**INFORMATION RELATIVE TO**

**THE DRAFT TITLE V OPERATING PERMIT**

**April 19, 2019**

FOR:

**Steel Dynamics Columbus LLC**

**1945 Airport Road**

**Columbus, MS 39701**

FACILITY DESCRIPTION

Steel Dynamics Columbus LLC operates a specialty steel mini-mill in Columbus, Mississippi, and is requesting a significant modification of the existing Title V permit. The modification consists of the construction and operation of a third Continuous Galvanizing Line (CGL3) and modifications to Continuous Galvanizing Line 1 (CGL1). New sources of emissions include the Galvanizing Line 1 direct-fired 60.83 MMBTUH Preheat Furnace (AA-017b), Galvanizing Line 3 rated at 400,000 tons of rolled steel per year and 102 tons per hour with emissions from the cleaning section controlled by a mist eliminator (AC-017), the Galvanizing Line 3 10.34 MMBTUH Radiant Tube Furnace (AC-017a), the Galvanizing Line 3 direct-fired 70.63 MMBTUH Preheat Furnace with a 20 MMBTUH Waste Heat Recovery Boiler (AC-017b), the Galvanizing Line 3 Cleaning Section direct-fired 1.94 MMBTUH dryer (AC-017c), and a new Autothermal Reformer (AA-029) utilized to produce an additional 12,000 scfh of hydrogen gas for the facility.

An additional modification to the draft permit includes a revision to the former Condition 5.B.1. The unnecessary stack testing requirement for NOx, CO, and SO2, was removed since the facility utilizes CEMS for compliance with both sets of furnace limits and their permit limits are not 3-hour averages but much longer averaging periods due to the nature of the operations.  Also, the other stack testing requirements were separated from the CEMS requirements into two (2) conditions, 5.B.1 and 5.B.2.

TITLE V PROGRAM APPLICABILITY BASIS

The facility is a major source as defined by Title V of the Federal Clean Air Act due to its potential to emit more than 100 tons per year (tpy) of Particulate Matter (PM), Particulate Matter with a diameter of less than 10 microns (PM10), Particulate Matter with a diameter of less than 2.5 microns (PM2.5), Sulfur Dioxide (SO2), Nitrogen Oxides (NOX), Carbon Monoxide (CO), and Volatile Organic Compounds (VOCs). The facility has the potential to emit less than 10 tons per year of any individual Hazardous Air Pollutant (HAP) and less than 25 tons per year of all combined HAPs. As such, this facility is currently classified as an area source in regard to NESHAP/MACT applicability. The facility is considered an existing Major source for PSD purposes.

LEGAL AND FACTUAL BASIS FOR DRAFT PERMIT CONDITIONS

The State and Federally-enforceable conditions of Title V Operating Permits are based upon the requirements of the State of Mississippi Air Emissions Operating Permit Regulations for the Purposes of Title V of the Federal Clean Air Act (11 Miss. Admin. Code Pt. 2, Ch. 6.), and applicable requirements effective upon the date of permit issuance. Applicable requirement means all of the following as they apply to emissions units in a Title V source:

1. any standard or other requirement set forth in the State Implementation Plan (SIP) approved or promulgated by EPA through rulemaking under Title I of the Federal Clean Air Act (Federal Act) including the following:

a. most of the State of Mississippi Air Emission Regulations for the Prevention, Abatement, and Control of Air Contaminants (11 Miss. Admin. Code Pt. 2, Ch. 1.)

b. the State of Mississippi Regulations for the Prevention of Air Pollution Emergency Episodes (11 Miss. Admin. Code Pt. 2, Ch. 3.),

c. the State of Mississippi Regulations for the Prevention of Significant Deterioration of Air Quality (11 Miss. Admin. Code Pt. 2, Ch. 5.), and 40 CFR Part 52.21 by reference, and

d. the provisions of the State of Mississippi Permit Regulations for the Construction and/or Operation of Air Emissions Equipment (11 Miss. Admin. Code Pt. 2, Ch. 2.), relating to construction permits and synthetic minor operating permits;

