NUCOR

NUCOR CORPORATION
1915 Rexford Road
Charlotte, NC 28211
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Received
January 21, 2022
WV DEP/Div of Air Quality

January 21, 2022

Mr. Joe Kessler
West Virginia DEP
DAQ – Permitting Division
601 57th Street SE
Charleston, WV 25304

RE: Nucor Corporation – R14 Air Permit Application

Dear Mr. Kessler:

On January 12, 2022, Nucor Corporation ("Nucor") announced the construction of a new sheet mill facility to be located in Mason County, West Virginia ("Nucor Steel West Virginia"). The Nucor Steel West Virginia facility will be considered a major source with respect to the Prevention of Significant Deterioration permit program. Therefore, Nucor is submitting this application to obtain 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).

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

Sean Alteri
Environmental Manager

Division of Air Quality Permit Application Submittal

Please find attached a permit application for : Nucor Corporation, West Virginia Steel Mill

[Company Name; Facility Location]

- DAQ Facility ID (for existing facilities only):
- Current 45CSR13 and 45CSR30 (Title V) permits associated with this process (for existing facilities only):

- Type of NSR Application (check all that apply):
  - ☑ Construction
  - ☐ Modification
  - ☐ Class I Administrative Update
  - ☐ Class II Administrative Update
  - ☐ Relocation
  - ☐ Temporary
  - ☐ Permit Determination

- Type of 45CSR30 (TITLE V) Application:
  - ☐ Title V Initial
  - ☐ Title V Renewal
  - ☐ Administrative Amendment**
  - ☐ Minor Modification**
  - ☐ Significant Modification**
  - ☐ Off Permit Change

****If the box above is checked, include the Title V revision information as ATTACHMENT S to the combined NSR/Title V application.**

- Payment Type:
  - ☐ Credit Card (Instructions to pay by credit card will be sent in the Application Status email.)
  - ☑ Check (Make checks payable to: WVDEP – Division of Air Quality)

    Mail checks to:
    WVDEP – DAQ – Permitting
    Attn: NSR Permitting Secretary
    601 57th Street, SE
    Charleston, WV 25304

Please wait until DAQ emails you the Facility ID Number and Permit Application Number. Please add these identifiers to your check or cover letter with your check.

- If the permit writer has any questions, please contact (all that apply):
  - ☐ Responsible Official/Authorized Representative
    - Name:
    - Email:
    - Phone Number:
  - ☑ Company Contact
    - Name: Sean Alteri
    - Email: Sean.Alteri@nucor.com
    - Phone Number: 980-244-9459
  - ☑ Consultant
    - Name: William Bruscino
    - Email: BBruscino@trinityconsultants.com
    - Phone Number: 225-274-5147

PSD AIR PERMIT APPLICATION
West Virginia Steel Mill

NUCOR

Nucor Corporation
1915 Rexford Road
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Prepared By:

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January 2022

Project 213601.0130

Trinity Consultants

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1. APPLICATION OVERVIEW

Nucor Corporation (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 will provide 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.

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 and direct reduced iron (DRI). 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 2024. 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 furnaces
- Scarfing machine
- Rolling mill

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

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, desulfurizing, 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 furnaces. At the tunnel furnaces, 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.

2.1.3.3 Scarfing Machine

Slabs that require conditioning prior to reheating are processed to remove surface defects at the machine scarfing operation. After conditioning, slabs are transferred to the tunnel furnaces for reheating. The reheated slabs are then processed in the rolling mill to produce hot rolled steel coils for further processing.

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. The pickling lines will include natural gas fired boilers used to heat the HCl pickle bath, pickling line scrubbers, and pickling line scale breaker.

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. Each temper mill and 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 0.875 million tons per year.
- One (1) continuous caster with a maximum hourly capacity of 171 tph and annual capacity of 1.5 million tons per year

Hot Mill

- Two (2) tunnel furnaces firing natural gas each with a rating of 150 MMBtu/hr
- One (1) rolling mill with a rating of 342 tph and annual capacity of 3 million tons per year
- One (1) scarfing machine mill with a rating of 342 tph and annual capacity of 3 million tons per year

Cold Mill

- One (1) scale breaker with a rating of 342 tph and annual capacity of 3 million tons per year
- Two (2) pickling galvanizing lines each with a rating of 171 tpy and annual capacity of 1.5 million tons per year
- Three (3) pickling line boilers firing natural gas with a total rating of 120 MMBtu/hr
- Two (2) galvanizing furnaces firing natural gas each with a rating of 83 MMBtu/hr
- Twenty-two (22) box annealing furnaces firing natural gas each with a rating of 10 MMBtu/hr
- One (1) tandem cold mill with a rating of 342 tph and annual capacity of 3 million tons per year
- One (1) temper mill with a rating of 342 tph and annual capacity of 3 million tons per year
- Three (3) skin pass mills each with a rating of 114 tph and annual capacity of 1 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

- Three (3) slag stockpiles
- Four (4) 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. Facility-Wide Potential Emissions Summary

	NOX (tpy)	CO (tpy)	SO2 (tpy)	VOC (tpy)	PM (tpy)	PM10 (tpy)	PM2.5 (tpy)	Lead (tpy)	Total HAPs (tpy)	CO2e (tpy)
West Virginia Steel Mill PTE	850.00	3,412.91	362.41	727.82	489.02	731.02	700.29	0.68	13.55	859,430

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	850.00	3,412.91	362.41	727.82	489.02	731.02	700.29	0.68	13.55	859,430

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, Nucor West Virginia 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 furnaces are not subject to the requirements of NSPS Subpart Db because these units are direct-fired and do 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."

The proposed pickling line boilers and water bath vaporizer are subject to the requirements of NSPS Subpart Dc. The pickling line boilers and water bath vaporizer are subject to general recordkeeping and reporting requirements contained in 40 CFR 60.48c. These provisions require Nucor to notify WVDAQ in writing of the dates of construction and start-up. Additionally, Nucor is required to maintain monthly records of the amount of natural gas combusted in the pickling line boilers in accordance with 40 CFR 60.48c(g)(2).

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 pickling line boilers and 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 pickling line boilers and 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 pickling line boilers and water bath vaporizer at the Nucor West Virginia Steel Mill are Type 'b' fuel burning units. 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 picking line boilers and water bath vaporizer (i.e., 131 MMBtu/hr for a combined allowable emission rate of 11.79 lb/hr).

Nucor will maintain records of operating schedules and monthly natural gas usage within the pickling line boilers and water bath vaporizer. Furthermore, the boilers 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 picking line boilers and water bath vaporizer, these emission units are exempt from the provisions of 45CSR7.

The EAFs, LMFs, annealing furnaces, coil cutting and slag processing area, 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.

The scarfing machine is subject to the specific limitation of 0.03 gr/dscf established in 45CSR7-4.10.h.

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. 45CSR7-5.1 stipulates that the cooling tower is equipped with a system (which may include process equipment design, control equipment design, or operation and maintenance procedures) to minimize emissions of fugitive particulate emissions. Nucor utilizes drift eliminators installed on the cooling towers to minimize particulate emissions.

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 pickling line boilers and water bath vaporizer are 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)
Pickling Line Boiler #1	80	256
Pickling Line Boiler #2	20	64
Pickling Line Boiler #3	20	64
Water Bath Vaporizer	11	35.2

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 Furnaces #1-2
- 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 45CSR21 - Regulation to Prevent and Control Air Pollution from the Emission of VOC

The only potentially applicable section of 45CSR21 is Section 28: Petroleum Liquid Storage in Fixed Roof Tanks. The diesel storage tanks at the Nucor West Virginia Steel Mill will not be subject to the requirements of Section 28 because each of these tanks has a capacity less than 40,000 gallons pursuant to 45CSR21-28.1.a.

Please note that 45CSR21-40.1.d explicitly excludes iron and steel production facilities from the requirements of 45CSR21-40.

3.5.9 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.

3.5.10 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.

3.5.11 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
TF2	Tunnel Furnace 2	Yes	Yes	Yes	Yes	Yes	--	Yes
VTD1	Vacuum Tank Degasser 1	--	Yes	--	--	--	--	--
VTD2	Vacuum Tank Degasser 2	--	Yes	--	--	--	--	--
RM	Rolling Mill	--	--	--	Yes	--	--	--
SM	Scarfing Machine	--	--	--	Yes	--	--	--
PKL-1	Pickling Line 1	--	--	--	Yes	--	--	--
PKL-2	Pickling Line 2	--	--	--	Yes	--	--	--
CMBLR1 through 3	Pickling Lines Boilers	Yes	Yes	Yes	Yes	Yes	--	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 4-35	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

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)
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
See Table 4-60	Slag Processing Equipment (See Table 4-60)	--	--	--	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 3	Slag Stockpile #1 through 3	--	--	--	Yes	--	--	--
SCRPSKP1 through 4	Scrap Metal Stockpile #1 through 4	--	--	--	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 TF2	Tunnel Furnace #1 Tunnel Furnace #2	0.1 lb/MMBtu
CMBLR1 CMBLR2 CMBLR3	Pickling Lines Boilers	0.05 lb/MMBtu
EMGEN1 through 6	Emergency Engine #1 through #6	NSPS JJJJ and RICE MACT
See Table 4-9	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.
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	20%	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, oxy-fuel burners, and good combustion practices. 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 Low-NOx and 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 Furnaces (EU ID TF1 and TF2)

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

4.2.3.1 Step 2 – Eliminate Technically Infeasible Options

The outlet temperature of the proposed tunnel furnaces 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 furnaces.

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 furnaces 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 furnaces.

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 furnaces.

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	20%	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 furnaces.

4.2.4 Pickling Lines Boilers (EU ID CMBLR1, 2, and 3)

NO_X emissions are generated from three (3) 20 MMBtu/hr natural gas fired pickling line boilers as a product of combustion.

4.2.4.1 Step 2 – Eliminate Technically Infeasible Options

Add-on controls are not appropriate for small natural gas combustion devices with a capacity less than 100 MMBtu/hr as they would be ineffective in removing additional NOx emissions. Furthermore, no applications of add-on controls on similar sized natural gas-fired sources to the proposed boilers were noted in the search of the RBLC database. However, since it is technically feasible to add SCR or SNCR control to the proposed boilers, they are considered further.

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 cold mill boiler.

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 boilers.

Table 4-6. Rank of Remaining Control Technologies for NO_X from Pickling Lines Boilers

Control Technology	Efficiency	Rank
SCR	70-90%	1
Low-NOx Burners (LNBs)	Up to 80%	2
SNCR	25-75%	3
Oxy-Fuel Burners	20%	4
Good Combustion Practices	Varies	5

4.2.4.3 Step 4 – Evaluation of Most Effective Control Option

The highest ranking control technologies for the control of NO_X include SCR and SNCR. Nucor evaluated the cost effectiveness for the proposed pickling line boilers of 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 for cost effectiveness for BACT 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 analyses is provided in Table 4-7 below.

Table 4-7. Cost Analysis for Pickling Line Boilers NO_X Control Technologies

Control Technology	Emission Reduction (tpy)	Annualized Control Cost ($)	Cost ($/ton)
SCR	3.5	$80,176	$22,881
SNCR	1.8	$55,154	$31,481

4.2.4.4 Step 5 – Select BACT

A review of the RBLC database for low-NO_X burner BACT emission limits revealed NO_X emissions that range from 0.05 lb/MMBtu to 0.10 lb/MMBtu for boilers at steel mills. The only control technologies that are indicated for these boilers are low-NO_X burners and good combustion practices. Furthermore, the AP-42 emission factor for low-NO_X burners is 50 lb/MMscf for small industrial boilers.

Nucor proposes to utilize low-NOx burners, good combustion practices, and an emission rate of 0.05 lb NOx/MMBtu as BACT for the proposed pickling line boilers. This is equivalent to the AP-42 value for natural gas boiler combustion with low NO_X burners and is consistent with the control technology implemented by the best controlled similar sources in the RBLC database.

4.2.5 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.

4.2.5.1 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.

4.2.5.2 Step 3 – Rank Remaining Options

Table 4-8 shows the rankings of the options for controlling NO_X emissions from the proposed emergency engines.

Table 4-8. Rank of Remaining Control Technologies for NO_X from Emergency Engines

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

4.2.5.3 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.

4.2.5.4 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.

4.2.6 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 NO_X BACT for these miscellaneous natural gas combustion units. Table 4-9 below identifies the natural gas combustion units covered in this section.

Table 4-9. 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

4.2.6.1 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.

4.2.6.2 Step 3 – Rank Remaining Options

Table 4-10 shows the rankings of the options for controlling NO_X emissions from the miscellaneous natural gas combustion units listed in this section.

Table 4-10. 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	20%	2
Good Combustion Practices	Varies	3

4.2.6.3 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 4-11 below.

Table 4-11. 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

4.2.6.4 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. 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)
Box Annealing Furnaces (EU ID BOXANNEAL1 through 22)
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 4-12 provides a summary of the selected CO BACT for each applicable CO emission source.

Table 4-12. 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 TF2	Tunnel Furnace #1 Tunnel Furnace #2	0.082 lb CO/MMBtu
CMBLR1 CMBLR2 CMBLR3	Pickling Line Boiler #1 Pickling Line Boiler #2 Pickling Line Boiler #3	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%

Emission Unit ID	Emission Unit	Selected CO BACT
See Table 4-9	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 4-13 and are evaluated for each CO source in this analysis.

Table 4-13. 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.
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 4-14 shows the rankings of the options for controlling CO emissions from the proposed EAFs and LMFs.

Table 4-14. 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 Degasser (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 4-15 shows the rankings of the options for controlling CO emissions from the proposed vacuum tank degassers.

Table 4-15. Rank of Remaining Control Technologies for CO from Vacuum Tank Degasser

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 Furnaces (EU ID TF1 and TF2)

CO emissions are generated from the natural gas-fired tunnel furnaces 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 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 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 tunnel furnaces.

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 units.

4.3.4.2 Step 3 – Rank Remaining Options

Table 4-16 shows the rankings of the options for controlling CO emissions from the proposed tunnel furnaces.

Table 4-16. 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 furnaces. 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.

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

4.3.5 Pickling Lines Boilers (EU ID CMBLR1, 2, and 3)

CO emissions are generated from three (3) 20 MMBtu/hr natural gas fired pickling line boilers 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 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 boilers.

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.[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.

4.3.5.2 Step 3 – Rank Remaining Options

Table 4-17 shows the rankings of the options for controlling CO emissions from the proposed boilers.

Table 4-17. Rank of Remaining Control Technologies for CO from Pickling Lines Boilers

Control Technology	Efficiency	Rank
Oxidation Catalyst	90%	1
Good Combustion Practices	Varies	Base Case

4.3.5.3 Step 4 – Evaluation of Most Effective Control Option

The highest-ranking control technology for the control of CO was identified as Catalytic Oxidation. A cost analysis for oxidation catalyst determined that it is beyond the acceptable range for cost effectiveness for BACT 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 infeasibility analysis is provided in Table 4-18 below.

Table 4-18. Cost Analysis for Pickling Line Boilers CO Control Technologies

Control Technology	Emission Reduction (tpy)	Annualized Control Cost ($)	Cost ($/ton)
Oxidation Catalyst	6.49	$98,836	$14,453

4.3.5.4 Step 5 – Select BACT

Nucor proposes a CO emission rate of 0.082 lb/MMBtu as BACT for the three (3) proposed pickling line boilers. This is equivalent to recently permitted similar emission unit CO emission limits identified in the RBLC database and to the AP-42 CO emission factor for natural gas combustion in the latest version of Chapter 1.4 of 84 lb/MMscf converted to lb/MMBtu using the natural gas heating value of 1,020 Btu/scf.

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

Compliance will be demonstrated via the combustion of pipeline quality natural gas and use of good combustion practices.

4.3.6 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.

4.3.6.1 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.

4.3.6.2 Step 3 – Rank Remaining Options

Table 4-19 shows the rankings of the options for controlling CO emissions from the proposed emergency engines.

Table 4-19. Rank of Remaining Control Technologies for CO from Emergency Engines

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

4.3.6.3 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

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.

4.3.7 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 4-9 above has identified the natural gas combustion units covered in this section.

4.3.7.1 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.[3] 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.

4.3.7.2 Step 3 – Rank Remaining Options

Table 4-20 shows the rankings of the options for controlling CO emissions from the miscellaneous natural gas combustion units listed in this section.

Table 4-20. Rank of Remaining Control Technologies for CO from Miscellaneous Natural Gas Combustion Units

Control Technology	Efficiency	Rank
Good Combustion Practices	Varies	1

4.3.7.3 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.

4.3.7.4 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 4-9. This is equivalent to the

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

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 4-21 provides a summary of the selected SO_2 BACT for each applicable SO_2 emission source.

Table 4-21. 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 TF2	Tunnel Furnace #1 Tunnel Furnace #2	0.000588 lb SO_2/MMBtu
CMBLR1 CMBLR2 CMBLR3	Pickling Line Boiler #1 Pickling Line Boiler #2 Pickling Line Boiler #3	0.000588 lb SO_2/MMBtu
EMGEN1 through 6	Emergency Engine #1 through 6	NSPS IIII and RICE MACT, Use of ULSD
See Table 4-9	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 4-22 and are evaluated for each SO_2 source in this analysis.

Table 4-22. 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 4-23 shows the rankings of the options for controlling SO_2 emissions from the proposed EAFs and LMFs.

Table 4-23. 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. 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. 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 for each stack.

4.4.3 Tunnel Furnaces (EU ID TF1 and TF2)

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 furnaces 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 furnaces.

The SO_2 concentrations in the exhaust of the proposed furnaces 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 furnaces, and it is considered technically infeasible.

4.4.3.2 Step 3 – Rank Remaining Options

Table 4-24 shows the rankings of the options for controlling SO_2 emissions from the proposed tunnel furnaces.

Table 4-24. 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 furnaces. 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 furnaces. Compliance will be demonstrated via the combustion of pipeline quality natural gas.

4.4.4 Pickling Lines Boilers (EU ID CMBLR1, 2, and 3)

SO_2 emissions are generated from three (3) 20 MMBtu/hr natural gas fired pickling line boilers as a product of combustion.

4.4.4.1 Step 2 – Eliminate Technically Infeasible Options

The outlet temperature of the proposed boilers will be 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 pickling line boiler exhaust temperature is expected to be 550°F. Therefore, the application of these scrubbers is considered technically infeasible for the proposed boilers.

The SO_2 concentrations in the exhaust of the proposed boilers 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 boilers, and it is considered technically infeasible.

4.4.4.2 Step 3 – Rank Remaining Options

Table 4-25 shows the rankings of the options for controlling SO_2 emissions from the proposed boilers.

Table 4-25. Rank of Remaining Control Technologies for SO_2 from Pickling Lines Boilers

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

A review of the RBLC database revealed that SO_2 emissions from small (<100 MMBtu/hr) heaters and boilers range at steel mills from 0.000588 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 furnaces. 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 small heaters and boilers. Compliance will be demonstrated via the combustion of pipeline quality natural gas.

4.4.5 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.

4.4.5.1 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.

4.4.5.2 Step 3 – Rank Remaining Options

Table 4-26 shows the rankings of the options for controlling SO_2 emissions from the proposed emergency engines.

Table 4-26. Rank of Remaining Control Technologies for SO_2 from Emergency Engines

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

4.4.5.3 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

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.

4.4.6 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 SO_2 BACT for these miscellaneous natural gas combustion units. Table 4-9 above has identified the natural gas combustion units covered in this section.

4.4.6.1 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.

4.4.6.2 Step 3 – Rank Remaining Options

Table 4-27 shows the rankings of the options for controlling SO_2 emissions from the miscellaneous natural gas combustion units listed in this section.

Table 4-27. 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

4.4.6.3 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.

4.4.6.4 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 4-9. 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 4-28 provides a summary of the selected CO BACT for each applicable CO emission source.

Table 4-28. Summary of Selected BACT for VOC Emitting Sources

Emission Unit ID	Emission Unit	Selected NO_X BACT
EAF1/LMF1 EAF2/LMF2	EAF1/LMF1 EAF2/LMF2	0.093 lb VOC/ton steel each
TF1 TF2	Tunnel Furnace #1 Tunnel Furnace #2	0.0054 lb/MMBtu
CMBLR1 CMBLR2 CMBLR3	Pickling Line Boiler #1 Pickling Line Boiler #2 Pickling Line Boiler #3	0.0054 lb/MMBtu
EMGEN1 through 6	Emergency Engine #1 through 6	NSPS IIII and RICE MACT
See Table 4-9	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 4-35	Auxiliary Storage Tanks	Fixed Roof

4.5.1 Step 1 – Identify All Control Options

Nucor identified and reviewed the following VOC control options which are summarized in Table 4-29 and are evaluated for each VOC source in this analysis.

Table 4-29. 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.
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 4-30 shows the rankings of the options for controlling VOC emissions from the proposed EAFs and LMFs.

Table 4-30. 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 Furnaces (EU ID TF1 and TF2)

VOC emissions are generated from the natural gas-fired tunnel furnaces 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 furnaces 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 furnaces.

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 4-31 shows the rankings of the options for controlling VOC emissions from the proposed tunnel furnaces.

Table 4-31. 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 furnaces. This is equivalent to the lowest emission limit identified in the RBLC database for tunnel furnaces in steel mills.

4.5.4 Pickling Lines Boilers (EU ID CMBLR1, 2, and 3)

VOC emissions are generated from three (3) 20 MMBtu/hr natural gas fired pickling line boilers as a product of incomplete combustion.

4.5.4.1 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 boilers will be significantly above the normal operating temperature for a catalytic oxidizer. Therefore, the application of the thermal or catalytic oxidizer control is considered technically infeasible for the proposed boilers.

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

4.5.4.2 Step 3 – Rank Remaining Options

Table 4-32 shows the rankings of the options for controlling VOC emissions from the proposed boilers.

Table 4-32. Rank of Remaining Control Technologies for VOC from Pickling Lines Boilers

Control Technology	Efficiency	Rank
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 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 pickling line boilers. 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 with a capacity less than 100 MMBtu/hr in steel mills.

4.5.5 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.

4.5.5.1 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.

4.5.5.2 Step 3 – Rank Remaining Options

Table 4-33 shows the rankings of the options for controlling VOC emissions from the proposed emergency engines.

Table 4-33. Rank of Remaining Control Technologies for VOC from Emergency Engines

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

4.5.5.3 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 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.

4.5.6 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 VOC BACT for these miscellaneous natural gas combustion units. Table 4-9 above has identified the natural gas combustion units covered in this section.

4.5.6.1 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.

4.5.6.2 Step 3 – Rank Remaining Options

Table 4-34 shows the rankings of the options for controlling VOC emissions from the miscellaneous natural gas combustion units listed in this section.

Table 4-34. Rank of Remaining Control Technologies for VOC from Miscellaneous Natural Gas Combustion Units

Control Technology	Efficiency	Rank
Good Combustion Practices	Varies	1

4.5.6.3 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.

4.5.6.4 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 pickling line boilers. 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.

4.5.7 Storage Tanks for Organic Material

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. Minimal VOC emissions will be generated from these storage tanks. Table 4-35 below identifies the natural gas combustion units covered in this section.

Table 4-35. 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

4.5.7.1 Step 2 - Eliminate Technically Infeasible Options

All of the proposed auxiliary storage tanks 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 storage tanks as it would be ineffective in removing any additional VOC emissions.

4.5.7.2 Step 3 - Rank Remaining Options

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

4.5.7.3 Evaluation of Most Effective Control Option

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

4.5.7.4 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.

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 4-36 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 4-36. 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 TF2	Tunnel Furnace #1 Tunnel Furnace #2	PM – 1.86E-3 lb/MMBtu PM_{10}/$PM_{2.5}$ – 7.45E-3 lb/MMBtu
PKL-1 PKL-2	Pickling Line #1 Pickling Line #2	PM/PM_{10}/$PM_{2.5}$ – 0.01 gr/dscf
CMBLR1 CMBLR2 CMBLR3	Pickling Line Boiler #1 Pickling Line Boiler #2 Pickling Line Boiler #3	PM – 1.86E-3 lb/MMBtu PM_{10}/$PM_{2.5}$ – 7.45E-3 lb/MMBtu
PKLSB	Pickling Line Scale Breaker	PM/PM_{10}/$PM_{2.5}$ – 0.003 gr/dscf
SPM	Skin Pass Mill	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 IIII 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
SM	Scarfing Machine	PM/PM_{10}/$PM_{2.5}$ – 0.01 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 4-9	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 3 SCRPSKP1 through 4	Slag Stockpile #1 through 3 Scrap Metal Stockpile #1 through 4	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 4-60	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 4-37 and are evaluated for each PM/PM_{10}/$PM_{2.5}$ source in this analysis.

Table 4-37. 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 4-38 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 4-38. 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.[4] Similarly, speciated PM data results from source tests of EAFs used for the

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[4] 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[5] 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 Continuous Casting (EU ID CAST)

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

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

Table 4-39. 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

4.6.3.3 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.

4.6.3.4 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.

[5] 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.

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

4.6.4 Tunnel Furnace (EU ID TF1 and TF2)

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

4.6.4.1 Step 2 – Eliminate Technically Infeasible Options

The PM/PM_{10}/$PM_{2.5}$ concentrations in the exhaust of the proposed tunnel furnaces 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 furnaces, and they are considered technically infeasible.

4.6.4.2 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 tunnel furnace.

Table 4-40. 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

4.6.4.3 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

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 furnaces. 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.

4.6.5 Pickling Lines (EU ID PKL-1 and PKL-2)

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

4.6.5.1 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.

4.6.5.2 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 pickling operations.

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

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

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 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 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.

4.6.6 Pickling Lines Boilers (EU ID CMBLR1, 2, and 3)

$PM/PM_{10}/PM_{2.5}$ emissions are generated from three (3) 20 MMBtu/hr natural gas fired pickling line boilers as a product of combustion.

4.6.6.1 Step 2 – Eliminate Technically Infeasible Options

The $PM/PM_{10}/PM_{2.5}$ concentrations in the exhaust of the proposed boilers 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 boilers, and they are considered technically infeasible.

4.6.6.2 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 boilers.

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

Control Technology	Efficiency	Rank
Good Combustion Practices	Varies	1

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 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 in 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 for small natural gas combustion devices.

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 boilers. 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.

4.6.7 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 4-43 shows the rankings of the options for controlling $PM/PM_{10}/PM_{2.5}$ emissions from the proposed pickling operations.

Table 4-43. 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 Mill (EU ID SPM)

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

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

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

4.6.8.3 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 0.01 gr $PM_{2.5}$/dscf as BACT for the proposed skin pass mill.

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 wet scrubber will be installed for HCl control as provided below.

4.6.9.2 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 the galvanizing lines.

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

Control Technology	Efficiency	Rank
Wet Scrubber (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 4-46 shows the rankings of the options for controlling PM/PM_{10}/$PM_{2.5}$ emissions from the proposed cooling towers.

Table 4-46. 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 4-47 shows the rankings of the options for controlling PM/PM_{10}/$PM_{2.5}$ emissions from the proposed emergency engines.

Table 4-47. 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 4-48 shows the rankings of the options for controlling $PM/PM_{10}/PM_{2.5}$ emissions from the proposed cold mill.

Table 4-48. Rank of Remaining Control Technologies for $PM/PM_{10}/PM_{2.5}$ from Cold Mill

Control Technology	Efficiency	Rank
Wet Scrubber (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, 0.01 gr PM_{10}/dscf, and 0.01 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 4-49 shows the rankings of the options for controlling PM/PM_{10}/$PM_{2.5}$ emissions from the proposed temper mill.

Table 4-49. Rank of Remaining Control Technologies for PM/PM_{10}/$PM_{2.5}$ from Temper Mill

Control Technology	Efficiency	Rank
Wet Scrubber (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 Scarfing Machine and Rolling Mill (EU ID SM and RM)

PM/PM_{10}/$PM_{2.5}$ emissions are generated from the scarfing machine and 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 4-50 shows the rankings of the options for controlling PM/PM_{10}/$PM_{2.5}$ emissions from the proposed scarfing machine and rolling mill.

Table 4-50. Rank of Remaining Control Technologies for $PM/PM_{10}/PM_{2.5}$ from Scarfing Machine and 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 did not identify any RBLC records for the scarfing machine and 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 0.01 gr $PM_{2.5}$/dscf as BACT for the proposed scarfing machine and 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 4-51 shows the rankings of the options for controlling $PM/PM_{10}/PM_{2.5}$ emissions from the proposed slag cutting operations.

Table 4-51. 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 4-9 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 4-52 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 4-52. 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 4-9. 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 3 and SCRPSKP1 through 4)

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

Table 4-53. 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 4-54 shows the rankings of the options for controlling PM/PM_{10}/$PM_{2.5}$ emissions from the proposed lime/carbon/alloy handling systems.

Table 4-54. 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 4-55 shows the rankings of the options for controlling PM/PM_{10}/$PM_{2.5}$ emissions from the proposed storage silos.

Table 4-55. 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 4-56 below identifies the emission units covered in this section.

Table 4-56. 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 4-57 shows the rankings of the options for controlling PM/PM_{10}/$PM_{2.5}$ emissions from the proposed DRI handling system.

Table 4-57. 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/PM_{10}/$PM_{2.5}$ emissions are generated from the scrap handling system.

Table 4-58 below identifies the emission units covered in this section.

Table 4-58. 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 4-59 shows the rankings of the options for controlling PM/PM_{10}/$PM_{2.5}$ emissions from the proposed scrap handling system.

Table 4-59. 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/PM_{10}/$PM_{2.5}$ emissions are generated from handling bulk materials, such as slag.

Table 4-60 below identifies the emission units covered in this section.

Table 4-60. 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 4-61 shows the rankings of the options for controlling $PM/PM_{10}/PM_{2.5}$ emissions from the proposed slag processing equipment.

Table 4-61. 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 4-62 shows the rankings of the options for controlling $PM/PM_{10}/PM_{2.5}$ emissions from vehicle traveling on paved/unpaved roads.

Table 4-62. 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 4-63 and are evaluated for each Lead and Fluoride sources in this analysis.

Table 4-63. 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 4-64 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 4-64. 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 4-65 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 4-65. 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 4-66 shows the rankings of the options for controlling GHG emissions from various emission units and processes throughout the site.

Table 4-66. 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 4-66 as BACT for the proposed steel mill 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):	12C. Nearest city or town:	12D. County:
N/A	Apple Grove	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: 4/15/2022 – 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 [signature] *(Please use blue ink)* DATE: 1-21-2022 *(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): Sean Alteri		36B. Title: Environmental Manager
36C. E-mail: Sean.Alteri@nucor.com	36D. Phone: 980-244-9459	36E. FAX: 704-362-4208

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

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

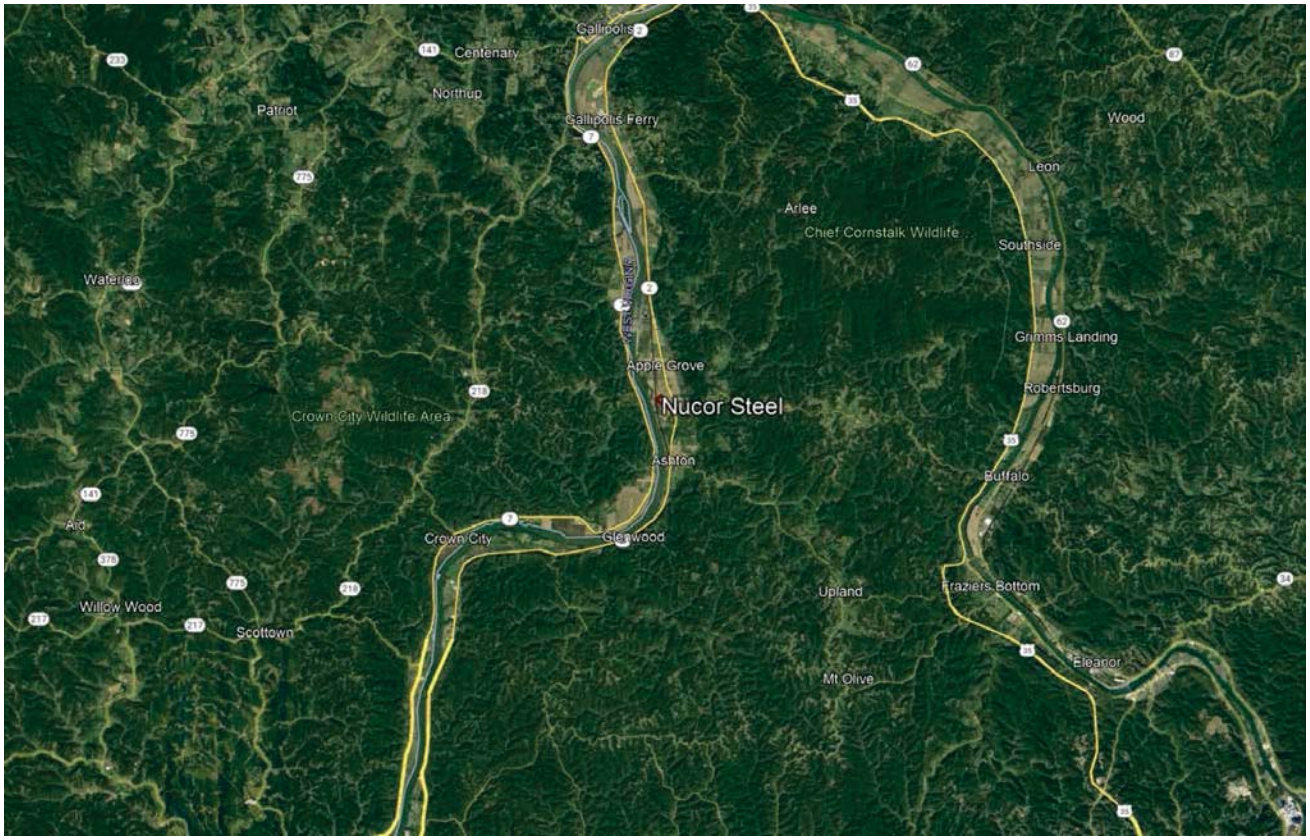


Figure B-2. Site Map Showing Nucor's Proposed West Virginia Steel Mill Location

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.

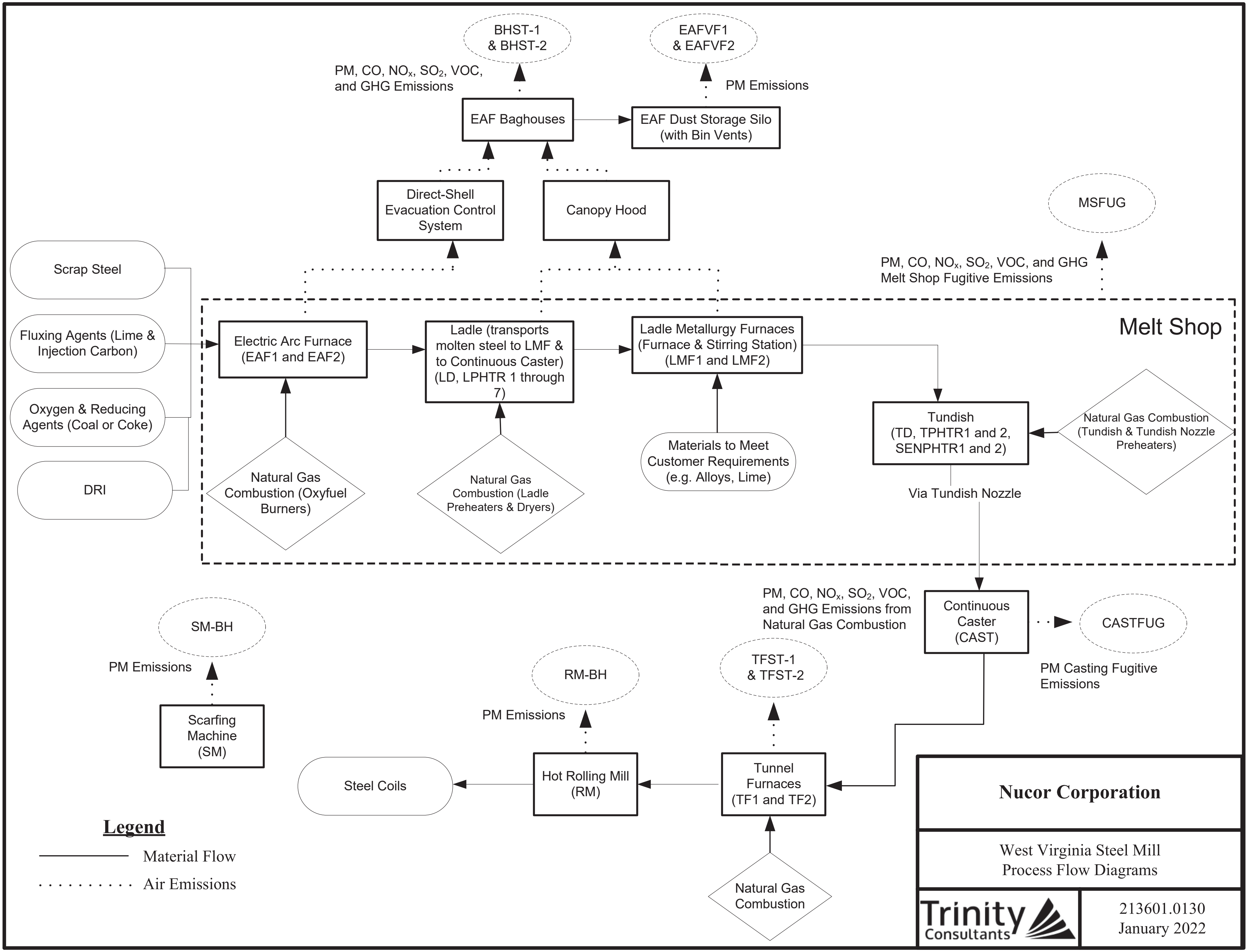
Attachment D: Regulatory Discussion

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, NOx, SO2, 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, NOx, SO2, 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, NOx, SO2, VOC,
and GHG Emissions from
Natural Gas Combustion
Continuous
Caster
(CAST)
CASTFUG
PM Casting Fugitive
Emissions
SM-BH
PM Emissions
Scarfing
Machine
(SM)
RM-BH
PM Emissions
TFST-1
& TFST-2
Steel Coils
Hot Rolling Mill
(RM)
Tunnel
Furnaces
(TF1 and TF2)
Natural Gas
Combustion
Legend
Material Flow
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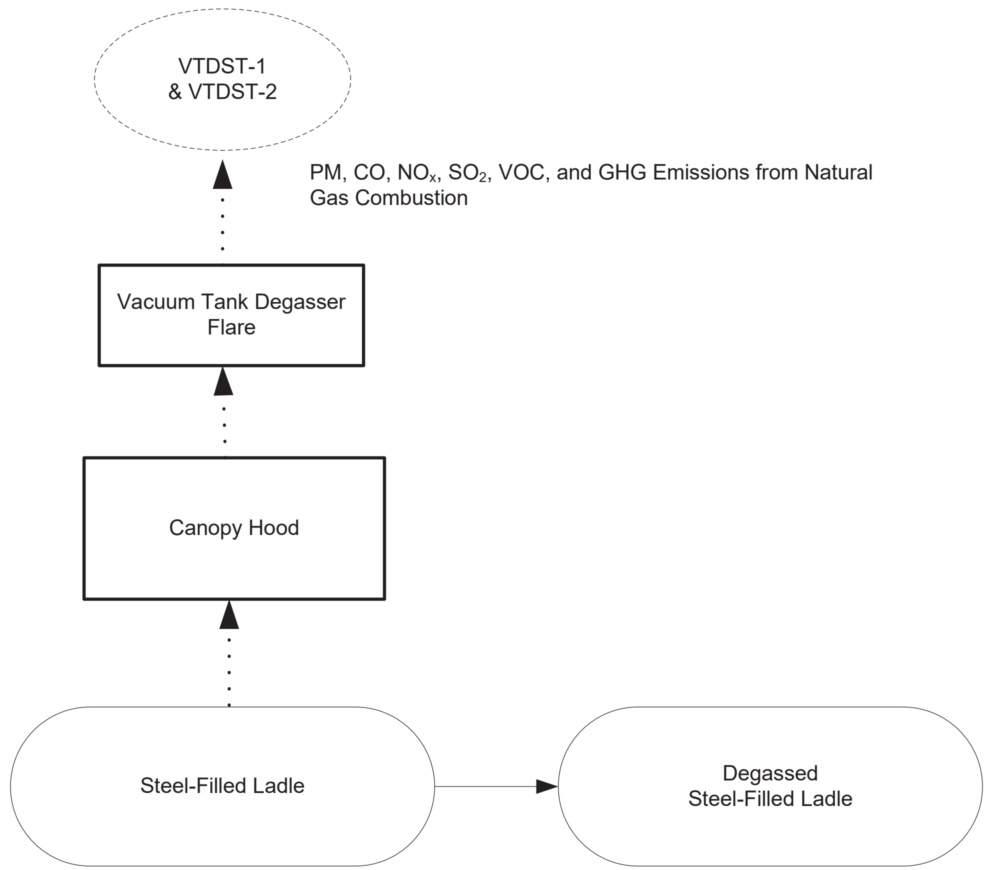
Trinity
Consultants
213601.0130
January 2022

