PRELIMINARY DETERMINATION
NUCOR STEEL DECATUR, LLC
712-0037

INTRODUCTION

On November 2, 2018, Nucor Steel Decatur, LLC submitted an air permit application for the facility located at 4301 Iverson Boulevard, Trinity, Alabama. Additional information was received on February 19, 2019, March 5, 2019, and May 6, 2019.

The facility has proposed the following: a new 120 MMBtu/hr galvanizing line; a third ladle metallurgical furnace station; four (4) new electric arc furnace transformers, upgrading from the current rating of 75 megavolt-ampere (MVA) to 123 MVA, but capping the rating to 90 MVA; increase in slab width to 68 inches; addition of an eighth casting segment on both existing casters; upgrade the existing charge crane; and increase the annual molten steel production limit from 3.2 million tons per year (TPY) to 3.6 million TPY and 440 tons per hour (tph) to 540 tph.

PROCESS DESCRIPTION

Nucor Steel Decatur (Nucor) owns and operates a scrap steel mill. The mill produces steel coils primarily from steel scrap and scrap substitutes using the Electric Arc Furnace (EAF) process. In general, raw materials, including various grades of scrap steel, direct reduced iron (DRI), hot briquetted iron (HBI), pig iron, iron carbide, lime, dolomitic lime, pebble lime, carbon (coal and coke), alloy materials, dropout chamber contents, slag conditioners, pour-back heats, and roll grinding scarf, are brought to the facility by barge, rail, or truck, or produced internally. Scrap and scrap substitutes, alloys, carbon, fluxes, and other materials are charged to two EAFs and melted by application of electric current through the mixture. Molten metal is tapped to ladles and is transferred to one of the three ladle metallurgical furnaces (LMFs), where the metallurgy and temperature of the steel is adjusted. From the LMFs, the molten metal is transferred to one of two continuous casters, which cast continuous slabs of steel.

After casting, the slabs proceed through one of two roller hearth furnaces and then to the rolling mill, where they are rolled to the desired dimensions and coiled. Steel coils may then be further processed in the cold rolling mill to meet customer order specification. The coils may first be cleaned with hydrochloric acid in the pickle line. Cleaned steel can then be reduced in thickness in the cold reversing mill/temper milled. Some coils may then be galvanized in the existing galvanizing line. Some material may be annealed in the annealing furnaces. Steel may pass through none, one, or any combination of these processes.

PREVENTION OF SIGNIFICANT DETERIORATION (PSD)

The proposed modification would qualify as a major source modification since the emissions of PM, PM_{10}, $PM_{2.5}$, SO_2, NO_X, CO, VOC, lead (Pb), and CO_2e would be increased more than the significant emissions rated listed in ADEM Admin. Code r. 335-3-14-.04(1)(w). The proposed major modification would be subject to ADEM Admin. Code r. 335-3-14-.04 which was adopted pursuant to the federal requirements for prevention of significant deterioration (PSD).

PSD regulations were designed to limit pollutant concentration increases in areas that are cleaner than the National Ambient Air Quality Standards (NAAQS). The regulations establish increments that set ceilings on the amount of increased ambient pollutant concentrations that will be allowed in a PSD area. Sources subject to PSD regulations must comply with specific pre-construction review requirements.

A major source or major modification under a PSD review must be constructed with Best Available Control Technology (BACT). Additionally, the effects on soils, vegetation, visibility, and ambient air quality must be addressed for each applicable pollutant. If the net air emissions increase of any applicable pollutant is less than its significance emission rate, PSD does not apply for that pollutant.

The following table shows the PSD significant emissions increase threshold values and emission increases as specified in the application submitted:

Pollutant	PSD Significant Emission Rate (TPY)	Proposed Emission Rate Increase (TPY)	Significant Source
Particulate Matter (PM)	25	64.2	YES
Particulate Matter (< 10 µm) (PM_{10})	15	54.9	YES
Particulate Matter (< 2.5 µm) ($PM_{2.5}$)	10	52.7	YES
Sulfur Dioxide (SO_2)	40	525	YES
Nitrogen Oxides (NO_X)	40	458	YES
Carbon Monoxide (CO)	100	1,707	YES
Volatile Organic Compounds (VOCs)	40	139	YES
Lead (Pb)	0.6	3.5	YES

Pollutant	PSD Significant Emission Rate (TPY)	Proposed Emission Rate Increase (TPY)	Significant Source
Greenhouse Gases (CO_2e)	75,000	206,723	YES

Per ADEM Admin. Code r. 334-3-14-.04(1)(k)2., greenhouse gas emissions are only subject to PSD requirements if there is a significant net emissions increase of greenhouse gas emissions, and there is a significant net emissions increase of at least one NSR pollutant. Since both of these criteria apply to this project, the greenhouse gases will be subject to PSD requirements.

BEST AVAILABLE CONTROL TECHNOLOGY (BACT)

The Clean Air Act prescribes several technology-based limitations affecting new or modified air pollution sources. Among these limitations for PSD significant sources is BACT. New or modified major sources must be constructed with BACT, which is determined on a case-by-case basis, and addresses the energy, environmental, and economic implications associated with each alternative technology, as well as the benefit of reduced emissions that each technology would bring.

Electric Arc Furnaces

The existing EAFs operate in a batch mode whereby the scrap steel and scrap substitutes are charged, melted, and tapped. During normal operation, cold scrap metal and scrap substitutes, carbon, and fluxing agents are charged into the EAF shell, powered by a high-powered transformer. A larger electrical potential is applied to the carbon electrodes. The combination of the heat for the arcing process and gas jets melts the scrap and scrap substitutes into molten steel. As the scrap begins to melt, the temperature of the exhaust gas from the EAF increases appreciably. As melting progresses, oxygen lancing and carbon injection are performed and alloy injection may occur; thus, the temperature of the exhaust gas stream can approach 3,000°F, which is approximately the temperature of molten steel. Batch cycles typically vary from 40 to 50 minutes, but may run shorter or longer depending on operating conditions.

The capture system for the exhaust gases from the EAFs is a direct evacuation control (DEC) and an overhead roof exhaust system consisting of a canopy hood. The DEC duct locally evacuates the exhaust gases directly from the furnace to the main duct system, which is then directed to the EAF baghouses. The roof exhaust system evacuates fugitive fumes from the closed roof plenums located over the EAFs and directs them through the main duct system to the EAF baghouses.

The dust collection equipment for the EAFs consists of two baghouses. Each baghouse has a design volume flow rate of 1,500,000 acfm and 1,100,000 dscfm.

The facility plans to upgrade the four (4) 75 MVA transformers used for both EAFs. The emissions estimates provided in the application were based on an upgrade to 90 MVA transformers. However, the facility has since decided to purchase four (4) 123 MVA transformers. The facility has proposed to power limit the transformers to 90 MVA each by using a 3,000 amp breaker. The facility will be required to verify the amp rating of the breaker annually.

$PM/PM_{10}/PM_{2.5}$

Particulate emissions from the EAFs will be captured by the DEC and roof exhaust system and ultimately exhausted through a baghouse. The EAFs are subject to New Source Performance Standard (NSPS) Subpart AAa and National Emissions Standards for Hazardous Air Pollutants (NESHAP) Subpart YYYYY. The NSPS and NESHAP emission standard for particulate matter emissions from an EAF are both 0.0052 grains/dscf. Fabric filtration in baghouses is the predominant control device for EAFs. A baghouse is the most effective control device for particulate matter emissions from EAFs. A review of the RBLC database revealed that EAFs have generally been permitted at 0.0018 gr/dscf (filterable PM) and 0.0052 gr/dscf (filterable and condensable PM).

Nucor proposes the continued use of fabric filtration and to retain the emissions limits of 0.0018 gr/dscf (43.22 lbs/hr) for filterable PM and 0.0052 gr/dscf (124 lbs/hr) for filterable and condensable PM for BACT.

A review of the RACT/BACT/LAER Clearinghouse revealed that the proposed control design would provide $PM/PM_{10}/PM_{2.5}$ control that is at least as stringent as most of the other BACT determinations for similar sources. Therefore, the proposed control design listed above is considered BACT for $PM/PM_{10}/PM_{2.5}$ emissions from the electric arc furnaces.

SO_2

The source of SO_2 emissions from the EAFs is attributable to the sulfur content of the raw materials charged in the EAFs and to the materials which are used in the foamy slag process. A review of the BACT emission limits for EAF steel mills shows a range of 0.2 to 0.7 lb/ton.

Nucor examined the following technologies potentially applicable to the electric arc furnaces: lower-sulfur charge substitution and flue gas desulfurization (FGD) options including: wet scrubbing, spray dryer absorption (SDA), and dry sorbent injection (DSI). Nucor determined that the flue gas desulfurization options would be technically infeasible because of the large gas flow and the large amplitude temperature variations of the exhaust gases from the EAFs.

Nucor proposes the continued use of good operating practices, the continued use of low sulfur injection carbon (less than or equal to 2% sulfur), and to retain the emissions limit of 0.35 lb/ton of steel produced (189 lbs/hr) for BACT.

A review of the RACT/BACT/LAER Clearinghouse revealed that the proposed control design would provide SO_2 control that is at least as stringent as most of the other BACT determinations for similar sources. Therefore, the proposed control design listed above is considered BACT for SO_2 emissions from the electric arc furnaces.

NO_X

NO_X is formed from the chemical reaction between nitrogen and oxygen at high temperatures. NO_X formation occurs by different mechanisms. In the case of an EAF, NO_X predominantly forms from thermal dissociation and subsequent reaction of nitrogen and oxygen molecules in the combustion air. This mechanism of NO_X formation is referred to as thermal NO_X. The other mechanisms of NO_X formation, such as fuel NO_X and prompt NO_X, are thought to have lesser contributions to NO_X emissions from EAFs. A review of the RBLC database shows limits established for EAFs ranging from 0.13 lb/ton to 1.0 lb/ton, with most facilities higher than 0.35 lb/ton.

