}$ Project Impact[1,2] (μg/m^3)	Secondary $PM_{2.5}$ Project Impact (μg/m^3)	Cumulative $PM_{2.5}$ Impact (μg/m^3)	Class I SIL (μg/m^3)
24-hour	PM2.5	0.195	0.064	0.259	**0.27**
Annual	PM2.5	0.015	0.002	0.017	**0.05**

[1] Evaluated the highest 24-hour average modeled impact over the five years modeled for comparison against the Class I SIL.

[2] Evaluated highest modeled annual arithmetic mean impact over the five years modeled for comparison against the Class I SIL.

8. ADDITIONAL IMPACTS ANALYSIS

Three additional impacts analyses are performed as part of the PSD permitting action. These are: 1) a growth analysis, 2) a soil and vegetation analysis, and 3) a visibility analysis.

8.1 Growth Analysis

The purpose of the growth analysis is to quantify project associated growth; that is, to predict how much new growth is likely to occur in order to support the source or modification under review, and then to estimate the air quality impacts from this growth. The Nucor facility is expected to increase full-time employment after the construction phase of the project is completed. However, the proposed project at the Nucor facility is anticipated to have a limited growth impact on Mason County, WV with the potential to contribute to adverse air quality impacts for the PSD triggering pollutants with an applicable NAAQS or PSD Increment (i.e., SO_2, PM_{10}, $PM_{2.5}$, CO, NO_X). Many of the workers to be hired for the facility construction and operations will already reside and conduct business in the region surrounding the Nucor facility, and thus are not expected to cause significant growth-related air quality impacts. While some workers are likely to currently reside outside the region and thus may commute or move to the area, any related potential air quality impacts from these out-of-town workers are too small to be reasonably quantifiable.

Furthermore, the installation of the plant is not expected to significantly contribute to substantial residential or commercial growth that would cause quantifiable air quality impacts. For non-Nucor industrial growth, the affected sources would be covered under their own Clean Air Act permitting processes to address potential air quality impacts of the PSD-triggering for Nucor's project. Finally, the existing ambient air quality within the region surrounding the Nucor facility can readily accommodate any additional direct or indirect growth which may occur from the proposed facility without this project-associated growth causing or contributing to violations of the NAAQS or PSD increment. In reviewing the past several years of ambient background concentrations, ambient air quality has been steady or gradually improved. Therefore, Nucor would not expect any growth attributable to this proposed project to cause quantifiable air quality impacts.

8.2 Soil and Vegetation Analysis

The EPA developed the secondary NAAQS (shown in Table 2-1) to represent levels that provide protection for public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings. As a general rule, if ambient concentrations from a PSD project are found to be less than the secondary NAAQS, emissions from that project will not result in harmful effects to either soil or vegetation.[44]

Nucor has demonstrated compliance with the secondary NAAQS by complying with the SILs for CO (1-hr and 8-hr) and SO_2 (24-hr) and with the NAAQS for PM_{10} (24-hr), $PM_{2.5}$ (24-hr and annual), NO_2 (annual), and ozone (8-hr) indicating that the proposed Nucor facility will not cause or contribute to adverse impacts on soils, vegetation, and animals.

---

[44] U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, New Source Review Workshop Manual, Research Triangle Park, North Carolina, October 1990.

8.3 Plume Visibility Analysis

This additional impacts analysis also addresses impacts on visibility at a potentially sensitive Class II area resulting from any coherent emission plumes from sources at the Nucor Apple Grove facility associated with the project. To demonstrate that local visibility impairment does not result from operation of the new operations after the proposed project is completed, Nucor is using the EPA VISCREEN Model following the guidelines published in the *Workbook for Plume Visual Impact Screening and Analysis* to assess potential plume impairment.[45] The primary variables that affect whether a plume is visible or not at a certain location are (1) quantity of emissions, (2) type of emissions, (3) relative location of source and observer, and (4) the background visibility range. The VISCREEN model is designed to determine whether a plume from a facility may be visible from a given vantage point using these four variables to determine the level of impact. One potentially sensitive Class II area was chosen to address visibility impairment, namely Beech Fork State Park located approximately 40 km to the south southwest of the Nucor facility. Beech Fork State Park is the closest state park to the proposed Nucor facility with primarily recreational, outdoor attractions. Because potential NO_X and PM_{10} emissions from the proposed project trigger PSD review, all VISCREEN visibility affecting pollutants emitted by the proposed project were considered in the analysis. Direct emissions of primary NO_2, Soot, and Primary SO_4 were treated as zero emissions (the VISCREEN default) due to either their accounting elsewhere (NO_X) or due to the nature of the source not producing measurable quantities of these pollutants.

Two levels of visibility screening are available in the VISCREEN Model. Level-1 is designed to provide a conservative estimate of plume visual effects and Level-2 provides a more realistic estimate of visual effects based on more detailed information about the source, meteorology, and area of interest. A Level-2 analysis is typically only completed if a Level-1 analysis indicates the screening criteria are exceeded. As such, a Level-2 analysis was not applied for the project.

For views at the observer location selected, calculations are performed by the model for two assumed plume-viewing backgrounds: the horizon sky and a dark terrain object. VISCREEN assumes that the terrain object is black and located adjacent to the plume on the side of the centerline opposite the observer. The VISCREEN model output shows separate tables for inside and outside of the sensitive area. Each table contains several variables: theta, azi, distance, alpha, critical and actual plume ΔE, and critical and actual plume contrast. These variables are defined as:

1. *Theta* - Scattering angle (the angle between direction solar radiation and the line of sight). If the observer is looking directly at the sun, theta equals zero degrees. If the observer is looking away from the sun, theta equals 180 degrees.
2. *Azi* - The azimuthal angle between the line connecting the observer and the line of sight.
3. *Alpha* - The vertical angle between the line of sight and the plume centerline.
4. *ΔE* - Used to characterize the perceptibility of a plume on the basis of the color difference between the plume and a viewing background. A ΔE less than 2.0 signifies that the plume is not perceptible.
5. *Contrast* - The contrast at a given wavelength of two colored objects such as plume/sky or plume/terrain. A value less 0.05 signifies that the plume is not perceptible by contrast or color.

The analysis is considered satisfactory if ΔE and Green Contrast are less than critical screening values of 2.0 and 0.05, respectively. Note that these thresholds are applied in this analysis, even though screening criteria are properly applied at Class I areas, not sensitive receptors located in Class II areas.

[45] *Workbook for Plume Visual Impact Screening and Analysis (Revised)*, EPA-450/R-92-023, U.S. Environmental Protection Agency, Research Triangle Park, NC, October 1992.

VISCREEN conducts four (4) tests of screening calculations. The first two tests refer to visual impacts caused by plume parcels located ***inside*** the boundaries of the given area. Tests of impacts inside the boundary are used to determine visual impacts when integral vistas are not protected.[46] The last two tests are for plume parcels located ***outside*** the boundaries of the area. The tests of visual impacts outside the boundaries of Class I areas are only required if analyses for protected integral vistas are required. An integral vista is a view from a location inside a Class I area of landscape features located outside the boundaries of the Class I area.[47] There are no integral vistas of concern outside the state park evaluated in this analysis. Therefore, only the results for inside the boundaries of the area are evaluated. Note that the typical approach for establishing a minimum and maximum distance to the Class I area (i.e. the min/max distance along plume centerlines offset 11.25 degrees from the observer line) could not be used due to the limited size of Beech Fork State Park. As such, it was conservatively assumed that the minimum and maximum distances to Beech Fork State Park were the true minimum and maximum distances to the boundary of the park, rather than only the minimum and maximum distances where the park boundary intersects the plume centerlines.

For a Level 1 screening analysis using VISCREEN, default particulate size and density and worst-case meteorological conditions of F stability with a 1.0 m/s wind speed were used. These worst-case meteorological conditions were assumed to persist for up to 12 hours with a wind direction that would transport the plume directly adjacent to the observer causing the highest, most conservative level of loss of contrast (ΔE) and color obscuration. Direct particulate and NO_X emissions increases associated with the proposed project were used as inputs to the model. PM_{10} emissions were used to represent direct particulate as PM_{10} has the highest, net emissions increase from among the available PM species (PM, PM_{10}, and $PM_{2.5}$). Remaining Level-1 input parameters were set to those values specified by the VISCREEN user's manual as listed in Table 8-1.[48] As directed in the *Workbook for Plume Visual Impact Screening and Analysis*, a background visual range of 20 km was used for the area where the Nucor facility is located.

Table 8-1. Inputs to the VISCREEN Model for the Level-1 Visibility Impairment Analyses

Parameter	Input Value
Particulate Emission Rate	142.62 lb/hr
NO_X Emission Rate	159.41 lb/hr
Default VISCREEN primary NO_2, soot & H_2SO_4 Rate	0 lb/hr
Distance between Nucor & observer	40.0 km
Distance between Nucor & nearest Beech Fork SP boundary	40.0 km
Distance between Nucor & farthest Beech Fork SP boundary	47.0 km
Background ozone (default)	0.04 ppm
Background visual range	20 km

The Level-1 screening technique was adequate to demonstrate that the plume impairment values were below the ΔE and Green Contrast critical screening values of 2.0 and 0.05, respectively. Therefore, the visibility impacts of the proposed project were deemed acceptable. Table 8-2 shows the results of the Level-1 VISCREEN modeling analysis.

---

[46] Workbook for Plume Visual Impact Screening and Analysis, p. 27.

[47] *Ibid.*

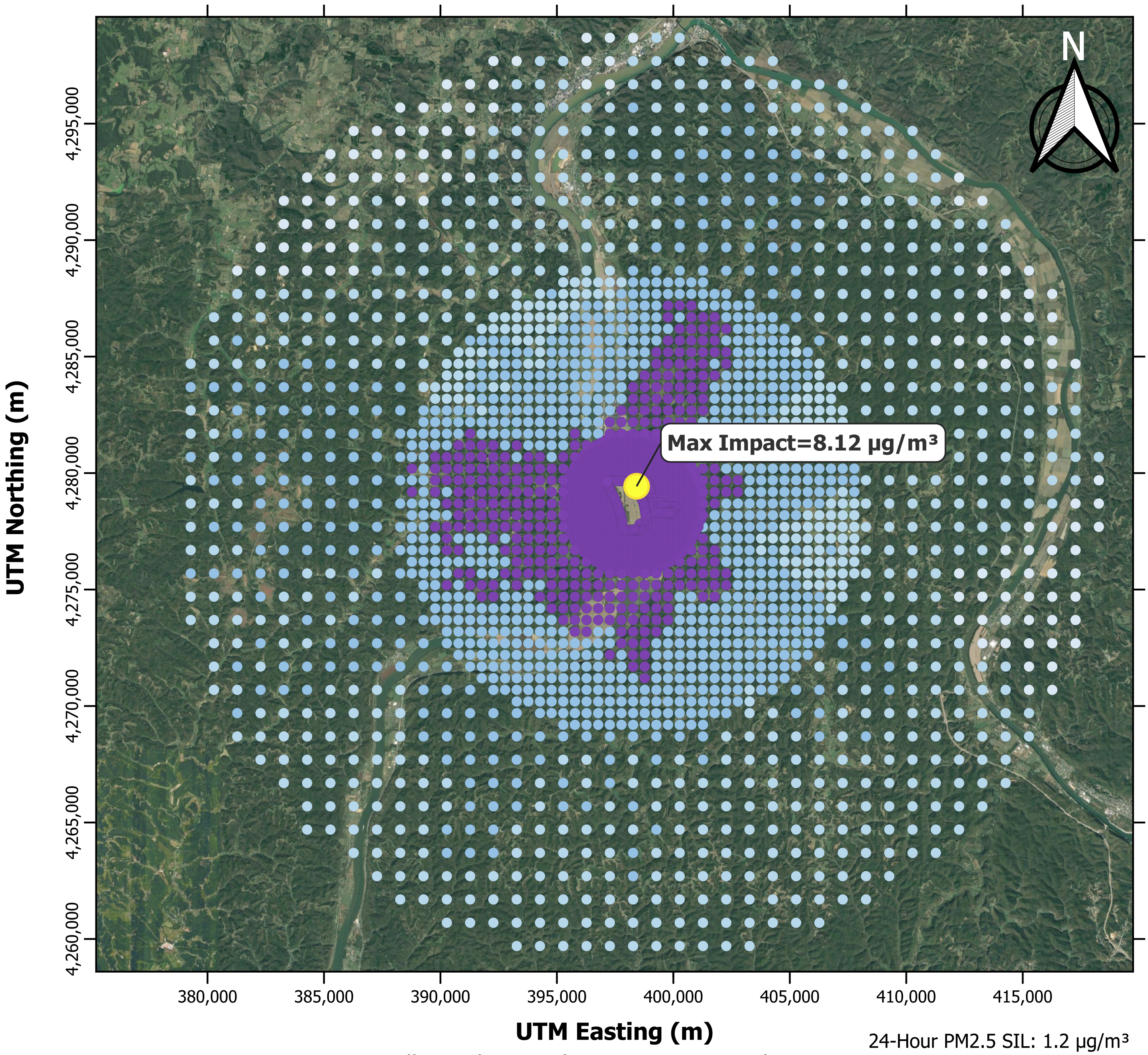
[48] EPA OAQPS, Tutorial Package for the VISCREEN Model, Research Triangle Park, NC, June 1992.

Table 8-2. VISCREEN Model Level-1 Visibility Impairment Analyses for Project on Beech Fork State Park

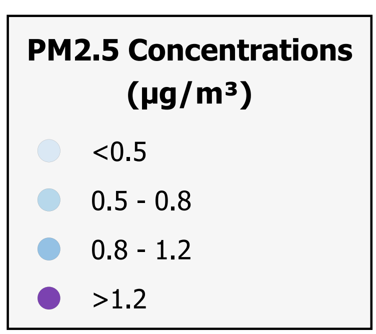
Background	Theta	Azimuthal	Distance (km)	Alpha	Delta E Criteria	Plume	Contrast Criteria	Plume
Inside Class II Area								
Sky	10	84	40	84	2.00	1.444	0.05	0.014
Sky	140	84	40	84	2.00	0.248	0.05	-0.009
Terrain	10	84	40	84	2.00	0.460	0.05	0.005
Terrain	140	84	40	84	2.00	0.104	0.05	0.004

APPENDIX A. SIGNIFICANCE ANALYSIS FIGURES

Figure A-1. 24-hr PM2.5 SIL Impacts



All coordinates shown in UTM Coordinates,
UTM Zone 17, NAD 83 Datum



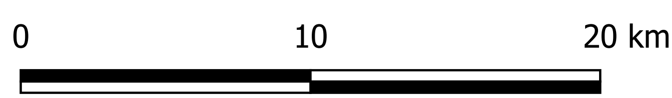
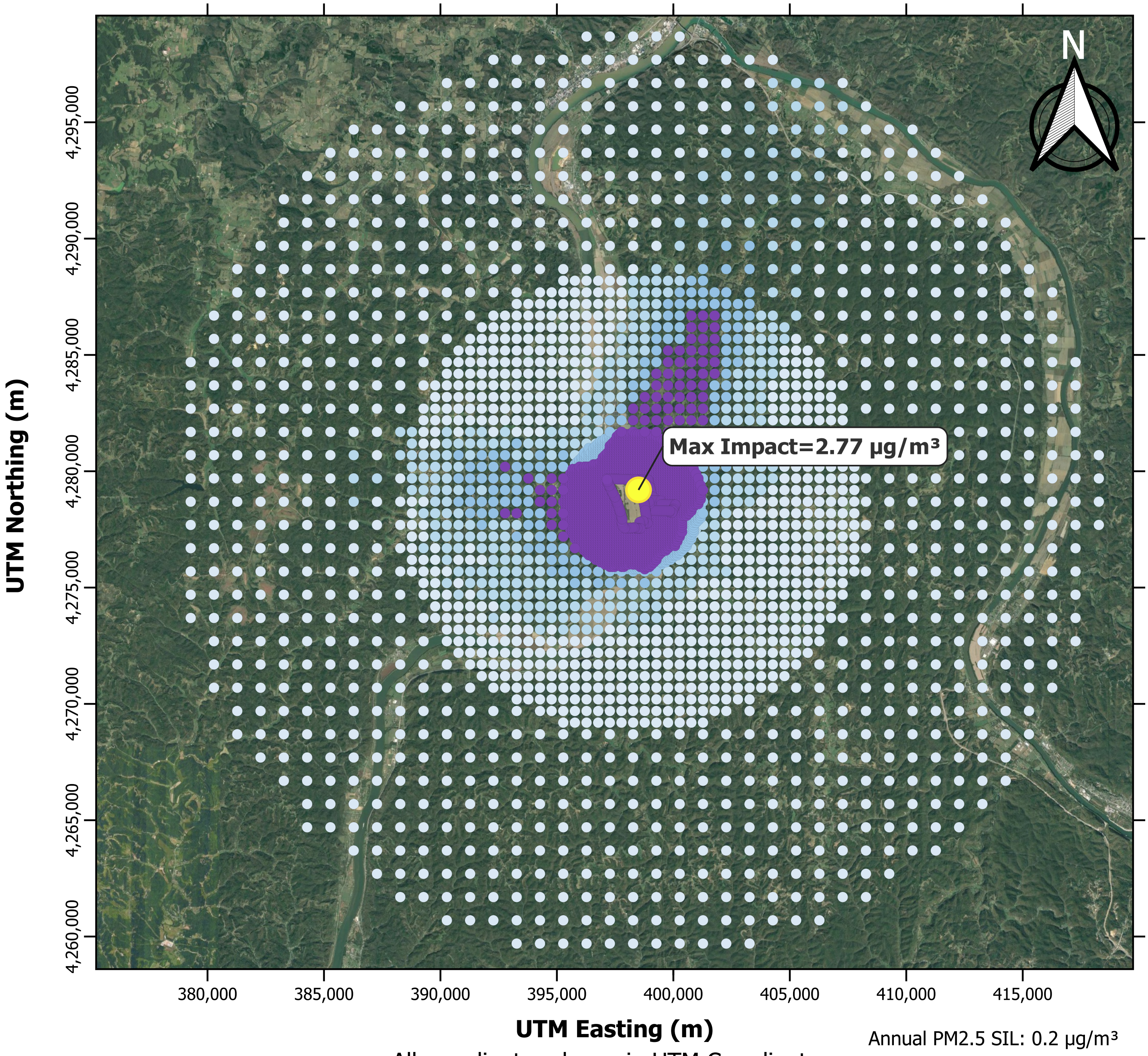


Figure A-2. Annual PM2.5 SIL Impacts



All coordinates shown in UTM Coordinates,
UTM Zone 17, NAD 83 Datum

PM2.5 Concentrations (µg/m³)

- < 0.10
- 0.10 - 0.15
- 0.15 - 0.20
- > 0.20

0 10 20 km

Figure A-3. 1-hr CO SIL Impacts

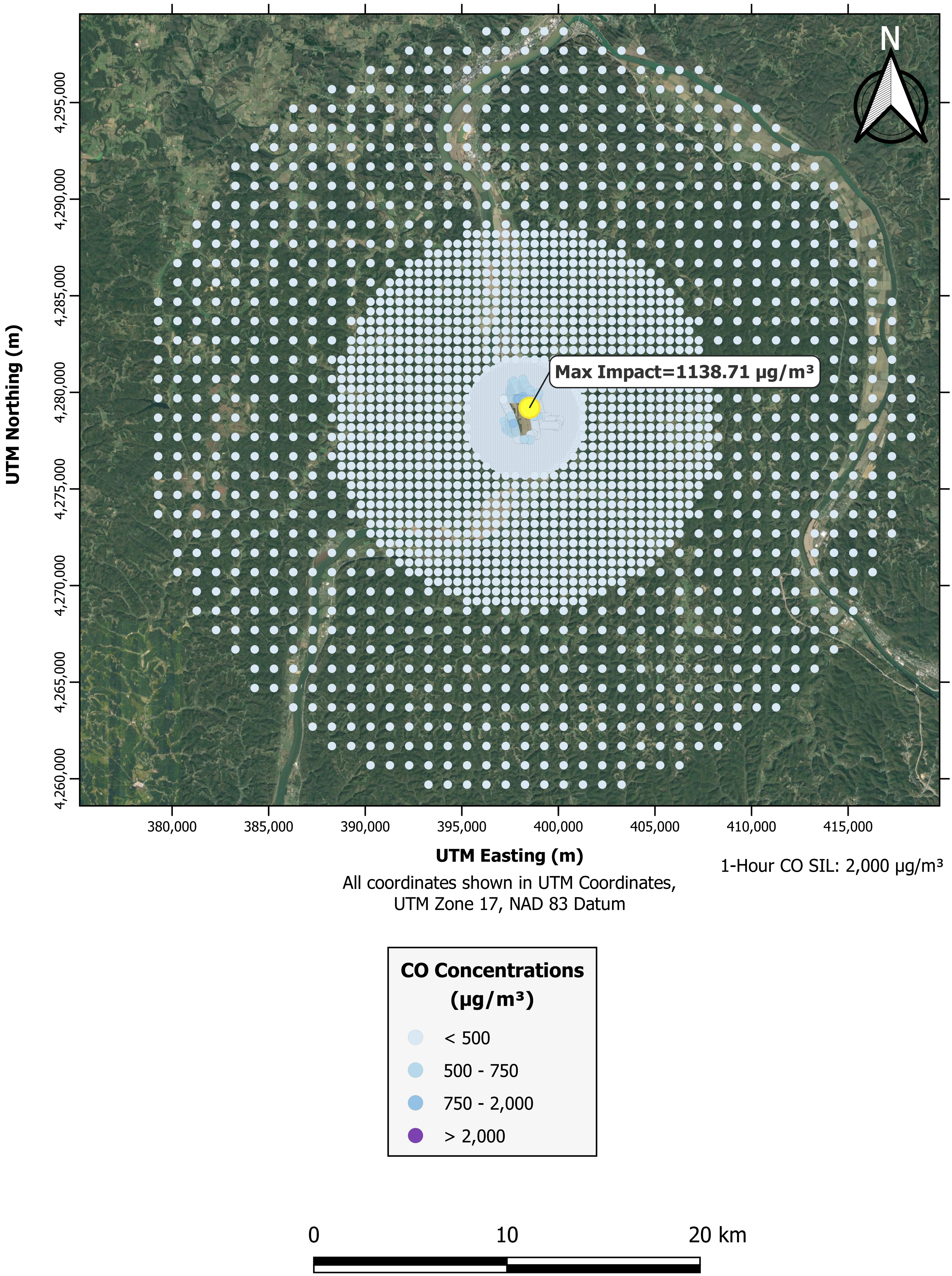
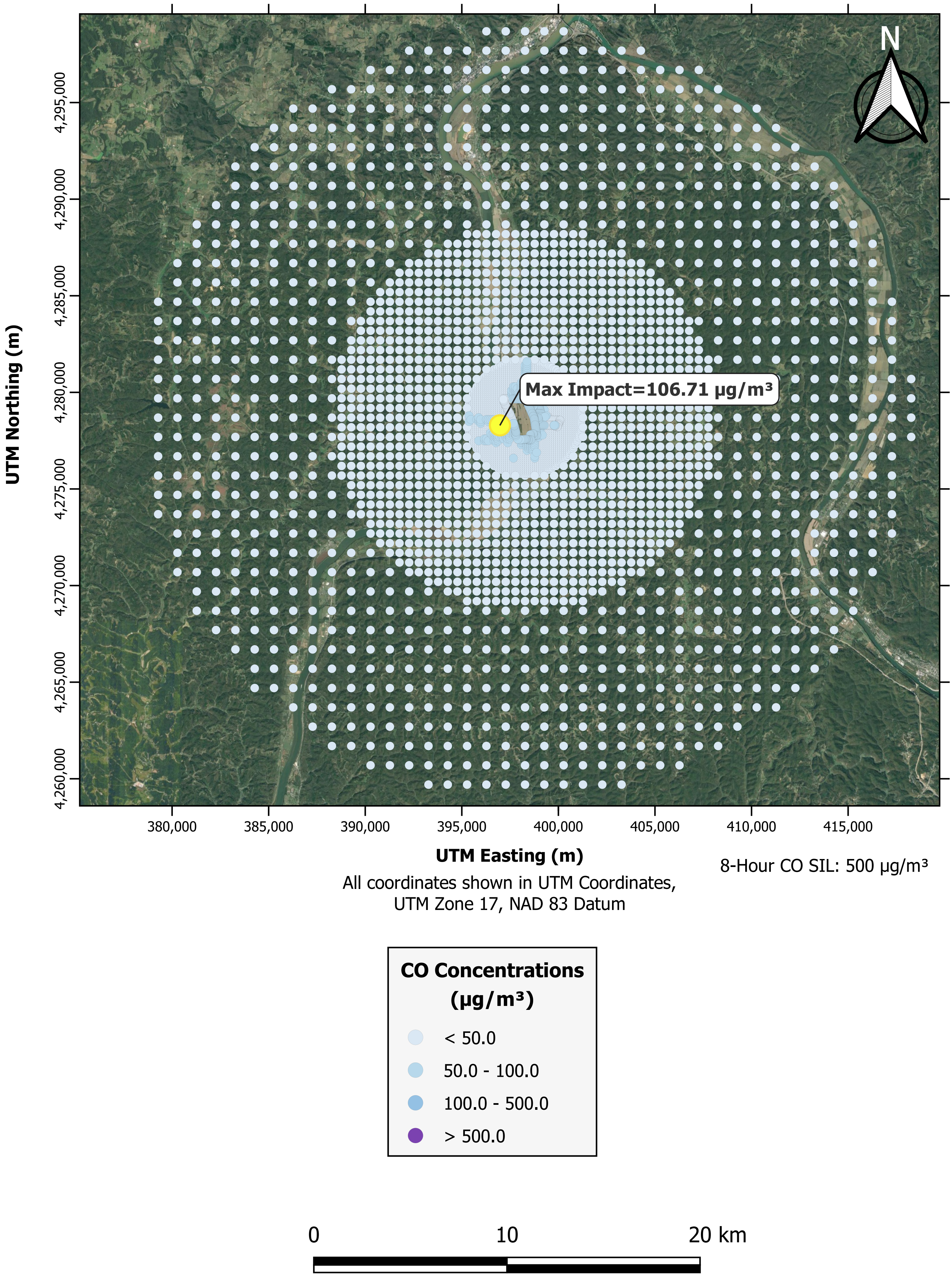


Figure A-4. 8-hr CO SIL Impacts



All coordinates shown in UTM Coordinates, UTM Zone 17, NAD 83 Datum

8-Hour CO SIL: 500 µg/m³

Figure A-5. 1-hr NO2 SIL Impacts

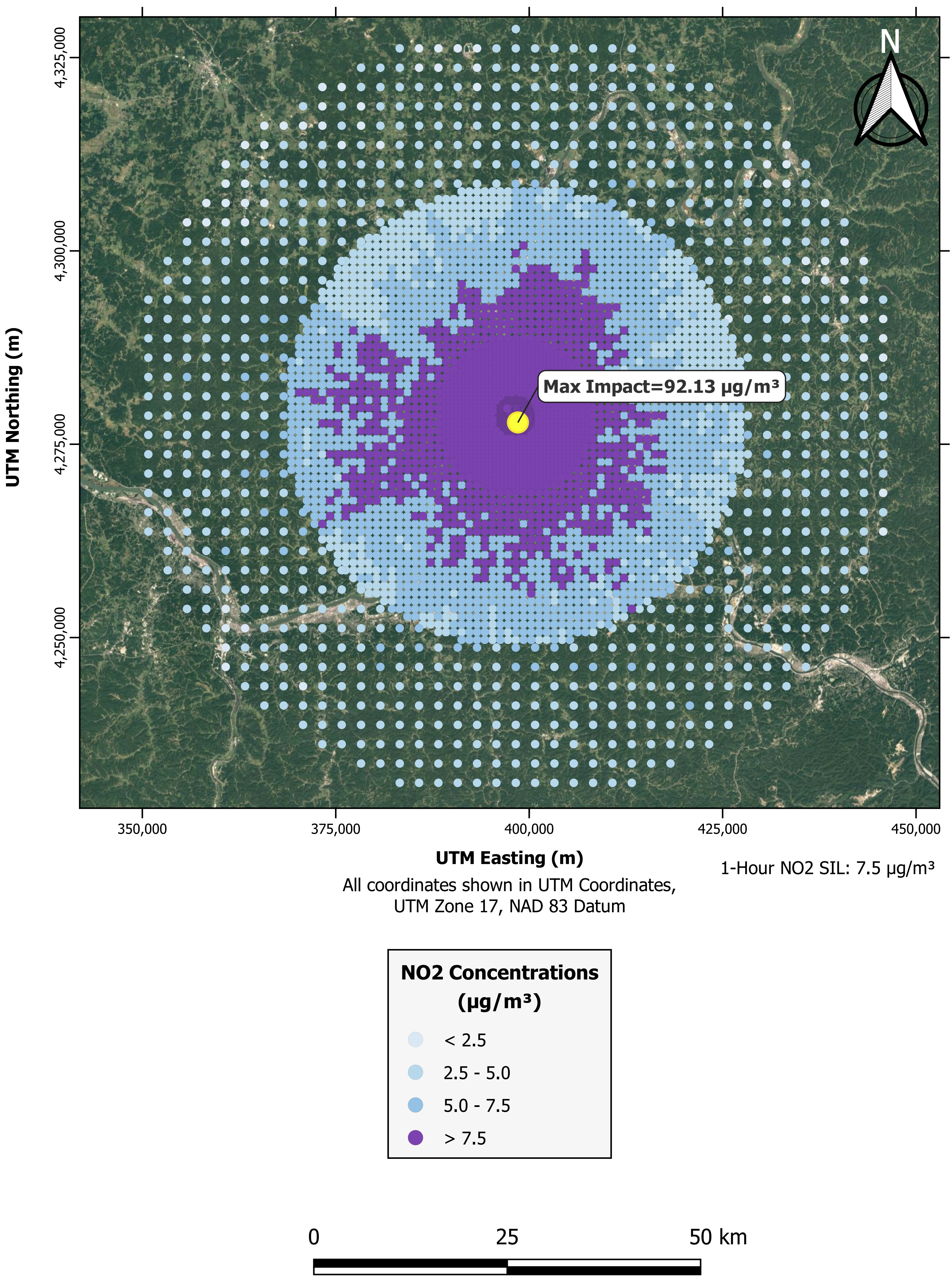
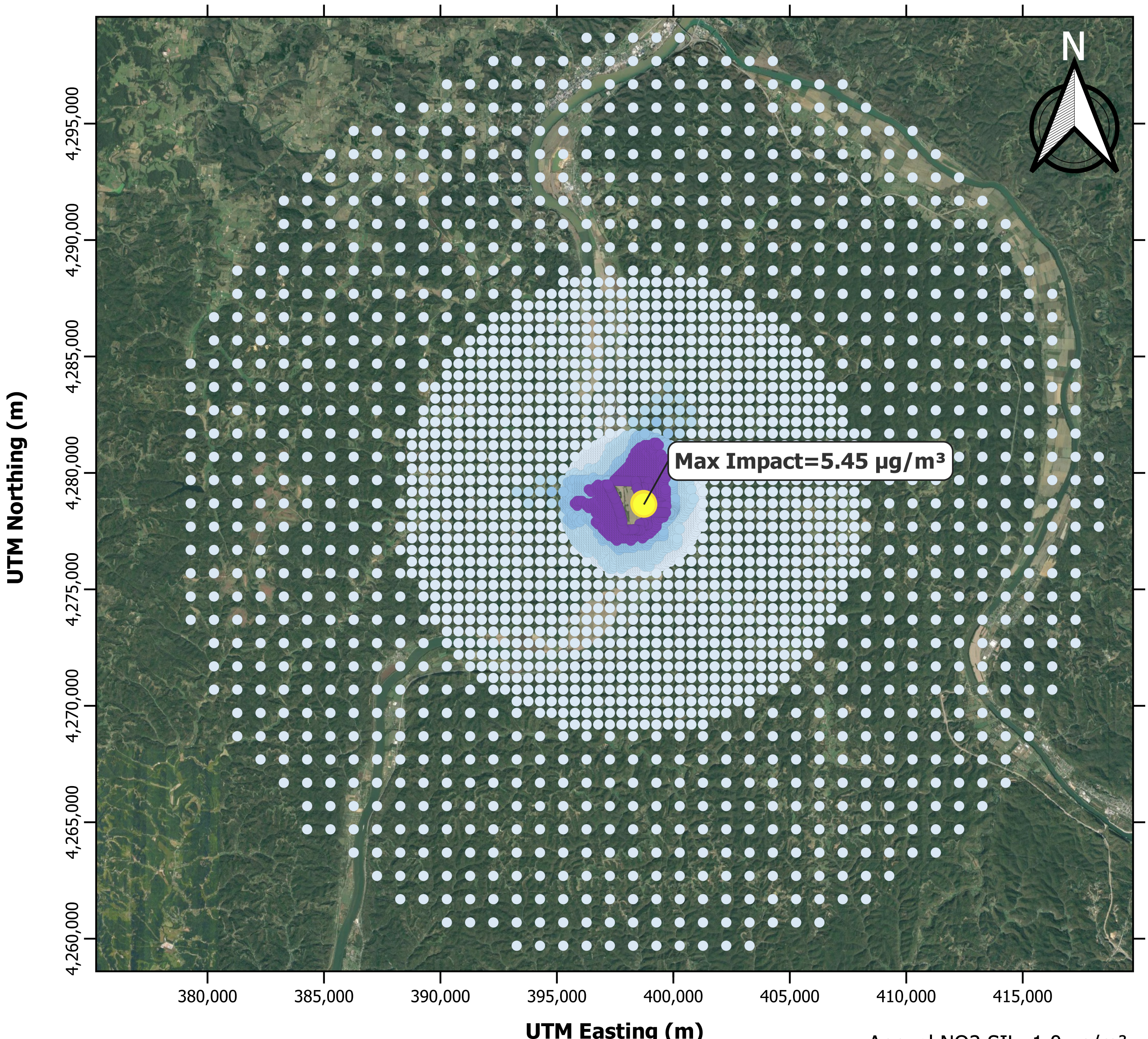


Figure A-6. Annual NO2 SIL Impacts



All coordinates shown in UTM Coordinates, UTM Zone 17, NAD 83 Datum

Annual NO2 SIL: 1.0 µg/m³

NO2 Concentrations (µg/m³)