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



Legend

Material Flow

Air Emissions

Nucor Corporation

West Virginia Steel Mill
Process Flow Diagrams

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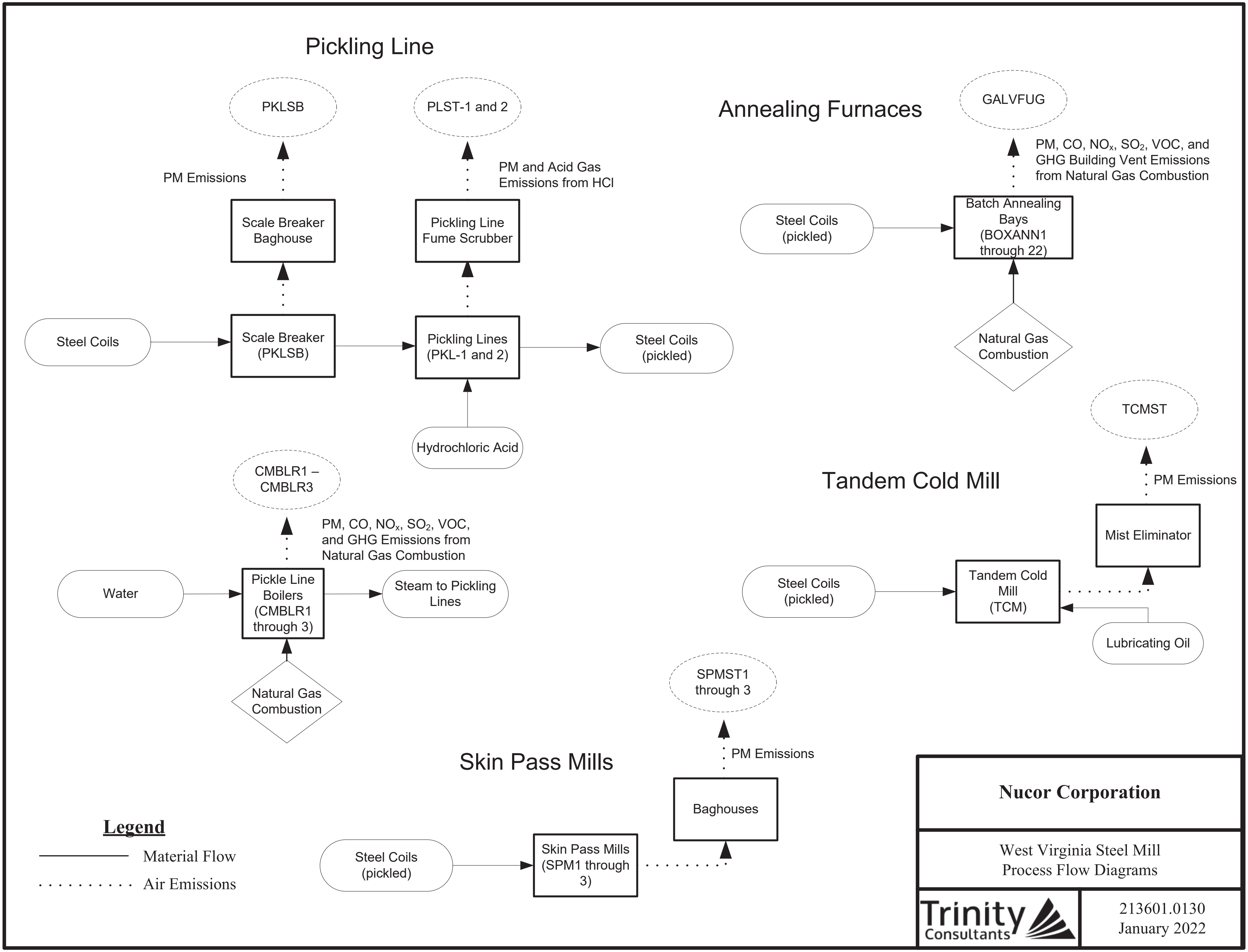
Pickling Line
PKLSB
PLST-1 and 2
PM Emissions
PM and Acid Gas Emissions from HCl
Scale Breaker Baghouse
Pickling Line Fume Scrubber
Steel Coils
Scale Breaker (PKLSB)
Pickling Lines (PKL-1 and 2)
Steel Coils (pickled)
Hydrochloric Acid
Annealing Furnaces
GALVFUG
PM, CO, NO_x, SO_2, VOC, and GHG Building Vent Emissions from Natural Gas Combustion
Steel Coils (pickled)
Batch Annealing Bays (BOXANN1 through 22)
Natural Gas Combustion
CMBLR1 – CMBLR3
PM, CO, NO_x, SO_2, VOC, and GHG Emissions from Natural Gas Combustion
Water
Pickle Line Boilers (CMBLR1 through 3)
Steam to Pickling Lines
Natural Gas Combustion
TCMST
Tandem Cold Mill
PM Emissions
Mist Eliminator
Steel Coils (pickled)
Tandem Cold Mill (TCM)
Lubricating Oil
SPMST1 through 3
PM Emissions
Skin Pass Mills
Baghouses
Steel Coils (pickled)
Skin Pass Mills (SPM1 through 3)
Legend
Material Flow
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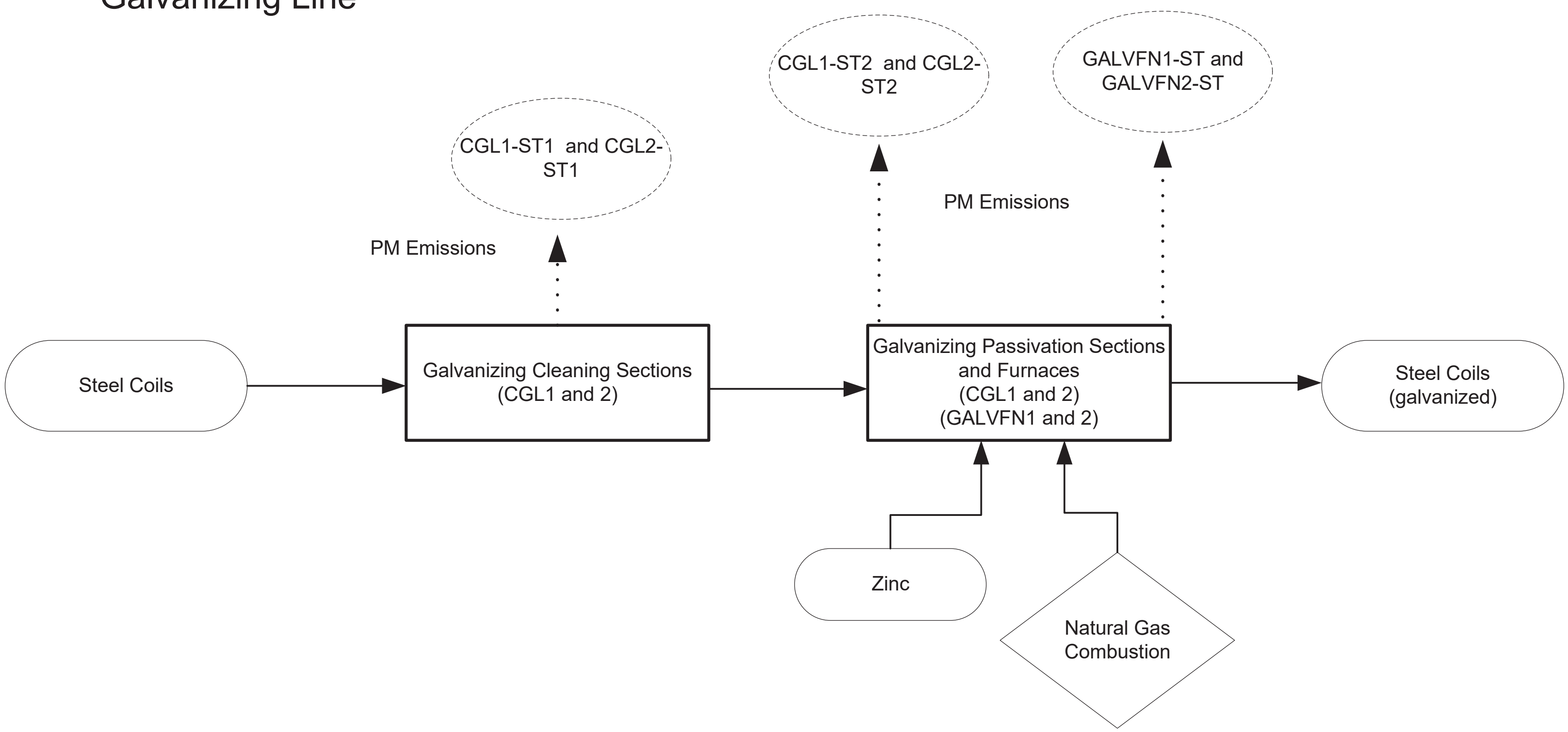
Galvanizing Line



Legend

- Material Flow (solid line)
- Air Emissions (dotted line)
- Heat Flow (dashed line)

Nucor Corporation

West Virginia Steel Mill
Process Flow Diagrams

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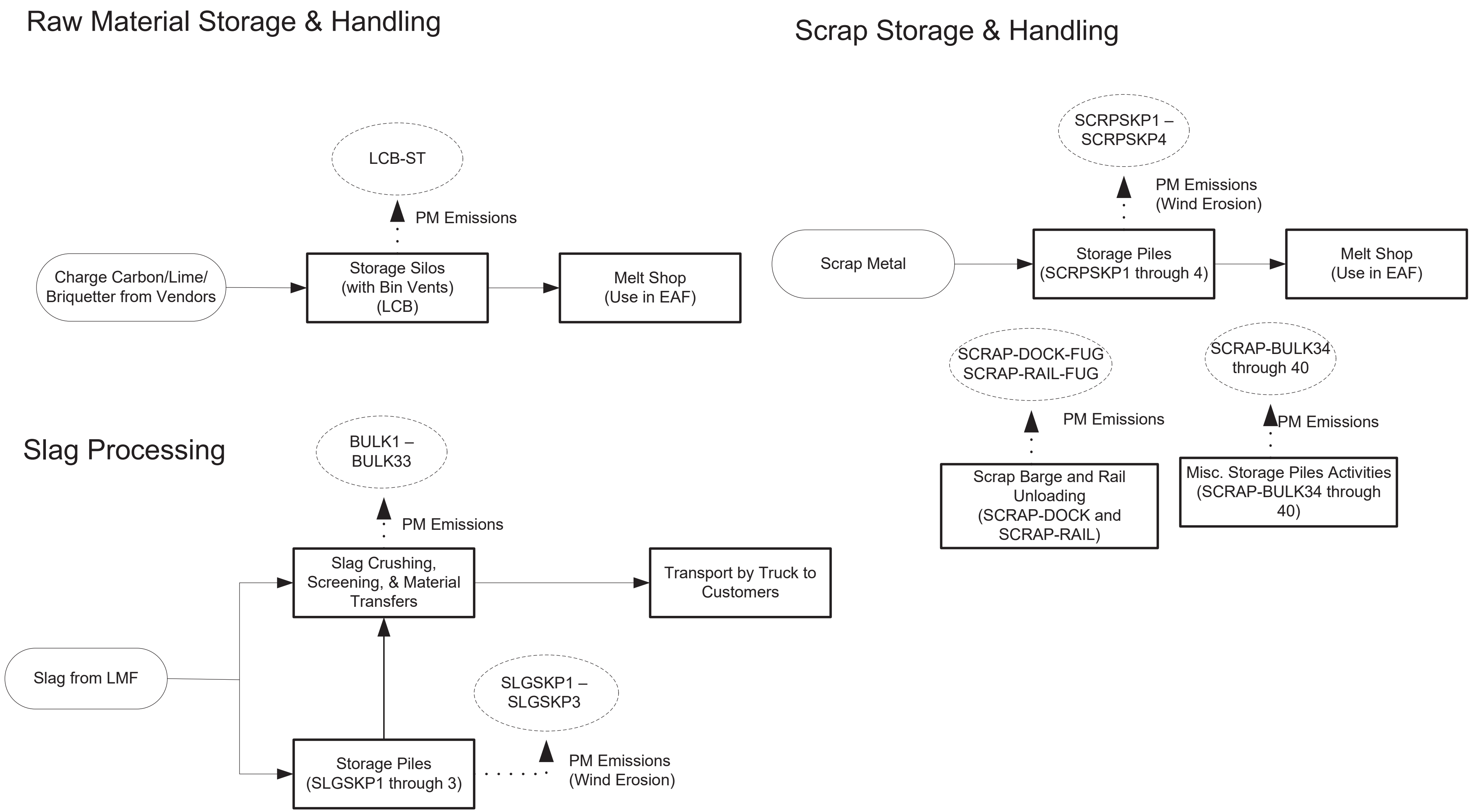
213601.0130
January 2022



Legend

——— Material Flow

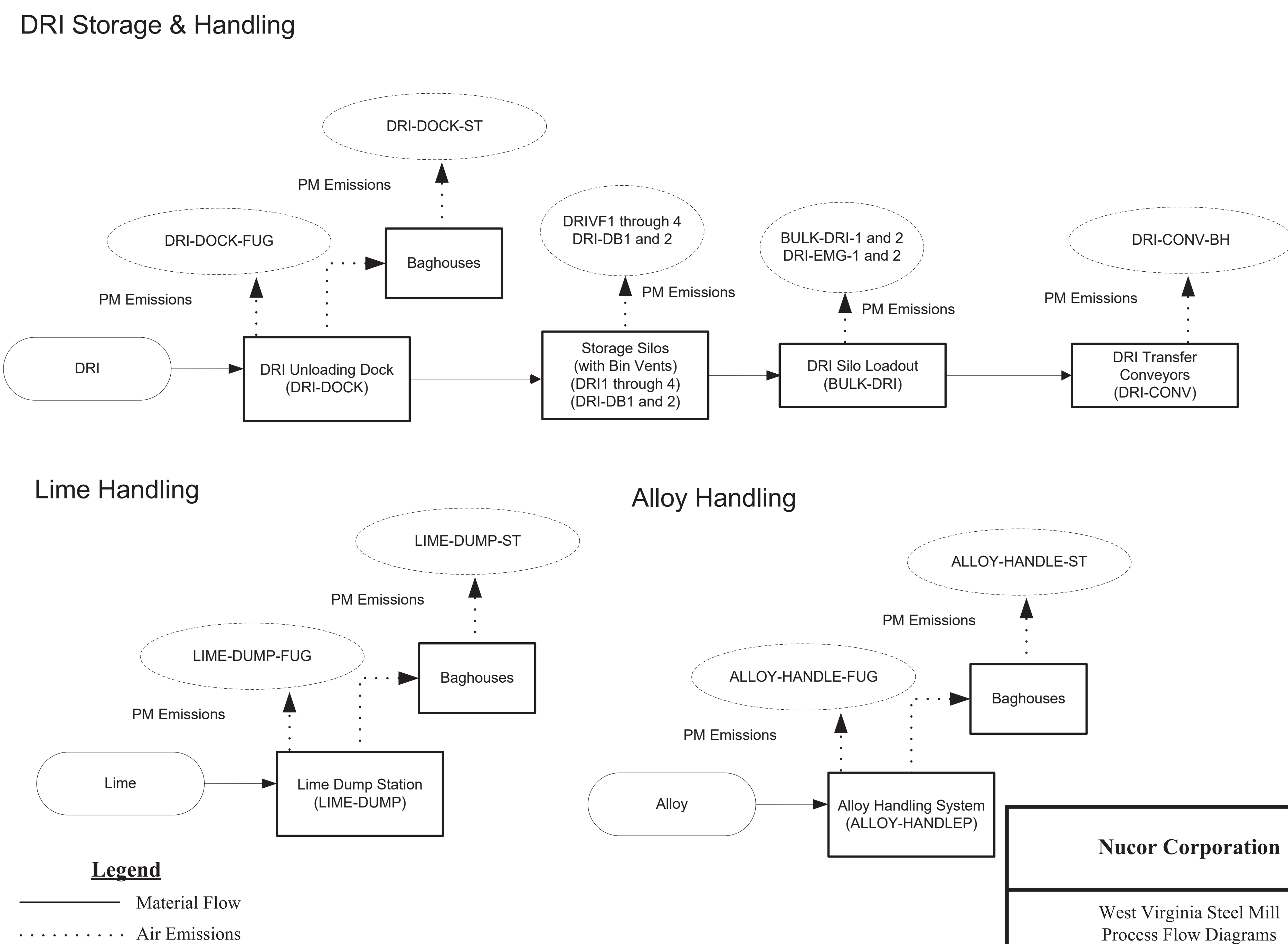
. . . . Air Emissions

Nucor Corporation

West Virginia Steel Mill
Process Flow Diagrams

Trinity Consultants

213601.0130
January 2022



Nucor Corporation

West Virginia Steel Mill
Process Flow Diagrams

Trinity Consultants

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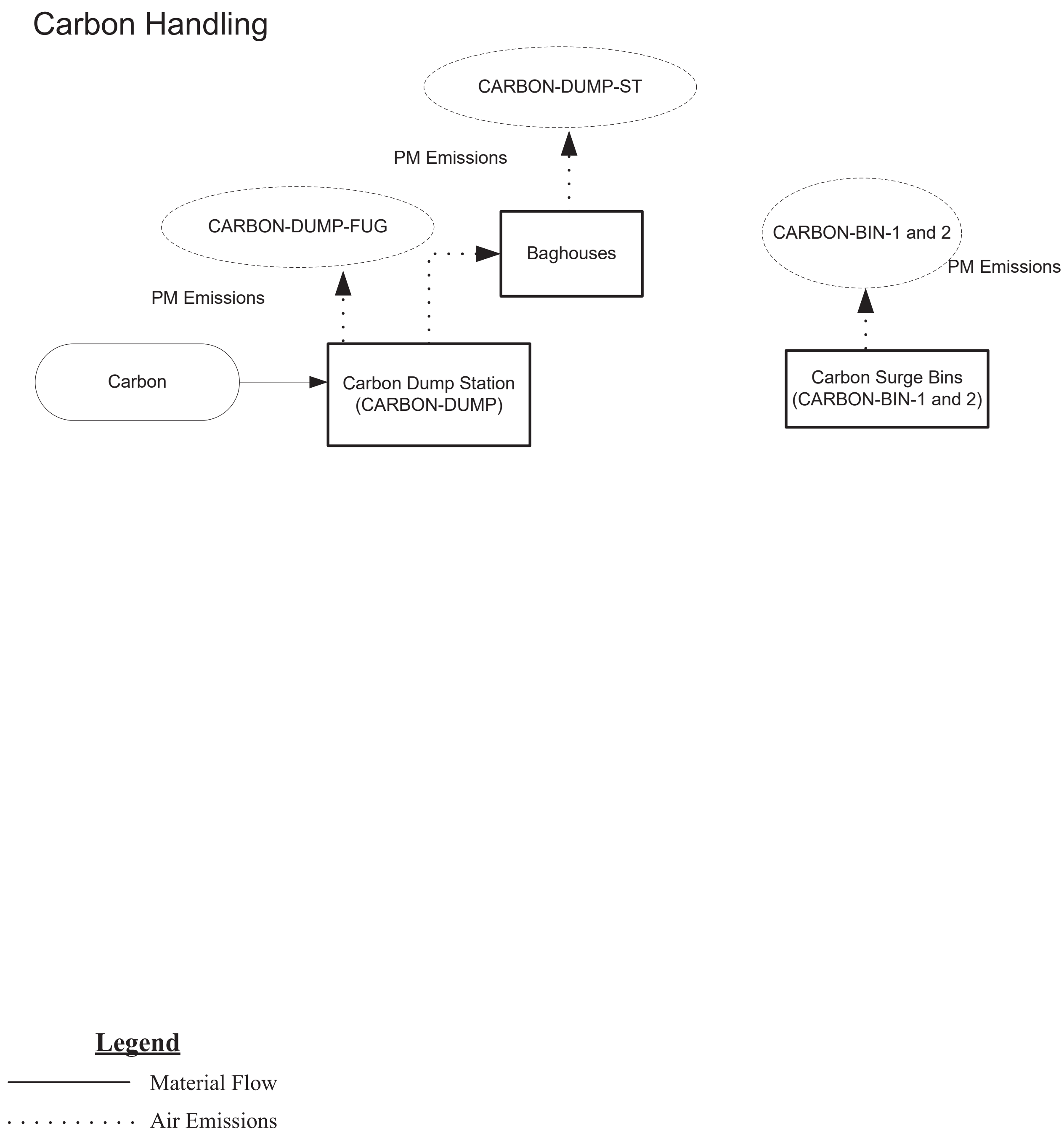
January 2022



Nucor Corporation

West Virginia Steel Mill
Process Flow Diagrams

Trinity Consultants

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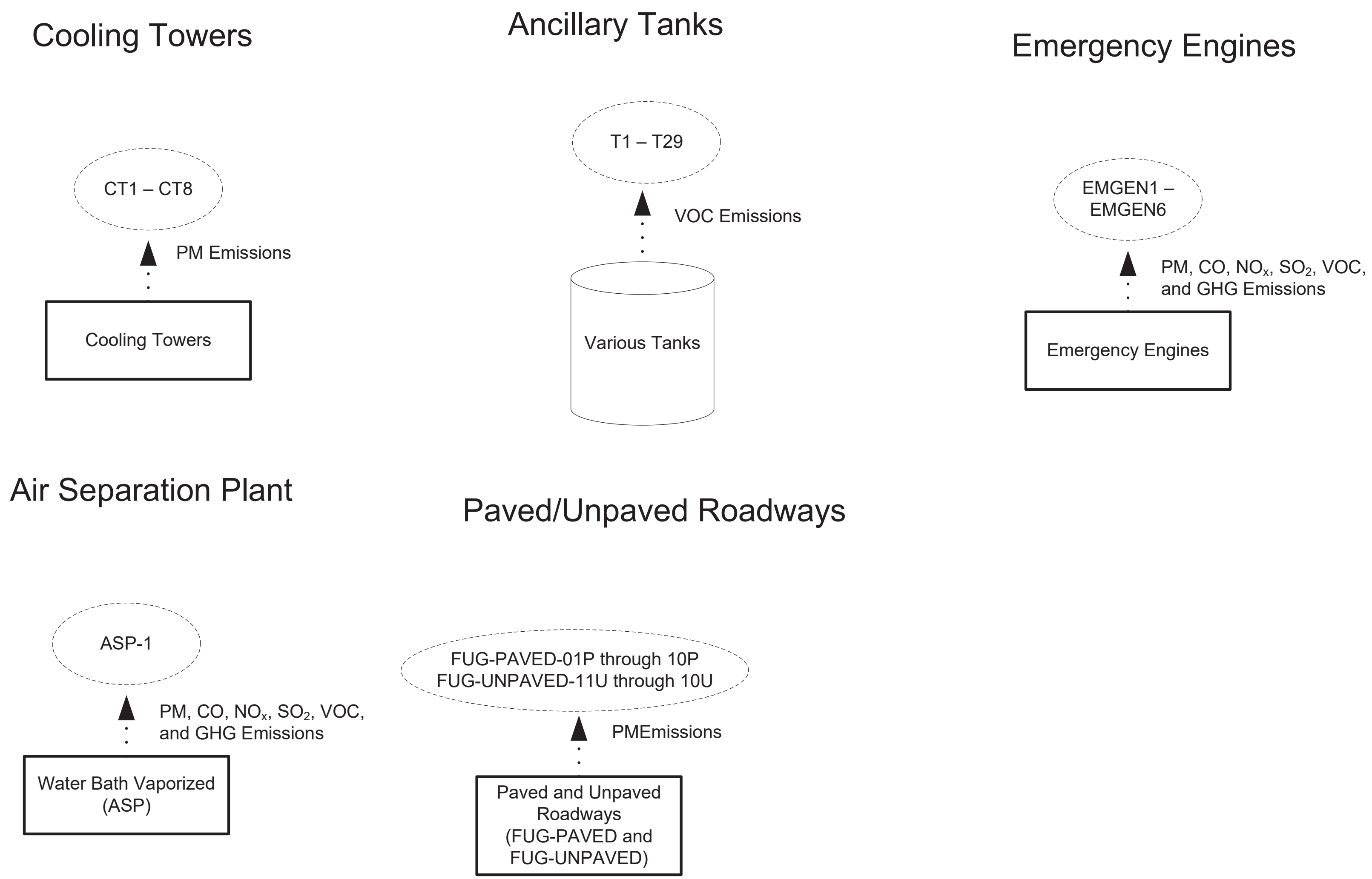
January 2022



Legend

——— Material Flow

. . . . Air Emissions

Nucor Corporation

West Virginia Steel Mill
Process Flow Diagrams

Trinity Consultants

213601.0130
January 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

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 Briquetter 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 - 23,543 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 - 23,543 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 - 23,543 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 - 23,543 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
SM	SM-BH	Scarfing Machine	N/A	Baghouse - 85,557 dscfm	New	Scarfing Machine 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
TF2	TFST-2	Hot Mill Tunnel Furnace 2	N/A	150 MMBtu/hr	New	N/A
PKL-1	PLST-1	Pickling Line 1	N/A	Scrubber - 16,271 dscfm	New	Pickling Line Scrubber 1
PKL-2	PLST-2	Pickling Line 2	N/A	Scrubber - 7,185 dscfm	New	Pickling Line Scrubber 2
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 - 217,000 dscfm	New	Tandem Cold Mill Mist Eliminator
STM	STM-BH	Standalone Temper Mill	N/A	Baghouse - 45,000 dscfm	New	Temper Mill Baghouse
SPM1	SPMST1	Skin Pass Mill Baghouse #1	N/A	Baghouse - 40,259 dscfm	New	Skin Pass Mill Baghouse #1
SPM2	SPMST2	Skin Pass Mill Baghouse #2	N/A	Baghouse - 24,587 dscfm	New	Skin Pass Mill Baghouse #2
SPM3	SPMST3	Skin Pass Mill Baghouse #3	N/A	Baghouse - 24,587 dscfm	New	Skin Pass Mill Baghouse #3
CMBLR1	CMBLR1	Pickling Line Boiler 1	N/A	20 MMBtu/hr	New	N/A
CMBLR2	CMBLR2	Pickling Line Boiler 2	N/A	20 MMBtu/hr	New	N/A
CMBLR3	CMBLR3	Pickling Line Boiler 3	N/A	20 MMBtu/hr	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]
CGL1	CGL1-ST1	CGL1 - Cleaning Section	N/A	Wet Scrubber - 12,247 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 - 12,247 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	83 MMBtu/hr	New	N/A
GALVFN2	GALVFN2-ST	Galvanizing Furnace #2	N/A	83 MMBtu/hr	New	N/A
BOXANN1	GALVFUG	Box Annealing Furnace #1	N/A	10 MMBtu/hr	New	N/A
BOXANN2	GALVFUG	Box Annealing Furnace #2	N/A	10 MMBtu/hr	New	N/A
BOXANN3	GALVFUG	Box Annealing Furnace #3	N/A	10 MMBtu/hr	New	N/A
BOXANN4	GALVFUG	Box Annealing Furnace #4	N/A	10 MMBtu/hr	New	N/A
BOXANN5	GALVFUG	Box Annealing Furnace #5	N/A	10 MMBtu/hr	New	N/A
BOXANN6	GALVFUG	Box Annealing Furnace #6	N/A	10 MMBtu/hr	New	N/A
BOXANN7	GALVFUG	Box Annealing Furnace #7	N/A	10 MMBtu/hr	New	N/A
BOXANN8	GALVFUG	Box Annealing Furnace #8	N/A	10 MMBtu/hr	New	N/A
BOXANN9	GALVFUG	Box Annealing Furnace #9	N/A	10 MMBtu/hr	New	N/A
BOXANN10	GALVFUG	Box Annealing Furnace #10	N/A	10 MMBtu/hr	New	N/A
BOXANN11	GALVFUG	Box Annealing Furnace #11	N/A	10 MMBtu/hr	New	N/A
BOXANN12	GALVFUG	Box Annealing Furnace #12	N/A	10 MMBtu/hr	New	N/A
BOXANN13	GALVFUG	Box Annealing Furnace #13	N/A	10 MMBtu/hr	New	N/A
BOXANN14	GALVFUG	Box Annealing Furnace #14	N/A	10 MMBtu/hr	New	N/A
BOXANN15	GALVFUG	Box Annealing Furnace #15	N/A	10 MMBtu/hr	New	N/A
BOXANN16	GALVFUG	Box Annealing Furnace #16	N/A	10 MMBtu/hr	New	N/A
BOXANN17	GALVFUG	Box Annealing Furnace #17	N/A	10 MMBtu/hr	New	N/A
BOXANN18	GALVFUG	Box Annealing Furnace #18	N/A	10 MMBtu/hr	New	N/A
BOXANN19	GALVFUG	Box Annealing Furnace #19	N/A	10 MMBtu/hr	New	N/A
BOXANN20	GALVFUG	Box Annealing Furnace #20	N/A	10 MMBtu/hr	New	N/A
BOXANN21	GALVFUG	Box Annealing Furnace #21	N/A	10 MMBtu/hr	New	N/A
BOXANN22	GALVFUG	Box Annealing Furnace #22	N/A	10 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
ALLOY-BIN-1	ALLOY-BIN-1	Alloy Storage Bins #1	N/A	6.8 ton/hr	New	N/A
ALLOY-BIN-2	ALLOY-BIN-2	Alloy Storage Bins #2	N/A	6.8 ton/hr	New	N/A
ALLOY-BIN-3	ALLOY-BIN-3	Alloy Storage Bins #3	N/A	6.8 ton/hr	New	N/A
ALLOY-BIN-4	ALLOY-BIN-4	Alloy Storage Bins #4	N/A	6.8 ton/hr	New	N/A
ALLOY-BIN-5	ALLOY-BIN-5	Alloy Storage Bins #5	N/A	6.8 ton/hr	New	N/A
ALLOY-BIN-6	ALLOY-BIN-6	Alloy Storage Bins #6	N/A	6.8 ton/hr	New	N/A
ALLOY-BIN-7	ALLOY-BIN-7	Alloy Storage Bins #7	N/A	6.8 ton/hr	New	N/A
ALLOY-BIN-8	ALLOY-BIN-8	Alloy Storage Bins #8	N/A	6.8 ton/hr	New	N/A
CARBON-BIN-1	CARBON-BIN-1	Carbon Surge Bin #1 [2 drop points]	N/A	15 ton/hr	New	N/A
CARBON-BIN-2	CARBON-BIN-2	Carbon Surge Bin #2 [2 drop points]	N/A	15 ton/hr	New	N/A
SCRAP-DOCK	SCRAP-DOCK-FUG	Barge Scrap Unloading	N/A	600 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-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 pile	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 output pile	N/A	19 ton/hr	New	N/A
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 scrap screen	N/A	66 ton/hr	New	N/A
SCRAP-BULK16	SCRAP-BULK16	S2 scrap screen to C6 conveyor	N/A	2.4 ton/hr	New	N/A
SCRAP-BULK17	SCRAP-BULK17	S2 scrap screen to P3 scrap pile	N/A	2.0 ton/hr	New	N/A
SCRAP-BULK18	SCRAP-BULK18	C6 conveyor to P4 scrap pile	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 P5 product pile	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 P7 product pile	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 P6 product pile	N/A	13 ton/hr	New	N/A
SCRAP-BULK26	SCRAP-BULK26	S1 slag screen to P8 product pile	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	4.08 acres	New	N/A
SLGSKP2	SLGSKP2	Slag Stockpile 2	N/A	0.75 acres	New	N/A
SLGSKP3	SLGSKP3	Slag Stockpile 3	N/A	0.01 acres	New	N/A
SCRPSKP1	SCRPSKP1	Scrap Metal Stockpile 1	N/A	7.85 acres	New	N/A
SCRPSKP2	SCRPSKP2	Scrap Metal Stockpile 2	N/A	7.85 acres	New	N/A
SCRPSKP3	SCRPSKP3	Scrap Metal Stockpile 3	N/A	7.85 acres	New	N/A
SCRPSKP4	SCRPSKP4	Scrap Metal Stockpile 4	N/A	7.85 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

Emission Unit ID[1]	Emission Point ID[2]	Emission Unit Description	Year Installed	Design Capacity	Type[3] and Date of Change	Control Device[4]
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
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

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 Speciated HAP)	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	58.91	258.38	Gas	O (BACT)	10.82	21	225	1,454,016	69	TBD	175	TBD	TBD
						CO	341.83	1,499	Gas	O (BACT)	62.76								
						SO_2	40.36	177.00	Gas	O (BACT)	7.41								
						VOC	76.99	337.69	Gas	O (BACT)	14.14								
						PM	17.03	74.58	Solid	O (BACT)	3.13								
						PM_{10}	49.19	215.45	Solid/Gas	O (BACT)	9.03								
						$PM_{2.5}$	49.19	215.45	Solid/Gas	O (BACT)	9.03								
						Lead	7.6E-02	0.33	Solid	EE	1.4E-02								
						Total HAPs	0.18	0.78	Solid/Gas	EE	3.3E-02								
						CO_2	49,824	186,897	Gas	EE	9,148								
						CH_4	4.8E-02	0.21	Gas	EE	8.9E-03								
						N_2O	4.8E-03	2.1E-02	Gas	EE	8.9E-04								
						CO_2e	49,826	186,909	Gas	EE	9,149								
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	58.91	258.38	Gas	O (BACT)	10.82	21	225	1,454,016	69	TBD	175	TBD	TBD
						CO	341.83	1,499	Gas	O (BACT)	62.76								
						SO_2	40.36	177.00	Gas	O (BACT)	7.41								
						VOC	76.99	337.69	Gas	O (BACT)	14.14								
						PM	17.03	74.58	Solid	O (BACT)	3.13								
						PM_{10}	49.19	215.45	Solid/Gas	O (BACT)	9.03								
						$PM_{2.5}$	49.19	215.45	Solid/Gas	O (BACT)	9.03								
						Lead	7.6E-02	0.33	Solid	EE	1.4E-02								
						Total HAPs	0.18	0.78	Solid/Gas	EE	3.3E-02								
						CO_2	49,824	186,897	Gas	EE	9,148								
						CH_4	4.8E-02	0.21	Gas	EE	8.9E-03								
						N_2O	4.8E-03	2.1E-02	Gas	EE	8.9E-04								
						CO_2e	49,826	186,909	Gas	EE	9,149								
MSFUG	Volume	MSFUG	Uncaptured Electric Arc Furnace Fugitives	N/A	N/A	NO_X	1.88	8.25	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	TBD	N/A	TBD	TBD
						CO	7.18	31.50	Gas	O (BACT)	N/A								
						SO_2	1.37	6.00	Gas	O (BACT)	N/A								
						VOC	1.62	7.13	Gas	O (BACT)	N/A								
						PM	0.19	0.85	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	1.5E-03	6.8E-03	Solid	EE	N/A								
						Total HAPs	1.5E-03	6.5E-03	Solid/Gas	EE	N/A								
						CO_2	1,007	3,776	Gas	EE	N/A								
						CH_4	9.8E-04	4.3E-03	Gas	EE	N/A								
						N_2O	9.8E-05	4.3E-04	Gas	EE	N/A								
						CO_2e	1,007	3,776	Gas	EE	N/A								
CASTFUG	Volume	CASTFUG	Uncaptured Casting Fugitives	N/A	N/A	NO_X	--	--	--	--	--	N/A	N/A	N/A	N/A	TBD	N/A	TBD	TBD
						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 Briquetter Silos	Lime, Carbon, and Briquetter Silo Bin Vent Filters	Filter	NO_X	--	--	--	--	--	5.64	Ambient	38,000	25	TBD	80	TBD	TBD
						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	--	--	--	--	--								

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 Speciated HAP)	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	4,000	38	TBD	8	TBD	TBD
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	3.4E-02	0.15	Solid	O (BACT)	2.29								
						PM_{10}	3.4E-02	0.15	Solid	O (BACT)	2.29								
						$PM_{2.5}$	1.7E-02	7.4E-02	Solid	O (BACT)	1.12								
						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	--	--	--	--	--	1.00	Ambient	23,543	500	TBD	120	TBD	TBD
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	0.20	0.88	Solid	O (BACT)	2.29								
						PM_{10}	0.20	0.88	Solid	O (BACT)	2.29								
						$PM_{2.5}$	0.10	0.43	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	TBD	93	TBD	TBD
						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	--	--	--	--	--	1.00	Ambient	23,543	500	TBD	110	TBD	TBD
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	0.20	0.88	Solid	O (BACT)	2.29								
						PM_{10}	0.20	0.88	Solid	O (BACT)	2.29								
						$PM_{2.5}$	0.10	0.43	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	TBD	93	TBD	TBD
						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: 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 Speciated HAP)	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)
DRIVF3	Upward Verical Stack	DRI3	DRI Storage Silo 3 - Baghouse	DRI Storage Silo 3 Baghouse	Baghouse	NO_X	--	--	--	--	--	1.00	Ambient	23,543	500	TBD	120	TBD	TBD
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	0.20	0.88	Solid	O (BACT)	2.29								
						PM_{10}	0.20	0.88	Solid	O (BACT)	2.29								
						$PM_{2.5}$	0.10	0.43	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	TBD	93	TBD	TBD
						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	--	--	--	--	--	1.00	Ambient	23,543	500	TBD	110	TBD	TBD
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	0.20	0.88	Solid	O (BACT)	2.29								
						PM_{10}	0.20	0.88	Solid	O (BACT)	2.29								
						$PM_{2.5}$	0.10	0.43	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	TBD	93	TBD	TBD
						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	TBD	146	TBD	TBD
						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	--	--	--	--	--								

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 Speciated HAP)	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	TBD	146	TBD	TBD
						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	TBD	110	TBD	TBD
						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	111,532	66	TBD	40	TBD	TBD
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	0.86	3.75	Solid	O (BACT)	2.05								
						PM_{10}	0.86	3.75	Solid	O (BACT)	2.05								
						$PM_{2.5}$	0.86	3.75	Solid	O (BACT)	2.05								
						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	TBD	115	TBD	TBD
						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	TBD	115	TBD	TBD
						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	--	--	--	--	--								