Nucor examined the following technologies potentially applicable to the electric arc furnaces: combustion controls (low excess air, oxyfuel burners, overfire air, burners out of service, reduced combustion air temperature, load reduction, and flue gas recirculation), selective catalytic reduction (SCR), non-selective catalytic reduction (NSCR), $SCONO_X$ catalytic oxidation/absorption, shell $DeNO_X$ system (modified SCR), and selective non-catalytic reduction (SNCR) options including: Exxon's Thermal $DeNO_X$®, Nalco Fuel Tech's NO_XOUT®, and low temperature oxidation (LTO). Nucor determined that low excess air would be technically infeasible because EAFs do not operate with combustion air feeds, and the combustion process is not modulated with the near-atmospheric furnace conditions. Over fire air presents potential operational problems due to low primary air, creating incomplete combustion conditions. Such conditions can result in inefficient scrap melting, so over fire air is therefore considered to be technically infeasible. Burners out of service and load reduction options incorporate a reduction in furnace load, thereby, potentially reducing NO_X formation. These options are fundamentally inconsistent with the design criterion for an EAF; therefore, burner out of service and load reduction would be technically infeasible. The reduced combustion air temperature option is limited to equipment with combustion air preheaters which are not applicable to EAFs; therefore, reduced combustion air temperature would be technically infeasible. Nucor determined that flue gas recirculation would be technically infeasible because the recirculation of the flue gas would create cool spots in the EAF, creating undesirable particulate matter in the EAF as additional natural gas fired burners would need to be installed to account for the loss of the even distribution of heat. Nucor determined SCR, NSCR, $SCONO_X$ catalytic oxidation/absorption, shell $DeNO_X$ system (modified SCR), and SNCR options to be technically infeasible because these options require relatively stable air flow and specific temperature ranges which the air flow from the EAFs do not meet.

Nucor proposes the continued use of oxy-fuel fired burners and to retain the emissions limit of 0.42 lb/ton of steel produced (226.8 lbs/hr) for BACT.

A review of the RACT/BACT/LAER Clearinghouse revealed that the proposed control design would provide NO_X control that is at least as stringent as most of the other BACT determinations for similar sources. Therefore, the proposed control design listed above is considered BACT for NO_X emissions from the electric arc furnaces.

CO

CO will be emitted as a byproduct of incomplete combustion from the following potential sources – charged and injection carbon, scrap steel, scrap substitutes, electrodes, natural gas, and "foaming slag" operating practices. EAFs generate CO as a result of oxidation of carbon introduced into the furnace charge to refine the steel and as a result of the sublimation/oxidation of the carbon electrode. A review of the RBLC database revealed that other steel mills have an emission limit ranging from about 1.93 – 6.0 lbs/ton of steel produced.

Nucor examined the following technologies potentially applicable to the electric arc furnaces: flaring of CO emissions, CO oxidation catalysts, post-combustion reaction chamber, catalytic incineration, oxygen injection, and direct evacuation control (DEC). Nucor determined that the use of a CO oxidation catalyst would be technically infeasible based on that fact that the temperature requirements for a CO catalyst would not be met by the EAFs exhaust streams. Nucor determined that a post-combustion reaction chamber and catalytic incineration would be technically infeasible due to the potential for particulate matter fouling and insufficient exhaust temperatures. Nucor determined that oxygen injection would be technically infeasible based on its cyclic operating schedule of the EAFs and the inconsistent temperature profile. Nucor determined that flaring of emissions would be technically feasible; however, flaring for CO destruction would cost an estimated $148,148 per ton of CO removed. Therefore, Nucor determined that the use of a flare would be economically infeasible.

Nucor proposes the continued use of the existing DEC to capture the emissions and to retain the emissions limit of 2.3 lb/ton of steel produced (1,240 lbs/hr) for BACT.

A review of the RACT/BACT/LAER Clearinghouse revealed that the proposed control design would provide CO control that is at least as stringent as most of the other BACT determinations for similar sources. Therefore, the proposed control design listed above is considered BACT for CO emissions from the electric arc furnaces.

VOC

VOC emissions from the EAFs will be intermittent and limited to the brief period during EAF charging when organic compounds such as oil or paint present in the scrap are volatized.

Nucor examined the following technologies potentially applicable to the electric arc furnaces: catalytic or thermal oxidation, degreasing of scrap metal prior to charging in the EAF, and a scrap management program. Nucor determined that catalytic and thermal oxidation would be technically infeasible based on insufficient exhaust temperatures. Nucor determined that degreasing of scrap metal would be technically feasible; however, the cost per ton for degreasing is estimated to be $95,312. Therefore, Nucor determined that degreasing would be economically infeasible.

Nucor Steel Decatur proposes the continued use of a scrap management program and to retain the emissions limit of 0.13 lb/ton of steel produced (70.2 lbs/hr) for BACT.

A review of the RACT/BACT/LAER Clearinghouse revealed that the proposed control design would provide VOC control that is at least as stringent as most of the other BACT determinations for similar sources. Therefore, the proposed control design listed above is considered BACT for VOC emissions from the electric arc furnace.

Lead (Pb)

Lead from the EAFs will be captured by the DEC and roof exhaust system and ultimately exhausted through a baghouse. Fabric filtration in baghouses is the predominant control device for EAFs. A baghouse is the most effective control device for lead emissions from EAFs. A review of the RBLC database revealed that EAFs have generally been permitted between 0.0017 lb/ton of steel and 0.008 lb/ton of steel.

Nucor proposes the continued use of fabric filtration and to retain the emissions limit of 0.002 lb/ton of steel for BACT.

A review of the RACT/BACT/LAER Clearinghouse revealed that the proposed control design would provide lead control that is at least as stringent as most of the other BACT determinations for similar sources. Therefore, the proposed control design listed above is considered BACT for lead emissions from the electric arc furnaces.

Greenhouse Gases (CO_2e)

CO_2e emissions from the EAFs are generated primarily during the melting and refining processes, which remove carbon as CO and CO_2 from the charge materials and carbon electrodes.

Nucor examined the following technologies potentially applicable to steel mills: carbon capture and storage and good design and operating practices. Nucor determined that a carbon capture and storage system would be technically infeasible because a 255 mile pipeline would need to be constructed in order to transport the CO_2 to the nearest CO_2 sequestration project

site. Furthermore, the initial capital investment for such a system is estimated to be $717,000,000.

Nucor proposes the use of good operating practices and an emissions limit of 504,000 TPY for BACT.

A review of the RACT/BACT/LAER Clearinghouse revealed that the proposed control design would provide CO_2e control that is at least as stringent as most of the other BACT determinations for similar sources. Therefore, the proposed control design listed above is considered BACT for CO_2e emissions from the electric arc furnace.

Natural Gas Burners (New Galvanizing Line)

Nucor proposes to install a new galvanizing furnace with natural gas fired burners as part of a new galvanizing line. The maximum heat input rate for the galvanizing line will be 120 MMBtu/hr.

$PM/PM_{10}/PM_{2.5}$

Particulate matter emission from the galvanizing line burners primarily result from carryover of non-combustible trace constituents in the fuel. Typically, particulates are hard to detect with natural gas firing due to the low ash content. Due to the relatively low PM emissions from natural gas combustion, the application of add-on controls is considered impractical, as no control technologies for particulate abatement have been successfully implemented for similar furnace emissions.

Nucor proposes the use of natural gas combustion with good combustion practices per manufacturer's guidance and an emissions limit of 0.0075 lb/MMBtu (0.89 lb/hr) for BACT.

A review of the RACT/BACT/LAER Clearinghouse revealed that the proposed control design would provide $PM/PM_{10}/PM_{2.5}$ control that is at least as stringent as most of the other BACT determinations for similar sources. Therefore, the proposed control design listed above is considered BACT for $PM/PM_{10}/PM_{2.5}$ emissions from the new burners.

SO_2

SO_2 emissions from the galvanizing burners would primarily result from combustion by-product of the fuel. Due to the relatively low SO_2 emissions from natural gas combustion, the application of add-on controls is considered impractical, as no technologies for SO_2 control have been successfully implemented for similar furnace emissions.

Nucor proposes the use of natural gas combustion with good combustion practices per manufacturer's guidance and an emissions limit of 0.0006 lb/MMBtu (0.07 lb/hr) for BACT.

A review of the RACT/BACT/LAER Clearinghouse revealed that the proposed control design would provide SO_2 control that is at least as stringent as most of the other BACT determinations for similar sources. Therefore, the proposed control design listed above is considered BACT for SO_2 emissions from the new burners.

NO_X

NO_X emissions from the galvanizing burners would primarily result from combustion by-product of the fuel.

Nucor examined the following technologies potentially applicable to the galvanizing line: selective catalytic reduction (SCR), selective non-catalytic reduction (SNCR), and ultra-low NO_X burners with exhaust gas recirculation. Nucor determined that each of these technologies would be technically feasible. Nucor then ranked each technology based on control effectiveness: SCR would provide a control efficiency of 90%; SNCR would provide a control efficiency of 75%; and engineering analyses for ultra-low NO_X burners with exhaust gas recirculation indicate emissions as low as 0.10 lb/MMBtu. Therefore, SCR is considered the most effective technically feasible option for controlling NO_X from galvanizing furnaces.

Nucor proposes the use of SCR with urea as the reductant and an emissions limit of 0.067 lb/MMBtu (8.0 lb/hr) for BACT. Nucor proposes to monitor NO_X emissions with a continuous emissions monitoring system (CEMS).

A review of the RACT/BACT/LAER Clearinghouse revealed that the proposed control design would provide NO_X control that is at least as stringent as most of the other BACT determinations for similar sources. Therefore, the proposed control design listed above is considered BACT for NO_X emissions from the new burners.

CO

CO emissions from the galvanizing burners would primarily result from combustion by-product of the fuel. Due to the relatively low CO emissions from natural gas combustion, the application of add-on controls is considered impractical, as no technologies for CO control have been successfully implemented for similar furnace emissions.

Nucor proposes the use of natural gas combustion with good combustion practices per manufacturer's guidance and an emissions limit of 0.082 lb/MMBtu (9.9 lb/hr) for BACT.

A review of the RACT/BACT/LAER Clearinghouse revealed that the proposed control design would provide CO control that is at least as stringent as most of the other BACT determinations for similar sources. Therefore, the proposed control design listed above is considered BACT for CO emissions from the new burners.

VOC

VOC emissions from the galvanizing burners would primarily result from combustion by-product of the fuel. Due to the relatively low VOC emissions from natural gas combustion, the application of add-on controls is considered impractical, as no technologies for VOC control have been successfully implemented for similar furnace emissions.

Nucor proposes the use of natural gas combustion with good combustion practices per manufacturer's guidance and an emissions limit of 0.0054 lb/MMBtu (0.65 lb/hr) for BACT.