- < 0.50
- 0.50 - 0.75
- 0.75 - 1.00
- > 1.00

0 10 20 km

Figure A-7. 1-hr SO2 SIL Impacts

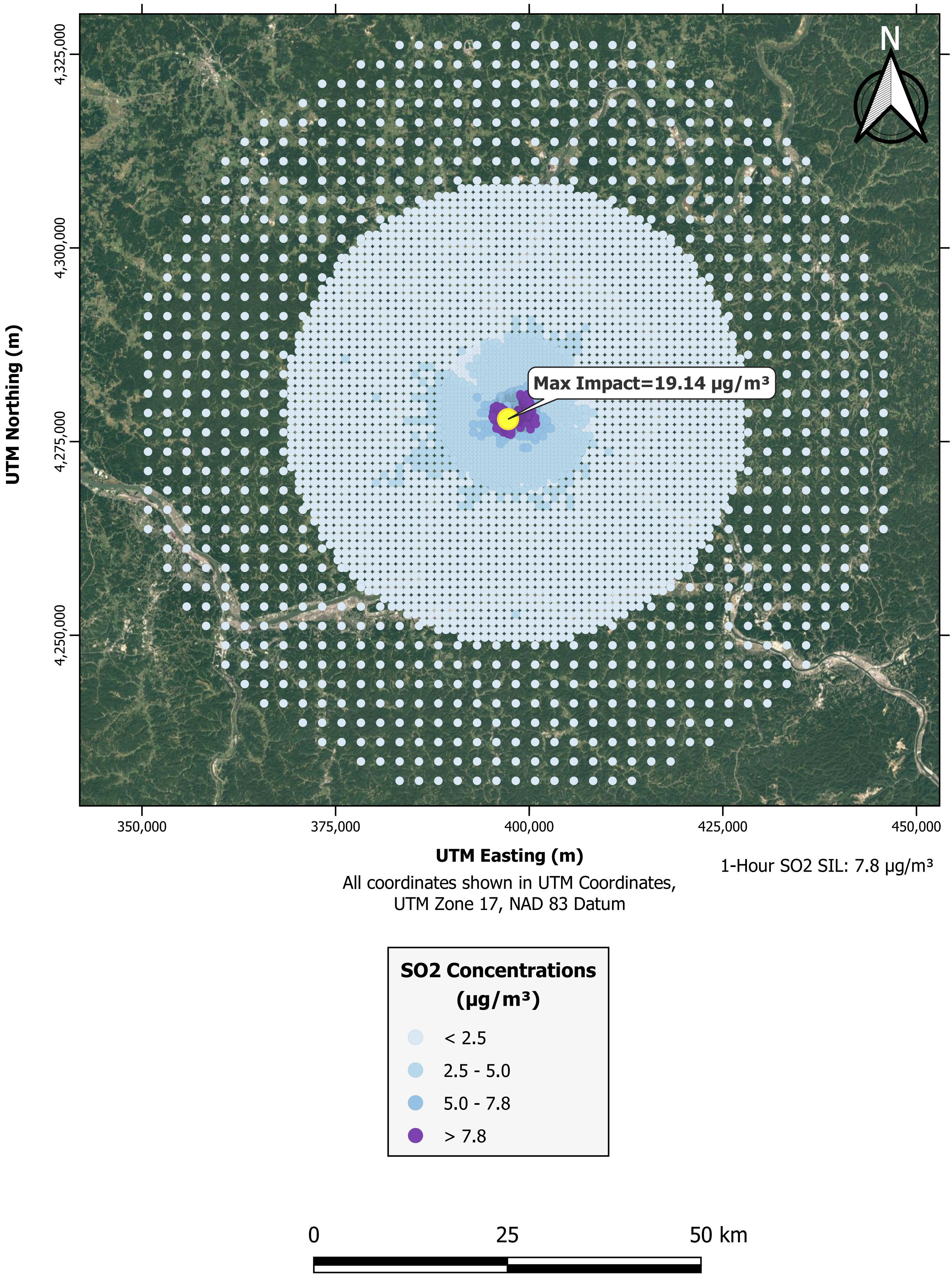
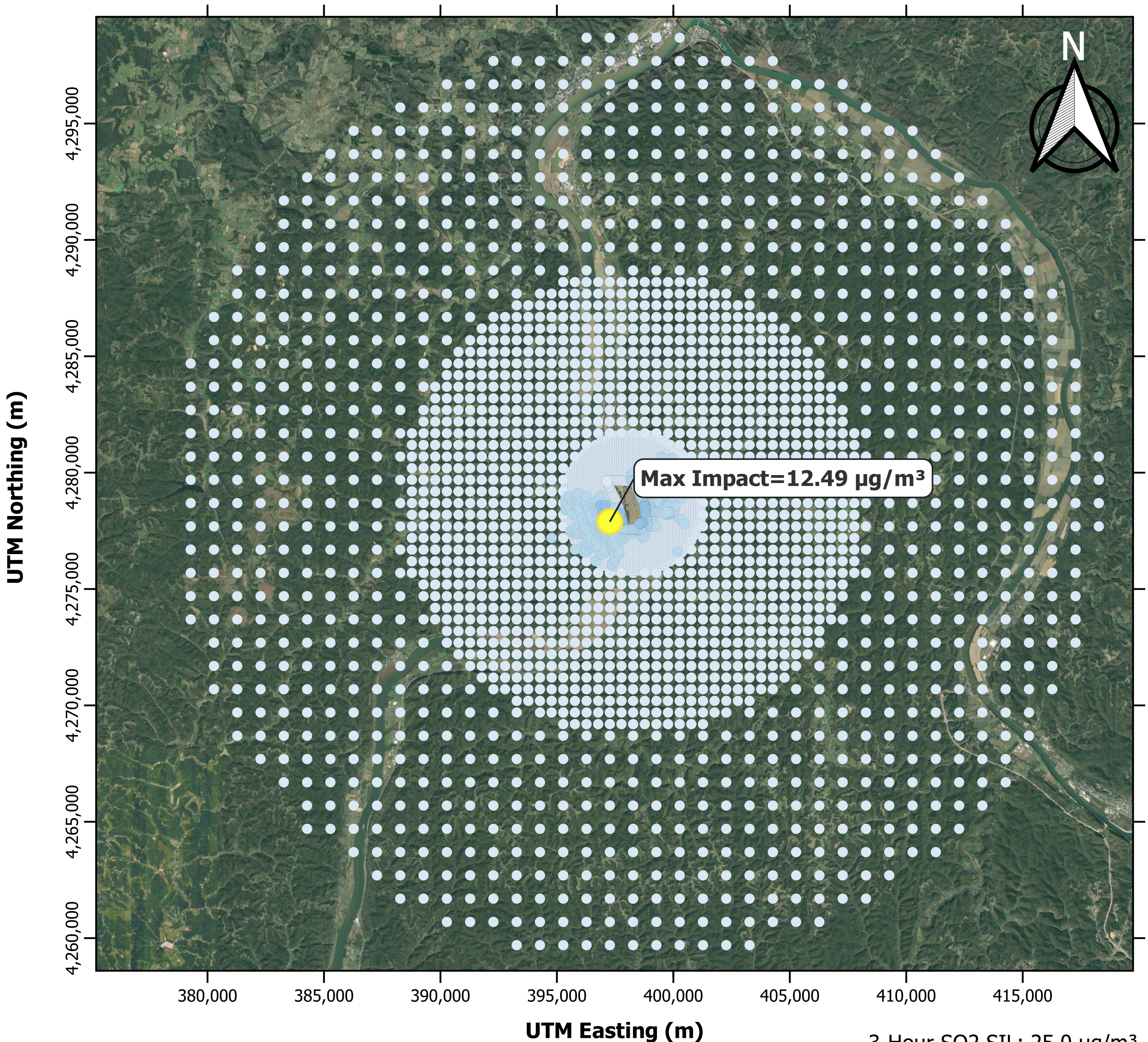


Figure A-8. 3-hr SO2 SIL Impacts



3-Hour SO2 SIL: 25.0 µg/m³

All coordinates shown in UTM Coordinates,
UTM Zone 17, NAD 83 Datum

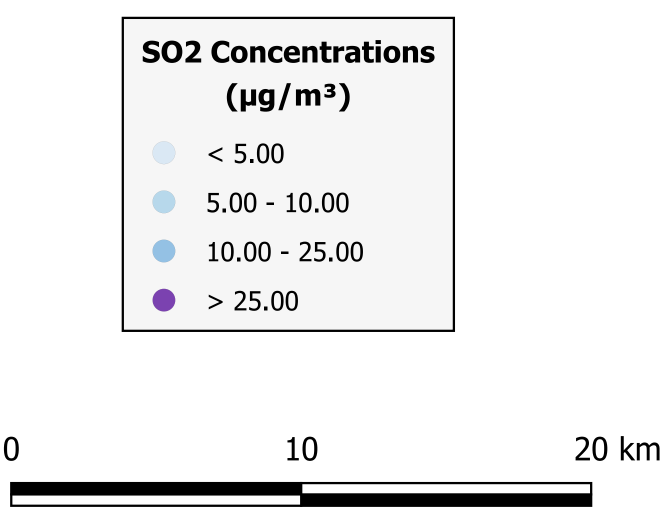


Figure A-9. 24-hr SO2 SIL Impacts

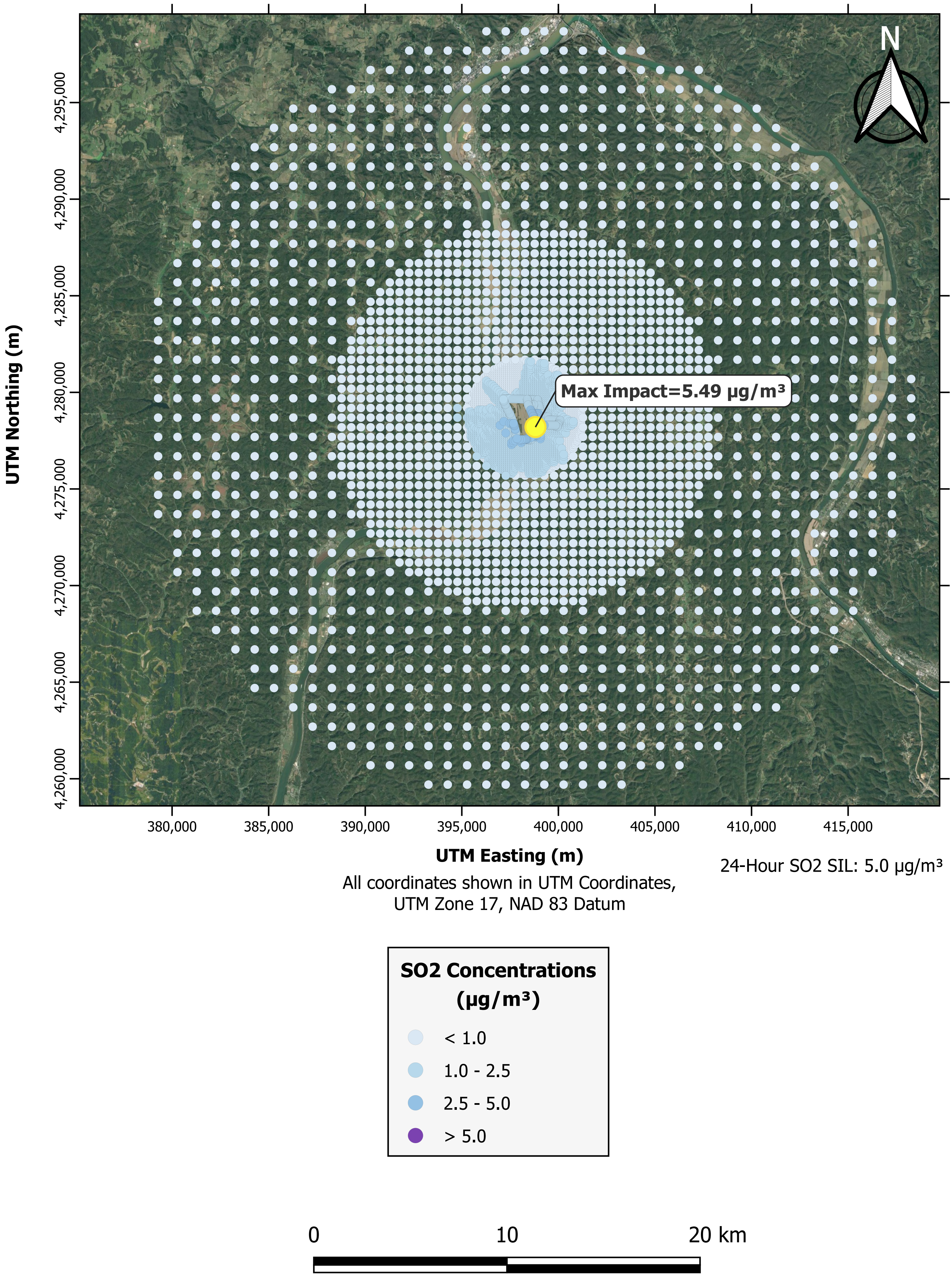
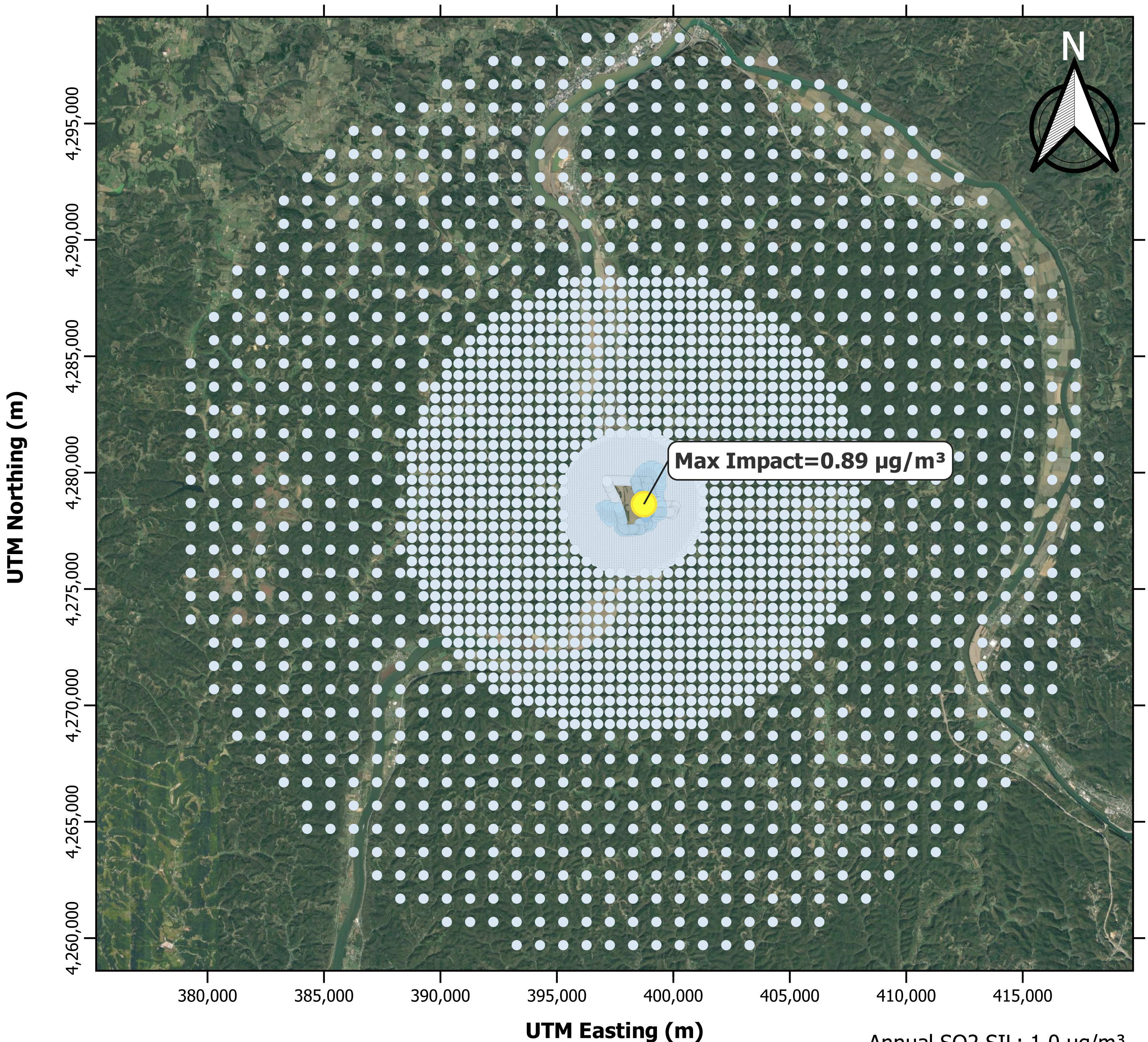
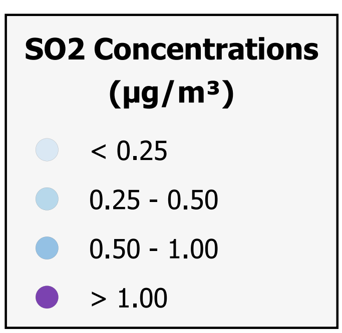


Figure A-10. Annual SO2 SIL Impacts



All coordinates shown in UTM Coordinates,
UTM Zone 17, NAD 83 Datum

Annual SO2 SIL: 1.0 µg/m³



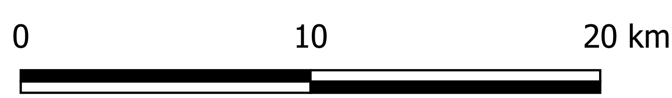


Figure A-11. 24-hr PM10 SIL Impacts

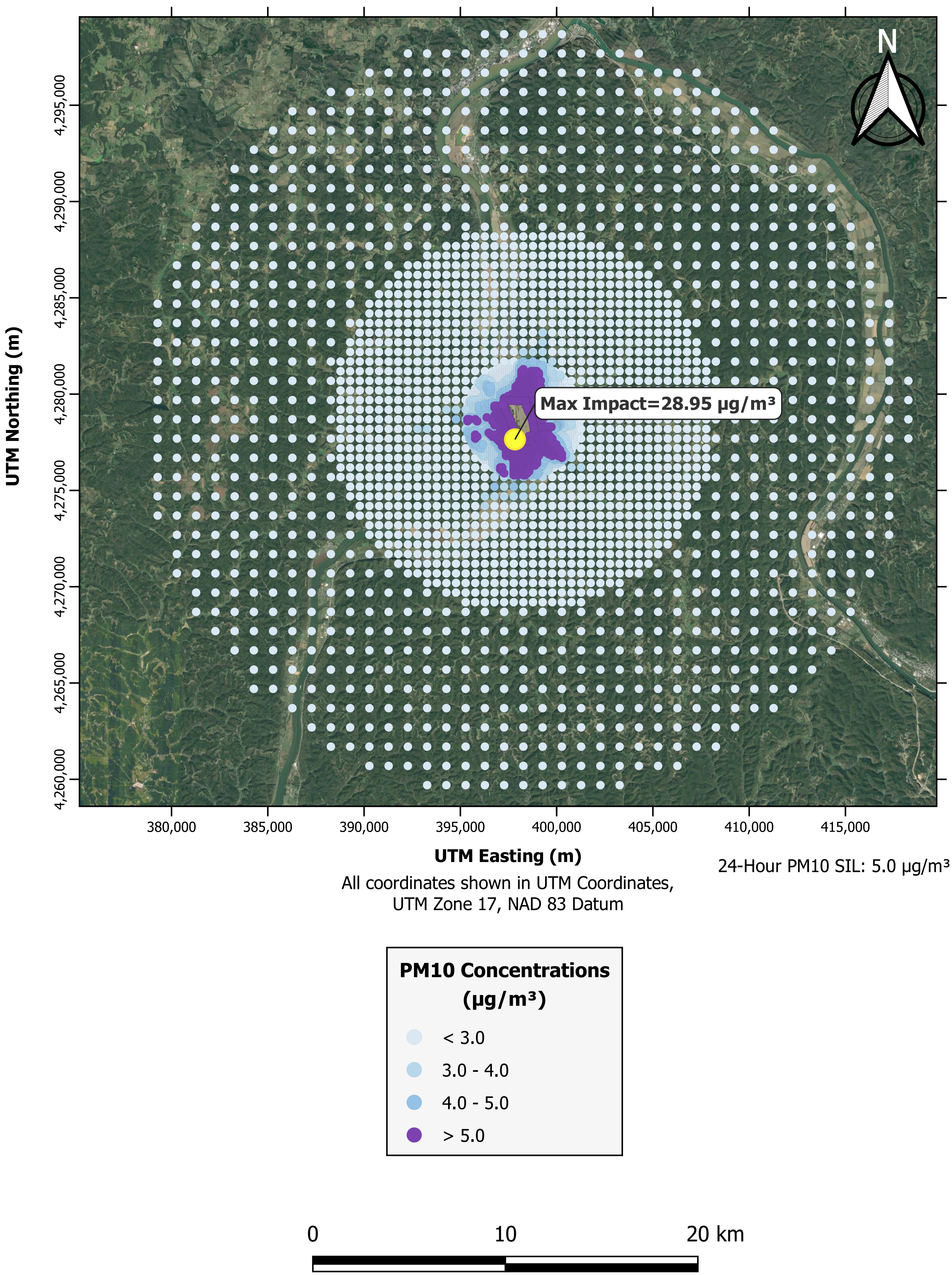
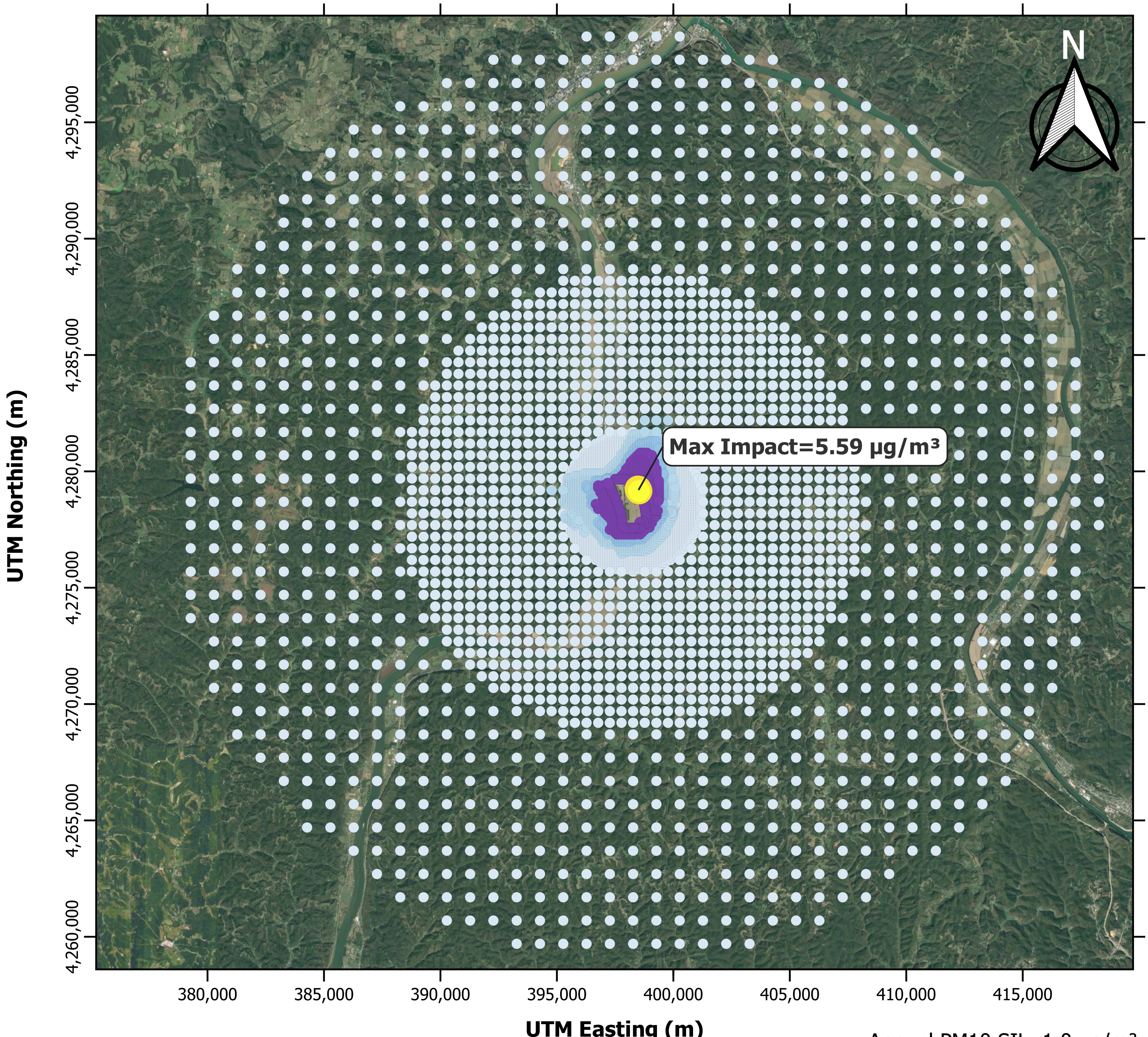


Figure A-12. Annual PM10 SIL Impacts



All coordinates shown in UTM Coordinates,
UTM Zone 17, NAD 83 Datum

Annual PM10 SIL: 1.0 µg/m³

PM10 Concentrations (µg/m³)

- < 0.50
- 0.50 - 0.75
- 0.75 - 1.00
- > 1.00

0 10 20 km

APPENDIX B. NUCOR SOURCE PARAMETERS

Nucor West Virginia Mill
PSD Air Quality Analysis Report
Appendix A: Source Parameters and Emission Rates

Table B-1. Modeled Source ID Index

Model ID	Description	Source Type
BHST1	Furnace Baghouse #1	Point
BHST2	Furnace Baghouse #2	Point
EAFVF1	EAF Baghouse 1 Dust Silo	Point
EAFVF2	EAF Baghouse 2 Dust Silo	Point
TFST1	Hot Mill Tunnel Furnace 1	Point
RMBH	Rolling Mill	Point
TCMST1	Tandem Cold Mill Mist Eliminator	Point
CGLST1	CGL1 - Cleaning Section	Point
CGLST2	CGL1 - Passivation Section	Point
CGLST3	CGL2 - Cleaning Section	Point
CGLST4	CGL2 - Passivation Section	Point
SPMST123	Skin Pass Mill Baghouse #1 Skin Pass Mill Baghouse #2	Point
STM	Stand Alone Temper Mill	Point
GALVFN1	Galvanizing Furnace 1	Point
GALVFN2	Galvanizing Furnace 2	Point
PLST1	Pickling Line Mist Scrubber 1	Point
PKLSB	Pickle Line Scale Breaker Baghouse	Point
DRIDCK1	DRI Unloading Dock 1	Point
DRIDCK2	DRI Unloading Dock 2	Point
DRIVF1	DRI Silo 1 Baghouse	Point
DRIBV1	DRI Silo 1 Bin Vent	Point
DRIVF2	DRI Silo 2 Baghouse	Point
DRIBV2	DRI Silo 2 Bin Vent	Point
DRIVF3	DRI Silo 3 Baghouse	Point
DRIBV3	DRI Silo 3 Bin Vent	Point
DRIVF4	DRI Silo 4 Baghouse	Point
DRIBV4	DRI Silo 4 Bin Vent	Point
DRIDB1	DRI Day Bin 1	Point
DRIDB2	DRI Day Bin 2	Point
DRICONV	DRI Transfer Conveyors	Point
LIMEDUMP	Lime Dump Station	Point
CRBNDMP	Carbon Dump Station	Point
ALLYDMP	Alloy Handling Station	Point
LCB	Lime, Carbon, and Alloy Silos	Point
SLGCUTBH	Slag Cutting	Point
CT1	Melt Shop ICW Cooling Tower	Point
CT2	Melt Shop DCW Cooling Tower	Point
CT3	Rolling Mill ICW Cooling Tower	Point
CT4	Rolling Mill DCW Cooling	Point
CT5	Rolling Mill/Quench ACC Cooling	Point
CT6	Light Plate DCW	Point
CT7	Heavy Plate DCW	Point
CT8	Air Separation Cooling	Point
ASP1	Water Bath Vaporizer	Point
EMGEN1	Emergency Generator	Point
EMGEN2	Emergency Generator	Point
EMGEN3	Emergency Generator	Point

Nucor West Virginia Mill
PSD Air Quality Analysis Report
Appendix A: Source Parameters and Emission Rates

Table B-1. Modeled Source ID Index

Model ID	Description	Source Type
EMGEN4	Emergency Generator	Point
EMGEN5	Emergency Generator	Point
EMGEN6	Emergency Generator	Point
MSFUG1	Hot Mill Monovent - Melt Shop Fugitives + Casting Fugitives	
MSFUG2		
MSFUG3		
MSFUG4		
MSFUG5		
MSFUG6		
MSFUG7		
MSFUG8		
MSFUG9		
GALFUG1	Cold Mill Monovent - Annealing Furnaces	Volume
GALFUG2		Volume
GALFUG3		Volume
GALFUG4		Volume
GALFUG5		Volume
GALFUG6		Volume
GALFUG7		Volume
GALFUG8		Volume
GALFUG9		Volume
GALFUG10		Volume
GALFUG11		Volume
GALFUG12		Volume
GALFUG13		Volume
GALFUG14		Volume
GALFUG15		Volume
GALFUG16		Volume
GALFUG17		Volume
GALFUG18		Volume
SLGSKP	Slag Stockpiles	Volume
SCRPSKP1	Scrap Stockpile #1	Volume
SCRPSKP2	Scrap Stockpile #2	Volume
SCRPSKP3	Scrap Stockpile #3	Volume
ALLOYF	Alloy Handling Fugitives	Volume
CARBONF	Carbon Handling Fugitives	Volume
LIMEF	Lime Handling Fugitives	Volume
DRIDOCKF	DRI Dock Fugitives	Volume
BULKDRI1	DRI Silo 1 Loadout	Volume
BULKDRI2	DRI Silo 2 Loadout	Volume
SCRPDCK	Barge Scrap Unloading Fugitives	Volume
SCRPRAIL	Rail Scrap Unloading Fugitives	Volume
SCRPB34	Barge Scrap Pile Loading	Volume
SCRPB35	Barge Scrap Pile Loadout	Volume
SCRPB36	Rail Scrap Pile Loading	Volume
SCRPB37	Rail Scrap Pile Loadout	Volume
SCRPB38	Truck Scrap Pile Loading	Volume
SCRPB39	Truck Scrap Pile Loadout	Volume
SCRPB40	Scrap Charging	Volume

Table B-1. Modeled Source ID Index

Model ID	Description	Source Type
SLGPRCS	Slag Processing	Volume
SLAGCUTNG	Slag Cutting in Processing Area	Volume

Nucor West Virginia Mill
PSD Air Quality Analysis Report
Appendix A: Source Parameters and Emission Rates

Table B-2. Summary of Point Source Parameters

Point Sources

Emission Point ID	Description	UTM East m	UTM North m	Elevation m	Stack Height ft	Stack Temperature F	Stack Diameter ft	Flow rate cfm	Exit Velocity fps	Stack Height m	Stack Temperature K	Exit Velocity m/s	Stack Diameter m
Melt Shop Complex													
BHST1	Furnace Baghouse #1	398,168.90	4,277,941.80	171.11	213.25	260.33	23.36	1,541,096	59.93	65.00	400.00	18.27	7.12
BHST2	Furnace Baghouse #2	398,187.00	4,277,917.30	171.61	213.25	260.33	23.36	1,541,096	59.93	65.00	400.00	18.27	7.12
EAFVF1	EAF Baghouse 1 Dust Silo	398,208.20	4,277,957.70	172.61	114.83	Ambient	5.51	1,000	0.70	35.00	-0.1	0.21	1.68
EAFVF2	EAF Baghouse 2 Dust Silo	398,232.30	4,277,934.60	172.72	114.83	Ambient	5.51	1,000	0.70	35.00	-0.1	0.21	1.68
Hot Mill Complex													
TFST1	Hot Mill Tunnel Furnace 1	398,464.30	4,278,247.90	177.74	164.04	1075.73	6.00	77,182	45.50	50.00	853.00	13.87	1.83
RMBH	Rolling Mill	398,172.50	4,278,610.50	175.33	213.25	140.00	4.00	111,830	148.32	65.00	333.15	45.21	1.22
Cold Mill Complex													
TCMST1	Tandem Cold Mill Mist Eliminator	397,988.70	4,279,059.70	175.92	213.25	100.13	5.00	217,774	184.85	65.00	311.00	56.34	1.52
CGLST1	CGL1 - Cleaning Section	398,230.30	4,279,074.00	177.05	150.00	139.73	2.07	7,063	35.08	45.72	333.00	10.69	0.63
CGLST2	CGL1 - Passivation Section	398,249.10	4,279,082.40	176.94	150.00	139.73	2.07	8,829	43.85	45.72	333.00	13.37	0.63
CGLST3	CGL2 - Cleaning Section	398,287.00	4,278,983.30	176.36	150.00	139.73	2.07	7,063	35.08	45.72	333.00	10.69	0.63
CGLST4	CGL2 - Passivation Section	398,304.90	4,278,936.30	176.31	150.00	139.73	2.07	8,829	43.85	45.72	333.00	13.37	0.63
SPMST123	Skin Pass Mill Baghouse #1 Skin Pass Mill Baghouse #2	398,306.20	4,279,199.30	176.67	213.25	90.05	4.00	52,972	70	65.00	305.40	21.41	1.22
STM	Stand Alone Temper Mill	398,355.40	4,278,964.50	176.83	150.00	90.00	4.00	42,378	56	45.72	305.37	17.13	1.22
GALVFN1	Galvanizing Furnace 1	398,230.20	4,279,013.50	176.92	150.00	440.33	5.25	19,303	14.87	45.72	500.00	4.53	1.60
GALVFN2	Galvanizing Furnace 2	398,284.60	4,279,038.50	176.32	150.00	440.33	5.25	19,303	14.87	45.72	500.00	4.53	1.60
PLST1	Pickling Line Mist Scrubber 1	398,161.50	4,278,797.70	175.62	150.00	343.00	2.95	10,930	26.65	45.72	445.93	8.12	0.90
PKLSB	Pickle Line Scale Breaker Baghouse	398,119.00	4,278,937.10	175.53	213.25	Ambient	4.92	52,972	46.41	65.00	-0.1	14.15	1.50
Material Handling													
DRIDCK1	DRI Unloading Dock 1	397861.60	4277673.80	160.87	20.00	Ambient	1.50	2,000	18.86	6.10	-0.1	5.75	0.46
DRIDCK2	DRI Unloading Dock 2	397865.70	4277665.10	160.87	20.00	Ambient	1.50	2,000	18.86	6.10	-0.1	5.75	0.46
DRIVF1	DRI Silo 1 Baghouse	398236.60	4277792.70	171.83	120.00	Ambient	3.00	1,200	2.83	36.58	-0.1	0.86	0.91
DRIBV1	DRI Silo 1 Bin Vent	398243.90	4277792.70	172.05	93.00	Ambient	0.30	148	34.90	28.35	-0.1	10.64	0.09
DRIVF2	DRI Silo 2 Baghouse	398240.80	4277770.40	171.62	120.00	Ambient	3.00	1,200	2.83	36.58	-0.1	0.86	0.91
DRIBV2	DRI Silo 2 Bin Vent	398248.90	4277771.50	171.91	93.00	Ambient	0.30	148	34.90	28.35	-0.1	10.64	0.09
DRIVF3	DRI Silo 3 Baghouse	398257.30	4277798.10	172.34	120.00	Ambient	3.00	1,200	2.83	36.58	-0.1	0.86	0.91
DRIBV3	DRI Silo 3 Bin Vent	398264.70	4277798.10	172.44	93.00	Ambient	0.30	148	34.90	28.35	-0.1	10.64	0.09
DRIVF4	DRI Silo 4 Baghouse	398261.80	4277775.90	172.36	120.00	Ambient	3.00	1,200	2.83	36.58	-0.1	0.86	0.91
DRIBV4	DRI Silo 4 Bin Vent	398269.30	4277776.30	172.44	93.00	Ambient	0.30	148	34.90	28.35	-0.1	10.64	0.09
DRIDB1	DRI Day Bin 1	398387.80	4278045.20	176.32	146.00	Ambient	1.00	1,200	25.46	44.50	-0.1	7.76	0.30
DRIDB2	DRI Day Bin 2	398420.20	4278057.40	175.00	146.00	Ambient	1.00	1,200	25.46	44.50	-0.1	7.76	0.30
DRICONV	DRI Transfer Conveyors	398368.00	4277982.00	175.85	110.00	Ambient	1.00	1,200	25.46	33.53	-0.1	7.76	0.30
LIMEDUMP	Lime Dump Station	398225.70	4278083.00	172.93	50.00	Ambient	0.67	2,000	95.40	15.24	-0.1	29.08	0.20
CRBNDMP	Carbon Dump Station	398219.80	4278079.80	172.76	50.00	Ambient	0.67	2,000	95.40	15.24	-0.1	29.08	0.20
ALLYDMP	Alloy Handling Station	398235.90	4278088.10	173.25	40.00	Ambient	0.67	3,800	181.26	12.19	-0.1	55.25	0.20
LCB	Lime, Carbon, and Alloy Silos	398323.80	4278180.10	176.76	213.25	Ambient	6.00	38,000	22.40	65.00	-0.1	6.83	1.83
SLGCUTBH	Slag Cutting	398569.40	4278040.20	177.34	80.00	119.93	6.00	100,000	58.87	24.38	322.00	17.94	1.83
Misc.													
CT1	Melt Shop ICW Cooling Tower	398528.90	4278390.70	178.38	41.24	120.00	34.00	1,157,894	21.26	12.57	322.04	6.48	10.36
CT2	Melt Shop DCW Cooling Tower	398517.30	4278421.90	178.52	31.92	120.00	16.00	252,156	20.90	9.73	322.04	6.37	4.88
CT3	Rolling Mill ICW Cooling Tower	398397.40	4278672.00	177.41	27.92	120.00	16.00	318,139	26.37	8.51	322.04	8.04	4.88
CT4	Rolling Mill DCW Cooling	398341.20	4278660.90	176.67	39.90	120.00	24.00	561,317	20.68	12.16	322.04	6.30	7.32
CT5	Rolling Mill/Quench ACC Cooling	398363.90	4278673.40	177.10	39.90	120.00	34.00	1,237,843	22.72	12.16	322.04	6.93	10.36
CT6	Light Plate DCW	398445.10	4278786.60	178.13	39.90	120.00	18.00	310,000	20.30	12.16	322.04	6.19	5.49
CT7	Heavy Plate DCW	398460.20	4278793.70	178.17	10.63	120.00	14.00	200,000	21.65	3.24	322.04	6.60	4.27
CT8	Air Separation Cooling	399048.10	4278662.70	180.78	29.27	120.00	20.00	400,000	21.22	8.92	322.04	6.47	6.10
ASP1	Water Bath Vaporizer	399049.40	4278688.50	180.20	20.00	400.00	1.00	2,726	57.85	6.10	477.59	17.63	0.30
EMGEN1	Emergency Generator	398272.10	4278066.50	174.42	10.00	997.00	0.49	1,177	104.04	3.05	809.26	31.71	0.15

Table B-2. Summary of Point Source Parameters

Point Sources

Emission Point ID	Description	UTM East	UTM North	Elevation	Stack Height	Stack Temperature	Stack Diameter	Flow rate	Exit Velocity	Stack Height	Stack Temperature	Exit Velocity	Stack Diameter
		m	m	m	ft	F	ft	cfm	fps	m	K	m/s	m
EMGEN2	Emergency Generator	398352.80	4278485.80	175.53	10.00	997.00	0.49	1,177	104.04	3.05	809.26	31.71	0.15
EMGEN3	Emergency Generator	398348.30	4278499.30	175.53	10.00	997.00	0.49	1,177	104.04	3.05	809.26	31.71	0.15
EMGEN4	Emergency Generator	398231.20	4278844.80	175.63	10.00	997.00	0.49	1,177	104.04	3.05	809.26	31.71	0.15
EMGEN5	Emergency Generator	398235.70	4278820.70	175.59	10.00	997.00	0.49	1,177	104.04	3.05	809.26	31.71	0.15
EMGEN6	Emergency Generator	398243.10	4278800.90	175.61	8.00	965.00	1.30	1,177	14.78	2.44	791.48	4.51	0.40

Notes:

All coordinates are Universal Transverse Mercator (UTM) coordinates based on North American Datum 1983 (NAD 83) and reside within UTM Zone 17.