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 Speciated HAP)	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											
LIME-DUMP-ST	Upward Verical Stack	LIME-DUMP	Lime Dump Station	Lime Dump Station Baghouse	Baghouse	NO_X	--	--	--	--	--	0.67	Ambient	2,000	95	TBD	50	TBD	TBD
						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	TBD	50	TBD	TBD
						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	TBD	40	TBD	TBD
						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	--	--	--	--	--	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	10.09	44.19	Solid	O (BACT)	TBD								
						PM_{10}	10.09	44.19	Solid	O (BACT)	TBD								
						$PM_{2.5}$	10.09	44.19	Solid	O (BACT)	TBD								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
SM-BH	Upward Verical Stack	SM	Scarfing Machine	Scarfing Machine Baghouse	Baghouse	NO_X	--	--	--	--	--	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	7.33	32.12	Solid	O (BACT)	TBD								
						PM_{10}	7.33	32.12	Solid	O (BACT)	TBD								
						$PM_{2.5}$	7.33	32.12	Solid	O (BACT)	TBD								
						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 Speciated HAP)	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)
VTDST1	Upward Verical Stack	VTD1	Vacuum Tank 1	Vacuum Tank Degasser Flare 1	Flare	NO_X	0.84	3.69	Gas	EE	22.89	1.78	1,832	9,814	66	TBD	167	TBD	TBD
						CO	5.38	14.93	Gas	EE	146.23								
						SO_2	7.3E-03	3.2E-02	Gas	EE	0.20								
						VOC	1.73	7.60	Gas	EE	47.12								
						PM	7.5E-02	0.33	Solid	EE	2.04								
						PM_{10}	7.5E-02	0.33	Solid/Gas	EE	2.04								
						$PM_{2.5}$	7.5E-02	0.33	Solid/Gas	EE	2.04								
						Lead	--	--	--	--	--								
						Total HAPs	2.3E-02	0.10	Solid/Gas	EE	0.62								
						CO_2	1,861	7,497	Gas	EE	50,628								
						CH_4	2.7E-02	0.12	Gas	EE	0.74								
						N_2O	2.7E-03	1.2E-02	Gas	EE	7.4E-02								
						CO_2e	1,863	7,504	Gas	EE	50,669								
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	22.89	1.78	1,832	9,814	66	TBD	167	TBD	TBD
						CO	5.38		Gas	EE	146.23								
						SO_2	7.3E-03		Gas	EE	0.20								
						VOC	1.73		Gas	EE	47.12								
						PM	7.5E-02		Solid	EE	2.04								
						PM_{10}	7.5E-02		Solid/Gas	EE	2.04								
						$PM_{2.5}$	7.5E-02		Solid/Gas	EE	2.04								
						Lead	--		--	--	--								
						Total HAPs	2.3E-02		Solid/Gas	EE	0.62								
						CO_2	1,861		Gas	EE	50,628								
						CH_4	2.7E-02		Gas	EE	0.74								
						N_2O	2.7E-03		Gas	EE	7.4E-02								
						CO_2e	1,863		Gas	EE	50,669								
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	TBD	N/A	TBD	TBD
						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	--	--	--	--	--								
						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	TBD	N/A	TBD	TBD
						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	--	--	--	--	--								
						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	TBD	N/A	TBD	TBD
						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	--	--	--	--	--								
						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								

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 Speciated HAP)	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											
MSFUG	Volume	LPHTR3	Horizontal Ladle Preheater 3 Fugitives	N/A	N/A	NO_X	1.47	6.44	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	TBD	N/A	TBD	TBD
						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	--	--	--	--	--								
						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	LPHTR4	Horizontal Ladle Preheater 4 Fugitives	N/A	N/A	NO_X	1.47	6.44	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	TBD	N/A	TBD	TBD
						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	--	--	--	--	--								
						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	LPHTR5	Horizontal Ladle Preheater 5 Fugitives	N/A	N/A	NO_X	1.47	6.44	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	TBD	N/A	TBD	TBD
						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	--	--	--	--	--								
						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	LPHTR6	Vertical Ladle Preheater 6 Fugitives	N/A	N/A	NO_X	1.47	6.44	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	TBD	N/A	TBD	TBD
						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	--	--	--	--	--								
						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	LPHTR7	Vertical Ladle Preheater 7 Fugitives	N/A	N/A	NO_X	1.47	6.44	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	TBD	N/A	TBD	TBD
						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	--	--	--	--	--								
						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								

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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 Speciated HAP)	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											
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	TBD	N/A	TBD	TBD
						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	--	--	--	--	--								
						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	TBD	N/A	TBD	TBD
						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	--	--	--	--	--								
						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	TBD	N/A	TBD	TBD
						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	--	--	--	--	--								
						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	TBD	N/A	TBD	TBD
						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	2.0E-04	8.6E-04	Solid	O (BACT)	N/A								
						PM_{10}	5.1E-04	2.2E-03	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	5.1E-04	2.2E-03	Solid/Gas	O (BACT)	N/A								
						Lead	--	--	--	--	--								
						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	TBD	N/A	TBD	TBD
						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	2.0E-04	8.6E-04	Solid	O (BACT)	N/A								
						PM_{10}	5.1E-04	2.2E-03	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	5.1E-04	2.2E-03	Solid/Gas	O (BACT)	N/A								
						Lead	--	--	--	--	--								
						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								

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 Speciated HAP)	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)	72.47	4.99	1,200	38,680	33	TBD	125	TBD	TBD
						CO	12.35	54.11	Gas	EE	85.26								
						SO_2	8.8E-02	0.39	Gas	EE	0.61								
						VOC	0.81	3.54	Gas	EE	5.58								
						PM	0.28	1.22	Solid	O (BACT)	1.93								
						PM_{10}	1.12	4.90	Solid/Gas	O (BACT)	7.71								
						$PM_{2.5}$	1.12	4.90	Solid/Gas	O (BACT)	7.71								
						Lead	--	--	--	--	--								
						Total HAPs	0.28	1.21	Solid/Gas	EE	1.91								
						CO_2	17,547	76,854	Gas	EE	121,110								
						CH_4	0.33	1.45	Gas	EE	2.28								
						N_2O	3.3E-02	0.14	Gas	EE	0.23								
						CO_2e	17,565	76,933	Gas	EE	121,235								
TFST-2	Upward Verical Stack	TF2	Hot Mill Tunnel Furnace 2	N/A	N/A	NO_X	10.50	45.99	Gas	O (BACT)	119.52	4.99	1,200	23,454	20	TBD	125	TBD	TBD
						CO	12.35	54.11	Gas	EE	140.61								
						SO_2	8.8E-02	0.39	Gas	EE	1.00								
						VOC	0.81	3.54	Gas	EE	9.21								
						PM	0.28	1.22	Solid	O (BACT)	3.18								
						PM_{10}	1.12	4.90	Solid/Gas	O (BACT)	12.72								
						$PM_{2.5}$	1.12	4.90	Solid/Gas	O (BACT)	12.72								
						Lead	--	--	--	--	--								
						Total HAPs	0.28	1.21	Solid/Gas	EE	3.15								
						CO_2	17,547	76,854	Gas	EE	199,733								
						CH_4	0.33	1.45	Gas	EE	3.76								
						N_2O	3.3E-02	0.14	Gas	EE	0.38								
						CO_2e	17,565	76,933	Gas	EE	199,939								
PLST-1	Upward Verical Stack	PKL-1	Pickling Line 1	Pickling Line Scrubber 1	Scrubber	NO_X	--	--	--	--	--	3.00	120	18,153	43	TBD	109	TBD	TBD
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	1.39	6.11	Solid	O (BACT)	20.51								
						PM_{10}	1.39	6.11	Solid/Gas	O (BACT)	20.51								
						$PM_{2.5}$	1.39	6.11	Solid/Gas	O (BACT)	20.51								
						Lead	--	--	--	--	--								
						Total HAPs	0.56	2.47	Solid/Gas	EE	8.28								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
PLST-2	Upward Verical Stack	PKL-2	Pickling Line 2	Pickling Line Scrubber 2	Scrubber	NO_X	--	--	--	--	--	3.00	120	8,016	19	TBD	109	TBD	TBD
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	0.62	2.70	Solid	O (BACT)	20.51								
						PM_{10}	0.62	2.70	Solid/Gas	O (BACT)	20.51								
						$PM_{2.5}$	0.62	2.70	Solid/Gas	O (BACT)	20.51								
						Lead	--	--	--	--	--								
						Total HAPs	0.25	1.09	Solid/Gas	EE	8.28								
						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	TBD	98	TBD	TBD
						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	--	--	--	--	--								

NUCOR - Project Honey Badger
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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 Speciated HAP)	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)
TCMST	Upward Verical Stack	TCM	Tandem Cold Mill	Tandem Cold Mill Mist Eliminator	Scrubber	NO_X	--	--	--	--	--	9.84	100	233,757	51	TBD	184	TBD	TBD
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	18.60	81.47	Solid	O (BACT)	21.24								
						PM_{10}	18.60	81.47	Solid/Gas	O (BACT)	21.24								
						$PM_{2.5}$	18.60	81.47	Solid/Gas	O (BACT)	21.24								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
STM-BH	Upward Verical Stack	STM	Standalone Temper Mill	Temper Mill Baghouse	Baghouse	NO_X	--	--	--	--	--	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	0.96	4.22	Solid	O (BACT)	TBD								
						PM_{10}	0.93	4.05	Solid/Gas	O (BACT)	TBD								
						$PM_{2.5}$	0.50	2.20	Solid/Gas	O (BACT)	TBD								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
SPMST1	Upward Verical Stack	SPM1	Skin Pass Mill Baghouse #1	Skin Pass Mill Baghouse #1	Baghouse	NO_X	--	--	--	--	--	3.00	90	42,587	100	TBD	80	TBD	TBD
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	3.45	15.11	Solid	O (BACT)	21.63								
						PM_{10}	3.45	15.11	Solid/Gas	O (BACT)	21.63								
						$PM_{2.5}$	3.45	15.11	Solid/Gas	O (BACT)	21.63								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
SPMST2	Upward Verical Stack	SPM2	Skin Pass Mill Baghouse #2	Skin Pass Mill Baghouse #2	Baghouse	NO_X	--	--	--	--	--	3.00	90	26,009	61	TBD	80	TBD	TBD
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	2.11	9.23	Solid	O (BACT)	21.63								
						PM_{10}	2.11	9.23	Solid/Gas	O (BACT)	21.63								
						$PM_{2.5}$	2.11	9.23	Solid/Gas	O (BACT)	21.63								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								
SPMST3	Upward Verical Stack	SPM3	Skin Pass Mill Baghouse #3	Skin Pass Mill Baghouse #3	Baghouse	NO_X	--	--	--	--	--	3.00	90	26,009	61	TBD	80	TBD	TBD
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	2.11	9.23	Solid	O (BACT)	21.63								
						PM_{10}	2.11	9.23	Solid/Gas	O (BACT)	21.63								
						$PM_{2.5}$	2.11	9.23	Solid/Gas	O (BACT)	21.63								
						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 Speciated HAP)	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)
CMBLR1	Upward Verical Stack	CMBLR1	Pickling Line Boiler 1	N/A	N/A	NO_X	1.00	4.38	Gas	O (BACT)	40.41	2.00	550	6,607	35	TBD	57	TBD	TBD
						CO	1.65	7.21	Gas	EE	66.55								
						SO_2	1.2E-02	5.2E-02	Gas	EE	0.48								
						VOC	0.11	0.47	Gas	EE	4.36								
						PM	3.7E-02	0.16	Solid	O (BACT)	1.51								
						PM_{10}	0.15	0.65	Solid/Gas	O (BACT)	6.02								
						$PM_{2.5}$	0.15	0.65	Solid/Gas	O (BACT)	6.02								
						Lead	--	--	--	--	--								
						Total HAPs	3.7E-02	0.16	Solid/Gas	EE	1.49								
						CO_2	2,340	10,247	Gas	EE	94,532								
						CH_4	4.4E-02	0.19	Gas	EE	1.78								
						N_2O	4.4E-03	1.9E-02	Gas	EE	0.18								
						CO_2e	2,342	10,258	Gas	EE	94,630								
CMBLR2	Upward Verical Stack	CMBLR2	Pickling Line Boiler 2	N/A	N/A	NO_X	1.00	4.38	Gas	O (BACT)	40.41	2.00	550	6,607	35	TBD	50	TBD	TBD
						CO	1.65	7.21	Gas	EE	66.55								
						SO_2	1.2E-02	5.2E-02	Gas	EE	0.48								
						VOC	0.11	0.47	Gas	EE	4.36								
						PM	3.7E-02	0.16	Solid	O (BACT)	1.51								
						PM_{10}	0.15	0.65	Solid/Gas	O (BACT)	6.02								
						$PM_{2.5}$	0.15	0.65	Solid/Gas	O (BACT)	6.02								
						Lead	--	--	--	--	--								
						Total HAPs	3.7E-02	0.16	Solid/Gas	EE	1.49								
						CO_2	2,340	10,247	Gas	EE	94,532								
						CH_4	4.4E-02	0.19	Gas	EE	1.78								
						N_2O	4.4E-03	1.9E-02	Gas	EE	0.18								
						CO_2e	2,342	10,258	Gas	EE	94,630								
CMBLR3	Upward Verical Stack	CMBLR3	Pickling Line Boiler 3	N/A	N/A	NO_X	1.00	4.38	Gas	O (BACT)	40.41	2.00	550	6,607	35	TBD	50	TBD	TBD
						CO	1.65	7.21	Gas	EE	66.55								
						SO_2	1.2E-02	5.2E-02	Gas	EE	0.48								
						VOC	0.11	0.47	Gas	EE	4.36								
						PM	3.7E-02	0.16	Solid	O (BACT)	1.51								
						PM_{10}	0.15	0.65	Solid/Gas	O (BACT)	6.02								
						$PM_{2.5}$	0.15	0.65	Solid/Gas	O (BACT)	6.02								
						Lead	--	--	--	--	--								
						Total HAPs	3.7E-02	0.16	Solid/Gas	EE	1.49								
						CO_2	2,340	10,247	Gas	EE	94,532								
						CH_4	4.4E-02	0.19	Gas	EE	1.78								
						N_2O	4.4E-03	1.9E-02	Gas	EE	0.18								
						CO_2e	2,342	10,258	Gas	EE	94,630								
CGL1-ST1	Upward Verical Stack	CGL1	CGL1 - Cleaning Section	Continuous Galvanizing Line Wet Scrubber 1	Scrubber	NO_X	--	--	--	--	--	2.08	122	13,710	67	TBD	130	TBD	TBD
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	0.31	1.38	Solid	O (BACT)	6.13								
						PM_{10}	0.31	1.38	Solid/Gas	O (BACT)	6.13								
						$PM_{2.5}$	0.31	1.38	Solid/Gas	O (BACT)	6.13								
						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	--	--	--	--	--	6.99	700	20,866	9	TBD	130	TBD	TBD
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	0.24	1.05	Solid	O (BACT)	3.08								
						PM_{10}	0.24	1.05	Solid/Gas	O (BACT)	3.08								
						$PM_{2.5}$	0.24	1.05	Solid/Gas	O (BACT)	3.08								
						Lead	--	--	--	--	--								
						Total HAPs	--	--	--	--	--								
						CO_2	--	--	--	--	--								
						CH_4	--	--	--	--	--								
						N_2O	--	--	--	--	--								
						CO_2e	--	--	--	--	--								

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CGL2-ST1	Upward Verical Stack	CGL2	CGL2 - Cleaning Section	Continuous Galvanizing Line Wet Scrubber 3	Scrubber	NO_X	--	--	--	--	--	2.08	122	13,710	67	TBD	130	TBD	TBD
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	0.31	1.38	Solid	O (BACT)	6.13								
						PM_{10}	0.31	1.38	Solid/Gas	O (BACT)	6.13								
						$PM_{2.5}$	0.31	1.38	Solid/Gas	O (BACT)	6.13								
						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	--	--	--	--	--	6.99	700	20,866	9	TBD	130	TBD	TBD
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	0.24	1.05	Solid	O (BACT)	3.08								
						PM_{10}	0.24	1.05	Solid/Gas	O (BACT)	3.08								
						$PM_{2.5}$	0.24	1.05	Solid/Gas	O (BACT)	3.08								
						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	4.15	18.18	Gas	O (BACT)	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
						CO	6.84	29.94	Gas	EE	TBD								
						SO_2	4.9E-02	0.21	Gas	EE	TBD								
						VOC	0.45	1.96	Gas	EE	TBD								
						PM	0.15	0.68	Solid	O (BACT)	TBD								
						PM_{10}	0.62	2.71	Solid/Gas	O (BACT)	TBD								
						$PM_{2.5}$	0.62	2.71	Solid/Gas	O (BACT)	TBD								
						Lead	--	--	--	--	--								
						Total HAPs	0.15	0.67	Solid/Gas	EE	TBD								
						CO_2	9,709	42,526	Gas	EE	TBD								
						CH_4	0.18	0.80	Gas	EE	TBD								
						N_2O	1.8E-02	8.0E-02	Gas	EE	TBD								
						CO_2e	9,719	42,570	Gas	EE	TBD								
GALVFN2-ST	Upward Verical Stack	GALVFN2	Galvanizing Furnace #2	N/A	N/A	NO_X	4.15	18.18	Gas	O (BACT)	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
						CO	6.84	29.94	Gas	EE	TBD								
						SO_2	4.9E-02	0.21	Gas	EE	TBD								
						VOC	0.45	1.96	Gas	EE	TBD								
						PM	0.15	0.68	Solid	O (BACT)	TBD								
						PM_{10}	0.62	2.71	Solid/Gas	O (BACT)	TBD								
						$PM_{2.5}$	0.62	2.71	Solid/Gas	O (BACT)	TBD								
						Lead	--	--	--	--	--								
						Total HAPs	0.15	0.67	Solid/Gas	EE	TBD								
						CO_2	9,709	42,526	Gas	EE	TBD								
						CH_4	0.18	0.80	Gas	EE	TBD								
						N_2O	1.8E-02	8.0E-02	Gas	EE	TBD								
						CO_2e	9,719	42,570	Gas	EE	TBD								
GALVFUG	Volume	BOXANN1	Box Annealing Furnace #1	N/A	N/A	NO_X	0.98	4.29	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	TBD	N/A	TBD	TBD
						CO	0.82	3.61	Gas	EE	N/A								
						SO_2	5.9E-03	2.6E-02	Gas	EE	N/A								
						VOC	5.4E-02	0.24	Gas	EE	N/A								
						PM	1.9E-02	8.2E-02	Solid	O (BACT)	N/A								
						PM_{10}	7.5E-02	0.33	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	7.5E-02	0.33	Solid/Gas	O (BACT)	N/A								
						Lead	--	--	--	--	--								
						Total HAPs	1.8E-02	8.1E-02	Solid/Gas	EE	N/A								
						CO_2	1,170	5,124	Gas	EE	N/A								
						CH_4	2.2E-02	0.10	Gas	EE	N/A								
						N_2O	2.2E-03	9.7E-03	Gas	EE	N/A								
						CO_2e	1,171	5,129	Gas	EE	N/A								

NUCOR - Project Honey Badger
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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 Speciated HAP)	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	0.98	4.29	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	TBD	N/A	TBD	TBD
						CO	0.82	3.61	Gas	EE	N/A								
						SO_2	5.9E-03	2.6E-02	Gas	EE	N/A								
						VOC	5.4E-02	0.24	Gas	EE	N/A								
						PM	1.9E-02	8.2E-02	Solid	O (BACT)	N/A								
						PM_{10}	7.5E-02	0.33	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	7.5E-02	0.33	Solid/Gas	O (BACT)	N/A								
						Lead	--	--	--	--	--								
						Total HAPs	1.8E-02	8.1E-02	Solid/Gas	EE	N/A								
						CO_2	1,170	5,124	Gas	EE	N/A								
						CH_4	2.2E-02	0.10	Gas	EE	N/A								
						N_2O	2.2E-03	9.7E-03	Gas	EE	N/A								
						CO_2e	1,171	5,129	Gas	EE	N/A								
GALVFUG	Volume	BOXANN3	Box Annealing Furnace #3	N/A	N/A	NO_X	0.98	4.29	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	TBD	N/A	TBD	TBD
						CO	0.82	3.61	Gas	EE	N/A								
						SO_2	5.9E-03	2.6E-02	Gas	EE	N/A								
						VOC	5.4E-02	0.24	Gas	EE	N/A								
						PM	1.9E-02	8.2E-02	Solid	O (BACT)	N/A								
						PM_{10}	7.5E-02	0.33	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	7.5E-02	0.33	Solid/Gas	O (BACT)	N/A								
						Lead	--	--	--	--	--								
						Total HAPs	1.8E-02	8.1E-02	Solid/Gas	EE	N/A								
						CO_2	1,170	5,124	Gas	EE	N/A								
						CH_4	2.2E-02	0.10	Gas	EE	N/A								
						N_2O	2.2E-03	9.7E-03	Gas	EE	N/A								
						CO_2e	1,171	5,129	Gas	EE	N/A								
GALVFUG	Volume	BOXANN4	Box Annealing Furnace #4	N/A	N/A	NO_X	0.98	4.29	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	TBD	N/A	TBD	TBD
						CO	0.82	3.61	Gas	EE	N/A								
						SO_2	5.9E-03	2.6E-02	Gas	EE	N/A								
						VOC	5.4E-02	0.24	Gas	EE	N/A								
						PM	1.9E-02	8.2E-02	Solid	O (BACT)	N/A								
						PM_{10}	7.5E-02	0.33	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	7.5E-02	0.33	Solid/Gas	O (BACT)	N/A								
						Lead	--	--	--	--	--								
						Total HAPs	1.8E-02	8.1E-02	Solid/Gas	EE	N/A								
						CO_2	1,170	5,124	Gas	EE	N/A								
						CH_4	2.2E-02	0.10	Gas	EE	N/A								
						N_2O	2.2E-03	9.7E-03	Gas	EE	N/A								
						CO_2e	1,171	5,129	Gas	EE	N/A								
GALVFUG	Volume	BOXANN5	Box Annealing Furnace #5	N/A	N/A	NO_X	0.98	4.29	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	TBD	N/A	TBD	TBD
						CO	0.82	3.61	Gas	EE	N/A								
						SO_2	5.9E-03	2.6E-02	Gas	EE	N/A								
						VOC	5.4E-02	0.24	Gas	EE	N/A								
						PM	1.9E-02	8.2E-02	Solid	O (BACT)	N/A								
						PM_{10}	7.5E-02	0.33	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	7.5E-02	0.33	Solid/Gas	O (BACT)	N/A								
						Lead	--	--	--	--	--								
						Total HAPs	1.8E-02	8.1E-02	Solid/Gas	EE	N/A								
						CO_2	1,170	5,124	Gas	EE	N/A								
						CH_4	2.2E-02	0.10	Gas	EE	N/A								
						N_2O	2.2E-03	9.7E-03	Gas	EE	N/A								
						CO_2e	1,171	5,129	Gas	EE	N/A								
GALVFUG	Volume	BOXANN6	Box Annealing Furnace #6	N/A	N/A	NO_X	0.98	4.29	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	TBD	N/A	TBD	TBD
						CO	0.82	3.61	Gas	EE	N/A								
						SO_2	5.9E-03	2.6E-02	Gas	EE	N/A								
						VOC	5.4E-02	0.24	Gas	EE	N/A								
						PM	1.9E-02	8.2E-02	Solid	O (BACT)	N/A								
						PM_{10}	7.5E-02	0.33	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	7.5E-02	0.33	Solid/Gas	O (BACT)	N/A								
						Lead	--	--	--	--	--								
						Total HAPs	1.8E-02	8.1E-02	Solid/Gas	EE	N/A								
						CO_2	1,170	5,124	Gas	EE	N/A								
						CH_4	2.2E-02	0.10	Gas	EE	N/A								
						N_2O	2.2E-03	9.7E-03	Gas	EE	N/A								
						CO_2e	1,171	5,129	Gas	EE	N/A								

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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 Speciated HAP)	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	0.98	4.29	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	TBD	N/A	TBD	TBD
						CO	0.82	3.61	Gas	EE	N/A								
						SO_2	5.9E-03	2.6E-02	Gas	EE	N/A								
						VOC	5.4E-02	0.24	Gas	EE	N/A								
						PM	1.9E-02	8.2E-02	Solid	O (BACT)	N/A								
						PM_{10}	7.5E-02	0.33	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	7.5E-02	0.33	Solid/Gas	O (BACT)	N/A								
						Lead	--	--	--	--	--								
						Total HAPs	1.8E-02	8.1E-02	Solid/Gas	EE	N/A								
						CO_2	1,170	5,124	Gas	EE	N/A								
						CH_4	2.2E-02	0.10	Gas	EE	N/A								
						N_2O	2.2E-03	9.7E-03	Gas	EE	N/A								
						CO_2e	1,171	5,129	Gas	EE	N/A								
GALVFUG	Volume	BOXANN8	Box Annealing Furnace #8	N/A	N/A	NO_X	0.98	4.29	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	TBD	N/A	TBD	TBD
						CO	0.82	3.61	Gas	EE	N/A								
						SO_2	5.9E-03	2.6E-02	Gas	EE	N/A								
						VOC	5.4E-02	0.24	Gas	EE	N/A								
						PM	1.9E-02	8.2E-02	Solid	O (BACT)	N/A								
						PM_{10}	7.5E-02	0.33	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	7.5E-02	0.33	Solid/Gas	O (BACT)	N/A								
						Lead	--	--	--	--	--								
						Total HAPs	1.8E-02	8.1E-02	Solid/Gas	EE	N/A								
						CO_2	1,170	5,124	Gas	EE	N/A								
						CH_4	2.2E-02	0.10	Gas	EE	N/A								
						N_2O	2.2E-03	9.7E-03	Gas	EE	N/A								
						CO_2e	1,171	5,129	Gas	EE	N/A								
GALVFUG	Volume	BOXANN9	Box Annealing Furnace #9	N/A	N/A	NO_X	0.98	4.29	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	TBD	N/A	TBD	TBD
						CO	0.82	3.61	Gas	EE	N/A								
						SO_2	5.9E-03	2.6E-02	Gas	EE	N/A								
						VOC	5.4E-02	0.24	Gas	EE	N/A								
						PM	1.9E-02	8.2E-02	Solid	O (BACT)	N/A								
						PM_{10}	7.5E-02	0.33	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	7.5E-02	0.33	Solid/Gas	O (BACT)	N/A								
						Lead	--	--	--	--	--								
						Total HAPs	1.8E-02	8.1E-02	Solid/Gas	EE	N/A								
						CO_2	1,170	5,124	Gas	EE	N/A								
						CH_4	2.2E-02	0.10	Gas	EE	N/A								
						N_2O	2.2E-03	9.7E-03	Gas	EE	N/A								
						CO_2e	1,171	5,129	Gas	EE	N/A								
GALVFUG	Volume	BOXANN10	Box Annealing Furnace #10	N/A	N/A	NO_X	0.98	4.29	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	TBD	N/A	TBD	TBD
						CO	0.82	3.61	Gas	EE	N/A								
						SO_2	5.9E-03	2.6E-02	Gas	EE	N/A								
						VOC	5.4E-02	0.24	Gas	EE	N/A								
						PM	1.9E-02	8.2E-02	Solid	O (BACT)	N/A								
						PM_{10}	7.5E-02	0.33	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	7.5E-02	0.33	Solid/Gas	O (BACT)	N/A								
						Lead	--	--	--	--	--								
						Total HAPs	1.8E-02	8.1E-02	Solid/Gas	EE	N/A								
						CO_2	1,170	5,124	Gas	EE	N/A								
						CH_4	2.2E-02	0.10	Gas	EE	N/A								
						N_2O	2.2E-03	9.7E-03	Gas	EE	N/A								
						CO_2e	1,171	5,129	Gas	EE	N/A								
GALVFUG	Volume	BOXANN11	Box Annealing Furnace #11	N/A	N/A	NO_X	0.98	4.29	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	TBD	N/A	TBD	TBD
						CO	0.82	3.61	Gas	EE	N/A								
						SO_2	5.9E-03	2.6E-02	Gas	EE	N/A								
						VOC	5.4E-02	0.24	Gas	EE	N/A								
						PM	1.9E-02	8.2E-02	Solid	O (BACT)	N/A								
						PM_{10}	7.5E-02	0.33	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	7.5E-02	0.33	Solid/Gas	O (BACT)	N/A								
						Lead	--	--	--	--	--								
						Total HAPs	1.8E-02	8.1E-02	Solid/Gas	EE	N/A								
						CO_2	1,170	5,124	Gas	EE	N/A								
						CH_4	2.2E-02	0.10	Gas	EE	N/A								
						N_2O	2.2E-03	9.7E-03	Gas	EE	N/A								
						CO_2e	1,171	5,129	Gas	EE	N/A								

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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 Speciated HAP)	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											
GALVFUG	Volume	BOXANN12	Box Annealing Furnace #12	N/A	N/A	NO_X	0.98	4.29	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	TBD	N/A	TBD	TBD
						CO	0.82	3.61	Gas	EE	N/A								
						SO_2	5.9E-03	2.6E-02	Gas	EE	N/A								
						VOC	5.4E-02	0.24	Gas	EE	N/A								
						PM	1.9E-02	8.2E-02	Solid	O (BACT)	N/A								
						PM_{10}	7.5E-02	0.33	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	7.5E-02	0.33	Solid/Gas	O (BACT)	N/A								
						Lead	--	--	--	--	--								
						Total HAPs	1.8E-02	8.1E-02	Solid/Gas	EE	N/A								
						CO_2	1,170	5,124	Gas	EE	N/A								
						CH_4	2.2E-02	0.10	Gas	EE	N/A								
						N_2O	2.2E-03	9.7E-03	Gas	EE	N/A								
						CO_2e	1,171	5,129	Gas	EE	N/A								
GALVFUG	Volume	BOXANN13	Box Annealing Furnace #13	N/A	N/A	NO_X	0.98	4.29	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	TBD	N/A	TBD	TBD
						CO	0.82	3.61	Gas	EE	N/A								
						SO_2	5.9E-03	2.6E-02	Gas	EE	N/A								
						VOC	5.4E-02	0.24	Gas	EE	N/A								
						PM	1.9E-02	8.2E-02	Solid	O (BACT)	N/A								
						PM_{10}	7.5E-02	0.33	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	7.5E-02	0.33	Solid/Gas	O (BACT)	N/A								
						Lead	--	--	--	--	--								
						Total HAPs	1.8E-02	8.1E-02	Solid/Gas	EE	N/A								
						CO_2	1,170	5,124	Gas	EE	N/A								
						CH_4	2.2E-02	0.10	Gas	EE	N/A								
						N_2O	2.2E-03	9.7E-03	Gas	EE	N/A								
						CO_2e	1,171	5,129	Gas	EE	N/A								
GALVFUG	Volume	BOXANN14	Box Annealing Furnace #14	N/A	N/A	NO_X	0.98	4.29	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	TBD	N/A	TBD	TBD
						CO	0.82	3.61	Gas	EE	N/A								
						SO_2	5.9E-03	2.6E-02	Gas	EE	N/A								
						VOC	5.4E-02	0.24	Gas	EE	N/A								
						PM	1.9E-02	8.2E-02	Solid	O (BACT)	N/A								
						PM_{10}	7.5E-02	0.33	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	7.5E-02	0.33	Solid/Gas	O (BACT)	N/A								
						Lead	--	--	--	--	--								
						Total HAPs	1.8E-02	8.1E-02	Solid/Gas	EE	N/A								
						CO_2	1,170	5,124	Gas	EE	N/A								
						CH_4	2.2E-02	0.10	Gas	EE	N/A								
						N_2O	2.2E-03	9.7E-03	Gas	EE	N/A								
						CO_2e	1,171	5,129	Gas	EE	N/A								
GALVFUG	Volume	BOXANN15	Box Annealing Furnace #15	N/A	N/A	NO_X	0.98	4.29	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	TBD	N/A	TBD	TBD
						CO	0.82	3.61	Gas	EE	N/A								
						SO_2	5.9E-03	2.6E-02	Gas	EE	N/A								
						VOC	5.4E-02	0.24	Gas	EE	N/A								
						PM	1.9E-02	8.2E-02	Solid	O (BACT)	N/A								
						PM_{10}	7.5E-02	0.33	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	7.5E-02	0.33	Solid/Gas	O (BACT)	N/A								
						Lead	--	--	--	--	--								
						Total HAPs	1.8E-02	8.1E-02	Solid/Gas	EE	N/A								
						CO_2	1,170	5,124	Gas	EE	N/A								
						CH_4	2.2E-02	0.10	Gas	EE	N/A								
						N_2O	2.2E-03	9.7E-03	Gas	EE	N/A								
						CO_2e	1,171	5,129	Gas	EE	N/A								
GALVFUG	Volume	BOXANN16	Box Annealing Furnace #16	N/A	N/A	NO_X	0.98	4.29	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	TBD	N/A	TBD	TBD
						CO	0.82	3.61	Gas	EE	N/A								
						SO_2	5.9E-03	2.6E-02	Gas	EE	N/A								
						VOC	5.4E-02	0.24	Gas	EE	N/A								
						PM	1.9E-02	8.2E-02	Solid	O (BACT)	N/A								
						PM_{10}	7.5E-02	0.33	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	7.5E-02	0.33	Solid/Gas	O (BACT)	N/A								
						Lead	--	--	--	--	--								
						Total HAPs	1.8E-02	8.1E-02	Solid/Gas	EE	N/A								
						CO_2	1,170	5,124	Gas	EE	N/A								
						CH_4	2.2E-02	0.10	Gas	EE	N/A								
						N_2O	2.2E-03	9.7E-03	Gas	EE	N/A								
						CO_2e	1,171	5,129	Gas	EE	N/A								

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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 Speciated HAP)	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											
GALVFUG	Volume	BOXANN17	Box Annealing Furnace #17	N/A	N/A	NO_X	0.98	4.29	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	TBD	N/A	TBD	TBD
						CO	0.82	3.61	Gas	EE	N/A								
						SO_2	5.9E-03	2.6E-02	Gas	EE	N/A								
						VOC	5.4E-02	0.24	Gas	EE	N/A								
						PM	1.9E-02	8.2E-02	Solid	O (BACT)	N/A								
						PM_{10}	7.5E-02	0.33	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	7.5E-02	0.33	Solid/Gas	O (BACT)	N/A								
						Lead	--	--	--	--	--								
						Total HAPs	1.8E-02	8.1E-02	Solid/Gas	EE	N/A								
						CO_2	1,170	5,124	Gas	EE	N/A								
						CH_4	2.2E-02	0.10	Gas	EE	N/A								
						N_2O	2.2E-03	9.7E-03	Gas	EE	N/A								
						CO_2e	1,171	5,129	Gas	EE	N/A								
GALVFUG	Volume	BOXANN18	Box Annealing Furnace #18	N/A	N/A	NO_X	0.98	4.29	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	TBD	N/A	TBD	TBD
						CO	0.82	3.61	Gas	EE	N/A								
						SO_2	5.9E-03	2.6E-02	Gas	EE	N/A								
						VOC	5.4E-02	0.24	Gas	EE	N/A								
						PM	1.9E-02	8.2E-02	Solid	O (BACT)	N/A								
						PM_{10}	7.5E-02	0.33	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	7.5E-02	0.33	Solid/Gas	O (BACT)	N/A								
						Lead	--	--	--	--	--								
						Total HAPs	1.8E-02	8.1E-02	Solid/Gas	EE	N/A								
						CO_2	1,170	5,124	Gas	EE	N/A								
						CH_4	2.2E-02	0.10	Gas	EE	N/A								
						N_2O	2.2E-03	9.7E-03	Gas	EE	N/A								
						CO_2e	1,171	5,129	Gas	EE	N/A								
GALVFUG	Volume	BOXANN19	Box Annealing Furnace #19	N/A	N/A	NO_X	0.98	4.29	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	TBD	N/A	TBD	TBD
						CO	0.82	3.61	Gas	EE	N/A								
						SO_2	5.9E-03	2.6E-02	Gas	EE	N/A								
						VOC	5.4E-02	0.24	Gas	EE	N/A								
						PM	1.9E-02	8.2E-02	Solid	O (BACT)	N/A								
						PM_{10}	7.5E-02	0.33	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	7.5E-02	0.33	Solid/Gas	O (BACT)	N/A								
						Lead	--	--	--	--	--								
						Total HAPs	1.8E-02	8.1E-02	Solid/Gas	EE	N/A								
						CO_2	1,170	5,124	Gas	EE	N/A								
						CH_4	2.2E-02	0.10	Gas	EE	N/A								
						N_2O	2.2E-03	9.7E-03	Gas	EE	N/A								
						CO_2e	1,171	5,129	Gas	EE	N/A								
GALVFUG	Volume	BOXANN20	Box Annealing Furnace #20	N/A	N/A	NO_X	0.98	4.29	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	TBD	N/A	TBD	TBD
						CO	0.82	3.61	Gas	EE	N/A								
						SO_2	5.9E-03	2.6E-02	Gas	EE	N/A								
						VOC	5.4E-02	0.24	Gas	EE	N/A								
						PM	1.9E-02	8.2E-02	Solid	O (BACT)	N/A								
						PM_{10}	7.5E-02	0.33	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	7.5E-02	0.33	Solid/Gas	O (BACT)	N/A								
						Lead	--	--	--	--	--								
						Total HAPs	1.8E-02	8.1E-02	Solid/Gas	EE	N/A								
						CO_2	1,170	5,124	Gas	EE	N/A								
						CH_4	2.2E-02	0.10	Gas	EE	N/A								
						N_2O	2.2E-03	9.7E-03	Gas	EE	N/A								
						CO_2e	1,171	5,129	Gas	EE	N/A								
GALVFUG	Volume	BOXANN21	Box Annealing Furnace #21	N/A	N/A	NO_X	0.98	4.29	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	TBD	N/A	TBD	TBD
						CO	0.82	3.61	Gas	EE	N/A								
						SO_2	5.9E-03	2.6E-02	Gas	EE	N/A								
						VOC	5.4E-02	0.24	Gas	EE	N/A								
						PM	1.9E-02	8.2E-02	Solid	O (BACT)	N/A								
						PM_{10}	7.5E-02	0.33	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	7.5E-02	0.33	Solid/Gas	O (BACT)	N/A								
						Lead	--	--	--	--	--								
						Total HAPs	1.8E-02	8.1E-02	Solid/Gas	EE	N/A								
						CO_2	1,170	5,124	Gas	EE	N/A								
						CH_4	2.2E-02	0.10	Gas	EE	N/A								
						N_2O	2.2E-03	9.7E-03	Gas	EE	N/A								
						CO_2e	1,171	5,129	Gas	EE	N/A								

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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 Speciated HAP)	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											
GALVFUG	Volume	BOXANN22	Box Annealing Furnace #22	N/A	N/A	NO_X	0.98	4.29	Gas	O (BACT)	N/A	N/A	N/A	N/A	N/A	TBD	N/A	TBD	TBD
						CO	0.82	3.61	Gas	EE	N/A								
						SO_2	5.9E-03	2.6E-02	Gas	EE	N/A								
						VOC	5.4E-02	0.24	Gas	EE	N/A								
						PM	1.9E-02	8.2E-02	Solid	O (BACT)	N/A								
						PM_{10}	7.5E-02	0.33	Solid/Gas	O (BACT)	N/A								
						$PM_{2.5}$	7.5E-02	0.33	Solid/Gas	O (BACT)	N/A								
						Lead	--	--	--	--	--								
						Total HAPs	1.8E-02	8.1E-02	Solid/Gas	EE	N/A								
						CO_2	1,170	5,124	Gas	EE	N/A								
						CH_4	2.2E-02	0.10	Gas	EE	N/A								
						N_2O	2.2E-03	9.7E-03	Gas	EE	N/A								
						CO_2e	1,171	5,129	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)	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
						CO	0.20	0.87	Gas	EE	TBD								
						SO_2	1.4E-03	6.2E-03	Gas	EE	TBD								
						VOC	1.3E-02	5.7E-02	Gas	EE	TBD								
						PM	4.5E-03	2.0E-02	Solid	O (BACT)	TBD								
						PM_{10}	1.8E-02	7.8E-02	Solid/Gas	O (BACT)	TBD								
						$PM_{2.5}$	1.8E-02	7.8E-02	Solid/Gas	O (BACT)	TBD								
						Lead	--	--	--	--	--								
						Total HAPs	4.4E-03	1.9E-02	Solid/Gas	EE	TBD								
						CO_2	280.75	1,230	Gas	EE	TBD								
						CH_4	5.3E-03	2.3E-02	Gas	EE	TBD								
						N_2O	5.3E-04	2.3E-03	Gas	EE	TBD								
						CO_2e	281.04	1,231	Gas	EE	TBD								
ASP-1	Upward Verical Stack	ASP	Water Bath Vaporizer	N/A	N/A	NO_X	1.08	4.72	Gas	O (BACT)	105.61	1.00	400	2,726	58	TBD	20	TBD	TBD
						CO	0.91	3.97	Gas	EE	88.71								
						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	--	--	--	--	--								
						Total HAPs	2.0E-02	8.9E-02	Solid/Gas	EE	1.99								
						CO_2	1,287	5,636	Gas	EE	126,014								
						CH_4	2.4E-02	0.11	Gas	EE	2.37								
						N_2O	2.4E-03	1.1E-02	Gas	EE	0.24								
						CO_2e	1,288	5,642	Gas	EE	126,144								
CT1	Upward Verical Stack	CT1	Melt Shop ICW Cooling Tower	N/A	N/A	NO_X	--	--	--	--	--	34.00	120	1,158,143	21	TBD	41	TBD	TBD
						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	252,132	21	TBD	32	TBD	TBD
						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	--	--	--	--	--								