A review of the RACT/BACT/LAER Clearinghouse revealed that the proposed control design would provide VOC control that is at least as stringent as most of the other BACT determinations for similar sources. Therefore, the proposed control design listed above is considered BACT for VOC emissions from the new burners.

Greenhouse Gases (CO_2e)

CO_2e emissions from the galvanizing line would primarily result from combustion by-product of the fuel.

Nucor examined the following technologies potentially applicable to steel mills: carbon capture and storage and good design and operating practices. Nucor determined that a carbon capture and storage system would be technically infeasible because a 255 mile pipeline would need to be constructed in order to transport the CO_2 to the nearest CO_2 sequestration project site.

Nucor proposes the use of good operating practices and an emissions limit of 61,842 TPY for BACT.

A review of the RACT/BACT/LAER Clearinghouse revealed that the proposed control design would provide CO_2e control that is at least as stringent as most of the other BACT determinations for similar sources. Therefore, the proposed control design listed above is considered BACT for CO_2e emissions from the electric arc furnace.

AIR QUALITY ANALYSIS

An applicant for a PSD permit is required to conduct an air quality analysis of the ambient impacts associated with the construction and operation of the proposed new sources or modification. The main purpose of the air quality analysis is to demonstrate that new emissions from a proposed major stationary source or major modification will not cause or contribute to a violation of any applicable National Ambient Air Quality Standards (NAAQS) or PSD increment. Ambient impacts of non-criteria pollutants must also be evaluated. Generally, the analysis will include (1) an assessment of existing air quality, which may include ambient monitoring data and air quality

dispersion modeling results, and (2) predictions, using dispersion modeling, of ambient concentrations that will result from the applicant's proposed project and future growth associated with the project.

National Ambient Air Quality Standards (NAAQS)

The NAAQS are maximum concentration "ceilings" measured in terms of the total concentration of a pollutant in the atmosphere. The following table presents the applicable standards for the pollutants under PSD review:

Pollutant/Averaging Time	Primary Standard	Secondary Standard
Particulate Matter (< 10 µm) (PM_{10})		
PM_{10}, 24-hour	150 µg/m^3	150 µg/m^3
Particulate Matter (< 2.5 µm) ($PM_{2.5}$)		
$PM_{2.5}$, Annual	12 µg/m^3	15 µg/m^3
$PM_{2.5}$, 24-hour	35 µg/m^3	35 µg/m^3
Sulfur Dioxide (SO_2)		
SO_2, 1-hour	75 ppb	---
SO_2, 3-hour	---	0.5 ppm
Nitrogen Dioxide (NO_2)		
NO_2, Annual	53 ppb	53 ppb
NO_2, 1-hour	100 ppb	---
Carbon Monoxide (CO)		
CO, 1-hour	35 ppm	---
CO, 8-hour	9 ppm	---

A complete review of the air quality analysis can be found in Attachment No. 1. As can be seen from the review, all of the predicted pollutant concentrations are less than the NAAQS, and the NAAQS for each pollutant are not expected to be exceeded.

The PSD requirements provide for a system of area classifications which affords an opportunity to identify local land use goals. There are three area classifications. Each classification differs in terms of the amount of growth it would permit before significant air quality deterioration would be deemed to occur. Class I areas have the smallest increments and thus allow only a small degree of air quality deterioration. Class II areas can accommodate normal, well-managed industrial growth. Class III areas have the largest increments and thereby provide for a larger amount of development than either Class I or Class II areas. Presently, there are no Class III areas in Alabama. The table below shows the pollutants and associated Class I and II PSD increments.

Pollutant	Averaging Period	Class I (µg/m^3)	Class II (µg/m^3)
PM	Annual	5	19
PM	24-hour	10	37
PM_{10}	Annual	4	17
PM_{10}	24-hour	8	30
$PM_{2.5}$	Annual	1	5
$PM_{2.5}$	24-hour	2	9
SO_2	Annual	2	20
SO_2	24-hour	5	91
SO_2	3-hour	25	512
NO_2	Annual	2.5	25

The following is a brief synopsis of each class area and how it relates to this project:

Class I Areas:

Class I Areas have the smallest increments and thus allow only a small degree of air quality deterioration. Air Permit application forms submitted by Nucor document that the closest Class I Area, the Sipsey Wilderness, is within 100 km of the facility. In addition to the Class I increment analysis, modeling was performed to address the impacts on regional haze and other air quality values. Attachment No. 1 provides a review of the Class I Area analysis. The predicted impacts on regional haze and other air quality values at the Sipsey Wilderness Area are below the levels recommended by the Federal Land Manager (FLM).

Class II Areas:

Class II areas can accommodate normal well-managed industrial growth. Nucor Steel Decatur is located in a Class II Area. Attachment No. 1 provides a review of the PSD Class II increment analysis. A Class II increment has not been established for either the NO_2 1-hour averaging period or the SO_2 1-hour averaging period; therefore, no Class II increment modeling was performed.

Class III Areas:

Class III areas have the largest increments and thereby provide for a larger amount of development than either Class I or Class II areas. Presently, there are no Class III areas in the state of Alabama. Therefore, no Class III area analysis was performed for this project.

ADDITIONAL IMPACT ANALYSIS

All PSD permit applicants must prepare an additional impact analysis, for each pollutant subject to regulation, which would be emitted by the proposed new source or modification. This analysis

assesses the impacts of air, ground, and water pollution on soils, vegetation, and visibility caused by an increase in emissions and from associated growth. The additional impact analysis generally has three parts:

(a) Growth
(b) Soils and Vegetation
(c) Visibility Impairment

Growth

Since the mill is an existing source, Nucor Steel Decatur's proposed construction changes will have a minimal impact on the anticipated growth in the area. Commercial growth is anticipated to occur at a gradual rate in the future.

Soils and Vegetation

The project is not expected to have a significant impact on the surrounding soil. Modeled impacts of annual NO_2 are less than the significant impact level (SIL). In summary, the project is not expected to result in significant impact on soil, vegetation, or wildlife in the area surrounding the facility.

Visibility Impairment

As part of the NSPS for electric arc furnaces, Nucor Steel Decatur is required to comply with opacity standards. Opacity limits are also imposed on other sources at the mill. These limits reduce the events of visible plumes; thus visibility impacts in the immediate vicinity of the mill should be negligible. There were no airports or scenic vistas located near the receptors that exceed the pollutant-specific SILs; therefore, no visibility analyses were required.

NEW SOURCE PERFORMANCE STANDARDS (NSPS)

The existing EAFs, baghouses, and dust handling systems are subject to 40 CFR part 60, subpart AAa, "*Standards of Performance for Steel Plants: Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels Constructed After August 7, 1983*." Subpart AAa specifically limits particulate matter emissions to 0.0052 grains/dscf and 3 percent opacity at the control device, 6 percent opacity from the shop due solely to the operations of the electric arc furnace, and 10 percent opacity from the dust handling system. Subpart AAa also requires the installation of a continuous opacity monitoring system (COMs) on each baghouse controlling an EAF. BACT limits are at least as stringent as the limits in subpart AAa.

NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAP)

The existing EAFs are subject to 40 CFR part 63, subpart YYYYY, "*National Emission Standards for Hazardous Air Pollutants for Area Sources: Electric Arc Furnace Steelmaking Facilities*." The modification to the EAF is not considered reconstruction based on the definition found in §63.2;

therefore, the facility is still considered an existing source. Subpart YYYYY specially limits scrap management plans and particulate matter emissions to 0.0052 grains/dscf and 6 percent opacity from the shop due solely to the operations of the electric arc furnace. BACT limits are at least as stringent as the limits in subpart YYYYY.

COMPLIANCE ASSURANCE MONITORING (CAM)

The existing EAFs are subject to CAM requirements for particulate matter. The facility's CAM plan for the EAFs will not be affected by this project, and the facility will continue to comply with the current CAM plan.

The new galvanizing line will be subject to CAM requirements for NO_X. Per §64.5(b), the facility will be required to submit a CAM plan for the galvanizing line as part of the next Title V renewal application.

RECOMMENDATION

Based on the above analysis, I recommend that, upon receiving permitting fees and pending the completion of the appropriate public comment period, the following Air Permits be issued with the attached provisos (see Attachment No. 2):

712-0037-X001	Two (2) Electric Arc Furnaces & Three (3) Ladle Metallurgy Furnaces with Two (2) Meltshop Baghouses
712-0037-X020	120 MMBtu/hr Galvanizing Line with Selective Catalytic Reduction

Jennifer Youngpeter
Industrial Minerals Section
Energy Branch
Air Division

May 9, 2019
Date

ATTACHMENT NO. 1

Air Quality Analysis

LANCE R. LEFLEUR
DIRECTOR

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GOVERNOR

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April 12, 2019

MEMORANDUM

TO: Jennifer Youngpeter
Industrial Minerals Section
Energy Branch
Air Division

FROM: Megan Travis
Meteorological Section
Planning Branch
Air Division

SUBJECT: Air Dispersion Modeling for Nucor Steel Decatur, LLC Prevention of Significant Deterioration Permit Application

ADEM has completed its review of an air quality modeling analysis performed by SLR on behalf of Nucor Steel Decatur, LLC (Nucor). Nucor proposes to expand their facility by adding a new galvanization line and debottlenecking the existing meltshop. The purpose of this analysis was to assess the impacts on air quality from increased emissions of carbon monoxide (CO), nitrogen dioxide (NO_2), particular matter with an aerodynamic diameter less than 2.5 microns ($PM_{2.5}$), particulate matter with an aerodynamic diameter less than 10 microns (PM_{10}), sulfur dioxide (SO_2), and lead (Pb) from the existing facility. An air quality analysis was performed for these pollutants to demonstrate that emissions from the facility will not cause or contribute to a violation of any applicable National Ambient Air Quality Standard (NAAQS) or PSD Increment.

AIR QUALITY MODELS:

The AERMOD model was used in default mode when performing modeling for all pollutants. The NO_2 analysis utilized the default ARM2 method to convert emissions of NOx to NO_2.

METEOROLOGICAL DATA:

Surface and upper air meteorological data for the years 2012-2016 was used in all modeling. The surface data was from the Pryor Field Airport in Decatur, AL and the upper air data was from the Nashville, TN National Weather Service (NWS) office. A surface characteristics analysis was performed by SLR to determine if the surface characteristics around Nucor are similar to the surface characteristics around the Pryor

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Field Airport. As a result of this analysis, ADEM required Nucor to utilize the surface characteristics around both the Pryor Field Airport and the Nucor facility in screening modeling and retain the higher of the two concentrations for all applicable averaging periods.