Nucor West Virginia Mill
PSD Air Quality Analysis Report
Appendix A: Source Parameters and Emission Rates

Table B-3. Summary of Volume Source Parameters

Volume Sources

Emission Point ID	Description	Number of Sources	UTM East (m)	UTM North (m)	Elevation (m)	Type of Volume Source	Length (m)	Width (m)	Volume Source Length (m)	Vertical Dimension (m)	Building Height (m)	Release Height (m)	Initial Lateral Dimension (m)	Initial Vertical Dimension (m)
MSFUG1	Hot Mill Monovent - Melt Shop Fugitives + Casting Fugitives	9	398,405.00	4,278,123.50	175	Elevated Source on or Adjacent to a Building	90	10	30	--	42.67	44.17	6.98	21.24
MSFUG2			398,417.20	4,278,129.10	175	Elevated Source on or Adjacent to a Building	90	10	30	--	42.67	44.17	6.98	21.24
MSFUG3			398,430.30	4,278,134.60	175	Elevated Source on or Adjacent to a Building	90	10	30	--	42.67	44.17	6.98	21.24
MSFUG4			398,443.10	4,278,139.50	175	Elevated Source on or Adjacent to a Building	90	10	30	--	42.67	44.17	6.98	21.24
MSFUG5			398,456.00	4,278,144.70	176	Elevated Source on or Adjacent to a Building	90	10	30	--	42.67	44.17	6.98	21.24
MSFUG6			398,467.80	4,278,150.30	177	Elevated Source on or Adjacent to a Building	90	10	30	--	42.67	44.17	6.98	21.24
MSFUG7			398,480.60	4,278,155.60	177	Elevated Source on or Adjacent to a Building	90	10	30	--	42.67	44.17	6.98	21.24
MSFUG8			398,492.60	4,278,160.50	178	Elevated Source on or Adjacent to a Building	90	10	30	--	42.67	44.17	6.98	21.24
MSFUG9			398,503.40	4,278,164.80	178	Elevated Source on or Adjacent to a Building	90	10	30	--	42.67	44.17	6.98	21.24
GALFUG1	Cold Mill Monovent - Annealing Furnaces	18	398,221.90	4,279,111.40	177	Elevated Source on or Adjacent to a Building	90	10	30	--	30.48	31.98	6.98	15.57
GALFUG2			398,224.80	4,279,099.80	177	Elevated Source on or Adjacent to a Building	90	10	30	--	30.48	31.98	6.98	15.57
GALFUG3			398,230.10	4,279,089.00	177	Elevated Source on or Adjacent to a Building	90	10	30	--	30.48	31.98	6.98	15.57
GALFUG4			398,234.80	4,279,077.00	177	Elevated Source on or Adjacent to a Building	90	10	30	--	30.48	31.98	6.98	15.57
GALFUG5			398,240.30	4,279,065.20	177	Elevated Source on or Adjacent to a Building	90	10	30	--	30.48	31.98	6.98	15.57
GALFUG6			398,244.90	4,279,052.60	177	Elevated Source on or Adjacent to a Building	90	10	30	--	30.48	31.98	6.98	15.57
GALFUG7			398,250.40	4,279,039.20	177	Elevated Source on or Adjacent to a Building	90	10	30	--	30.48	31.98	6.98	15.57
GALFUG8			398,255.10	4,279,028.70	177	Elevated Source on or Adjacent to a Building	90	10	30	--	30.48	31.98	6.98	15.57
GALFUG9			398,259.60	4,279,017.20	177	Elevated Source on or Adjacent to a Building	90	10	30	--	30.48	31.98	6.98	15.57
GALFUG10			398,269.50	4,278,989.00	177	Elevated Source on or Adjacent to a Building	90	10	30	--	30.48	31.98	6.98	15.57
GALFUG11			398,273.60	4,278,977.00	176	Elevated Source on or Adjacent to a Building	90	10	30	--	30.48	31.98	6.98	15.57
GALFUG12			398,278.00	4,278,965.60	176	Elevated Source on or Adjacent to a Building	90	10	30	--	30.48	31.98	6.98	15.57
GALFUG13			398,283.60	4,278,953.90	176	Elevated Source on or Adjacent to a Building	90	10	30	--	30.48	31.98	6.98	15.57
GALFUG14			398,288.50	4,278,942.50	176	Elevated Source on or Adjacent to a Building	90	10	30	--	30.48	31.98	6.98	15.57
GALFUG15			398,293.10	4,278,931.10	176	Elevated Source on or Adjacent to a Building	90	10	30	--	30.48	31.98	6.98	15.57
GALFUG16			398,297.40	4,278,918.10	176	Elevated Source on or Adjacent to a Building	90	10	30	--	30.48	31.98	6.98	15.57
GALFUG17			398,302.10	4,278,906.80	176	Elevated Source on or Adjacent to a Building	90	10	30	--	30.48	31.98	6.98	15.57
GALFUG18			398,308.10	4,278,894.10	176	Elevated Source on or Adjacent to a Building	90	10	30	--	30.48	31.98	6.98	15.57
SLGSKP	Slag Stockpiles	1	398,575.50	4,278,032.30	177	Surface Base	110	110	110	6	--	3.05	25.62	2.84
SCRPSKP1	Scrap Stockpile #1	3	398,010.50	4,278,458.00	173	Surface Base	50	50	50	6	--	3.05	11.71	2.84
SCRPSKP2	Scrap Stockpile #2		397,991.30	4,278,286.90	171	Surface Base	50	50	50	6	--	3.05	11.71	2.84
SCRPSKP3	Scrap Stockpile #3		397,992.80	4,278,078.50	171	Surface Base	50	50	50	6	--	3.05	11.71	2.84
ALLOYF	Alloy Handling Fugitives	1	398,233.20	4,278,086.00	173	Surface Base	3.5	14.0	7	5	--	4.57	1.62	2.13
CARBONF	Carbon Handling Fugitives	1	398,218.20	4,278,077.80	173	Surface Base	1.1	2.1	2	1	--	1.39	0.35	0.65
LIMEF	Lime Handling Fugitives	1	398,224.30	4,278,081.60	173	Surface Base	1.1	2.1	2	1	--	1.39	0.35	0.65
DRIDOCKF	DRI Dock Fugitives	1	397,863.90	4,277,668.90	161	Surface Base	2.3	3.5	3	6	--	6.10	0.66	2.84
BULKDRI1	DRI Silo 1 Loadout	1	398,227.80	4,277,788.90	171	Surface Base	1.9	1.9	2	4	--	3.66	0.43	1.70
BULKDRI2	DRI Silo 2 Loadout	1	398,232.40	4,277,764.40	171	Surface Base	1.9	1.9	2	4	--	3.66	0.43	1.70
SCRPDCK	Barge Scrap Unloading Fugitives	1	397,861.70	4,277,834.30	164	Surface Base	3.5	7.0	5	5	--	4.57	1.15	2.13
SCRPRAIL	Rail Scrap Unloading Fugitives	1	398,109.80	4,278,186.20	172	Surface Base	3	7	5	5	--	4.57	1.15	2.13
SCRPB34	Barge Scrap Pile Loading	1	398,091.10	4,278,225.30	172	Surface Base	3	7	5	5	--	4.57	1.15	2.13
SCRPB35	Barge Scrap Pile Loadout	1	398,090.20	4,278,245.20	173	Surface Base	3	7	5	5	--	4.57	1.15	2.13
SCRPB36	Rail Scrap Pile Loading	1	398,090.30	4,278,273.10	173	Surface Base	3	7	5	5	--	4.57	1.15	2.13
SCRPB37	Rail Scrap Pile Loadout	1	398,082.30	4,278,307.20	173	Surface Base	3	7	5	5	--	4.57	1.15	2.13
SCRPB38	Truck Scrap Pile Loading	1	398,075.00	4,278,325.70	173	Surface Base	3	7	5	5	--	4.57	1.15	2.13
SCRPB39	Truck Scrap Pile Loadout	1	398,067.80	4,278,350.20	173	Surface Base	3	7	5	5	--	4.57	1.15	2.13

Table B-3. Summary of Volume Source Parameters

Volume Sources

Emission Point ID	Description	Number of Sources	UTM East	UTM North	Elevation	Type of Volume Source	Length	Width	Volume Source Length	Vertical Dimension	Building Height	Release Height	Initial Lateral Dimension	Initial Vertical Dimension
			m	m	m		m	m	m	m	m	m	m	m
SCRPB40	Scrap Charging	1	398,071.70	4,278,277.10	172	Surface Base	3	7	5	5	--	4.57	1.15	2.13
SLGPRCS	Slag Processing	1	398,438.80	4,278,010.10	175	Elevated Source not on or Adjacent to a Building	157	127	141	35	--	10.67	32.85	8.14
SLAGCUTNG	Slag Cutting in Processing Area	1	398,492.20	4,278,031.00	176	Elevated Source not on or Adjacent to a Building	61	61	61	3	--	3.05	14.18	0.71

Notes:
All coordinates are Universal Transverse Mercator (UTM) coordinates based on North American Datum 1983 (NAD 83) and reside within UTM Zone 17.

Nucor West Virginia Mill
PSD Air Quality Analysis Report
Appendix A: Flare Parameters

Table B-4. Summary of Flare Parameters

Flare Sources

Emission Point ID	Description	UTM East	UTM North	Elevation	Heat Release	Heat Loss	Stack Height	Stack Temperature	Stack Diameter	Flow rate	Exit Velocity	Effective Stack Height	Stack Temperature	Exit Velocity	Stack Diameter
		m	m	m	Cal/s	--	ft	F	ft	cfm	fps	m	K	m/s	m
Melt Shop Complex															
VTDST1	Vacuum Tank Degasser Flare 1	398,350.80	4,278,065.50	176.16	865996	0.55	150.00	1831.73	0.62	--	65.62	48.86	1273.00	20.00	0.19
VTDST2	Vacuum Tank Degasser Flare 2	398,331.50	4,278,112.20	176.47	865996	0.55	150.00	1831.73	0.62	--	65.62	48.86	1273.00	20.00	0.19

Notes:
Flare parameters were calculated in accordance with Section 2.1.2. of "AERSCREEN User's Guide, April 2021"

Table B-5. Summary of Volume Source Parameters and Emission RatesFor Roadways

Volume Sources

Emission Point ID	Description	Number of Volume Sources	Truck Width	Truck Height	Width of Plume	Top of Plume Height	Initial Lateral Dimension	Initial Vertical Dimension	Release Height	PM_{10}		$PM_{2.5}$	
			m	m	m	m	m	m	m	ST (g/s)	LT (g/s)	ST (g/s)	LT (g/s)
FUGD-PAVED	Paved Roads 1 to 10	455	3.0	3.0	18	5.10	8.37	2.37	2.55	0.000737	0.000737	0.000119	0.000119
FUGD-UNPAVED	Unpaved Roads 11 to 19												

Notes:
Typical haul truck width (3.0 m) and height (3.0 m) taken from U.S. EPA's Haul Road Workgroup Final Report (12/2011).

Nucor West Virginia Mill
PSD Air Quality Analysis Report
Appendix A: Source Parameters and Emission Rates

Table B-6. Summary of Modeled Point Source and Flare Source Emission Rates

Point Sources

Emission Point ID	Description	NO_2		SO_2		CO	PM_{10}		$PM_{2.5}$		Lead	NO_2		SO_2		CO	PM_{10}		$PM_{2.5}$		Lead
		ST (lb/hr)	LT (tpy)	ST (lb/hr)	LT (tpy)	ST (lb/hr)	ST (lb/hr)	LT (tpy)	ST (lb/hr)	LT (tpy)	LT (tpy)	ST (g/s)	LT (g/s)	ST (g/s)	LT (g/s)	ST (g/s)	ST (g/s)	LT (g/s)	ST (g/s)	LT (g/s)	LT (g/s)
Melt Shop Complex																					
BHST1	Furnace Baghouse #1	56.86	249.38	38.99	171.00	328.15	49.19	215.45	49.19	215.45	0.32	7.163924	7.173681	4.912405	4.919095	41.346079	6.197805	6.197805	6.197805	6.197805	9.223E-03
BHST2	Furnace Baghouse #2	56.86	249.38	38.99	171.00	328.15	49.19	215.45	49.19	215.45	0.32	7.163924	7.173681	4.912405	4.919095	41.346079	6.197805	6.197805	6.197805	6.197805	9.223E-03
VTDST1	Vacuum Tank Degasser Flare 1	0.84	3.69	0.01	0.03	5.38	0.07	0.33	0.07	0.33	--	0.105998	0.106142	0.000917	0.000918	0.677239	0.009435	0.009448	0.009435	0.009448	--
VTDST2	Vacuum Tank Degasser Flare 2	0.84	3.69	0.01	0.03	5.38	0.07	0.33	0.07	0.33	--	0.105998	0.106142	0.000917	0.000918	0.677239	0.009435	0.009448	0.009435	0.009448	--
EAFVF1	EAF Baghouse 1 Dust Silo	--	--	--	--	--	0.09	0.38	0.09	0.38	--	--	--	--	--	--	0.010800	0.010800	0.010800	0.010800	--
EAFVF2	EAD Baghouse 2 Dust Silo	--	--	--	--	--	0.09	0.38	0.09	0.38	--	--	--	--	--	--	0.010800	0.010800	0.010800	0.010800	--
Hot Mill Complex																					
TFST1	Hot Mill Tunnel Furnace 1	10.50	45.99	0.09	0.39	12.35	1.12	4.90	1.12	4.90	0.00	1.322978	1.322978	0.011117	0.011117	1.556444	0.140821	0.140821	0.140821	0.140821	9.265E-06
TFST2	Hot Mill Tunnel Furnace 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RMBH	Rolling Mill	--	--	--	--	--	10.09	44.19	5.04	22.10	--	--	--	--	--	--	1.271311	1.271311	0.635656	0.635656	--
Cold Mill Complex																					
TCMST1	Tandem Cold Mill Mist Eliminator	--	--	--	--	--	11.44	50.09	11.44	50.09	--	--	--	--	--	--	1.440986	1.440986	1.440986	1.440986	--
CGLST1	CGL1 - Cleaning Section	--	--	--	--	--	0.16	0.69	0.16	0.69	--	--	--	--	--	--	0.019840	0.019840	0.019840	0.019840	--
CGLST2	CGL1 - Passivation Section	--	--	--	--	--	0.24	1.05	0.24	1.05	--	--	--	--	--	--	0.030293	0.030293	0.030293	0.030293	--
CGLST3	CGL2 - Cleaning Section	--	--	--	--	--	0.16	0.69	0.16	0.69	--	--	--	--	--	--	0.019840	0.019840	0.019840	0.019840	--
CGLST4	CGL2 - Passivation Section	--	--	--	--	--	0.24	1.05	0.24	1.05	--	--	--	--	--	--	0.030293	0.030293	0.030293	0.030293	--
SPMST123	Skin Pass Mill Baghouse #1 Skin Pass Mill Baghouse #2 Skin Pass Mill Baghouse #3	--	--	--	--	--	4.21	18.46	2.11	9.23	-- -- --	--	--	--	--	--	0.531077	0.531077	0.265539	0.265539	-- -- --
STM	Stand Alone Temper Mill	--	--	--	--	--	0.93	4.05	0.50	2.20	--	--	--	--	--	--	0.116638	0.116638	0.063179	0.063179	--
GALVFN1	Galvanizing Furnace 1	3.20	14.02	0.04	0.16	5.27	0.48	2.09	0.48	2.09	0.00	0.403193	0.403193	0.004743	0.004743	0.664083	0.060084	0.060084	0.060084	0.060084	3.953E-06
GALVFN2	Galvanizing Furnace 2	3.20	14.02	0.04	0.16	5.27	0.48	2.09	0.48	2.09	0.00	0.403193	0.403193	0.004743	0.004743	0.664083	0.060084	0.060084	0.060084	0.060084	3.953E-06
PLST1	Pickling Line Mist Scrubber 1	--	--	--	--	--	0.62	2.70	0.62	2.70	--	--	--	--	--	--	0.077597	0.077597	0.077597	0.077597	--
PLST2	Pickling Line Mist Scrubber 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PKLSB	Pickle Line Scale Breaker Baghouse	--	--	--	--	--	1.36	5.97	1.36	5.97	--	--	--	--	--	--	0.171626	0.171626	0.171626	0.171626	--
Material Handling																					
DRIDCK1	DRI Unloading Dock 1	--	--	--	--	--	0.02	0.08	0.01	0.04	--	--	--	--	--	--	0.002160	0.002160	0.001058	0.001058	--
DRIDCK2	DRI Unloading Dock 2	--	--	--	--	--	0.02	0.08	0.01	0.04	--	--	--	--	--	--	0.002160	0.002160	0.001058	0.001058	--
DRIVF1	DRI Silo 1 Baghouse	--	--	--	--	--	0.01	0.05	0.01	0.02	--	--	--	--	--	--	0.001296	0.001296	0.000635	0.000635	--
DRIBV1	DRI Silo 1 Bin Vent	--	--	--	--	--	0.00	0.01	0.00	0.00	--	--	--	--	--	--	0.000160	0.000160	0.000078	0.000078	--
DRIVF2	DRI Silo 2 Baghouse	--	--	--	--	--	0.01	0.05	0.01	0.02	--	--	--	--	--	--	0.001296	0.001296	0.000635	0.000635	--
DRIBV2	DRI Silo 2 Bin Vent	--	--	--	--	--	0.00	0.01	0.00	0.00	--	--	--	--	--	--	0.000160	0.000160	0.000078	0.000078	--
DRIVF3	DRI Silo 3 Baghouse	--	--	--	--	--	0.01	0.05	0.01	0.02	--	--	--	--	--	--	0.001296	0.001296	0.000635	0.000635	--
DRIBV3	DRI Silo 3 Bin Vent	--	--	--	--	--	0.00	0.01	0.00	0.00	--	--	--	--	--	--	0.000160	0.000160	0.000078	0.000078	--
DRIVF4	DRI Silo 4 Baghouse	--	--	--	--	--	0.01	0.05	0.01	0.02	--	--	--	--	--	--	0.001296	0.001296	0.000635	0.000635	--
DRIBV4	DRI Silo 4 Bin Vent	--	--	--	--	--	0.00	0.01	0.00	0.00	--	--	--	--	--	--	0.000160	0.000160	0.000078	0.000078	--
DRIDB1	DRI Day Bin 1	--	--	--	--	--	0.01	0.05	0.01	0.02	--	--	--	--	--	--	0.001296	0.001296	0.000635	0.000635	--
DRIDB2	DRI Day Bin 2	--	--	--	--	--	0.01	0.05	0.01	0.02	--	--	--	--	--	--	0.001296	0.001296	0.000635	0.000635	--
DRICONV	DRI Transfer Conveyors	--	--	--	--	--	0.01	0.05	0.01	0.02	--	--	--	--	--	--	0.001296	0.001296	0.000635	0.000635	--
LIMEDUMP	Lime Dump Station	--	--	--	--	--	0.09	0.38	0.09	0.38	--	--	--	--	--	--	0.010800	0.010800	0.010800	0.010800	--
CRBNDMP	Carbon Dump Station	--	--	--	--	--	0.09	0.38	0.09	0.38	--	--	--	--	--	--	0.010800	0.010800	0.010800	0.010800	--
ALLYDMP	Alloy Handling Station	--	--	--	--	--	0.16	0.71	0.16	0.71	--	--	--	--	--	--	0.020520	0.020520	0.020520	0.020520	--
LCB	Lime, Carbon, and Alloy Silos	--	--	--	--	--	1.63	7.13	1.63	7.13	--	--	--	--	--	--	0.205197	0.205197	0.205197	0.205197	--
SLGCUTBH	Slag Cutting	--	--	--	--	--	0.86	3.75	0.86	3.75	--	--	--	--	--	--	0.107998	0.107998	0.107998	0.107998	--
Misc.																					
CT1	Melt Shop ICW Cooling Tower	--	--	--	--	--	0.20	0.86	0.20	0.86	--	--	--	--	--	--	0.024619	0.024619	0.024619	0.024619	--
CT2	Melt Shop DCW Cooling Tower	--	--	--	--	--	0.02	0.10	0.02	0.10	--	--	--	--	--	--	0.002793	0.002793	0.002793	0.002793	--
CT3	Rolling Mill ICW Cooling Tower	--	--	--	--	--	0.03	0.14	0.03	0.14	--	--	--	--	--	--	0.004024	0.004024	0.004024	0.004024	--
CT4	Rolling Mill DCW Cooling	--	--	--	--	--	0.09	0.37	0.09	0.37	--	--	--	--	--	--	0.010771	0.010771	0.010771	0.010771	--
CT5	Rolling Mill/Quench ACC Cooling	--	--	--	--	--	0.34	1.48	0.34	1.48	--	--	--	--	--	--	0.042609	0.042609	0.042609	0.042609	--
CT6	Light Plate DCW	--	--	--	--	--	0.03	0.13	0.03	0.13	--	--	--	--	--	--	0.003787	0.003787	0.003787	0.003787	--
CT7	Heavy Plate DCW	--	--	--	--	--	0.01	0.05	0.01	0.05	--	--	--	--	--	--	0.001420	0.001420	0.001420	0.001420	--
CT8	Air Separation Cooling	--	--	--	--	--	0.05	0.23	0.05	0.23	--	--	--	--	--	--	0.006628	0.006628	0.006628	0.006628	--
ASP1	Water Bath Vaporizer	1.08	4.72	0.01	0.03	0.91	0.08	0.36	0.08	0.36	0.00	0.135880	0.135880	0.000815	0.000815	0.114139	0.010327	0.010327	0.010327	0.010327	6.794E-07
EMGEN1	Emergency Generator	8.82	0.44	0.01	0.00	17.64	0.68	0.03	0.68	0.03	--	1.111111	0.012684	0.001037	0.000012	2.222222	0.085217	0.000973	0.085217	0.000973	--
EMGEN2	Emergency Generator	8.82	0.44	0.01	0.00	17.64	0.68	0.03	0.68	0.03	--	1.111111	0.012684	0.001037	0.000012	2.222222	0.085217	0.000973	0.085217	0.000973	--
EMGEN3	Emergency Generator	8.82	0.44	0.01	0.00	17.64	0.68	0.03	0.68	0.03	--	1.111111	0.012684	0.001037	0.000012	2.222222	0.085217	0.000973	0.085217	0.000973	--
EMGEN4	Emergency Generator	8.82	0.44	0.01	0.00	17.64	0.68	0.03	0.68	0.03	--	1.111111	0.012684	0.001037	0.000012	2.222222	0.085217	0.000973	0.085217	0.000973	--
EMGEN5	Emergency Generator	8.82	0.44	0.01	0.00	17.64	0.68	0.03	0.68	0.03	--	1.111111	0.012684	0.001037	0.000012	2.222222	0.085217	0.000973	0.085217	0.000973	--
EMGEN6	Emergency Generator	8.82	0.44	0.01	0.00	17.64	0.68	0.03	0.68	0.03	--	1.111111	0.012684	0.001037	0.000012	2.222222	0.085217	0.000973	0.085217	0.000973	--

Table B-7. Summary of Modeled Volume Source Emission Rates

Volume Sources

Emission Point ID	Description	Number of Sources	NO_2		SO_2		CO	PM_{10}		$PM_{2.5}$		Lead
			ST (g/s)	LT (g/s)	ST (g/s)	LT (g/s)	ST (g/s)	ST (g/s)	LT (g/s)	ST (g/s)	LT (g/s)	LT (g/s)
MSFUG1	Hot Mill Monovent - Melt Shop Fugitives + Casting Fugitives	9	0.284177	0.284291	0.058657	0.058736	0.651906	0.031236	0.031257	0.031236	0.031257	1.089E-04
MSFUG2			0.284177	0.284291	0.058657	0.058736	0.651906	0.031236	0.031257	0.031236	0.031257	1.089E-04
MSFUG3			0.284177	0.284291	0.058657	0.058736	0.651906	0.031236	0.031257	0.031236	0.031257	1.089E-04
MSFUG4			0.284177	0.284291	0.058657	0.058736	0.651906	0.031236	0.031257	0.031236	0.031257	1.089E-04
MSFUG5			0.284177	0.284291	0.058657	0.058736	0.651906	0.031236	0.031257	0.031236	0.031257	1.089E-04
MSFUG6			0.284177	0.284291	0.058657	0.058736	0.651906	0.031236	0.031257	0.031236	0.031257	1.089E-04
MSFUG7			0.284177	0.284291	0.058657	0.058736	0.651906	0.031236	0.031257	0.031236	0.031257	1.089E-04
MSFUG8			0.284177	0.284291	0.058657	0.058736	0.651906	0.031236	0.031257	0.031236	0.031257	1.089E-04
MSFUG9			0.284177	0.284291	0.058657	0.058736	0.651906	0.031236	0.031257	0.031236	0.031257	1.089E-04
GALFUG1	Cold Mill Monovent - Annealing Furnaces	18	0.038499	0.038499	0.000453	0.000453	0.063411	0.005737	0.005737	0.005737	0.005737	3.774E-07
GALFUG2			0.038499	0.038499	0.000453	0.000453	0.063411	0.005737	0.005737	0.005737	0.005737	3.774E-07
GALFUG3			0.038499	0.038499	0.000453	0.000453	0.063411	0.005737	0.005737	0.005737	0.005737	3.774E-07
GALFUG4			0.038499	0.038499	0.000453	0.000453	0.063411	0.005737	0.005737	0.005737	0.005737	3.774E-07
GALFUG5			0.038499	0.038499	0.000453	0.000453	0.063411	0.005737	0.005737	0.005737	0.005737	3.774E-07
GALFUG6			0.038499	0.038499	0.000453	0.000453	0.063411	0.005737	0.005737	0.005737	0.005737	3.774E-07
GALFUG7			0.038499	0.038499	0.000453	0.000453	0.063411	0.005737	0.005737	0.005737	0.005737	3.774E-07
GALFUG8			0.038499	0.038499	0.000453	0.000453	0.063411	0.005737	0.005737	0.005737	0.005737	3.774E-07
GALFUG9			0.038499	0.038499	0.000453	0.000453	0.063411	0.005737	0.005737	0.005737	0.005737	3.774E-07
GALFUG10			0.038499	0.038499	0.000453	0.000453	0.063411	0.005737	0.005737	0.005737	0.005737	3.774E-07
GALFUG11			0.038499	0.038499	0.000453	0.000453	0.063411	0.005737	0.005737	0.005737	0.005737	3.774E-07
GALFUG12			0.038499	0.038499	0.000453	0.000453	0.063411	0.005737	0.005737	0.005737	0.005737	3.774E-07
GALFUG13			0.038499	0.038499	0.000453	0.000453	0.063411	0.005737	0.005737	0.005737	0.005737	3.774E-07
GALFUG14			0.038499	0.038499	0.000453	0.000453	0.063411	0.005737	0.005737	0.005737	0.005737	3.774E-07
GALFUG15			0.038499	0.038499	0.000453	0.000453	0.063411	0.005737	0.005737	0.005737	0.005737	3.774E-07
GALFUG16			0.038499	0.038499	0.000453	0.000453	0.063411	0.005737	0.005737	0.005737	0.005737	3.774E-07
GALFUG17			0.038499	0.038499	0.000453	0.000453	0.063411	0.005737	0.005737	0.005737	0.005737	3.774E-07
GALFUG18			0.038499	0.038499	0.000453	0.000453	0.063411	0.005737	0.005737	0.005737	0.005737	3.774E-07
SLGSKP	Slag Stockpiles	1	--	--	--	--	--	0.029382	0.029382	0.004449	0.004449	--
SCRPSKP1	Scrap Stockpile #1	1	--	--	--	--	--	0.018467	0.018467	0.002796	0.002796	--
SCRPSKP2	Scrap Stockpile #2	1	--	--	--	--	--	0.018467	0.018467	0.002796	0.002796	--
SCRPSKP3	Scrap Stockpile #3	1	--	--	--	--	--	0.018467	0.018467	0.002796	0.002796	--
ALLOYF	Alloy Handling Fugitives	1	--	--	--	--	--	0.005481	0.001940	0.000830	0.000294	--
CARBONF	Carbon Handling Fugitives	1	--	--	--	--	--	0.001095	0.001095	0.000166	0.000166	--
LIMEF	Lime Handling Fugitives	1	--	--	--	--	--	0.002190	0.002190	0.000332	0.000332	--
DRIDOCKF	DRI Dock Fugitives	1	--	--	--	--	--	0.011669	0.001485	0.001767	0.000225	--
BULKDRI1	DRI Silo 1 Loadout	1	--	--	--	--	--	0.001485	0.001485	0.000225	0.000225	--
BULKDRI2	DRI Silo 2 Loadout	1	--	--	--	--	--	0.001485	0.001485	0.000225	0.000225	--
SCRPDCK	Barge Scrap Unloading Fugitives	1	--	--	--	--	--	0.011340	0.003115	0.003251	0.000893	--
SCRPRAIL	Rail Scrap Unloading Fugitives	1	--	--	--	--	--	0.003780	0.000415	0.001084	0.000119	--
SCRPB34	Barge Scrap Pile Loading	1	--	--	--	--	--	0.032643	0.008967	0.004943	0.001358	--
SCRPB35	Barge Scrap Pile Loadout	1	--	--	--	--	--	0.014961	0.008967	0.002266	0.001358	--
SCRPB36	Rail Scrap Pile Loading	1	--	--	--	--	--	0.006529	0.001196	0.000989	0.000181	--
SCRPB37	Rail Scrap Pile Loadout	1	--	--	--	--	--	0.014961	0.001196	0.002266	0.000181	--
SCRPB38	Truck Scrap Pile Loading	1	--	--	--	--	--	0.010881	0.001793	0.001648	0.000272	--
SCRPB39	Truck Scrap Pile Loadout	1	--	--	--	--	--	0.014961	0.001793	0.002266	0.000272	--
SCRPB40	Scrap Charging	1	--	--	--	--	--	0.011955	0.011955	0.001810	0.001810	--
SLGPRCS	Slag Processing	1	--	--	--	--	--	0.047838	0.019660	0.027472	0.011290	--
SLAGCUTNG	Slag Cutting in Processing Area	1	0.029647	0.029647	0.000178	0.000178	0.024903	0.002253	0.002253	0.002253	0.002253	1.482E-07

Table B-8. Summary of Modeled Buildings

Polygon Buildings

Building ID	Building Description	UTM East m	UTM North m	Elevation ft	Height ft
MISC	Misc. Building	398184.7000	4278053.2000	566.77	40.00

Circular Buildings

Building ID	Building Description	UTM East m	UTM North m	Elevation ft	Height ft	Radius ft
DRI3	DRI Silo #3	398261.4000	4277798.5000	565.62	130.00	30.00
DRI4	DRI Silo #4	398266.1000	4277777.4000	565.68	130.00	30.00
DRI1	DRI Silo #1	398240.3000	4277793.0000	564.24	130.00	30.00
DRI2	DRI Silo #2	398245.3000	4277772.0000	563.65	130.00	30.00
DRIDAY1	DRI Day Bin #1	398387.5000	4278045.3000	578.51	130.00	12.00
DRIDAY2	DRI Day Bin #2	398420.1000	4278057.8000	574.15	130.00	12.00
DRI_BIN	DRI Bin	398368.3000	4277982.2000	576.94	130.00	30.00

Rectangular Buildings

Building ID	Building Description	UTM East m	UTM North m	Elevation ft	Height ft	X Length ft	Y Length ft	Angle
MELT1	Meltshop Building #1	398564.4000	4278126.2000	582.97	140.00	361.22	908.14	-112.50
MELT2	Meltshop Building #2	398565.5000	4278279.3000	584.61	140.00	354.00	110.24	157.90
MELT3	Meltshop Building #3	398239.5000	4278697.9000	575.72	80.00	135.17	1777.56	157.90
MELT4	Meltshop Building #4	398165.6000	4278668.7000	575.53	80.00	1090.55	129.27	67.50
MELTBAG2	Meltshop Baghouse #2	398266.8000	4277959.6000	566.57	80.00	278.54	66.27	157.80
MELTBAG1	Meltshop Baghouse #1	398240.9000	4277984.3000	566.57	80.00	260.17	68.57	157.70
ADMIN	Admin Building	398598.1000	4278841.7000	584.97	40.00	124.02	186.35	157.80
COLD5	Cold Mill Building #5	398515.8000	4278890.3000	584.68	60.00	235.56	783.79	-111.80
COLD3	Cold Mill Building #3	398279.4000	4279202.7000	579.66	60.00	243.11	931.76	-111.90
COLD2	Cold Mill Building #2	398069.4000	4279115.8000	575.16	60.00	122.05	1384.84	157.90
COLD1	Cold Mill Building #1	397995.2000	4279086.0000	576.18	60.00	750.66	138.78	67.60
COLD6	Cold Mill Building #6	398095.0000	4279125.5000	576.35	60.00	102.36	327.43	156.70
COLD7	Cold Mill Water Treatment Building	398474.2000	4278790.7000	584.78	40.00	48.88	115.81	-110.30
ROLL1	Rolling Mill Water Treatment Building #1	398340.8000	4278679.6000	579.79	40.00	49.54	110.24	158.10
ROLL2	Rolling Mill Water Treatment Building #2	398363.7000	4278696.2000	581.27	40.00	44.62	130.91	158.50
ROLL3	Rolling Mill Water Treatment Building #3	398401.8000	4278681.3000	582.38	40.00	47.57	39.04	159.00
CASTER1	Caster Wastewater Treatment Building #1	398487.7000	4278486.0000	585.76	40.00	87.60	49.21	156.80
CASTER2	Caster Wastewater Treatment Building #2	398477.8000	4278435.9000	584.94	40.00	81.36	48.88	-20.40
CASTER3	Caster Wastewater Treatment Building #3	398490.8000	4278404.4000	585.86	40.00	201.12	51.84	-21.10
CASTER4	Caster Wastewater Treatment Building #4	398560.3000	4278396.9000	585.60	40.00	53.48	201.44	-113.10
COLD4	Cold Mill Building #4	398393.5000	4278917.5000	583.17	100.00	1010.17	445.21	-112.10

APPENDIX C. REGIONAL SOURCE PARAMETERS

Nucor West Virginia Steel Mill
PSD Air Dispersion Modeling
Regional Source Inventory