2. any term or condition of any construction permits issued pursuant to Mississippi regulations approved or promulgated through rulemaking under Title I;

3. any standard or other requirement under Section 111 of the Federal Act, including Section 111(d) which includes Title 40, Part 60 of the Code of Federal Regulations (40 CFR Part 60) and relevant sections of 11 Miss. Admin. Code Pt. 2, Ch. 1.;

4. any standard or other requirement under Section 112 of the Federal Act, including relevant sections of 11 Miss. Admin. Code Pt. 2, Ch. 1.and 40 CFR Parts 61, 63, and 68;

5. any standard or other requirement of the acid rain program under Title IV of the Federal Act or the regulations promulgated thereunder, including the State of Mississippi Acid Rain Program Permit Regulations for Purposes of Title IV of the Federal Clean Air Act (11 Miss. Admin. Code Pt. 2, Ch. 7.) adopted November 17, 1994, and 40 CFR Parts 72, 73, 75, 77, and 78;

6. any requirements established pursuant to Section 504(b) or Section 114(a)(3) of the Federal Act;

7. any standard or other requirement governing solid waste incineration under Section 129 of the Federal Act;

8. any standard or other requirement for consumer and commercial products under Section 183(e) of the Federal Act;

9. any standard or other requirement for tank vessels under Section 183(f) of the Federal Act;

10. any standard or other requirement of the program to control air pollution from outer continental shelf sources under Section 328 of the Federal Act;

11. any standard or other requirement of the regulations promulgated to protect stratospheric ozone under Title VI of the Federal Act;

12. any national ambient air quality standard or increment or visibility requirement under part C of Title I of the Federal Act.

Each State and Federally-enforceable condition of the draft Title V Operating Permit references the specific relevant requirements of 11 Miss. Admin. Code Pt. 2, Ch. 6.or the applicable requirement upon which it is based. Any condition of the draft Title V permit that is enforceable by the State but is not Federally-enforceable is identified in the draft Title V permit as such.

CAM APPLICABILITY

Steel Dynamics has two emissions points (AA-003 and AB-003) that are subject to BACT, require a control device (AA-002 and AB-002) to achieve compliance with this emission limitation, and for which the pre-control emissions are greater than 100 tons per year. Therefore, the facility is subject to 40 CFR 64.2(a)-Compliance Assurance Monitoring applicability provisions.

NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAP) APPLICABILITY

40 CFR Part 63, Subpart CCC

Emission Points AA-015a and AB-015b are steel pickling units which use hydrochloric acid (HCl). As such, these emission points are potentially subject to 40 CFR Part 63, Subpart CCC – NESHAP for Steel Pickling – HCl Process Facilities and Hydrochloric Acid Regeneration Plants. However, per §63.1155(a), this subpart is only applicable to HCl steel pickling operations located at major sources of HAPs. Because these emission points are located at an area source of HAPs, they are not subject to this subpart.

40 CFR Part 63, Subpart MMMM

Emission Points AA-030a through AA-030d encompass the metal coil coating operation. As such, these emission points are potentially subject to 40 CFR Part 63, Subpart MMMM – NESHAP for Surface Coating of Miscellaneous Metal Parts and Products. However, after reading the applicability statement in §63.3881, this subpart is only applicable to facilities which are major sources of HAPs. Because these emission points are located at an area source of HAPs, it has been determined that they are not subject to this subpart.

40 CFR Part 63, Subpart SSSS

Emission Points AA-030a through AA-030d are potentially subject to 40 CFR Part 63, Subpart SSSS – NESHAP: Surface Coating of Metal Coil; however, per §63.5080, “This subpart describes the actions you must take to reduce emissions of hazardous air pollutants (HAP) if you own or operate a facility that performs metal coil surface coating operations and is a major source of HAP.” As this facility is an area source of HAPs, these emission points are not subject to this subpart.