GOOD ENGINEERING PRACTICE ANALYSIS:

A Good Engineering Practice (GEP) Analysis was performed to assess possible building downwash effects. It was determined that the stacks modeled will be within 5L (the influence area) of one or more of the controlling buildings and have stack heights less than the GEP stack height; therefore, building downwash was considered for those sources in the modeling.

SCREENING MODELING:

Nucor proposes to increase emissions of CO, NO_2, $PM_{2.5}$, PM_{10}, and SO_2 due to new and modified sources at the facility in Decatur. Screening modeling was performed twice for all pollutants. The first round of screening modeling incorporated the surface characteristics around the Pryor Field Airport and the second round incorporated the surface characteristics around the Nucor facility.

The base receptor grid consisted of a Cartesian grid and discrete receptors placed along the facility fence line at 100 meter (m) intervals. The Cartesian grid was extended to the extent of the SIA for the respective pollutants with the largest SIA being 20km. Grid spacing was as follows: 100 m to 1 km, 250 m spacing from 1 km to 5 km, 500 m spacing from 5 km to 10, and 1000 m from 10 km to 20 km. All maximum concentrations were resolved to within 100 meters. Receptor terrain elevations were generated using the EPA AERMAP program.

Table 1 lists the stack parameters for point sources used in the modeling for all sources undergoing review. Additional inventory sources can be found in the application. Table 2 lists the emission rates for the sources included in the project.

TABLE 1
Stack Parameters

Stack ID	Stack Height (m)	Exit Temp. (°K)	Exit Velocity (m/s)	Stack Diameter (m)
MSBaghouse1	45.7	394.3	14.4	7.9
MSBaghouse2	45.9	394.3	20.8	6.6
Galv. Line	64.9	444.3	6.4	1.8
North Caster Steam Vent	16.8	324.8	16.8	1.4
South Caster Steam Vent	39.9	324.8	16.8	1.1

TABLE 2
Emission Rates (g/s)

	Averaging Period	MSBaghouse1	MSBaghouse2	Galv. Line	North Caster Steam Vent	South Caster Steam Vent
NO_2	1-hr	7.08	7.08	1.01	-	-
	Annual	6.08	6.08	1.01	-	-
SO_2	1-hr	9.63	9.63	0.00889	-	-
	3-hr	9.63	9.63	0.00889	-	-
	24-hr	9.63	9.63	0.00889	-	-
	Annual	7.55	7.55	0.00889	-	-
CO	1-hr	25.6	25.6	0.125	-	-
	8-hr	25.6	25.6	0.125	-	-
$PM_{2.5}$	24-hr	0.643	0.643	0.113	0.00908	0.00908
	Annual	0.643	0.643	0.113	0.0107	0.0107
PM_{10}	24-hr	0.643	0.643	0.113	0.0122	0.0122
	Annual	0.643	0.643	0.113	0.0145	0.0145

Table 3 lists the highest results of screening modeling performed for CO, NO_2, $PM_{2.5}$, PM_{10}, and SO_2 using both the surface characteristics around the Pryor Field Airport and the surface characteristics around the Nucor facility.

TABLE 3
Screening Modeling Results for CO, NO_2, $PM_{2.5}$, PM_{10}, and SO_2

Pollutant	Averaging Period	Max. Conc. Airport ($\mu g/m^3$)	Max. Conc. Nucor ($\mu g/m^3$)	Significance Level ($\mu g/m^3$)
CO	1-hr	56.64	58.05	2000
	8-hr	23.53	24.36	500
NO_2	1-hr	19.18	18.85	7.5
	Annual	0.78	0.78	1
$PM_{2.5}$	24-hr	0.57	0.58	1.2
	Annual	0.10	0.10	0.3
PM_{10}	24-hr	0.59	0.59	5
	Annual	0.10	0.10	1
SO_2	1-hr	21.31	21.84	7.8
	3-hr	12.03	12.59	25
	24-hr	4.66	4.72	5
	Annual	0.26	0.28	1

Results of the modeling indicated that the maximum predicted concentrations exceeded the significance levels for 1-hour NO_2, and 1-hour SO_2. Therefore, refined modeling was required for these pollutants.

Also, during this initial screening modeling analysis, preconstruction monitoring requirements were addressed, and it was determined that preconstruction was not required. Representative monitoring data provided by ADEM was included in the application.

REFINED MODELING:

NAAQS Analysis:

Since impacts for annual and 1-hour NO_2 and 1-hour SO_2 were above the significance levels, refined modeling was required. When modeling for the 1-hour SO_2 and NO_2 averaging periods, all emission sources at Nucor and other nearby facilities were included. Additionally, the LEADPOST processor was used to predict the impact of lead. Results of the NO_2 1-hour and SO_2 1-hour NAAQS modeling and LEADPOST results are found in Table 4.

TABLE 4
NAAQS Modeling Results for NO_2 and SO_2 1-hour Averaging Periods and LEADPOST

Averaging Period	Year of Met Data	Modeled Conc. ($\mu g/m^3$)	Back-ground ($\mu g/m^3$)	Total Conc. ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)	% of NAAQS
NO_2 1-hr	2012-2016	1155.27	31	1186.27	188	631.0
SO_2 1-hr	2012-2016	242.84	11	253.84	196	129.5
Lead	2012-2016	0.0041	-	0.0041	0.15	2.7

As shown in Table 4, results of LEADPOST indicate that Lead concentrations fall below the NAAQS. However, there were predicted violations of the 1-hour SO_2 NAAQS as well as the 1 hour NO_2 NAAQS. Further modeling of 1-hour SO_2 and NO_2 showed that Nucor was not a significant contributor to any of the violations. ADEM is committed to resolving the predicted violations in a timely manner.

CLASS II INCREMENT ANALYSIS:

A Class II Increment has not been established for either the NO_2 1-hour or the SO_2 1-hour averaging periods, therefore no Class II Increment modeling was performed.

MERPs ANALYSIS:

Precursor emission impacts to Ozone and $PM_{2.5}$ (secondary $PM_{2.5}$) were considered and a Modeled Emission Rates for Precursors (MERPs) analysis was performed for this application. The Ozone precursors are the pollutants VOC and NO_x, and the precursor emissions of interest for secondary $PM_{2.5}$ are NO_x and SO_2. The MERPs analysis indicated that the addition of secondary impacts were protective of the NAAQS. The details of this analysis can be found in the application.

CLASS I AREA ANALYSIS:

The Nucor facility is located approximately 43 km from the nearest Class I area, the Sipsey Wilderness Area in north Alabama. Based on the distance from the nearest Class I area, a Class I Increment analysis was required by ADEM.

All Class I modeling was performed with AERMOD using worst case surface characteristics. Results of the Class I Increment analysis are shown in Table 5.

TABLE 5
Class I Increment Analysis

Pollutant	Averaging Period	Max. Pred. Conc. ($\mu g/m^3$)	Significance Level ($\mu g/m^3$)	% of Class 1 SIL
NO_2	Annual	0.03	0.1	28
$PM_{2.5}$	24-hour	0.035	0.27	13
	Annual	0.003	0.05	6
PM_{10}	24-hour	0.03	0.3	12
	Annual	0.003	0.2	2
SO_2	3-hour	2.18	1.0	218
	24-hour	0.43	0.2	215
	Annual	0.03	0.1	29

Results of the modeling indicated that the maximum predicted NO_2, $PM_{2.5}$, PM_{10}, and annual SO_2 concentrations were below their respective Class I significance levels. Therefore, no further modeling of those was required. However, the 3 and 24 hour concentrations of SO_2 were predicted to be above their respective significance levels. Therefore, further modeling of the 3-hour and 24-hour averaging periods for SO_2 was required.

ADEM previously completed a cumulative SO_2 Class I Increment analysis for Sipsey. This analysis included all sources currently at Nucor Decatur. Therefore, the results from that analysis were added to the results from the proposed modifications at Nucor Decatur. Table 6 shows the overall results from these analyses.

TABLE 6
SO_2 Class I Increment Results for Sipsey

Averaging Period	Max. Predicted Impacts from Current Project ($\mu g/m^3$)	Impact of Nucor's Previous Modifications ($\mu g/m^3$)	ADEM's Cumulative Modeling ($\mu g/m^3$)	Total Impact ($\mu g/m^3$)	Class I Increment ($\mu g/m^3$)
3-hour	2.18	1.17	14.42	16.83	25
24-hour	0.43	0.23	2.13	3.73	5

Results of this modeling indicate that the maximum predicted concentrations for the 3 and 24-hour SO_2 averaging periods were below the respective Class I Increments. Therefore, no further modeling was required.

AIR QUALITY RELATED VALUE ANALYSIS (AQRV):

An AQRV analysis was performed in order to evaluate regional haze, as well as sulfur and nitrogen deposition using the CALPUFF model. The results of the regional haze analysis are presented in Table 7 and the deposition analyses in Table 8.

TABLE 7
CALPUFF Regional Haze Results

Year	Number of Days with change in Extinction >5%	98^{th} Percentile Change in Extinction
2001	0	1.68
2002	0	1.33
2003	0	1.50

The results from the visibility analysis demonstrate that no adverse impacts to regional haze will result due to project emissions.

TABLE 8
CALPUFF Deposition Results

Year	Maximum Predicted Impacts (kg/ha/yr)	Deposition Analysis Threshold (DAT)	Percent of DAT
Nitrogen Deposition	0.0076	0.010	76
Sulfur Deposition	0.0196	0.010	196

The results of the analysis indicate that project impacts are below the nitrogen DATs, but above the sulfur DATs. Since current total sulfur deposition values at Sipsey are less than 5 kg/ha/yr, the addition of the maximum predicted impacts are not expected to negatively affect soil and vegetation.

CONCLUSION:

In conclusion, emissions of CO, $PM_{2.5}$, PM_{10}, SO_2, and Lead from the proposed modifications at the Nucor Steel Decatur facility in Decatur, Alabama, are not expected to cause or significantly contribute to a violation of a NAAQS or Class 1 Increment levels.