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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 Speciated HAP)	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)
CT3	Upward Verical Stack	CT3	Rolling Mill ICW Cooling Tower	N/A	N/A	NO_X	--	--	--	--	--	16.00	120	318,120	26	TBD	28	TBD	TBD
						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	561,325	21	TBD	40	TBD	TBD
						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	1,237,677	23	TBD	40	TBD	TBD
						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	309,943	20	TBD	40	TBD	TBD
						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	199,966	22	TBD	11	TBD	TBD
						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	--	--	--	--	--								

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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 Speciated HAP)	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											
CT8	Upward Verical Stack	CT8	Air Separation Plant Cooling Tower	N/A	N/A	NO_X	--	--	--	--	--	20.00	120	399,988	21	TBD	29	TBD	TBD
						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	2.20	Gas	EE	1,269	0.49	997	1,856	164.00	TBD	10	TBD	TBD
						CO	17.64	4.41	Gas	EE	2,538								
						SO_2	8.2E-03	2.1E-03	Gas	EE	1.18								
						VOC	4.41	1.10	Gas	EE	634.39								
						PM	0.68	0.17	Solid	EE	97.31								
						PM_{10}	0.68	0.17	Solid/Gas	EE	97.31								
						$PM_{2.5}$	0.68	0.17	Solid/Gas	EE	97.31								
						Lead	--	--	--	--	--								
						Total HAPs	1.14	0.29	Solid/Gas	EE	164.42								
						CO_2	1,638	409.42	Gas	EE	235,625								
						CH_4	3.1E-02	7.7E-03	Gas	EE	4.44								
						N_2O	3.1E-03	7.7E-04	Gas	EE	0.44								
						CO_2e	1,639	409.84	Gas	EE	235,869								
EMGEN2	Upward Verical Stack	EMGEN2	Emergency Generator 2	N/A	N/A	NO_X	8.82	2.20	Gas	EE	1,269	0.49	997	1,856	164	TBD	10	TBD	TBD
						CO	17.64	4.41	Gas	EE	2,538								
						SO_2	8.2E-03	2.1E-03	Gas	EE	1.18								
						VOC	4.41	1.10	Gas	EE	634.39								
						PM	0.68	0.17	Solid	EE	97.31								
						PM_{10}	0.68	0.17	Solid/Gas	EE	97.31								
						$PM_{2.5}$	0.68	0.17	Solid/Gas	EE	97.31								
						Lead	--	--	--	--	--								
						Total HAPs	1.14	0.29	Solid/Gas	EE	164.42								
						CO_2	1,638	409.42	Gas	EE	235,625								
						CH_4	3.1E-02	7.7E-03	Gas	EE	4.44								
						N_2O	3.1E-03	7.7E-04	Gas	EE	0.44								
						CO_2e	1,639	409.84	Gas	EE	235,869								
EMGEN3	Upward Verical Stack	EMGEN3	Emergency Generator 3	N/A	N/A	NO_X	8.82	2.20	Gas	EE	1,269	0.49	997	1,856	164	TBD	10	TBD	TBD
						CO	17.64	4.41	Gas	EE	2,538								
						SO_2	8.2E-03	2.1E-03	Gas	EE	1.18								
						VOC	4.41	1.10	Gas	EE	634.39								
						PM	0.68	0.17	Solid	EE	97.31								
						PM_{10}	0.68	0.17	Solid/Gas	EE	97.31								
						$PM_{2.5}$	0.68	0.17	Solid/Gas	EE	97.31								
						Lead	--	--	--	--	--								
						Total HAPs	1.14	0.29	Solid/Gas	EE	164.42								
						CO_2	1,638	409.42	Gas	EE	235,625								
						CH_4	3.1E-02	7.7E-03	Gas	EE	4.44								
						N_2O	3.1E-03	7.7E-04	Gas	EE	0.44								
						CO_2e	1,639	409.84	Gas	EE	235,869								
EMGEN4	Upward Verical Stack	EMGEN4	Emergency Generator 4	N/A	N/A	NO_X	8.82	2.20	Gas	EE	1,269	0.49	997	1,856	164	TBD	10	TBD	TBD
						CO	17.64	4.41	Gas	EE	2,538								
						SO_2	8.2E-03	2.1E-03	Gas	EE	1.18								
						VOC	4.41	1.10	Gas	EE	634.39								
						PM	0.68	0.17	Solid	EE	97.31								
						PM_{10}	0.68	0.17	Solid/Gas	EE	97.31								
						$PM_{2.5}$	0.68	0.17	Solid/Gas	EE	97.31								
						Lead	--	--	--	--	--								
						Total HAPs	1.14	0.29	Solid/Gas	EE	164.42								
						CO_2	1,638	409.42	Gas	EE	235,625								
						CH_4	3.1E-02	7.7E-03	Gas	EE	4.44								
						N_2O	3.1E-03	7.7E-04	Gas	EE	0.44								
						CO_2e	1,639	409.84	Gas	EE	235,869								

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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 Speciated HAP)	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	2.20	Gas	EE	1,269	0.49	997	1,856	164	TBD	10	TBD	TBD
						CO	17.64	4.41	Gas	EE	2,538								
						SO_2	8.2E-03	2.1E-03	Gas	EE	1.18								
						VOC	4.41	1.10	Gas	EE	634.39								
						PM	0.68	0.17	Solid	EE	97.31								
						PM_{10}	0.68	0.17	Solid/Gas	EE	97.31								
						$PM_{2.5}$	0.68	0.17	Solid/Gas	EE	97.31								
						Lead	--	--	--	--	--								
						Total HAPs	1.14	0.29	Solid/Gas	EE	164.42								
						CO_2	1,638	409.42	Gas	EE	235,625								
						CH_4	3.1E-02	7.7E-03	Gas	EE	4.44								
						N_2O	3.1E-03	7.7E-04	Gas	EE	0.44								
						CO_2e	1,639	409.84	Gas	EE	235,869								
EMGEN6	Upward Verical Stack	EMGEN6	Emergency Generator 6	N/A	N/A	NO_X	8.82	2.20	Gas	EE	540.84	1.30	965	4,353	55	TBD	8	TBD	TBD
						CO	17.64	4.41	Gas	EE	1,082								
						SO_2	8.2E-03	2.1E-03	Gas	EE	0.50								
						VOC	4.41	1.10	Gas	EE	270.42								
						PM	0.68	0.17	Solid	EE	41.48								
						PM_{10}	0.68	0.17	Solid/Gas	EE	41.48								
						$PM_{2.5}$	0.68	0.17	Solid/Gas	EE	41.48								
						Lead	--	--	--	--	--								
						Total HAPs	1.14	0.29	Solid/Gas	EE	70.09								
						CO_2	1,638	409.42	Gas	EE	100,439								
						CH_4	3.1E-02	7.7E-03	Gas	EE	1.89								
						N_2O	3.1E-03	7.7E-04	Gas	EE	0.19								
						CO_2e	1,639	409.84	Gas	EE	100,543								
DRI-DOCK-FUG	Volume	DRI-DOCK	DRI Unloading Dock - Fugitives	N/A	N/A	NO_X	--	--	--	--	--	N/A	N/A	N/A	N/A	TBD	N/A	TBD	TBD
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	--	--	--	--	--								
						PM	6.53	3.64	Solid	EE	N/A								
						PM_{10}	3.09	1.72	Solid	EE	N/A								
						$PM_{2.5}$	0.47	0.26	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	TBD	N/A	TBD	TBD
						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	TBD	N/A	TBD	TBD
						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	--	--	--	--	--								

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 Speciated HAP)	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)
ALLOY-HANDLE-FUG	Volume	ALLOY-HANDLE	Alloy Handling System Fugitives	N/A	N/A	NO_X	--	--	--	--	--	N/A	N/A	N/A	N/A	TBD	N/A	TBD	TBD
						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	TBD	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	TBD	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	TBD	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	TBD	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	--	--	--	--	--								

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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 Speciated HAP)	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)
T5	Upward Verical Stack	T5	Diesel Tank	N/A	N/A	NO_X	--	--	--	--	--	TBD	Ambient	TBD	Negligible	TBD	TBD	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	TBD	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	TBD	TBD	TBD
						CO	--	--	--	--	--								
						SO_2	--	--	--	--	--								
						VOC	21.09	0.66	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	TBD	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	TBD	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	--	--	--	--	--								

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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 Speciated HAP)	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	TBD	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	TBD	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	TBD	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	TBD	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	TBD	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	--	--	--	--	--								

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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 Speciated HAP)	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											
T15	Upward Verical Stack	T15	HCL Tank #6	N/A	N/A	NO_X	--	--	--	--	--	TBD	Ambient	TBD	Negligible	TBD	TBD	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	TBD	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	TBD	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	TBD	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	TBD	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	--	--	--	--	--								

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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 Speciated HAP)	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											
T20	Upward Verical Stack	T20	SPL Tank #5	N/A	N/A	NO_X	--	--	--	--	--	TBD	Ambient	TBD	Negligible	TBD	TBD	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	TBD	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	TBD	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	TBD	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	TBD	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	--	--	--	--	--								

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 Speciated HAP)	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											

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] lb/hr	Maximum Potential Uncontrolled Emissions[2] ton/yr	Maximum Potential Controlled Emissions[3] lb/hr	Maximum Potential Controlled Emissions[3] ton/yr	Est. Method Used[4]
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, Alloy Storage Bins, Carbon Surge Bins, Scrap Handling & Storage, Slag Processing, Handling & Storage	NO_X	--	--	--	--	--
	CO	--	--	--	--	--
	SO_2	--	--	--	--	--
	VOC	--	--	--	--	--
	PM	59.12	39.52	59.12	39.52	EE & O (MACT)
	PM_{10}	27.94	18.65	27.94	18.65	EE & O (MACT)
	$PM_{2.5}$	4.41	3.13	4.41	3.13	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

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
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
LCB	LCB-ST	Lime, Carbon, and Briquetter Silos	Alloy - 55 ton/hr Carbon - 30 ton/hr	N/A	N/A	N/A	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	Air Flow - 1,200 dscfm	N/A	N/A	N/A	24	7	52
DRI-DB2	DRI-DB2-BH	DRI Day Bin #2	Air Flow - 1,200 dscfm	N/A	N/A	N/A	24	7	52
DRI-CONV	DRI-CONV-BH	DRI Transfer Conveyors	Air Flow - 1,200 dscfm	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
SM	SM-BH	Scarfing Machine	Air Flow - 85,557 dscfm	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
TF2	TFST-2	Hot Mill Tunnel Furnace 2	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
PKL-2	PLST-2	Pickling Line 2	Steel - 342,000 lb/hr	N/A	N/A	N/A	24	7	52
PKLSB	PKLSB	Pickle Line Scale Breaker	Steel - 684,000 lb/hr	N/A	N/A	N/A	24	7	52
TCM	TCMST	Tandem Cold Mill	Steel - 684,000 lb/hr	N/A	N/A	N/A	24	7	52
STM	STM-BH	Standalone Temper Mill	Steel - 684,000 lb/hr	N/A	N/A	N/A	24	7	52
SPM1	SPMST1	Skin Pass Mill Baghouse #1	Steel - 228,000 lb/hr	N/A	N/A	N/A	24	7	52
SPM2	SPMST2	Skin Pass Mill Baghouse #2	Steel - 228,000 lb/hr	N/A	N/A	N/A	24	7	52
SPM3	SPMST3	Skin Pass Mill Baghouse #3	Steel - 228,000 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 - 81,373 scf/hr	N/A	Natural Gas - 81,373 scf/hr	83 MMBtu/hr	24	7	52
GALVFN2	GALVFN2-ST	Galvanizing Furnace #2	Natural Gas - 81,373 scf/hr	N/A	Natural Gas - 81,373 scf/hr	83 MMBtu/hr	24	7	52
BOXANN1	GALVFUG	Box Annealing Furnace #1	Natural Gas - 9,804 scf/hr	N/A	Natural Gas - 9,804 scf/hr	10 MMBtu/hr	24	7	52
BOXANN2	GALVFUG	Box Annealing Furnace #2	Natural Gas - 9,804 scf/hr	N/A	Natural Gas - 9,804 scf/hr	10 MMBtu/hr	24	7	52
BOXANN3	GALVFUG	Box Annealing Furnace #3	Natural Gas - 9,804 scf/hr	N/A	Natural Gas - 9,804 scf/hr	10 MMBtu/hr	24	7	52
BOXANN4	GALVFUG	Box Annealing Furnace #4	Natural Gas - 9,804 scf/hr	N/A	Natural Gas - 9,804 scf/hr	10 MMBtu/hr	24	7	52
BOXANN5	GALVFUG	Box Annealing Furnace #5	Natural Gas - 9,804 scf/hr	N/A	Natural Gas - 9,804 scf/hr	10 MMBtu/hr	24	7	52
BOXANN6	GALVFUG	Box Annealing Furnace #6	Natural Gas - 9,804 scf/hr	N/A	Natural Gas - 9,804 scf/hr	10 MMBtu/hr	24	7	52
BOXANN7	GALVFUG	Box Annealing Furnace #7	Natural Gas - 9,804 scf/hr	N/A	Natural Gas - 9,804 scf/hr	10 MMBtu/hr	24	7	52
BOXANN8	GALVFUG	Box Annealing Furnace #8	Natural Gas - 9,804 scf/hr	N/A	Natural Gas - 9,804 scf/hr	10 MMBtu/hr	24	7	52
BOXANN9	GALVFUG	Box Annealing Furnace #9	Natural Gas - 9,804 scf/hr	N/A	Natural Gas - 9,804 scf/hr	10 MMBtu/hr	24	7	52
BOXANN10	GALVFUG	Box Annealing Furnace #10	Natural Gas - 9,804 scf/hr	N/A	Natural Gas - 9,804 scf/hr	10 MMBtu/hr	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
BOXANN11	GALVFUG	Box Annealing Furnace #11	Natural Gas - 9,804 scf/hr	N/A	Natural Gas - 9,804 scf/hr	10 MMBtu/hr	24	7	52
BOXANN12	GALVFUG	Box Annealing Furnace #12	Natural Gas - 9,804 scf/hr	N/A	Natural Gas - 9,804 scf/hr	10 MMBtu/hr	24	7	52
BOXANN13	GALVFUG	Box Annealing Furnace #13	Natural Gas - 9,804 scf/hr	N/A	Natural Gas - 9,804 scf/hr	10 MMBtu/hr	24	7	52
BOXANN14	GALVFUG	Box Annealing Furnace #14	Natural Gas - 9,804 scf/hr	N/A	Natural Gas - 9,804 scf/hr	10 MMBtu/hr	24	7	52
BOXANN15	GALVFUG	Box Annealing Furnace #15	Natural Gas - 9,804 scf/hr	N/A	Natural Gas - 9,804 scf/hr	10 MMBtu/hr	24	7	52
BOXANN16	GALVFUG	Box Annealing Furnace #16	Natural Gas - 9,804 scf/hr	N/A	Natural Gas - 9,804 scf/hr	10 MMBtu/hr	24	7	52
BOXANN17	GALVFUG	Box Annealing Furnace #17	Natural Gas - 9,804 scf/hr	N/A	Natural Gas - 9,804 scf/hr	10 MMBtu/hr	24	7	52
BOXANN18	GALVFUG	Box Annealing Furnace #18	Natural Gas - 9,804 scf/hr	N/A	Natural Gas - 9,804 scf/hr	10 MMBtu/hr	24	7	52
BOXANN19	GALVFUG	Box Annealing Furnace #19	Natural Gas - 9,804 scf/hr	N/A	Natural Gas - 9,804 scf/hr	10 MMBtu/hr	24	7	52
BOXANN20	GALVFUG	Box Annealing Furnace #20	Natural Gas - 9,804 scf/hr	N/A	Natural Gas - 9,804 scf/hr	10 MMBtu/hr	24	7	52
BOXANN21	GALVFUG	Box Annealing Furnace #21	Natural Gas - 9,804 scf/hr	N/A	Natural Gas - 9,804 scf/hr	10 MMBtu/hr	24	7	52
BOXANN22	GALVFUG	Box Annealing Furnace #22	Natural Gas - 9,804 scf/hr	N/A	Natural Gas - 9,804 scf/hr	10 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
ALLOY-BIN-1	ALLOY-BIN-1	Alloy Storage Bins #1	Alloy - 7 ton/hr	N/A	N/A	N/A	24	7	52
ALLOY-BIN-2	ALLOY-BIN-2	Alloy Storage Bins #2	Alloy - 7 ton/hr	N/A	N/A	N/A	24	7	52
ALLOY-BIN-3	ALLOY-BIN-3	Alloy Storage Bins #3	Alloy - 7 ton/hr	N/A	N/A	N/A	24	7	52
ALLOY-BIN-4	ALLOY-BIN-4	Alloy Storage Bins #4	Alloy - 7 ton/hr	N/A	N/A	N/A	24	7	52
ALLOY-BIN-5	ALLOY-BIN-5	Alloy Storage Bins #5	Alloy - 7 ton/hr	N/A	N/A	N/A	24	7	52
ALLOY-BIN-6	ALLOY-BIN-6	Alloy Storage Bins #6	Alloy - 7 ton/hr	N/A	N/A	N/A	24	7	52
ALLOY-BIN-7	ALLOY-BIN-7	Alloy Storage Bins #7	Alloy - 7 ton/hr	N/A	N/A	N/A	24	7	52
ALLOY-BIN-8	ALLOY-BIN-8	Alloy Storage Bins #8	Alloy - 7 ton/hr	N/A	N/A	N/A	24	7	52
CARBON-BIN-1	CARBON-BIN-1	Carbon Surge Bin #1 [2 drop points]	Carbon - 15 ton/hr	N/A	N/A	N/A	24	7	52
CARBON-BIN-2	CARBON-BIN-2	Carbon Surge Bin #2 [2 drop points]	Carbon - 15 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 pile	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 output pile	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 scrap screen	Slag - 66 ton/hr	N/A	N/A	N/A	24	7	52
SCRAP-BULK16	SCRAP-BULK16	S2 scrap screen to C6 conveyor	Slag - 2 ton/hr	N/A	N/A	N/A	24	7	52
SCRAP-BULK17	SCRAP-BULK17	S2 scrap screen to P3 scrap pile	Slag - 2 ton/hr	N/A	N/A	N/A	24	7	52
SCRAP-BULK18	SCRAP-BULK18	C6 conveyor to P4 scrap pile	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 P5 product pile	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 P7 product pile	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

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
SCRAP-BULK25	SCRAP-BULK25	C3 conveyor to P6 product pile	Slag - 13 ton/hr	N/A	N/A	N/A	24	7	52
SCRAP-BULK26	SCRAP-BULK26	S1 slag screen to P8 product pile	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 - 177,625 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
SLGSKP3	SLGSKP3	Slag Stockpile 3	Slag - 368 sq. ft	N/A	N/A	N/A	24	7	52
SCRPSKP1	SCRPSKP1	Scrap Metal Stockpile 1	Scrap - 342,030 sq. ft	N/A	N/A	N/A	24	7	52
SCRPSKP2	SCRPSKP2	Scrap Metal Stockpile 2	Scrap - 342,030 sq. ft	N/A	N/A	N/A	24	7	52
SCRPSKP3	SCRPSKP3	Scrap Metal Stockpile 3	Scrap - 342,030 sq. ft	N/A	N/A	N/A	24	7	52
SCRPSKP4	SCRPSKP4	Scrap Metal Stockpile 4	Scrap - 342,030 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

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
EAF1/LMF1/CAST1	BHST-1	Electric Arc Furnace 1 Ladle Metallurgical Furnace 1 Caster	225 °F / Ambient Pressure	58.91	40.36	341.83	49.19	76.99	76.99	7.6E-02	See regulatory write-up in the application narrative			
EAF2/LMF2/CAST2	BHST-2	Electric Arc Furnace 2 Ladle Metallurgical Furnace 2 Caster	225 °F / Ambient Pressure	58.91	40.36	341.83	49.19	76.99	76.99	7.6E-02	See regulatory write-up in the application narrative			
MSFUG	MSFUG	Uncaptured Electric Arc Furnace Fugitives	Ambient Temperature / Ambient Pressure	1.88	1.37	7.18	0.11	1.62	1.62	1.5E-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			
LCB	LCB-ST	Lime, Carbon, and Briquetter Silos	Ambient Temperature / Ambient Pressure	--	--	--	1.63	--	--	--	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	--	--	--	0.20	--	--	--	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	--	--	--	0.20	--	--	--	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	--	--	--	0.20	--	--	--	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	--	--	--	0.20	--	--	--	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	TBD °F / Ambient Pressure	--	--	--	10.09	--	--	--	See regulatory write-up in the application narrative			
SM	SM-BH	Scarfing Machine	TBD °F / Ambient Pressure	--	--	--	7.33	--	--	--	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	--	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	--	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	--	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	--	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	--	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	--	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	--	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	--	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	--	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	--	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	--	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	5.1E-04	5.4E-03	5.4E-03	--	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	5.1E-04	5.4E-03	5.4E-03	--	See regulatory write-up in the application narrative			
TF1	TFST-1	Hot Mill Tunnel Furnace 1	1,200 °F / Ambient Pressure	10.50	8.8E-02	12.35	1.12	0.81	0.81	--	See regulatory write-up in the application narrative			
TF2	TFST-2	Hot Mill Tunnel Furnace 2	1,200 °F / Ambient Pressure	10.50	8.8E-02	12.35	1.12	0.81	0.81	--	See regulatory write-up in the application narrative			
PKL-1	PLST-1	Pickling Line 1	120 °F / Ambient Pressure	--	--	--	1.39	--	--	--	See regulatory write-up in the application narrative			
PKL-2	PLST-2	Pickling Line 2	120 °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	--	--	--	18.60	--	--	--	See regulatory write-up in the application narrative			
STM	STM-BH	Standalone Temper Mill	TBD °F / Ambient Pressure	--	--	--	0.93	--	--	--	See regulatory write-up in the application narrative			
SPM1	SPMST1	Skin Pass Mill Baghouse #1	90 °F / Ambient Pressure	--	--	--	3.45	--	--	--	See regulatory write-up in the application narrative			
SPM2	SPMST2	Skin Pass Mill Baghouse #2	90 °F / Ambient Pressure	--	--	--	2.11	--	--	--	See regulatory write-up in the application narrative			
SPM3	SPMST3	Skin Pass Mill Baghouse #3	90 °F / Ambient Pressure	--	--	--	2.11	--	--	--	See regulatory write-up in the application narrative			
CGL1	CGL1-ST1	CGL1 - Cleaning Section	122 °F / Ambient Pressure	--	--	--	0.31	--	--	--	See regulatory write-up in the application narrative			
CGL1	CGL1-ST2	CGL1 - Passivation Section	700 °F / Ambient Pressure	--	--	--	0.24	--	--	--	See regulatory write-up in the application narrative			
CGL2	CGL2-ST1	CGL2 - Cleaning Section	122 °F / Ambient Pressure	--	--	--	0.31	--	--	--	See regulatory write-up in the application narrative			
CGL2	CGL2-ST2	CGL2 - Passivation Section	700 °F / Ambient Pressure	--	--	--	0.24	--	--	--	See regulatory write-up in the application narrative			
GALVFN1	GALVFN1-ST	Galvanizing Furnace #1	Ambient Temperature / Ambient Pressure	4.15	4.9E-02	6.84	0.62	0.45	0.45	--	See regulatory write-up in the application narrative			
GALVFN2	GALVFN2-ST	Galvanizing Furnace #2	Ambient Temperature / Ambient Pressure	4.15	4.9E-02	6.84	0.62	0.45	0.45	--	See regulatory write-up in the application narrative			
BOXANN1	GALVFUG	Box Annealing Furnace #1	Ambient Temperature / Ambient Pressure	0.98	5.9E-03	0.82	7.5E-02	5.4E-02	5.4E-02	--	See regulatory write-up in the application narrative			
BOXANN2	GALVFUG	Box Annealing Furnace #2	Ambient Temperature / Ambient Pressure	0.98	5.9E-03	0.82	7.5E-02	5.4E-02	5.4E-02	--	See regulatory write-up in the application narrative			
BOXANN3	GALVFUG	Box Annealing Furnace #3	Ambient Temperature / Ambient Pressure	0.98	5.9E-03	0.82	7.5E-02	5.4E-02	5.4E-02	--	See regulatory write-up in the application narrative			
BOXANN4	GALVFUG	Box Annealing Furnace #4	Ambient Temperature / Ambient Pressure	0.98	5.9E-03	0.82	7.5E-02	5.4E-02	5.4E-02	--	See regulatory write-up in the application narrative			
BOXANN5	GALVFUG	Box Annealing Furnace #5	Ambient Temperature / Ambient Pressure	0.98	5.9E-03	0.82	7.5E-02	5.4E-02	5.4E-02	--	See regulatory write-up in the application narrative			
BOXANN6	GALVFUG	Box Annealing Furnace #6	Ambient Temperature / Ambient Pressure	0.98	5.9E-03	0.82	7.5E-02	5.4E-02	5.4E-02	--	See regulatory write-up in the application narrative			
BOXANN7	GALVFUG	Box Annealing Furnace #7	Ambient Temperature / Ambient Pressure	0.98	5.9E-03	0.82	7.5E-02	5.4E-02	5.4E-02	--	See regulatory write-up in the application narrative			
BOXANN8	GALVFUG	Box Annealing Furnace #8	Ambient Temperature / Ambient Pressure	0.98	5.9E-03	0.82	7.5E-02	5.4E-02	5.4E-02	--	See regulatory write-up in the application narrative			
BOXANN9	GALVFUG	Box Annealing Furnace #9	Ambient Temperature / Ambient Pressure	0.98	5.9E-03	0.82	7.5E-02	5.4E-02	5.4E-02	--	See regulatory write-up in the application narrative			
BOXANN10	GALVFUG	Box Annealing Furnace #10	Ambient Temperature / Ambient Pressure	0.98	5.9E-03	0.82	7.5E-02	5.4E-02	5.4E-02	--	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
BOXANN11	GALVFUG	Box Annealing Furnace #11	Ambient Temperature / Ambient Pressure	0.98	5.9E-03	0.82	7.5E-02	5.4E-02	5.4E-02	--	See regulatory write-up in the application narrative			
BOXANN12	GALVFUG	Box Annealing Furnace #12	Ambient Temperature / Ambient Pressure	0.98	5.9E-03	0.82	7.5E-02	5.4E-02	5.4E-02	--	See regulatory write-up in the application narrative			
BOXANN13	GALVFUG	Box Annealing Furnace #13	Ambient Temperature / Ambient Pressure	0.98	5.9E-03	0.82	7.5E-02	5.4E-02	5.4E-02	--	See regulatory write-up in the application narrative			
BOXANN14	GALVFUG	Box Annealing Furnace #14	Ambient Temperature / Ambient Pressure	0.98	5.9E-03	0.82	7.5E-02	5.4E-02	5.4E-02	--	See regulatory write-up in the application narrative			
BOXANN15	GALVFUG	Box Annealing Furnace #15	Ambient Temperature / Ambient Pressure	0.98	5.9E-03	0.82	7.5E-02	5.4E-02	5.4E-02	--	See regulatory write-up in the application narrative			
BOXANN16	GALVFUG	Box Annealing Furnace #16	Ambient Temperature / Ambient Pressure	0.98	5.9E-03	0.82	7.5E-02	5.4E-02	5.4E-02	--	See regulatory write-up in the application narrative			
BOXANN17	GALVFUG	Box Annealing Furnace #17	Ambient Temperature / Ambient Pressure	0.98	5.9E-03	0.82	7.5E-02	5.4E-02	5.4E-02	--	See regulatory write-up in the application narrative			
BOXANN18	GALVFUG	Box Annealing Furnace #18	Ambient Temperature / Ambient Pressure	0.98	5.9E-03	0.82	7.5E-02	5.4E-02	5.4E-02	--	See regulatory write-up in the application narrative			
BOXANN19	GALVFUG	Box Annealing Furnace #19	Ambient Temperature / Ambient Pressure	0.98	5.9E-03	0.82	7.5E-02	5.4E-02	5.4E-02	--	See regulatory write-up in the application narrative			
BOXANN20	GALVFUG	Box Annealing Furnace #20	Ambient Temperature / Ambient Pressure	0.98	5.9E-03	0.82	7.5E-02	5.4E-02	5.4E-02	--	See regulatory write-up in the application narrative			
BOXANN21	GALVFUG	Box Annealing Furnace #21	Ambient Temperature / Ambient Pressure	0.98	5.9E-03	0.82	7.5E-02	5.4E-02	5.4E-02	--	See regulatory write-up in the application narrative			
BOXANN22	GALVFUG	Box Annealing Furnace #22	Ambient Temperature / Ambient Pressure	0.98	5.9E-03	0.82	7.5E-02	5.4E-02	5.4E-02	--	See regulatory write-up in the application narrative			
SLAG-CUT	SLAG-CUT-NG	Slag Cutting in Slag Processing Area	TBD °F / Ambient Pressure	0.24	1.4E-03	0.20	1.8E-02	1.3E-02	1.3E-02	--	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	--	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	--	--	--	3.09	--	--	--	See regulatory write-up in the application narrative			
BULK-DRI	BULK-DRI-1	DRI Silo #1 Loadout	Ambient Temperature / Ambient Pressure	--	--	--	0.39	--	--	--	See regulatory write-up in the application narrative			
BULK-DRI	BULK-DRI-2	DRI Silo #2 Loadout	Ambient Temperature / Ambient Pressure	--	--	--	0.39	--	--	--	See regulatory write-up in the application narrative			
BULK-DRI	DRI-EMG-1	DRI Conveyor #1 Emergency Chute	Ambient Temperature / Ambient Pressure	--	--	--	3.09	--	--	--	See regulatory write-up in the application narrative			
BULK-DRI	DRI-EMG-2	DRI Silos Emergency Chute	Ambient Temperature / Ambient Pressure	--	--	--	19.76	--	--	--	See regulatory write-up in the application narrative			
ALLOY-BIN-1	ALLOY-BIN-1	Alloy Storage Bins #1	Ambient Temperature / Ambient Pressure	--	--	--	1.0E-02	--	--	--	See regulatory write-up in the application narrative			
ALLOY-BIN-2	ALLOY-BIN-2	Alloy Storage Bins #2	Ambient Temperature / Ambient Pressure	--	--	--	1.0E-02	--	--	--	See regulatory write-up in the application narrative			
ALLOY-BIN-3	ALLOY-BIN-3	Alloy Storage Bins #3	Ambient Temperature / Ambient Pressure	--	--	--	1.0E-02	--	--	--	See regulatory write-up in the application narrative			
ALLOY-BIN-4	ALLOY-BIN-4	Alloy Storage Bins #4	Ambient Temperature / Ambient Pressure	--	--	--	1.0E-02	--	--	--	See regulatory write-up in the application narrative			
ALLOY-BIN-5	ALLOY-BIN-5	Alloy Storage Bins #5	Ambient Temperature / Ambient Pressure	--	--	--	1.0E-02	--	--	--	See regulatory write-up in the application narrative			
ALLOY-BIN-6	ALLOY-BIN-6	Alloy Storage Bins #6	Ambient Temperature / Ambient Pressure	--	--	--	1.0E-02	--	--	--	See regulatory write-up in the application narrative			
ALLOY-BIN-7	ALLOY-BIN-7	Alloy Storage Bins #7	Ambient Temperature / Ambient Pressure	--	--	--	1.0E-02	--	--	--	See regulatory write-up in the application narrative			
ALLOY-BIN-8	ALLOY-BIN-8	Alloy Storage Bins #8	Ambient Temperature / Ambient Pressure	--	--	--	1.0E-02	--	--	--	See regulatory write-up in the application narrative			
CARBON-BIN-1	CARBON-BIN-1	Carbon Surge Bin #1 [2 drop points]	Ambient Temperature / Ambient Pressure	--	--	--	4.6E-02	--	--	--	See regulatory write-up in the application narrative			
CARBON-BIN-2	CARBON-BIN-2	Carbon Surge Bin #2 [2 drop points]	Ambient Temperature / Ambient Pressure	--	--	--	4.6E-03	--	--	--	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 pile	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 output pile	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 scrap screen	Ambient Temperature / Ambient Pressure	--	--	--	3.0E-03	--	--	--	See regulatory write-up in the application narrative			
SCRAP-BULK16	SCRAP-BULK16	S2 scrap screen to C6 conveyor	Ambient Temperature / Ambient Pressure	--	--	--	1.7E-03	--	--	--	See regulatory write-up in the application narrative			
SCRAP-BULK17	SCRAP-BULK17	S2 scrap screen to P3 scrap pile	Ambient Temperature / Ambient Pressure	--	--	--	1.5E-03	--	--	--	See regulatory write-up in the application narrative			
SCRAP-BULK18	SCRAP-BULK18	C6 conveyor to P4 scrap pile	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 P5 product pile	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 P7 product pile	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			

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
SCRAP-BULK25	SCRAP-BULK25	C3 conveyor to P6 product pile	Ambient Temperature / Ambient Pressure	--	--	--	5.9E-04	--	--	--	See regulatory write-up in the application narrative			
SCRAP-BULK26	SCRAP-BULK26	S1 slag screen to P8 product pile	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	--	--	--	0.32	--	--	--	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			
SLGSKP3	SLGSKP3	Slag Stockpile 3	Ambient Temperature / Ambient Pressure	--	--	--	6.6E-04	--	--	--	See regulatory write-up in the application narrative			
SCRPSKP1	SCRPSKP1	Scrap Metal Stockpile 1	Ambient Temperature / Ambient Pressure	--	--	--	0.61	--	--	--	See regulatory write-up in the application narrative			
SCRPSKP2	SCRPSKP2	Scrap Metal Stockpile 2	Ambient Temperature / Ambient Pressure	--	--	--	0.61	--	--	--	See regulatory write-up in the application narrative			
SCRPSKP3	SCRPSKP3	Scrap Metal Stockpile 3	Ambient Temperature / Ambient Pressure	--	--	--	0.61	--	--	--	See regulatory write-up in the application narrative			
SCRPSKP4	SCRPSKP4	Scrap Metal Stockpile 4	Ambient Temperature / Ambient Pressure	--	--	--	0.61	--	--	--	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 - Emissions Unit Data Sheet (Indirect Heat Exchanger)

Form Number:			1	2A	3	4	7	8	9	10	11A	12. Operating Schedule			13	15	16	17	18
Emission Unit ID	Emission Point ID	Description	Manufacturer	Model No.	Number of units:	Boiler Used For	Date Constructed	Date of Last Modification and Explain	Maximum Design Heat Input per Unit (MMBtu/hr)	Peak Heat Input per Unit (MMBtu/hr)	Steam Produced at Maximum Design Output (lb/hr)	hours/day	days/week	Weeks/yr	Type of Firing Equipment to be Used	Type of Draft	Percent of Ash Retained in Furnace (%)	Will Flyash be Reinjected	Percent of Carbon in Flyash (%)
CMBLR1	CMBLR1	Pickling Line Boiler 1	TBD	TBD	1	Heat Transfer	N/A	Not Installed	20	20	14,286	24	7	52	Natural gas burner	TBD	0%	No	N/A
CMBLR2	CMBLR2	Pickling Line Boiler 2	TBD	TBD	1	Heat Transfer	N/A	Not Installed	20	20	14,286	24	7	52	Natural gas burner	TBD	0%	No	N/A
CMBLR3	CMBLR3	Pickling Line Boiler 3	TBD	TBD	1	Heat Transfer	N/A	Not Installed	20	20	14,286	24	7	52	Natural gas burner	TBD	0%	No	N/A

NUCOR - Project Honey Badger
Attachment L - Emissions Unit Data Sheet (Indirect Heat Exchanger)

Form Number:			19	20	21	22	23	25. Fuel Requirements							28	29	30	31	35
Emission Unit ID	Emission Point ID	Description	Stack Inside Diameter or Dimensions (ft)	Stack Gas Exit Temperature (°F)	Stack Height (ft)	Stack Serves	Stack Gas Flow Rate (ft^3/min)	Type	Hourly Quantity at Design Output (scf/hr)	Annual Quantity at Design Output (MMscf/yr)	Sulfur (gr/100 ft^3)	Ash (%)	Halogens? (Yes/No)	List and Identify Metals	Oil Burner Manufacturer	If Fuel Oil is Used, How is it Atomized?	Fuel Oil Preheated?	If Fuel Oil is Preheated, What Temperature? (°F)	Coal Seams
CMBLR1	CMBLR1	Pickling Line Boiler 1	2.0	550	57	This equipment only	6,607	Natural Gas	19,608	172	200,000	N/A	No	N/A	N/A	N/A	N/A	N/A	N/A
CMBLR2	CMBLR2	Pickling Line Boiler 2	2.0	550	50	This equipment only	6,607	Natural Gas	19,608	172	200,000	N/A	No	N/A	N/A	N/A	N/A	N/A	N/A
CMBLR3	CMBLR3	Pickling Line Boiler 3	2.0	550	50	This equipment only	6,607	Natural Gas	19,608	172	200,000	N/A	No	N/A	N/A	N/A	N/A	N/A	N/A

NUCOR - Project Honey Badger
Attachment L - Emissions Unit Data Sheet (Indirect Heat Exchanger)

Form Number:			36	37. Emissions Before Control (lb/hr)								38. Emissions After Control (lb/hr)								40	41	42. Proposed Monitoring, Recordkeeping, Reporting, and Testing			
Emission Unit ID	Emission Point ID	Description	Coal Proximate Analysis (Dry Basis)	CO	Hydro-carbons	NO_X	Pb	PM_{10}	SO_2	VOCs	Other (Specify)	CO	Hydro-carbons	NO_X	Pb	PM_{10}	SO_2	VOCs	Other (Specify)	Have you completed an Air Pollution Control Device Sheet(s) for the control(s) used on this Emission Unit?	Have you included the air pollution rates on the Emissions Points Data Summary Sheet?	Monitoring	Recordkeeping	Reporting	Testing
CMBLR1	CMBLR1	Pickling Line Boiler 1	N/A	1.65	0.11	1.00	--	0.15	0.01	0.11	--	1.65	0.11	1.00	--	0.15	0.01	0.11	--	Yes	Yes	See regulatory write-up in the application narrative			
CMBLR2	CMBLR2	Pickling Line Boiler 2	N/A	1.65	0.11	1.00	--	0.15	0.01	0.11	--	1.65	0.11	1.00	--	0.15	0.01	0.11	--	Yes	Yes	See regulatory write-up in the application narrative			
CMBLR3	CMBLR3	Pickling Line Boiler 3	N/A	1.65	0.11	1.00	--	0.15	0.01	0.11	--	1.65	0.11	1.00	--	0.15	0.01	0.11	--	Yes	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.

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.