40 CFR Part 63, Subpart ZZZZ

Emission Points AA-022a through AA-022i consist of emergency generators of varying sizes and types located at an area source of HAPs. Emission Points AA-022a through AA-022h are all diesel fired, and Emission Point AA-022i is propane fired. As such these units are subject to and shall comply with all applicable requirements of 40 CFR Part 63, Subpart ZZZZ – NESHAP for Stationary Reciprocating Internal Combustion Engines as well as all applicable requirements of 40 CFR Part 63, Subpart A – General Provisions.

40 CFR Part 63, Subpart DDDDD

Several emission points are potentially subject to 40 CFR Part 63, Subpart DDDDD – NESHAP for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters; however, as the name of the subpart points out, this subpart is intended for facilities which are major sources of HAPs. As these emission points are located at an area source of HAPs, they are not subject to this subpart.

40 CFR Part 63, Subpart FFFFF

Emission Point AA-000 encompasses the entire steel mill. This emission point is potentially subject to 40 CFR Part 63, Subpart FFFFF – NESHAP for Integrated Iron and Steel Manufacturing Facilities; however, an “integrated iron and steel manufacturing facility” is defined in §63.7852 as “…an establishment engaged in the production of steel from iron ore.” The facility’s feedstock is scrap steel, not iron ore. For these reasons, this emission point is not subject to this subpart.

40 CFR Part 63, Subpart YYYYY

Emission Points AA-003 and AB-003 are electric arc furnaces which are used to produce steel and are located at an area source of HAPs. As such, this facility is subject to and shall comply with all applicable requirements of 40 CFR Part 63, Subpart YYYYY – NESHAP for Area Sources: Electric Arc Furnace Steelmaking Facilities. Per §63.10680(b), Emission Point AA-003 is an existing source as it was constructed before September 20, 2007. Emission Point AB-003 is a new source as it was constructed after September 20, 2007.

40 CFR Part 63, Subpart ZZZZZ

Emission Point AA-000 is potentially subject to 40 CFR Part 63, Subpart ZZZZZ – NESHAP for Iron and Steel Foundries Area Sources; however, an “iron and steel foundry” is defined as follows:

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

The steel produced at this facility is continuously cast, milled, and rolled into metal coils. It is not produced by pouring the melt into molds as specified in the definition above. As such, this emission point is not subject to this subpart.

40 CFR Part 63, Subpart HHHHHH

Emission Points AA-030a through AA-030d are potentially subject to 40 CFR Part 63, Subpart HHHHHH – NESHAP: Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources; however, after reading §63.11170(b), it is found that only spray applied surface coating operations are subject to this subpart. As these emission points are engaged in continuous coil coating, it is determined that they are not subject to this subpart.

40 CFR Part 63, Subpart JJJJJJ

Emission Points AA-005b, AB-005b, AA-015b and AA-017d are all industrial boilers located at an area source of HAPs. As such, these units are potentially subject to 40 CFR Part 63, Subpart JJJJJJ – NESHAP for Industrial, Commercial, and Institutional Boilers Area Sources. However, §63.11195(e) states that “gas-fired boilers” are not subject to this subpart. As these two units are both natural gas-fired, they are not subject to this subpart.

NEW SOURCE PERFORMANCE STANDARDS (NSPS) APPLICABILITY

40 CFR Part 60, Subpart Dc

Emission Points AA-005b, AB-005b, AA-015b and AA-017d are steam generating boilers with a maximum heat input capacity of 10 ≤ X < 100 MMBTU/hr which were constructed after June 9, 1989. As such, these emission points are subject to and shall comply with all applicable requirements of 40 CFR Part 60, Subpart Dc – NSPS for Small Industrial-Commercial-Institutional Steam Generating Units as well as all applicable requirements of 40 CFR Part 60, Subpart A – General Provisions.

40 CFR Part 60, Subpart AAa

Emission Points AA-003 and AB-003 are electric arc furnaces located at a steel producing plant which were constructed after August 17, 1983. As such, these emission points are subject to and shall comply with all applicable requirements of 40 CFR Part 60, Subpart AAa – NSPS for Steel Plants: Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels Constructed After August 17, 1983.