ATTACHMENT NO. 2

Proposed Permit Provisos

Alabama Department of Environmental Management

AIR PERMIT

PERMITTEE: NUCOR STEEL DECATUR, LLC

FACILITY NAME: NUCOR STEEL DECATUR, LLC

LOCATION: TRINITY, MORGAN COUNTY, ALABAMA

PERMIT NUMBER	DESCRIPTION OF EQUIPMENT, ARTICLE, OR DEVICE
712-0037-X001	Two (2) Electric Arc Furnaces & Three (3) Ladle Metallurgy Furnaces with Two (2) Meltshop Baghouses

In accordance with and subject to the provisions of the Alabama Air Pollution Control Act of 1971, Ala. Code §§ 22-28-1 to 22-28-23, as amended, the Alabama Environmental Management Act, Ala. Code §§ 22-22A-1 to 22-22A-17, as amended, and rules and regulations adopted there under, and subject further to the conditions set forth in this permit, the Permittee is hereby authorized to construct, install and use the equipment, device or other article described above.

ISSUANCE DATE: DRAFT

Alabama Department of Environmental Management

NUCOR STEEL DECATUR, LLC
TRINITY, ALABAMA
(PERMIT NO. 712-0037-X001)
PROVISOS

General Permit Provisos

1. This permit is issued on the basis of Rules and Regulations existing on the date of issuance. In the event additional Rules and Regulations are adopted, it shall be the permit holder's responsibility to comply with such rules.

2. This permit is not transferable. Upon sale or legal transfer, the new owner or operator must apply for a permit within 30 days.

3. A new permit application must be made for new sources, replacements, alterations or design changes which may result in the issuance of, or an increase in the issuance of, air contaminants, or the use of which may eliminate or reduce or control the issuance of air contaminants.

4. Each point of emission, which requires testing, will be provided with sampling ports, ladders, platforms, and other safety equipment to facilitate testing performed in accordance with procedures established by Part 60 of Title 40 of the Code of Federal Regulations, as the same may be amended or revised.

5. All air pollution control equipment shall be operated at all times while this process is operational. In the event of scheduled maintenance, unscheduled maintenance, or a breakdown of the pollution control equipment, the process shall be shutdown as expeditiously as possible (unless this act and subsequent re-start would clearly cause greater emissions than continuing operations of the process for a short period). The Department shall be notified of all such events **that exceed 1 hour** within 24 hours. The notification shall include all pertinent facts, including the duration of the process operating without the control device and the level of excess emissions which have occurred. Records of all such events, regardless of reporting requirements, shall be made and maintained for a period of five years. These records shall be available for inspection.

6. In the event there is a breakdown of equipment in such a manner as to cause increased emission of air contaminants for a period greater than **1 hour**, the person responsible for such equipment shall notify the Air Division within an additional 24 hours and provide a statement giving all pertinent facts, including the duration of the breakdown. The Air Division shall be notified when the breakdown has been corrected.

7. All deviations from requirements within this permit shall be reported to the Department within 48 hours of the deviation or by the next work day while providing a statement with regards to the date, time, duration, cause, and corrective actions taken to bring the sources back into compliance.

8. This process, including all air pollution control devices and capture systems for which this permit is issued shall be maintained and operated at all times in a manner so as to minimize the emissions of air contaminants. Procedures for ensuring that the above equipment is properly operated and maintained so as to minimize the emission of air contaminants shall be established.

9. This permit expires and the application is cancelled if construction has not begun within 24 months of the date of issuance of the permit.

10. On completion of construction of the device(s) for which this permit is issued, written notification of the fact is to be submitted to the Chief of the Air Division. The notification shall indicate whether the device(s) was constructed as proposed in the application. The device(s) shall not be operated until authorization to operate is granted by the Chief of the Air Division. Failure to notify the Chief of the Air Division of completion of construction and/or operation without authorization could result in revocation of this permit.

11. Prior to a date to be specified by the Chief of the Air Division in the authorization to operate, emission tests are to be conducted by persons familiar with and using the EPA Sampling Train and Test Procedure as described in the Code of Federal Regulations, Title 40, Part 60, for the following pollutants. Written tests results are to be reported to the Air Division within 30 working days of completion of testing.

Particulates	(X)	Carbon Monoxide	(X)
Sulfur Dioxide	(X)	Nitrogen Oxides	(X)
Volatile Organic Compounds	(X)	Visible Emissions	(X)

12. Submittal of other reports regarding monitoring records, fuel analyses, operating rates, and equipment malfunctions may be required as authorized in the Department's air pollution control rules and regulations. The Department may require stack emission testing at any time.

13. Additions and revisions to the conditions of this Permit will be made, if necessary, to ensure that the Department's air pollution control rules and regulations are not violated.

14. Nothing in this permit or conditions thereto shall negate any authority granted to the Air Division pursuant to the Alabama Environmental Management Act or regulations issued thereunder.

15. This permit is issued with the condition that, should obnoxious odors arising from the plant operations be verified by Air Division inspectors, measures to abate the odorous emissions shall be taken upon a determination by the Alabama Department of Environmental Management that these measures are technically and economically feasible.

16. The Air Division must be notified in writing at least 10 working days in advance of all emission tests to be conducted and submitted as proof of compliance with the Department's air pollution control rules and regulations.

    To avoid problems concerning testing methods and procedures, the following shall be included with the notification letter:

    a. The date the test crew is expected to arrive, the date and time anticipated of the start of the first run, how many and which sources are to be tested, and the names of the persons and/or testing company that will conduct the tests.

    b. A complete description of each sampling train to be used, including type of media used in determining gas stream components, type of probe lining, type of filter media, and probe cleaning method and solvent to be used (if test procedure requires probe cleaning).

c. A description of the process(es) to be tested, including the feed rate, any operating parameter used to control or influence the operations, and the rated capacity.

d. A sketch or sketches showing sampling point locations and their relative positions to the nearest upstream and downstream gas flow disturbances.

A pretest meeting may be held at the request of the source owner or the Department. The necessity for such a meeting and the required attendees will be determined on a case-by-case basis.

All test reports must be submitted to the Air Division within 30 days of the actual completion of the test, unless an extension of time is specifically approved by the Air Division.

17. Records will be maintained of the occurrence and duration of any startup, shutdown, or malfunction in the operation of the process equipment and any malfunction of the air pollution control equipment. These records will be kept in a permanent form suitable for inspection and will be retained for at least two years following the date of each occurrence.

18. Precautions shall be taken to prevent fugitive dust emanating from plant roads, grounds, stockpiles, screens, dryers, hoppers, ductwork, etc.

    Plant or haul roads and grounds will be maintained in the following manner so that dust will not become airborne. A minimum of one, or a combination, of the following methods shall be utilized to minimize airborne dust from plant or haul roads and grounds:

    (a) by the application of water any time the surface of the road is sufficiently dry to allow the creation of dust emissions by the act of wind or vehicular traffic;

    (b) by reducing the speed of vehicular traffic to a point below that at which dust emissions are created;

    (c) by paving;

    (d) by the application of binders to the road surface at any time the road surface is found to allow the creation of dust emissions;

    Should one, or a combination, of the above methods fail to adequately reduce airborne dust from plant or haul roads and grounds, alternative methods shall be employed, either exclusively or in combination with one or all of the above control techniques, so that dust will not become airborne. Alternative methods shall be approved by the Department prior to utilization.

19. Any performance tests required shall be conducted and data reduced in accordance with the test methods and procedures contained in each specific permit condition unless the Director (1) specifies or approves, in specific cases, the use of a reference method with minor changes in methodology, (2) approves the use of an equivalent method, or (3) approves the use of an alternative method, the results of which he has determined to be adequate for indicating whether a specific source is in compliance.

20. The issuance of this permit does not convey any property rights of any sort, or any exclusive privilege.

21. The permittee shall not use as a defense in an enforcement action that maintaining compliance with conditions of this permit would have required halting or reducing the permitted activity.

22. The permittee shall keep this permit under file or on display at all times at the site where the facility for which the permit is issued is located and shall make the permit readily available for inspection by any or all persons who may request to see it.

23. The permittee shall submit an annual compliance certification to the Department no later than 60 days following the anniversary of the permittee's Title V permit. The compliance certification shall include the following:

    (a) The compliance certification shall include the following:

        a. The identification of each term or condition of this permit that is the basis of the certification;

        b. The compliance status;

        c. The method(s) used for determining the compliance status of the source, currently and over the reporting period consistent with Rule 335-3-16-.05(c) (Monitoring and Recordkeeping Requirements);

        d. Whether compliance has been continuous or intermittent; and

        e. Such other facts as the Department may require in order to determine the compliance status of the source.

    (b) The compliance certification shall be submitted to:

Alabama Department of Environmental Management
Air Division
P.O. Box 301463
Montgomery, AL 36130-1463

Two (2) Electric Arc Furnaces & Three (3) Ladle Metallurgy Furnaces with Two (2) Meltshop Baghouses

	Regulations
Applicability	
1. This source is subject to the applicable requirements of ADEM Admin. Code r. 335-3-14-.04, "*Air Permits Authorizing Construction in Clean Air Areas [Prevention of Significant Deterioration Permitting (PSD)]*."	Rule 335-3-14-.04 [PSD/BACT]
2. This source is subject to the applicable requirements of ADEM Admin. Code r. 335-3-16, "*Major Source Operating Permits*."	Rule 335-3-16-.03
3. This source is subject to the applicable requirements of 40 CFR part 60, subpart AAa, "*Standards of Performance for Steel Plants: Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels Constructed After August 17, 1983*."	40 CFR 60.270a(a) Rule 335-3-10-.02(27)(a)
4. This source is subject to the applicable requirements of 40 CFR part 60, subpart A, "*General Provisions*."	40 CFR 60.1(a)
5. This source is subject to the applicable requirements of 40 CFR part 63, subpart YYYYY, "*National Emission Standards for Hazardous Air Pollutants for Area Sources: Electric Arc Furnace Steelmaking Facilities*."	40 CFR 63.10680(a) Rule 335-3-11-.06(128)
6. This source is subject to the applicable requirements of 40 CFR part 63, subpart A, "*General Provisions*" as listed in Table 1 of subpart YYYYY.	40 CFR 63.10690(a)
Emission Standards	
1. The production of molten (ladled) steel by the electric arc furnaces (EAFs) shall not exceed 3,600,000 tons during any consecutive twelve (12) month period.	Rule 335-3-14-.04 [PSD/BACT]
2. The opacity of emissions from the stacks associated with the meltshop baghouses shall not exceed that designated as three percent (3%) opacity as determined by a six (6) minute average.	40 CFR 60.272a(a)(2)
3. The opacity of emissions from the roof or any openings of the building enclosure associated with the electric arc furnace shall not exceed that designated as six percent (6%) opacity as determined by a six (6) minute average.	40 CFR 60.272a(a)(3)

