STATEMENT OF BASIS

Nucor Decatur LLC
Decatur, Alabama
Morgan County
712-0037

This proposed significant modification to the Title V Major Source Operating Permit is issued under the provisions of ADEM Admin. Code R. 335-3-16. The above named applicant has requested authorization to perform the work or operate the facility shown on the application and drawings, plans and other documents attached hereto or on file with the Air Division of the Alabama Department of Environmental Management, in accordance with the terms and conditions of this permit.

On June 12, 2007, Nucor Decatur was issued Air Permit No. 712-0037-X016 for a 98.7 MMBtu/hr Galvanizing Line with Selective Catalytic Reduction (SCR). On July 30, 2008, the requirements of Air Permit No. 712-0037-X016 were incorporated into Nucor's Major Source Operating Permit (MSOP). On March 3, 2010, the Department received an application from Nucor Decatur proposing a modification to their existing major source operating permit to reflect changes to the Galvanizing Line with Selective Catalytic Reduction (SCR). Changes to the Galvanizing line include the addition of auxiliary burners and NO_x continuous emissions monitoring system (CEMS).

On September 17, 2008, Nucor Decatur was issued Air Permit No. 712-0037-X019 for a Copper Picking Line with Wet Suppression. This Title V MSOP modification will also incorporate the requirements of Air Permit No. 712-0037-X019 (Copper Picking Line with Wet Suppression) into Nucor's MSOP.

Galvanizing Line Furnace with Selective Catalytic Reduction (EP016)

The galvanizing line is used for the application of a zinc coating to the steel coils. The galvanizing line includes a natural gas fired annealing furnace with auxiliary burners. The NOx emissions are controlled by a selective catalytic reduction (SCR) unit. Under normal operation a water loop is heated with waste heat from the annealing furnace. During periods when the furnace is operating at a low firing rate, the auxiliary burners are needed to maintain a minimum water loop temperature of 180 ^{o}F. The original design called for a maximum heat input of 98.7 MMBtu/hr, but did not include the heat input from the auxiliary burners. The actual maximum burner capacity (furnace burners plus auxiliary burners) is 106.87 MMBtu/hr. Nucor proposes to modify there MSOP to reflect the maximum total burner (furnace burners plus auxiliary burners) capacity of 106.87 MMBtu/hr. The allowable emissions would not change. Nucor also proposes to modify there MSOP to include a NOx CEM.

Emission Standards

Opacity Standards:

This source shall not discharge more than one 6-minute average opacity greater than 20% in any 60-minute period. At no time shall any source discharge a 6-minute average opacity of particulate emissions greater than 40%. Opacity will be determined by 40 CFR Part 60, Appendix A, Method 9, unless otherwise specified in the Unit Specific provisos of this permit.

ADEM Admin. Code R. 335-3-4-.01(1)

Particulate Matter (PM):

Particulate matter emissions from the stack associated with the galvanizing line shall not exceed 0.0076 lbs/MMBtu and a mass emission rate of 0.75 lbs/hr.

ADEM Admin. Code R. 335-3-14-.04(9) (PSD-BACT)

Nitrogen Oxide (NO_x):

Nitrogen oxide emissions from the stack associated with the galvanizing line shall not exceed 0.067 lbs/MMBtu and a mass emission rate of 6.6 lbs/hr.

Rule 335-3-14-.04(9) (PSD-BACT)

The SCR inlet flue gas temperature shall be maintained at or above 600 ^{o}F prior to the injection of ammonia reagent.

Rule 335-3-14-.04(9) (PSD-BACT)

Carbon Monoxide (CO):

Carbon Monoxide emissions from the stack associated with the galvanizing line shall not exceed 0.084 lbs/MMBtu and a mass emission rate of 8.3 lbs/hr.

Rule 335-3-14-.04(9) (PSD-BACT)

Sulfur Dioxide (SO_2):

Sulfur dioxide emissions from the stack associated with the galvanizing line shall not exceed 0.0006 lbs/MMBtu and a mass emission rate of 0.06 lbs/hr.

Rule 335-3-14-.04(9) (PSD-BACT)

Volatile Organic Compounds (VOC):

Volatile organic compound emissions (VOC) from the stack associated with the galvanizing line shall not exceed 0.0055 lbs/MMBtu and a mass emission rate of 0.55 lbs/hr.

Rule 335-3-14-.04(9) (PSD-BACT)

Expected Emissions

The expected emissions are based on AP-42 emission factors or vendor data and expected operation of 8000 hours per year.