Table C-1. Significant Impact Area

Pollutant	Averaging Period	Distance (km)
NO_2	1-hr	29.22
	Annual	2.62
SO_2	1-hr	3.38
	3-hr	N/A-Below SIL
	24-hr	0.76 -No NAAQS
	Annual	N/A-Below SIL
CO	1-hour	N/A-Below SIL
	8-hour	N/A-Below SIL
$PM_{2.5}$	24-hr	9.71
	Annual	8.55
PM_{10}	24-hr	3.15
	Annual	2.01-No NAAQS
Lead	Rolling 3- Month Avg.	N/A-No SIL

Nucor West Virginia Steel Mill
PSD Air Dispersion Modeling
Regional Source Inventory

Table C-2. Summary of Proposed Sources

NAAQS

Facility ID	Name	1-hr NO_2	Annual NO_2	1-hr SO_2	24-hr $PM_{2.5}$	Annual $PM_{2.5}$	24-hr PM_{10}	Rolling 3-month Avg. Lead
54-053-00054	WV-APG Polytech LLC	X	X	X	X	X	X	
54-053-00007	WV-ICL-North America Inc - GALLIPOLIS FERRY PLANT	X						
54-079-00072	WV-TOYOTA MOTOR MANUFACTURING WV INC.	X						
54-079-00006	WV-APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	X	X					
54-053-00009	WV-APPALACHIAN POWER - MOUNTAINEER PLANT		X					
0627000046	OH-Shelly Liquid Division	X						
0664000074	OH-Shelly Material Plant 2 formerly Allied Corp Plant No 9	X						
0627000003	OH-Ohio Valley Electric Corp., Kyger Creek Station	X	X		X	X	X	X
0627010056	OH-General James M. Gavin Power Plant	X	X		X	X	X	X
2101900004	KY-MPLX Terminals LLC - Catlettsburg Refining		X					

Increment

Facility ID	Name	Annual NO_2	24-hr SO2	24-hr $PM_{2.5}$	Annual $PM_{2.5}$	24-hr PM_{10}	Annual PM_{10}
None							

Nucor West Virginia Steel Mill
PSD Air Dispersion Modeling
Regional Source Inventory

Table C-3. Full Screening Analysis

Facility ID	Name	UTM N (m)	UTM E (m)	State	Distance from Site (km)	2018						2019					
						NO_X	SO_2	CO	$PM_{2.5}$	PM_{10}	Lead	NO_X	SO_2	CO	$PM_{2.5}$	PM_{10}	Lead
54-053-00054	APG Polytech LLC	4,280,000	398,000	WV	1.2	--	--	--	--	--	--	26.70	0.53	18.81	5.17	5.17	1.87E-04
54-053-00007	ICL-North America Inc - GALLIPOLIS FERRY PLANT	4,292,000	396,000	WV	13.4	--	--	--	--	--	--	16.83	0.20	13.72	1.20	1.20	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	4,272,200	413,500	WV	16.5	--	--	--	--	--	--	17.27	0.01	43.97	12.45	21.86	5.00E-05
54-079-00105	ALLIED WASTE SYCAMORE LANDFILL, LLC	4,250,300	410,400	WV	31.0	--	--	--	--	--	--	2.52	0.49	13.71	0.26	0.26	--
54-079-00103	Waste Management - DISPOSAL SERVICE, INC. SANITARY LANDFILL	4,250,300	410,900	WV	31.2	--	--	--	--	--	--	0.90	0.21	4.12	7.65	9.21	--
54-011-00007	HUNTINGTON ALLOYS - A SPECIAL METALS CO.	4,252,300	379,200	WV	32.7	--	--	--	--	--	--	58.36	0.39	53.38	24.87	60.21	3.30E-04
54-011-00009	Steel Dynamics, Inc. - SWVA, INC.	4,253,700	375,000	WV	34.3	--	--	--	--	--	--	137.83	28.46	251.00	57.89	62.25	3.76E-01
54-079-00006	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	4,258,400	428,200	WV	36.1	--	--	--	--	--	--	4,666.81	3,517.65	993.29	72.71	97.60	5.53E-02
54-079-00046	Cranberry Pipeline Corporation - HEIZER COMPRESSOR STATION	4,263,990	432,480	WV	37.2	--	--	--	--	--	--	--	--	--	--	--	--
54-011-00062	BIMBO BAKERIES USA, INC.	4,252,400	370,900	WV	38.1	--	--	--	--	--	--	4.37	0.03	3.67	1.09	6.01	--
54-053-00004	Felman Production Inc. - NEW HAVEN PLANT	4,312,200	419,700	WV	39.6	--	--	--	--	--	--	7.78	115.56	462.22	14.42	37.60	3.29E-03
54-035-00049	Armstrong World Industries - Millwood Facility	4,307,000	427,200	WV	40.3	--	--	--	--	--	--	0.28	34.41	106.55	43.17	43.89	--
54-053-00009	APPALACHIAN POWER - MOUNTAINEER PLANT	4,314,700	419,000	WV	41.4	--	--	--	--	--	--	3,588.68	4,600.31	824.09	72.60	122.38	4.07E-02
54-035-00043	CONSTELLIUM ROLLED PRODUCTS - RAVENSWOOD	4,309,662	428,417	WV	43.0	--	--	--	--	--	--	130.52	0.56	78.32	42.85	42.85	--
54-035-00062	Columbia Gas - Mount Olive	4,287,900	441,400	WV	44.0	--	--	--	--	--	--	46.55	0.49	67.83	4.64	4.64	--
54-039-00047	Columbia Gas - LANHAM 4C4590	4,259,000	438,000	WV	44.3	--	--	--	--	--	--	14.14	0.01	2.51	0.38	0.38	--
54-099-00013	Columbia Gas - CEREDO 4C3360	4,248,000	366,000	WV	44.7	--	--	--	--	--	--	725.72	0.16	56.60	7.70	7.70	--
54-039-00005	UNION CARBIDE CORPORATION-INSTITUTE	4,248,800	431,900	WV	45.0	--	--	--	--	--	--	50.13	0.94	58.10	8.98	9.00	7.00E-04
54-099-00081	Appalachian Power Company - CEREDO ELECTRIC GENERATING STATION	4,247,500	366,000	WV	45.1	--	--	--	--	--	--	65.35	1.28	70.33	26.83	26.83	3.40E-02
54-039-00682	Specialty Products - Institute	4,248,754	432,189	WV	45.2	--	--	--	--	--	--	1.03	9.60E-04	4.98	0.04	0.04	--
54-099-00012	Cranberry Pipeline Corporation - BEECH FORK COMPRESSOR STATION	4,239,790	375,350	WV	45.3	--	--	--	--	--	--	3.52	8.00E-04	0.53	0.07	0.07	--
54-039-00692	Altivia - Institute	4,248,310	432,000	WV	45.4	--	--	--	--	--	--	25.75	0.47	27.42	3.87	3.90	3.00E-04
54-099-00022	MPLX Terminals LLC - KENOVA-TRISTATE TERMINAL	4,252,037	361,215	WV	45.8	--	--	--	--	--	--	--	--	--	--	--	--
54-099-00014	Columbia Gas - KENOVA 4C3350	4,248,000	361,000	WV	48.5	--	--	--	--	--	--	375.42	0.16	24.43	7.76	7.76	--
54-035-00003	Columbia Gas - RIPLEY 4C4560	4,303,563	440,150	WV	48.5	--	--	--	--	--	--	47.89	0.04	13.08	2.46	2.46	--
54-099-00009	ASHLAND LLC. - NEAL, WV	4,247,778	360,879	WV	48.7	--	--	--	--	--	--	0.69	0.22	339.47	0.42	0.42	--
54-099-00118	Marathon Petroleum - Neal Propane Cavern	4,247,736	360,688	WV	48.9	--	--	--	--	--	--	--	--	--	--	--	--
54-099-00112	Marathon Petroleum - Butane Cavern	4,247,200	360,600	WV	49.3	--	--	--	--	--	--	--	--	--	--	--	--
54-099-00010	BRASKEM AMERICA NEAL PLANT	4,246,300	360,600	WV	49.9	--	--	--	--	--	--	17.20	0.25	21.12	47.29	50.16	1.20E-04
54-043-00002	Columbia Gas - HUBBALL 4C4510	4,229,000	396,000	WV	49.9	--	--	--	--	--	--	22.77	0.03	3.63	0.05	0.05	--
54-099-00080	BIG SANDY PEAKER PLANT	4,245,000	360,900	WV	50.5	--	--	--	--	--	--	112.26	0.81	17.80	8.91	8.91	--
54-039-00011	Clearon Corp. - South Charleston Plant	4,246,600	438,300	WV	51.3	--	--	--	--	--	--	43.50	0.27	12.28	9.71	11.49	--
54-039-00618	Univation Technologies, LLC, South Charleston Catalyst Plant	4,245,454	438,402	WV	52.1	--	--	--	--	--	--	0.22	1.10E-03	0.53	0.05	0.05	--
54-039-00004	UNION CARBIDE CORPORATION - UCC TECHNOLOGY PARK OPERATIONS	4,245,700	438,700	WV	52.2	--	--	--	--	--	--	3.37	0.02	2.83	0.23	0.23	--
54-039-00102	Covestro LLC - SOUTH CHARLESTON	4,246,600	439,900	WV	52.6	--	--	--	--	--	--	3.13	--	1.00E-03	0.02	0.02	--
54-039-00003	UNION CARBIDE CORP -SO CHARLESTON FAC.	4,246,872	440,597	WV	52.9	--	--	--	--	--	--	63.99	0.48	50.84	5.35	5.35	4.00E-04

Nucor West Virginia Steel Mill
PSD Air Dispersion Modeling
Regional Source Inventory

Table C-3. Full Screening Analysis

Facility ID	Name	UTM N (m)	UTM E (m)	State	Distance from Site (km)	2018						2019					
						NO_X	SO_2	CO	$PM_{2.5}$	PM_{10}	Lead	NO_X	SO_2	CO	$PM_{2.5}$	PM_{10}	Lead
0627000046	Shelly Liquid Division	4,301,287	400,751	OH	22.6	7.73	0.05	6.49	55.85	56.44	--	7.73	0.05	6.49	57.27	57.86	--
0664000074	Shelly Material Plant 2 formerly Allied Corp Plant No 9	4,303,001	398,437	OH	24.2	--	--	--	--	--	--	0.92	0.08	6.37	--	--	8.00E-04
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	4,308,073	402,203	OH	29.5	6,665.68	4,970.10	636.57	669.68	725.03	4.60E-02	5,374.70	3,746.70	513.33	641.59	687.91	4.60E-02
0627010056	General James M. Gavin Power Plant	4,312,357	401,208	OH	33.6	8,053.06	27,591.88	1,609.84	1,234.48	2,044.02	2.50E-01	7,344.36	26,473.98	1,392.93	645.54	825.40	2.21E-01
0744010055	Ergon - Ironton LLC.	4,263,575	359,050	OH	42.2	--	--	--	--	--	--	--	--	--	--	--	--
0640010011	CEDAR HEIGHTS CLAY CO	4,304,456	363,285	OH	43.5	0.22	1.30E-03	0.18	3.32	3.32	--	0.18	1.10E-03	0.15	3.21	3.21	--
0744000168	McGinnis, Inc. - Sheridan Shipyard/Marine Ways	4,258,321	360,043	OH	43.5	--	--	--	--	--	--	--	--	--	--	--	--
0744000187	Superior Marine Ways - South Point	4,251,874	364,016	OH	43.7	--	--	--	--	--	--	--	--	--	--	--	--
0640010010	CEDAR HEIGHTS CLAY CO	4,305,501	363,496	OH	43.9	0.10	6.00E-04	0.08	0.40	0.40	--	0.09	5.00E-04	0.07	0.34	0.34	--
0640005007	Columbia Pipeline Group-Oak Hill Compressor Station	4,309,752	365,749	OH	45.0	37.99	0.31	51.32	2.94	2.94	--	18.98	0.19	31.19	3.12	3.12	--
0682000057	Rolling Hills Generating, LLC	4,327,457	384,638	OH	50.5	186.00	2.62	255.00	17.83	17.83	--	140.00	1.92	221.70	25.61	25.61	--
0773000222	Mae Materials LLC	4,297,633	349,834	OH	52.1	0.15	0.63	0.07	--	--	--	--	--	--	--	--	--
0744000150	Hanging Rock Energy Facility	4,270,785	344,622	OH	54.4	269.66	20.03	78.09	175.12	190.46	--	294.70	21.13	84.76	184.79	200.21	--
0744000173	Americas Styrenics	4,271,137	343,999	OH	54.9	7.19	3.66	5.07	0.53	0.57	--	6.71	3.61	3.13	0.49	0.53	--
0640025002	Blackstone Asphalt Inc	4,328,332	370,515	OH	56.8	1.57	0.21	7.19	--	1.69	--	1.57	0.21	7.19	--	1.69	--
0773000080	ALTIVIA Petrochemicals, LLC	4,273,035	341,544	OH	57.1	25.80	0.12	16.91	22.90	22.90	--	72.28	0.33	44.88	25.42	25.42	--
0773000182	Haverhill Coke Company LLC	4,274,031	341,079	OH	57.5	753.77	1,898.88	60.72	208.39	232.49	3.70E-01	749.98	1,700.13	44.72	240.61	266.02	2.50E-01
0660010027	Mar-Zane Plant No 10	4,332,892	375,143	OH	58.8	--	--	--	--	--	--	0.25	0.08	0.37	0.01	0.18	--
0640020059	Beech Hollow Landfill	4,332,695	372,900	OH	59.6	--	--	6.41	6.84	18.58	--	--	--	6.48	6.22	16.41	--
2101900027	AK Steel Corp - Coke Plant	4,258,177	359,483	KY	44.1	--	--	--	0.03	0.25	--	--	--	--	0.03	0.25	--
2101900003	CRHC Mansbach Metal LLC	4,260,022	357,988	KY	44.6	--	--	--	1.28	3.28	--	--	--	--	1.28	3.30	--
2101900125	Verizon Wireless - Ashland SE Cell Tower Engine	4,258,336	358,655	KY	44.7	PTE-0.65	PTE-0.04	PTE-0.14	PTE-0.05	PTE-0.05	--	PTE-0.65	PTE-0.04	PTE-0.14	PTE-0.05	PTE-0.05	--
2101900110	Valvoline LLC	4,259,998	357,600	KY	44.9	2.91	0.07	13.75	0.03	0.03	--	1.16	0.06	14.56	PTE-0.2	PTE-0.43	--
2101900016	Hardin Street Marine LLC - Marine Repair Facility	4,255,084	360,011	KY	45.1	2.93	0.02	2.63	0.15	0.21	1.36E-05	2.14	0.01	1.83	0.04	0.16	1.06E-05
2101900114	Windstream Corp - Ashland Facility	4,259,918	356,645	KY	45.8	PTE-3.37	PTE-0.22	PTE-0.73	PTE-0.04	PTE-0.24	--	PTE-3.37	PTE-0.22	PTE-0.73	PTE-0.04	PTE-0.24	--
2101900019	Mountain Enterprises Inc - Ashland Plant 13	4,260,826	356,160	KY	45.9	1.41	0.18	7.11	0.48	1.54	3.35E-05	2.81	0.37	14.22	0.95	3.08	6.71E-05
2101900005	AK Steel Corp - West Works Ashland	4,262,115	354,753	KY	46.7	39.29	11.37	25.84	1.20	1.97	1.90E-04	166.21	1.95	53.85	1.41	2.10	4.28E-05
2101900107	Stein Inc	4,262,229	354,330	KY	47.1	--	--	--	PTE-9.48	PTE-42.58	--	--	--	--	PTE-9.48	PTE-42.58	--
2101900102	Marquis Terminal Inc	4,262,341	354,200	KY	47.2	PTE-26.77	PTE-1.77	PTE-5.77	PTE-45.21	PTE-81.66	--	PTE-26.77	PTE-1.77	PTE-5.77	PTE-45.21	PTE-81.66	--
2108900044	Harsco Metals ARI LLC	4,262,995	353,370	KY	47.7	8.83E-03	1.06E-04	0.01	0.04	0.10	--	8.83E-03	1.06E-04	0.01	0.04	0.10	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	4,248,935	360,727	KY	48.1	1,045.50	157.58	742.02	171.92	179.59	--	1,066.68	201.10	698.94	173.81	181.50	--
2101900044	Coal Equity Inc - Transload Terminal (810-8023)	4,248,873	360,752	KY	48.1	--	--	--	0.25	0.84	--	--	--	--	0.25	0.84	--
2101909269	Brandenburg Industrial Service Co - Portable Crusher	4,248,511	360,285	KY	48.7	PTE-14.74	PTE-2.75	PTE-7.72	PTE-2.7	PTE-19.56	--	PTE-14.74	PTE-2.75	PTE-7.72	PTE-2.7	PTE-19.56	--
2101900117	Air Products & Chemicals Inc - Catlettsburg Hydrogen Plant	4,248,642	359,874	KY	48.9	69.82	0.30	7.07	6.65E-03	4.10	--	80.29	0.30	7.25	6.62E-03	4.11	--
2101900123	Verizon Wireless - Winslow Cell Tower Engine	4,256,914	354,376	KY	49.2	PTE-0.65	PTE-0.04	PTE-0.14	PTE-0.05	PTE-0.05	--	PTE-0.65	PTE-0.04	PTE-0.14	PTE-0.05	PTE-0.05	--
2108900051	Verizon Wireless - Raceland Cell Tower Engine	4,266,999	350,536	KY	49.3	--	PTE-0.05	PTE-0.16	PTE-0.05	PTE-0.05	--	--	PTE-0.05	PTE-0.16	PTE-0.05	PTE-0.05	--
2101900121	Union Tank Car Co - Catlettsburg Mini Shop	4,246,661	360,301	KY	49.9	0.01	0.05	3.49E-03	1.40E-03	1.40E-03	--	0.01	0.04	3.00E-03	1.20E-03	1.20E-03	--
2108900004	Progress Rail Raceland Corp	4,267,957	349,409	KY	50.2	0.50	4.78E-03	0.41	0.30	1.76	--	0.27	1.86E-03	0.23	0.21	0.38	--
2101900021	Greenbrier Minerals LLC - Big Sandy Dock Facility	4,245,676	360,187	KY	50.6	--	--	--	PTE-4.65	PTE-17.62	--	--	--	--	PTE-4.65	PTE-17.62	--
2101900130	Verizon Wireless - Neal Tower	4,245,556	359,954	KY	50.8	PTE-0.61	PTE-0.04	PTE-0.13	PTE-0.04	PTE-0.04	--	PTE-0.61	PTE-0.04	PTE-0.13	PTE-0.04	PTE-0.04	--
2101900014	Calgon Carbon Corp	4,244,572	360,775	KY	50.9	248.17	85.61	55.22	14.82	136.75	1.31E-03	262.71	93.52	57.07	16.63	156.04	1.31E-03

Nucor West Virginia Steel Mill
PSD Air Dispersion Modeling
Regional Source Inventory

Table C-3. Full Screening Analysis

		UTM N	UTM E		Distance from Site	2018						2019					
Facility ID	Name	(m)	(m)	State	(km)	NO_X	SO_2	CO	$PM_{2.5}$	PM_{10}	Lead	NO_X	SO_2	CO	$PM_{2.5}$	PM_{10}	Lead
2101900115	Marathon Petroleum Co LLC - Big Sandy Asphalt Terminal	4,243,604	361,650	KY	50.9	--	--	--	--	--	--	--	--	--	--	--	--
2101900035	SNR River Ops LLC - Lockwood Dock Facility	4,243,178	362,014	KY	50.9	--	--	--	6.30E-03	0.03	--	--	--	--	2.87E-03	0.01	--
2101900099	Marathon Pipeline LLC - Campbells Branch Station	4,246,375	359,010	KY	51.0	--	--	--	--	--	--	--	--	--	--	--	--
2101900127	Verizon Wireless - South Ashland Cell Tower Engine	4,255,498	352,903	KY	51.1	--	PTE-0.05	PTE-0.16	PTE-0.05	PTE-0.05	--	--	PTE-0.05	PTE-0.16	PTE-0.05	PTE-0.05	--
2101900079	Riverway South Inc (810-8030)	4,242,777	362,032	KY	51.2	--	--	--	0.06	0.37	--	--	--	--	0.15	0.93	--
2101900093	CW Coal Sales Inc (810-8042)	4,242,321	362,251	KY	51.4	--	--	--	1.96	4.34	--	--	--	--	1.23	2.73	--
2101900141	AT&T Mobility - Savage Branch Cell Tower Engine	4,245,421	359,148	KY	51.5	--	--	--	--	--	--	PTE-0.14	PTE-0.05	PTE-0.04	PTE-0.01	PTE-0.01	--
2101900133	AT&T Mobility - WV272 Cell Tower Engine	4,257,601	351,200	KY	51.7	PTE-0.63	PTE-0.04	PTE-0.14	PTE-0.04	PTE-0.04	--	PTE-0.63	PTE-0.04	PTE-0.14	PTE-0.04	PTE-0.04	--
2108900050	Verizon Wireless - Flatwoods	4,263,860	348,833	KY	51.8	--	PTE-0.05	PTE-0.16	PTE-0.05	PTE-0.05	--	--	PTE-0.05	PTE-0.16	PTE-0.05	PTE-0.05	--
2108900052	AT&T Mobility - Flatwoods Fountain	4,263,843	348,808	KY	51.8	PTE-0.52	PTE-0.03	PTE-0.11	PTE-0.03	PTE-0.04	--	PTE-0.52	PTE-0.03	PTE-0.11	PTE-0.03	PTE-0.04	--
2101900030	Contech Construction Products Inc	4,256,439	351,498	KY	52.0	0.16	6.98E-04	0.04	0.36	0.67	--	0.16	6.98E-04	0.04	0.36	0.67	--
2108900054	CSX Russell Railyard - Greenup Co	4,268,082	347,306	KY	52.2	--	PTE-0.16	PTE-0.53	PTE-0.17	PTE-0.17	--	--	PTE-0.16	PTE-0.53	PTE-0.17	PTE-0.17	--
2101900081	By Inc	4,241,204	362,078	KY	52.3	--	--	--	PTE-46.57	PTE-210.62	--	--	--	--	PTE-46.57	PTE-210.62	--
2101900098	Big Sandy Development Co (810-8040)	4,241,176	361,907	KY	52.4	--	--	--	PTE-5.78	PTE-35.85	--	--	--	--	0.08	0.46	--
2101900094	Appalachian Mining & Reclamation LLC (810-8032)	4,241,082	362,003	KY	52.4	--	--	--	PTE-53.08	PTE-134.26	--	--	--	--	PTE-53.08	PTE-134.26	--
2108900036	Great Lakes Minerals LLC	4,268,715	346,446	KY	52.9	--	--	--	3.69	19.74	--	--	--	--	3.69	19.73	--
2108900037	Vesuvius USA	4,268,529	346,078	KY	53.3	--	--	--	1.36	3.82	--	--	--	--	1.36	3.82	--
2101900601	Marathon	4,253,488	351,007	KY	53.7	--	--	--	--	--	--	--	--	--	--	--	--
2108900038	The Wells Group LLC	4,268,577	345,572	KY	53.8	--	--	--	PTE-5.01	PTE-14.52	--	--	--	--	PTE-5.01	PTE-14.52	--
2108900035	Greenup Boyd Co Riverport Authority Salt Storage Facility	4,268,591	345,502	KY	53.9	--	--	--	PTE-459.13	PTE-2831.74	--	--	--	--	PTE-459.13	PTE-2831.74	--
2101900124	Verizon Wireless - Summit	4,253,157	349,811	KY	54.9	PTE-0.65	PTE-0.04	PTE-0.14	PTE-0.05	PTE-0.05	--	PTE-0.65	PTE-0.04	PTE-0.14	PTE-0.05	PTE-0.05	--
2108900014	Pregis Innovative Packaging Inc	4,268,820	344,221	KY	55.1	0.62	3.88E-03	0.52	1.11	2.48	--	0.52	3.30E-03	0.43	0.83	1.87	--
2108900001	Veolia North America Regeneration Services LLC	4,268,914	344,101	KY	55.2	2.26	65.21	0.31	8.38	8.42	--	3.25	96.60	0.38	12.01	12.05	--
2101900106	TN Gas Pipeline Co Station 114	4,236,979	362,103	KY	55.4	9.90	0.50	16.22	1.09	1.09	3.80E-07	19.56	1.07	20.20	2.28	2.28	6.50E-07
2101900126	Verizon Wireless - South Cannonsburg	4,248,106	352,241	KY	55.4	PTE-0.65	PTE-0.04	PTE-0.14	PTE-0.05	PTE-0.05	--	PTE-0.65	PTE-0.04	PTE-0.14	PTE-0.05	PTE-0.05	--
2101900131	Verizon Wireless - Cannonsburg	4,251,126	350,102	KY	55.7	PTE-0.13	PTE-0.17	PTE-0.03	PTE-0	PTE-0	--	PTE-0.13	PTE-0.17	PTE-0.03	PTE-0	PTE-0	--
2101900013	Huntington Alloys Corp	4,236,364	361,995	KY	55.9	6.33	0.04	5.32	2.30	14.17	1.08E-05	4.35	0.03	3.66	2.32	12.92	PTE-0
2108909068	Mountain Materials Inc Greenup Slag Plant #101 Portable	4,269,461	342,974	KY	56.2	--	--	--	2.65E-04	9.46E-04	--	--	--	--	5.71E-03	0.02	--
2101909340	TLT Resources Corp - Portable Screen No 1	4,248,473	350,883	KY	56.4	--	--	--	--	--	--	--	--	--	0.12	0.79	--
2101909405	TLT Resources Corp - Portable Screen No 2	4,248,473	350,883	KY	56.4	--	--	--	--	--	--	--	--	--	PTE-5.8	PTE-38.7	--
2101909443	Michael E Cornett dba C & C Construction - Portable Screen No 5	4,248,473	350,883	KY	56.4	--	--	--	--	--	--	--	--	--	0.11	0.73	--
2101909444	Michael Cornett dba C & C Construction - Portable Screen No 6	4,248,473	350,883	KY	56.4	--	--	--	--	--	--	--	--	--	0.11	0.73	--
2101900116	Liquid Transport LLC	4,251,782	348,233	KY	57.0	--	--	--	--	--	--	--	--	--	--	--	--
2101900122	Verizon Wireless - Princess	4,250,754	348,506	KY	57.2	--	PTE-0.05	PTE-0.16	PTE-0.05	PTE-0.05	--	--	PTE-0.05	PTE-0.16	PTE-0.05	PTE-0.05	--
2101900095	The Wells Group LLC	4,250,552	348,560	KY	57.3	--	--	--	PTE-15.69	PTE-21.28	--	--	--	--	PTE-15.69	PTE-21.28	--
2101900140	Ashland Service Center	4,250,983	347,717	KY	57.8	--	--	--	--	--	--	PTE-0.54	PTE-0.15	PTE-0.12	PTE-0.01	PTE-0.01	--
2101900113	Boyd Co Sanitary Landfill	4,248,402	347,611	KY	59.2	21.79	62.91	118.72	5.45	5.45	--	14.30	41.27	77.88	3.58	3.67	--
2108900055	Verizon Wireless - Greenup Cell Tower Engine	4,270,514	339,605	KY	59.4	PTE-0.62	PTE-0.04	PTE-0.13	PTE-0.04	PTE-0.04	--	PTE-0.62	PTE-0.04	PTE-0.13	PTE-0.04	PTE-0.04	--
2101900134	Big Run Power Producers LLC	4,248,394	347,122	KY	59.6	PTE-52.03	PTE-0.31	PTE-55.76	PTE-0.99	PTE-0.99	--	1.29	7.75E-03	1.33	0.02	0.02	--
2101909079	Rumpke of KY Inc - Portable Plant	4,248,636	346,669	KY	59.9	PTE-14.52	PTE-0.02	PTE-10.43	PTE-1.49	PTE-1314.66	--	1.96E-03	3.36E-06	1.64E-03	7.95E-05	1.00E-03	--

Nucor West Virginia Steel Mill
PSD Air Dispersion Modeling
Regional Source Inventory

Table C-3. Full Screening Analysis

Facility ID	Name	UTM N (m)	UTM E (m)	State	Distance from Site (km)	2020						2-yr Annual Averaged Actual Emissions (tpy)						20D
						NO_X	SO_2	CO	$PM_{2.5}$	PM_{10}	Lead	NO_X	SO_2	CO	$PM_{2.5}$	PM_{10}	Lead	
54-053-00054	APG Polytech LLC	4,280,000	398,000	WV	1.2	28.93	0.58	20.07	5.64	5.64	2.06E-04	27.82	0.56	19.44	5.40	5.40	1.96E-04	24
54-053-00007	ICL-North America Inc - GALLIPOLIS FERRY PLANT	4,292,000	396,000	WV	13.4	15.10	0.19	13.10	1.21	1.21	--	15.96	0.20	13.41	1.21	1.21	--	268
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	4,272,200	413,500	WV	16.5	22.23	6.64E-03	57.82	11.40	20.29	4.00E-05	19.75	9.72E-03	50.89	11.92	21.07	4.50E-05	330
54-079-00105	ALLIED WASTE SYCAMORE LANDFILL, LLC	4,250,300	410,400	WV	31.0	2.52	0.48	13.71	0.26	0.26	--	2.52	0.48	13.71	0.26	0.26	--	620
54-079-00103	Waste Management - DISPOSAL SERVICE, INC. SANITARY LANDFILL	4,250,300	410,900	WV	31.2	0.91	0.21	4.13	7.64	9.14	--	0.91	0.21	4.13	7.65	9.18	--	624
54-011-00007	HUNTINGTON ALLOYS - A SPECIAL METALS CO.	4,252,300	379,200	WV	32.7	41.14	2.77	37.08	20.83	50.01	6.10E-04	49.75	1.58	45.23	22.85	55.11	4.70E-04	654
54-011-00009	Steel Dynamics, Inc. - SWVA, INC.	4,253,700	375,000	WV	34.3	114.51	27.03	239.32	54.09	58.09	4.36E-01	126.17	27.75	245.16	55.99	60.17	4.06E-01	686
54-079-00006	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	4,258,400	428,200	WV	36.1	4,873.00	4,240.69	1,083.75	200.72	262.07	6.86E-02	4,769.91	3,879.17	1,038.52	136.72	179.84	6.19E-02	722
54-079-00046	Cranberry Pipeline Corporation - HEIZER COMPRESSOR STATION	4,263,990	432,480	WV	37.2	43.81	8.10E-03	5.33	0.67	0.67	--	43.81	8.10E-03	5.33	0.67	0.67	--	744
54-011-00062	BIMBO BAKERIES USA, INC.	4,252,400	370,900	WV	38.1	3.84	0.02	3.22	1.03	5.86	--	4.11	0.02	3.45	1.06	5.93	--	762
54-053-00004	Felman Production Inc. - NEW HAVEN PLANT	4,312,200	419,700	WV	39.6	9.31	160.24	552.98	12.12	31.38	3.29E-03	8.55	137.90	507.60	13.27	34.49	3.29E-03	792
54-035-00049	Armstrong World Industries - Millwood Facility	4,307,000	427,200	WV	40.3	0.28	34.43	114.25	43.17	43.89	--	0.28	34.42	110.40	43.17	43.89	--	806
54-053-00009	APPALACHIAN POWER - MOUNTAINEER PLANT	4,314,700	419,000	WV	41.4	2,464.97	2,611.07	531.83	49.84	88.54	2.91E-02	3,026.83	3,605.69	677.96	61.22	105.46	3.49E-02	828
54-035-00043	CONSTELLIUM ROLLED PRODUCTS - RAVENSWOOD	4,309,662	428,417	WV	43.0	116.23	0.50	69.74	37.41	37.41	--	123.38	0.53	74.03	40.13	40.13	--	860
54-035-00062	Columbia Gas - Mount Olive	4,287,900	441,400	WV	44.0	80.93	0.88	93.53	8.35	8.35	--	63.74	0.69	80.68	6.49	6.49	--	880
54-039-00047	Columbia Gas - LANHAM 4C4590	4,259,000	438,000	WV	44.3	23.25	0.01	3.58	0.55	0.55	--	18.69	0.01	3.04	0.46	0.46	--	886
54-099-00013	Columbia Gas - CEREDO 4C3360	4,248,000	366,000	WV	44.7	403.25	0.19	40.86	5.94	5.94	--	564.49	0.17	48.73	6.82	6.82	--	894
54-039-00005	UNION CARBIDE CORPORATION-INSTITUTE	4,248,800	431,900	WV	45.0	3.95	4.20E-03	5.59	0.44	0.44	--	27.04	0.47	31.84	4.71	4.72	7.00E-04	900
54-099-00081	Appalachian Power Company - CEREDO ELECTRIC GENERATING STATION	4,247,500	366,000	WV	45.1	20.93	0.39	22.79	9.02	9.02	1.04E-02	43.14	0.84	46.56	17.92	17.92	2.22E-02	902
54-039-00682	Specialty Products - Institute	4,248,754	432,189	WV	45.2	1.05	9.70E-04	5.09	0.04	0.04	--	1.04	9.65E-04	5.03	0.04	0.04	--	904
54-099-00012	Cranberry Pipeline Corporation - BEECH FORK COMPRESSOR STATION	4,239,790	375,350	WV	45.3	0.33	1.00E-04	0.05	6.90E-03	6.90E-03	--	1.93	4.50E-04	0.29	0.04	0.04	--	906
54-039-00692	Altivia - Institute	4,248,310	432,000	WV	45.4	25.75	0.47	27.42	3.87	3.90	3.00E-04	25.75	0.47	27.42	3.87	3.90	3.00E-04	908
54-099-00022	MPLX Terminals LLC - KENOVA-TRISTATE TERMINAL	4,252,037	361,215	WV	45.8	--	--	--	--	--	--	--	--	--	--	--	--	916
54-099-00014	Columbia Gas - KENOVA 4C3350	4,248,000	361,000	WV	48.5	449.15	0.18	28.28	11.40	11.40	--	412.29	0.17	26.36	9.58	9.58	--	970
54-035-00003	Columbia Gas - RIPLEY 4C4560	4,303,563	440,150	WV	48.5	38.65	0.03	10.66	2.40	2.40	--	43.27	0.03	11.87	2.43	2.43	--	970
54-099-00009	ASHLAND LLC. - NEAL, WV	4,247,778	360,879	WV	48.7	0.66	0.30	265.55	0.47	0.47	--	0.68	0.26	302.51	0.44	0.44	--	974
54-099-00118	Marathon Petroleum - Neal Propane Cavern	4,247,736	360,688	WV	48.9	--	--	--	--	--	--	--	--	--	--	--	--	978
54-099-00112	Marathon Petroleum - Butane Cavern	4,247,200	360,600	WV	49.3	--	--	--	--	--	--	--	--	--	--	--	--	986
54-099-00010	BRASKEM AMERICA NEAL PLANT	4,246,300	360,600	WV	49.9	28.90	1.10	21.69	46.95	49.78	1.10E-04	23.05	0.67	21.40	47.12	49.97	1.15E-04	998
54-043-00002	Columbia Gas - HUBBALL 4C4510	4,229,000	396,000	WV	49.9	22.22	0.03	3.73	0.09	0.09	--	22.49	0.03	3.68	0.07	0.07	--	998
54-099-00080	BIG SANDY PEAKER PLANT	4,245,000	360,900	WV	50.5	111.75	0.81	17.84	8.87	8.87	--	112.00	0.81	17.82	8.89	8.89	--	1,010
54-039-00011	Clearon Corp. - South Charleston Plant	4,246,600	438,300	WV	51.3	25.08	0.34	7.62	8.44	10.02	--	34.29	0.31	9.95	9.08	10.75	--	1,026
54-039-00618	Univation Technologies, LLC, South Charleston Catalyst Plant	4,245,454	438,402	WV	52.1	0.23	1.20E-03	0.54	0.06	0.06	--	0.23	1.15E-03	0.54	0.06	0.06	--	1,042
54-039-00004	UNION CARBIDE CORPORATION - UCC TECHNOLOGY PARK OPERATIONS	4,245,700	438,700	WV	52.2	3.74	0.02	3.14	0.29	0.29	--	3.56	0.02	2.99	0.26	0.26	--	1,044
54-039-00102	Covestro LLC - SOUTH CHARLESTON	4,246,600	439,900	WV	52.6	3.61	--	7.00E-04	0.02	0.02	--	3.37	--	8.50E-04	0.02	0.02	--	1,052
54-039-00003	UNION CARBIDE CORP -SO CHARLESTON FAC.	4,246,872	440,597	WV	52.9	59.81	0.49	44.92	3.67	3.67	3.00E-04	61.90	0.49	47.88	4.51	4.51	3.50E-04	1,058