	Regulations
4. The opacity of emissions from any dust handling system shall not exceed that designated as ten percent (10%) opacity as determined by a six (6) minute average.	40 CFR 60.272a(b)
5. Filterable particulate matter (PM) emissions from the stacks associated with the meltshop baghouses shall not exceed 0.0018 gr/dscf and 43.22 lb/hr.	Rule 335-3-14-.04 [PSD/BACT]
6. Total (filterable and condensable) PM emissions from the stacks associated with the meltshop baghouses shall not exceed 0.0052 gr/dscf and 124 lb/hr.	Rule 335-3-14-.04 [PSD/BACT]
7. Sulfur dioxide (SO_2) emissions from the stacks associated with the meltshop baghouses shall not exceed 0.35 lb/ton of steel produced and 189 lb/hr.	Rule 335-3-14-.04 [PSD/BACT]
8. The sulfur content of the injection carbon utilized in the EAFs shall not exceed 2.0% by weight.	Rule 335-3-14-.04 [PSD/BACT]
9. Nitrogen oxide (NO_X) emissions from the stacks associated with the meltshop baghouses shall not exceed 0.42 lb/ton of steel produced and 226.8 lb/hr.	Rule 335-3-14-.04 [PSD/BACT]
10. Carbon monoxide (CO) emissions from the stacks associated with the meltshop baghouses shall not exceed 2.3 lb/ton of steel produced and 1,240 lb/hr.	Rule 335-3-14-.04 [PSD/BACT]
11. Volatile organic compound (VOC) emissions as propane from the stacks associated with the meltshop baghouses shall not exceed 0.13 lb/ton of steel produced and 70.2 lb/hr.	Rule 335-3-14-.04 [PSD/BACT]
12. Lead emissions from the stacks associated with the meltshop baghouses shall not exceed 0.002 lb/ton of steel produced and 1.08 lb/hr.	Rule 335-3-14-.04 [PSD/BACT]
13. CO_2e emissions from these units shall not exceed 504,000 tons per year (TPY) based on a twelve (12) month rolling total.	Rule 335-3-14-.04 [PSD/BACT]
14. A 3,000 amp breaker shall be used to limit the current to both sets of 123 MVA transformers to ensure that they are power limited to 90 MVA.	Rule 335-3-14-.04 [PSD/BACT]
15. All dust handling systems (screw conveyors, silos, dumpsters, etc.) from baghouse hoppers shall be enclosed to prevent fugitive emissions from these handling systems.	Rule 335-3-14-.04 [PSD/BACT]

	Regulations
16. All major roads shall be paved and curbed. A drawing or diagram showing major roadway areas shall be submitted to the Department for approval. The Department may add or remove areas from the list of major roadways based on the amount of dust generated by the traffic on the roadways.	Rule 335-3-14-.04 [PSD/BACT]
17. All paved roads shall be vacuum swept or flushed of surface material every third consecutive day. The vacuum sweeper shall have a minimum blower capacity of 12,000 cfm, and the flushing machine shall dispense water at a rate of 0.32 gal/yd^2. Paved road flushing is not required when the temperature is below 32°F. Paved road cleaning is not required when precipitation during the previous 24-hour period has exceeded 0.01 inches.	Rule 335-3-14-.04 [PSD/BACT]
18. All paved parking areas shall be vacuum swept or flushed of surface material every calendar quarter. The vacuum sweeper shall have a minimum blower capacity of 12,000 cfm, and the flushing machine shall dispense water at a rate of 0.32 gal/yd^2. Paved parking area flushing is not required when the temperature is below 32°F. Paved parking area cleaning is not required when precipitation during the previous 24-hour period has exceeded 0.01 inches.	Rule 335-3-14-.04 [PSD/BACT]
19. Storage piles, storage silos, and material handling systems for iron and steel scrap, hot briquette iron, pig iron, iron carbide, fluxing materials, and alloys agents shall be maintained in such a way to minimize the generation of dust.	Rule 335-3-14-.04 [PSD/BACT]
20. Storage piles and material handling systems for direct reduced iron shall be maintained in such a manner to minimize the generation of dust. The direct reduced iron shall be stored in a manner so as to prevent fugitive dust from becoming airborne due to wind entrainment or material handling.	Rule 335-3-14-.04 [PSD/BACT]
21. The Permittee shall comply with the emission standards and compliance requirements in §63.10685(a) and (b) and §63.10686(a) and (b) of 40 CFR part 63, subpart YYYYY.	40 CFR 63.10685(a)-(b) 40 CFR 63.10686(a)-(b)
Compliance and Performance Test Methods and Procedures	
1. Method 9 of 40 CFR part 60, appendix A shall be used in the determination of opacity of the stack emissions.	Rule 335-3-1-.05 40 CFR 60.275a(e)(3)
2. Method 5 of 40 CFR part 60, appendix A shall be used in the determination of filterable PM emissions.	Rule 335-3-1-.05

	Regulations
3. Method 202 of 40 CFR part 60, appendix A shall be used in the determination of total (filterable and condensable) PM emissions.	Rule 335-3-1-.05
4. Method 6 of 40 CFR part 60, appendix A shall be used in the determination of SO_2 emissions.	Rule 335-3-1-.05
5. Method 7E of 40 CFR part 60, appendix A shall be used in the determination of NO_X emissions.	Rule 335-3-1-.05
6. Method 10 of 40 CFR part 60, appendix A shall be used in the determination of CO emissions.	Rule 335-3-1-.05
7. Method 12 of 40 CFR part 60, appendix A shall be used in the determination of lead emissions.	Rule 335-3-1-.05
8. Method 25A of 40 CFR part 60, appendix A shall be used in the determination of VOC emissions.	Rule 335-3-1-.05
9. The Permittee shall comply with the test methods and procedures in §60.275a(a)-(j) of 40 CFR part 60, subpart AAa.	40 CFR 60.275a
10. The Permittee shall comply with the test methods and procedures in §63.10686(d) of 40 CFR part 63, subpart YYYYY.	40 CFR 63.10686(d)
Emission Monitoring	
1. Reference the Appendix for the monitoring requirements for 40 CFR part 64, "*Compliance Assurance Monitoring*."	40 CFR Part 64
2. The installed Continuous Opacity Monitoring Systems (COMS) on the stacks associated with the meltshop baghouses shall be operated and maintained according to the procedures in Performance Specification 1 of 40 CFR part 60, appendix B.	Rule 335-3-14-.04 40 CFR 60.273a(a)
3. The Permittee shall perform observations of the shop opacity at least once per day when the furnace is operating in the meltdown and refining period. Shop opacity shall be determined as the arithmetic average of 24 consecutive 15-second opacity observations of emissions from the shop taken in accordance with Method 9.	40 CFR 60.273a(d)
4. The Permittee shall comply with the monitoring requirements in §60.274a of 40 CFR part 60, subpart AAa.	40 CFR 60.274a(a)-(h)
5. The Permittee shall comply with the monitoring requirements in §63.10686 of 40 CFR part 63, subpart YYYYY.	40 CFR 63.10686(d)-(e)

	Regulations
6. Emissions tests for particulate matter and visible emissions shall be conducted at least once every twelve (12) months. The test report shall include the information in §63.276a(f) of 40 CFR part 60, subpart AAa.	Rule 335-3-14-.04 40 CFR 63.276a(f) 40 CFR Part 64
7. The Permittee shall continuously measure and record the pressure differential between the inlet and exhaust of the meltshop baghouses to determine if the pressure differential is between 2 to 12 inches of H_2O for the North Meltshop Baghouse (EP001) and between 4 to 16 inches of H_2O for the South Meltshop Baghouse (EP002). Whenever the pressure differential is outside of the range, maintenance inspections and/or corrective action are to be initiated.	Rule 335-3-16-.05(c)1.
8. The Permittee shall perform a visual check of the dust handling equipment at least once per day. This check shall be performed by a person familiar with Method 9. If any visible emissions are noted, the Permittee shall perform a Method 9 and take appropriate actions as necessary to eliminate the observed emissions immediately.	Rule 335-3-16-.05(c)1.
9. The Permittee shall operate a well-maintained direct evacuation canopy (DEC). Inspections shall be conducted to ensure proper operation at least once per quarter. If any problems are noted, the Permittee shall take appropriate actions as necessary to correct the problem.	Rule 335-3-16-.05(c)1.
10. The Permittee shall monitor the sulfur content of each load of injection carbon utilized in the EAF. The Permittee may use vendor test data or shipment certifications to verify the sulfur content in the injection carbon. If the sulfur content in the injection carbon is greater than 2.0%, the Department must be notified within 24 hours.	Rule 335-3-16-.05(c)1.
11. The amp rating on the 3,000 amp breaker shall be verified annually.	Rule 335-3-16-.05(c)1.
Recordkeeping and Reporting Requirements	
1. The Permittee shall comply with the recordkeeping and reporting requirements in §60.276a of 40 CFR part 60, subpart AAa.	40 CFR 60.276a(a)-(g)
2. The Permittee shall comply with the recordkeeping and reporting requirements in §63.10685 and §63.10690 of 40 CFR part 63, subpart YYYYY.	40 CFR 63.10685(c) 40 CFR 63.10690(b)
3. The Permittee shall maintain a record of the 12-month rolling total CO_2e emissions from this source.	Rule 335-3-14-.04
4. The Permittee shall maintain a record of the monthly and 12-month rolling total steel production.	Rule 335-3-16-.05(c)2.