40 CFR Part 60, Subpart TT

Emission Points AA-030 is a metal coil surface coating operation that was constructed after January 5, 1981. It is equipped with a closed vent system and thermal oxidizer that continuously controls emissions from the coating operations. As such, this emission point is subject to and shall comply with all applicable requirements of 40 CFR Part 60, Subpart TT – NSPS for Metal Coil Surface Coating.

40 CFR Part 60, Subpart IIII

Emission Points AA-022a through AA-022h are diesel fired, compression ignition emergency engines located at an area source of HAPs which were constructed after June 12, 2006. As such, these units are subject to and shall comply with all applicable requirements of 40 CFR Part 60, Subpart IIII – NSPS for Stationary Compression Ignition Internal Combustion Engines.

40 CFR Part 60, Subpart JJJJ

Emission Point AA-022i is a propane fired, spark ignition emergency generator located at an area source of HAPs which was constructed after June 12, 2006. As such, this unit is subject to and shall comply with all applicable requirements of 40 CFR Part 60, Subpart JJJJ – NSPS for Stationary Spark Ignition Internal Combustion Engines.

SPECIFIC APPLICABLE REQUIREMENTS

The facility denoted no new insignificant activities in the permit modification application. Specific requirements are tabularized below. It is important to note for Emission Point AA-029, since the Autothermal Reformer (ATR) is owned and operated by H2G rather than SDI, SDI has requested the annual recordkeeping and reporting requirements for the number of hours the ATR is allowed to bypass AA-027 and vent directly to the atmosphere, be maintained on a calendar year basis, rather than the conventional rolling, 12-month total. SDI anticipates the 2,000 annual hours limitation to be a conservative number.