Nucor West Virginia Steel Mill
PSD Air Dispersion Modeling
Regional Source Inventory

Table C-3. Full Screening Analysis

Facility ID	Name	UTM N (m)	UTM E (m)	State	Distance from Site (km)	2020						2-yr Annual Averaged Actual Emissions (tpy)						20D
						NO_X	SO_2	CO	$PM_{2.5}$	PM_{10}	Lead	NO_X	SO_2	CO	$PM_{2.5}$	PM_{10}	Lead	
0627000046	Shelly Liquid Division	4,301,287	400,751	OH	22.6	--	--	--	--	--	--	7.73	0.05	6.49	56.56	57.15	--	452
0664000074	Shelly Material Plant 2 formerly Allied Corp Plant No 9	4,303,001	398,437	OH	24.2	--	--	--	--	--	--	0.92	0.08	6.37	--	--	8.00E-04	484
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	4,308,073	402,203	OH	29.5	--	--	--	--	--	--	6,020.19	4,358.40	574.95	655.63	706.47	4.60E-02	590
0627010056	General James M. Gavin Power Plant	4,312,357	401,208	OH	33.6	--	--	--	--	--	--	7,698.71	27,032.93	1,501.39	940.01	1,434.71	2.36E-01	672
0744010055	Ergon - Ironton LLC.	4,263,575	359,050	OH	42.2	--	--	--	--	--	--	--	--	--	--	--	--	844
0640010011	CEDAR HEIGHTS CLAY CO	4,304,456	363,285	OH	43.5	--	--	--	--	--	--	0.20	1.20E-03	0.17	3.26	3.26	--	870
0744000168	McGinnis, Inc. - Sheridan Shipyard/Marine Ways	4,258,321	360,043	OH	43.5	--	--	--	--	--	--	--	--	--	--	--	--	870
0744000187	Superior Marine Ways - South Point	4,251,874	364,016	OH	43.7	--	--	--	--	--	--	--	--	--	--	--	--	874
0640010010	CEDAR HEIGHTS CLAY CO	4,305,501	363,496	OH	43.9	--	--	--	--	--	--	0.09	5.50E-04	0.08	0.37	0.37	--	878
0640005007	Columbia Pipeline Group-Oak Hill Compressor Station	4,309,752	365,749	OH	45.0	--	--	--	--	--	--	28.49	0.25	41.26	3.03	3.03	--	900
0682000057	Rolling Hills Generating, LLC	4,327,457	384,638	OH	50.5	--	--	--	--	--	--	163.00	2.27	238.35	21.72	21.72	--	1,010
0773000222	Mae Materials LLC	4,297,633	349,834	OH	52.1	--	--	--	--	--	--	0.15	0.63	0.07	--	--	--	1,042
0744000150	Hanging Rock Energy Facility	4,270,785	344,622	OH	54.4	--	--	--	--	--	--	282.18	20.58	81.42	179.95	195.33	--	1,088
0744000173	Americas Styrenics	4,271,137	343,999	OH	54.9	--	--	--	--	--	--	6.95	3.63	4.10	0.51	0.55	--	1,098
0640025002	Blackstone Asphalt Inc	4,328,332	370,515	OH	56.8	--	--	--	--	--	--	1.57	0.21	7.19	--	1.69	--	1,136
0773000080	ALTIVIA Petrochemicals, LLC	4,273,035	341,544	OH	57.1	--	--	--	--	--	--	49.04	0.23	30.90	24.16	24.16	--	1,142
0773000182	Haverhill Coke Company LLC	4,274,031	341,079	OH	57.5	--	--	--	--	--	--	751.88	1,799.50	52.72	224.50	249.25	3.10E-01	1,150
0660010027	Mar-Zane Plant No 10	4,332,892	375,143	OH	58.8	--	--	--	--	--	--	0.25	0.08	0.37	0.01	0.18	--	1,176
0640020059	Beech Hollow Landfill	4,332,695	372,900	OH	59.6	--	--	--	--	--	--	--	--	6.44	6.53	17.50	--	1,192
2101900027	AK Steel Corp - Coke Plant	4,258,177	359,483	KY	44.1	--	--	--	--	--	--	--	--	--	0.03	0.25	--	882
2101900003	CRHC Mansbach Metal LLC	4,260,022	357,988	KY	44.6	--	--	--	--	--	--	--	--	--	1.28	3.29	--	892
2101900125	Verizon Wireless - Ashland SE Cell Tower Engine	4,258,336	358,655	KY	44.7	--	--	--	--	--	--	0.65	0.04	0.14	0.05	0.05	--	894
2101900110	Valvoline LLC	4,259,998	357,600	KY	44.9	--	--	--	--	--	--	2.03	0.06	14.16	0.12	0.23	--	898
2101900016	Hardin Street Marine LLC - Marine Repair Facility	4,255,084	360,011	KY	45.1	--	--	--	--	--	--	2.54	0.01	2.23	0.10	0.19	1.21E-05	902
2101900114	Windstream Corp - Ashland Facility	4,259,918	356,645	KY	45.8	--	--	--	--	--	--	3.37	0.22	0.73	0.04	0.24	--	916
2101900019	Mountain Enterprises Inc - Ashland Plant 13	4,260,826	356,160	KY	45.9	--	--	--	--	--	--	2.11	0.28	10.66	0.71	2.31	5.03E-05	918
2101900005	AK Steel Corp - West Works Ashland	4,262,115	354,753	KY	46.7	--	--	--	--	--	--	102.75	6.66	39.85	1.30	2.03	1.16E-04	934
2101900107	Stein Inc	4,262,229	354,330	KY	47.1	--	--	--	--	--	--	--	--	--	9.48	42.58	--	942
2101900102	Marquis Terminal Inc	4,262,341	354,200	KY	47.2	--	--	--	--	--	--	26.77	1.77	5.77	45.21	81.66	--	944
2108900044	Harsco Metals ARI LLC	4,262,995	353,370	KY	47.7	--	--	--	--	--	--	8.83E-03	1.06E-04	0.01	0.04	0.10	--	954
2101900004	MPLX Terminals LLC - Catlettsburg Refining	4,248,935	360,727	KY	48.1	--	--	--	--	--	--	1,056.09	179.34	720.48	172.86	180.54	--	962
2101900044	Coal Equity Inc - Transload Terminal (810-8023)	4,248,873	360,752	KY	48.1	--	--	--	--	--	--	--	--	--	0.25	0.84	--	962
2101909269	Brandenburg Industrial Service Co - Portable Crusher	4,248,511	360,285	KY	48.7	--	--	--	--	--	--	14.74	2.75	7.72	2.70	19.56	--	974
2101900117	Air Products & Chemicals Inc - Catlettsburg Hydrogen Plant	4,248,642	359,874	KY	48.9	--	--	--	--	--	--	75.06	0.30	7.16	6.63E-03	4.11	--	978
2101900123	Verizon Wireless - Winslow Cell Tower Engine	4,256,914	354,376	KY	49.2	--	--	--	--	--	--	0.65	0.04	0.14	0.05	0.05	--	984
2108900051	Verizon Wireless - Raceland Cell Tower Engine	4,266,999	350,536	KY	49.3	--	--	--	--	--	--	--	0.05	0.16	0.05	0.05	--	986
2101900121	Union Tank Car Co - Catlettsburg Mini Shop	4,246,661	360,301	KY	49.9	--	--	--	--	--	--	0.01	0.05	3.25E-03	1.30E-03	1.30E-03	--	998
2108900004	Progress Rail Raceland Corp	4,267,957	349,409	KY	50.2	--	--	--	--	--	--	0.38	3.32E-03	0.32	0.26	1.07	--	1,004
2101900021	Greenbrier Minerals LLC - Big Sandy Dock Facility	4,245,676	360,187	KY	50.6	--	--	--	--	--	--	--	--	--	4.65	17.62	--	1,012
2101900130	Verizon Wireless - Neal Tower	4,245,556	359,954	KY	50.8	--	--	--	--	--	--	0.61	0.04	0.13	0.04	0.04	--	1,016
2101900014	Calgon Carbon Corp	4,244,572	360,775	KY	50.9	--	--	--	--	--	--	255.44	89.57	56.14	15.73	146.39	1.31E-03	1,018

Nucor West Virginia Steel Mill
PSD Air Dispersion Modeling
Regional Source Inventory

Table C-3. Full Screening Analysis

Facility ID	Name	UTM N (m)	UTM E (m)	State	Distance from Site (km)	2020						2-yr Annual Averaged Actual Emissions (tpy)						20D
						NO_X	SO_2	CO	$PM_{2.5}$	PM_{10}	Lead	NO_X	SO_2	CO	$PM_{2.5}$	PM_{10}	Lead	
2101900115	Marathon Petroleum Co LLC - Big Sandy Asphalt Terminal	4,243,604	361,650	KY	50.9	--	--	--	--	--	--	--	--	--	--	--	--	1,018
2101900035	SNR River Ops LLC - Lockwood Dock Facility	4,243,178	362,014	KY	50.9	--	--	--	--	--	--	--	--	--	4.58E-03	0.02	--	1,018
2101900099	Marathon Pipeline LLC - Campbells Branch Station	4,246,375	359,010	KY	51.0	--	--	--	--	--	--	--	--	--	--	--	--	1,020
2101900127	Verizon Wireless - South Ashland Cell Tower Engine	4,255,498	352,903	KY	51.1	--	--	--	--	--	--	--	0.05	0.16	0.05	0.05	--	1,022
2101900079	Riverway South Inc (810-8030)	4,242,777	362,032	KY	51.2	--	--	--	--	--	--	--	--	--	0.10	0.65	--	1,024
2101900093	CW Coal Sales Inc (810-8042)	4,242,321	362,251	KY	51.4	--	--	--	--	--	--	--	--	--	1.59	3.53	--	1,028
2101900141	AT&T Mobility - Savage Branch Cell Tower Engine	4,245,421	359,148	KY	51.5	--	--	--	--	--	--	0.07	0.03	0.02	5.00E-03	5.00E-03	--	1,030
2101900133	AT&T Mobility - WV272 Cell Tower Engine	4,257,601	351,200	KY	51.7	--	--	--	--	--	--	0.63	0.04	0.14	0.04	0.04	--	1,034
2108900050	Verizon Wireless - Flatwoods	4,263,860	348,833	KY	51.8	--	--	--	--	--	--	--	0.05	0.16	0.05	0.05	--	1,036
2108900052	AT&T Mobility - Flatwoods Fountain	4,263,843	348,808	KY	51.8	--	--	--	--	--	--	0.52	0.03	0.11	0.03	0.04	--	1,036
2101900030	Contech Construction Products Inc	4,256,439	351,498	KY	52.0	--	--	--	--	--	--	0.16	6.98E-04	0.04	0.36	0.67	--	1,040
2108900054	CSX Russell Railyard - Greenup Co	4,268,082	347,306	KY	52.2	--	--	--	--	--	--	--	0.16	0.53	0.17	0.17	--	1,044
2101900081	By Inc	4,241,204	362,078	KY	52.3	--	--	--	--	--	--	--	--	--	46.57	210.62	--	1,046
2101900098	Big Sandy Development Co (810-8040)	4,241,176	361,907	KY	52.4	--	--	--	--	--	--	--	--	--	2.93	18.16	--	1,048
2101900094	Appalachian Mining & Reclamation LLC (810-8032)	4,241,082	362,003	KY	52.4	--	--	--	--	--	--	--	--	--	53.08	134.26	--	1,048
2108900036	Great Lakes Minerals LLC	4,268,715	346,446	KY	52.9	--	--	--	--	--	--	--	--	--	3.69	19.74	--	1,058
2108900037	Vesuvius USA	4,268,529	346,078	KY	53.3	--	--	--	--	--	--	--	--	--	1.36	3.82	--	1,066
2101900601	Marathon	4,253,488	351,007	KY	53.7	--	--	--	--	--	--	--	--	--	--	--	--	1,074
2108900038	The Wells Group LLC	4,268,577	345,572	KY	53.8	--	--	--	--	--	--	--	--	--	5.01	14.52	--	1,076
2108900035	Greenup Boyd Co Riverport Authority Salt Storage Facility	4,268,591	345,502	KY	53.9	--	--	--	--	--	--	--	--	--	459.13	2,831.74	--	1,078
2101900124	Verizon Wireless - Summit	4,253,157	349,811	KY	54.9	--	--	--	--	--	--	0.65	0.04	0.14	0.05	0.05	--	1,098
2108900014	Pregis Innovative Packaging Inc	4,268,820	344,221	KY	55.1	--	--	--	--	--	--	0.57	3.59E-03	0.48	0.97	2.18	--	1,102
2108900001	Veolia North America Regeneration Services LLC	4,268,914	344,101	KY	55.2	--	--	--	--	--	--	2.76	80.90	0.34	10.19	10.24	--	1,104
2101900106	TN Gas Pipeline Co Station 114	4,236,979	362,103	KY	55.4	--	--	--	--	--	--	14.73	0.78	18.21	1.68	1.68	5.15E-07	1,108
2101900126	Verizon Wireless - South Cannonsburg	4,248,106	352,241	KY	55.4	--	--	--	--	--	--	0.65	0.04	0.14	0.05	0.05	--	1,108
2101900131	Verizon Wireless - Cannonsburg	4,251,126	350,102	KY	55.7	--	--	--	--	--	--	0.13	0.17	0.03	--	--	--	1,114
2101900013	Huntington Alloys Corp	4,236,364	361,995	KY	55.9	--	--	--	--	--	--	5.34	0.03	4.49	2.31	13.54	5.39E-06	1,118
2108909068	Mountain Materials Inc Greenup Slag Plant #101 Portable	4,269,461	342,974	KY	56.2	--	--	--	--	--	--	--	--	--	2.99E-03	0.01	--	1,124
2101909340	TLT Resources Corp - Portable Screen No 1	4,248,473	350,883	KY	56.4	--	--	--	--	--	--	--	--	--	0.06	0.40	--	1,128
2101909405	TLT Resources Corp - Portable Screen No 2	4,248,473	350,883	KY	56.4	--	--	--	--	--	--	--	--	--	2.90	19.35	--	1,128
2101909443	Michael E Cornett dba C & C Construction - Portable Screen No 5	4,248,473	350,883	KY	56.4	--	--	--	--	--	--	--	--	--	0.06	0.36	--	1,128
2101909444	Michael Cornett dba C & C Construction - Portable Screen No 6	4,248,473	350,883	KY	56.4	--	--	--	--	--	--	--	--	--	0.06	0.36	--	1,128
2101900116	Liquid Transport LLC	4,251,782	348,233	KY	57.0	--	--	--	--	--	--	--	--	--	--	--	--	1,140
2101900122	Verizon Wireless - Princess	4,250,754	348,506	KY	57.2	--	--	--	--	--	--	--	0.05	0.16	0.05	0.05	--	1,144
2101900095	The Wells Group LLC	4,250,552	348,560	KY	57.3	--	--	--	--	--	--	--	--	--	15.69	21.28	--	1,146
2101900140	Ashland Service Center	4,250,983	347,717	KY	57.8	--	--	--	--	--	--	0.27	0.08	0.06	5.00E-03	5.00E-03	--	1,156
2101900113	Boyd Co Sanitary Landfill	4,248,402	347,611	KY	59.2	--	--	--	--	--	--	18.04	52.09	98.30	4.52	4.56	--	1,184
2108900055	Verizon Wireless - Greenup Cell Tower Engine	4,270,514	339,605	KY	59.4	--	--	--	--	--	--	0.62	0.04	0.13	0.04	0.04	--	1,188
2101900134	Big Run Power Producers LLC	4,248,394	347,122	KY	59.6	--	--	--	--	--	--	26.66	0.16	28.55	0.51	0.51	--	1,192
2101909079	Rumpke of KY Inc - Portable Plant	4,248,636	346,669	KY	59.9	--	--	--	--	--	--	7.26	0.01	5.22	0.75	657.33	--	1,198

Nucor West Virginia Steel Mill
PSD Air Dispersion Modeling
Regional Source Inventory

Table C-3. Full Screening Analysis

Facility ID	Name	UTM N (m)	UTM E (m)	State	Distance from Site (km)	Include in NAAQS Analysis?						
						1-hr NO_2	Annual NO_2	1-hr SO_2	24-hr PM2.5	Annual PM2.5	24-hr PM10	Rolling 3-month Avg Lead
54-053-00054	APG Polytech LLC	4,280,000	398,000	WV	1.2	Include - Inside SIA	Include - Inside SIA	Include - Inside SIA	Include - Inside SIA	Include - Inside SIA	Include - Inside SIA	
54-053-00007	ICL-North America Inc - GALLIPOLIS FERRY PLANT	4,292,000	396,000	WV	13.4	Include - Inside SIA	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	4,272,200	413,500	WV	16.5	Include - Inside SIA	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-079-00105	ALLIED WASTE SYCAMORE LANDFILL, LLC	4,250,300	410,400	WV	31.0	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-079-00103	Waste Management - DISPOSAL SERVICE, INC. SANITARY LANDFILL	4,250,300	410,900	WV	31.2	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-011-00007	HUNTINGTON ALLOYS - A SPECIAL METALS CO.	4,252,300	379,200	WV	32.7	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-011-00009	Steel Dynamics, Inc. - SWVA, INC.	4,253,700	375,000	WV	34.3	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-079-00006	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	4,258,400	428,200	WV	36.1	Include - >20D	Include - >20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-079-00046	Cranberry Pipeline Corporation - HEIZER COMPRESSOR STATION	4,263,990	432,480	WV	37.2	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-011-00062	BIMBO BAKERIES USA, INC.	4,252,400	370,900	WV	38.1	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-053-00004	Felman Production Inc. - NEW HAVEN PLANT	4,312,200	419,700	WV	39.6	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-035-00049	Armstrong World Industries - Millwood Facility	4,307,000	427,200	WV	40.3	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-053-00009	APPALACHIAN POWER - MOUNTAINEER PLANT	4,314,700	419,000	WV	41.4	Exclude - Outside ROI	Include - >20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-035-00043	CONSTELLIUM ROLLED PRODUCTS - RAVENSWOOD	4,309,662	428,417	WV	43.0	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-035-00062	Columbia Gas - Mount Olive	4,287,900	441,400	WV	44.0	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-039-00047	Columbia Gas - LANHAM 4C4590	4,259,000	438,000	WV	44.3	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-099-00013	Columbia Gas - CEREDO 4C3360	4,248,000	366,000	WV	44.7	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-039-00005	UNION CARBIDE CORPORATION-INSTITUTE	4,248,800	431,900	WV	45.0	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-099-00081	Appalachian Power Company - CEREDO ELECTRIC GENERATING STATION	4,247,500	366,000	WV	45.1	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-039-00682	Specialty Products - Institute	4,248,754	432,189	WV	45.2	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-099-00012	Cranberry Pipeline Corporation - BEECH FORK COMPRESSOR STATION	4,239,790	375,350	WV	45.3	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-039-00692	Altivia - Institute	4,248,310	432,000	WV	45.4	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-099-00022	MPLX Terminals LLC - KENOVA-TRISTATE TERMINAL	4,252,037	361,215	WV	45.8	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-099-00014	Columbia Gas - KENOVA 4C3350	4,248,000	361,000	WV	48.5	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-035-00003	Columbia Gas - RIPLEY 4C4560	4,303,563	440,150	WV	48.5	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-099-00009	ASHLAND LLC. - NEAL, WV	4,247,778	360,879	WV	48.7	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-099-00118	Marathon Petroleum - Neal Propane Cavern	4,247,736	360,688	WV	48.9	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-099-00112	Marathon Petroleum - Butane Cavern	4,247,200	360,600	WV	49.3	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-099-00010	BRASKEM AMERICA NEAL PLANT	4,246,300	360,600	WV	49.9	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-043-00002	Columbia Gas - HUBBALL 4C4510	4,229,000	396,000	WV	49.9	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-099-00080	BIG SANDY PEAKER PLANT	4,245,000	360,900	WV	50.5	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-039-00011	Clearon Corp. - South Charleston Plant	4,246,600	438,300	WV	51.3	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-039-00618	Univation Technologies, LLC, South Charleston Catalyst Plant	4,245,454	438,402	WV	52.1	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-039-00004	UNION CARBIDE CORPORATION - UCC TECHNOLOGY PARK OPERATIONS	4,245,700	438,700	WV	52.2	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-039-00102	Covestro LLC - SOUTH CHARLESTON	4,246,600	439,900	WV	52.6	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-039-00003	UNION CARBIDE CORP -SO CHARLESTON FAC.	4,246,872	440,597	WV	52.9	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	

Nucor West Virginia Steel Mill
PSD Air Dispersion Modeling
Regional Source Inventory

Table C-3. Full Screening Analysis

Facility ID	Name	UTM N (m)	UTM E (m)	State	Distance from Site (km)	Include in NAAQS Analysis? 1-hr NO_2	Annual NO_2	1-hr SO_2	24-hr PM2.5	Annual PM2.5	24-hr PM10	Rolling 3-month Avg Lead
0627000046	Shelly Liquid Division	4,301,287	400,751	OH	22.6	Include - Inside SIA	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
0664000074	Shelly Material Plant 2 formerly Allied Corp Plant No 9	4,303,001	398,437	OH	24.2	Include - Inside SIA	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	4,308,073	402,203	OH	29.5	Include - >20D	Include - >20D	Exclude - Outside ROI	Include - >20D	Include - >20D	Include - >20D	Include to represent background
0627010056	General James M. Gavin Power Plant	4,312,357	401,208	OH	33.6	Include - >20D	Include - >20D	Exclude - Outside ROI	Include - >20D	Include - >20D	Include - >20D	Include to represent background
0744010055	Ergon - Ironton LLC.	4,263,575	359,050	OH	42.2	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
0640010011	CEDAR HEIGHTS CLAY CO	4,304,456	363,285	OH	43.5	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
0744000168	McGinnis, Inc. - Sheridan Shipyard/Marine Ways	4,258,321	360,043	OH	43.5	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
0744000187	Superior Marine Ways - South Point	4,251,874	364,016	OH	43.7	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
0640010010	CEDAR HEIGHTS CLAY CO	4,305,501	363,496	OH	43.9	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
0640005007	Columbia Pipeline Group-Oak Hill Compressor Station	4,309,752	365,749	OH	45.0	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
0682000057	Rolling Hills Generating, LLC	4,327,457	384,638	OH	50.5	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
0773000222	Mae Materials LLC	4,297,633	349,834	OH	52.1	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
0744000150	Hanging Rock Energy Facility	4,270,785	344,622	OH	54.4	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
0744000173	Americas Styrenics	4,271,137	343,999	OH	54.9	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
0640025002	Blackstone Asphalt Inc	4,328,332	370,515	OH	56.8	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
0773000080	ALTIVIA Petrochemicals, LLC	4,273,035	341,544	OH	57.1	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
0773000182	Haverhill Coke Company LLC	4,274,031	341,079	OH	57.5	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
0660010027	Mar-Zane Plant No 10	4,332,892	375,143	OH	58.8	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - Outside ROI	
0640020059	Beech Hollow Landfill	4,332,695	372,900	OH	59.6	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - Outside ROI	
2101900027	AK Steel Corp - Coke Plant	4,258,177	359,483	KY	44.1	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900003	CRHC Mansbach Metal LLC	4,260,022	357,988	KY	44.6	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900125	Verizon Wireless - Ashland SE Cell Tower Engine	4,258,336	358,655	KY	44.7	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900110	Valvoline LLC	4,259,998	357,600	KY	44.9	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900016	Hardin Street Marine LLC - Marine Repair Facility	4,255,084	360,011	KY	45.1	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900114	Windstream Corp - Ashland Facility	4,259,918	356,645	KY	45.8	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900019	Mountain Enterprises Inc - Ashland Plant 13	4,260,826	356,160	KY	45.9	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900005	AK Steel Corp - West Works Ashland	4,262,115	354,753	KY	46.7	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900107	Stein Inc	4,262,229	354,330	KY	47.1	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900102	Marquis Terminal Inc	4,262,341	354,200	KY	47.2	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2108900044	Harsco Metals ARI LLC	4,262,995	353,370	KY	47.7	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900004	MPLX Terminals LLC - Catlettsburg Refining	4,248,935	360,727	KY	48.1	Exclude - Outside ROI	Include - >20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900044	Coal Equity Inc - Transload Terminal (810-8023)	4,248,873	360,752	KY	48.1	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101909269	Brandenburg Industrial Service Co - Portable Crusher	4,248,511	360,285	KY	48.7	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900117	Air Products & Chemicals Inc - Catlettsburg Hydrogen Plant	4,248,642	359,874	KY	48.9	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900123	Verizon Wireless - Winslow Cell Tower Engine	4,256,914	354,376	KY	49.2	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2108900051	Verizon Wireless - Raceland Cell Tower Engine	4,266,999	350,536	KY	49.3	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900121	Union Tank Car Co - Catlettsburg Mini Shop	4,246,661	360,301	KY	49.9	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2108900004	Progress Rail Raceland Corp	4,267,957	349,409	KY	50.2	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900021	Greenbrier Minerals LLC - Big Sandy Dock Facility	4,245,676	360,187	KY	50.6	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900130	Verizon Wireless - Neal Tower	4,245,556	359,954	KY	50.8	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900014	Calgon Carbon Corp	4,244,572	360,775	KY	50.9	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	

Nucor West Virginia Steel Mill
PSD Air Dispersion Modeling
Regional Source Inventory

Table C-3. Full Screening Analysis

Facility ID	Name	UTM N (m)	UTM E (m)	State	Distance from Site (km)	Include in NAAQS Analysis? 1-hr NO_2	Annual NO_2	1-hr SO_2	24-hr PM2.5	Annual PM2.5	24-hr PM10	Rolling 3-month Avg Lead
2101900115	Marathon Petroleum Co LLC - Big Sandy Asphalt Terminal	4,243,604	361,650	KY	50.9	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900035	SNR River Ops LLC - Lockwood Dock Facility	4,243,178	362,014	KY	50.9	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900099	Marathon Pipeline LLC - Campbells Branch Station	4,246,375	359,010	KY	51.0	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900127	Verizon Wireless - South Ashland Cell Tower Engine	4,255,498	352,903	KY	51.1	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900079	Riverway South Inc (810-8030)	4,242,777	362,032	KY	51.2	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900093	CW Coal Sales Inc (810-8042)	4,242,321	362,251	KY	51.4	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900141	AT&T Mobility - Savage Branch Cell Tower Engine	4,245,421	359,148	KY	51.5	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900133	AT&T Mobility - WV272 Cell Tower Engine	4,257,601	351,200	KY	51.7	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2108900050	Verizon Wireless - Flatwoods	4,263,860	348,833	KY	51.8	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2108900052	AT&T Mobility - Flatwoods Fountain	4,263,843	348,808	KY	51.8	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900030	Contech Construction Products Inc	4,256,439	351,498	KY	52.0	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2108900054	CSX Russell Railyard - Greenup Co	4,268,082	347,306	KY	52.2	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900081	By Inc	4,241,204	362,078	KY	52.3	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900098	Big Sandy Development Co (810-8040)	4,241,176	361,907	KY	52.4	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900094	Appalachian Mining & Reclamation LLC (810-8032)	4,241,082	362,003	KY	52.4	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2108900036	Great Lakes Minerals LLC	4,268,715	346,446	KY	52.9	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2108900037	Vesuvius USA	4,268,529	346,078	KY	53.3	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
2101900601	Marathon	4,253,488	351,007	KY	53.7	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
2108900038	The Wells Group LLC	4,268,577	345,572	KY	53.8	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
2108900035	Greenup Boyd Co Riverport Authority Salt Storage Facility	4,268,591	345,502	KY	53.9	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
2101900124	Verizon Wireless - Summit	4,253,157	349,811	KY	54.9	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
2108900014	Pregis Innovative Packaging Inc	4,268,820	344,221	KY	55.1	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
2108900001	Veolia North America Regeneration Services LLC	4,268,914	344,101	KY	55.2	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
2101900106	TN Gas Pipeline Co Station 114	4,236,979	362,103	KY	55.4	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
2101900126	Verizon Wireless - South Cannonsburg	4,248,106	352,241	KY	55.4	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
2101900131	Verizon Wireless - Cannonsburg	4,251,126	350,102	KY	55.7	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
2101900013	Huntington Alloys Corp	4,236,364	361,995	KY	55.9	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
2108909068	Mountain Materials Inc Greenup Slag Plant #101 Portable	4,269,461	342,974	KY	56.2	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
2101909340	TLT Resources Corp - Portable Screen No 1	4,248,473	350,883	KY	56.4	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
2101909405	TLT Resources Corp - Portable Screen No 2	4,248,473	350,883	KY	56.4	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
2101909443	Michael E Cornett dba C & C Construction - Portable Screen No 5	4,248,473	350,883	KY	56.4	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
2101909444	Michael Cornett dba C & C Construction - Portable Screen No 6	4,248,473	350,883	KY	56.4	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
2101900116	Liquid Transport LLC	4,251,782	348,233	KY	57.0	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
2101900122	Verizon Wireless - Princess	4,250,754	348,506	KY	57.2	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
2101900095	The Wells Group LLC	4,250,552	348,560	KY	57.3	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
2101900140	Ashland Service Center	4,250,983	347,717	KY	57.8	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
2101900113	Boyd Co Sanitary Landfill	4,248,402	347,611	KY	59.2	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - Outside ROI	
2108900055	Verizon Wireless - Greenup Cell Tower Engine	4,270,514	339,605	KY	59.4	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - Outside ROI	
2101900134	Big Run Power Producers LLC	4,248,394	347,122	KY	59.6	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - Outside ROI	
2101909079	Rumpke of KY Inc - Portable Plant	4,248,636	346,669	KY	59.9	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	

Nucor West Virginia Steel Mill
PSD Air Dispersion Modeling
Regional Source Inventory

Table C-4. Source Parameters

Facility ID	Facility Name	Emission Unit ID	Emission Unit Description	State	Model Source ID	Easting (m)	Northing (m)	Elevation (ft)	Stack Height (m)	Stack Diameter (m)	Exit Velocity (m/s)	Exit Temperature K
54-053-00009	APPALACHIAN POWER - MOUNTAINEER PLANT	0	PLANTWIDE FUGITIVES	WV	WV_1_1	419,000	4,314,700	590	3.0	0.01	0.01	-0.01
54-053-00009	APPALACHIAN POWER - MOUNTAINEER PLANT	1	UNIT 1 STACK	WV	WV_1_2	419,000	4,314,700	590	304.8	13.0	15.12	327
54-053-00009	APPALACHIAN POWER - MOUNTAINEER PLANT	2	AUX 1 & 2 COMMON STACK	WV	WV_1_3	419,000	4,314,700	590	91.4	3.4	26.82	604
54-053-00009	APPALACHIAN POWER - MOUNTAINEER PLANT	4	Coping Power Emergency Generator Exhaust	WV	WV_1_4	419,000	4,314,700	590	6.7	0.3	36.88	736
54-053-00009	APPALACHIAN POWER - MOUNTAINEER PLANT	5	Engines Exhausts (2) for Emergency Fire	WV	WV_1_5	419,000	4,314,700	590	2.1	0.01	0.01	255
54-053-00054	APG Polytech LLC	0	PLANTWIDE FUGITIVES	WV	WV_2_1	398,017	4,280,174	580	9.1	0.01	0.01	-0.01
54-053-00054	APG Polytech LLC	3	CP-3 BORN HEATER	WV	WV_2_2	398,017	4,280,174	580	30.5	1.2	7.59	561
54-053-00054	APG Polytech LLC	4	CP-3 BONO HEATER	WV	WV_2_3	398,017	4,280,174	580	7.6	0.5	7.55	533
54-053-00054	APG Polytech LLC	5	CP-4 BORN HEATER	WV	WV_2_4	398,017	4,280,174	580	30.5	1.2	6.08	561
54-053-00054	APG Polytech LLC	6	CP-2 BORN Heater	WV	WV_2_5	398,017	4,280,174	580	3.0	0.1	0.16	294
54-079-00006	APPALACHIAN POWER COMPANY - JOHN E AMOS	0	PLANTWIDE FUGITIVES	WV	WV_3_1	428,200	4,258,400					255
54-079-00006	APPALACHIAN POWER COMPANY - JOHN E AMOS	1	AUX 1 STACK	WV	WV_3_2	428,200	4,258,400	585	31.7	2.1	36.58	659
54-079-00006	APPALACHIAN POWER COMPANY - JOHN E AMOS	13	UNIT 1 STACK	WV	WV_3_3	428,200	4,258,400	585	275.2	10.3	15.24	326
54-079-00006	APPALACHIAN POWER COMPANY - JOHN E AMOS	14	UNIT 2 STACK	WV	WV_3_4	428,200	4,258,400	585	275.2	10.3	15.24	326
54-079-00006	APPALACHIAN POWER COMPANY - JOHN E AMOS	2	AUX 3 STACK	WV	WV_3_5	428,200	4,258,400	585	61.0	2.1	32.92	604
54-079-00006	APPALACHIAN POWER COMPANY - JOHN E AMOS	3	UNIT 3 STACK	WV	WV_3_6	428,200	4,258,400	585	275.2	13.0	15.30	326
54-079-00006	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	Cop Emerg Gen Exhst	Coping Power Emergency Generator Exhaust	WV	WV_3_7	428,200	4,258,400	585	4.4	0.3	108.84	736
54-053-00007	ICL-North America Inc - GALLIPOLIS FERRY PLANT	17	UNIT III T-41	WV	WV_4_1	396,000	4,292,000	597	13.7	0.1	11.7	297
54-053-00007	ICL-North America Inc - GALLIPOLIS FERRY PLANT	29	B-5A	WV	WV_4_2	396,000	4,292,000	597	21.3	1.0	21.5	441
54-053-00007	ICL-North America Inc - GALLIPOLIS FERRY PLANT	30	B-6	WV	WV_4_3	396,000	4,292,000	597	12.2	1.1	13.6	436
54-053-00007	ICL-North America Inc - GALLIPOLIS FERRY PLANT	31	F-5	WV	WV_4_4	396,000	4,292,000	597	4.3	0.5	9.4	555
54-053-00007	ICL-North America Inc - GALLIPOLIS FERRY PLANT	32	F-6	WV	WV_4_5	396,000	4,292,000	597	4.3	0.5	7.3	555
54-053-00007	ICL-North America Inc - GALLIPOLIS FERRY PLANT	34	F-8	WV	WV_4_6	396,000	4,292,000	597	5.5	0.3	2.8	555
54-053-00007	ICL-North America Inc - GALLIPOLIS FERRY PLANT	37	B-183	WV	WV_4_7	396,000	4,292,000	597	0	0.01	0.01	-0.01
54-053-00007	ICL-North America Inc - GALLIPOLIS FERRY PLANT	39	B-231	WV	WV_4_8	396,000	4,292,000	597	0	0.01	0.01	-0.01
54-053-00007	ICL-North America Inc - GALLIPOLIS FERRY PLANT	40	B-296	WV	WV_4_9	396,000	4,292,000	597	0	0.01	0.01	-0.01
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	1	LMSC-0010	WV	WV_5_1	413,500	4,272,200	575	14.3	0.8	19.5	302
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	2	ENGINE TEST CELLS	WV	WV_5_2	413,500	4,272,200	575	14.3	0.8	1.0	811
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	3	LMSC-0011	WV	WV_5_3	413,500	4,272,200	575	14.3	0.8	20.9	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	4	LMSC-0012	WV	WV_5_4	413,500	4,272,200	575	14.3	0.8	20.0	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	5	LMSC-0013	WV	WV_5_5	413,500	4,272,200	575	14.3	0.8	21.2	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	8	LMDC-0002	WV	WV_5_6	413,500	4,272,200	575	14.3	0.6	22.1	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	9	LMSC-0005	WV	WV_5_7	413,500	4,272,200	575	14.3	0.6	22.9	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	11	LMDC-0003	WV	WV_5_8	413,500	4,272,200	575	14.3	0.6	21.3	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	14	LMSC-0017	WV	WV_5_9	413,500	4,272,200	575	14.3	0.6	20.2	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	17	LMWB-0006	WV	WV_5_10	413,500	4,272,200	575	11.9	0.3	1.1	310
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	18	SC-0059	WV	WV_5_11	413,500	4,272,200	575	11.9	0.3	0.1	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	20	JMTS-0181	WV	WV_5_12	413,500	4,272,200	575	11.9	0.3	0.1	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	21	LMWB-0002	WV	WV_5_13	413,500	4,272,200	575	11.9	0.3	0.1	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	22	JMZK-0011	WV	WV_5_14	413,500	4,272,200	575	11.9	0.3	0.1	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	23	WB-0074	WV	WV_5_15	413,500	4,272,200	575	12.2	0.3	5.1	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	24	LMZY-0155	WV	WV_5_16	413,500	4,272,200	575	14.3	0.7	4.8	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	25	NLSC-0216	WV	WV_5_17	413,500	4,272,200	575	14.3	0.6	20.3	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	26	LMSC-0001	WV	WV_5_18	413,500	4,272,200	575	12.8	0.8	3.4	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	29	LMWB-0028	WV	WV_5_19	413,500	4,272,200	575	11.9	0.6	0.5	328
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	30	WB-0091	WV	WV_5_20	413,500	4,272,200	575	10.4	0.3	0.5	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	31	WB-0093	WV	WV_5_21	413,500	4,272,200	575	10.4	0.3	0.5	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	32	WB-0092	WV	WV_5_22	413,500	4,272,200	575	10.4	0.3	0.5	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	33	JMSB-0003	WV	WV_5_23	413,500	4,272,200	575	10.4	0.3	0.5	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	34	LMWB-0060	WV	WV_5_24	413,500	4,272,200	575	3.0	0.3	0.9	320
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	35	NL-0018	WV	WV_5_25	413,500	4,272,200	575	11.3	0.6	0.4	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	36	PB-0001	WV	WV_5_26	413,500	4,272,200	575	11.3	0.6	0.4	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	37	JMSB-0001	WV	WV_5_27	413,500	4,272,200	575	10.4	0.3	0.5	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	38	LMSB-0002	WV	WV_5_28	413,500	4,272,200	575	10.4	0.3	5.6	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	39	ZY-0446	WV	WV_5_29	413,500	4,272,200	575	14.3	0.8	0.3	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	40	LMZY-0157	WV	WV_5_30	413,500	4,272,200	575	14.3	0.7	20.2	303
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	41	LMZY-0158	WV	WV_5_31	413,500	4,272,200	575	14.3	0.8	14.6	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	42	LMZY-0159	WV	WV_5_32	413,500	4,272,200	575	14.3	0.7	9.3	301
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	43	LMZY-0160	WV	WV_5_33	413,500	4,272,200	575	14.3	0.7	8.8	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	44	LMZY-0161	WV	WV_5_34	413,500	4,272,200	575	14.3	0.7	9.1	301
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	46	LMZY-0260	WV	WV_5_35	413,500	4,272,200	575	14.3	0.8	0.3	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	47	LMWB-0105	WV	WV_5_36	413,500	4,272,200	575	14.3	0.4	0.5	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	48	LMWB-071	WV	WV_5_37	413,500	4,272,200	575	14.3	0.8	0.3	305
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	49	LMWB-072	WV	WV_5_38	413,500	4,272,200	575	14.3	0.4	0.5	305
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	50	LMWB-073	WV	WV_5_39	413,500	4,272,200	575	14.3	0.4	0.5	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	51	LMWB-074	WV	WV_5_40	413,500	4,272,200	575	14.3	0.4	0.5	305
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	52	JHFH-0003	WV	WV_5_41	413,500	4,272,200	575	11.3	0.1	1.7	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	53	JHFH-0004	WV	WV_5_42	413,500	4,272,200	575	10.4	0.3	0.5	305
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	54	JHZE-0003 1&2	WV	WV_5_43	413,500	4,272,200	575	10.4	0.3	6.5	305
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	55	JHZE-0003 3	WV	WV_5_44	413,500	4,272,200	575	10.4	0.3	0.5	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	56	LMWB-0107	WV	WV_5_45	413,500	4,272,200	575	14.3	0.3	0.5	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	58	JMZK-0058	WV	WV_5_46	413,500	4,272,200	575	14.3	0.3	0.5	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	64	JMTS-0072	WV	WV_5_47	413,500	4,272,200	575	11.3	0.3	1.7	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	65	MZ-WB	WV	WV_5_48	413,500	4,272,200	575	14.3	0.3	32.6	305
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	66	MZ-SB	WV	WV_5_49	413,500	4,272,200	575	14.3	0.3	5.5	309
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	67	TS-172	WV	WV_5_50	413,500	4,272,200	575	11.3	0.4	0.2	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	68	WB-068	WV	WV_5_51	413,500	4,272,200	575	14.3	0.6	0.5	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	69	WB-0094	WV	WV_5_52	413,500	4,272,200	575	9.1	0.4	3.6	305
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	70	WB-0095	WV	WV_5_53	413,500	4,272,200	575	9.1	0.4	3.6	305
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	71	WB-0096	WV	WV_5_54	413,500	4,272,200	575	9.1	0.4	3.6	305
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	72	WB-098	WV	WV_5_55	413,500	4,272,200	575	9.1	0.4	3.6	305
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	73	WB-0109	WV	WV_5_56	413,500	4,272,200	575	9.1	0.4	3.6	305
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	74	WB-0097	WV	WV_5_57	413,500	4,272,200	575	9.1	0.4	3.6	305
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	998	NOT A REAL STACK	WV	WV_5_58	413,500	4,272,200	575	0	0.01	0.01	-0.01