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	365,000	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

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

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	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
	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

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

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															

Attachment L - Emission Unit Data Sheet (Storage Tanks)

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	986	1,330	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

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			
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}, & $PM_{2.5}$	7.41	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}, & $PM_{2.5}$	7.41	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	23,543	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	23,543	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	23,543	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	23,543	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 0.01	TBD	Yes	See regulatory write-up in the application narrative			
Scarfing Machine Baghouse	SM-BH	TBD	TBD	Continuous	24	8,760	85,557	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			
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			
Temper Mill Baghouse	STM-BH	TBD	TBD	Continuous	24	8,760	45,000	0.0025	PM, PM_{10}, & $PM_{2.5}$	--	PM PM_{10} $PM_{2.5}$	0.0025 0.0024 0.0013	TBD	Yes	See regulatory write-up in the application narrative			
Skin Pass Mill Baghouse #1	SPMST1	TBD	TBD	Continuous	24	8,760	40,259	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			
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 0.01	TBD	Yes	See regulatory write-up in the application narrative			
Skin Pass Mill Baghouse #3	SPMST3	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 0.01	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			
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
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			
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	1.78	167	>98%	Waste Gas & Natural Gas	TBD	12.37	167	1.78	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	1.78	167	>98%	Waste Gas & Natural Gas	TBD	12.37	167	1.78	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)			26	28. Dimensions of Stack		34	35. Proposed Monitoring, Recordkeeping, Reporting, and Testing			
												Outlet									
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	120	18,153	0.01	PM PM_{10} $PM_{2.5}$ HCl	1.39 1.39 1.39 0.56	9.0E-03 9.0E-03 9.0E-03 3.6E-03	Particulate & HCl	109	3.00	Yes	See regulatory write-up in the application narrative			
Pickling Line Scrubber 2	PLST-2	TBD	TBD	TBD	TBD	TBD	TBD	120	8,016	0.01	PM PM_{10} $PM_{2.5}$ HCl	0.62 0.62 0.62 0.25	9.0E-03 9.0E-03 9.0E-03 3.6E-03	Particulate & HCl	109	3.00	Yes	See regulatory write-up in the application narrative			
Continuous Galvanizing Line	CGL1-ST1	TBD	TBD	TBD	TBD	TBD	TBD	122	13,710	0.003	PM PM_{10} $PM_{2.5}$	0.31 0.31 0.31	2.7E-03 2.7E-03 2.7E-03	Particulate	130	2.08	Yes	See regulatory write-up in the application narrative			
Continuous Galvanizing Line	CGL1-ST2	TBD	TBD	TBD	TBD	TBD	TBD	700	20,866	0.003	PM PM_{10} $PM_{2.5}$	0.24 0.24 0.24	1.3E-03 1.3E-03 1.3E-03	Particulate	130	6.99	Yes	See regulatory write-up in the application narrative			
Continuous Galvanizing Line	CGL2-ST1	TBD	TBD	TBD	TBD	TBD	TBD	122	13,710	0.003	PM PM_{10} $PM_{2.5}$	0.31 0.31 0.31	2.7E-03 2.7E-03 2.7E-03	Particulate	130	2.08	Yes	See regulatory write-up in the application narrative			
Continuous Galvanizing Line	CGL2-ST2	TBD	TBD	TBD	TBD	TBD	TBD	700	20,866	0.003	PM PM_{10} $PM_{2.5}$	0.24 0.24 0.24	1.3E-03 1.3E-03 1.3E-03	Particulate	130	6.99	Yes	See regulatory write-up in the application narrative			
Tandem Cold Mill Mist Elimi	TCMST	TBD	TBD	TBD	TBD	TBD	TBD	100	233,757	0.01	PM PM_{10} $PM_{2.5}$	18.60 18.60 18.60	9.3E-03 9.3E-03 9.3E-03	Particulate	184	9.84	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 Corporation - West Virginia Steel Mill
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 Hourly (ton stl/hr)	Throughput Annual (ton stl/yr)	Emission Factor[1,2] 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	0.45	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	0.45	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] Lead emission factor for electric arc furnace is based on data collected from the Nucor Brandenburg 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 Hourly (lb/hr)	DRI Annual (tpy)	Scrap Hourly (lb/hr)	Scrap Annual (tpy)	Flux Hourly (lb/hr)	Flux Annual (tpy)	Electrode Hourly (lb/hr)	Electrode Annual (tpy)	Carbon Hourly (lb/hr)	Carbon Annual (tpy)	Steel Hourly (lb/hr)	Steel Annual (tpy)	Slag Hourly (lb/hr)	Slag Annual (tpy)	Residue Hourly (lb/hr)	Residue 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 Hourly (ton stl/hr)	Throughput Annual (ton stl/yr)	Emission Factor[1] 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 anticipated BACT.

Nucor Corporation - West Virginia Steel Mill
Emissions Calculation Inputs and Assumptions

Melt Shop Baghouses

Emission	Emission	Unit	Description	Flow Rate	Flow Rate	Emission Factor[1,3,4]		
Point ID	Unit ID			(m^3/hr)	(dscfm)	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 Briquetter Silos	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	40,000	23,543	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	40,000	23,543	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	40,000	23,543	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	40,000	23,543	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.
[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 consistent with Nucor Brandenburg Mill.
[4] Emission factors for LCB silos, EAF Top Feed are consistent with Nucor Berkeley Mill.

Melt Shop Fugitives

Emission	Emission	Unit	Description	Capture Efficiency[1]		Building	Emission Factors[3,4]		
				DEC	Canopy Hood	Enclosure[2]	PM	PM_{10}	$PM_{2.5}$
Point ID	Unit ID			(%)	(%)	(%)	(lb/ton stl)	(lb/ton stl)	(lb/ton stl)
MSFUG	MSFUG	Melt Shop	Uncaptured Electric Arc Furnace Fugitives	99	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 Corporation - West Virginia Steel Mill
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	1.96E-04	5.10E-04	5.10E-04	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	1.96E-04	5.10E-04	5.10E-04	116.98	2.20E-03	2.20E-04
CMBLR1	CMBLR1	Cold Mill	Pickling Line Boiler 1	20	175,200	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
CMBLR2	CMBLR2	Cold Mill	Pickling Line Boiler 2	20	175,200	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
CMBLR3	CMBLR3	Cold Mill	Pickling Line Boiler 3	20	175,200	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
GALVFN1-ST	GALVFN1	Cold Mill	Galvanizing Furnace #1	83	727,080	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	83	727,080	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	Melt Shop	Box Annealing Furnace #1	10	87,600	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
GALVFUG	BOXANN2	Melt Shop	Box Annealing Furnace #2	10	87,600	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
GALVFUG	BOXANN3	Melt Shop	Box Annealing Furnace #3	10	87,600	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
GALVFUG	BOXANN4	Melt Shop	Box Annealing Furnace #4	10	87,600	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
GALVFUG	BOXANN5	Melt Shop	Box Annealing Furnace #5	10	87,600	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
GALVFUG	BOXANN6	Melt Shop	Box Annealing Furnace #6	10	87,600	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
GALVFUG	BOXANN7	Melt Shop	Box Annealing Furnace #7	10	87,600	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
GALVFUG	BOXANN8	Melt Shop	Box Annealing Furnace #8	10	87,600	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
GALVFUG	BOXANN9	Melt Shop	Box Annealing Furnace #9	10	87,600	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
GALVFUG	BOXANN10	Melt Shop	Box Annealing Furnace #10	10	87,600	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
GALVFUG	BOXANN11	Melt Shop	Box Annealing Furnace #11	10	87,600	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
GALVFUG	BOXANN12	Melt Shop	Box Annealing Furnace #12	10	87,600	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
GALVFUG	BOXANN13	Melt Shop	Box Annealing Furnace #13	10	87,600	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
GALVFUG	BOXANN14	Melt Shop	Box Annealing Furnace #14	10	87,600	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
GALVFUG	BOXANN15	Melt Shop	Box Annealing Furnace #15	10	87,600	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
GALVFUG	BOXANN16	Melt Shop	Box Annealing Furnace #16	10	87,600	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
GALVFUG	BOXANN17	Melt Shop	Box Annealing Furnace #17	10	87,600	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
GALVFUG	BOXANN18	Melt Shop	Box Annealing Furnace #18	10	87,600	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
GALVFUG	BOXANN19	Melt Shop	Box Annealing Furnace #19	10	87,600	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
GALVFUG	BOXANN20	Melt Shop	Box Annealing Furnace #20	10	87,600	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
GALVFUG	BOXANN21	Melt Shop	Box Annealing Furnace #21	10	87,600	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
GALVFUG	BOXANN22	Melt Shop	Box Annealing Furnace #22	10	87,600	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
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
TFST-2	TF2	Hot Mill	Hot Mill Tunnel Furnace 2	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.

Nucor Corporation - West Virginia Steel Mill
Emissions Calculation Inputs and Assumptions

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	Total Treatment Time (min)	Control Efficiency[1] (%)	Steel Throughput		Uncontrolled CO[1]		Heat Input[2]		Emission Factor						
						Hourly (ton/hr)	Annual (tpy)	Hourly (lb/hr)	Annual (lb/yr)	Hourly (MMBtu/hr)	Annual (MMBtu/yr)	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	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 is based on AP-42 Table 13.5-1 for flare operations.
[3] VOC conservatively based on AP-42 Table 13.5-1 emission factor for total hydrocarbons.
[4] 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.
[5] 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.
[6] Emission factors of GHGs are based on Tables C-1 and C-2 of 40 CFR Part 98.

Nucor Corporation - West Virginia Steel Mill
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%	--
ALLOY-BIN-1	ALLOY-BIN-1	Melt Shop	Alloy Storage Bins #1	Alloy	7	60,000	100%	2.20%	3.21E-03	1.52E-03	2.30E-04	Outdoor	N/A	Open	0.00%	--
ALLOY-BIN-2	ALLOY-BIN-2	Melt Shop	Alloy Storage Bins #2	Alloy	7	60,000	100%	2.20%	3.21E-03	1.52E-03	2.30E-04	Outdoor	N/A	Open	0.00%	--
ALLOY-BIN-3	ALLOY-BIN-3	Melt Shop	Alloy Storage Bins #3	Alloy	7	60,000	100%	2.20%	3.21E-03	1.52E-03	2.30E-04	Outdoor	N/A	Open	0.00%	--
ALLOY-BIN-4	ALLOY-BIN-4	Melt Shop	Alloy Storage Bins #4	Alloy	7	60,000	100%	2.20%	3.21E-03	1.52E-03	2.30E-04	Outdoor	N/A	Open	0.00%	--
ALLOY-BIN-5	ALLOY-BIN-5	Melt Shop	Alloy Storage Bins #5	Alloy	7	60,000	100%	2.20%	3.21E-03	1.52E-03	2.30E-04	Outdoor	N/A	Open	0.00%	--
ALLOY-BIN-6	ALLOY-BIN-6	Melt Shop	Alloy Storage Bins #6	Alloy	7	60,000	100%	2.20%	3.21E-03	1.52E-03	2.30E-04	Outdoor	N/A	Open	0.00%	--
ALLOY-BIN-7	ALLOY-BIN-7	Melt Shop	Alloy Storage Bins #7	Alloy	7	60,000	100%	2.20%	3.21E-03	1.52E-03	2.30E-04	Outdoor	N/A	Open	0.00%	--
ALLOY-BIN-8	ALLOY-BIN-8	Melt Shop	Alloy Storage Bins #8	Alloy	7	60,000	100%	2.20%	3.21E-03	1.52E-03	2.30E-04	Outdoor	N/A	Open	0.00%	--
CARBON-BIN-1	CARBON-BIN-1	Melt Shop	Carbon Surge Bin #1 [2 drop points]	Carbon	15	131,400	100%	2.20%	3.21E-03	1.52E-03	2.30E-04	Outdoor	N/A	Open	0.00%	--
CARBON-BIN-2	CARBON-BIN-2	Melt Shop	Carbon Surge Bin #2 [2 drop points]	Carbon	15	131,400	100%	2.20%	3.21E-03	1.52E-03	2.30E-04	Indoor	N/A	Open	90.00%	--
LIME-DUMP-FUG	LIME-DUMP	Melt Shop	Lime Dump Station Fugitives	Lime	8	70,000	100%	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	100%	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	100%	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 pile	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 output pile	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 scrap 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 scrap 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 scrap screen to P3 scrap pile	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 scrap pile	Slag	0	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 P5 product pile	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 P7 product pile	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 P6 product pile	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 P8 product pile	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 productstockp	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 &dur	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 Conservatively assumed 100%.
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	177,625	4.08	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	368	0.01	365	13.2	6.24	0.95	3.5	1.66	0.25	Water	70%
SCRPSKP1	SCRPSKP1	Scrap Handle	Scrap Metal Stockpile 1	Scrap	342,030	7.85	365	13.2	6.24	0.95	3.5	1.66	0.25	Water	70%
SCRPSKP2	SCRPSKP2	Scrap Handle	Scrap Metal Stockpile 2	Scrap	342,030	7.85	365	13.2	6.24	0.95	3.5	1.66	0.25	Water	70%
SCRPSKP3	SCRPSKP3	Scrap Handle	Scrap Metal Stockpile 3	Scrap	342,030	7.85	365	13.2	6.24	0.95	3.5	1.66	0.25	Water	70%
SCRPSKP4	SCRPSKP4	Scrap Handle	Scrap Metal Stockpile 4	Scrap	342,030	7.85	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 Corporation - West Virginia Steel Mill
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	200,000	117,716	0.01	0.01	0.01
SM-BH	SM	Hot Mill	Scarfing Machine	170,000	85,557	0.01	0.01	0.01

[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 Scrubber	16,271	6	95%	99%
PLST-2	PKL-2	Cold Mill	Pickling Line Scrubber	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]		
						PM (gr/dscf)	PM_{10} (gr/dscf)	$PM_{2.5}$ (gr/dscf)
PLST-1	PKL-1	Cold Mill	Pickling Line 1	27,645	16,271	0.01	0.01	0.01
PLST-2	PKL-2	Cold Mill	Pickling Line 2	12,207	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	217,000	0.01	0.01	0.01
STM-BH	STM	Cold Mill	Standalone Temper Mill	72,000	45,000	0.0025	0.0024	0.0013
SPMST1	SPM1	Cold Mill	Skin Pass Mill Baghouse #1	68,400	40,259	0.01	0.01	0.01
SPMST2	SPM2	Cold Mill	Skin Pass Mill Baghouse #2	45,000	24,587	0.01	0.01	0.01
SPMST3	SPM3	Cold Mill	Skin Pass Mill Baghouse #3	45,000	24,587	0.01	0.01	0.01

[1] Based on anticipated BACT emission limits.

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	24,000	12,247	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	24,000	12,247	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.

Nucor Corporation - West Virginia Steel Mill
Emissions Calculation Inputs and Assumptions

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)
EMGEN1	EMGEN1	Melt Shop	Emergency Generator 1	2000	500	1.37E-02
EMGEN2	EMGEN2	Caster/HM	Emergency Generator 2	2000	500	1.37E-02
EMGEN3	EMGEN3	Caster/HM	Emergency Generator 3	2000	500	1.37E-02
EMGEN4	EMGEN4	Galvanizing Line	Emergency Generator 4	2000	500	1.37E-02
EMGEN5	EMGEN5	Galvanizing Line	Emergency Generator 5	2000	500	1.37E-02
EMGEN6	EMGEN6	Galvanizing Line	Emergency Generator 6	2000	500	1.37E-02

Emission Point ID	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)
EMGEN1	2.0	4.0	5.88E-04	1.0	0.04831	53.06	0.001	0.0001
EMGEN2	2.0	4.0	5.88E-04	1.0	0.04831	53.06	0.001	0.0001
EMGEN3	2.0	4.0	5.88E-04	1.0	0.04831	53.06	0.001	0.0001
EMGEN4	2.0	4.0	5.88E-04	1.0	0.04831	53.06	0.001	0.0001
EMGEN5	2.0	4.0	5.88E-04	1.0	0.04831	53.06	0.001	0.0001
EMGEN6	2.0	4.0	5.88E-04	1.0	0.04831	53.06	0.001	0.0001

Emission Point ID	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	4.41E-03	8.82E-03	4.12E-06	2.20E-03	3.38E-04	116.98	2.20E-03	2.20E-04
EMGEN2	4.41E-03	8.82E-03	4.12E-06	2.20E-03	3.38E-04	116.98	2.20E-03	2.20E-04
EMGEN3	4.41E-03	8.82E-03	4.12E-06	2.20E-03	3.38E-04	116.98	2.20E-03	2.20E-04
EMGEN4	4.41E-03	8.82E-03	4.12E-06	2.20E-03	3.38E-04	116.98	2.20E-03	2.20E-04
EMGEN5	4.41E-03	8.82E-03	4.12E-06	2.20E-03	3.38E-04	116.98	2.20E-03	2.20E-04
EMGEN6	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. Emergency operations limited to 500 hours per year consistent with the emergency generator general permit.
[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.

Nucor Corporation - West Virginia Steel Mill
Emissions Calculation Inputs and Assumptions

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.

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)	Throughput Annual (gal/yr)	Throughput 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	365000	30000
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 Corporation - West Virginia Steel Mill
Summary of Proposed Hourly and Annual Emissions

Emission	Emission		NO_X		CO		SO_2		VOC		PM		PM_{10}		$PM_{2.5}$		Lead		Total HAPs[1]	
Point ID	Unit ID	Emission Source	(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	58.91	258.38	341.83	1,499	40.36	177.00	76.99	337.69	17.03	74.58	49.19	215.45	49.19	215.45	0.08	0.33	0.18	0.78
BHST-2	EAF2/LMF2/CAST2	Pulse Jet Fabric Filter Baghouse 2	58.91	258.38	341.83	1,499	40.36	177.00	76.99	337.69	17.03	74.58	49.19	215.45	49.19	215.45	0.08	0.33	0.18	0.78
MSFUG	MSFUG	Uncaptured Electric Arc Furnace Fugitives	1.88	8.25	7.18	31.50	1.37	6.00	1.62	7.13	0.19	0.85	0.11	0.49	0.11	0.49	1.54E-03	6.75E-03	1.47E-03	6.46E-03
CASTFUG	CASTFUG	Uncaptured Casting Fugitives	--	--	--	--	--	--	--	--	0.21	0.90	0.21	0.90	0.21	0.90	--	--	--	--
EAFVF1	EAFVF1	EAF Baghouse 1 Dust Silo	--	--	--	--	--	--	--	--	0.09	0.38	0.09	0.38	0.09	0.38	--	--	--	--
EAFVF2	EAFVF2	EAF Baghouse 2 Dust Silo	--	--	--	--	--	--	--	--	0.09	0.38	0.09	0.38	0.09	0.38	--	--	--	--
Emissions Group 2: Meltshop Sources: Preheaters and Dryers																				
MSFUG	LD	Ladle Dryer Fugitives	1.47	6.44	1.24	5.41	8.82E-03	0.04	0.08	0.35	0.03	0.12	0.11	0.49	0.11	0.49	--	--	1.38E-03	6.06E-03
MSFUG	LPHTR1	Horizontal Ladle Preheater 1 Fugitives	1.47	6.44	1.24	5.41	8.82E-03	0.04	0.08	0.35	0.03	0.12	0.11	0.49	0.11	0.49	--	--	1.38E-03	6.06E-03
MSFUG	LPHTR2	Horizontal Ladle Preheater 2 Fugitives	1.47	6.44	1.24	5.41	8.82E-03	0.04	0.08	0.35	0.03	0.12	0.11	0.49	0.11	0.49	--	--	1.38E-03	6.06E-03
MSFUG	LPHTR3	Horizontal Ladle Preheater 3 Fugitives	1.47	6.44	1.24	5.41	8.82E-03	0.04	0.08	0.35	0.03	0.12	0.11	0.49	0.11	0.49	--	--	1.38E-03	6.06E-03
MSFUG	LPHTR4	Horizontal Ladle Preheater 4 Fugitives	1.47	6.44	1.24	5.41	8.82E-03	0.04	0.08	0.35	0.03	0.12	0.11	0.49	0.11	0.49	--	--	1.38E-03	6.06E-03
MSFUG	LPHTR5	Horizontal Ladle Preheater 5 Fugitives	1.47	6.44	1.24	5.41	8.82E-03	0.04	0.08	0.35	0.03	0.12	0.11	0.49	0.11	0.49	--	--	1.38E-03	6.06E-03
MSFUG	LPHTR6	Vertical Ladle Preheater 6 Fugitives	1.47	6.44	1.24	5.41	8.82E-03	0.04	0.08	0.35	0.03	0.12	0.11	0.49	0.11	0.49	--	--	1.38E-03	6.06E-03
MSFUG	LPHTR7	Vertical Ladle Preheater 7 Fugitives	1.47	6.44	1.24	5.41	8.82E-03	0.04	0.08	0.35	0.03	0.12	0.11	0.49	0.11	0.49	--	--	1.38E-03	6.06E-03
MSFUG	TD	Tundish Dryer 1	0.59	2.58	0.49	2.16	3.53E-03	0.02	0.03	0.14	0.01	0.05	0.04	0.20	0.04	0.20	--	--	0.01	0.05
MSFUG	TPHTR1	Tundish Preheater 1	0.88	3.86	0.74	3.25	5.29E-03	0.02	0.05	0.21	0.02	0.07	0.07	0.29	0.07	0.29	--	--	0.02	0.07
MSFUG	TPHTR2	Tundish Preheater 2	0.88	3.86	0.74	3.25	5.29E-03	0.02	0.05	0.21	0.02	0.07	0.07	0.29	0.07	0.29	--	--	0.02	0.07
MSFUG	SENPHTR1	Subentry Nozzle (SEN) Preheater 1	0.10	0.43	0.08	0.36	5.88E-04	2.58E-03	5.39E-03	0.02	1.96E-04	8.59E-04	5.10E-04	2.23E-03	5.10E-04	2.23E-03	--	--	1.85E-03	8.08E-03
MSFUG	SENPHTR2	Subentry Nozzle (SEN) Preheater 2	0.10	0.43	0.08	0.36	5.88E-04	2.58E-03	5.39E-03	0.02	1.96E-04	8.59E-04	5.10E-04	2.23E-03	5.10E-04	2.23E-03	--	--	1.85E-03	8.08E-03
Emissions Group 3: Meltshop Sources: Vacuum Tank Degassers																				
VTDST1	VTD1	Vacuum Tank 1	0.84	3.69	5.38	14.93	7.28E-03	0.03	1.73	7.60	0.07	0.33	0.07	0.33	0.07	0.33	--	--	0.02	0.10
VTDST2	VTD2	Vacuum Tank 2	0.84	3.69	5.38	14.93	7.28E-03	0.03	1.73	7.60	0.07	0.33	0.07	0.33	0.07	0.33	--	--	0.02	0.10
Emissions Group 4: Hot Mill : Furnaces																				
TFST-1	TF1	Hot Mill Tunnel Furnace 1	10.50	45.99	12.35	54.11	0.09	0.39	0.81	3.54	0.28	1.22	1.12	4.90	1.12	4.90	--	--	0.28	1.21
TFST-2	TF2	Hot Mill Tunnel Furnace 2	10.50	45.99	12.35	54.11	0.09	0.39	0.81	3.54	0.28	1.22	1.12	4.90	1.12	4.90	--	--	0.28	1.21
Emissions Group 5: Hot Mill : Misc.																				
RM-BH	RM	Rolling Mill	--	--	--	--	--	--	--	--	10.09	44.19	10.09	44.19	10.09	44.19	--	--	--	--
SM-BH	SM	Scarfing Machine	--	--	--	--	--	--	--	--	7.33	32.12	7.33	32.12	7.33	32.12	--	--	--	--
Emissions Group 6: Cold Mill : Pickling Lines																				
PLST-1	PKL-1	Pickling Line 1	--	--	--	--	--	--	--	--	1.39	6.11	1.39	6.11	1.39	6.11	--	--	0.56	2.47
PLST-2	PKL-2	Pickling Line 2	--	--	--	--	--	--	--	--	0.62	2.70	0.62	2.70	0.62	2.70	--	--	0.25	1.09
Emissions Group 7: Cold Mill : Mills																				
PKLSB	PKLSB	Pickle Line Scale Breaker	--	--	--	--	--	--	--	--	1.36	5.97	1.36	5.97	1.36	5.97	--	--	--	--
TCMST	TCM	Tandem Cold Mill	--	--	--	--	--	--	--	--	18.60	81.47	18.60	81.47	18.60	81.47	--	--	--	--
STM-BH	STM	Standalone Temper Mill	--	--	--	--	--	--	--	--	0.96	4.22	0.93	4.05	0.50	2.20	--	--	--	--
SPMST1	SPM1	Skin Pass Mill Baghouse #1	--	--	--	--	--	--	--	--	3.45	15.11	3.45	15.11	3.45	15.11	--	--	--	--
SPMST2	SPM2	Skin Pass Mill Baghouse #2	--	--	--	--	--	--	--	--	2.11	9.23	2.11	9.23	2.11	9.23	--	--	--	--
SPMST3	SPM3	Skin Pass Mill Baghouse #3	--	--	--	--	--	--	--	--	2.11	9.23	2.11	9.23	2.11	9.23	--	--	--	--
Emissions Group 8: Cold Mill : Pickling Line Boilers																				
CMBLR1	CMBLR1	Pickling Line Boiler 1	1.00	4.38	1.65	7.21	0.01	0.05	0.11	0.47	0.04	0.16	0.15	0.65	0.15	0.65	--	--	0.04	0.16
CMBLR2	CMBLR2	Pickling Line Boiler 2	1.00	4.38	1.65	7.21	0.01	0.05	0.11	0.47	0.04	0.16	0.15	0.65	0.15	0.65	--	--	0.04	0.16
CMBLR3	CMBLR3	Pickling Line Boiler 3	1.00	4.38	1.65	7.21	0.01	0.05	0.11	0.47	0.04	0.16	0.15	0.65	0.15	0.65	--	--	0.04	0.16
Emissions Group 9: Cold Mill : Galvanizing Lines																				
CGL1-ST1	CGL1	CGL1 - Cleaning Section	--	--	--	--	--	--	--	--	0.31	1.38	0.31	1.38	0.31	1.38	--	--	--	--
CGL1-ST2	CGL1	CGL1 - Passivation Section	--	--	--	--	--	--	--	--	0.24	1.05	0.24	1.05	0.24	1.05	--	--	--	--
CGL2-ST1	CGL2	CGL2 - Cleaning Section	--	--	--	--	--	--	--	--	0.31	1.38	0.31	1.38	0.31	1.38	--	--	--	--
CGL2-ST2	CGL2	CGL2 - Passivation Section	--	--	--	--	--	--	--	--	0.24	1.05	0.24	1.05	0.24	1.05	--	--	--	--
Emissions Group 10: Cold Mill : Galvanizing Line Furnaces																				
GALVFN1-ST	GALVFN1	Galvanizing Furnace #1	4.15	18.18	6.84	29.94	0.05	0.21	0.45	1.96	0.15	0.68	0.62	2.71	0.62	2.71	--	--	0.15	0.67
GALVFN2-ST	GALVFN2	Galvanizing Furnace #2	4.15	18.18	6.84	29.94	0.05	0.21	0.45	1.96	0.15	0.68	0.62	2.71	0.62	2.71	--	--	0.15	0.67
Emissions Group 11: Cold Mill : Annealing Furnaces																				
GALVFUG	BOXANN1	Box Annealing Furnace #1	0.98	4.29	0.82	3.61	5.88E-03	0.03	0.05	0.24	0.02	0.08	0.07	0.33	0.07	0.33	--	--	0.02	0.08
GALVFUG	BOXANN2	Box Annealing Furnace #2	0.98	4.29	0.82	3.61	5.88E-03	0.03	0.05	0.24	0.02	0.08	0.07	0.33	0.07	0.33	--	--	0.02	0.08
GALVFUG	BOXANN3	Box Annealing Furnace #3	0.98	4.29	0.82	3.61	5.88E-03	0.03	0.05	0.24	0.02	0.08	0.07	0.33	0.07	0.33	--	--	0.02	0.08
GALVFUG	BOXANN4	Box Annealing Furnace #4	0.98	4.29	0.82	3.61	5.88E-03	0.03	0.05	0.24	0.02	0.08	0.07	0.33	0.07	0.33	--	--	0.02	0.08
GALVFUG	BOXANN5	Box Annealing Furnace #5	0.98	4.29	0.82	3.61	5.88E-03	0.03	0.05	0.24	0.02	0.08	0.07	0.33	0.07	0.33	--	--	0.02	0.08
GALVFUG	BOXANN6	Box Annealing Furnace #6	0.98	4.29	0.82	3.61	5.88E-03	0.03	0.05	0.24	0.02	0.08	0.07	0.33	0.07	0.33	--	--	0.02	0.08
GALVFUG	BOXANN7	Box Annealing Furnace #7	0.98	4.29	0.82	3.61	5.88E-03	0.03	0.05	0.24	0.02	0.08	0.07	0.33	0.07	0.33	--	--	0.02	0.08
GALVFUG	BOXANN8	Box Annealing Furnace #8	0.98	4.29	0.82	3.61	5.88E-03	0.03	0.05	0.24	0.02	0.08	0.07	0.33	0.07	0.33	--	--	0.02	0.08
GALVFUG	BOXANN9	Box Annealing Furnace #9	0.98	4.29	0.82	3.61	5.88E-03	0.03	0.05	0.24	0.02	0.08	0.07	0.33	0.07	0.33	--	--	0.02	0.08

Nucor Corporation - West Virginia Steel Mill
Summary of Proposed Hourly and Annual Emissions

Emission	Emission		NO_X		CO		SO_2		VOC		PM		PM_{10}		$PM_{2.5}$		Lead		Total HAPs[1]	
Point ID	Unit ID	Emission Source	(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)
GALVFUG	BOXANN10	Box Annealing Furnace #10	0.98	4.29	0.82	3.61	5.88E-03	0.03	0.05	0.24	0.02	0.08	0.07	0.33	0.07	0.33	--	--	0.02	0.08
GALVFUG	BOXANN11	Box Annealing Furnace #11	0.98	4.29	0.82	3.61	5.88E-03	0.03	0.05	0.24	0.02	0.08	0.07	0.33	0.07	0.33	--	--	0.02	0.08
GALVFUG	BOXANN12	Box Annealing Furnace #12	0.98	4.29	0.82	3.61	5.88E-03	0.03	0.05	0.24	0.02	0.08	0.07	0.33	0.07	0.33	--	--	0.02	0.08
GALVFUG	BOXANN13	Box Annealing Furnace #13	0.98	4.29	0.82	3.61	5.88E-03	0.03	0.05	0.24	0.02	0.08	0.07	0.33	0.07	0.33	--	--	0.02	0.08
GALVFUG	BOXANN14	Box Annealing Furnace #14	0.98	4.29	0.82	3.61	5.88E-03	0.03	0.05	0.24	0.02	0.08	0.07	0.33	0.07	0.33	--	--	0.02	0.08
GALVFUG	BOXANN15	Box Annealing Furnace #15	0.98	4.29	0.82	3.61	5.88E-03	0.03	0.05	0.24	0.02	0.08	0.07	0.33	0.07	0.33	--	--	0.02	0.08
GALVFUG	BOXANN16	Box Annealing Furnace #16	0.98	4.29	0.82	3.61	5.88E-03	0.03	0.05	0.24	0.02	0.08	0.07	0.33	0.07	0.33	--	--	0.02	0.08
GALVFUG	BOXANN17	Box Annealing Furnace #17	0.98	4.29	0.82	3.61	5.88E-03	0.03	0.05	0.24	0.02	0.08	0.07	0.33	0.07	0.33	--	--	0.02	0.08
GALVFUG	BOXANN18	Box Annealing Furnace #18	0.98	4.29	0.82	3.61	5.88E-03	0.03	0.05	0.24	0.02	0.08	0.07	0.33	0.07	0.33	--	--	0.02	0.08
GALVFUG	BOXANN19	Box Annealing Furnace #19	0.98	4.29	0.82	3.61	5.88E-03	0.03	0.05	0.24	0.02	0.08	0.07	0.33	0.07	0.33	--	--	0.02	0.08
GALVFUG	BOXANN20	Box Annealing Furnace #20	0.98	4.29	0.82	3.61	5.88E-03	0.03	0.05	0.24	0.02	0.08	0.07	0.33	0.07	0.33	--	--	0.02	0.08
GALVFUG	BOXANN21	Box Annealing Furnace #21	0.98	4.29	0.82	3.61	5.88E-03	0.03	0.05	0.24	0.02	0.08	0.07	0.33	0.07	0.33	--	--	0.02	0.08
GALVFUG	BOXANN22	Box Annealing Furnace #22	0.98	4.29	0.82	3.61	5.88E-03	0.03	0.05	0.24	0.02	0.08	0.07	0.33	0.07	0.33	--	--	0.02	0.08
Emissions Group 12: Material Handling System																				
LCB-ST	LCB	Lime, Carbon, and Briquetter Silos	--	--	--	--	--	--	--	--	1.63	7.13	1.63	7.13	1.63	7.13	--	--	--	--
ALLOY-HANDLE-ST	ALLOY-HANDLE	Alloy Handling System	--	--	--	--	--	--	--	--	0.16	0.71	0.16	0.71	0.16	0.71	--	--	--	--
ALLOY-HANDLE-FUG	ALLOY-HANDLE	Alloy Handling System Fugitives	--	--	--	--	--	--	--	--	0.13	0.19	0.04	0.07	6.59E-03	0.01	--	--	--	--
ALLOY-BIN-1	ALLOY-BIN-1	Alloy Storage Bins #1	--	--	--	--	--	--	--	--	0.02	0.10	0.01	0.05	1.57E-03	6.90E-03	--	--	--	--
ALLOY-BIN-2	ALLOY-BIN-2	Alloy Storage Bins #2	--	--	--	--	--	--	--	--	0.02	0.10	0.01	0.05	1.57E-03	6.90E-03	--	--	--	--
ALLOY-BIN-3	ALLOY-BIN-3	Alloy Storage Bins #3	--	--	--	--	--	--	--	--	0.02	0.10	0.01	0.05	1.57E-03	6.90E-03	--	--	--	--
ALLOY-BIN-4	ALLOY-BIN-4	Alloy Storage Bins #4	--	--	--	--	--	--	--	--	0.02	0.10	0.01	0.05	1.57E-03	6.90E-03	--	--	--	--
ALLOY-BIN-5	ALLOY-BIN-5	Alloy Storage Bins #5	--	--	--	--	--	--	--	--	0.02	0.10	0.01	0.05	1.57E-03	6.90E-03	--	--	--	--
ALLOY-BIN-6	ALLOY-BIN-6	Alloy Storage Bins #6	--	--	--	--	--	--	--	--	0.02	0.10	0.01	0.05	1.57E-03	6.90E-03	--	--	--	--
ALLOY-BIN-7	ALLOY-BIN-7	Alloy Storage Bins #7	--	--	--	--	--	--	--	--	0.02	0.10	0.01	0.05	1.57E-03	6.90E-03	--	--	--	--
ALLOY-BIN-8	ALLOY-BIN-8	Alloy Storage Bins #8	--	--	--	--	--	--	--	--	0.02	0.10	0.01	0.05	1.57E-03	6.90E-03	--	--	--	--
CARBON-DUMP-ST	CARBON-DUMP	Carbon Dump Station	--	--	--	--	--	--	--	--	0.09	0.38	0.09	0.38	0.09	0.38	--	--	--	--
CARBON-DUMP-FUG	CARBON-DUMP	Carbon Dump Station Fugitives	--	--	--	--	--	--	--	--	0.02	0.11	8.69E-03	0.04	1.32E-03	5.76E-03	--	--	--	--
CARBON-BIN-1	CARBON-BIN-1	Carbon Surge Bin #1 [2 drop points]	--	--	--	--	--	--	--	--	0.10	0.42	0.05	0.20	6.90E-03	0.03	--	--	--	--
CARBON-BIN-2	CARBON-BIN-2	Carbon Surge Bin #2 [2 drop points]	--	--	--	--	--	--	--	--	9.63E-03	0.04	4.55E-03	0.02	6.90E-04	3.02E-03	--	--	--	--
LIME-DUMP-ST	LIME-DUMP	Lime Dump Station	--	--	--	--	--	--	--	--	0.09	0.38	0.09	0.38	0.09	0.38	--	--	--	--
LIME-DUMP-FUG	LIME-DUMP	Lime Dump Station Fugitives	--	--	--	--	--	--	--	--	0.05	0.22	0.02	0.08	2.63E-03	0.01	--	--	--	--
DRI-DOCK-ST	DRI-DOCK	DRI Unloading Dock (two units)	--	--	--	--	--	--	--	--	0.03	0.15	0.03	0.15	0.02	0.07	--	--	--	--
DRIVF1	DRI1	DRI Storage Silo 1 - Baghouse	--	--	--	--	--	--	--	--	0.20	0.88	0.20	0.88	0.10	0.43	--	--	--	--
DRIBV1	DRI1	DRI Storage Silo 1 - Bin Vent	--	--	--	--	--	--	--	--	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	--	--	--	--	--	--	--	--	0.20	0.88	0.20	0.88	0.10	0.43	--	--	--	--
DRIBV2	DRI2	DRI Storage Silo 2 - Bin Vent	--	--	--	--	--	--	--	--	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	--	--	--	--	--	--	--	--	0.20	0.88	0.20	0.88	0.10	0.43	--	--	--	--
DRIBV3	DRI3	DRI Storage Silo 3 - Bin Vent	--	--	--	--	--	--	--	--	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	--	--	--	--	--	--	--	--	0.20	0.88	0.20	0.88	0.10	0.43	--	--	--	--
DRIBV4	DRI4	DRI Storage Silo 4 - Bin Vent	--	--	--	--	--	--	--	--	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	--	--	--	--	--	--	--	--	0.01	0.05	0.01	0.05	5.04E-03	0.02	--	--	--	--
DRI-DB2-BH	DRI-DB2	DRI Day Bin #2	--	--	--	--	--	--	--	--	0.01	0.05	0.01	0.05	5.04E-03	0.02	--	--	--	--
DRI-CONV-BH	DRI-CONV	DRI Transfer Conveyors	--	--	--	--	--	--	--	--	0.01	0.05	0.01	0.05	5.04E-03	0.02	--	--	--	--
DRI-DOCK-FUG	DRI-DOCK	DRI Unloading Dock - Fugitives	--	--	--	--	--	--	--	--	6.53	3.64	3.09	1.72	0.47	0.26	--	--	--	--
BULK-DRI-1	BULK-DRI	DRI Silo #1 Loadout	--	--	--	--	--	--	--	--	0.83	3.64	0.39	1.72	0.06	0.26	--	--	--	--
BULK-DRI-2	BULK-DRI	DRI Silo #2 Loadout	--	--	--	--	--	--	--	--	0.83	3.64	0.39	1.72	0.06	0.26	--	--	--	--
DRI-EMG-1	BULK-DRI	DRI Conveyor #1 Emergency Chute	--	--	--	--	--	--	--	--	6.53	0.01	3.09	6.17E-03	0.47	9.35E-04	--	--	--	--
DRI-EMG-2	BULK-DRI	DRI Silos Emergency Chute	--	--	--	--	--	--	--	--	41.77	0.38	19.76	0.18	2.99	0.03	--	--	--	--
SCRAP-DOCK-FUG	SCRAP-DOCK	Barge Scrap Unloading	--	--	--	--	--	--	--	--	0.18	0.22	0.09	0.11	0.03	0.03	--	--	--	--
SCRAP-RAIL-FUG	SCRAP-RAIL	Rail Scrap Unloading	--	--	--	--	--	--	--	--	0.06	0.03	0.03	0.01	8.60E-03	4.14E-03	--	--	--	--
SCRAP-BULK34	SCRAP-BULK34	Barge Scrap Pile Loading	--	--	--	--	--	--	--	--	0.55	0.66	0.26	0.31	0.04	0.05	--	--	--	--
SCRAP-BULK35	SCRAP-BULK35	Barge Scrap Pile Loadout	--	--	--	--	--	--	--	--	0.25	0.66	0.12	0.31	0.02	0.05	--	--	--	--
SCRAP-BULK36	SCRAP-BULK36	Rail Scrap Pile Loading	--	--	--	--	--	--	--	--	0.11	0.09	0.05	0.04	7.85E-03	6.29E-03	--	--	--	--
SCRAP-BULK37	SCRAP-BULK37	Rail Scrap Pile Loadout	--	--	--	--	--	--	--	--	0.25	0.09	0.12	0.04	0.02	6.29E-03	--	--	--	--
SCRAP-BULK38	SCRAP-BULK38	Truck Scrap Pile Loading	--	--	--	--	--	--	--	--	0.18	0.13	0.09	0.06	0.01	9.44E-03	--	--	--	--
SCRAP-BULK39	SCRAP-BULK39	Truck Scrap Pile Loadout	--	--	--	--	--	--	--	--	0.25	0.13	0.12	0.06	0.02	9.44E-03	--	--	--	--
SCRAP-BULK40	SCRAP-BULK40	Scrap Charging	--	--	--	--	--	--	--	--	0.20	0.88	0.09	0.42	0.01	0.06	--	--	--	--
Emissions Group 13: Slag Processing																				
SCRAP-BULK1	SCRAP-BULK1	Dig slag inside pot barn	--	--	--	--	--	--	--	--	0.16	0.29	0.08	0.14	0.03	0.05	--	--	--	--
SCRAP-BULK2	SCRAP-BULK2	Loader transport & dump slag into quench	--	--	--	--	--	--	--	--	0.16	0.29	0.08	0.14	0.03	0.05	--	--	--	--
SCRAP-BULK3	SCRAP-BULK3	Loader transport & dump into F1 feed hopper/grizzly	--	--	--	--	--	--	--	--	0.06	0.12	0.03	0.06	0.01	0.02	--	--	--	--
SCRAP-BULK4	SCRAP-BULK4	F1 feed hopper/grizzly to P1 oversize pile	--	--	--	--	--	--	--	--	0.07	0.13	0.03	0.05	0.03	0.05	--	--	--	--
SCRAP-BULK5	SCRAP-BULK5	F1 feed hopper/grizzly to C7 crusher conveyor	--	--	--	--	--	--	--	--	1.49E-03	2.69E-03	5.20E-04	9.36E-04	5.20E-04	9.36E-04	--	--	--	--