Particulate Matter (PM) and Opacity:

The expected particulate matter emissions would be 0.75 lbs/hr (3.3 TPY).

NO_x:

The expected NO_x emissions would be 6.6 lbs/hr (26.5 TPY).

CO:

The expected CO emissions would be 8.3 lbs/hr (0.24 TPY).

SO_2:

The expected SO_2 emissions would be 0.059 lbs/hr (0.24 TPY).

VOC:

The expected VOC emissions would be 0.54 lbs/hr (2.2 TPY).

Periodic Monitoring

NOx

A CEMS for NOx, conforming to the specifications of Appendix B and Appendix F of 40 CFR 60, shall be installed, operated, and maintained on the exhaust of the Galvanizing Line Furnace with Selective Catalytic Reduction (EP016).

ADEM Admin. Code R. 335-3-16-.05(c)

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 ^{o}F, the ammonia reagent flow shall be automatically shut off and the facility shall investigate and initiate any necessary corrective actions within 2 hours.

ADEM Admin. Code R. 335-3-16-.05(c)

CO, VOC, SO2, and PM

Based on the low level of expected CO, VOC, SO_2, and PM emissions from this source no periodic monitoring is required.

Recordkeeping and Reporting

A report of excess emissions will be submitted to the Department for each calendar quarter within 30 days following the end of the quarter. For the purposes of this report, exceedances are defined as NOx emissions over 0.067 lb/MMBtu and 6.60 lbs/hr as computed from a 1 hour average. The report will include, at a minimum, the following information:

(a) The date and time of commencement and completion of each time period of excess emissions.

(b) The nature of the cause of the excess emissions (if known). The date and time identifying each period during which the monitoring systems were inoperative (except for zero and span checks) and the nature of the system repairs or adjustments.

(c) Equations used to convert NOx emission data as monitored to the required reporting standards (lbs/hr and lb/MMBtu) will be included with the reports.

(d) When no excess emissions have occurred and the monitoring systems were not inoperative or did not require repairs or adjustments, such information shall be stated in the reports.

(e) Data recorded during periods of system breakdowns, repairs, adjustments, and calibration checks shall not be included in any of the above data averages.

All the original data charts, performance evaluations, calibration checks, adjustments and maintenance records and other information regarding the monitoring systems will be maintained in a permanent form suitable for inspection. The file shall be retained for at least five years following the date of such recording.

ADEM Admin. Code R. 335-3-16-.05(c)

The facility shall maintain a record of all monitoring required by this permit. This shall include all problems observed and corrective action 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.

ADEM Admin. Code R. 335-3-16-.05(c)

Copper Picking Line with Wet Suppression

This process includes two (2) vibratory feeders and eight (8) material handling conveyors. The process begins by feeding shredded scrap via grapple into the vibratory feeders. The vibratory feeders slowly shake the shredded scrap onto belt conveyors which run through a building where plant personnel remove the copper and rebar by hand. Prior to entering the building, a water mist system would be utilized to reduce fugitive emissions. There are three piles after separation: shredded scrap, copper, and rebar. The emissions from this process are fugitive.

Emission Standards:

Particulate Matter (PM):

The facility shall install, operate, and maintain the wet suppression system in accordance with manufacturer's recommendations.

ADEM Admin. Code R. 335-3-4-.02

Expected Emissions:

Particulate Matter (PM):

The emission sources consist of conveyor transfer points and the vibratory feeder. The emission calculations are based on AP-42 emission factors and expected operation of 2,600 hours per year. The particulate emissions would be 1.52 lbs/hr (1.98 TPY).

Periodic Monitoring:

An observation of each emission point associated with this source will be accomplished at least weekly. If visible emissions in excess of 10% opacity are noted, corrective action shall be initiated within 2 hours to reduce the emissions. After the corrective action has been performed, the Permittee shall conduct another visual check to ensure that the visible emissions have been reduced.

ADEM Admin. Code R. 335-3-16-.05(c)

Reporting and Recordkeeping:

The Permittee shall maintain a record of all visual emission observations. This shall include all problems observed and corrective action 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.

ADEM Admin. Code R. 335-3-16-.05(c)

Compliance Assurance Monitoring (CAM)

This operation does not have pre-controlled potential emissions greater than any major source threshold; therefore, CAM does not apply.

Recommendation

Based on the above analysis and pending the resolution of any comments received during the 30-day public comment period and 45 day EPA review, I recommend issuing Nucor Decatur's modified Title V MSOP.

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Charles Killebrew
Industrial Minerals Sections
Energy Branch
Air Division

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Date