Nucor West Virginia Steel Mill
PSD Air Dispersion Modeling
Regional Source Inventory

Table C-4. Source Parameters

Facility ID	Facility Name	Emission Unit ID	Emission Unit Description	State	Model Source ID	Easting (m)	Northing (m)	Elevation (ft)	Stack Height (m)	Stack Diameter (m)	Exit Velocity (m/s)	Exit Temperature K
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	B001	Unit #1 Boiler	OH	OH_1_1	402,257	4,308,093	586	253.0	7.5	15.3	326
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	B002	Unit #2 Boiler	OH								
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	B003	Unit #3 Boiler	OH								
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	B004	Unit #4 Boiler	OH	OH_1_4	402,248	4,308,099	586	253.0	9.2	15.2	326
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	B005	Unit #5 Boiler	OH								
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	F001	Existing Plant Parking Areas and Roadways	OH	OH_1_6	402,248	4,308,099	586	3.05	0.01	0.01	-0.01
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	F002	Existing Coal Storage Area	OH								
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	F003	Coal Handling Facilities	OH								
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	F006	Flue Gas Desulfurization(FGD)Limestone Handling System	OH								
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	F007	Limestone and Gypsum Storage Piles	OH								
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	F008	Gypsum Handling System	OH								
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	F010	Residual Waste Landfill Roadways	OH								
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	F012	Flue Gas Desulfurization(FGD) Landfill	OH								
0627010056	General James M. Gavin Power Plant	B001	Unit 1 Auxiliary Steam Boiler	OH	OH_2_1	403,277	4,310,126	573	91.4	3.35	26.82	422.04
0627010056	General James M. Gavin Power Plant	B002	Unit 2 Auxiliary Steam Boiler	OH	OH_2_2	403,345	4,310,254	572	91.4	3.35	26.82	422.04
0627010056	General James M. Gavin Power Plant	B003	Unit 1 Main Boiler	OH	OH_2_3	403,277	4,310,126	573	253.0	12.8	14.9	716
0627010056	General James M. Gavin Power Plant	B004	Unit 2 Main Boiler	OH	OH_2_4	403,345	4,310,254	572	253.0	12.8	14.9	716
0627010056	General James M. Gavin Power Plant	P006	Unit 1 Cooling Tower	OH	OH_2_5	403,345	4,310,254	572	15.2	2.1	9.1	-0.01
0627010056	General James M. Gavin Power Plant	P007	Unit 2 Cooling Tower	OH	OH_2_6	403,345	4,310,254	572	15.2	2.1	9.1	-0.01
0627010056	General James M. Gavin Power Plant	P008	SO3 Mitigation System	OH	OH_2_7	403,345	4,310,254	572	4.6	1.2	15.2	-0.01
0627010056	General James M. Gavin Power Plant	P902	Limestone and Lime Handling Systems	OH	OH_2_8	403,345	4,310,254	572	4.6	1.2	15.2	-0.01
0627010056	General James M. Gavin Power Plant	F001	Coal Handling Operations	OH	OH_2_9	402,490	4,310,397	576	3.0	0.01	0.01	-0.01
0627010056	General James M. Gavin Power Plant	F002	Flue Gas Desulfurization (FGD) Storage Piles and Landfill Operations	OH		402,920	4,310,285	576				
0627010056	General James M. Gavin Power Plant	F003	Roadways and Parking Areas	OH		402,920	4,310,285	576				
0627010056	General James M. Gavin Power Plant	F007	Coal Storage Piles	OH		402,920	4,310,285	576				
0627000046	Shelly Liquid Division	B001	Boiler/Heater	OH	OH_3_5	400751	4301287	561	9.144	1.524	20	288.71
0627000046	Shelly Liquid Division	F001	Roadways and Parking Areas	OH								
0627000046	Shelly Liquid Division	J001	Truck Loading	OH								
0627000046	Shelly Liquid Division	J002	Truck Loading	OH								
664000074	Shelly Material Plant 2 formerly Allied Corp Plant	F001	Roadways and Parking Areas	OH	OH_5_4	398437	4303001	565	9.144	1.524	20	288.71
0664000074	Shelly Material Plant 2 formerly Allied Corp Plant	F002	Storage Piles	OH								
0664000074	Shelly Material Plant 2 formerly Allied Corp Plant	P901	Rotary Drum Dryer	OH								
2101900004	MPLX Terminals LLC - Catlettsburg Refining	B023	#11 Boiler	KY	KY_1_1	360,727	4,248,935	560	2.1	45.7	5.8	449
2101900004	MPLX Terminals LLC - Catlettsburg Refining	B024	#13 Package Boiler	KY	KY_1_2	360,727	4,248,935	560	1.6	22.9	19.9	431
2101900004	MPLX Terminals LLC - Catlettsburg Refining	B025	#14 Package Boiler	KY	KY_1_3	360,727	4,248,935	560	1.6	22.9	19.9	434
2101900004	MPLX Terminals LLC - Catlettsburg Refining	CT01	Petrochem Cooling Tower (#1) East	KY	KY_1_4	360,727	4,248,935	560	6.7	16.9	9.7	286
2101900004	MPLX Terminals LLC - Catlettsburg Refining	CT02	Petrochem Cooling Tower (#2) West	KY	KY_1_5	360,727	4,248,935	560	6.7	16.9	9.7	286
2101900004	MPLX Terminals LLC - Catlettsburg Refining	CT04	Lube Plant Cooling Tower	KY	KY_1_6	360,727	4,248,935	560	7.3	19.9	12.5	286
2101900004	MPLX Terminals LLC - Catlettsburg Refining	CT05	North Area Cooling Tower (#3) Middle	KY	KY_1_7	360,727	4,248,935	560	6.7	13.5	7.4	286
2101900004	MPLX Terminals LLC - Catlettsburg Refining	CT06	North Area Cooling Tower (#1) East	KY	KY_1_8	360,727	4,248,935	560	6.7	14.4	9.2	286
2101900004	MPLX Terminals LLC - Catlettsburg Refining	CT07	North Area Cooling Tower (#3) Middle	KY	KY_1_9	360,727	4,248,935	560	7.3	19.9	13.7	286
2101900004	MPLX Terminals LLC - Catlettsburg Refining	CT08	North Area Cooling Tower (#2) West	KY	KY_1_10	360,727	4,248,935	560	5.5	16.9	9.8	286
2101900004	MPLX Terminals LLC - Catlettsburg Refining	CT09	Gas Con Area Cooling Tower	KY	KY_1_11	360,727	4,248,935	560	7.3	18.1	12.7	286
2101900004	MPLX Terminals LLC - Catlettsburg Refining	CT10	HF Alky Area Cooling Tower	KY	KY_1_12	360,727	4,248,935	560	7.3	16.2	10.6	286
2101900004	MPLX Terminals LLC - Catlettsburg Refining	CT11	FCCU Area Cooling Tower	KY	KY_1_13	360,727	4,248,935	560	8.5	12.6	8.5	286
2101900004	MPLX Terminals LLC - Catlettsburg Refining	CT12	SRU/DDS Cooling Tower	KY	KY_1_14	360,727	4,248,935	560	7.9	18.3	11.9	286
2101900004	MPLX Terminals LLC - Catlettsburg Refining	CT13	Portable Temporary Cooling Tower Replacement Cell	KY	KY_1_15	360,727	4,248,935	560				303
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG001	Radio Tower #2 Emergency (50kW) Generator	KY	KY_1_16	360,727	4,248,935	560	0.1	1.2	22.5	924
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG002	Radio Tower #1 Emergency (75kW) Generator	KY	KY_1_17	360,727	4,248,935	560	0.1	1.2	25.8	844
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG101	Firewater Pump House Engine	KY	KY_1_18	360,727	4,248,935	560	0.1	3.7	30.6	783
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG102	Firewater Pump House Engine	KY	KY_1_19	360,727	4,248,935	560	0.1	3.7	30.6	783
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG103	Firelake Firewater Pump Engine	KY	KY_1_20	360,727	4,248,935	560	0.1	3.7	45.8	783
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG104	Hcoal Firewater Pump Engine	KY	KY_1_21	360,727	4,248,935	560	0.1	3.7	60.7	728
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG105	Firelake Firewater Pump Engine	KY	KY_1_22	360,727	4,248,935	560	0.1	6.1	271.8	791
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG106	Firelake Firewater Pump Engine	KY	KY_1_23	360,727	4,248,935	560	0.1	6.1	271.8	751
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG107	Firelake Firewater Pump Engine	KY	KY_1_24	360,727	4,248,935	560	0.1	1.5	271.8	751
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG201	Lube Area Flare Knockout Drum Pump Engine	KY	KY_1_25	360,727	4,248,935	560	0.1	1.5	24.7	300
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG302	Water Pump Engine at the Centrifuge	KY	KY_1_26	360,727	4,248,935	560	0.1	2.4	15.3	783
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG303	Godwin Pump Engine Viney Branch	KY	KY_1_27	360,727	4,248,935	560	0.1	1.5	15.3	783
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG305	FCC Hill Run-off Water Pump Engine	KY	KY_1_28	360,727	4,248,935	560	0.1	0.9	6.9	783
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG306	Compressor engine(1) at #10 boiler house	KY	KY_1_29	360,727	4,248,935	560	0.1	2.1	110.0	783
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG307	Compressor engine(2) at #10 boiler house	KY	KY_1_30	360,727	4,248,935	560	0.1	2.1	110.0	783
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG308	South End AI Compressor engine	KY	KY_1_31	360,727	4,248,935	560	0.1	2.1	110.0	783
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG309	HCoal Storm Water Pump Engine	KY	KY_1_32	360,727	4,248,935	560	0.1	1.5	15.3	783
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG310	East Viney Tunnel Sump Pump Engine	KY	KY_1_33	360,727	4,248,935	560	0.1	1.5	15.3	783
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG311	Blowdown Ponds Pump engine	KY	KY_1_34	360,727	4,248,935	560	0.1	1.5	7.2	783
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP001	--	KY	KY_1_35							255
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP002	--	KY	KY_1_36							255
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP003	Dissolved Air Flotation Unit	KY	KY_1_37	360,727	4,248,935					298
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP017	FCC Regenerator	KY	KY_1_38	360,727	4,248,935	560	3.7	53.3	14.9	577
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP019	FCCU Fresh Catalyst Hopper	KY	KY_1_39	360,727	4,248,935	560	0.2	32.0	8.4	298
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP020	FCCU Spent Catalyst Shipping Bin (Offsite)	KY	KY_1_40	360,727	4,248,935	560	0.2	7.0	1.4	311
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP028	FCCU Fresh/Spent Catalyst Hopper	KY	KY_1_41	360,727	4,248,935	560	0.3	25.0	3.0	366
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP029	FCCU Spent Catalyst Hopper	KY	KY_1_42	360,727	4,248,935	560	0.2	25.9	11.7	366
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP030	FCCU Catalyst Hopper (Truck unloading)	KY	KY_1_43	360,727	4,248,935	560	0.4	31.1	14.5	366
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP031	FCCU Fresh/Spent Catalyst Hopper	KY	KY_1_44	360,727	4,248,935	560	0.2	29.9	12.6	311
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP034	FCCU SOx control addition Hopper	KY	KY_1_45	360,727	4,248,935	560				303
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP035	FCCU NOx /Super Z Addition Hopper	KY	KY_1_46	360,727	4,248,935	560				303
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP14	--	KY	KY_1_47							255
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP16	--	KY	KY_1_48							255
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP17	--	KY	KY_1_49							255
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP18	--	KY	KY_1_50							255
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP19	--	KY	KY_1_51							255
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP20	--	KY	KY_1_52							255
2101900004	MPLX Terminals LLC - Catlettsburg Refining	FL02	NNA Flare	KY	KY_1_53	360,727	4,248,935	560	0.9	45.7	1.0	922
2101900004	MPLX Terminals LLC - Catlettsburg Refining	FL03	HF Alky Flare	KY	KY_1_54	360,727	4,248,935	560	0.9	75.9	0.7	922
2101900004	MPLX Terminals LLC - Catlettsburg Refining	FL04	FCC Flare	KY	KY_1_55	360,727	4,248,935	560	0.4	22.9	2.7	768

Nucor West Virginia Steel Mill
PSD Air Dispersion Modeling
Regional Source Inventory

Table C-4. Source Parameters

Facility ID	Facility Name	Emission Unit ID	Emission Unit Description	State	Model Source ID	Easting (m)	Northing (m)	Elevation (ft)	Stack Height (m)	Stack Diameter (m)	Exit Velocity (m/s)	Exit Temperature K
2101900004	MPLX Terminals LLC - Catlettsburg Refining	FL05	Lube Area Flare	KY	KY_1_56	360,727	4,248,935	560	0.9	61.0	1.0	922
2101900004	MPLX Terminals LLC - Catlettsburg Refining	FUG200	Sulfur solidification in the earthen pit and disposition of solid sulfur in land fill	KY	KY_1_57	360,727	4,248,935	560				561
2101900004	MPLX Terminals LLC - Catlettsburg Refining	FUG201	Solid and liquid sulfur hauling to landfill	KY	KY_1_58	360,727	4,248,935	560				303
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H003	CCR#2 Guardcase Heater	KY	KY_1_59	360,727	4,248,935	560	2.1	45.7	4.5	674
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H004	Aliphatics Hot Oil Heater	KY	KY_1_60	360,727	4,248,935	560	1.8	24.7	8.9	537
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H005	Asphalt Heaters for Tank 119	KY	KY_1_61	360,727	4,248,935	560	0.8	17.1	10.3	866
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H006	Asphalt Heaters for Tank 118	KY	KY_1_62	360,727	4,248,935	560	0.8	17.2	10.3	865
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H007	ADS Charge Heater	KY	KY_1_63	360,727	4,248,935	560	1.4	20.4	4.5	515
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H008	ADS #2 Tower Reboiler	KY	KY_1_64	360,727	4,248,935	560	1.1	35.1	3.5	643
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H009	SHU Hot Oil Heater	KY	KY_1_65	360,727	4,248,935	560	1.1	13.7	16.8	785
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H010	SHU/SPU Hot Oil Heater	KY	KY_1_66	360,727	4,248,935	560	1.3	20.4	10.4	633
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H011	SHU Reactor Charge Heater	KY	KY_1_67	360,727	4,248,935	560	1.1	13.7	17.7	589
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H012	SPU Reactor Charge Heater	KY	KY_1_68	360,727	4,248,935	560	1.2	29.0	1.9	575
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H013	Benzene Recycle Column Reboiler	KY	KY_1_69	360,727	4,248,935	560	1.8	42.7	6.0	518
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H014	Cumene Reboiler	KY	KY_1_70	360,727	4,248,935	560	1.1	33.8	3.6	523
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H015	Lube Vacuum Charge Heater	KY	KY_1_71	360,727	4,248,935	560	2.1	53.3	5.5	428
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H017	#5 Crude Charge Heater	KY	KY_1_72	360,727	4,248,935	560	2.8	76.2	10.1	566
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H018	LEP Dehexanizer Reboiler	KY	KY_1_73	360,727	4,248,935	560	2.8	76.2	10.1	602
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H019	#4 Vacuum Heater	KY	KY_1_74	360,727	4,248,935	560	2.4	53.3	5.9	552
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H020	No.4 Vacuum Charge Heater	KY	KY_1_75	360,727	4,248,935	560	2.8	76.2	6.0	482
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H021	#3 Crude Charge Heater	KY	KY_1_76	360,727	4,248,935	560	2.9	53.3	6.1	644
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H022	#3 Crude Charge Heater	KY	KY_1_77	360,727	4,248,935	560	2.9	53.3	5.3	630
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H023	Sat Gas Fractionator Reboiler	KY	KY_1_78	360,727	4,248,935	560	2.8	39.9	3.0	484
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H024	Asphalt Mix Heater	KY	KY_1_79	360,727	4,248,935	560	1.3	33.5	1.8	820
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H025	SDA Hot Oil Heater	KY	KY_1_80	360,727	4,248,935	560	1.3	33.5	3.5	587
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H026	ISOM Unit Heaters	KY	KY_1_81	360,727	4,248,935	560	2.1	50.3	6.1	546
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H027	ISOM Regenerator Vapor Super Heater	KY	KY_1_82	360,727	4,248,935	560	0.6	15.2	3.6	422
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H028	HF Alky Isostripper Reboiler	KY	KY_1_83	360,727	4,248,935	560	2.1	76.2	5.0	466
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H029	HF Alky Hot Oil Heater	KY	KY_1_84	360,727	4,248,935	560	0.6	12.2	2.3	564
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H030	NPT Charge & Reboiler	KY	KY_1_85	360,727	4,248,935	560	1.9	76.2	7.7	583
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H031	HPCCR Reactor Heater	KY	KY_1_86	360,727	4,248,935	560	2.4	54.9	9.1	523
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H032	HPCCR Reactor Heater	KY	KY_1_87	360,727	4,248,935	560	2.4	54.9	8.2	545
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H033	HPCCR Reactor Heater	KY	KY_1_88	360,727	4,248,935	560	2.4	54.9	7.4	495
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H034	LPVGO Hydrotreater Charge Heater	KY	KY_1_89	360,727	4,248,935	560	1.8	61.3	5.9	540
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H035	LPVGO Hydrotreater Charge Heater	KY	KY_1_90	360,727	4,248,935	560	1.8	61.3	6.0	523
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H036	LPVGO Stripper Reboiler	KY	KY_1_91	360,727	4,248,935	560	2.2	63.1	5.7	469
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H037	HPVGO Charge Heater	KY	KY_1_92	360,727	4,248,935	560	1.8	56.4	8.3	689
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H038	HPVGO Charge Heater	KY	KY_1_93	360,727	4,248,935	560	1.8	56.4	8.2	714
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H039	SRU#1 Thermal Oxidizer	KY	KY_1_94	360,727	4,248,935	560	1.6	76.2	10.3	539
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H040	FCC Startup Heater (direct-fired)	KY	KY_1_95	360,727	4,248,935	560	2.4	53.3	1.2	450
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H041	FCC Heat Recovery Units	KY	KY_1_96	360,727	4,248,935	560	2.9	70.1	23.0	450
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H042	Cumene Column Reboiler	KY	KY_1_97	360,727	4,248,935	560	1.6	54.9	6.4	533
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H043	DDS Reactor Charge Heater	KY	KY_1_98	360,727	4,248,935	560	1.5	53.3	6.6	612
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H044	DDS Reactor Charge Heater	KY	KY_1_99	360,727	4,248,935	560	1.5	53.3	6.6	622
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H045	DDS Reactor Stripper Reboiler	KY	KY_1_100	360,727	4,248,935	560	2.1	53.3	5.8	556
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H046	CCR #2 Charge Heater	KY	KY_1_101	360,727	4,248,935	560	3.5	64.9	8.5	550
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H047	CCR #2 No. 1 Interheater	KY	KY_1_102	360,727	4,248,935	560	3.5	64.9	8.5	550
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H048	CCR #2 No. 2 Interheater	KY	KY_1_103	360,727	4,248,935	560	3.5	64.9	8.5	550
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H049	CCR #2 No. 3 Interheater	KY	KY_1_104	360,727	4,248,935	560	3.5	64.9	8.5	550
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H050	CCR #2 Reboiler	KY	KY_1_105	360,727	4,248,935	560	3.5	64.9	8.5	550
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H051	KDS Unit Charge Heater	KY	KY_1_106	360,727	4,248,935	560	1.5	53.3	8.3	505
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H052	Lube Plant Asphalt Oxidizer Fume Burner	KY	KY_1_107	360,727	4,248,935	560	2.1	53.3	5.5	428
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H055	Asphalt Tank Heaters (3) for Tank 16	KY	KY_1_108	360,727	4,248,935	560	0.2	17.1	0.0	755
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H056	Asphalt Tank Heaters (3) for Tank 31	KY	KY_1_109	360,727	4,248,935	560	0.2	17.1	0.0	755
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H058	Asphalt Tank Heaters (3) for Tank 72	KY	KY_1_110	360,727	4,248,935	560	0.2	17.1	0.0	450
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H064	Asphalt Tank Heaters (3) for Tank 833	KY	KY_1_111	360,727	4,248,935	560	0.2	17.1	0.0	450
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H065	Asphalt Tank Heaters (3) for Tank 849	KY	KY_1_112	360,727	4,248,935	560	0.2	17.1	0.0	450
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H067	Asphalt Tank Heaters (2) for Tank 871	KY	KY_1_113	360,727	4,248,935	560	0.2	17.1	0.0	450
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H068	Pitch Tank Heaters (2) for Tank 808	KY	KY_1_114	360,727	4,248,935	560	0.2	17.1	0.0	394
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H069	Asphalt Tank Heater (1) for Tank 67	KY	KY_1_115	360,727	4,248,935	560	0.2	17.1	0.0	478
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H071	Asphalt Tank Heaters (1 ea) for Tank 69, 70 and 71	KY	KY_1_116	360,727	4,248,935	560	0.2	16.2	0.0	450
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H072	Asphalt Tank Heaters (2) for Tank 872	KY	KY_1_117	360,727	4,248,935	560	0.2	17.1	0.0	478
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H073	Condensate Naphtha Splitter Reboiler	KY	KY_1_118	360,727	4,248,935	560	1.6	53.3	4.8	586
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H076	#2 SRU Thermal Oxidizer	KY	KY_1_119	360,727	4,248,935	560	1.1	64.9	22.2	539
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H078	Asphalt Tank Heater (T172)	KY	KY_1_120	360,727	4,248,935	560	9.1	0.01	0.01	355
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H079	Portable thermal oxidizer-tank cleaning	KY	KY_1_121	360,727	4,248,935	560	1.2	12.2	10.3	700
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H080	Portable thermal oxidizer-tank cleaning	KY	KY_1_122	360,727	4,248,935	560	1.2	12.2	10.3	700
2101900004	MPLX Terminals LLC - Catlettsburg Refining	T172	1-6-TK-172 - Asphalt Tank	KY	KY_1_123	360,727	4,248,935	560				297
2101900004	MPLX Terminals LLC - Catlettsburg Refining	VDUI-1	New Solvent Truck Rack and Solvent (A&A) Railcar Rack	KY	KY_1_124	360,727	4,248,935	560	2.1	18.3	0.3	1089
2101900004	MPLX Terminals LLC - Catlettsburg Refining	VDUI-2	Light Oil Dock VDU	KY	KY_1_125	360,727	4,248,935	560	0.6	10.7	1.9	394
2101900004	MPLX Terminals LLC - Catlettsburg Refining	VEPR01	Crude Dock VEPR Blower	KY	KY_1_126	360,727	4,248,935	560	9.1	0.01	0.01	297

Nucor West Virginia Steel Mill
PSD Air Dispersion Modeling
Regional Source Inventory

Table C-4. Source Parameters

Facility ID	Facility Name	Emission Unit ID	Emission Unit Description	State	Model Source ID	Short Term Emission Rates NOx (lb/hr)	SO2 (lb/hr)	CO (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	Lead (lb/hr)	Long Term Emission Rates NOx (tpy)	SO2 (tpy)	CO (tpy)	PM10 (tpy)	PM2.5 (tpy)	Lead (tpy)
54-053-00009	APPALACHIAN POWER - MOUNTAINEER PLANT	0	PLANTWIDE FUGITIVES	WV	WV_1_1	--	--	--	8.03	1.52	--	--	--	--	35.17	6.68	--
54-053-00009	APPALACHIAN POWER - MOUNTAINEER PLANT	1	UNIT 1 STACK	WV	WV_1_2	688.45	823.04	154.14	15.76	12.26	0.01	3,015.40	3,604.90	675.13	69.03	53.70	0.03
54-053-00009	APPALACHIAN POWER - MOUNTAINEER PLANT	2	AUX 1 & 2 COMMON STACK	WV	WV_1_3	2.53	0.18	0.63	0.29	0.19	--	11.07	0.79	2.77	1.27	0.85	--
54-053-00009	APPALACHIAN POWER - MOUNTAINEER PLANT	4	Coping Power Emergency Generator Exhaust	WV	WV_1_4	Intermittent Sources are excluded from Short Term Model.						0.35	0.00	0.05	--	--	--
54-053-00009	APPALACHIAN POWER - MOUNTAINEER PLANT	5	Engines Exhausts (2) for Emergency Fire	WV	WV_1_5	Intermittent Sources are excluded from Short Term Model.						0.02	0.01	0.01	--	--	--
54-053-00054	APG Polytech LLC	0	PLANTWIDE FUGITIVES	WV	WV_2_1	0.96	0.01	0.54	0.54	0.54	0.00	4.20	0.06	2.35	2.37	2.37	0.00
54-053-00054	APG Polytech LLC	3	CP-3 BORN HEATER	WV	WV_2_2	2.17	0.04	1.26	0.26	0.26	0.00	9.52	0.16	5.53	1.16	1.16	0.00
54-053-00054	APG Polytech LLC	4	CP-3 BONO HEATER	WV	WV_2_3	1.00	0.01	0.84	0.13	0.13	0.00	4.40	0.03	3.69	0.58	0.58	0.00
54-053-00054	APG Polytech LLC	5	CP-4 BORN HEATER	WV	WV_2_4	2.20	0.04	1.28	0.22	0.22	0.00	9.64	0.16	5.60	0.97	0.97	0.00
54-053-00054	APG Polytech LLC	6	CP-2 BORN Heater	WV	WV_2_5	0.02	0.04	0.52	0.07	0.07	0.00	0.07	0.15	2.26	0.32	0.32	0.00
54-079-00006	APPALACHIAN POWER COMPANY - JOHN E AMOS	0	PLANTWIDE FUGITIVES	WV	WV_3_1	--	--	--	3.71	2.13	--	--	--	--	16.23	9.31	--
54-079-00006	APPALACHIAN POWER COMPANY - JOHN E AMOS	1	AUX 1 STACK	WV	WV_3_2	1.71	0.12	0.43	0.20	0.13	--	7.48	0.53	1.87	0.86	0.58	--
54-079-00006	APPALACHIAN POWER COMPANY - JOHN E AMOS	13	UNIT 1 STACK	WV	WV_3_3	222.64	135.68	57.26	7.13	5.59	0.00	975.17	594.27	250.80	31.25	24.47	0.01
54-079-00006	APPALACHIAN POWER COMPANY - JOHN E AMOS	14	UNIT 2 STACK	WV	WV_3_4	281.13	263.24	70.40	6.94	5.42	0.00	1,231.36	1,152.99	308.36	30.39	23.75	0.02
54-079-00006	APPALACHIAN POWER COMPANY - JOHN E AMOS	2	AUX 3 STACK	WV	WV_3_5	1.55	0.11	0.39	0.18	0.12	--	6.78	0.48	1.70	0.78	0.52	--
54-079-00006	APPALACHIAN POWER COMPANY - JOHN E AMOS	3	UNIT 3 STACK	WV	WV_3_6	581.56	486.51	108.57	22.90	17.82	0.01	2,547.22	2,130.90	475.55	100.30	78.07	0.03
54-079-00006	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	Cop Emerg Gen Exhst	Coping Power Emergency Generator Exhaust	WV	WV_3_7	0.44	0.00	0.06	0.00	0.00	--	1.91	0.01	0.25	0.02	0.02	--
54-053-00007	ICL-North America Inc - GALLIPOLIS FERRY PLANT	17	UNIT III T-41	WV	WV_4_1	--	--	--	0.00	0.00	--	--	--	--	0.00	0.00	--
54-053-00007	ICL-North America Inc - GALLIPOLIS FERRY PLANT	29	B-5A	WV	WV_4_2	0.59	0.00	0.54	0.05	0.05	--	2.56	0.02	2.38	0.21	0.21	--
54-053-00007	ICL-North America Inc - GALLIPOLIS FERRY PLANT	30	B-6	WV	WV_4_3	2.55	0.02	2.13	0.19	0.19	--	11.16	0.07	9.35	0.85	0.85	--
54-053-00007	ICL-North America Inc - GALLIPOLIS FERRY PLANT	31	F-5	WV	WV_4_4	0.31	0.01	0.26	0.02	0.02	--	1.35	0.07	1.13	0.10	0.10	--
54-053-00007	ICL-North America Inc - GALLIPOLIS FERRY PLANT	32	F-6	WV	WV_4_5	0.13	0.01	0.11	0.01	0.01	--	0.59	0.03	0.49	0.02	0.02	--
54-053-00007	ICL-North America Inc - GALLIPOLIS FERRY PLANT	34	F-8	WV	WV_4_6	0.01	0.00	0.01	0.00	0.00	--	0.04	0.00	0.03	0.00	0.00	--
54-053-00007	ICL-North America Inc - GALLIPOLIS FERRY PLANT	37	B-183	WV	WV_4_7	0.03	0.00	0.01	0.00	0.00	--	0.14	0.01	0.03	0.01	0.01	--
54-053-00007	ICL-North America Inc - GALLIPOLIS FERRY PLANT	39	B-231	WV	WV_4_8	0.01	0.00	0.00	0.00	0.00	--	0.06	0.00	0.01	0.00	0.00	--
54-053-00007	ICL-North America Inc - GALLIPOLIS FERRY PLANT	40	B-296	WV	WV_4_9	0.02	0.00	0.00	0.00	0.00	--	0.08	0.00	0.00	0.00	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	1	LMSC-0010	WV	WV_5_1	--	--	--	0.02	0.01	--	--	--	--	0.07	0.04	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	2	ENGINE TEST CELLS	WV	WV_5_2	4.25	0.00	11.56	0.21	0.12	--	18.62	0.00	50.65	0.94	0.53	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	3	LMSC-0011	WV	WV_5_3	--	--	--	0.02	0.01	--	--	--	--	0.11	0.06	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	4	LMSC-0012	WV	WV_5_4	--	--	--	0.02	0.01	--	--	--	--	0.11	0.06	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	5	LMSC-0013	WV	WV_5_5	--	--	--	0.02	0.01	--	--	--	--	0.11	0.06	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	8	LMDC-0002	WV	WV_5_6	--	--	--	0.02	0.01	--	--	--	--	0.07	0.04	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	9	LMSC-0005	WV	WV_5_7	--	--	--	0.02	0.01	--	--	--	--	0.11	0.06	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	11	LMDC-0003	WV	WV_5_8	--	--	--	0.02	0.01	--	--	--	--	0.07	0.04	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	14	LMSC-0017	WV	WV_5_9	--	--	--	0.02	0.01	--	--	--	--	0.07	0.04	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	17	LMWB-0006	WV	WV_5_10	--	--	--	0.00	0.00	--	--	--	--	0.01	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	18	SC-0059	WV	WV_5_11	--	--	--	0.00	0.00	--	--	--	--	0.01	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	20	JMTS-0181	WV	WV_5_12	--	--	--	0.00	0.00	--	--	--	--	0.01	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	21	LMWB-0002	WV	WV_5_13	--	--	--	0.00	0.00	--	--	--	--	0.00	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	22	JMZK-0011	WV	WV_5_14	--	--	--	0.00	0.00	--	--	--	--	0.00	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	23	WB-0074	WV	WV_5_15	--	--	--	0.00	0.00	--	--	--	--	0.00	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	24	LMZY-0155	WV	WV_5_16	--	--	--	0.02	0.01	0.00	--	--	--	0.07	0.04	0.00
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	25	NLSC-0216	WV	WV_5_17	--	--	--	0.02	0.01	--	--	--	--	0.07	0.04	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	26	LMSC-0001	WV	WV_5_18	--	--	--	0.02	0.01	--	--	--	--	0.07	0.04	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	29	LMWB-0028	WV	WV_5_19	--	--	--	0.00	0.00	--	--	--	--	0.01	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	30	WB-0091	WV	WV_5_20	--	--	--	0.00	0.00	--	--	--	--	0.01	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	31	WB-0093	WV	WV_5_21	--	--	--	0.00	0.00	--	--	--	--	0.01	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	32	WB-0092	WV	WV_5_22	--	--	--	0.00	0.00	--	--	--	--	0.01	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	33	JMSB-0003	WV	WV_5_23	--	--	--	0.00	0.00	--	--	--	--	0.01	0.01	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	34	LMWB-0060	WV	WV_5_24	--	--	--	0.00	0.00	--	--	--	--	0.01	0.01	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	35	NL-0018	WV	WV_5_25	--	--	--	0.00	0.00	--	--	--	--	0.00	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	36	PB-0001	WV	WV_5_26	--	--	--	0.00	0.00	--	--	--	--	0.00	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	37	JMSB-0001	WV	WV_5_27	--	--	--	0.00	0.00	--	--	--	--	0.01	0.01	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	38	LMSB-0002	WV	WV_5_28	--	--	--	0.00	0.00	--	--	--	--	0.01	0.01	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	39	ZY-0446	WV	WV_5_29	--	--	--	0.00	0.00	--	--	--	--	0.01	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	40	LMZY-0157	WV	WV_5_30	--	--	--	0.02	0.01	--	--	--	--	0.07	0.04	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	41	LMZY-0158	WV	WV_5_31	--	--	--	0.02	0.01	--	--	--	--	0.07	0.04	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	42	LMZY-0159	WV	WV_5_32	--	--	--	0.02	0.01	--	--	--	--	0.07	0.04	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	43	LMZY-0160	WV	WV_5_33	--	--	--	0.02	0.01	--	--	--	--	0.07	0.04	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	44	LMZY-0161	WV	WV_5_34	--	--	--	0.02	0.01	--	--	--	--	0.07	0.04	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	46	LMZY-0260	WV	WV_5_35	--	--	--	0.00	0.00	--	--	--	--	0.00	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	47	LMWB-0105	WV	WV_5_36	--	--	--	0.00	0.00	--	--	--	--	0.01	0.01	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	48	LMWB-071	WV	WV_5_37	--	--	--	0.00	0.00	--	--	--	--	0.01	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	49	LMWB-072	WV	WV_5_38	--	--	--	0.00	0.00	--	--	--	--	0.01	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	50	LMWB-073	WV	WV_5_39	--	--	--	0.00	0.00	--	--	--	--	0.01	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	51	LMWB-074	WV	WV_5_40	--	--	--	0.00	0.00	--	--	--	--	0.01	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	52	JHFH-0003	WV	WV_5_41	--	--	--	0.00	0.00	--	--	--	--	0.01	0.01	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	53	JHFH-0004	WV	WV_5_42	--	--	--	0.00	0.00	--	--	--	--	0.01	0.01	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	54	JHZE-0003 1&2	WV	WV_5_43	--	--	--	0.00	0.00	--	--	--	--	0.01	0.01	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	55	JHZE-0003 3	WV	WV_5_44	--	--	--	0.00	0.00	--	--	--	--	0.01	0.01	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	56	LMWB-0107	WV	WV_5_45	--	--	--	0.00	0.00	--	--	--	--	0.01	0.01	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	58	JMZK-0058	WV	WV_5_46	--	--	--	0.00	0.00	--	--	--	--	0.01	0.01	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	64	JMTS-0072	WV	WV_5_47	--	--	--	0.00	0.00	--	--	--	--	0.01	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	65	MZ-WB	WV	WV_5_48	--	--	--	0.00	0.00	--	--	--	--	0.01	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	66	MZ-SB	WV	WV_5_49	--	--	--	0.02	0.01	--	--	--	--	0.08	0.04	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	67	TS-172	WV	WV_5_50	--	--	--	0.00	0.00	--	--	--	--	0.01	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	68	WB-068	WV	WV_5_51	--	--	--	0.00	0.00	--	--	--	--	0.00	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	69	WB-0094	WV	WV_5_52	--	--	--	0.00	0.00	--	--	--	--	0.01	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	70	WB-0095	WV	WV_5_53	--	--	--	0.00	0.00	--	--	--	--	0.01	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	71	WB-0096	WV	WV_5_54	--	--	--	0.00	0.00	--	--	--	--	0.01	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	72	WB-098	WV	WV_5_55	--	--	--	0.00	0.00	--	--	--	--	0.01	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	73	WB-0109	WV	WV_5_56	--	--	--	0.00	0.00	--	--	--	--	0.01	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	74	WB-0097	WV	WV_5_57	--	--	--	0.00	0.00	--	--	--	--	0.00	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	998	NOT A REAL STACK	WV	WV_5_58	0.26	0.00	0.06	4.27	2.42	--	1.13	0.01	0.25	18.71	10.58	--