| Emission Point No. | Pollutant/  Parameter | Emission Limits | Monitoring Requirements |
| --- | --- | --- | --- |
| AA-000 (Except for AA-030 and  AC-017) | Liquid Steel | 3,400,000 tpy | Determine the Production for each consecutive 12-month period. |
| NOx | 1,182.0 tpy | Determine the Emission Rate for each consecutive 12-month period. |
| CO | 3,950.5 tpy |
| SO2 | 487.9 tpy |
| VOCs | 298.6 tpy |
| PM | 354.4 tpy |
| PM10 | 289.8 tpy |
| Opacity | 10% |
| HAPs | 9.90 tpy Individual and 24.90 tpy Combined |
| AA-002  AB-002 | PM10 | BACT: 0.0018 gr/dscf exiting baghouse | Biennial Stack/Performance Testing for demonstrating compliance with BACT Limits |
| Lead | BACT: 0.000871 lb/ton of steel produced and 0.305 lbs/hr and 0.74 tpy for each DEC System. |
| Opacity | BACT for Fugitive Emissions is the use of Roof Monitors and 40 CFR 60, Subpart AAa. |
| PM10 | Compliance with Condition 3.B.10 |
| Opacity | 3% exiting Baghouse |
| Opacity | 6% exiting Roof-Vents/Meltshop |
| AA-003  AB-003 | NOx | BACT: Use of DEC System | Installation and Operation of CEMS Deadline (Continuous Emission Monitoring System) and Stack/Performance Testing for demonstrating compliance with BACT Limits once every five years |
| 0.35 lb/ton of Steel Produced and 122.5 lbs/hr and 297.5 tpy for each EAF |
| CO | BACT: 2.0 lb/ton of Steel Produced and 700.0 lbs/hr and 1700 tpy for each EAF and Use of DEC System |
| SO2 | BACT: Use of Low Sulfur Scrap and 0.2 lb/ton of Steel Produced and 70 lbs/hr and 170 tpy for each EAF |
| VOCs | BACT: 0.13 lb/ton of Steel Produced and 45.5 lbs/hr and 110.5 tpy for each EAF and Use of Scrap Management Plan | Biennial Stack/Performance Testing for demonstrating compliance with BACT Limits |
| AA-004  AB-004 | NOx | BACT: 0.02 lb/ton of Steel Produced and 6.93 lbs/hr and 16.83 tpy for each LMF | Installation and Operation of CEMS Deadline (Continuous Emission Monitoring System) and Stack/Performance Testing for demonstrating compliance with BACT Limits once every five years |
| CO | BACT: 0.05 lb/ton of Steel Produced and 17.325 lbs/hr and 42.075 tpy |
| SO2 | BACT: 0.08 lb/ton of Steel Produced and 27.72 lbs/hr and 67.32 tpy for each LMF |
| VOCs | BACT: 0.005 lb/ton of Steel Produced and 1.7325 lbs/hr and 4.2075 tpy for each LMF | Biennial Stack/Performance Testing for demonstrating compliance with BACT Limits |
| AA-005a  AB-005a | CO | BACT: For Each Unit: 7.32 lb/heat and 10.95 tons/year for each flare.  \*Heat time is defined as approximately 40 minutes. | Utilize Good Combustion Practices and Implement Maintenance Guidelines for demonstrating compliance with BACT and 40 CFR 64.3 (CAM Monitoring Provisions for PM10 as found in Appendix C) |
| AA-005b  AA-015b  AA-017d  AB-005b  AB-015b  AB-017d | NOx | BACT: 0.08 lb/MMBTU, 4.08 lbs/hr each for Emission Points AA-005b and AB-005b, 5.36 lbs/hr each for Emission Points AA-015b and AB-015b, 1.96 lbs/hr each for Emission Points  AA-017d and AB-017d, Combustion of Natural Gas Only, and Use of Low NOx Burners. | Once Every Five Years Stack/Performance Testing for demonstrating compliance with BACT Limits, Utilize Good Combustion Practices and Implement Maintenance Guidelines for demonstrating compliance with BACT |
| CO | BACT: 0.084 lb/MMBTU, 4.284 lbs/hr each for Emission Points AA-005b and AB-005b, 5.628 lbs/hr each for Emission Points  AA-015b and AB-015b, 2.058 lbs/hr each for Emission Points AA-017d and AB-017d, , Combustion of Natural Gas Only, and Use of Low NOx Burners. |
| VOCs  SO2  PM10 | BACT: Combustion of Natural Gas Only |
| AA-006 AA-007 AA-009 AA-010 AA-012 AA-016 AB-006 AB-007 AB-009 AB-010 AB-012 AB-016 | NOx | BACT: 0.1 lb/MMBTU, 4.5 lbs/hr for Emission Point AA-006, 3.0 lbs/hr each for Emission Point AB-006 and AB-009, 1.5 lbs/hr each for Emission Points AA-007 and AB-007, 1.0 lbs/hr each for Emission Points AA-009, AA-010, and AB-010, 1.1 lbs/hr each for Emission Points AA-012 and AB-012, 6.6 lbs/hr for Emission Point AA-016, 5.4 lbs/hr for Emission Point AB-016, and combusting Natural Gas only | Utilize Good Combustion Practices and Implement Maintenance Guidelines for demonstrating compliance with BACT |