Nucor Corporation - West Virginia Steel Mill
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)	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)
SCRAP-BULK6	SCRAP-BULK6	F1 feed hopper/grizzly to C1A main conveyor	--	--	--	--	--	--	--	--	0.02	0.04	7.80E-03	0.01	7.80E-03	0.01	--	--	--	--
SCRAP-BULK7	SCRAP-BULK7	C7 to CR1 crusher	--	--	--	--	--	--	--	--	6.10E-03	0.01	2.24E-03	4.03E-03	2.24E-03	4.03E-03	--	--	--	--
SCRAP-BULK8	SCRAP-BULK8	CR1 crusher to C8 conveyor	--	--	--	--	--	--	--	--	0.03	0.05	0.01	0.02	0.01	0.02	--	--	--	--
SCRAP-BULK9	SCRAP-BULK9	CR1 crusher to P2 output pile	--	--	--	--	--	--	--	--	0.02	0.04	9.95E-03	0.02	9.95E-03	0.02	--	--	--	--
SCRAP-BULK10	SCRAP-BULK10	C8 conveyor to C9 conveyor	--	--	--	--	--	--	--	--	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	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	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	0.02	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	0.02	3.07E-03	5.53E-03	3.07E-03	5.53E-03	--	--	--	--
SCRAP-BULK15	SCRAP-BULK15	C1 conveyor through M1 mag splitter to S2 scrap screen	--	--	--	--	--	--	--	--	8.09E-03	0.01	2.97E-03	5.34E-03	2.97E-03	5.34E-03	--	--	--	--
SCRAP-BULK16	SCRAP-BULK16	S2 scrap screen to C6 conveyor	--	--	--	--	--	--	--	--	5.01E-03	9.02E-03	1.74E-03	3.14E-03	1.74E-03	3.14E-03	--	--	--	--
SCRAP-BULK17	SCRAP-BULK17	S2 scrap screen to P3 scrap pile	--	--	--	--	--	--	--	--	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 scrap pile	--	--	--	--	--	--	--	--	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	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	1.19E-03	2.14E-03	1.19E-03	2.14E-03	--	--	--	--
SCRAP-BULK21	SCRAP-BULK21	C5 conveyor to P5 product pile	--	--	--	--	--	--	--	--	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	--	--	--	--	--	--	--	--	0.06	0.10	0.02	0.03	0.02	0.03	--	--	--	--
SCRAP-BULK23	SCRAP-BULK23	C4 conveyor to P7 product pile	--	--	--	--	--	--	--	--	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	--	--	--	--	--	--	--	--	0.04	0.07	0.01	0.03	0.01	0.03	--	--	--	--
SCRAP-BULK25	SCRAP-BULK25	C3 conveyor to P6 product pile	--	--	--	--	--	--	--	--	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 P8 product pile	--	--	--	--	--	--	--	--	0.03	0.05	9.62E-03	0.02	9.62E-03	0.02	--	--	--	--
SCRAP-BULK27	SCRAP-BULK27	Loader transports & loads products into trucks to productstockpiles	--	--	--	--	--	--	--	--	5.79E-03	0.01	2.83E-03	5.09E-03	1.05E-03	1.89E-03	--	--	--	--
SCRAP-BULK28	SCRAP-BULK28	Truck transports & dumps products into product stockpiles	--	--	--	--	--	--	--	--	0.06	0.12	0.03	0.06	0.01	0.02	--	--	--	--
SCRAP-BULK29	SCRAP-BULK29	Loader transports & loads into trucks, oversize to drop ball	--	--	--	--	--	--	--	--	0.06	0.12	0.03	0.06	0.01	0.02	--	--	--	--
SCRAP-BULK30	SCRAP-BULK30	Truck transports & dumps oversize into drop ball area	--	--	--	--	--	--	--	--	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	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	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	1.23E-03	2.21E-03	1.23E-03	2.21E-03	--	--	--	--
Emissions Group 14: Storage Piles																				
SLGSKP1	SLGSKP1	Slag Stockpile 1	--	--	--	--	--	--	--	--	0.67	2.95	0.32	1.39	0.05	0.21	--	--	--	--
SLGSKP2	SLGSKP2	Slag Stockpile 2	--	--	--	--	--	--	--	--	0.12	0.54	0.06	0.26	8.83E-03	0.04	--	--	--	--
SLGSKP3	SLGSKP3	Slag Stockpile 3	--	--	--	--	--	--	--	--	1.39E-03	6.11E-03	6.60E-04	2.89E-03	9.99E-05	4.37E-04	--	--	--	--
SCRPSKP1	SCRPSKP1	Scrap Metal Stockpile 1	--	--	--	--	--	--	--	--	1.30	5.67	0.61	2.68	0.09	0.41	--	--	--	--
SCRPSKP2	SCRPSKP2	Scrap Metal Stockpile 2	--	--	--	--	--	--	--	--	1.30	5.67	0.61	2.68	0.09	0.41	--	--	--	--
SCRPSKP3	SCRPSKP3	Scrap Metal Stockpile 3	--	--	--	--	--	--	--	--	1.30	5.67	0.61	2.68	0.09	0.41	--	--	--	--
SCRPSKP4	SCRPSKP4	Scrap Metal Stockpile 4	--	--	--	--	--	--	--	--	1.30	5.67	0.61	2.68	0.09	0.41	--	--	--	--
Emissions Group 15: Slag Cutting																				
SLAG-CUT-BH	SLAG-CUT	Slag Cutting in Slag Processing Area	--	--	--	--	--	--	--	--	0.86	3.75	0.86	3.75	0.86	3.75	--	--	--	--
SLAG-CUT-NG	SLAG-CUT	Slag Cutting in Slag Processing Area	0.24	1.03	0.20	0.87	1.41E-03	6.18E-03	0.01	0.06	4.47E-03	0.02	0.02	0.08	0.02	0.08	--	--	4.43E-03	0.02
Emissions Group 16: Air Separation Plant																				
ASP-1	ASP	Water Bath Vaporizer	1.08	4.72	0.91	3.97	6.47E-03	0.03	0.06	0.26	0.02	0.09	0.08	0.36	0.08	0.36	--	--	0.02	0.09
Emissions Group 17: Cooling Towers																				
CT1	CT1	Melt Shop ICW Cooling Tower	--	--	--	--	--	--	--	--	0.20	0.86	0.20	0.86	0.20	0.86	--	--	--	--
CT2	CT2	Melt Shop DCW Cooling Tower	--	--	--	--	--	--	--	--	0.02	0.10	0.02	0.10	0.02	0.10	--	--	--	--
CT3	CT3	Rolling Mill ICW Cooling Tower	--	--	--	--	--	--	--	--	0.03	0.14	0.03	0.14	0.03	0.14	--	--	--	--
CT4	CT4	Rolling Mill DCW Cooling Tower	--	--	--	--	--	--	--	--	0.09	0.37	0.09	0.37	0.09	0.37	--	--	--	--
CT5	CT5	Rolling Mill/Quench/ACC Cooling Tower	--	--	--	--	--	--	--	--	0.34	1.48	0.34	1.48	0.34	1.48	--	--	--	--
CT6	CT6	Light Plate DCW System	--	--	--	--	--	--	--	--	0.03	0.13	0.03	0.13	0.03	0.13	--	--	--	--
CT7	CT7	Heavy Plate DCW System	--	--	--	--	--	--	--	--	0.01	0.05	0.01	0.05	0.01	0.05	--	--	--	--
CT8	CT8	Air Separation Plant Cooling Tower	--	--	--	--	--	--	--	--	0.05	0.23	0.05	0.23	0.05	0.23	--	--	--	--
Emissions Group 18: Emergency Engines																				
EMGEN1	EMGEN1	Emergency Generator 1	8.82	2.20	17.64	4.41	8.23E-03	2.06E-03	4.41	1.10	0.68	0.17	0.68	0.17	0.68	0.17	--	--	1.14	0.29
EMGEN2	EMGEN2	Emergency Generator 2	8.82	2.20	17.64	4.41	8.23E-03	2.06E-03	4.41	1.10	0.68	0.17	0.68	0.17	0.68	0.17	--	--	1.14	0.29
EMGEN3	EMGEN3	Emergency Generator 3	8.82	2.20	17.64	4.41	8.23E-03	2.06E-03	4.41	1.10	0.68	0.17	0.68	0.17	0.68	0.17	--	--	1.14	0.29
EMGEN4	EMGEN4	Emergency Generator 4	8.82	2.20	17.64	4.41	8.23E-03	2.06E-03	4.41	1.10	0.68	0.17	0.68	0.17	0.68	0.17	--	--	1.14	0.29
EMGEN5	EMGEN5	Emergency Generator 5	8.82	2.20	17.64	4.41	8.23E-03	2.06E-03	4.41	1.10	0.68	0.17	0.68	0.17	0.68	0.17	--	--	1.14	0.29
EMGEN6	EMGEN6	Emergency Generator 6	8.82	2.20	17.64	4.41	8.23E-03	2.06E-03	4.41	1.10	0.68	0.17	0.68	0.17	0.68	0.17	--	--	1.14	0.29
Emissions Group 19: Roadways																				
FUGD-PAVED-01P through 10P	FUGD-PAVED-01P through 10P	Paved Road-Road 01P through 10P	--	--	--	--	--	--	--	--	5.60	24.55	1.12	4.91	0.28	1.21	--	--	--	--
FUGD-UNPAVED-11U through 19U	FUGD-UNPAVED-11U through 19U	Unpaved Road-Road 11U through 19U	--	--	--	--	--	--	--	--	5.78	25.31	1.54	6.75	0.15	0.67	--	--	--	--

Nucor Corporation - West Virginia Steel Mill
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)	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)
Emissions Group 20: Miscellaneous Tanks																				
T1	T1	Diesel Tank	--	--	--	--	--	--	0.07	1.02E-03	--	--	--	--	--	--	--	--	--	--
T2	T2	Diesel Tank	--	--	--	--	--	--	0.07	1.02E-03	--	--	--	--	--	--	--	--	--	--
T3	T3	Diesel Tank	--	--	--	--	--	--	0.07	1.02E-03	--	--	--	--	--	--	--	--	--	--
T4	T4	Diesel Tank	--	--	--	--	--	--	0.07	1.02E-03	--	--	--	--	--	--	--	--	--	--
T5	T5	Diesel Tank	--	--	--	--	--	--	0.07	1.02E-03	--	--	--	--	--	--	--	--	--	--
T6	T6	Diesel Tank	--	--	--	--	--	--	0.07	1.02E-03	--	--	--	--	--	--	--	--	--	--
T7	T7	Gasoline Tank	--	--	--	--	--	--	21.09	0.66	--	--	--	--	--	--	--	--	--	--
T8	T8	Caster Hydraulic Oil	--	--	--	--	--	--	0.01	1.22E-05	--	--	--	--	--	--	--	--	--	--
T9	T9	Hot Mill Hydraulic Oil	--	--	--	--	--	--	0.01	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	--	--	--	--	--	--	0.01	1.22E-05	--	--	--	--	--	--	--	--	--	--
T25	T25	Cold Degreaser	--	--	--	--	--	--	0.07	0.29	--	--	--	--	--	--	--	--	2.29E-03	0.01
T26	T26	Cold Degreaser	--	--	--	--	--	--	0.07	0.29	--	--	--	--	--	--	--	--	2.29E-03	0.01
T27	T27	Cold Degreaser	--	--	--	--	--	--	0.07	0.29	--	--	--	--	--	--	--	--	2.29E-03	0.01
T28	T28	Cold Degreaser	--	--	--	--	--	--	0.07	0.29	--	--	--	--	--	--	--	--	2.29E-03	0.01
T29	T29	Cold Degreaser	--	--	--	--	--	--	0.07	0.29	--	--	--	--	--	--	--	--	2.29E-03	0.01
		TOTAL:	**243.79**	**850.00**	**881.97**	**3,413**	**82.68**	**362.41**	**212.28**	**727.82**	**171.35**	**489.02**	**197.13**	**731.02**	**167.81**	**700.29**	**0.15**	**0.68**	**10.11**	**13.55**
		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 Corporation - West Virginia Steel Mill
Summary of Proposed Hourly and Annual Emissions

Emission Point ID	Emission Unit ID	Emission Source	CO_2 (lb/hr)	CO_2 (tpy)	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	49,824	186,897	0.05	0.21	4.84E-03	0.02	49,826	186,909
BHST-2	EAF2/LMF2/CAST2	Pulse Jet Fabric Filter Baghouse 2	49,824	186,897	0.05	0.21	4.84E-03	0.02	49,826	186,909
MSFUG	MSFUG	Uncaptured Electric Arc Furnace Fugitives	1,007	3,776	9.78E-04	4.28E-03	9.78E-05	4.28E-04	1,007	3,776
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	1,755	7,685	0.03	0.14	3.31E-03	0.01	1,756	7,693
MSFUG	LPHTR1	Horizontal Ladle Preheater 1 Fugitives	1,755	7,685	0.03	0.14	3.31E-03	0.01	1,756	7,693
MSFUG	LPHTR2	Horizontal Ladle Preheater 2 Fugitives	1,755	7,685	0.03	0.14	3.31E-03	0.01	1,756	7,693
MSFUG	LPHTR3	Horizontal Ladle Preheater 3 Fugitives	1,755	7,685	0.03	0.14	3.31E-03	0.01	1,756	7,693
MSFUG	LPHTR4	Horizontal Ladle Preheater 4 Fugitives	1,755	7,685	0.03	0.14	3.31E-03	0.01	1,756	7,693
MSFUG	LPHTR5	Horizontal Ladle Preheater 5 Fugitives	1,755	7,685	0.03	0.14	3.31E-03	0.01	1,756	7,693
MSFUG	LPHTR6	Vertical Ladle Preheater 6 Fugitives	1,755	7,685	0.03	0.14	3.31E-03	0.01	1,756	7,693
MSFUG	LPHTR7	Vertical Ladle Preheater 7 Fugitives	1,755	7,685	0.03	0.14	3.31E-03	0.01	1,756	7,693
MSFUG	TD	Tundish Dryer 1	701.86	3,074	0.01	0.06	1.32E-03	5.79E-03	702.59	3,077
MSFUG	TPHTR1	Tundish Preheater 1	1,053	4,611	0.02	0.09	1.98E-03	8.69E-03	1,054	4,616
MSFUG	TPHTR2	Tundish Preheater 2	1,053	4,611	0.02	0.09	1.98E-03	8.69E-03	1,054	4,616
MSFUG	SENPHTR1	Subentry Nozzle (SEN) Preheater 1	116.98	512.36	2.20E-03	9.66E-03	2.20E-04	9.66E-04	117.10	512.89
MSFUG	SENPHTR2	Subentry Nozzle (SEN) Preheater 2	116.98	512.36	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	1,861	7,497	0.03	0.12	2.73E-03	0.01	1,863	7,504
VTDST2	VTD2	Vacuum Tank 2	1,861	7,497	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	17,547	76,854	0.33	1.45	0.03	0.14	17,565	76,933
TFST-2	TF2	Hot Mill Tunnel Furnace 2	17,547	76,854	0.33	1.45	0.03	0.14	17,565	76,933
Emissions Group 5: Hot Mill : Misc.										
RM-BH	RM	Rolling Mill	--	--	--	--	--	--	--	--
SM-BH	SM	Scarfing Machine	--	--	--	--	--	--	--	--
Emissions Group 6: Cold Mill : Pickling Lines										
PLST-1	PKL-1	Pickling Line 1	--	--	--	--	--	--	--	--
PLST-2	PKL-2	Pickling Line 2	--	--	--	--	--	--	--	--
Emissions Group 7: Cold Mill : Mills										
PKLSB	PKLSB	Pickle Line Scale Breaker	--	--	--	--	--	--	--	--
TCMST	TCM	Tandem Cold Mill	--	--	--	--	--	--	--	--
STM-BH	STM	Standalone Temper Mill	--	--	--	--	--	--	--	--
SPMST1	SPM1	Skin Pass Mill Baghouse #1	--	--	--	--	--	--	--	--
SPMST2	SPM2	Skin Pass Mill Baghouse #2	--	--	--	--	--	--	--	--
SPMST3	SPM3	Skin Pass Mill Baghouse #3	--	--	--	--	--	--	--	--
Emissions Group 8: Cold Mill : Pickling Line Boilers										
CMBLR1	CMBLR1	Pickling Line Boiler 1	2,340	10,247	0.04	0.19	4.41E-03	0.02	2,342	10,258
CMBLR2	CMBLR2	Pickling Line Boiler 2	2,340	10,247	0.04	0.19	4.41E-03	0.02	2,342	10,258
CMBLR3	CMBLR3	Pickling Line Boiler 3	2,340	10,247	0.04	0.19	4.41E-03	0.02	2,342	10,258
Emissions Group 9: 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 10: Cold Mill : Galvanizing Line Furnaces										
GALVFN1-ST	GALVFN1	Galvanizing Furnace #1	9,709	42,526	0.18	0.80	0.02	0.08	9,719	42,570
GALVFN2-ST	GALVFN2	Galvanizing Furnace #2	9,709	42,526	0.18	0.80	0.02	0.08	9,719	42,570
Emissions Group 11: Cold Mill : Annealing Furnaces										
GALVFUG	BOXANN1	Box Annealing Furnace #1	1,170	5,124	0.02	0.10	2.20E-03	9.66E-03	1,171	5,129
GALVFUG	BOXANN2	Box Annealing Furnace #2	1,170	5,124	0.02	0.10	2.20E-03	9.66E-03	1,171	5,129
GALVFUG	BOXANN3	Box Annealing Furnace #3	1,170	5,124	0.02	0.10	2.20E-03	9.66E-03	1,171	5,129
GALVFUG	BOXANN4	Box Annealing Furnace #4	1,170	5,124	0.02	0.10	2.20E-03	9.66E-03	1,171	5,129
GALVFUG	BOXANN5	Box Annealing Furnace #5	1,170	5,124	0.02	0.10	2.20E-03	9.66E-03	1,171	5,129
GALVFUG	BOXANN6	Box Annealing Furnace #6	1,170	5,124	0.02	0.10	2.20E-03	9.66E-03	1,171	5,129
GALVFUG	BOXANN7	Box Annealing Furnace #7	1,170	5,124	0.02	0.10	2.20E-03	9.66E-03	1,171	5,129
GALVFUG	BOXANN8	Box Annealing Furnace #8	1,170	5,124	0.02	0.10	2.20E-03	9.66E-03	1,171	5,129
GALVFUG	BOXANN9	Box Annealing Furnace #9	1,170	5,124	0.02	0.10	2.20E-03	9.66E-03	1,171	5,129

Nucor Corporation - West Virginia Steel Mill
Summary of Proposed Hourly and Annual Emissions

Emission Point ID	Emission Unit ID	Emission Source	CO_2		CH_4		N_2O		CO_2e	
			(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
GALVFUG	BOXANN10	Box Annealing Furnace #10	1,170	5,124	0.02	0.10	2.20E-03	9.66E-03	1,171	5,129
GALVFUG	BOXANN11	Box Annealing Furnace #11	1,170	5,124	0.02	0.10	2.20E-03	9.66E-03	1,171	5,129
GALVFUG	BOXANN12	Box Annealing Furnace #12	1,170	5,124	0.02	0.10	2.20E-03	9.66E-03	1,171	5,129
GALVFUG	BOXANN13	Box Annealing Furnace #13	1,170	5,124	0.02	0.10	2.20E-03	9.66E-03	1,171	5,129
GALVFUG	BOXANN14	Box Annealing Furnace #14	1,170	5,124	0.02	0.10	2.20E-03	9.66E-03	1,171	5,129
GALVFUG	BOXANN15	Box Annealing Furnace #15	1,170	5,124	0.02	0.10	2.20E-03	9.66E-03	1,171	5,129
GALVFUG	BOXANN16	Box Annealing Furnace #16	1,170	5,124	0.02	0.10	2.20E-03	9.66E-03	1,171	5,129
GALVFUG	BOXANN17	Box Annealing Furnace #17	1,170	5,124	0.02	0.10	2.20E-03	9.66E-03	1,171	5,129
GALVFUG	BOXANN18	Box Annealing Furnace #18	1,170	5,124	0.02	0.10	2.20E-03	9.66E-03	1,171	5,129
GALVFUG	BOXANN19	Box Annealing Furnace #19	1,170	5,124	0.02	0.10	2.20E-03	9.66E-03	1,171	5,129
GALVFUG	BOXANN20	Box Annealing Furnace #20	1,170	5,124	0.02	0.10	2.20E-03	9.66E-03	1,171	5,129
GALVFUG	BOXANN21	Box Annealing Furnace #21	1,170	5,124	0.02	0.10	2.20E-03	9.66E-03	1,171	5,129
GALVFUG	BOXANN22	Box Annealing Furnace #22	1,170	5,124	0.02	0.10	2.20E-03	9.66E-03	1,171	5,129
Emissions Group 12: Material Handling System										
LCB-ST	LCB	Lime, Carbon, and Briquetter Silos	--	--	--	--	--	--	--	--
ALLOY-HANDLE-ST	ALLOY-HANDLE	Alloy Handling System	--	--	--	--	--	--	--	--
ALLOY-HANDLE-FUG	ALLOY-HANDLE	Alloy Handling System Fugitives	--	--	--	--	--	--	--	--
ALLOY-BIN-1	ALLOY-BIN-1	Alloy Storage Bins #1	--	--	--	--	--	--	--	--
ALLOY-BIN-2	ALLOY-BIN-2	Alloy Storage Bins #2	--	--	--	--	--	--	--	--
ALLOY-BIN-3	ALLOY-BIN-3	Alloy Storage Bins #3	--	--	--	--	--	--	--	--
ALLOY-BIN-4	ALLOY-BIN-4	Alloy Storage Bins #4	--	--	--	--	--	--	--	--
ALLOY-BIN-5	ALLOY-BIN-5	Alloy Storage Bins #5	--	--	--	--	--	--	--	--
ALLOY-BIN-6	ALLOY-BIN-6	Alloy Storage Bins #6	--	--	--	--	--	--	--	--
ALLOY-BIN-7	ALLOY-BIN-7	Alloy Storage Bins #7	--	--	--	--	--	--	--	--
ALLOY-BIN-8	ALLOY-BIN-8	Alloy Storage Bins #8	--	--	--	--	--	--	--	--
CARBON-DUMP-ST	CARBON-DUMP	Carbon Dump Station	--	--	--	--	--	--	--	--
CARBON-DUMP-FUG	CARBON-DUMP	Carbon Dump Station Fugitives	--	--	--	--	--	--	--	--
CARBON-BIN-1	CARBON-BIN-1	Carbon Surge Bin #1 [2 drop points]	--	--	--	--	--	--	--	--
CARBON-BIN-2	CARBON-BIN-2	Carbon Surge Bin #2 [2 drop points]	--	--	--	--	--	--	--	--
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 13: 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 pile	--	--	--	--	--	--	--	--
SCRAP-BULK5	SCRAP-BULK5	F1 feed hopper/grizzly to C7 crusher conveyor	--	--	--	--	--	--	--	--

Nucor Corporation - West Virginia Steel Mill
Summary of Proposed Hourly and Annual Emissions

Emission Point ID	Emission Unit ID	Emission Source	CO_2		CH_4		N_2O		CO_2e	
			(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
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 output pile	--	--	--	--	--	--	--	--
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 scrap screen	--	--	--	--	--	--	--	--
SCRAP-BULK16	SCRAP-BULK16	S2 scrap screen to C6 conveyor	--	--	--	--	--	--	--	--
SCRAP-BULK17	SCRAP-BULK17	S2 scrap screen to P3 scrap pile	--	--	--	--	--	--	--	--
SCRAP-BULK18	SCRAP-BULK18	C6 conveyor to P4 scrap pile	--	--	--	--	--	--	--	--
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 P5 product pile	--	--	--	--	--	--	--	--
SCRAP-BULK22	SCRAP-BULK22	S1 slag screen to C4 conveyor	--	--	--	--	--	--	--	--
SCRAP-BULK23	SCRAP-BULK23	C4 conveyor to P7 product pile	--	--	--	--	--	--	--	--
SCRAP-BULK24	SCRAP-BULK24	S1 slag screen to C3 conveyor	--	--	--	--	--	--	--	--
SCRAP-BULK25	SCRAP-BULK25	C3 conveyor to P6 product pile	--	--	--	--	--	--	--	--
SCRAP-BULK26	SCRAP-BULK26	S1 slag screen to P8 product pile	--	--	--	--	--	--	--	--
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 14: Storage Piles										
SLGSKP1	SLGSKP1	Slag Stockpile 1	--	--	--	--	--	--	--	--
SLGSKP2	SLGSKP2	Slag Stockpile 2	--	--	--	--	--	--	--	--
SLGSKP3	SLGSKP3	Slag Stockpile 3	--	--	--	--	--	--	--	--
SCRPSKP1	SCRPSKP1	Scrap Metal Stockpile 1	--	--	--	--	--	--	--	--
SCRPSKP2	SCRPSKP2	Scrap Metal Stockpile 2	--	--	--	--	--	--	--	--
SCRPSKP3	SCRPSKP3	Scrap Metal Stockpile 3	--	--	--	--	--	--	--	--
SCRPSKP4	SCRPSKP4	Scrap Metal Stockpile 4	--	--	--	--	--	--	--	--
Emissions Group 15: Slag Cutting										
SLAG-CUT-BH	SLAG-CUT	Slag Cutting in Slag Processing Area	--	--	--	--	--	--	--	--
SLAG-CUT-NG	SLAG-CUT	Slag Cutting in Slag Processing Area	280.75	1,230	5.29E-03	0.02	5.29E-04	2.32E-03	281.04	1,231
Emissions Group 16: Air Separation Plant										
ASP-1	ASP	Water Bath Vaporizer	1,287	5,636	0.02	0.11	2.43E-03	0.01	1,288	5,642
Emissions Group 17: 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 18: Emergency Engines										
EMGEN1	EMGEN1	Emergency Generator 1	1,638	409.42	0.03	7.72E-03	3.09E-03	7.72E-04	1,639	409.84
EMGEN2	EMGEN2	Emergency Generator 2	1,638	409.42	0.03	7.72E-03	3.09E-03	7.72E-04	1,639	409.84
EMGEN3	EMGEN3	Emergency Generator 3	1,638	409.42	0.03	7.72E-03	3.09E-03	7.72E-04	1,639	409.84
EMGEN4	EMGEN4	Emergency Generator 4	1,638	409.42	0.03	7.72E-03	3.09E-03	7.72E-04	1,639	409.84
EMGEN5	EMGEN5	Emergency Generator 5	1,638	409.42	0.03	7.72E-03	3.09E-03	7.72E-04	1,639	409.84
EMGEN6	EMGEN6	Emergency Generator 6	1,638	409.42	0.03	7.72E-03	3.09E-03	7.72E-04	1,639	409.84
Emissions Group 19: 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	--	--	--	--	--	--	--	--

Nucor Corporation - West Virginia Steel Mill
Summary of Proposed Hourly and Annual Emissions

Emission Point ID	Emission Unit ID	Emission Source	CO_2		CH_4		N_2O		CO_2e	
			(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
Emissions Group 20: 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:	**220,114**	**858,912**	**2.33**	**9.46**	**0.23**	**0.95**	**220,241**	**859,430**
		PSD Major Source Thresholds:	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**100,000**
		Major Source?	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**Yes**
		PSD Major Source SER:	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**75,000**
		Major Source Modification?	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**Yes**

Nucor Corporation - West Virginia Steel Mill
HAP Emission Summary

Pollutant	Hourly Emissions (lb/hr)	Annual Emissions (tpy)	Natural Gas Hourly Emissions (lb/hr)	Natural Gas Annual Emissions (tpy)	Emergency Engine Hourly Emissions (lb/hr)	Emergency Engine Annual Emissions (tpy)	EAF Hourly Emissions (lb/hr)	EAF Annual Emissions (tpy)	HCL Sources and Tanks Hourly Emissions (lb/hr)	HCL Sources and Tanks Annual Emissions (tpy)
1,2-Ethanediol	0	0	0	0	0	0	0	0	0	0
1,1,2,2-Tetrachloroethane	5.57E-03	1.39E-03	0	0	5.57E-03	1.39E-03	0	0	0	0
1,1,2-Trichloroethane	4.43E-03	1.11E-03	0	0	4.43E-03	1.11E-03	0	0	0	0
1,3-Butadiene	0.07	0.02	0	0	0.07	0.02	0	0	0	0
1,3-Dichloropropene	3.68E-03	9.20E-04	0	0	3.68E-03	9.20E-04	0	0	0	0
2,2,4-Trimethylpentane	0.07	0.02	0	0	0.07	0.02	0	0	0	0
2-Methylnaphthalene	2.79E-03	6.97E-04	0	0	2.79E-03	6.97E-04	0	0	0	0
Acenaphthene	1.12E-04	2.79E-05	0	0	1.12E-04	2.79E-05	0	0	0	0
Acenaphthylene	4.65E-04	1.16E-04	0	0	4.65E-04	1.16E-04	0	0	0	0
Acetaldehyde	0.70	0.18	0	0	0.70	0.18	0	0	0	0
Acrolein	0.65	0.16	0	0	0.65	0.16	0	0	0	0
Anthracene	6.03E-05	1.51E-05	0	0	6.03E-05	1.51E-05	0	0	0	0
Antimony Nickel Titanium Oxide Yellow	0	0	0	0	0	0	0	0	0	0
Antimony Oxide	0	0	0	0	0	0	0	0	0	0
Antimony Trioxide	0	0	0	0	0	0	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	0.05	1.92E-03	8.39E-03	0.16	0.04	0	0	0	0
Benz(a)anthracene	2.82E-05	7.06E-06	0	0	2.82E-05	7.06E-06	0	0	0	0
Benzo(a)pyrene	4.77E-07	1.19E-07	0	0	4.77E-07	1.19E-07	0	0	0	0
Benzo(b)fluoranthene	1.39E-05	3.49E-06	0	0	1.39E-05	3.49E-06	0	0	0	0
Benzo(e)pyrene	3.49E-05	8.72E-06	0	0	3.49E-05	8.72E-06	0	0	0	0
Benzo(g,h,i)perylene	3.48E-05	8.69E-06	0	0	3.48E-05	8.69E-06	0	0	0	0
Benzo(k)fluoranthene	3.58E-07	8.95E-08	0	0	3.58E-07	8.95E-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	4.45E-03	0	0	0.02	4.45E-03	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	1.27E-03	0	0	5.10E-03	1.27E-03	0	0	0	0
Chlorobenzene	3.73E-03	9.32E-04	0	0	3.73E-03	9.32E-04	0	0	0	0
Chloroform	3.96E-03	9.89E-04	0	0	3.96E-03	9.89E-04	0	0	0	0
Chromium	1.20E-03	5.25E-03	0	0	0	0	1.20E-03	5.25E-03	0	0
Chromium Iron Oxide	0	0	0	0	0	0	0	0	0	0
Chromium Lead Oxide Sulfate	0	0	0	0	0	0	0	0	0	0
Chromium Oxide	0	0	0	0	0	0	0	0	0	0
Chrysene	5.82E-05	1.46E-05	0	0	5.82E-05	1.46E-05	0	0	0	0
Cobalt Chromite Green Spinel	0	0	0	0	0	0	0	0	0	0
Dichlorobenzene	1.09E-03	4.79E-03	1.09E-03	4.79E-03	0	0	0	0	0	0
Dimethyl Phthalate	0	0	0	0	0	0	0	0	0	0

Nucor Corporation - West Virginia Steel Mill
HAP Emission Summary

Pollutant			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)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
Ethenylbenzene	0	0	0	0	0	0	0	0	0	0
Ethyl Benzene	9.07E-03	2.27E-03	0	0	9.07E-03	2.27E-03	0	0	0	0
Ethylene Dibromide	6.17E-03	1.54E-03	0	0	6.17E-03	1.54E-03	0	0	0	0
Fluoranthene	9.32E-05	2.33E-05	0	0	9.32E-05	2.33E-05	0	0	0	0
Fluorene	4.76E-04	1.19E-04	0	0	4.76E-04	1.19E-04	0	0	0	0
Formaldehyde	4.71	1.46	0.07	0.30	4.64	1.16	0	0	0	0
Glycol Ether	0	0	0	0	0	0	0	0	0	0
Hydrogen Chloride	0.64	3.62	0	0	0	0	0	0	0.64	3.62
Indeno(1,2,3-c,d)pyrene	8.34E-07	2.09E-07	0	0	8.34E-07	2.09E-07	0	0	0	0
Iron Manganese Oxide	0	0	0	0	0	0	0	0	0	0
Isophorone	0	0	0	0	0	0	0	0	0	0
Isopropylbenzene/Cumene	0	0	0	0	0	0	0	0	0	0
Lead	0	0	0	0	0	0	0	0	0	0
Lead Chromate Pigment	0	0	0	0	0	0	0	0	0	0
Manganese Compounds	0.10	0.45	0	0	0	0	0.10	0.45	0	0
Mercury	0.04	0.17	0	0	0	0	0.04	0.17	0	0
Methanol	0.26	0.06	0	0	0.26	0.06	0	0	0	0
Methyl Isobutyl Ketone - MIBK	0	0	0	0	0	0	0	0	0	0
Methylene Chloride	0.01	3.09E-03	0	0	0.01	3.09E-03	0	0	0	0
Naphthalene	8.71E-03	4.48E-03	5.56E-04	2.44E-03	8.16E-03	2.04E-03	0	0	0	0
N-Hexane	1.73	7.21	1.64	7.19	0.09	0.02	0	0	0	0
Nickel	1.88E-03	8.25E-03	0	0	0	0	1.88E-03	8.25E-03	0	0
Nickel Oxide	0	0	0	0	0	0	0	0	0	0
PAHs	0.01	3.31E-03	8.04E-05	3.52E-04	0.01	2.96E-03	0	0	0	0
Perylene	4.17E-07	1.04E-07	0	0	4.17E-07	1.04E-07	0	0	0	0
Phenanthrene	8.74E-04	2.18E-04	0	0	8.74E-04	2.18E-04	0	0	0	0
Phenol	3.54E-03	8.84E-04	0	0	3.54E-03	8.84E-04	0	0	0	0
Pyrene	1.14E-04	2.86E-05	0	0	1.14E-04	2.86E-05	0	0	0	0
Strontium Chromate	0	0	0	0	0	0	0	0	0	0
Styrene	4.60E-03	1.15E-03	0	0	4.60E-03	1.15E-03	0	0	0	0
Tetrachloroethane	2.08E-04	5.21E-05	0	0	2.08E-04	5.21E-05	0	0	0	0
Tetrachloroethylene	2.29E-03	0.01	0	0	0	0	0	0	2.29E-03	0.01
Titanium Chrome Antimony Buff	0	0	0	0	0	0	0	0	0	0
Toluene	0.08	0.03	3.10E-03	0.01	0.08	0.02	0	0	0	0
Vinyl Chloride	2.07E-03	5.19E-04	0	0	2.07E-03	5.19E-04	0	0	0	0
Xylene, mixed (Dimethylbenzene)	0.02	5.63E-03	0	0	0.02	5.63E-03	0	0	0	0
Total	**9.37**	**13.51**	**1.72**	**7.52**	**6.86**	**1.71**	**0.15**	**0.65**	**0.65**	**3.63**

Nucor Corporation - West Virginia Steel Mill
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	82.63	361.92	190.88	849.28	163.76	718.27	1929.46	8.77
Dolly Sods Wilderness	240	82.63	361.92	190.88	849.28	163.76	718.27	1929.46	8.04
Shenandoah National Park	302	82.63	361.92	190.88	849.28	163.76	718.27	1929.46	6.39
James River Face Wilderness	318	82.63	361.92	190.88	849.28	163.76	718.27	1929.46	6.07

[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 Corporation - West Virginia Steel Mill
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	0.19	0.85		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		169,589.04	b	35.78
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	0.20	0.88		127,283.11	b	34.09
DRIBV1	DRI1	DRI Storage Silo 1 - Bin Vent	0.20	0.88		127,283.11	b	34.09
DRIVF2	DRI2	DRI Storage Silo 2 - Baghouse	0.20	0.88		127,283.11	b	34.09
DRIBV2	DRI2	DRI Storage Silo 2 - Bin Vent	0.20	0.88		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
SM-BH	SM	Scarfing Machine	7.33	32.12	Yes - 45CSR7-4.10.h	N/A	N/A	N/A
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	0.00	Yes - Emission Rate	N/A	N/A	N/A
MSFUG	SENPHTR2	Subentry Nozzle (SEN) Preheater 2	0.00	0.00	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
TFST-2	TF2	Hot Mill Tunnel Furnace 2	0.28	1.22		342,000.00	b	42.52
PLST-1	PKL-1	Pickling Line 1	1.39	6.11		342,000.00	b	42.52
PLST-2	PKL-2	Pickling Line 2	0.62	2.70		342,000.00	b	42.52
PKLSB	PKLSB	Pickle Line Scale Breaker	1.36	5.97		684,000.00	b	69.56
TCMST	TCM	Tandem Cold Mill	18.60	81.47		684,000.00	b	69.56
STM-BH	STM	Standalone Temper Mill	0.96	4.22		684,000.00	b	69.56
SPMST1	SPM1	Skin Pass Mill Baghouse #1	3.45	15.11		228,000.00	b	37.84
SPMST2	SPM2	Skin Pass Mill Baghouse #2	2.11	9.23		228,000.00	b	37.84
SPMST3	SPM3	Skin Pass Mill Baghouse #3	2.11	9.23		228,000.00	b	37.84
CMBLR1	CMBLR1	Pickling Line Boiler 1	0.04	0.16	Yes - 45CSR2	N/A	N/A	N/A
CMBLR2	CMBLR2	Pickling Line Boiler 2	0.04	0.16	Yes - 45CSR2	N/A	N/A	N/A
CMBLR3	CMBLR3	Pickling Line Boiler 3	0.04	0.16	Yes - 45CSR2	N/A	N/A	N/A
CGL1-ST1	CGL1	CGL1 - Cleaning Section	0.31	1.38		342,000.00	b	42.52
CGL1-ST2	CGL1	CGL1 - Passivation Section	0.31	1.38		342,000.00	b	42.52
CGL2-ST1	CGL2	CGL2 - Cleaning Section	0.31	1.38		342,000.00	b	42.52
CGL2-ST2	CGL2	CGL2 - Passivation Section	0.31	1.38		342,000.00	b	42.52
GALVFUG	GALVFN1	Galvanizing Furnace #1	0.15	0.68		342,000.00	b	42.52
GALVFUG	GALVFN2	Galvanizing Furnace #2	0.15	0.68		342,000.00	b	42.52
MSFUG	BOXANN1	Box Annealing Furnace #1	0.02	0.08		31,090.91	b	22.65
MSFUG	BOXANN2	Box Annealing Furnace #2	0.02	0.08		31,090.91	b	22.65
MSFUG	BOXANN3	Box Annealing Furnace #3	0.02	0.08		31,090.91	b	22.65
MSFUG	BOXANN4	Box Annealing Furnace #4	0.02	0.08		31,090.91	b	22.65
MSFUG	BOXANN5	Box Annealing Furnace #5	0.02	0.08		31,090.91	b	22.65
MSFUG	BOXANN6	Box Annealing Furnace #6	0.02	0.08		31,090.91	b	22.65
MSFUG	BOXANN7	Box Annealing Furnace #7	0.02	0.08		31,090.91	b	22.65
MSFUG	BOXANN8	Box Annealing Furnace #8	0.02	0.08		31,090.91	b	22.65
MSFUG	BOXANN9	Box Annealing Furnace #9	0.02	0.08		31,090.91	b	22.65
MSFUG	BOXANN10	Box Annealing Furnace #10	0.02	0.08		31,090.91	b	22.65
MSFUG	BOXANN11	Box Annealing Furnace #11	0.02	0.08		31,090.91	b	22.65
MSFUG	BOXANN12	Box Annealing Furnace #12	0.02	0.08		31,090.91	b	22.65
MSFUG	BOXANN13	Box Annealing Furnace #13	0.02	0.08		31,090.91	b	22.65
MSFUG	BOXANN14	Box Annealing Furnace #14	0.02	0.08		31,090.91	b	22.65