Nucor West Virginia Steel Mill
PSD Air Dispersion Modeling
Regional Source Inventory

Table C-4. Source Parameters

Facility ID	Facility Name	Emission Unit ID	Emission Unit Description	State	Model Source ID	Short Term Emission Rates						Long Term Emission Rates					
						NOx (lb/hr)	SO2 (lb/hr)	CO (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	Lead (lb/hr)	NOx (tpy)	SO2 (tpy)	CO (tpy)	PM10 (tpy)	PM2.5 (tpy)	Lead (tpy)
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	B001	Unit #1 Boiler	OH	OH_1_1	280.61	206.95	17.84	33.85	32.93	0.00	1,229.07	906.46	78.13	148.27	144.24	0.01
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	B002	Unit #2 Boiler	OH		293.73	214.70	30.91	33.44	32.53	0.00	1,286.53	940.40	135.41	146.47	142.49	0.01
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	B003	Unit #3 Boiler	OH		263.68	188.63	27.34	32.38	29.45	0.00	1,154.94	826.22	119.75	141.83	128.99	0.01
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	B004	Unit #4 Boiler	OH	OH_1_4	272.40	195.51	28.09	31.22	28.40	0.00	1,193.11	856.35	123.02	136.76	124.38	0.01
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	B005	Unit #5 Boiler	OH		264.05	189.27	27.09	31.28	28.45	0.00	1,156.55	828.99	118.66	137.01	124.62	0.01
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	F001	Existing Plant Parking Areas and Roadways	OH	OH_1_6	--	--	--	0.19	0.11	--	--	--	--	0.83	0.46	--
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	F002	Existing Coal Storage Area	OH		--	--	--	1.06	0.60	--	--	--	--	4.64	2.63	--
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	F003	Coal Handling Facilities	OH		--	--	--	1.35	0.29	--	--	--	--	5.93	1.26	--
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	F006	Flue Gas Desulfurization(FGD)Limestone Handling System	OH		--	--	--	0.08	0.03	--	--	--	--	0.37	0.12	--
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	F007	Limestone and Gypsum Storage Piles	OH		--	--	--	0.14	0.06	--	--	--	--	0.62	0.25	--
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	F008	Gypsum Handling System	OH		--	--	--	0.02	0.00	--	--	--	--	0.08	0.02	--
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	F010	Residual Waste Landfill Roadways	OH		--	--	--	0.48	0.05	--	--	--	--	2.10	0.20	--
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	F012	Flue Gas Desulfurization(FGD) Landfill	OH		--	--	--	0.03	0.00	--	--	--	--	0.12	0.02	--
0627010056	General James M. Gavin Power Plant	B001	Unit 1 Auxiliary Steam Boiler	OH	OH_2_1	0.37	0.05	0.19	0.11	0.08	0.00	1.64	0.23	0.82	0.50	0.33	0.00
0627010056	General James M. Gavin Power Plant	B002	Unit 2 Auxiliary Steam Boiler	OH	OH_2_2	0.32	0.05	0.16	0.11	0.07	0.00	1.42	0.20	0.71	0.46	0.31	0.00
0627010056	General James M. Gavin Power Plant	B003	Unit 1 Main Boiler	OH	OH_2_3	796.86	2,891.82	162.62	242.33	129.40	0.03	3,490.25	12,666.15	712.29	1,061.42	566.79	0.11
0627010056	General James M. Gavin Power Plant	B004	Unit 2 Main Boiler	OH	OH_2_4	960.14	3,279.99	179.81	201.70	147.07	0.03	4,205.40	14,366.35	787.57	883.46	644.15	0.13
0627010056	General James M. Gavin Power Plant	P006	Unit 1 Cooling Tower	OH	OH_2_5	--	--	--	1.10	1.10	--	--	--	--	4.81	4.81	--
0627010056	General James M. Gavin Power Plant	P007	Unit 2 Cooling Tower	OH	OH_2_6	--	--	--	1.21	1.21	--	--	--	--	5.32	5.32	--
0627010056	General James M. Gavin Power Plant	P008	SO3 Mitigation System	OH	OH_2_7	--	--	--	0.08	0.08	--	--	--	--	0.37	0.37	--
0627010056	General James M. Gavin Power Plant	P902	Limestone and Lime Handling Systems	OH	OH_2_8	--	--	--	--	--	--	--	--	--	--	--	--
0627010056	General James M. Gavin Power Plant	F001	Coal Handling Operations	OH	OH_2_9	--	--	--	0.26	0.04	--	--	--	--	1.13	0.17	--
0627010056	General James M. Gavin Power Plant	F002	Flue Gas Desulfurization (FGD) Storage Piles and Landfill Operations	OH		--	--	--	11.08	1.66	--	--	--	--	48.55	7.28	--
0627010056	General James M. Gavin Power Plant	F003	Roadways and Parking Areas	OH		--	--	--	2.16	0.24	--	--	--	--	9.46	1.04	--
0627010056	General James M. Gavin Power Plant	F007	Coal Storage Piles	OH		--	--	--	6.52	0.98	--	--	--	--	28.54	4.28	--
0627000046	Shelly Liquid Division	B001	Boiler/Heater	OH	OH_3_5	1.76	0.01	1.48	0.27	0.13	--	7.73	0.05	6.49	1.18	0.59	--
0627000046	Shelly Liquid Division	F001	Roadways and Parking Areas	OH		--	--	--	6.03	6.03	--	--	--	--	26.40	26.40	--
0627000046	Shelly Liquid Division	J001	Truck Loading	OH		--	--	--	0.79	0.79	--	--	--	--	3.46	3.46	--
0627000046	Shelly Liquid Division	J002	Truck Loading	OH		--	--	--	0.18	0.18	--	--	--	--	0.80	0.80	--
664000074	Shelly Material Plant 2 formerly Allied Corp Plant	F001	Roadways and Parking Areas	OH	OH_5_4	--	--	--	--	--	--	--	--	--	--	--	--
0664000074	Shelly Material Plant 2 formerly Allied Corp Plant	F002	Storage Piles	OH		--	--	--	--	--	--	--	--	--	--	--	--
0664000074	Shelly Material Plant 2 formerly Allied Corp Plant	P901	Rotary Drum Dryer	OH		0.21	0.02	1.45	--	--	0.00	0.92	0.08	6.37	--	--	0.00
2101900004	MPLX Terminals LLC - Catlettsburg Refining	B023	#11 Boiler	KY	KY_1_1	--	--	--	--	--	--	--	--	--	--	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	B024	#13 Package Boiler	KY	KY_1_2	6.07	0.07	1.29	0.95	0.95	--	26.58	0.30	5.67	4.18	4.18	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	B025	#14 Package Boiler	KY	KY_1_3	4.97	0.06	0.04	0.78	0.78	--	21.78	0.27	0.18	3.43	3.43	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	CT01	Petrochem Cooling Tower (#1) East	KY	KY_1_4	--	--	--	0.03	0.02	--	--	--	--	0.12	0.10	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	CT02	Petrochem Cooling Tower (#2) West	KY	KY_1_5	--	--	--	0.02	0.02	--	--	--	--	0.08	0.07	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	CT04	Lube Plant Cooling Tower	KY	KY_1_6	--	--	--	0.01	0.01	--	--	--	--	0.06	0.06	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	CT05	North Area Cooling Tower (#3) Middle	KY	KY_1_7	--	--	--	2.18	1.95	--	--	--	--	9.55	8.56	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	CT06	North Area Cooling Tower (#1) East	KY	KY_1_8	--	--	--	1.52	1.36	--	--	--	--	6.66	5.97	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	CT07	North Area Cooling Tower (#3) Middle	KY	KY_1_9	--	--	--	3.77	3.38	--	--	--	--	16.53	14.82	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	CT08	North Area Cooling Tower (#2) West	KY	KY_1_10	--	--	--	1.01	0.90	--	--	--	--	4.42	3.96	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	CT09	Gas Con Area Cooling Tower	KY	KY_1_11	--	--	--	2.12	1.90	--	--	--	--	9.30	8.34	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	CT10	HF Alky Area Cooling Tower	KY	KY_1_12	--	--	--	1.90	1.70	--	--	--	--	8.31	7.45	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	CT11	FCCU Area Cooling Tower	KY	KY_1_13	--	--	--	0.18	0.16	--	--	--	--	0.80	0.72	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	CT12	SRU/DDS Cooling Tower	KY	KY_1_14	--	--	--	1.48	1.33	--	--	--	--	6.50	5.82	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	CT13	Portable Temporary Cooling Tower Replacement Cell	KY	KY_1_15	--	--	--	--	--	--	--	--	--	--	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG001	Radio Tower #2 Emergency (50kW) Generator	KY	KY_1_16	0.01	0.00	0.05	0.00	0.00	--	0.04	0.00	0.22	0.00	0.00	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG002	Radio Tower #1 Emergency (75kW) Generator	KY	KY_1_17	0.03	0.00	0.00	0.00	0.00	--	0.12	0.00	0.02	0.00	0.00	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG101	Firewater Pump House Engine	KY	KY_1_18	0.01	0.00	0.00	0.00	0.00	--	0.06	0.00	0.01	0.00	0.00	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG102	Firewater Pump House Engine	KY	KY_1_19	0.01	0.00	0.00	0.00	0.00	--	0.06	0.00	0.01	0.00	0.00	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG103	Firelake Firewater Pump Engine	KY	KY_1_20	0.01	0.00	0.00	0.00	0.00	--	0.05	0.00	0.01	0.00	0.00	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG104	Hcoal Firewater Pump Engine	KY	KY_1_21	0.02	0.00	0.00	0.00	0.00	--	0.08	0.00	0.02	0.01	0.01	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG105	Firelake Firewater Pump Engine	KY	KY_1_22	0.00	0.00	0.00	0.00	0.00	--	0.01	0.00	0.01	0.00	0.00	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG106	Firelake Firewater Pump Engine	KY	KY_1_23	0.00	0.00	0.00	0.00	0.00	--	0.01	0.00	0.01	0.00	0.00	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG107	Firelake Firewater Pump Engine	KY	KY_1_24	0.00	0.00	0.00	0.00	0.00	--	0.01	0.00	0.01	0.00	0.00	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG201	Lube Area Flare Knockout Drum Pump Engine	KY	KY_1_25	--	--	--	--	--	--	--	--	--	--	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG302	Water Pump Engine at the Centrifuge	KY	KY_1_26	0.02	0.00	0.01	0.00	0.00	--	0.08	0.00	0.06	0.00	0.00	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG303	Godwin Pump Engine Viney Branch	KY	KY_1_27	0.00	0.00	0.00	0.00	0.00	--	0.00	0.00	0.01	0.00	0.00	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG305	FCC Hill Run-off Water Pump Engine	KY	KY_1_28	0.00	0.00	0.00	0.00	0.00	--	0.01	0.00	0.01	0.00	0.00	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG306	Compressor engine(1) at #10 boiler house	KY	KY_1_29	--	--	--	--	--	--	--	--	--	--	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG307	Compressor engine(2) at #10 boiler house	KY	KY_1_30	--	--	--	--	--	--	--	--	--	--	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG308	South End AI Compressor engine	KY	KY_1_31	--	--	--	--	--	--	--	--	--	--	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG309	HCoal Storm Water Pump Engine	KY	KY_1_32	0.01	0.00	0.01	0.00	0.00	--	0.05	0.00	0.04	0.00	0.00	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG310	East Viney Tunnel Sump Pump Engine	KY	KY_1_33	0.03	0.00	0.01	0.00	0.00	--	0.11	0.00	0.02	0.01	0.01	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG311	Blowdown Ponds Pump engine	KY	KY_1_34	0.14	0.00	0.03	0.01	0.01	--	0.60	0.00	0.13	0.04	0.04	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP001	--	KY	KY_1_35	--	--	--	--	--	--	--	--	--	--	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP002	--	KY	KY_1_36	--	--	--	--	--	--	--	--	--	--	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP003	Dissolved Air Flotation Unit	KY	KY_1_37	--	--	--	--	--	--	--	--	--	--	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP017	FCC Regenerator	KY	KY_1_38	23.58	23.80	1.81	2.74	2.48	--	103.27	104.23	7.94	12.00	10.87	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP019	FCCU Fresh Catalyst Hopper	KY	KY_1_39	--	--	--	0.00	0.00	--	--	--	--	0.00	0.00	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP020	FCCU Spent Catalyst Shipping Bin (Offsite)	KY	KY_1_40	--	--	--	0.00	0.00	--	--	--	--	0.00	0.00	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP028	FCCU Fresh/Spent Catalyst Hopper	KY	KY_1_41	--	--	--	0.00	0.00	--	--	--	--	0.00	0.00	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP029	FCCU Spent Catalyst Hopper	KY	KY_1_42	--	--	--	0.00	0.00	--	--	--	--	0.00	0.00	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP030	FCCU Catalyst Hopper (Truck unloading)	KY	KY_1_43	--	--	--	0.00	0.00	--	--	--	--	0.00	0.00	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP031	FCCU Fresh/Spent Catalyst Hopper	KY	KY_1_44	--	--	--	0.00	0.00	--	--	--	--	0.00	0.00	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP034	FCCU SOx control addition Hopper	KY	KY_1_45	--	--	--	0.00	0.00	--	--	--	--	0.00	0.00	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP035	FCCU NOx /Super Z Addition Hopper	KY	KY_1_46	--	--	--	0.00	0.00	--	--	--	--	0.00	0.00	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP14	--	KY	KY_1_47	--	--	--	--	--	--	--	--	--	--	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP16	--	KY	KY_1_48	--	--	--	--	--	--	--	--	--	--	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP17	--	KY	KY_1_49	--	--	--	--	--	--	--	--	--	--	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP18	--	KY	KY_1_50	--	--	--	--	--	--	--	--	--	--	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP19	--	KY	KY_1_51	--	--	--	--	--	--	--	--	--	--	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP20	--	KY	KY_1_52	--	--	--	--	--	--	--	--	--	--	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	FL02	NNA Flare	KY	KY_1_53	7.58	0.27	3.62	1.33	1.33	--	33.21	1.19	15.84	5.82	5.82	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	FL03	HF Alky Flare	KY	KY_1_54	1.18	0.01	4.51	0.17	0.17	--	5.18	0.06	19.74	0.74	0.74	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	FL04	FCC Flare	KY	KY_1_55	2.55	0.08	4.94	0.37	0.37	--	11.16	0.34	21.64	1.63	1.63	--

Nucor West Virginia Steel Mill
PSD Air Dispersion Modeling
Regional Source Inventory

Table C-4. Source Parameters

Facility ID	Facility Name	Emission Unit ID	Emission Unit Description	State	Model Source ID	Short Term Emission Rates NOx (lb/hr)	SO2 (lb/hr)	CO (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	Lead (lb/hr)	Long Term Emission Rates NOx (tpy)	SO2 (tpy)	CO (tpy)	PM10 (tpy)	PM2.5 (tpy)	Lead (tpy)
2101900004	MPLX Terminals LLC - Catlettsburg Refining	FL05	Lube Area Flare	KY	KY_1_56	1.74	0.87	8.86	0.30	0.30	--	7.63	3.79	38.82	1.33	1.33	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	FUG200	Sulfur solidification in the earthen pit and disposition of solid sulfur in land fill	KY	KY_1_57	--	--	--	--	--	--	--	--	--	--	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	FUG201	Solid and liquid sulfur hauling to landfill	KY	KY_1_58	--	--	--	0.01	0.00	--	--	--	--	0.06	0.01	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H003	CCR#2 Guardcase Heater	KY	KY_1_59	11.92	0.29	8.28	0.75	0.75	--	52.22	1.28	36.28	3.28	3.28	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H004	Aliphatics Hot Oil Heater	KY	KY_1_60	--	--	--	--	--	--	--	--	--	--	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H005	Asphalt Heaters for Tank 119	KY	KY_1_61	0.39	0.00	0.33	0.03	0.03	--	1.71	0.01	1.44	0.13	0.13	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H006	Asphalt Heaters for Tank 118	KY	KY_1_62	0.39	0.00	0.33	0.03	0.03	--	1.71	0.01	1.44	0.13	0.13	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H007	ADS Charge Heater	KY	KY_1_63	0.12	0.00	0.10	0.01	0.01	--	0.52	0.01	0.44	0.04	0.04	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H008	ADS #2 Tower Reboiler	KY	KY_1_64	0.08	0.00	0.07	0.01	0.01	--	0.36	0.01	0.30	0.03	0.03	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H009	SHU Hot Oil Heater	KY	KY_1_65	--	--	--	--	--	--	--	--	--	--	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H010	SHU/SPU Hot Oil Heater	KY	KY_1_66	1.47	0.04	1.23	0.11	0.11	--	6.43	0.19	5.40	0.49	0.49	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H011	SHU Reactor Charge Heater	KY	KY_1_67	--	--	--	--	--	--	--	--	--	--	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H012	SPU Reactor Charge Heater	KY	KY_1_68	--	--	--	--	--	--	--	--	--	--	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H013	Benzene Recycle Column Reboiler	KY	KY_1_69	3.99	0.12	3.35	0.30	0.30	--	17.49	0.53	14.69	1.33	1.33	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H014	Cumene Reboiler	KY	KY_1_70	1.27	0.04	1.07	0.10	0.10	--	5.56	0.17	4.67	0.42	0.42	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H015	Lube Vacuum Charge Heater	KY	KY_1_71	2.82	0.08	5.34	0.48	0.48	--	12.37	0.35	23.37	2.11	2.11	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H017	#5 Crude Charge Heater	KY	KY_1_72	34.20	0.31	20.52	1.86	1.86	--	149.81	1.34	89.89	8.13	8.13	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H018	LEP Dehexanizer Reboiler	KY	KY_1_73	4.45	0.06	3.74	0.34	0.34	--	19.48	0.24	16.37	1.48	1.48	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H019	#4 Vacuum Heater	KY	KY_1_74	2.94	0.22	0.07	0.52	0.52	--	12.88	0.97	0.31	2.29	2.29	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H020	No.4 Vacuum Charge Heater	KY	KY_1_75	6.88	0.24	0.08	0.58	0.58	--	30.12	1.06	0.34	2.52	2.52	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H021	#3 Crude Charge Heater	KY	KY_1_76	6.75	0.51	0.16	1.23	1.23	--	29.56	2.22	0.72	5.38	5.38	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H022	#3 Crude Charge Heater	KY	KY_1_77	7.22	0.50	0.16	1.22	1.22	--	31.62	2.20	0.72	5.34	5.34	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H023	Sat Gas Fractionator Reboiler	KY	KY_1_78	5.23	5.13	1.23	0.92	0.92	--	22.93	22.48	5.39	4.01	4.01	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H024	Asphalt Mix Heater	KY	KY_1_79	0.22	0.04	1.12	0.10	0.10	--	0.94	0.17	4.92	0.45	0.45	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H025	SDA Hot Oil Heater	KY	KY_1_80	1.61	0.06	1.35	0.12	0.12	--	7.05	0.26	5.92	0.54	0.54	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H026	ISOM Unit Heaters	KY	KY_1_81	9.02	0.24	6.19	0.56	0.56	--	39.49	1.06	27.11	2.45	2.45	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H027	ISOM Regenerator Vapor Super Heater	KY	KY_1_82	0.06	0.00	0.05	0.00	0.00	--	0.27	0.01	0.23	0.02	0.02	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H028	HF Alky Isostripper Reboiler	KY	KY_1_83	7.54	0.22	0.07	0.52	0.52	--	33.02	0.96	0.31	2.28	2.28	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H029	HF Alky Hot Oil Heater	KY	KY_1_84	1.08	0.03	0.91	0.08	0.08	--	4.73	0.15	3.97	0.36	0.36	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H030	NPT Charge & Reboiler	KY	KY_1_85	10.68	0.34	8.97	0.81	0.81	--	46.79	1.49	39.31	3.56	3.56	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H031	HPCCR Reactor Heater	KY	KY_1_86	4.49	0.39	10.42	0.94	0.94	--	19.69	1.71	45.63	4.13	4.13	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H032	HPCCR Reactor Heater	KY	KY_1_87	4.89	0.37	9.84	0.89	0.89	--	21.40	1.62	43.09	3.90	3.90	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H033	HPCCR Reactor Heater	KY	KY_1_88	3.85	0.34	9.21	0.83	0.83	--	16.88	1.51	40.33	3.65	3.65	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H034	LPVGO Hydrotreater Charge Heater	KY	KY_1_89	3.33	0.12	0.04	0.28	0.28	--	14.61	0.52	0.16	1.22	1.22	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H035	LPVGO Hydrotreater Charge Heater	KY	KY_1_90	3.84	0.12	0.04	0.29	0.29	--	16.83	0.52	0.17	1.25	1.25	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H036	LPVGO Stripper Reboiler	KY	KY_1_91	2.57	0.12	0.04	0.28	0.28	--	11.24	0.52	0.17	1.23	1.23	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H037	HPVGO Charge Heater	KY	KY_1_92	2.72	0.20	0.06	0.47	0.47	--	11.92	0.87	0.28	2.07	2.07	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H038	HPVGO Charge Heater	KY	KY_1_93	2.56	0.17	0.06	0.41	0.41	--	11.21	0.72	0.24	1.82	1.82	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H039	SRU#1 Thermal Oxidizer	KY	KY_1_94	0.89	1.08	0.75	0.07	0.07	--	3.90	4.73	3.27	0.30	0.30	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H040	FCC Startup Heater (direct-fired)	KY	KY_1_95	--	--	--	--	--	--	--	--	--	--	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H041	FCC Heat Recovery Units	KY	KY_1_96	--	--	--	--	--	--	--	--	--	--	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H042	Cumene Column Reboiler	KY	KY_1_97	2.75	0.13	3.77	0.34	0.34	--	12.06	0.59	16.51	1.49	1.49	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H043	DDS Reactor Charge Heater	KY	KY_1_98	1.28	0.08	2.07	0.19	0.19	--	5.60	0.34	9.08	0.82	0.82	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H044	DDS Reactor Charge Heater	KY	KY_1_99	1.31	0.08	2.10	0.19	0.19	--	5.72	0.35	9.20	0.83	0.83	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H045	DDS Reactor Stripper Reboiler	KY	KY_1_100	3.57	0.22	5.89	0.53	0.53	--	15.66	0.98	25.79	2.33	2.33	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H046	CCR #2 Charge Heater	KY	KY_1_101	2.48	0.18	5.03	0.46	0.46	--	10.86	0.78	22.05	1.99	1.99	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H047	CCR #2 No. 1 Interheater	KY	KY_1_102	2.88	0.21	5.85	0.53	0.53	--	12.63	0.92	25.64	2.32	2.32	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H048	CCR #2 No. 2 Interheater	KY	KY_1_103	2.25	0.17	4.57	0.41	0.41	--	9.87	0.73	20.03	1.81	1.81	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H049	CCR #2 No. 3 Interheater	KY	KY_1_104	1.16	0.08	2.35	0.21	0.21	--	5.06	0.37	10.28	0.93	0.93	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H050	CCR #2 Reboiler	KY	KY_1_105	0.54	0.04	1.09	0.10	0.10	--	2.36	0.17	4.78	0.43	0.43	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H051	KDS Unit Charge Heater	KY	KY_1_106	0.94	0.14	0.00	0.32	0.32	--	4.14	0.59	0.01	1.41	1.41	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H052	Lube Plant Asphalt Oxidizer Fume Burner	KY	KY_1_107	--	--	--	--	--	--	--	--	--	--	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H055	Asphalt Tank Heaters (3) for Tank 16	KY	KY_1_108	0.06	0.00	0.05	0.00	0.00	--	0.25	0.00	0.21	0.02	0.02	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H056	Asphalt Tank Heaters (3) for Tank 31	KY	KY_1_109	0.04	0.00	0.03	0.00	0.00	--	0.17	0.00	0.15	0.01	0.01	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H058	Asphalt Tank Heaters (3) for Tank 72	KY	KY_1_110	0.04	0.00	0.03	0.00	0.00	--	0.17	0.00	0.14	0.01	0.01	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H064	Asphalt Tank Heaters (3) for Tank 833	KY	KY_1_111	0.06	0.00	0.05	0.00	0.00	--	0.25	0.00	0.21	0.02	0.02	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H065	Asphalt Tank Heaters (3) for Tank 849	KY	KY_1_112	0.11	0.00	0.09	0.01	0.01	--	0.49	0.00	0.42	0.04	0.04	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H067	Asphalt Tank Heaters (2) for Tank 871	KY	KY_1_113	0.03	0.00	0.02	0.00	0.00	--	0.12	0.00	0.10	0.01	0.01	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H068	Pitch Tank Heaters (2) for Tank 808	KY	KY_1_114	0.01	0.00	0.01	0.00	0.00	--	0.04	0.00	0.03	0.00	0.00	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H069	Asphalt Tank Heater (1) for Tank 67	KY	KY_1_115	0.38	0.00	0.32	0.03	0.03	--	1.67	0.01	1.40	0.13	0.13	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H071	Asphalt Tank Heaters (1 ea) for Tank 69, 70 and 71	KY	KY_1_116	0.47	0.00	0.39	0.04	0.04	--	2.05	0.01	1.72	0.16	0.16	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H072	Asphalt Tank Heaters (2) for Tank 872	KY	KY_1_117	0.03	0.00	0.02	0.00	0.00	--	0.12	0.00	0.10	0.01	0.01	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H073	Condensate Naphtha Splitter Reboiler	KY	KY_1_118	0.76	0.11	2.85	0.26	0.26	--	3.32	0.47	12.47	1.13	1.13	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H076	#2 SRU Thermal Oxidizer	KY	KY_1_119	1.77	2.16	1.49	0.13	0.13	--	7.77	9.45	6.52	0.59	0.59	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H078	Asphalt Tank Heater (T172)	KY	KY_1_120	0.03	0.00	0.02	0.00	0.00	--	0.13	0.00	0.11	0.01	0.01	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H079	Portable thermal oxidizer-tank cleaning	KY	KY_1_121	--	--	--	--	--	--	--	--	--	--	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H080	Portable thermal oxidizer-tank cleaning	KY	KY_1_122	0.04	0.00	0.02	0.00	0.00	--	0.17	0.01	0.11	0.01	0.01	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	T172	1-6-TK-172 - Asphalt Tank	KY	KY_1_123	--	--	--	0.00	--	--	--	--	--	0.01	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	VDUI-1	New Solvent Truck Rack and Solvent (A&A) Railcar Rack	KY	KY_1_124	0.28	0.00	0.47	0.04	0.04	--	1.23	0.01	2.06	0.19	0.19	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	VDUI-2	Light Oil Dock VDU	KY	KY_1_125	0.05	0.00	0.08	0.01	0.01	--	0.20	0.00	0.34	0.03	0.03	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	VEPR01	Crude Dock VEPR Blower	KY	KY_1_126	0.16	0.03	0.15	0.01	--	--	0.72	0.12	0.65	0.05	--	--

Nucor West Virginia Steel Mill
PSD Air Dispersion Modeling
Regional Source Inventory

Table C-5. List of Clusters

Cluster ID	Facility ID	Name	UTM N (m)	UTM E (m)	State	Distance from Site (km)	2-yr Annual Averaged Actual Emissions (tpy)						20D
							NO_X	SO_2	CO	$PM_{2.5}$	PM_{10}	Lead	
1	2101900003	CRHC Mansbach Metal LLC	4,260,022	357,988	KY	44.6	--	--	--	1.28	3.29	--	892
	2101900110	Valvoline LLC	4,259,998	357,600	KY	44.9	2.03	0.06	14.16	0.12	0.23	--	898
	2101900114	Windstream Corp - Ashland Facility	4,259,918	356,645	KY	45.8	3.37	0.22	0.73	0.04	0.24	--	916
Cluster #1						**45.1**	**5.40**	**0.28**	**14.89**	**1.44**	**3.76**	**--**	**902**
2	2101900004	MPLX Terminals LLC - Catlettsburg Refining	4,248,935	360,727	KY	48.1	1,056.09	179.34	720.48	172.86	180.54	--	962
	2101900014	Calgon Carbon Corp	4,244,572	360,775	KY	50.9	255.44	89.57	56.14	15.73	146.39	1.31E-03	1,018
	2101900021	Greenbrier Minerals LLC - Big Sandy Dock Facility	4,245,676	360,187	KY	50.6	--	--	--	4.65	17.62	--	1,012
	2101900044	Coal Equity Inc - Transload Terminal (810-8023)	4,248,873	360,752	KY	48.1	--	--	--	0.25	0.84	--	962
	2101900099	Marathon Pipeline LLC - Campbells Branch Station	4,246,375	359,010	KY	51.0	--	--	--	--	--	--	1,020
	2101900117	Air Products & Chemicals Inc - Catlettsburg Hydrogen Plant	4,248,642	359,874	KY	48.9	75.06	0.30	7.16	6.63E-03	4.11	--	978
	2101900121	Union Tank Car Co - Catlettsburg Mini Shop	4,246,661	360,301	KY	49.9	0.01	0.05	3.25E-03	1.30E-03	1.30E-03	--	998
	2101900130	Verizon Wireless - Neal Tower	4,245,556	359,954	KY	50.8	0.61	0.04	0.13	0.04	0.04	--	1,016
	2101900141	AT&T Mobility - Savage Branch Cell Tower Engine	4,245,421	359,148	KY	51.5	0.07	0.03	0.02	5.00E-03	5.00E-03	--	1,030
	2101909269	Brandenburg Industrial Service Co - Portable Crusher	4,248,511	360,285	KY	48.7	14.74	2.75	7.72	2.70	19.56	--	974
	54-099-00009	ASHLAND LLC. - NEAL, WV	4,247,778	360,879	WV	48.7	0.68	0.26	302.51	0.44	0.44	--	974
	54-099-00010	BRASKEM AMERICA NEAL PLANT	4,246,300	360,600	WV	49.9	23.05	0.67	21.40	47.12	49.97	1.15E-04	998
	54-099-00014	Columbia Gas - KENOVA 4C3350	4,248,000	361,000	WV	48.5	412.29	0.17	26.36	9.58	9.58	--	970
	54-099-00080	BIG SANDY PEAKER PLANT	4,245,000	360,900	WV	50.5	112.00	0.81	17.82	8.89	8.89	--	1,010
	54-099-00112	Marathon Petroleum - Butane Cavern	4,247,200	360,600	WV	49.3	--	--	--	--	--	--	986
	54-099-00118	Marathon Petroleum - Neal Propane Cavern	4,247,736	360,688	WV	48.9	--	--	--	--	--	--	978
Cluster #2 with Catlettsburg Refinery						**49.6**	**1,950.03**	**273.97**	**1,159.75**	**262.27**	**437.99**	**1.43E-03**	**993**
Cluster #2 without Catlettsburg Refinery						**49.6**	**893.94**	**94.64**	**439.27**	**89.41**	**257.45**	**1.43E-03**	**993**
3	2101900005	AK Steel Corp - West Works Ashland	4,262,115	354,753	KY	46.7	102.75	6.66	39.85	1.30	2.03	1.16E-04	934
	2101900102	Marquis Terminal Inc	4,262,341	354,200	KY	47.2	26.77	1.77	5.77	45.21	81.66	--	944
	2101900107	Stein Inc	4,262,229	354,330	KY	47.1	--	--	--	9.48	42.58	--	942
	2101909257	Marquet Terminals Inc - Portable Plant	4,262,341	354,200	KY	47.2	3.28	0.87	2.84	1.52	4.95	--	944
Cluster #3						**47.1**	**132.80**	**9.30**	**48.46**	**57.51**	**131.22**	**1.16E-04**	**941**
4	2101900113	Boyd Co Sanitary Landfill	4,248,402	347,611	KY	59.2	18.04	52.09	98.30	4.52	4.56	--	1,184
	2101900134	Big Run Power Producers LLC	4,248,394	347,122	KY	59.6	26.66	0.16	28.55	0.51	0.51	--	1,192
	2101909079	Rumpke of KY Inc - Portable Plant	4,248,636	346,669	KY	59.9	7.26	0.01	5.22	0.75	657.33	--	1,198
Cluster #4						**59.6**	**51.96**	**52.26**	**132.07**	**5.77**	**662.40**	**--**	**1,191**
5	2101900013	Huntington Alloys Corp	4,236,364	361,995	KY	55.9	5.34	0.03	4.49	2.31	13.54	5.39E-06	1,118
	2101900106	TN Gas Pipeline Co Station 114	4,236,979	362,103	KY	55.4	14.73	0.78	18.21	1.68	1.68	5.15E-07	1,108
Cluster #5						**55.7**	**20.07**	**0.82**	**22.70**	**3.99**	**15.22**	**5.90E-06**	**1,113**