	Regulations
5. The Permittee shall maintain a record of the sulfur content in the injection carbon utilized in the EAF.	Rule 335-3-16-.05(c)2.
6. The Permittee shall maintain a record of each visible inspection, to include Method 9 visible observations. This should also include problems observed and corrective actions taken.	Rule 335-3-16-.05(c)2.
7. The Permittee shall maintain a record of the quarterly inspections performed on the DEC.	Rule 335-3-16-.05(c)2.
8. The Permittee shall maintain records documenting each occasion in which paved areas are cleaned in accordance with the permit and any occasion in which these paved areas are not cleaned according to required schedule. This record shall include any justification for failure to meet the required schedule, such as equipment breakdown or inclement weather conditions.	Rule 335-3-16-.05(c)2.
9. The Permittee shall submit a written report of exceedances of the control device opacity, as indicated by the COMs, to the Department semi-annually. For the purposes of these reports, exceedances are defined as all 6-minute periods during which the average opacity is 3 percent or greater.	Rule 335-3-16-.05(c)2. 40 CFR 60.276a(b)
10. The Permittee shall submit a written report of exceedances of the EAF shop and dust handling equipment opacity limits to the Department semi-annually. For purposes of these reports, exceedances are defined as opacity observations from the EAF shop and/or the dust handling equipment in excess of the emission limits specified in the permit. Copies of Method 9 observations performed shall be included with the report.	Rule 335-3-16-.05(c)2. 40 CFR 60.276a(g)
11. All records shall be retained for a period of at least five (5) years from the date of generation. All records shall be maintained in a form suitable for inspection.	Rule 335-3-16-.05(c)2.(ii)

Appendix CAM

Compliance Plan for EP001 (North Meltshop Baghouse)

	Indicator 1	Indicator 2	Indicator 3	Indicator 4	Indicator 5
I. Indicator	Pressure Drop	Opacity	Opacity	PM Concentration	Bag Condition
Measurement Approach	Rosemount differential pressure gauge	COMs	EPA Reference Method 9	EPA Reference Method 5	Visual Inspection
II. Indicator Range	While the unit is operating, an excursion is defined as a pressure differential below 2.0 inches of H_2O or greater than 12.0 inches of H_2O. Excursions trigger an inspection, corrective action, and a reporting requirement.	While the unit is operating, an excursion is defined as an opacity measurement exceeding 3.0% on a 6-minute average. Excursions trigger an inspection, corrective action, and a reporting requirement.	While the unit is operating, an excursion is defined as the presence of visible emissions greater than 3.0% opacity. Excursions trigger an inspection, corrective action, and a reporting requirement.	An excursion is defined as particulate matter emissions greater than 0.0018 gr/dscf. Excursions trigger an inspection, corrective action, a reporting requirement, and additional testing.	An excursion is defined as a failure to perform the monthly inspection. Excursions trigger a reporting requirement.
III. Performance Criteria A. Data Representativeness	The pressure gauge measures the pressure differential between the inlet and outlet of the baghouse.	Measurement is being made inside the exhaust of the baghouse.	Measurement is being made at the emission point (baghouse exhaust).	Measurement is being made at the emission point (baghouse exhaust).	Baghouse inspected visually for deterioration and the facility will replace bags as needed.
B. Verification of Operation Status	Not Applicable	Not Applicable	Not Applicable	Record baghouse flow rate during the stack test.	Not Applicable
C. QA/QC Practices and Criteria	The pressure gauge will have a performance check quarterly. If abnormal pressure is noted, pressure taps will be checked.	The COMs will be operated in accordance with 40 CFR Part 60, Appendix B, Performance Specification 1 (PS1).	The observer will be familiar with Reference Method 9.	The test team will be familiar with Reference Method 5.	The baghouse will be inspected by trained and qualified personnel.
D. Monitoring Frequency	At least once every 15 minutes	Continuously	A 6-minute method 9 observation will be performed daily.	At least once every 12 months	A minimum monthly inspection will be performed.
E. Data Collection Procedures	The pressure differential will be recorded with date and time.	The opacity will be recorded with date and time.	The VE observation will be recorded with the time, date, and name of the observer.	The stack test will be documented with date and name of the people conducting the test.	The baghouse inspection will be recorded with the time, date, condition of bags, how many bags were replaced, and name of the inspector.
F. Averaging Period	Instantaneous	6-minute average	6-minute average	In accordance with EPA Reference Method 5	Monthly

Compliance Plan for EP002 (South Meltshop Baghouse)

	Indicator 1	Indicator 2	Indicator 3	Indicator 4	Indicator 5
I. Indicator	Pressure Drop	Opacity	Opacity	PM Concentration	Bag Condition
Measurement Approach	Rosemount differential pressure gauge	COMs	EPA Reference Method 9	EPA Reference Method 5	Visual Inspection
II. Indicator Range	While the unit is operating, an excursion is defined as a pressure differential below 4.0 inches of H_2O or greater than 16.0 inches of H_2O. Excursions trigger an inspection, corrective action, and a reporting requirement.	While the unit is operating, an excursion is defined as an opacity measurement exceeding 3.0% on a 6-minute average. Excursions trigger an inspection, corrective action, and a reporting requirement.	While the unit is operating, an excursion is defined as the presence of visible emissions greater than 3.0% opacity. Excursions trigger an inspection, corrective action, and a reporting requirement.	An excursion is defined as particulate matter emissions greater than 0.0018 gr/dscf. Excursions trigger an inspection, corrective action, a reporting requirement, and additional testing.	An excursion is defined as a failure to perform the monthly inspection. Excursions trigger a reporting requirement.
III. Performance Criteria					
A. Data Representativeness	The pressure gauge measures the pressure differential between the inlet and outlet of the baghouse.	Measurement is being made inside the exhaust of the baghouse.	Measurement is being made at the emission point (baghouse exhaust).	Measurement is being made at the emission point (baghouse exhaust).	Baghouse inspected visually for deterioration and the facility will replace bags as needed.
B. Verification of Operation Status	Not Applicable	Not Applicable	Not Applicable	Record baghouse flow rate during the stack test.	Not Applicable
C. QA/QC Practices and Criteria	The pressure gauge will have a performance check quarterly. If abnormal pressure is noted, pressure taps will be checked.	The COMs will be operated in accordance with 40 CFR Part 60, Appendix B, Performance Specification 1 (PS1).	The observer will be familiar with Reference Method 9.	The test team will be familiar with Reference Method 5.	The baghouse will be inspected by trained and qualified personnel.
D. Monitoring Frequency	At least once every 15 minutes	Continuously	A 6-minute method 9 observation will be performed daily.	At least once every 12 months	A minimum monthly inspection will be performed.
E. Data Collection Procedures	The pressure differential will be recorded with date and time.	The opacity will be recorded with date and time.	The VE observation will be recorded with the time, date, and name of the observer.	The stack test will be documented with date and name of the people conducting the test.	The baghouse inspection will be recorded with the time, date, condition of bags, how many bags were replaced, and name of the inspector.
F. Averaging Period	Instantaneous	6-minute average	6-minute average	In accordance with EPA Reference Method 5	Monthly

Alabama Department of Environmental Management

AIR PERMIT

PERMITTEE: NUCOR STEEL DECATUR, LLC

FACILITY NAME: NUCOR STEEL DECATUR, LLC

LOCATION: TRINITY, MORGAN COUNTY, ALABAMA

PERMIT NUMBER	DESCRIPTION OF EQUIPMENT, ARTICLE, OR DEVICE
712-0037-X020	120 MMBtu/hr Galvanizing Line with Selective Catalytic Reduction

In accordance with and subject to the provisions of the Alabama Air Pollution Control Act of 1971, Ala. Code §§ 22-28-1 to 22-28-23, as amended, the Alabama Environmental Management Act, Ala. Code §§ 22-22A-1 to 22-22A-17, as amended, and rules and regulations adopted there under, and subject further to the conditions set forth in this permit, the Permittee is hereby authorized to construct, install and use the equipment, device or other article described above.

ISSUANCE DATE: DRAFT

Alabama Department of Environmental Management

NUCOR STEEL DECATUR, LLC
TRINITY, ALABAMA
(PERMIT NO. 712-0037-X020)
PROVISOS

General Permit Provisos

1. This permit is issued on the basis of Rules and Regulations existing on the date of issuance. In the event additional Rules and Regulations are adopted, it shall be the permit holder's responsibility to comply with such rules.

2. This permit is not transferable. Upon sale or legal transfer, the new owner or operator must apply for a permit within 30 days.

3. A new permit application must be made for new sources, replacements, alterations or design changes which may result in the issuance of, or an increase in the issuance of, air contaminants, or the use of which may eliminate or reduce or control the issuance of air contaminants.

4. Each point of emission, which requires testing, will be provided with sampling ports, ladders, platforms, and other safety equipment to facilitate testing performed in accordance with procedures established by Part 60 of Title 40 of the Code of Federal Regulations, as the same may be amended or revised.

5. All air pollution control equipment shall be operated at all times while this process is operational. In the event of scheduled maintenance, unscheduled maintenance, or a breakdown of the pollution control equipment, the process shall be shutdown as expeditiously as possible (unless this act and subsequent re-start would clearly cause greater emissions than continuing operations of the process for a short period). The Department shall be notified of all such events **that exceed 1 hour** within 24 hours. The notification shall include all pertinent facts, including the duration of the process operating without the control device and the level of excess emissions which have occurred. Records of all such events, regardless of reporting requirements, shall be made and maintained for a period of five years. These records shall be available for inspection.

6. In the event there is a breakdown of equipment in such a manner as to cause increased emission of air contaminants for a period greater than **1 hour**, the person responsible for such equipment shall notify the Air Division within an additional 24 hours and provide a statement giving all pertinent facts, including the duration of the breakdown. The Air Division shall be notified when the breakdown has been corrected.

7. All deviations from requirements within this permit shall be reported to the Department within 48 hours of the deviation or by the next work day while providing a statement with regards to the date, time, duration, cause, and corrective actions taken to bring the sources back into compliance.

8. This process, including all air pollution control devices and capture systems for which this permit is issued shall be maintained and operated at all times in a manner so as to minimize the emissions of air contaminants. Procedures for ensuring that the above equipment is properly operated and maintained so as to minimize the emission of air contaminants shall be established.

9. This permit expires and the application is cancelled if construction has not begun within 24 months of the date of issuance of the permit.

10. On completion of construction of the device(s) for which this permit is issued, written notification of the fact is to be submitted to the Chief of the Air Division. The notification shall indicate whether the device(s) was constructed as proposed in the application. The device(s) shall not be operated until authorization to operate is granted by the Chief of the Air Division. Failure to notify the Chief of the Air Division of completion of construction and/or operation without authorization could result in revocation of this permit.

11. Prior to a date to be specified by the Chief of the Air Division in the authorization to operate, emission tests are to be conducted by persons familiar with and using the EPA Sampling Train and Test Procedure as described in the Code of Federal Regulations, Title 40, Part 60, for the following pollutants. Written tests results are to be reported to the Air Division within 30 working days of completion of testing.