Nucor Corporation - West Virginia Steel Mill
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)
MSFUG	BOXANN15	Box Annealing Furnace #15	0.02	0.08		31,090.91	b	22.65
MSFUG	BOXANN16	Box Annealing Furnace #16	0.02	0.08		31,090.91	b	22.65
MSFUG	BOXANN17	Box Annealing Furnace #17	0.02	0.08		31,090.91	b	22.65
MSFUG	BOXANN18	Box Annealing Furnace #18	0.02	0.08		31,090.91	b	22.65
MSFUG	BOXANN19	Box Annealing Furnace #19	0.02	0.08		31,090.91	b	22.65
MSFUG	BOXANN20	Box Annealing Furnace #20	0.02	0.08		31,090.91	b	22.65
MSFUG	BOXANN21	Box Annealing Furnace #21	0.02	0.08		31,090.91	b	22.65
MSFUG	BOXANN22	Box Annealing Furnace #22	0.02	0.08		31,090.91	b	22.65
SLAG-CUT-NG	SLAG-CUT	Slag Cutting in Slag Processing Area	0.86	3.75	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	0.17	Yes - Not Mnfct. Prcs.	N/A	N/A	N/A
EMGEN2	EMGEN2	Emergency Generator 2	0.68	0.17	Yes - Not Mnfct. Prcs.	N/A	N/A	N/A
EMGEN3	EMGEN3	Emergency Generator 3	0.68	0.17	Yes - Not Mnfct. Prcs.	N/A	N/A	N/A
EMGEN4	EMGEN4	Emergency Generator 4	0.68	0.17	Yes - Not Mnfct. Prcs.	N/A	N/A	N/A
EMGEN5	EMGEN5	Emergency Generator 5	0.68	0.17	Yes - Not Mnfct. Prcs.	N/A	N/A	N/A
EMGEN6	EMGEN6	Emergency Generator 6	0.68	0.17	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	0.83	3.64		127,283.11	b	34.09
BULK-DRI-2	BULK-DRI	DRI Silo #2 Loadout	0.83	3.64		127,283.11	b	34.09
DRI-EMG-1	BULK-DRI	DRI Conveyor #1 Emergency Chute	0.83	3.64		250,000.00	b	38.50
DRI-EMG-2	BULK-DRI	DRI Silos Emergency Chute	0.83	3.64		1,600,000.00	b	156.44
ALLOY-BIN-1	ALLOY-BIN-1	Alloy Storage Bins #1	0.02	0.10		13,698.63	b	12.22
ALLOY-BIN-2	ALLOY-BIN-2	Alloy Storage Bins #2	0.02	0.10		13,698.63	b	12.22
ALLOY-BIN-3	ALLOY-BIN-3	Alloy Storage Bins #3	0.02	0.10		13,698.63	b	12.22
ALLOY-BIN-4	ALLOY-BIN-4	Alloy Storage Bins #4	0.02	0.10		13,698.63	b	12.22
ALLOY-BIN-5	ALLOY-BIN-5	Alloy Storage Bins #5	0.02	0.10		13,698.63	b	12.22
ALLOY-BIN-6	ALLOY-BIN-6	Alloy Storage Bins #6	0.02	0.10		13,698.63	b	12.22
ALLOY-BIN-7	ALLOY-BIN-7	Alloy Storage Bins #7	0.02	0.10		13,698.63	b	12.22
ALLOY-BIN-8	ALLOY-BIN-8	Alloy Storage Bins #8	0.02	0.10		13,698.63	b	12.22
CARBON-BIN-1	CARBON-BIN-1	Carbon Surge Bin #1 [2 drop points]	0.10	0.42		30,000.00	b	22.00
CARBON-BIN-2	CARBON-BIN-2	Carbon Surge Bin #2 [2 drop points]	0.01	0.04		30,000.00	b	22.00
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

Nucor Corporation - West Virginia Steel Mill
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-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
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	0.67	2.95	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	0.00	0.01	Yes - Not Mnfct. Prcs.	N/A	N/A	N/A
SCRPSKP1	SCRPSKP1	Scrap Metal Stockpile 1	1.30	5.67	Yes - Not Mnfct. Prcs.	N/A	N/A	N/A
SCRPSKP2	SCRPSKP2	Scrap Metal Stockpile 2	1.30	5.67	Yes - Not Mnfct. Prcs.	N/A	N/A	N/A
SCRPSKP3	SCRPSKP3	Scrap Metal Stockpile 3	1.30	5.67	Yes - Not Mnfct. Prcs.	N/A	N/A	N/A
SCRPSKP4	SCRPSKP4	Scrap Metal Stockpile 4	1.30	5.67	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 Corporation - West Virginia Steel Mill
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	99	22.18	171	1,500,000	0.3	2	0.2	0.45	4.50E-04	116.98	2.20E-03	2.20E-04
BHST-2	Melt Shop	Single Shell DC Electric Arc Furnace 2	99	22.18	171	1,500,000	0.3	2	0.2	0.45	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] Lead emission factor for electric arc furnace is based on AP-42 Section 12.5.1.

[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	50.79	338.58	33.86	76.18	0.08	2,568	0.05	0.00	2,571
BHST-2	Melt Shop	Single Shell DC Electric Arc Furnace 2	50.79	338.58	33.86	76.18	0.08	2,568	0.05	0.00	2,571
MSFUG	Melt Shop	Uncaptured Electric Arc Furnace Fugitives	1.03	6.84	0.68	1.54	1.54E-03	52	9.78E-04	9.78E-05	52

[1] Hourly Emissions (lb/hr) = Hourly Throughput (ton stl/hr) x Emission Factor (lb/ton stl) x Capture Efficiency (%)

NO_x Hourly Emissions (lb/hr) = $\frac{171 \text{ ton stl}}{\text{hr}} \times \frac{0.30 \text{ lb}}{\text{ton stl}} \times 99\,\%$ = 50.79 lb/hr

[2] Hourly Emissions (lb/hr) = Heat Capacity (MMBtu/hr) x Emission Factor (lb/MMBtu) x Capture Efficiency (%)

CO_2 Hourly Emissions (lb/hr) = $\frac{22 \text{ MMBtu}}{\text{hr}} \times \frac{116.98 \text{ lb}}{\text{MMBtu}} \times 99\,\%$ = 2,568.49 lb/hr

Nucor Corporation - West Virginia Steel Mill
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	222.75	1485.00	148.50	334.13	0.33	11,250	0.21	0.02	11,262
BHST-2	Melt Shop	Single Shell DC Electric Arc Furnace 2	222.75	1485.00	148.50	334.13	0.33	11,250	0.21	0.02	11,262
MSFUG	Melt Shop	Uncaptured Electric Arc Furnace Fugitives	4.50	30.00	3.00	6.75	6.75E-03	227.27	4.28E-03	4.28E-04	228

[1] Annual Emissions (tpy) = Annual Throughput (ton stl/hr) x Emission Factor (lb/ton stl) / 2000 (lb/ton) x Capture Efficiency (%)

$$NO_x \text{ Annual Emissions (tpy)} = \frac{1{,}500{,}000 \text{ ton stl}}{\text{yr}} \left| \frac{0.30 \text{ lb}}{\text{ton stl}} \right| \frac{\text{ton}}{2{,}000 \text{ lb}} \left| \; 99\ \% \right. = 222.75 \text{ tpy}$$

[2] Annual Emissions (tpy) = Heat Capacity (MMBtu/hr) x Emission Factor (lb/MMBtu) / Hours of Operation (hr/yr) / 2000 (lb/ton) x Capture Efficiency (%)

$$CO_2 \text{ Annual Emissions (tpy)} = \frac{22 \text{ MMBtu}}{\text{hr}} \left| \frac{116.98 \text{ lb}}{\text{MMBtu}} \right| \frac{8760 \text{ hr}}{\text{yr}} \left| \frac{\text{ton}}{2{,}000 \text{ lb}} \right| \; 99\ \% = 11{,}250 \text{ tpy}$$

Electric Arc Furnace Speciations

Emission Point ID	Unit	Description	Speciated Emission Factors[1]							
			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.

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	1.05E-03	4.74E-05	8.46E-04	5.93E-04	1.86E-02	0.05	9.31E-04	5.93E-01
BHST-2	Melt Shop	Single Shell DC Electric Arc Furnace 2	1.05E-03	4.74E-05	8.46E-04	5.93E-04	1.86E-02	0.05	9.31E-04	5.93E-01
MSFUG	Melt Shop	Uncaptured Electric Arc Furnace Fugitives	2.12E-05	9.58E-07	1.71E-05	1.20E-05	3.76E-04	1.03E-03	1.88E-05	1.20E-02

[1] Speciated Hourly Emissions (lb/hr) = Hourly Throughput (ton stl/hr) x Speciated Emission Factor (lb/ton stl) x Capture Efficiency (%)

$$\text{Ar Hourly Emissions (lb/hr)} = \frac{171 \text{ ton stl}}{\text{hr}} \left| \frac{6.20\text{E-}06 \text{ lb}}{\text{ton stl}} \right| \; 99\ \% = 1.05\text{E-}03 \text{ lb/hr}$$

Nucor Corporation - West Virginia Steel Mill
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	4.60E-03	2.08E-04	3.71E-03	2.60E-03	8.17E-02	2.23E-01	4.08E-03	2.60E+00
BHST-2	Melt Shop	Single Shell DC Electric Arc Furnace 2	4.60E-03	2.08E-04	3.71E-03	2.60E-03	8.17E-02	2.23E-01	4.08E-03	2.60E+00
MSFUG	Melt Shop	Uncaptured Electric Arc Furnace Fugitives	9.30E-05	4.20E-06	7.50E-05	5.25E-05	1.65E-03	4.50E-03	8.25E-05	5.25E-02

[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) =	1,500,000 ton st	6.20E-06 lb	ton	99 %	= 4.60E-03 tpy
	yr	ton stl	2,000 lb		

Nucor Corporation - West Virginia Steel Mill
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	99	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	99	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	47,255	175,647
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	47,255	175,647
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	955	3,548

[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 Corporation - West Virginia Steel Mill
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 (%)

$$NO_x \text{ Hourly Emissions (lb/hr)} = \frac{171 \text{ ton stl}}{\text{hr}} \left| \frac{0.05 \text{ lb}}{\text{ton stl}} \right| 95\ \% = 8.12 \text{ lb/hr}$$

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 (%)

$$NO_x \text{ Annual Emissions (tpy)} = \frac{1{,}500{,}000 \text{ ton stl}}{\text{yr}} \left| \frac{0.05 \text{ lb}}{\text{ton stl}} \right| \frac{\text{ton}}{2{,}000 \text{ lb}} \right| 95\ \% = 35.63 \text{ tpy}$$

Nucor Corporation - West Virginia Steel Mill
Baghouse/Fugitives PM Emissions Calculation

Baghouse Emissions

Emission Point ID	Unit	Description	Flow Rate (dscfm)	Emission Factor[1] PM (gr/dscf)	Emission Factor[1] PM_{10} (gr/dscf)	Emission Factor[1] $PM_{2.5}$ (gr/dscf)	Hourly Emissions PM (lb/hr)	Hourly Emissions PM_{10} (lb/hr)	Hourly Emissions $PM_{2.5}$ (lb/hr)	Annual Emissions PM (tpy)	Annual Emissions PM_{10} (tpy)	Annual Emissions $PM_{2.5}$ (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 Briquetter Silos	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	23,543	0.001	0.001	0.00049	0.20	0.20	0.10	0.88	0.88	0.43
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	23,543	0.001	0.001	0.00049	0.20	0.20	0.10	0.88	0.88	0.43
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	23,543	0.001	0.001	0.00049	0.20	0.20	0.10	0.88	0.88	0.43
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	23,543	0.001	0.001	0.00049	0.20	0.20	0.10	0.88	0.88	0.43
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	0.01	10.09	10.09	10.09	44.19	44.19	44.19
SM-BH	Hot Mill	Scarfing Machine	85,557	0.01	0.01	0.01	7.33	7.33	7.33	32.12	32.12	32.12

[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] (%)	Emission Factors[3,4] PM (lb/ton stl)	Emission Factors[3,4] PM_{10} (lb/ton stl)	Emission Factors[3,4] $PM_{2.5}$ (lb/ton stl)
MSFUG	Melt Shop	Uncaptured Electric Arc Furnace Fugitives	342	3,000,000	99	95	90	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.

[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	0.19	0.11	0.11	0.85	0.49	0.49
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 (%)]

$$\text{PM Hourly Emissions (lb/hr)} = \frac{342 \text{ ton stl}}{\text{hr}} \cdot \frac{11.30 \text{ lb}}{\text{ton stl}} \cdot 1\,\% \cdot 5\,\% \cdot 10\,\% = 0.19 \text{ lb/hr}$$

CASTFUG Hourly Emissions (lb/hr) = Hourly Throughput (ton stl/hr) x Emission Factor (lb/ton stl) x [1 - Building Enclosure (%)]

$$\text{PM Hourly Emissions (lb/hr)} = \frac{342 \text{ ton stl}}{\text{hr}} \cdot \frac{0.12 \text{ lb}}{\text{ton stl}} \cdot 10\,\% = 0.21 \text{ lb/hr}$$

[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 (%)]

$$\text{PM Annual Emissions (tpy)} = \frac{3{,}000{,}000 \text{ ton stl}}{\text{yr}} \cdot \frac{11.30 \text{ lb}}{\text{ton stl}} \cdot \frac{\text{ton}}{2{,}000 \text{ lb}} \cdot 1\,\% \cdot 5\,\% \cdot 10\,\% = 0.85 \text{ tpy}$$

CASTFUG Annual Emissions (tpy) = Annual Throughput (ton stl/hr) x Emission Factor (lb/ton stl) / 2000 (lb/ton) x [1 - Building Enclosure (%)]

$$\text{PM Annual Emissions (tpy)} = \frac{3{,}000{,}000 \text{ ton stl}}{\text{yr}} \cdot \frac{0.12 \text{ lb}}{\text{ton stl}} \cdot \frac{\text{ton}}{2{,}000 \text{ lb}} \cdot 10\,\% = 0.90 \text{ tpy}$$

Nucor Corporation - West Virginia Steel Mill
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[1] Hourly (ton/hr)	Steel Throughput[1] 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] Based on engineering judgement.
[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	Hourly Emissions 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

[1] Hourly Emissions NO_x, VOC, SO_2, PM, CH_4, N_2O (lb/hr) = Heat Input (MMBtu/hr) x Emission Factor (lb/MMBtu)

$$NO_x \text{ Hourly Emissions (lb/hr)} = \frac{12.4 \text{ MMBtu}}{\text{hr}} \left| \frac{0.068 \text{ lb}}{\text{MMBtu}} \right. = 0.84 \text{ lb/hr}$$

[2] Hourly Emissions CO (lb/hr) = CO Throughput (lb/hr) x (1 - Control Efficiency)[%]

$$\text{CO Hourly Emissions (lb/hr)} = \frac{268.8 \text{ lb}}{\text{hr}} \left| 2\,\% \right. = 5.38 \text{ lb/hr}$$

[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

$$CO_2 \text{ Hourly Emissions (lb/hr)} = \frac{12.4 \text{ MMBtu}}{\text{hr}} \left| \frac{116.977 \text{ lb}}{\text{MMBtu}} \right. + \frac{268.8 \text{ lb}}{\text{hr}} \left| 98\,\% \right| \frac{44.01 \text{ lb/lb-mol } CO_2}{28.01 \text{ lb/lb-mol CO}} = 1861 \text{ lb/hr}$$

Annual Emissions Calculation

Emission Point ID	Unit	Description	Annual Emissions 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

[1] Annual Emissions NO_x, VOC, SO_2, PM, CH_4, N_2O (lb/hr) = Heat Input (MMBtu/yr) x Emission Factor (lb/MMBtu)

$$NO_x \text{ Annual Emissions (tpy)} = \frac{108523 \text{ MMBtu}}{\text{yr}} \left| \frac{0.068 \text{ lb}}{\text{MMBtu}} \right| \frac{\text{ton}}{2{,}000 \text{ lb}} = 3.69 \text{ tpy}$$

[2] Annual Emissions CO (tpy) = CO Throughput (lb/yr) x (1 - Control Efficiency)[%] / 2000 lb/ton

$$\text{CO Annual Emissions (tpy)} = \frac{1493333 \text{ lb}}{\text{yr}} \left| 2\,\% \right| \frac{\text{ton}}{2{,}000 \text{ lb}} = 14.93 \text{ tpy}$$

[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

$$CO_2 \text{ Annual Emissions (tpy)} = \frac{108523 \text{ MMBtu}}{\text{yr}} \left| \frac{116.977 \text{ lb}}{\text{MMBtu}} \right| \frac{\text{ton}}{2{,}000 \text{ lb}} + \frac{1493333 \text{ lb}}{\text{hr}} \left| 98\,\% \right| \frac{44.01 \text{ lb/lb-mol } CO_2}{28.01 \text{ lb/lb-mol CO}} \left| \frac{\text{ton}}{2{,}000 \text{ lb}} \right. = 7497 \text{ tpy}$$

Nucor Corporation - West Virginia Steel Mill
Natural Gas Combustion Emissions Calculation

Heat Input and Emission Factor

Emission Point 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[3] (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	Melt Shop	Ladle Dryer Fugitives	15	131,400	0.098	0.082	5.88E-04	0.005	0.002	0.007	0.007	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	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	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	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	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	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	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	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	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	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	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	0.000	0.001	0.001	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	0.000	0.001	0.001	116.977	0.002	2.20E-04
CMBLR1	Cold Mill	Pickling Line Boiler 1	20	175,200	0.050	0.082	5.88E-04	0.005	0.002	0.007	0.007	116.977	0.002	2.20E-04
CMBLR2	Cold Mill	Pickling Line Boiler 2	20	175,200	0.050	0.082	5.88E-04	0.005	0.002	0.007	0.007	116.977	0.002	2.20E-04
CMBLR3	Cold Mill	Pickling Line Boiler 3	20	175,200	0.050	0.082	5.88E-04	0.005	0.002	0.007	0.007	116.977	0.002	2.20E-04
GALVFN1-ST	Cold Mill	Galvanizing Furnace #1	83	727,080	0.050	0.082	5.88E-04	0.005	0.002	0.007	0.007	116.977	0.002	2.20E-04
GALVFN2-ST	Cold Mill	Galvanizing Furnace #2	83	727,080	0.050	0.082	5.88E-04	0.005	0.002	0.007	0.007	116.977	0.002	2.20E-04
GALVFUG	Melt Shop	Box Annealing Furnace #1	10	87,600	0.098	0.082	5.88E-04	0.005	0.002	0.007	0.007	116.977	0.002	2.20E-04
GALVFUG	Melt Shop	Box Annealing Furnace #2	10	87,600	0.098	0.082	5.88E-04	0.005	0.002	0.007	0.007	116.977	0.002	2.20E-04
GALVFUG	Melt Shop	Box Annealing Furnace #3	10	87,600	0.098	0.082	5.88E-04	0.005	0.002	0.007	0.007	116.977	0.002	2.20E-04
GALVFUG	Melt Shop	Box Annealing Furnace #4	10	87,600	0.098	0.082	5.88E-04	0.005	0.002	0.007	0.007	116.977	0.002	2.20E-04
GALVFUG	Melt Shop	Box Annealing Furnace #5	10	87,600	0.098	0.082	5.88E-04	0.005	0.002	0.007	0.007	116.977	0.002	2.20E-04
GALVFUG	Melt Shop	Box Annealing Furnace #6	10	87,600	0.098	0.082	5.88E-04	0.005	0.002	0.007	0.007	116.977	0.002	2.20E-04
GALVFUG	Melt Shop	Box Annealing Furnace #7	10	87,600	0.098	0.082	5.88E-04	0.005	0.002	0.007	0.007	116.977	0.002	2.20E-04
GALVFUG	Melt Shop	Box Annealing Furnace #8	10	87,600	0.098	0.082	5.88E-04	0.005	0.002	0.007	0.007	116.977	0.002	2.20E-04
GALVFUG	Melt Shop	Box Annealing Furnace #9	10	87,600	0.098	0.082	5.88E-04	0.005	0.002	0.007	0.007	116.977	0.002	2.20E-04
GALVFUG	Melt Shop	Box Annealing Furnace #10	10	87,600	0.098	0.082	5.88E-04	0.005	0.002	0.007	0.007	116.977	0.002	2.20E-04
GALVFUG	Melt Shop	Box Annealing Furnace #11	10	87,600	0.098	0.082	5.88E-04	0.005	0.002	0.007	0.007	116.977	0.002	2.20E-04
GALVFUG	Melt Shop	Box Annealing Furnace #12	10	87,600	0.098	0.082	5.88E-04	0.005	0.002	0.007	0.007	116.977	0.002	2.20E-04
GALVFUG	Melt Shop	Box Annealing Furnace #13	10	87,600	0.098	0.082	5.88E-04	0.005	0.002	0.007	0.007	116.977	0.002	2.20E-04
GALVFUG	Melt Shop	Box Annealing Furnace #14	10	87,600	0.098	0.082	5.88E-04	0.005	0.002	0.007	0.007	116.977	0.002	2.20E-04
GALVFUG	Melt Shop	Box Annealing Furnace #15	10	87,600	0.098	0.082	5.88E-04	0.005	0.002	0.007	0.007	116.977	0.002	2.20E-04
GALVFUG	Melt Shop	Box Annealing Furnace #16	10	87,600	0.098	0.082	5.88E-04	0.005	0.002	0.007	0.007	116.977	0.002	2.20E-04
GALVFUG	Melt Shop	Box Annealing Furnace #17	10	87,600	0.098	0.082	5.88E-04	0.005	0.002	0.007	0.007	116.977	0.002	2.20E-04
GALVFUG	Melt Shop	Box Annealing Furnace #18	10	87,600	0.098	0.082	5.88E-04	0.005	0.002	0.007	0.007	116.977	0.002	2.20E-04
GALVFUG	Melt Shop	Box Annealing Furnace #19	10	87,600	0.098	0.082	5.88E-04	0.005	0.002	0.007	0.007	116.977	0.002	2.20E-04
GALVFUG	Melt Shop	Box Annealing Furnace #20	10	87,600	0.098	0.082	5.88E-04	0.005	0.002	0.007	0.007	116.977	0.002	2.20E-04
GALVFUG	Melt Shop	Box Annealing Furnace #21	10	87,600	0.098	0.082	5.88E-04	0.005	0.002	0.007	0.007	116.977	0.002	2.20E-04
GALVFUG	Melt Shop	Box Annealing Furnace #22	10	87,600	0.098	0.082	5.88E-04	0.005	0.002	0.007	0.007	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	116.977	0.002	2.20E-04
TFST-2	Hot Mill	Hot Mill Tunnel Furnace 2	150	1,314,000	0.070	0.082	5.88E-04	0.005	0.002	0.007	0.007	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	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	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.

Nucor Corporation - West Virginia Steel Mill
Natural Gas Combustion Emissions Calculation

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	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)	CO_2 (lb/hr)	CH_4 (lb/hr)	N_2O (lb/hr)	CO_2e (lb/hr)
MSFUG	Melt Shop	Ladle Dryer Fugitives	1.471	1.235	0.009	0.081	0.028	0.112	0.112	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	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	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	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	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	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	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	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	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	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	1,053	0.020	0.002	1,054
MSFUG	Melt Shop	Subentry Nozzle (SEN) Preheater 1	0.098	0.082	0.001	0.005	0.000	0.001	0.001	117	0.002	0.000	117
MSFUG	Melt Shop	Subentry Nozzle (SEN) Preheater 2	0.098	0.082	0.001	0.005	0.000	0.001	0.001	117	0.002	0.000	117
CMBLR1	Cold Mill	Pickling Line Boiler 1	1.000	1.647	0.012	0.108	0.037	0.149	0.149	2,340	0.044	0.004	2,342
CMBLR2	Cold Mill	Pickling Line Boiler 2	1.000	1.647	0.012	0.108	0.037	0.149	0.149	2,340	0.044	0.004	2,342
CMBLR3	Cold Mill	Pickling Line Boiler 3	1.000	1.647	0.012	0.108	0.037	0.149	0.149	2,340	0.044	0.004	2,342
GALVFN1-ST	Cold Mill	Galvanizing Furnace #1	4.150	6.835	0.049	0.448	0.155	0.618	0.618	9,709	0.183	0.018	9,719
GALVFN2-ST	Cold Mill	Galvanizing Furnace #2	4.150	6.835	0.049	0.448	0.155	0.618	0.618	9,709	0.183	0.018	9,719
GALVFUG	Melt Shop	Box Annealing Furnace #1	0.980	0.824	0.006	0.054	0.019	0.075	0.075	1,170	0.022	0.002	1,171
GALVFUG	Melt Shop	Box Annealing Furnace #2	0.980	0.824	0.006	0.054	0.019	0.075	0.075	1,170	0.022	0.002	1,171
GALVFUG	Melt Shop	Box Annealing Furnace #3	0.980	0.824	0.006	0.054	0.019	0.075	0.075	1,170	0.022	0.002	1,171
GALVFUG	Melt Shop	Box Annealing Furnace #4	0.980	0.824	0.006	0.054	0.019	0.075	0.075	1,170	0.022	0.002	1,171
GALVFUG	Melt Shop	Box Annealing Furnace #5	0.980	0.824	0.006	0.054	0.019	0.075	0.075	1,170	0.022	0.002	1,171
GALVFUG	Melt Shop	Box Annealing Furnace #6	0.980	0.824	0.006	0.054	0.019	0.075	0.075	1,170	0.022	0.002	1,171
GALVFUG	Melt Shop	Box Annealing Furnace #7	0.980	0.824	0.006	0.054	0.019	0.075	0.075	1,170	0.022	0.002	1,171
GALVFUG	Melt Shop	Box Annealing Furnace #8	0.980	0.824	0.006	0.054	0.019	0.075	0.075	1,170	0.022	0.002	1,171
GALVFUG	Melt Shop	Box Annealing Furnace #9	0.980	0.824	0.006	0.054	0.019	0.075	0.075	1,170	0.022	0.002	1,171
GALVFUG	Melt Shop	Box Annealing Furnace #10	0.980	0.824	0.006	0.054	0.019	0.075	0.075	1,170	0.022	0.002	1,171
GALVFUG	Melt Shop	Box Annealing Furnace #11	0.980	0.824	0.006	0.054	0.019	0.075	0.075	1,170	0.022	0.002	1,171
GALVFUG	Melt Shop	Box Annealing Furnace #12	0.980	0.824	0.006	0.054	0.019	0.075	0.075	1,170	0.022	0.002	1,171
GALVFUG	Melt Shop	Box Annealing Furnace #13	0.980	0.824	0.006	0.054	0.019	0.075	0.075	1,170	0.022	0.002	1,171
GALVFUG	Melt Shop	Box Annealing Furnace #14	0.980	0.824	0.006	0.054	0.019	0.075	0.075	1,170	0.022	0.002	1,171
GALVFUG	Melt Shop	Box Annealing Furnace #15	0.980	0.824	0.006	0.054	0.019	0.075	0.075	1,170	0.022	0.002	1,171
GALVFUG	Melt Shop	Box Annealing Furnace #16	0.980	0.824	0.006	0.054	0.019	0.075	0.075	1,170	0.022	0.002	1,171
GALVFUG	Melt Shop	Box Annealing Furnace #17	0.980	0.824	0.006	0.054	0.019	0.075	0.075	1,170	0.022	0.002	1,171
GALVFUG	Melt Shop	Box Annealing Furnace #18	0.980	0.824	0.006	0.054	0.019	0.075	0.075	1,170	0.022	0.002	1,171
GALVFUG	Melt Shop	Box Annealing Furnace #19	0.980	0.824	0.006	0.054	0.019	0.075	0.075	1,170	0.022	0.002	1,171
GALVFUG	Melt Shop	Box Annealing Furnace #20	0.980	0.824	0.006	0.054	0.019	0.075	0.075	1,170	0.022	0.002	1,171
GALVFUG	Melt Shop	Box Annealing Furnace #21	0.980	0.824	0.006	0.054	0.019	0.075	0.075	1,170	0.022	0.002	1,171
GALVFUG	Melt Shop	Box Annealing Furnace #22	0.980	0.824	0.006	0.054	0.019	0.075	0.075	1,170	0.022	0.002	1,171
TFST-1	Hot Mill	Hot Mill Tunnel Furnace 1	10.500	12.353	0.088	0.809	0.279	1.118	1.118	17,547	0.331	0.033	17,565
TFST-2	Hot Mill	Hot Mill Tunnel Furnace 2	10.500	12.353	0.088	0.809	0.279	1.118	1.118	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	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	1,287	0.024	0.002	1,288
		Total	**69.496**	**74.562**	**0.533**	**4.882**	**1.683**	**6.732**	**6.732**	**105,911**	**1.996**	**0.200**	**106,021**

[1] Hourly Emissions (lb/hr) = Heat Input (MMBtu/hr) x Emission Factor (lb/MMBtu)

$$\text{EPN MSFUG } NO_x \text{ Hourly Emissions (lb/hr)} = \frac{15 \text{ MMBtu}}{\text{hr}} \left| \frac{0.098 \text{ lb}}{\text{MMBtu}} \right. = 1.47 \text{ lb/hr}$$

Nucor Corporation - West Virginia Steel Mill
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)	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	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	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	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	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	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	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	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	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	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	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	4,611	0.087	0.009	4,616
MSFUG	Melt Shop	Subentry Nozzle (SEN) Preheater 1	0.429	0.361	0.003	0.024	0.001	0.002	0.002	512	0.010	0.001	513
MSFUG	Melt Shop	Subentry Nozzle (SEN) Preheater 2	0.429	0.361	0.003	0.024	0.001	0.002	0.002	512	0.010	0.001	513
CMBLR1	Cold Mill	Pickling Line Boiler 1	4.380	7.214	0.052	0.472	0.163	0.653	0.653	10,247	0.193	0.019	10,258
CMBLR2	Cold Mill	Pickling Line Boiler 2	4.380	7.214	0.052	0.472	0.163	0.653	0.653	10,247	0.193	0.019	10,258
CMBLR3	Cold Mill	Pickling Line Boiler 3	4.380	7.214	0.052	0.472	0.163	0.653	0.653	10,247	0.193	0.019	10,258
GALVFN1-ST	Cold Mill	Galvanizing Furnace #1	18.177	29.939	0.214	1.960	0.677	2.709	2.709	42,526	0.801	0.080	42,570
GALVFN2-ST	Cold Mill	Galvanizing Furnace #2	18.177	29.939	0.214	1.960	0.677	2.709	2.709	42,526	0.801	0.080	42,570
GALVFUG	Melt Shop	Box Annealing Furnace #1	4.294	3.607	0.026	0.236	0.082	0.326	0.326	5,124	0.097	0.010	5,129
GALVFUG	Melt Shop	Box Annealing Furnace #2	4.294	3.607	0.026	0.236	0.082	0.326	0.326	5,124	0.097	0.010	5,129
GALVFUG	Melt Shop	Box Annealing Furnace #3	4.294	3.607	0.026	0.236	0.082	0.326	0.326	5,124	0.097	0.010	5,129
GALVFUG	Melt Shop	Box Annealing Furnace #4	4.294	3.607	0.026	0.236	0.082	0.326	0.326	5,124	0.097	0.010	5,129
GALVFUG	Melt Shop	Box Annealing Furnace #5	4.294	3.607	0.026	0.236	0.082	0.326	0.326	5,124	0.097	0.010	5,129
GALVFUG	Melt Shop	Box Annealing Furnace #6	4.294	3.607	0.026	0.236	0.082	0.326	0.326	5,124	0.097	0.010	5,129
GALVFUG	Melt Shop	Box Annealing Furnace #7	4.294	3.607	0.026	0.236	0.082	0.326	0.326	5,124	0.097	0.010	5,129
GALVFUG	Melt Shop	Box Annealing Furnace #8	4.294	3.607	0.026	0.236	0.082	0.326	0.326	5,124	0.097	0.010	5,129
GALVFUG	Melt Shop	Box Annealing Furnace #9	4.294	3.607	0.026	0.236	0.082	0.326	0.326	5,124	0.097	0.010	5,129
GALVFUG	Melt Shop	Box Annealing Furnace #10	4.294	3.607	0.026	0.236	0.082	0.326	0.326	5,124	0.097	0.010	5,129
GALVFUG	Melt Shop	Box Annealing Furnace #11	4.294	3.607	0.026	0.236	0.082	0.326	0.326	5,124	0.097	0.010	5,129
GALVFUG	Melt Shop	Box Annealing Furnace #12	4.294	3.607	0.026	0.236	0.082	0.326	0.326	5,124	0.097	0.010	5,129
GALVFUG	Melt Shop	Box Annealing Furnace #13	4.294	3.607	0.026	0.236	0.082	0.326	0.326	5,124	0.097	0.010	5,129
GALVFUG	Melt Shop	Box Annealing Furnace #14	4.294	3.607	0.026	0.236	0.082	0.326	0.326	5,124	0.097	0.010	5,129
GALVFUG	Melt Shop	Box Annealing Furnace #15	4.294	3.607	0.026	0.236	0.082	0.326	0.326	5,124	0.097	0.010	5,129
GALVFUG	Melt Shop	Box Annealing Furnace #16	4.294	3.607	0.026	0.236	0.082	0.326	0.326	5,124	0.097	0.010	5,129
GALVFUG	Melt Shop	Box Annealing Furnace #17	4.294	3.607	0.026	0.236	0.082	0.326	0.326	5,124	0.097	0.010	5,129
GALVFUG	Melt Shop	Box Annealing Furnace #18	4.294	3.607	0.026	0.236	0.082	0.326	0.326	5,124	0.097	0.010	5,129
GALVFUG	Melt Shop	Box Annealing Furnace #19	4.294	3.607	0.026	0.236	0.082	0.326	0.326	5,124	0.097	0.010	5,129
GALVFUG	Melt Shop	Box Annealing Furnace #20	4.294	3.607	0.026	0.236	0.082	0.326	0.326	5,124	0.097	0.010	5,129
GALVFUG	Melt Shop	Box Annealing Furnace #21	4.294	3.607	0.026	0.236	0.082	0.326	0.326	5,124	0.097	0.010	5,129
GALVFUG	Melt Shop	Box Annealing Furnace #22	4.294	3.607	0.026	0.236	0.082	0.326	0.326	5,124	0.097	0.010	5,129
TFST-1	Hot Mill	Hot Mill Tunnel Furnace 1	45.990	54.106	0.386	3.543	1.224	4.895	4.895	76,854	1.448	0.145	76,933
TFST-2	Hot Mill	Hot Mill Tunnel Furnace 2	45.990	54.106	0.386	3.543	1.224	4.895	4.895	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	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	5,636	0.106	0.011	5,642
		Total	**304.393**	**326.583**	**2.333**	**21.383**	**7.372**	**29.487**	**29.487**	**463,891**	**8.743**	**0.874**	**464,370**

[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 Corporation - West Virginia Steel Mill
Natural Gas Combustion HAP Emissions Calculation