Nucor West Virginia Steel Mill
PSD Air Dispersion Modeling
Regional Source Inventory

Table C-5. List of Clusters

Cluster ID	Facility ID	Name	UTM N (m)	UTM E (m)	State	Distance from Site (km)	2-yr Annual Averaged Actual Emissions (tpy)						20D
							NO_X	SO_2	CO	$PM_{2.5}$	PM_{10}	Lead	
6	2101900016	Hardin Street Marine LLC - Marine Repair Facility	4,255,084	360,011	KY	45.1	2.54	0.01	2.23	0.10	0.19	1.21E-05	902
	2101900028	Permits Inc 810-8010	4,255,985	359,614	KY	45.0	--	--	--	12.26	116.12	--	900
Cluster #6						**45.1**	**2.54**	**0.01**	**2.23**	**12.36**	**116.31**	**1.21E-05**	**901**
7	2101900019	Mountain Enterprises Inc - Ashland Plant 13	4,260,826	356,160	KY	45.9	2.11	0.28	10.66	0.71	2.31	5.03E-05	918
	2101900119	AKJ Industries - Ashland	4,261,074	355,659	KY	46.3	--	--	--	--	--	--	926
Cluster #7						**46.1**	**2.11**	**0.28**	**10.66**	**0.71**	**2.31**	**5.03E-05**	**922**
8	2101900027	AK Steel Corp - Coke Plant	4,258,177	359,483	KY	44.1	--	--	--	0.03	0.25	--	882
	2101900120	Veolia Water Services - Ashland KY Facility	4,258,177	359,483	KY	44.1	14.02	0.08	11.77	1.07	1.07	--	882
	2101900125	Verizon Wireless - Ashland SE Cell Tower Engine	4,258,336	358,655	KY	44.7	0.65	0.04	0.14	0.05	0.05	--	894
	0744000168	McGinnis, Inc. - Sheridan Shipyard/Marine Ways	4,258,321	360,043	OH	43.5	--	--	--	--	--	--	870
Cluster #8						**44.1**	**14.67**	**0.12**	**11.91**	**1.15**	**1.37**	**--**	**882**
9	2101900035	SNR River Ops LLC - Lockwood Dock Facility	4,243,178	362,014	KY	50.9	--	--	--	4.58E-03	0.02	--	1,018
	2101900079	Riverway South Inc (810-8030)	4,242,777	362,032	KY	51.2	--	--	--	0.10	0.65	--	1,024
	2101900093	CW Coal Sales Inc (810-8042)	4,242,321	362,251	KY	51.4	--	--	--	1.59	3.53	--	1,028
	2101900115	Marathon Petroleum Co LLC - Big Sandy Asphalt Terminal	4,243,604	361,650	KY	50.9	--	--	--	--	--	--	1,018
Cluster #9						**51.1**	**--**	**--**	**--**	**1.70**	**4.20**	**--**	**1,022**
10	2101900081	By Inc	4,241,204	362,078	KY	52.3	--	--	--	46.57	210.62	--	1,046
	2101900094	Appalachian Mining & Reclamation LLC (810-8032)	4,241,082	362,003	KY	52.4	--	--	--	53.08	134.26	--	1,048
	2101900098	Big Sandy Development Co (810-8040)	4,241,176	361,907	KY	52.4	--	--	--	2.93	18.16	--	1,048
Cluster #10						**52.4**	**--**	**--**	**--**	**102.58**	**363.04**	**--**	**1,047**
11	2101900095	The Wells Group LLC	4,250,552	348,560	KY	57.3	--	--	--	15.69	21.28	--	1,146
	2101900116	Liquid Transport LLC	4,251,782	348,233	KY	57.0	--	--	--	--	--	--	1,140
	2101900122	Verizon Wireless - Princess	4,250,754	348,506	KY	57.2	--	0.05	0.16	0.05	0.05	--	1,144
	2101900140	Ashland Service Center	4,250,983	347,717	KY	57.8	0.27	0.08	0.06	5.00E-03	5.00E-03	--	1,156
Cluster #11						**57.3**	**0.27**	**0.13**	**0.22**	**15.75**	**21.34**	**--**	**1,147**
12	2101909340	TLT Resources Corp - Portable Screen No 1	4,248,473	350,883	KY	56.4	--	--	--	0.06	0.40	--	1,128
	2101909405	TLT Resources Corp - Portable Screen No 2	4,248,473	350,883	KY	56.4	--	--	--	2.90	19.35	--	1,128
	2101909443	Michael E Cornett dba C & C Construction - Portable Screen No 5	4,248,473	350,883	KY	56.4	--	--	--	0.06	0.36	--	1,128
	2101909444	Michael Cornett dba C & C Construction - Portable Screen No 6	4,248,473	350,883	KY	56.4	--	--	--	0.06	0.36	--	1,128
Cluster #12						**56.4**	**--**	**--**	**--**	**3.07**	**20.48**	**--**	**1,128**

Nucor West Virginia Steel Mill
PSD Air Dispersion Modeling
Regional Source Inventory

Table C-5. List of Clusters

Cluster ID	Facility ID	Name	UTM N (m)	UTM E (m)	State	Distance from Site (km)	2-yr Annual Averaged Actual Emissions (tpy) NOX	SO2	CO	PM2.5	PM10	Lead	20D
13	2108900001	Veolia North America Regeneration Services LLC	4,268,914	344,101	KY	55.2	2.76	80.90	0.34	10.19	10.24	--	1,104
	2108900014	Pregis Innovative Packaging Inc	4,268,820	344,221	KY	55.1	0.57	3.59E-03	0.48	0.97	2.18	--	1,102
	2108900032	Sun Chemical Corp	4,268,800	345,111	KY	54.2	101.63	135.77	35.67	20.32	23.65	--	1,084
	2108900035	Greenup Boyd Co Riverport Authority Salt Storage Facility	4,268,591	345,502	KY	53.9	--	--	--	459.13	2,831.74	--	1,078
	2108900036	Great Lakes Minerals LLC	4,268,715	346,446	KY	52.9	--	--	--	3.69	19.74	--	1,058
	2108900037	Vesuvius USA	4,268,529	346,078	KY	53.3	--	--	--	1.36	3.82	--	1,066
	2108900038	The Wells Group LLC	4,268,577	345,572	KY	53.8	--	--	--	5.01	14.52	--	1,076
	2108900048	Midwestern Biofuels LLC	4,268,730	345,672	KY	53.7	--	--	--	1.66	11.26	--	1,074
	2108900049	Marquet Terminals Inc	4,268,660	346,082	KY	53.3	1.17	7.03E-03	0.98	0.36	0.43	5.86E-06	1,066
	2108900053	South Shore BioFuels LLC	4,268,929	346,230	KY	53.1	30.66	0.18	25.75	43.83	78.21	--	1,062
Cluster #13						**53.9**	**136.78**	**216.86**	**63.22**	**546.53**	**2,995.78**	**5.86E-06**	**1,077**
15	2108900050	Verizon Wireless - Flatwoods	4,263,860	348,833	KY	51.8	--	0.05	0.16	0.05	0.05	--	1,036
	2108900052	AT&T Mobility - Flatwoods Fountain	4,263,843	348,808	KY	51.8	0.52	0.03	0.11	0.03	0.04	--	1,036
Cluster #15						**51.8**	**0.52**	**0.08**	**0.27**	**0.08**	**0.09**	**--**	**1,036**
117	0744000150	Hanging Rock Energy Facility	4,270,785	344,622	OH	54.4	282.18	20.58	81.42	179.95	195.33	--	1,088
	0744000173	Americas Styrenics	4,271,137	343,999	OH	54.9	6.95	3.63	4.10	0.51	0.55	--	1,098
Cluster #117						**54.7**	**289.13**	**24.21**	**85.52**	**180.46**	**195.89**	**--**	**1,093**
151	54-039-00003	UNION CARBIDE CORP -SO CHARLESTON FAC.	4,246,872	440,597	WV	52.9	61.90	0.49	47.88	4.51	4.51	3.50E-04	1,058
	54-039-00102	Covestro LLC - SOUTH CHARLESTON	4,246,600	439,900	WV	52.6	3.37	--	8.50E-04	0.02	0.02	--	1,052
Cluster #151						**52.8**	**65.27**	**0.49**	**47.88**	**4.53**	**4.53**	**3.50E-04**	**1,055**
152	54-039-00004	UNION CARBIDE CORPORATION - UCC TECHNOLOGY PARK OPERATIONS	4,245,700	438,700	WV	52.2	3.56	0.02	2.99	0.26	0.26	--	1,044
	54-039-00011	Clearon Corp. - South Charleston Plant	4,246,600	438,300	WV	51.3	34.29	0.31	9.95	9.08	10.75	--	1,026
	54-039-00618	Univation Technologies, LLC, South Charleston Catalyst Plant	4,245,454	438,402	WV	52.1	0.23	1.15E-03	0.54	0.06	0.06	--	1,042
Cluster #152						**51.9**	**38.07**	**0.33**	**13.47**	**9.39**	**11.07**	**--**	**1,037**
153	54-039-00005	UNION CARBIDE CORPORATION-INSTITUTE	4,248,800	431,900	WV	45.0	27.04	0.47	31.84	4.71	4.72	7.00E-04	900
	54-039-00682	Specialty Products - Institute	4,248,754	432,189	WV	45.2	1.04	9.65E-04	5.03	0.04	0.04	--	904
	54-039-00692	Altivia - Institute	4,248,310	432,000	WV	45.4	25.75	0.47	27.42	3.87	3.90	3.00E-04	908
Cluster #153						**45.2**	**53.83**	**0.95**	**64.29**	**8.61**	**8.66**	**1.00E-03**	**904**
154	54-079-00103	Waste Management - DISPOSAL SERVICE, INC. SANITARY LANDFILL	4,250,300	410,900	WV	31.2	0.91	0.21	4.13	7.65	9.18	--	624
	54-079-00105	ALLIED WASTE SYCAMORE LANDFILL, LLC	4,250,300	410,400	WV	31.0	2.52	0.48	13.71	0.26	0.26	--	620
Cluster #154						**31.1**	**3.43**	**0.69**	**17.84**	**7.91**	**9.44**	**--**	**622**
155	54-099-00013	Columbia Gas - CEREDO 4C3360	4,248,000	366,000	WV	44.7	564.49	0.17	48.73	6.82	6.82	--	894
	54-099-00081	Appalachian Power Company - CEREDO ELECTRIC GENERATING STATION	4,247,500	366,000	WV	45.1	43.14	0.84	46.56	17.92	17.92	2.22E-02	902
Cluster #155						**44.9**	**607.63**	**1.01**	**95.29**	**24.74**	**24.74**	**2.22E-02**	**898**

Nucor West Virginia Steel Mill
PSD Air Dispersion Modeling
Regional Source Inventory

Table C-5. List of Clusters

Cluster ID	Facility ID	Name	UTM N (m)	UTM E (m)	State	Distance from Site (km)	Include in NAAQS Analysis? 1-hr NO_2	Annual NO_2	1-hr SO_2	24-hr PM2.5	PM2.5	24-hr PM10	Rolling 3-month Avg Lead
1	2101900003	CRHC Mansbach Metal LLC	4,260,022	357,988	KY	44.6	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2101900110	Valvoline LLC	4,259,998	357,600	KY	44.9	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2101900114	Windstream Corp - Ashland Facility	4,259,918	356,645	KY	45.8	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
Cluster #1						**45.1**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - <20D**	**Exclude - <20D**	
2	2101900004	MPLX Terminals LLC - Catlettsburg Refining	4,248,935	360,727	KY	48.1	Exclude - Outside ROI	Include - >20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2101900014	Calgon Carbon Corp	4,244,572	360,775	KY	50.9	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2101900021	Greenbrier Minerals LLC - Big Sandy Dock Facility	4,245,676	360,187	KY	50.6	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2101900044	Coal Equity Inc - Transload Terminal (810-8023)	4,248,873	360,752	KY	48.1	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2101900099	Marathon Pipeline LLC - Campbells Branch Station	4,246,375	359,010	KY	51.0	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2101900117	Air Products & Chemicals Inc - Catlettsburg Hydrogen Plant	4,248,642	359,874	KY	48.9	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2101900121	Union Tank Car Co - Catlettsburg Mini Shop	4,246,661	360,301	KY	49.9	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2101900130	Verizon Wireless - Neal Tower	4,245,556	359,954	KY	50.8	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2101900141	AT&T Mobility - Savage Branch Cell Tower Engine	4,245,421	359,148	KY	51.5	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2101909269	Brandenburg Industrial Service Co - Portable Crusher	4,248,511	360,285	KY	48.7	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	54-099-00009	ASHLAND LLC. - NEAL, WV	4,247,778	360,879	WV	48.7	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	54-099-00010	BRASKEM AMERICA NEAL PLANT	4,246,300	360,600	WV	49.9	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	54-099-00014	Columbia Gas - KENOVA 4C3350	4,248,000	361,000	WV	48.5	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	54-099-00080	BIG SANDY PEAKER PLANT	4,245,000	360,900	WV	50.5	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	54-099-00112	Marathon Petroleum - Butane Cavern	4,247,200	360,600	WV	49.3	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	54-099-00118	Marathon Petroleum - Neal Propane Cavern	4,247,736	360,688	WV	48.9	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
Cluster #2 with Catlettsburg Refinery						**49.6**	**Exclude - Outside ROI**	**Include - >20D**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - <20D**	**Exclude - <20D**	
Cluster #2 without Catlettsburg Refinery						**49.6**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - <20D**	**Exclude - <20D**	
3	2101900005	AK Steel Corp - West Works Ashland	4,262,115	354,753	KY	46.7	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2101900102	Marquis Terminal Inc	4,262,341	354,200	KY	47.2	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2101900107	Stein Inc	4,262,229	354,330	KY	47.1	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2101909257	Marquet Terminals Inc - Portable Plant	4,262,341	354,200	KY	47.2	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
Cluster #3						**47.1**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - <20D**	**Exclude - <20D**	
4	2101900113	Boyd Co Sanitary Landfill	4,248,402	347,611	KY	59.2	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - Outside ROI	
	2101900134	Big Run Power Producers LLC	4,248,394	347,122	KY	59.6	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - Outside ROI	
	2101909079	Rumpke of KY Inc - Portable Plant	4,248,636	346,669	KY	59.9	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	
Cluster #4						**59.6**	**Exclude - Outside ROI**	**Exclude - Outside ROI**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - Outside ROI**	**Exclude - Outside ROI**	
5	2101900013	Huntington Alloys Corp	4,236,364	361,995	KY	55.9	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
	2101900106	TN Gas Pipeline Co Station 114	4,236,979	362,103	KY	55.4	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
Cluster #5						**55.7**	**Exclude - Outside ROI**	**Exclude - Outside ROI**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - <20D**	**Exclude - Outside ROI**	

Nucor West Virginia Steel Mill
PSD Air Dispersion Modeling
Regional Source Inventory

Table C-5. List of Clusters

Cluster ID	Facility ID	Name	UTM N (m)	UTM E (m)	State	Distance from Site (km)	Include in NAAQS Analysis?						
							1-hr NO_2	Annual NO_2	1-hr SO_2	24-hr PM2.5	PM2.5	24-hr PM10	Rolling 3-month Avg Lead
6	2101900016	Hardin Street Marine LLC - Marine Repair Facility	4,255,084	360,011	KY	45.1	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2101900028	Permits Inc 810-8010	4,255,985	359,614	KY	45.0	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
Cluster #6						**45.1**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - <20D**	**Exclude - <20D**	
7	2101900019	Mountain Enterprises Inc - Ashland Plant 13	4,260,826	356,160	KY	45.9	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2101900119	AKJ Industries - Ashland	4,261,074	355,659	KY	46.3	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
Cluster #7						**46.1**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - <20D**	**Exclude - <20D**	
8	2101900027	AK Steel Corp - Coke Plant	4,258,177	359,483	KY	44.1	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2101900120	Veolia Water Services - Ashland KY Facility	4,258,177	359,483	KY	44.1	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2101900125	Verizon Wireless - Ashland SE Cell Tower Engine	4,258,336	358,655	KY	44.7	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	0744000168	McGinnis, Inc. - Sheridan Shipyard/Marine Ways	4,258,321	360,043	OH	43.5	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
Cluster #8						**44.1**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - <20D**	**Exclude - <20D**	
9	2101900035	SNR River Ops LLC - Lockwood Dock Facility	4,243,178	362,014	KY	50.9	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2101900079	Riverway South Inc (810-8030)	4,242,777	362,032	KY	51.2	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2101900093	CW Coal Sales Inc (810-8042)	4,242,321	362,251	KY	51.4	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2101900115	Marathon Petroleum Co LLC - Big Sandy Asphalt Terminal	4,243,604	361,650	KY	50.9	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
Cluster #9						**51.1**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - <20D**	**Exclude - <20D**	
10	2101900081	By Inc	4,241,204	362,078	KY	52.3	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2101900094	Appalachian Mining & Reclamation LLC (810-8032)	4,241,082	362,003	KY	52.4	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2101900098	Big Sandy Development Co (810-8040)	4,241,176	361,907	KY	52.4	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
Cluster #10						**52.4**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - <20D**	**Exclude - <20D**	
11	2101900095	The Wells Group LLC	4,250,552	348,560	KY	57.3	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
	2101900116	Liquid Transport LLC	4,251,782	348,233	KY	57.0	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
	2101900122	Verizon Wireless - Princess	4,250,754	348,506	KY	57.2	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
	2101900140	Ashland Service Center	4,250,983	347,717	KY	57.8	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
Cluster #11						**57.3**	**Exclude - Outside ROI**	**Exclude - Outside ROI**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - <20D**	**Exclude - Outside ROI**	
12	2101909340	TLT Resources Corp - Portable Screen No 1	4,248,473	350,883	KY	56.4	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
	2101909405	TLT Resources Corp - Portable Screen No 2	4,248,473	350,883	KY	56.4	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
	2101909443	Michael E Cornett dba C & C Construction - Portable Screen No 5	4,248,473	350,883	KY	56.4	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
	2101909444	Michael Cornett dba C & C Construction - Portable Screen No 6	4,248,473	350,883	KY	56.4	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
Cluster #12						**56.4**	**Exclude - Outside ROI**	**Exclude - Outside ROI**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - <20D**	**Exclude - Outside ROI**	

Nucor West Virginia Steel Mill
PSD Air Dispersion Modeling
Regional Source Inventory

Table C-5. List of Clusters

Cluster ID	Facility ID	Name	UTM N (m)	UTM E (m)	State	Distance from Site (km)	Include in NAAQS Analysis?						
							1-hr NO_2	Annual NO_2	1-hr SO_2	24-hr PM2.5	PM2.5	24-hr PM10	Rolling 3-month Avg Lead
13	2108900001	Veolia North America Regeneration Services LLC	4,268,914	344,101	KY	55.2	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
	2108900014	Pregis Innovative Packaging Inc	4,268,820	344,221	KY	55.1	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
	2108900032	Sun Chemical Corp	4,268,800	345,111	KY	54.2	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
	2108900035	Greenup Boyd Co Riverport Authority Salt Storage Facility	4,268,591	345,502	KY	53.9	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
	2108900036	Great Lakes Minerals LLC	4,268,715	346,446	KY	52.9	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2108900037	Vesuvius USA	4,268,529	346,078	KY	53.3	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
	2108900038	The Wells Group LLC	4,268,577	345,572	KY	53.8	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
	2108900048	Midwestern Biofuels LLC	4,268,730	345,672	KY	53.7	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
	2108900049	Marquet Terminals Inc	4,268,660	346,082	KY	53.3	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
	2108900053	South Shore BioFuels LLC	4,268,929	346,230	KY	53.1	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
Cluster #13						**53.9**	**Exclude - Outside ROI**	**Exclude - Outside ROI**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - <20D**	**Exclude - Outside ROI**	
15	2108900050	Verizon Wireless - Flatwoods	4,263,860	348,833	KY	51.8	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2108900052	AT&T Mobility - Flatwoods Fountain	4,263,843	348,808	KY	51.8	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
Cluster #15						**51.8**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - <20D**	**Exclude - <20D**	
117	0744000150	Hanging Rock Energy Facility	4,270,785	344,622	OH	54.4	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
	0744000173	Americas Styrenics	4,271,137	343,999	OH	54.9	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
Cluster #117						**54.7**	**Exclude - Outside ROI**	**Exclude - Outside ROI**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - <20D**	**Exclude - Outside ROI**	
151	54-039-00003	UNION CARBIDE CORP -SO CHARLESTON FAC.	4,246,872	440,597	WV	52.9	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	54-039-00102	Covestro LLC - SOUTH CHARLESTON	4,246,600	439,900	WV	52.6	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
Cluster #151						**52.8**	**Exclude - Outside ROI**	**Exclude - Outside ROI**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - <20D**	**Exclude - <20D**	
152	54-039-00004	UNION CARBIDE CORPORATION - UCC TECHNOLOGY PARK OPERATIONS	4,245,700	438,700	WV	52.2	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	54-039-00011	Clearon Corp. - South Charleston Plant	4,246,600	438,300	WV	51.3	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	54-039-00618	Univation Technologies, LLC, South Charleston Catalyst Plant	4,245,454	438,402	WV	52.1	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
Cluster #152						**51.9**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - <20D**	**Exclude - <20D**	
153	54-039-00005	UNION CARBIDE CORPORATION-INSTITUTE	4,248,800	431,900	WV	45.0	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	54-039-00682	Specialty Products - Institute	4,248,754	432,189	WV	45.2	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	54-039-00692	Altivia - Institute	4,248,310	432,000	WV	45.4	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
Cluster #153						**45.2**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - <20D**	**Exclude - <20D**	
154	54-079-00103	Waste Management - DISPOSAL SERVICE, INC. SANITARY LANDFILL	4,250,300	410,900	WV	31.2	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	54-079-00105	ALLIED WASTE SYCAMORE LANDFILL, LLC	4,250,300	410,400	WV	31.0	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
Cluster #154						**31.1**	**Exclude - <20D**	**Exclude - <20D**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - <20D**	**Exclude - <20D**	
155	54-099-00013	Columbia Gas - CEREDO 4C3360	4,248,000	366,000	WV	44.7	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	54-099-00081	Appalachian Power Company - CEREDO ELECTRIC GENERATING STATION	4,247,500	366,000	WV	45.1	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
Cluster #155						**44.9**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - <20D**	**Exclude - <20D**	

APPENDIX D. RESULT OF SENSITIVITY ANALYSIS

Trinity Consultants

MEMORANDUM

To: Jon McClung, West Virginia DEP (WVDEP)

cc: Sean Alteri, Nucor

From: Bill Bruscino, Trinity Consultants

Date: February 9, 2022

RE: Sensitivity Analysis – Land Use Impact on AERMOD Outputs

Trinity Consultants (Trinity) submitted an air dispersion modeling protocol for a proposed Nucor Corporation steel mill in Apple Grove, West Virginia on January 12, 2022. As discussed in Section 2.6 of the protocol, Trinity has completed a sensitivity analysis, as referenced in Section 3.1.1 of the *AERMOD Implementation Guide*, of land use characteristics between the project location and the airport from which meteorological data are proposed for use in air dispersion modeling for the new mill. The analysis included two sets of meteorological data for the proposed site, the first incorporating the estimated after project land use parameters for the proposed site and the second using the land use parameters for the representative airport location. The following sections describe the air dispersion methodologies and information that were used in this analysis followed by a presentation of the results and conclusion.

Model Selection

The latest version (21112) of the AERMOD modeling system was used to estimate maximum ground-level concentrations in this analysis. AERMOD is a refined, steady-state (both emissions and meteorology over a one hour time step), multiple source, Gaussian dispersion model that is the preferred model for industrial sources in this type of air quality analysis.[1] The AERMOD model has the Plume Rise Modeling Enhancements (PRIME) incorporated in the regulatory version, so the direction-specific building downwash dimensions used as inputs are determined by the Building Profile Input Program, PRIME version (BPIP PRIME), version 04274.[2] BPIP PRIME is designed to incorporate the concepts and procedures expressed in the GEP Technical Support document, the Building Downwash Guidance document, and other related documents, while incorporating the PRIME enhancements to improve prediction of ambient impacts in building cavities and wake regions.[3]

BREEZE®-AERMOD software, developed by Trinity Consultants, was used to assist in developing the model input files for AERMOD. This software program incorporates the most recent versions of AERMOD (dated 21112), AERMET (dated 21112), AERMINUTE (dated 15272) and AERMAP (dated 18081) to estimate ambient impacts from the modeled sources.

---

[1] 40 CFR Part 51, Appendix W-Guideline on Air Quality Models, Appendix A.1- AMS/EPA Regulatory Model (AERMOD).

[2] Earth Tech, Inc., Addendum to the ISC3 User's Guide, The PRIME Plume Rise and Building Downwash Model, Concord, MA.

[3] U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Guidelines for Determination of Good Engineering Practice Stack Height (Technical Support Document for the Stack Height Regulations) (Revised), Research Triangle Park, North Carolina, EPA 450/4-80-023R, June 1985.

110 Polaris Pkwy, Ste 200, Westerville, OH 43082
P 614.433.0733 / F 614.433.0734

Building Downwash

The *Guideline*[4] requires the evaluation of the potential for physical structures to affect the dispersion of emissions from stack sources. The exhaust from stacks that are located within specified distances of buildings may be subject to "aerodynamic building downwash" under certain meteorological conditions. This determination is made by comparing actual stack height to the Good Engineering Practice (GEP) stack height. The modeled emission units and associated stacks and vents at the proposed facility were evaluated in terms of their proximity to nearby structures. All locations and dimensions of the buildings that were used in the modeling analysis are reported in the BPIP files contained in the modeling files that will be provided to West Virginia DEP.

An emission point is assumed to be subject to the effects of downwash at all release heights even if the release height is above the U.S. EPA formula height, which is defined by the following formula:

$$H_{GEP} = H + 1.5 \times L$$

Where:

H_{GEP}	=	EPA formula height,
H	=	structure height, and
L	=	lesser dimension of the structure (height or maximum projected width).

This equation is limited to stacks located within 5L of a structure. Stacks located at a distance greater than 5L are not subject to the wake effects of the structure.

Direction-specific equivalent building dimensions used as input to the AERMOD model to simulate the impacts of downwash are calculated using the *BREEZE®*-AERMOD software, developed by Trinity Consultants. This software incorporates the EPA-sanctioned Building Profile Input Program (BPIP-PRIME). Using the building coordinates and dimensions for all on-site structures, a GEP analysis of all stacks included in the sensitivity analysis in relation to each building for each of the 36 wind directions was performed to evaluate which building height and dimensions have the greatest influence in terms of building downwash (enhanced dispersion) on each source's emissions.

Coordinate System

The location of emission sources, structures, and receptors are represented in the Universal Transverse Mercator (UTM) coordinate system. The UTM grid divides the world into coordinates that are measured in north meters (measured from the equator) and east meters (measured from the central 500 km meridian of each UTM zone, where the world is divided into 36 north-south zones). The datum for the modeling analysis is based on North American Datum 1983 (NAD 83). UTM coordinates for this analysis all reside within UTM Zone 17 which will serve as the reference point for all data.

Treatment of Terrain

Terrain elevations were considered in the modeling analysis. The elevations of receptors, buildings, and sources refined the modeling output concentrations between the sources at one elevation and receptor locations at various other elevations at the fence line and beyond. This was accomplished through the use of the AERMOD terrain preprocessor called AERMAP (latest version 18081), which generates base elevations above mean sea level of sources, buildings, and/or receptors as specified by the user. For all offsite receptors, AERMAP determined the base elevation of each and an effective hill height scale that helps determine the magnitude of each source plume-elevated terrain feature interaction. AERMOD uses both of

---

[4] U.S. EPA: Guideline on Air Quality Models, 40 CFR Part 51 - Appendix W (Revised, January 17, 2017)

these receptor-related values to calculate the effect of terrain on each plume. Terrain elevations from the U.S. Geological Survey (USGS) 1 arc-second (approximately 30 meter resolution) National Elevation Dataset (NED) data were used for the AERMAP processing of receptors, buildings, and evaluated emission sources.[5] The data was obtained in GeoTIFF format in accordance with recent guidance provided by U.S. EPA.[6]

Receptor Grids

The following nested grids was used in this analysis consistent with the approved modeling protocol:

- **Fence Line Grid:** "Fence line" grid consisting of evenly-spaced receptors 50 meters apart placed along the main property boundary of the facility,
- **Fine Cartesian Grid:** A "fine" grid containing 100-meter spaced receptors extending approximately 3 km from the center of the property and beyond the fence line,
- **Medium Cartesian Grid:** A "medium" grid containing 500-meter spaced receptors extending from 3 km to 10 km from the center of the facility, exclusive of receptors on the fine grid,
- **Coarse Cartesian Grid:** A "coarse grid" containing 1,000-meter spaced receptors extending from 10 km to 30 km from the center of the facility, exclusive of receptors on the fine and medium grids, and
- **Very Coarse Cartesian Grid:** A "very coarse grid" containing 2,500-meter spaced receptors extending from 30 km to 50 km from the center of the facility, exclusive of receptors on the fine, medium, and coarse grids.

Modeled Emission Sources

Using these two sets of meteorological data, representative emission sources from the proposed facility for both short term and long-term averaging periods were modeled. Four (4) representative sources were modeled in this analysis, a surface-based volume source, a volume source on building, a relatively short point source, and an elevated point source. Table 1 below summarizes the source characteristics that were used in this analysis. For the purpose of this analysis and emission rate of 1 lb/hr was modeled for all sources.

Table 1. Source Parameters

Source ID	Source 1	Source 2	Source 3	Source 4
Source Type	Point	Point	Volume – Surface Based	Volume – Elevated Source on a Building
UTM East (m)	398,351.00	398,168.90	398,495.70	398,405.00
UTM North (m)	4,278,923.00	4,277,941.80	4,277,995.90	4,278,123.50
Elevation (ft)	579.79	561.38	575.79	574.31
Stack Height (ft)	80.00	184.00		
Exhaust Temperature (F)	90.10	260.00		

[5] The National Mapserver available at https://viewer.nationalmap.gov/basic

[6] Data Sources and Conversion of Elevation Data for AERMAP - https://gaftp.epa.gov/Air/aqmg/SCRAM/models/related/aermap/Access_and_Conversion_of_Elevation_Data_for_AERMAP.pdf

Source ID	Source 1	Source 2	Source 3	Source 4
Exit Velocity (fps)	94.92	58.00		
Stack Diameter (ft)	3.00	23.36		
Release Height (ft)			5.63	70.00
Initial Lateral Dimension (ft)			115.32	133.20
Initial Vertical Dimension (ft)			5.23	65.12

Meteorological Data

The land use characteristics (i.e., albedo, surface roughness and Bowen ratio) for the proposed site and the Huntington Tri-State Airport (KHTS, WBAN #3860) was presented in the modeling protocol and are summarized in Table 2 below for reference.

Table 2. Comparison of Land Use Parameters – Huntington vs. Modified Apple Grove

Sector (degrees)	Huntington Airport Albedo (unitless)	Huntington Airport Bowen Ratio (unitless)	Huntington Airport Surface Roughness (m)	Nucor Applegrove Albedo (unitless)	Nucor Applegrove Bowen Ratio (unitless)	Nucor Applegrove Surface Roughness (m)	Percent Diff. [(Facility-NWS)/Facility] Albedo (%)	Percent Diff. Bowen Ratio (%)	Percent Diff. Surface Roughness (%) [1]
0-30	0.163	0.693	0.148	0.160	0.635	0.261	-1.56%	-9.06%	43.25%
30-60	0.163	0.693	0.274	0.160	0.635	0.162	-1.56%	-9.06%	-69.14%
60-90	0.163	0.693	0.143	0.160	0.635	0.139	-1.56%	-9.06%	-3.07%
90-120	0.163	0.693	0.127	0.160	0.635	0.151	-1.56%	-9.06%	16.23%
120-150	0.163	0.693	0.450	0.160	0.635	0.188	-1.56%	-9.06%	-139.36%
150-180	0.163	0.693	0.358	0.160	0.635	0.223	-1.56%	-9.06%	-60.31%
180-210	0.163	0.693	0.155	0.160	0.635	0.126	-1.56%	-9.06%	-22.77%
210-240	0.163	0.693	0.232	0.160	0.635	0.031	-1.56%	-9.06%	-654.47%
240-270	0.163	0.693	0.263	0.160	0.635	0.026	-1.56%	-9.06%	-909.62%
270-300	0.163	0.693	0.148	0.160	0.635	0.036	-1.56%	-9.06%	-308.28%
300-330	0.163	0.693	0.072	0.160	0.635	0.204	-1.56%	-9.06%	64.50%
330-360	0.163	0.693	0.096	0.160	0.635	0.234	-1.56%	-9.06%	58.91%
All	**0.163**	**0.693**	**0.205**	**0.160**	**0.635**	**0.148**	**-1.56%**	**-9.06%**	**-38.42%**

[1] Percent Difference [(Facility-NWS)/Facility] compares the average of the overall albedo, Bowen ratio, and surface roughness values for the Huntington Airport to the proposed Apple Grove site.

As seen in Table 2, the only characteristic with any substantial variation between the two locations is surface roughness. To better examine the effect that the surface roughness variations have on model output, an AERMOD analysis was performed for two sets of meteorological data, one using the surface parameters from each land use analysis.

Discussion of Results and Conclusion

Table 3 below shows the maximum of modeled concentrations over 5 years and the percent difference relative to the airport land use case. Source 3 is a ground level volume source that represents types of sources that mostly commonly emit fugitive particulate matter emissions. Particulate matter only has ambient air quality standards with 24-hour and annual averaging periods, so results are only shown for these two averaging periods for this source. As presented in Table 3, the model output concentrations varied by less than 17% for the point sources and by less than 32% for the volume sources when considering the high 1st high 1-hour, 3-hour, 8-hour, 24-hour, monthly, and annual average concentrations.

Table 3. Results Summary – Huntington vs. Modified Apple Grove

Averaging Period			Source ID			
			Source 1	**Source 2**	**Source 3**	**Source 4**
H1H	**1HR**	Airport LU (µg/m^3)	8.03	0.18	N/A	16.58
		Site LU (µg/m^3)	9.34	0.19	N/A	18.89
		Difference (%)	**16%**	**5%**	**N/A**	**14%**
	3HR	Airport LU (µg/m^3)	5.08	0.07	N/A	9.67
		Site LU (µg/m^3)	5.87	0.08	N/A	11.42
		Difference (%)	**16%**	**15%**	**N/A**	**18%**
	8HR	Airport LU (µg/m^3)	3.30	5.37E-02	N/A	6.29
		Site LU (µg/m^3)	3.65	5.09E-02	N/A	7.28
		Difference (%)	**11%**	**-5%**	**N/A**	**16%**
	24HR	Airport LU (µg/m^3)	2.36	0.03	22.94	3.35
		Site LU (µg/m^3)	2.60	0.03	24.12	3.56
		Difference (%)	**10%**	**9%**	**5%**	**6%**
	Monthly	Airport LU (µg/m^3)	0.80	5.41E-03	N/A	0.57
		Site LU (µg/m^3)	0.84	5.39E-03	N/A	0.75
		Difference (%)	**5%**	**0%**	**N/A**	**31%**
	Annual	Airport LU (µg/m^3)	0.47	2.12E-03	2.12	0.34
		Site LU (µg/m^3)	0.49	2.22E-03	1.57	0.41
		Difference (%)	**4%**	**5%**	**-26%**	**19%**

Due to the insignificant variations in AERMOD output and relative similarities in land use characteristics between the airport and the proposed site, it can be concluded that use of airport land use information is representative and appropriate for use in modeling of the proposed new mill.

All AERMOD input and output and meteorological data files that were used in this sensitivity analysis will be provided to WVDEP.