Particulates	( )	Carbon Monoxide	( )
Sulfur Dioxide	( )	Nitrogen Oxides	(X)
Volatile Organic Compounds ( )			

12. Submittal of other reports regarding monitoring records, fuel analyses, operating rates, and equipment malfunctions may be required as authorized in the Department's air pollution control rules and regulations. The Department may require stack emission testing at any time.

13. Additions and revisions to the conditions of this Permit will be made, if necessary, to ensure that the Department's air pollution control rules and regulations are not violated.

14. Nothing in this permit or conditions thereto shall negate any authority granted to the Air Division pursuant to the Alabama Environmental Management Act or regulations issued thereunder.

15. This permit is issued with the condition that, should obnoxious odors arising from the plant operations be verified by Air Division inspectors, measures to abate the odorous emissions shall be taken upon a determination by the Alabama Department of Environmental Management that these measures are technically and economically feasible.

16. The Air Division must be notified in writing at least 10 working days in advance of all emission tests to be conducted and submitted as proof of compliance with the Department's air pollution control rules and regulations.

    To avoid problems concerning testing methods and procedures, the following shall be included with the notification letter:

    a. The date the test crew is expected to arrive, the date and time anticipated of the start of the first run, how many and which sources are to be tested, and the names of the persons and/or testing company that will conduct the tests.

b. A complete description of each sampling train to be used, including type of media used in determining gas stream components, type of probe lining, type of filter media, and probe cleaning method and solvent to be used (if test procedure requires probe cleaning).

c. A description of the process(es) to be tested, including the feed rate, any operating parameter used to control or influence the operations, and the rated capacity.

d. A sketch or sketches showing sampling point locations and their relative positions to the nearest upstream and downstream gas flow disturbances.

A pretest meeting may be held at the request of the source owner or the Department. The necessity for such a meeting and the required attendees will be determined on a case-by-case basis.

All test reports must be submitted to the Air Division within 30 days of the actual completion of the test, unless an extension of time is specifically approved by the Air Division.

17. Records will be maintained of the occurrence and duration of any startup, shutdown, or malfunction in the operation of the process equipment and any malfunction of the air pollution control equipment. These records will be kept in a permanent form suitable for inspection and will be retained for at least two years following the date of each occurrence.

18. Precautions shall be taken to prevent fugitive dust emanating from plant roads, grounds, stockpiles, screens, dryers, hoppers, ductwork, etc.

    Plant or haul roads and grounds will be maintained in the following manner so that dust will not become airborne. A minimum of one, or a combination, of the following methods shall be utilized to minimize airborne dust from plant or haul roads and grounds:

    (a) by the application of water any time the surface of the road is sufficiently dry to allow the creation of dust emissions by the act of wind or vehicular traffic;

    (b) by reducing the speed of vehicular traffic to a point below that at which dust emissions are created;

    (c) by paving;

    (d) by the application of binders to the road surface at any time the road surface is found to allow the creation of dust emissions;

    Should one, or a combination, of the above methods fail to adequately reduce airborne dust from plant or haul roads and grounds, alternative methods shall be employed, either exclusively or in combination with one or all of the above control techniques, so that dust will not become airborne. Alternative methods shall be approved by the Department prior to utilization.

19. Any performance tests required shall be conducted and data reduced in accordance with the test methods and procedures contained in each specific permit condition unless the Director (1) specifies or approves, in specific cases, the use of a reference method with minor changes in methodology, (2) approves the use of an equivalent method, or (3) approves the use of an alternative method, the results of which he has determined to be adequate for indicating whether a specific source is in compliance.

20. The issuance of this permit does not convey any property rights of any sort, or any exclusive privilege.

21. The permittee shall not use as a defense in an enforcement action that maintaining compliance with conditions of this permit would have required halting or reducing the permitted activity.

22. The permittee shall keep this permit under file or on display at all times at the site where the facility for which the permit is issued is located and shall make the permit readily available for inspection by any or all persons who may request to see it.

23. The permittee shall submit an annual compliance certification to the Department no later than 60 days following the anniversary of the permittee's Title V permit. The compliance certification shall include the following:

    (a) The compliance certification shall include the following:

        a. The identification of each term or condition of this permit that is the basis of the certification;

        b. The compliance status;

        c. The method(s) used for determining the compliance status of the source, currently and over the reporting period consistent with Rule 335-3-16-.05(c) (Monitoring and Recordkeeping Requirements);

        d. Whether compliance has been continuous or intermittent; and

        e. Such other facts as the Department may require in order to determine the compliance status of the source.

    (b) The compliance certification shall be submitted to:

Alabama Department of Environmental Management
Air Division
P.O. Box 301463
Montgomery, AL 36130-1463

120 MMBtu/hr Galvanizing Line with Selective Catalytic Reduction

	Regulations
Applicability	
1. This source is subject to the applicable requirements of ADEM Admin. Code r. 335-3-14-.04, "*Air Permits Authorizing Construction in Clean Air Areas [Prevention of Significant Deterioration Permitting (PSD)]*."	Rule 335-3-14-.04 [PSD/BACT]
2. This source is subject to the applicable requirements of ADEM Admin. Code r. 335-3-16, "*Major Source Operating Permits*."	Rule 335-3-16-.03
Emission Standards	
1. Particulate matter (PM) emissions from the galvanizing line shall not exceed 0.0075 lb/MMBtu and 0.89 lb/hr.	Rule 335-3-14-.04 [PSD/BACT]
2. Sulfur Dioxide (SO_2) emissions from the galvanizing line shall not exceed 0.0006 lb/MMBtu and 0.07 lb/hr.	Rule 335-3-14-.04 [PSD/BACT]
3. Nitrogen oxide (NO_X) emissions from the galvanizing line shall not exceed 0.067 lb/MMBtu and 8.0 lb/hr.	Rule 335-3-14-.04 [PSD/BACT]
4. Carbon monoxide (CO) emissions from the galvanizing line shall not exceed 0.082 lb/MMBtu and 9.9 lb/hr.	Rule 335-3-14-.04 [PSD/BACT]
5. Volatile Organic Compound (VOC) emissions from the galvanizing line shall not exceed 0.0054 lb/MMBtu and 0.65 lb/hr.	Rule 335-3-14-.04 [PSD/BACT]
6. CO_2e emissions from the galvanizing line shall not exceed 61,842 tons per year (TPY) based on a twelve (12) month rolling total.	Rule 335-3-14-.04 [PSD/BACT]
7. The SCR inlet flue gas temperature shall be maintained at or above 600°F prior to the injection of urea reagent.	Rule 335-3-14-.04 [PSD/BACT]
Compliance and Performance Test Methods and Procedures	
1. Method 5 of 40 CFR part 60, appendix A shall be used in the determination of PM emissions.	Rule 335-3-1-.05
2. Method 6 of 40 CFR part 60, appendix A shall be used in the determination of SO_2 emissions.	Rule 335-3-1-.05
3. Method 7E of 40 CFR part 60, appendix A shall be used in the determination of NO_X emissions.	Rule 335-3-1-.05

	Regulations
4. Method 9 of 40 CFR part 60, appendix A shall be used in the determination of opacity of the stack emissions.	Rule 335-3-1-.05
5. Method 10 of 40 CFR part 60, appendix A shall be used in the determination of CO emissions.	Rule 335-3-1-.05
6. Method 25A of 40 CFR part 60, appendix A shall be used in the determination of VOC emissions.	Rule 335-3-1-.05
Emission Monitoring	
1. To demonstrate compliance with the NO_X limit, the following requirements shall be adhered to:	
a. This unit shall be equipped with a continuous emissions monitor system (CEMS) to measure the NO_X emission rate.	Rule 335-3-16-.05(c)1.
i. The CEMS shall be operated and maintained according to the procedures in Performance Specification 2 of 40 CFR part 60, appendix B.	
ii. A deviation is defined as a NO_X emission rate greater than 0.067 lb/MMBtu and/or 8.0 lb/hr, based on a 1-hour average. A deviation triggers an immediate inspection and corrective action. Deviations shall be reported to the Department within 48 hours, or two business days.	
iii. The CEMS will be located in the exhaust of the unit.	
2. A monitoring device for the continuous measurement and recording of the SCR inlet flue gas temperature shall be installed, operated, and maintained in accordance with manufacturer's recommendations. If the flue gas temperature falls below 600°F, the urea reagent flow shall be automatically shut off, and the facility shall investigate and initiate any necessary corrective actions within 2 hours, unless the Permittee is running product that requires a furnace operating condition that results in flue gas temperatures less than 600°F and provided the NO_X emission limit is not exceeded during these operating conditions. Such operating conditions shall be noted in the quarterly excess emissions report.	Rule 335-3-16-.05(c)1.

	Regulations
Recordkeeping and Reporting Requirements	
1. The Permittee shall maintain a record of all monitoring required by this permit. This shall include all problems observed and corrective actions taken. The records shall be maintained in a form suitable for inspection and shall be kept on site for a period of five (5) years.	Rule 335-3-16-.05(c)2.
2. The Permittee shall maintain a record of the 12-month rolling total CO_2e emissions from this source.	Rule 335-3-14-.04
3. An Excess Emissions report for the galvanizing line shall be submitted to the Department quarterly. The report will include the following information:	Rule 335-3-16-.05(c)2.
a. *NO_X*: Emission rates in excess of 0.067 lb/MMBtu and 8.0 lb/hr as computed from a 1-hour average.	
Note: Data recorded during periods of monitor system breakdowns, maintenance, adjustments, and calibration checks shall not be included in any of the above data averages.	
b. The date and time each excess emissions event commenced and ended.	
c. The nature and cause of the excess emissions (if known) and the corrective action(s) taken or preventative measure(s) adopted.	
d. The date and time of each period during which any of the monitors were inoperative (excepting zero and span checks) and the nature of the repairs or adjustments.	
e. The equations used to convert NO_X emissions data as monitored to the required reporting standards (lb/MMBtu and lb/hr).	
f. If, during a reporting period, no excess emission events occur and the monitoring systems are operable at all times, a statement to that effect will be included in the report.	
g. The report will be submitted according to the following schedule:	

		Regulations
Reporting Period	Submittal Date	
January 1st through March 31st	*April 30th*	
April 1st through June 30th	*July 30th*	
July 1st through September 30th	*October 30th*	
October 1st through December 31st	*January 30th*	