Heat Input and Emission Factor

Emission Point ID	Unit	Description	Heat Input Hourly (MMBtu/hr)	Heat Input Annual (MMBtu/yr)	Emission Factor[1,2] 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
CMBLR1	Cold Mill	Pickling Line Boiler 1	20	175,200	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
CMBLR2	Cold Mill	Pickling Line Boiler 2	20	175,200	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
CMBLR3	Cold Mill	Pickling Line Boiler 3	20	175,200	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	83	727,080	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	83	727,080	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
GALVFUG	Melt Shop	Box Annealing Furnace #1	10	87,600	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
GALVFUG	Melt Shop	Box Annealing Furnace #2	10	87,600	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
GALVFUG	Melt Shop	Box Annealing Furnace #3	10	87,600	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
GALVFUG	Melt Shop	Box Annealing Furnace #4	10	87,600	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
GALVFUG	Melt Shop	Box Annealing Furnace #5	10	87,600	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
GALVFUG	Melt Shop	Box Annealing Furnace #6	10	87,600	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
GALVFUG	Melt Shop	Box Annealing Furnace #7	10	87,600	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
GALVFUG	Melt Shop	Box Annealing Furnace #8	10	87,600	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
GALVFUG	Melt Shop	Box Annealing Furnace #9	10	87,600	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
GALVFUG	Melt Shop	Box Annealing Furnace #10	10	87,600	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
GALVFUG	Melt Shop	Box Annealing Furnace #11	10	87,600	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
GALVFUG	Melt Shop	Box Annealing Furnace #12	10	87,600	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
GALVFUG	Melt Shop	Box Annealing Furnace #13	10	87,600	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
GALVFUG	Melt Shop	Box Annealing Furnace #14	10	87,600	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
GALVFUG	Melt Shop	Box Annealing Furnace #15	10	87,600	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
GALVFUG	Melt Shop	Box Annealing Furnace #16	10	87,600	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
GALVFUG	Melt Shop	Box Annealing Furnace #17	10	87,600	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
GALVFUG	Melt Shop	Box Annealing Furnace #18	10	87,600	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
GALVFUG	Melt Shop	Box Annealing Furnace #19	10	87,600	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
GALVFUG	Melt Shop	Box Annealing Furnace #20	10	87,600	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
GALVFUG	Melt Shop	Box Annealing Furnace #21	10	87,600	2.06E-06	1.18E-06	7.35E-05	1.76E-03	5.98E-07	3.33E-06	8.65E-08
GALVFUG	Melt Shop	Box Annealing Furnace #22	10	87,600	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
TFST-2	Hot Mill	Hot Mill Tunnel Furnace 2	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 Corporation - West Virginia Steel Mill
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
CMBLR1	Cold Mill	Pickling Line Boiler 1	4.12E-05	2.35E-05	1.47E-03	3.53E-02	1.20E-05	6.67E-05	1.73E-06
CMBLR2	Cold Mill	Pickling Line Boiler 2	4.12E-05	2.35E-05	1.47E-03	3.53E-02	1.20E-05	6.67E-05	1.73E-06
CMBLR3	Cold Mill	Pickling Line Boiler 3	4.12E-05	2.35E-05	1.47E-03	3.53E-02	1.20E-05	6.67E-05	1.73E-06
GALVFN1-ST	Cold Mill	Galvanizing Furnace #1	1.71E-04	9.76E-05	6.10E-03	1.46E-01	4.96E-05	2.77E-04	7.18E-06
GALVFN2-ST	Cold Mill	Galvanizing Furnace #2	1.71E-04	9.76E-05	6.10E-03	1.46E-01	4.96E-05	2.77E-04	7.18E-06
GALVFUG	Melt Shop	Box Annealing Furnace #1	2.06E-05	1.18E-05	7.35E-04	1.76E-02	5.98E-06	3.33E-05	8.65E-07
GALVFUG	Melt Shop	Box Annealing Furnace #2	2.06E-05	1.18E-05	7.35E-04	1.76E-02	5.98E-06	3.33E-05	8.65E-07
GALVFUG	Melt Shop	Box Annealing Furnace #3	2.06E-05	1.18E-05	7.35E-04	1.76E-02	5.98E-06	3.33E-05	8.65E-07
GALVFUG	Melt Shop	Box Annealing Furnace #4	2.06E-05	1.18E-05	7.35E-04	1.76E-02	5.98E-06	3.33E-05	8.65E-07
GALVFUG	Melt Shop	Box Annealing Furnace #5	2.06E-05	1.18E-05	7.35E-04	1.76E-02	5.98E-06	3.33E-05	8.65E-07
GALVFUG	Melt Shop	Box Annealing Furnace #6	2.06E-05	1.18E-05	7.35E-04	1.76E-02	5.98E-06	3.33E-05	8.65E-07
GALVFUG	Melt Shop	Box Annealing Furnace #7	2.06E-05	1.18E-05	7.35E-04	1.76E-02	5.98E-06	3.33E-05	8.65E-07
GALVFUG	Melt Shop	Box Annealing Furnace #8	2.06E-05	1.18E-05	7.35E-04	1.76E-02	5.98E-06	3.33E-05	8.65E-07
GALVFUG	Melt Shop	Box Annealing Furnace #9	2.06E-05	1.18E-05	7.35E-04	1.76E-02	5.98E-06	3.33E-05	8.65E-07
GALVFUG	Melt Shop	Box Annealing Furnace #10	2.06E-05	1.18E-05	7.35E-04	1.76E-02	5.98E-06	3.33E-05	8.65E-07
GALVFUG	Melt Shop	Box Annealing Furnace #11	2.06E-05	1.18E-05	7.35E-04	1.76E-02	5.98E-06	3.33E-05	8.65E-07
GALVFUG	Melt Shop	Box Annealing Furnace #12	2.06E-05	1.18E-05	7.35E-04	1.76E-02	5.98E-06	3.33E-05	8.65E-07
GALVFUG	Melt Shop	Box Annealing Furnace #13	2.06E-05	1.18E-05	7.35E-04	1.76E-02	5.98E-06	3.33E-05	8.65E-07
GALVFUG	Melt Shop	Box Annealing Furnace #14	2.06E-05	1.18E-05	7.35E-04	1.76E-02	5.98E-06	3.33E-05	8.65E-07
GALVFUG	Melt Shop	Box Annealing Furnace #15	2.06E-05	1.18E-05	7.35E-04	1.76E-02	5.98E-06	3.33E-05	8.65E-07
GALVFUG	Melt Shop	Box Annealing Furnace #16	2.06E-05	1.18E-05	7.35E-04	1.76E-02	5.98E-06	3.33E-05	8.65E-07
GALVFUG	Melt Shop	Box Annealing Furnace #17	2.06E-05	1.18E-05	7.35E-04	1.76E-02	5.98E-06	3.33E-05	8.65E-07
GALVFUG	Melt Shop	Box Annealing Furnace #18	2.06E-05	1.18E-05	7.35E-04	1.76E-02	5.98E-06	3.33E-05	8.65E-07
GALVFUG	Melt Shop	Box Annealing Furnace #19	2.06E-05	1.18E-05	7.35E-04	1.76E-02	5.98E-06	3.33E-05	8.65E-07
GALVFUG	Melt Shop	Box Annealing Furnace #20	2.06E-05	1.18E-05	7.35E-04	1.76E-02	5.98E-06	3.33E-05	8.65E-07
GALVFUG	Melt Shop	Box Annealing Furnace #21	2.06E-05	1.18E-05	7.35E-04	1.76E-02	5.98E-06	3.33E-05	8.65E-07
GALVFUG	Melt Shop	Box Annealing Furnace #22	2.06E-05	1.18E-05	7.35E-04	1.76E-02	5.98E-06	3.33E-05	8.65E-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
TFST-2	Hot Mill	Hot Mill Tunnel Furnace 2	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	**1.92E-03**	**1.09E-03**	**6.84E-02**	**1.64E+00**	**5.56E-04**	**3.10E-03**	**8.04E-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 Corporation - West Virginia Steel Mill
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
CMBLR1	Cold Mill	Pickling Line Boiler 1	1.80E-04	1.03E-04	6.44E-03	1.55E-01	5.24E-05	2.92E-04	7.57E-06
CMBLR2	Cold Mill	Pickling Line Boiler 2	1.80E-04	1.03E-04	6.44E-03	1.55E-01	5.24E-05	2.92E-04	7.57E-06
CMBLR3	Cold Mill	Pickling Line Boiler 3	1.80E-04	1.03E-04	6.44E-03	1.55E-01	5.24E-05	2.92E-04	7.57E-06
GALVFN1-ST	Cold Mill	Galvanizing Furnace #1	7.48E-04	4.28E-04	2.67E-02	6.42E-01	2.17E-04	1.21E-03	3.14E-05
GALVFN2-ST	Cold Mill	Galvanizing Furnace #2	7.48E-04	4.28E-04	2.67E-02	6.42E-01	2.17E-04	1.21E-03	3.14E-05
GALVFUG	Melt Shop	Box Annealing Furnace #1	9.02E-05	5.15E-05	3.22E-03	7.73E-02	2.62E-05	1.46E-04	3.79E-06
GALVFUG	Melt Shop	Box Annealing Furnace #2	9.02E-05	5.15E-05	3.22E-03	7.73E-02	2.62E-05	1.46E-04	3.79E-06
GALVFUG	Melt Shop	Box Annealing Furnace #3	9.02E-05	5.15E-05	3.22E-03	7.73E-02	2.62E-05	1.46E-04	3.79E-06
GALVFUG	Melt Shop	Box Annealing Furnace #4	9.02E-05	5.15E-05	3.22E-03	7.73E-02	2.62E-05	1.46E-04	3.79E-06
GALVFUG	Melt Shop	Box Annealing Furnace #5	9.02E-05	5.15E-05	3.22E-03	7.73E-02	2.62E-05	1.46E-04	3.79E-06
GALVFUG	Melt Shop	Box Annealing Furnace #6	9.02E-05	5.15E-05	3.22E-03	7.73E-02	2.62E-05	1.46E-04	3.79E-06
GALVFUG	Melt Shop	Box Annealing Furnace #7	9.02E-05	5.15E-05	3.22E-03	7.73E-02	2.62E-05	1.46E-04	3.79E-06
GALVFUG	Melt Shop	Box Annealing Furnace #8	9.02E-05	5.15E-05	3.22E-03	7.73E-02	2.62E-05	1.46E-04	3.79E-06
GALVFUG	Melt Shop	Box Annealing Furnace #9	9.02E-05	5.15E-05	3.22E-03	7.73E-02	2.62E-05	1.46E-04	3.79E-06
GALVFUG	Melt Shop	Box Annealing Furnace #10	9.02E-05	5.15E-05	3.22E-03	7.73E-02	2.62E-05	1.46E-04	3.79E-06
GALVFUG	Melt Shop	Box Annealing Furnace #11	9.02E-05	5.15E-05	3.22E-03	7.73E-02	2.62E-05	1.46E-04	3.79E-06
GALVFUG	Melt Shop	Box Annealing Furnace #12	9.02E-05	5.15E-05	3.22E-03	7.73E-02	2.62E-05	1.46E-04	3.79E-06
GALVFUG	Melt Shop	Box Annealing Furnace #13	9.02E-05	5.15E-05	3.22E-03	7.73E-02	2.62E-05	1.46E-04	3.79E-06
GALVFUG	Melt Shop	Box Annealing Furnace #14	9.02E-05	5.15E-05	3.22E-03	7.73E-02	2.62E-05	1.46E-04	3.79E-06
GALVFUG	Melt Shop	Box Annealing Furnace #15	9.02E-05	5.15E-05	3.22E-03	7.73E-02	2.62E-05	1.46E-04	3.79E-06
GALVFUG	Melt Shop	Box Annealing Furnace #16	9.02E-05	5.15E-05	3.22E-03	7.73E-02	2.62E-05	1.46E-04	3.79E-06
GALVFUG	Melt Shop	Box Annealing Furnace #17	9.02E-05	5.15E-05	3.22E-03	7.73E-02	2.62E-05	1.46E-04	3.79E-06
GALVFUG	Melt Shop	Box Annealing Furnace #18	9.02E-05	5.15E-05	3.22E-03	7.73E-02	2.62E-05	1.46E-04	3.79E-06
GALVFUG	Melt Shop	Box Annealing Furnace #19	9.02E-05	5.15E-05	3.22E-03	7.73E-02	2.62E-05	1.46E-04	3.79E-06
GALVFUG	Melt Shop	Box Annealing Furnace #20	9.02E-05	5.15E-05	3.22E-03	7.73E-02	2.62E-05	1.46E-04	3.79E-06
GALVFUG	Melt Shop	Box Annealing Furnace #21	9.02E-05	5.15E-05	3.22E-03	7.73E-02	2.62E-05	1.46E-04	3.79E-06
GALVFUG	Melt Shop	Box Annealing Furnace #22	9.02E-05	5.15E-05	3.22E-03	7.73E-02	2.62E-05	1.46E-04	3.79E-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
TFST-2	Hot Mill	Hot Mill Tunnel Furnace 2	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	**8.39E-03**	**4.79E-03**	**3.00E-01**	**7.19E+00**	**2.44E-03**	**1.36E-02**	**3.52E-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 Corporation - West Virginia Steel Mill
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)
PLST-1	Cold Mill	Pickling Line Scrubber	10.7310	36.46	519.67	14.7	16,271	6	8760	0.56	2.47
PLST-2	Cold Mill	Pickling Line Scrubber	10.7310	36.46	519.67	14.7	7,185	6	8760	0.25	1.09

[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) =	16,271 dscf	60 min	14.7 psia	36.46 lb	lbmol-Rank		6 ppmv	= 0.56 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) =	0.56 lb	8760 hr	ton	= 2.47 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]			Hourly Emissions[3]			Annual Emissions[4]		
					PM (gr/dscf)	PM_{10} (gr/dscf)	$PM_{2.5}$ (gr/dscf)	PM (lb/hr)	PM_{10} (lb/hr)	$PM_{2.5}$ (lb/hr)	PM (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
PLST-1	Cold Mill	Pickling Line 1	16,271	8,760	0.01	0.01	0.01	1.39	1.39	1.39	6.11	6.11	6.11
PLST-2	Cold Mill	Pickling Line 2	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	217,000	8,760	0.01	0.01	0.01	18.60	18.60	18.60	81.47	81.47	81.47
STM-BH	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 Baghouse #1	40,259	8,760	0.01	0.01	0.01	3.45	3.45	3.45	15.11	15.11	15.11
SPMST2	Cold Mill	Skin Pass Mill Baghouse #2	24,587	8,760	0.01	0.01	0.01	2.11	2.11	2.11	9.23	9.23	9.23
SPMST3	Cold Mill	Skin Pass Mill Baghouse #3	24,587	8,760	0.01	0.01	0.01	2.11	2.11	2.11	9.23	9.23	9.23
CGL1-ST1	Cold Mill	CGL1 - Cleaning Section	12,247	8,760	0.003	0.003	0.003	0.31	0.31	0.31	1.38	1.38	1.38
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	12,247	8,760	0.003	0.003	0.003	0.31	0.31	0.31	1.38	1.38	1.38
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.

[3] Hourly Emissions (lb/hr) = Flow Rate (dscfm) x Emission Factor (gr/dscf) / 7000 (gr/lb) x 60 (min/hr)

Hourly Emissions (lb/hr) =	16,271 dscf	0.010 gr	1 lb	60 min	= 1.39 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) =	16,271 dscf	0.010 gr	1 lb	60 min	8,760 hr	1 ton	= 6.11 tpy
	min	dscf	7000 gr	1 hr	yr	2000 lb	

Nucor Corporation - West Virginia Steel Mill
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	500	8.82	17.64	8.23E-03	4.41	0.68	2.20	4.41	2.06E-03	1.10	0.17
EMGEN2	Emergency Generator 2	2000	500	8.82	17.64	8.23E-03	4.41	0.68	2.20	4.41	2.06E-03	1.10	0.17
EMGEN3	Emergency Generator 3	2000	500	8.82	17.64	8.23E-03	4.41	0.68	2.20	4.41	2.06E-03	1.10	0.17
EMGEN4	Emergency Generator 4	2000	500	8.82	17.64	8.23E-03	4.41	0.68	2.20	4.41	2.06E-03	1.10	0.17
EMGEN5	Emergency Generator 5	2000	500	8.82	17.64	8.23E-03	4.41	0.68	2.20	4.41	2.06E-03	1.10	0.17
EMGEN6	Emergency Generator 6	2000	500	8.82	17.64	8.23E-03	4.41	0.68	2.20	4.41	2.06E-03	1.10	0.17

[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 for emergency engines. Emergency operations limited to 500 hours per year consistent with the emergency generator general permit.

[3] Maximum Hourly Emissions (lb/hr) = Engine Rating (hp) x Emission Factor (lb/hp-hr)

Example NOx Hourly Emission Rate (lb/hr) = $2{,}000 \text{ hp} \times \frac{4.41\text{E-03 lb}}{\text{hp-hr}}$ = 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) = $\frac{8.82 \text{ lb}}{\text{hr}} \times \frac{500 \text{ hr}}{\text{yr}} \times \frac{1 \text{ ton}}{2{,}000 \text{ lb}}$ = 2.20 tpy

Nucor Corporation - West Virginia Steel Mill
Emergency Generator Emissions Calculation

Greenhouse Gas Emission Factors

Fuel	Default Higher Heating Value (HHV)[1] (MMBtu/scf)	Emission Factors[2] (kg/MMBtu)			Global Warming Potentials (GWPs)[3]		
		CO_2	CH_4	N_2O	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.

Greenhouse Gas Emission Calculations

Emission Point ID	Description	Fuel Usage[1] (MMscf/hr)	Hours of Operation (hr/yr)	Maximum Hourly Emissions[2,4]				Maximum Annual Emissions[3,4]			
				CO_2 (lb/hr)	CH_4 (lb/hr)	N_2O (lb/hr)	CO_2e (lb/hr)	CO_2 (tpy)	CH_4 (tpy)	N_2O (tpy)	CO_2e (tpy)
EMGEN1	Emergency Generator 1	0.014	500	1,638	0.03	0.003	1,639	409.42	7.72E-03	7.72E-04	409.84
EMGEN2	Emergency Generator 2	0.014	500	1,638	0.03	0.003	1,639	409.42	7.72E-03	7.72E-04	409.84
EMGEN3	Emergency Generator 3	0.014	500	1,638	0.03	0.003	1,639	409.42	7.72E-03	7.72E-04	409.84
EMGEN4	Emergency Generator 4	0.014	500	1,638	0.03	0.003	1,639	409.42	7.72E-03	7.72E-04	409.84
EMGEN5	Emergency Generator 5	0.014	500	1,638	0.03	0.003	1,639	409.42	7.72E-03	7.72E-04	409.84
EMGEN6	Emergency Generator 6	0.014	500	1,638	0.03	0.003	1,639	409.42	7.72E-03	7.72E-04	409.84

[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) = $\frac{0.014 \text{ MMscf}}{\text{hour}} \times \frac{0.001 \text{ MMBtu}}{\text{scf}} \times \frac{53.06 \text{ kg}}{\text{MMBtu}} \times \frac{2.2046 \text{ lb}}{\text{kg}} \times \frac{1{,}000{,}000 \text{ scf}}{\text{MMscf}}$ = 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) = $\frac{1{,}637.68 \text{ lb}}{\text{hr}} \times \frac{500 \text{ hr}}{\text{yr}} \times \frac{1 \text{ ton}}{2{,}000 \text{ lb}}$ = 409.42 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

Nucor Corporation - West Virginia Steel Mill
Emergency Generator Emissions Calculation

HAP Combustion Emission Calculations

Constituent	Emission Factors[1]	EMGEN1[3]		EMGEN2[3]		EMGEN3[3]		EMGEN4[3]		EMGEN5[3]		EMGEN6[3]	
	(lb/MMBtu)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
1,1,2,2-Tetrachloroethane	6.63E-05	9.28E-04	2.32E-04	9.28E-04	2.32E-04	9.28E-04	2.32E-04	9.28E-04	2.32E-04	9.28E-04	2.32E-04	9.28E-04	2.32E-04
1,1,2-Trichloroethane	5.27E-05	7.38E-04	1.84E-04	7.38E-04	1.84E-04	7.38E-04	1.84E-04	7.38E-04	1.84E-04	7.38E-04	1.84E-04	7.38E-04	1.84E-04
1,3-Butadiene	8.20E-04	0.01	2.87E-03	0.01	2.87E-03	0.01	2.87E-03	0.01	2.87E-03	0.01	2.87E-03	0.01	2.87E-03
1,3-Dichloropropene	4.38E-05	6.13E-04	1.53E-04	6.13E-04	1.53E-04	6.13E-04	1.53E-04	6.13E-04	1.53E-04	6.13E-04	1.53E-04	6.13E-04	1.53E-04
2,2,4-Trimethylpentane	8.46E-04	0.01	2.96E-03	0.01	2.96E-03	0.01	2.96E-03	0.01	2.96E-03	0.01	2.96E-03	0.01	2.96E-03
2-Methylnaphthalene	3.32E-05	4.65E-04	1.16E-04	4.65E-04	1.16E-04	4.65E-04	1.16E-04	4.65E-04	1.16E-04	4.65E-04	1.16E-04	4.65E-04	1.16E-04
Acenaphthene	1.33E-06	1.86E-05	4.66E-06	1.86E-05	4.66E-06	1.86E-05	4.66E-06	1.86E-05	4.66E-06	1.86E-05	4.66E-06	1.86E-05	4.66E-06
Acenaphthylene	5.53E-06	7.74E-05	1.94E-05	7.74E-05	1.94E-05	7.74E-05	1.94E-05	7.74E-05	1.94E-05	7.74E-05	1.94E-05	7.74E-05	1.94E-05
Acetaldehyde	8.36E-03	0.12	0.03	0.12	0.03	0.12	0.03	0.12	0.03	0.12	0.03	0.12	0.03
Acrolein	7.78E-03	0.11	0.03	0.11	0.03	0.11	0.03	0.11	0.03	0.11	0.03	0.11	0.03
Anthracene	7.18E-07	1.01E-05	2.51E-06	1.01E-05	2.51E-06	1.01E-05	2.51E-06	1.01E-05	2.51E-06	1.01E-05	2.51E-06	1.01E-05	2.51E-06
Benz(a)anthracene	3.36E-07	4.70E-06	1.18E-06	4.70E-06	1.18E-06	4.70E-06	1.18E-06	4.70E-06	1.18E-06	4.70E-06	1.18E-06	4.70E-06	1.18E-06
Benzene	1.94E-03	0.03	6.79E-03	0.03	6.79E-03	0.03	6.79E-03	0.03	6.79E-03	0.03	6.79E-03	0.03	6.79E-03
Benzo(a)pyrene	5.68E-09	7.95E-08	1.99E-08	7.95E-08	1.99E-08	7.95E-08	1.99E-08	7.95E-08	1.99E-08	7.95E-08	1.99E-08	7.95E-08	1.99E-08
Benzo(b)fluoranthene	1.66E-07	2.32E-06	5.81E-07	2.32E-06	5.81E-07	2.32E-06	5.81E-07	2.32E-06	5.81E-07	2.32E-06	5.81E-07	2.32E-06	5.81E-07
Benzo(e)pyrene	4.15E-07	5.81E-06	1.45E-06	5.81E-06	1.45E-06	5.81E-06	1.45E-06	5.81E-06	1.45E-06	5.81E-06	1.45E-06	5.81E-06	1.45E-06
Benzo(g,h,i)perylene	4.14E-07	5.80E-06	1.45E-06	5.80E-06	1.45E-06	5.80E-06	1.45E-06	5.80E-06	1.45E-06	5.80E-06	1.45E-06	5.80E-06	1.45E-06
Benzo(k)fluoranthene	4.26E-09	5.96E-08	1.49E-08	5.96E-08	1.49E-08	5.96E-08	1.49E-08	5.96E-08	1.49E-08	5.96E-08	1.49E-08	5.96E-08	1.49E-08
Biphenyl	2.12E-04	2.97E-03	7.42E-04	2.97E-03	7.42E-04	2.97E-03	7.42E-04	2.97E-03	7.42E-04	2.97E-03	7.42E-04	2.97E-03	7.42E-04
Carbon Tetrachloride	6.07E-05	8.50E-04	2.12E-04	8.50E-04	2.12E-04	8.50E-04	2.12E-04	8.50E-04	2.12E-04	8.50E-04	2.12E-04	8.50E-04	2.12E-04
Chlorobenzene	4.44E-05	6.22E-04	1.55E-04	6.22E-04	1.55E-04	6.22E-04	1.55E-04	6.22E-04	1.55E-04	6.22E-04	1.55E-04	6.22E-04	1.55E-04
Chloroform	4.71E-05	6.59E-04	1.65E-04	6.59E-04	1.65E-04	6.59E-04	1.65E-04	6.59E-04	1.65E-04	6.59E-04	1.65E-04	6.59E-04	1.65E-04
Chrysene	6.93E-07	9.70E-06	2.43E-06	9.70E-06	2.43E-06	9.70E-06	2.43E-06	9.70E-06	2.43E-06	9.70E-06	2.43E-06	9.70E-06	2.43E-06
Ethyl Benzene	1.08E-04	1.51E-03	3.78E-04	1.51E-03	3.78E-04	1.51E-03	3.78E-04	1.51E-03	3.78E-04	1.51E-03	3.78E-04	1.51E-03	3.78E-04
Ethylene Dibromide	7.34E-05	1.03E-03	2.57E-04	1.03E-03	2.57E-04	1.03E-03	2.57E-04	1.03E-03	2.57E-04	1.03E-03	2.57E-04	1.03E-03	2.57E-04
Fluoranthene	1.11E-06	1.55E-05	3.89E-06	1.55E-05	3.89E-06	1.55E-05	3.89E-06	1.55E-05	3.89E-06	1.55E-05	3.89E-06	1.55E-05	3.89E-06
Fluorene	5.67E-06	7.94E-05	1.98E-05	7.94E-05	1.98E-05	7.94E-05	1.98E-05	7.94E-05	1.98E-05	7.94E-05	1.98E-05	7.94E-05	1.98E-05
Formaldehyde	5.52E-02	0.77	0.19	0.77	0.19	0.77	0.19	0.77	0.19	0.77	0.19	0.77	0.19
Indeno(1,2,3-c,d)pyrene	9.93E-09	1.39E-07	3.48E-08	1.39E-07	3.48E-08	1.39E-07	3.48E-08	1.39E-07	3.48E-08	1.39E-07	3.48E-08	1.39E-07	3.48E-08
Methanol	3.06E-03	0.04	0.01	0.04	0.01	0.04	0.01	0.04	0.01	0.04	0.01	0.04	0.01
Methylene Chloride	1.47E-04	2.06E-03	5.15E-04	2.06E-03	5.15E-04	2.06E-03	5.15E-04	2.06E-03	5.15E-04	2.06E-03	5.15E-04	2.06E-03	5.15E-04
n-Hexane	1.11E-03	0.02	3.89E-03	0.02	3.89E-03	0.02	3.89E-03	0.02	3.89E-03	0.02	3.89E-03	0.02	3.89E-03
Naphthalene	9.71E-05	1.36E-03	3.40E-04	1.36E-03	3.40E-04	1.36E-03	3.40E-04	1.36E-03	3.40E-04	1.36E-03	3.40E-04	1.36E-03	3.40E-04
PAHs	1.41E-04	1.97E-03	4.94E-04	1.97E-03	4.94E-04	1.97E-03	4.94E-04	1.97E-03	4.94E-04	1.97E-03	4.94E-04	1.97E-03	4.94E-04
Perylene	4.97E-09	6.96E-08	1.74E-08	6.96E-08	1.74E-08	6.96E-08	1.74E-08	6.96E-08	1.74E-08	6.96E-08	1.74E-08	6.96E-08	1.74E-08
Phenanthrene	1.04E-05	1.46E-04	3.64E-05	1.46E-04	3.64E-05	1.46E-04	3.64E-05	1.46E-04	3.64E-05	1.46E-04	3.64E-05	1.46E-04	3.64E-05
Phenol	4.21E-05	5.89E-04	1.47E-04	5.89E-04	1.47E-04	5.89E-04	1.47E-04	5.89E-04	1.47E-04	5.89E-04	1.47E-04	5.89E-04	1.47E-04
Pyrene	1.36E-06	1.90E-05	4.76E-06	1.90E-05	4.76E-06	1.90E-05	4.76E-06	1.90E-05	4.76E-06	1.90E-05	4.76E-06	1.90E-05	4.76E-06
Styrene	5.48E-05	7.67E-04	1.92E-04	7.67E-04	1.92E-04	7.67E-04	1.92E-04	7.67E-04	1.92E-04	7.67E-04	1.92E-04	7.67E-04	1.92E-04
Tetrachloroethane	2.48E-06	3.47E-05	8.68E-06	3.47E-05	8.68E-06	3.47E-05	8.68E-06	3.47E-05	8.68E-06	3.47E-05	8.68E-06	3.47E-05	8.68E-06
Toluene	9.63E-04	0.01	3.37E-03	0.01	3.37E-03	0.01	3.37E-03	0.01	3.37E-03	0.01	3.37E-03	0.01	3.37E-03
Vinyl Chloride	2.47E-05	3.46E-04	8.65E-05	3.46E-04	8.65E-05	3.46E-04	8.65E-05	3.46E-04	8.65E-05	3.46E-04	8.65E-05	3.46E-04	8.65E-05
Xylene, mixed (Dimethylbe	2.68E-04	3.75E-03	9.38E-04	3.75E-03	9.38E-04	3.75E-03	9.38E-04	3.75E-03	9.38E-04	3.75E-03	9.38E-04	3.75E-03	9.38E-04
Total HAPs	8.16E-02	1.14	0.29	1.14	0.29	1.14	0.29	1.14	0.29	1.14	0.29	1.14	0.29

[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:

$$\text{Benzene Hourly Emission Rate (lb/hr)} = \frac{0.014\ \text{MMscf}}{\text{hr}} \times \frac{0.002\ \text{lb}}{\text{MMBtu}} \times \frac{1020\ \text{Btu}}{\text{scf}} = 0.03\ \text{lb/hr}$$

$$\text{Benzene Annual Emission Rate (tpy)} = \frac{0.03\ \text{lb}}{\text{hr}} \times \frac{500\ \text{hr}}{\text{yr}} \times \frac{1\ \text{ton}}{2{,}000\ \text{lb}} = 6.79\text{E-03 tpy}$$

Nucor Corporation - West Virginia Steel Mill
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)	Emission Factor PM_{10} (lb/ton)	Emission Factor $PM_{2.5}$[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	6.527	3.639	3.087	1.721	0.467	0.261
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	0.831	3.639	0.393	1.721	0.060	0.261
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	0.831	3.639	0.393	1.721	0.060	0.261
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	6.527	0.013	3.087	0.006	0.467	0.001
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	41.774	0.376	19.758	0.178	2.992	0.027
ALLOY-BIN-1	Alloy Storage Bins #1	Alloy	1	7	60,000	Outdoor	N/A	0.00	100%	2.20%	3.21E-03	1.52E-03	2.30E-04	0.022	0.096	0.010	0.046	0.002	0.007
ALLOY-BIN-2	Alloy Storage Bins #2	Alloy	1	7	60,000	Outdoor	N/A	0.00	100%	2.20%	3.21E-03	1.52E-03	2.30E-04	0.022	0.096	0.010	0.046	0.002	0.007
ALLOY-BIN-3	Alloy Storage Bins #3	Alloy	1	7	60,000	Outdoor	N/A	0.00	100%	2.20%	3.21E-03	1.52E-03	2.30E-04	0.022	0.096	0.010	0.046	0.002	0.007
ALLOY-BIN-4	Alloy Storage Bins #4	Alloy	1	7	60,000	Outdoor	N/A	0.00	100%	2.20%	3.21E-03	1.52E-03	2.30E-04	0.022	0.096	0.010	0.046	0.002	0.007
ALLOY-BIN-5	Alloy Storage Bins #5	Alloy	1	7	60,000	Outdoor	N/A	0.00	100%	2.20%	3.21E-03	1.52E-03	2.30E-04	0.022	0.096	0.010	0.046	0.002	0.007
ALLOY-BIN-6	Alloy Storage Bins #6	Alloy	1	7	60,000	Outdoor	N/A	0.00	100%	2.20%	3.21E-03	1.52E-03	2.30E-04	0.022	0.096	0.010	0.046	0.002	0.007
ALLOY-BIN-7	Alloy Storage Bins #7	Alloy	1	7	60,000	Outdoor	N/A	0.00	100%	2.20%	3.21E-03	1.52E-03	2.30E-04	0.022	0.096	0.010	0.046	0.002	0.007
ALLOY-BIN-8	Alloy Storage Bins #8	Alloy	1	7	60,000	Outdoor	N/A	0.00	100%	2.20%	3.21E-03	1.52E-03	2.30E-04	0.022	0.096	0.010	0.046	0.002	0.007
CARBON-BIN-1	Carbon Surge Bin #1 [2 drop points]	Carbon	2	15	131,400	Outdoor	N/A	0.00	100%	2.20%	3.21E-03	1.52E-03	2.30E-04	0.096	0.422	0.046	0.199	0.007	0.030
CARBON-BIN-2	Carbon Surge Bin #2 [2 drop points]	Carbon	2	15	131,400	Indoor	N/A	0.90	100%	2.20%	3.21E-03	1.52E-03	2.30E-04	0.010	0.042	0.005	0.020	0.001	0.003
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 pile	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 output pile	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 scrap 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 scrap 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 scrap screen to P3 scrap pile	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 scrap pile	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 P5 product pile	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 P7 product pile	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 P6 product pile	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 P8 product pile	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	**59.87**	**17.49**	**28.27**	**8.17**	**4.46**	**1.54**

[1] Based on Table 7 of TCEQ Draft RG 058 Rock Crushing Plants, February 2002.
[2] Conservatively assumed 100%.
[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 Corporation - West Virginia Steel Mill
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]			Emission Factor for Inactive Stockpile[2,3]		
							PM (lb/acre-d)	PM_{10} (lb/acre-d)	$PM_{2.5}$ (lb/acre-d)	PM (lb/acre-d)	PM_{10} (lb/acre-d)	$PM_{2.5}$ (lb/acre-d)
SLGSKP1	Slag Stockpile 1	177,625	4.08	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	368	0.01	365	0	0.70	13.2	6.24	0.95	3.5	1.66	0.25
SCRPSKP1	Scrap Metal Stockpile 1	342,030	7.85	365	0	0.70	13.2	6.24	0.95	3.5	1.66	0.25
SCRPSKP2	Scrap Metal Stockpile 2	342,030	7.85	365	0	0.70	13.2	6.24	0.95	3.5	1.66	0.25
SCRPSKP3	Scrap Metal Stockpile 3	342,030	7.85	365	0	0.70	13.2	6.24	0.95	3.5	1.66	0.25
SCRPSKP4	Scrap Metal Stockpile 4	342,030	7.85	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]						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)	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	0.67	2.95	0.32	1.39	0.05	0.21	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	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SCRPSKP1	Scrap Metal Stockpile 1	1.30	5.67	0.61	2.68	0.09	0.41	0.00	0.00	0.00	0.00	0.00	0.00
SCRPSKP2	Scrap Metal Stockpile 2	1.30	5.67	0.61	2.68	0.09	0.41	0.00	0.00	0.00	0.00	0.00	0.00
SCRPSKP3	Scrap Metal Stockpile 3	1.30	5.67	0.61	2.68	0.09	0.41	0.00	0.00	0.00	0.00	0.00	0.00
SCRPSKP4	Scrap Metal Stockpile 4	1.30	5.67	0.61	2.68	0.09	0.41	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)

4.08 acres	13.20 lb	0.30	1 day	= 0.67 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)

4.08 acres	13.20 lb	365 days	0.30	ton	= 2.95 tpy
hr	acre-d			2000 lb	

Nucor Corporation - West Virginia Steel Mill
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	0.67	2.95	0.32	1.39	0.05	0.21
SLGSKP2	Slag Stockpile 2	0.12	0.54	0.06	0.26	0.01	0.04
SLGSKP3	Slag Stockpile 3	0.00	0.01	0.00	0.00	0.00	0.00
SCRPSKP1	Scrap Metal Stockpile 1	1.30	5.67	0.61	2.68	0.09	0.41
SCRPSKP2	Scrap Metal Stockpile 2	1.30	5.67	0.61	2.68	0.09	0.41
SCRPSKP3	Scrap Metal Stockpile 3	1.30	5.67	0.61	2.68	0.09	0.41
SCRPSKP4	Scrap Metal Stockpile 4	1.30	5.67	0.61	2.68	0.09	0.41

[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 Corporation - West Virginia Steel Mill
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 Corporation - West Virginia Steel Mill
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 | / 1,000,000 = 0.20 lb/hr

[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 / hr | 8,760 hr / yr | 1 ton / 2,000 lb = 0.86 tpy

Nucor Corporation - West Virginia Steel Mill
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.

Nucor Corporation - West Virginia Steel Mill
Fugitive Dust from Paved Roads Emissions Calculation

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 Corporation - West Virginia Steel Mill
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	1.27 lb	10 %	= 0.57 lb/hr
	day	VMT	24 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	1.27 lb	ton	10 %	= 2.49 tpy
	yr	VMT	2000 lb		

Nucor Corporation - West Virginia Steel Mill
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.

Nucor Corporation - West Virginia Steel Mill
Fugitive Dust from Unpaved Road Emissions Calculation

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 Corporation - West Virginia Steel Mill
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 Corporation - West Virginia Steel Mill
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	30,000	365,000
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 Corporation - West Virginia Steel Mill
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	6.65E-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).

Nucor Corporation - West Virginia Steel Mill
Ancillary Storage Tanks Emissions Calculation

$L_{max} = M_V \times P_{VA} / RT \times FR_M$

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 =	1,000 gal	130 lb	0.024 psia		°R lb-mol	= 0.07 lb/hr
	hr	lb-mol		563.67 °R	80.273 psia gal	

[5] Annual emissions are based on AP-42 Section 7.1.3.1 (November 2006). See separate pages.

Nucor Corporation - West Virginia Steel Mill
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 Corporation - West Virginia Steel Mill
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.

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	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 Corporation - West Virginia Steel Mill
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	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	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 Corporation - West Virginia Steel Mill
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	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	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	49.8093	53.5411	67.0414	80.7858	95.1289	108.2547	115.5393	112.7535	100.7910	81.0507	66.7568	54.9276
Total Losses, lb/mo	57.6793	62.2727	83.7678	106.6550	134.3170	158.8069	174.7963	165.3900	138.2788	104.6757	79.6917	63.4569

Standing Storage Loss, lb/yr	343.4079
Working Loss, lb/yr	986.3802
Total Losses, lb/yr	1329.7881

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	Unleaded Gasoline
Month	July

[LT] = [59.2570] + [115.5393] = 174.7963 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 [30,000] x [0.2646] x [1] = 115.5393 lbs

Values for Sample Calculation

LT	174.7963	KS	0.4936
LS	59.2570	MV	62
LW	115.5393	PVA	9.8605
MD	31	Q	30,000
VV	78.5398	KN	0.2646
WV	0.1061	KP	1
KE	0.4646		

Nucor Corporation - West Virginia Steel Mill
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 Corporation - West Virginia Steel Mill
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 Corporation - West Virginia Steel Mill
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 Corporation - West Virginia Steel Mill
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.

<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	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 Corporation - West Virginia Steel Mill
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 Corporation - West Virginia Steel Mill
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

[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 Corporation - West Virginia Steel Mill
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 Corporation - West Virginia Steel Mill
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 Corporation - West Virginia Steel Mill
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

[5] $E = MKAP/RT$

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

[6] Hourly emissions based on evaporation for a full hour.

[7] 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

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

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

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.	-	-	-	-	-	-	-	-	-	-	-	-

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				**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.

RBLC Entries for Cold 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
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 aluminu m/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.

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	-	-	-	-	-	-	-	-	-	-

Nucor Corporation | West Virginia Steel Mill
Top Down BACT Analysis

Process	Pollutant
Scarfing Machine	$PM/PM_{10}/PM_{2.5}$

		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**		**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 Scarfing Machine

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
None																						

Nucor Corporation | West Virginia Steel Mill
Top Down BACT Analysis

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**		**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 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-X12	10/9/2015	ALLOYS PLANT	AL		120" HOT ROLLING MILL	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
701-0007-X121-X12	10/9/2015	ALLOYS PLANT	AL		130" HOT ROLLING MILL	Unspecified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
701-0007-X121-X12	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

Nucor Corporation | West Virginia Steel Mill
RBLC Entries for Cooling Tower

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

		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

Nucor Corporation | West Virginia Steel Mill
Top Down BACT Analysis

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

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	-	-

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	-	-

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	-	-

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

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	-	-

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
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

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	$PM_{2.5}$ 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	-	-	-	-	-

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	-	-	-	-	-

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.

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.

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	-	-	-	-	-

RBLC Entries for NG-Fired Emergency Engines

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	-	-	-	-	-

Nucor Corporation | West Virginia Steel Mill
RBLC Entries for NG-Fired Emergency Engines

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	-	-	-	-	-

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	-	-	-	-	-

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.

Nucor Corporation | West Virginia Steel Mill

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.

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	-	-

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.	-	-

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	-	-	-	-	-	-

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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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.

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	-	-	-	-	-	-	-	-	-	-

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	-	-	-	-	-

Nucor Corporation | West Virginia Steel Mill
Top Down BACT Analysis

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.

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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

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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	GWP) 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	-	-

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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.

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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.	-	-

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RBLC Entries for Stockpile

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: 0.1 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

Step 1.	**IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES**	**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**
		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, 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: 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	-	-

Nucor Corporation | West Virginia Steel Mill
RBLC Entries for Annealing Furnace

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	-	-

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	-	-

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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	-	-

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 Dioxide	Methane	Methane	Methane	Methane	Methane	Nitrous Oxide (N2O)	Nitrous Oxide (N2O)	Nitrous Oxide (N2O)	Nitrous Oxide (N2O)	Nitrous Oxide (N2O)	Carbon Dioxide Equivalent (CO2e)	Carbon Dioxide Equivalent (CO2e)	Carbon Dioxide Equivalent (CO2e)	Carbon Dioxide Equivalent (CO2e)	Carbon Dioxide Equivalent (CO2e)
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 and Pickling Line Boilers.	See BACT Summary in Application Narrative for Galvanizing Line Furnace and Pickling Line Boilers.						
Step 5.	SELECT BACT							**BACT Limit: 0.05 lb/MMBtu (Pickling Line Boilers and 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.	Feasible for Pickling Line Boilers.	Feasible
Step 3.	RANK REMAINING CONTROL TECHNOLOGIES	Overall Control Efficiency							Base Case
Step 4.	EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS	Cost Effectiveness ($/ton)						See BACT Summary in Application Narrative for Pickling Line Boilers.	
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.

Nucor Corporation | West Virginia Steel Mill
Top Down BACT Analysis

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.

Process	Pollutant
Miscellaneous NG Combustion Units (including Small Heaters and Dryers (< 100 MMBtu/hr))	VOC

Step 1.	IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES	**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**
		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.

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

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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

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

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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	-	-	-	-	-

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

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	-	-	-	-	-

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

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
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

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	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	-	-	-	-	-

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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

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	-	-	-	-	-

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

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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	-	-	-	-	-	-	-

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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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Top Down BACT Analysis

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

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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
102-12	1/4/2013	GERDAU MACSTEEL, INC.	MI	Steel Mill	Roads and packaging (EUROADS&PK G01)	Unspecified	-	-	-	-	-	-	-	-	Fugitive dust plan	-	-	-	-	-	-	-
102-12A	10/27/2014	GERDAU MACSTEEL, INC.	MI	Steel Mill	EUROADS&PKG 01 (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 TRAVELE D	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 TRAVELE D	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 consecuti ve 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

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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
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	-	-

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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.

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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.

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**		**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 Skin Pass 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
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, 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, 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.

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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

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

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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

RBLC Entries for Tunnel Furnace

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.

Nucor Corporation | West Virginia Steel Mill

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	-	-