| CO | BACT: 0.084 lb/MMBTU, 3.78 lbs/hr for Emission Point AA-006, 2.52 lbs/hr each for Emission Point AB-006 and AB-009, 1.26 lbs/hr each for Emission Points AA-007 and AB-007, 0.84 lbs/hr each for Emission Points AA-009, AA-010, and AB-010, 0.924 lbs/hr each for Emission Points AA-012 and AB-012, 5.544 lbs/hr for Emission Point AA-016, 4.536 lbs/hr for Emission Point AB-016, and combusting Natural Gas only |
| VOCs  SO2  PM10 | BACT: Combustion of Natural Gas Only |
| AA-011  AB-011 | NOx | BACT: 0.1 lb/MMBTU, 16.0 lbs/hr for Emission Point AA-011, 13.2 lb/hr for Emission Point AB-011, Combustion of Natural Gas Only, and low NOx burners. | Utilize Good Combustion Practices and Implement Maintenance Guidelines for demonstrating compliance with BACT |
| CO | BACT: 0.066 lb/MMBTU, 10.56 lbs/hr for Emission Point AA-011, 8.712 lb/hr for Emission Point AB-011, Combustion of Natural Gas Only, and Use of Low NOx Burners with Good Combustion Practices. |
| SO2 | BACT: Combustion of Natural Gas Only |
| PM10 | BACT: Combustion of Natural Gas Only |
| VOCs | BACT: 0.006 lb/MMBTU, 0.96 lbs/hr for Emission Point AA-011, 0.792 lb/hr for Emission Point AB-011, Combustion of Natural Gas Only, and Use of Low NOx Burners with Good Combustion Practices. |
| H2SO4 | Combustion of Natural Gas |
| AA-014 | PM10 | Application of a Mist Eliminator | Implement Maintenance Guidelines for demonstrating compliance with BACT |
|  | PM10 | BACT: Wet Scrubber followed by Mist Eliminator. | Implement Maintenance Guidelines for demonstrating compliance with BACT |
| AA-015a  AB-015a | HCl | BACT: Wet Scrubber followed by  Mist Eliminator. | Once Every Five Years Stack/Performance Testing for demonstrating compliance with BACT Limits |
|  | 18 ppmv |
| AA-017a  AB-017a | NOx | BACT: 0.15 lb/MMBTU heat input, 12.68 lbs/hr for each Emission Point, Combustion of Natural Gas Only, and Use of Low NOx Burners. | Utilize Good Combustion Practices and Implement Maintenance Guidelines for demonstrating compliance with BACT |
| CO | BACT: 0.084 lb/MMBTU heat input, 7.09 lbs/hr for each Emission Point, Combustion of Natural Gas Only, and Use of Low NOx Burners. |
| SO2 | BACT: Combustion of Natural Gas Only |
| PM10 | BACT: Combustion of Natural Gas Only |
| AA-017a  AB-017a | VOCs | BACT: Combustion of Natural Gas Only | Utilize Good Combustion Practices and Implement Maintenance Guidelines for demonstrating compliance with BACT |
| AA-018 | PM/PM10 | BACT for Fugitive Emissions is limiting the drop heights and the application of water | Implement Maintenance Guidelines for demonstrating compliance with BACT |
| AA-019 | PM/PM10 | BACT: Application of a Drift Eliminator |
| AA-020 | PM/PM10 | BACT: 0.01 gr/dscf utilizing bin vent filters |
| AA-021 | PM/PM10 | BACT: Use of Wetting Agents |
| AA-023 | Opacity | 10% from the Dust Handling/Transfer Operations |
| AA-022i | Exhaust Emissions | · NOX + HC: 10 g/HP-hr  · CO: 387 g/HP-hr | Install non-resettable hour meter |
| AA-030 | VOC | 39.0 tpy | Monitoring – Characterization and Usage of each VOC Containing Material  Calculate VOC emission rate for each consecutive 12-month period (monthly) |
| 90 percent emission reduction |
| 99 percent emission reduction |
| PM (filterable only) | E = 4.1p0.67 | --- |
| E = 0.8808∙I-0.1667 |
| Opacity | 40% Opacity |
| AA-017b, AC-017a,  and  AC-017b | PM/PM10  (*filterable only*) | E = 0.8808∙I-0.1667 | --- |
| AC-017,  AA-017b, AC-017a,  AC-017b,  and  AC-017c | Opacity | 40% Opacity | --- |
| AA-017a  and  AA-017b | NOx | 40.7 tpy (combined emissions) | Determine the Emission Rate for each consecutive 12-month period and Once Every Five Years Stack/Performance Testing for AA-017b |
| AC-017a | Natural Gas Usage | 83 MMSCF/year (12-month rolling total) | Monitoring of monthly fuel usage |
| AC-017b | Natural Gas Usage | 564 MMSCF/year (12-month rolling total) | Monitoring of monthly fuel usage |
| AC-017c | PM | 0.6 lbs/MMBTU | --- |
| Natural Gas Usage | 16 MMSCF/year (12-month rolling total) | Monitoring of monthly fuel usage |
| AC-017 | PM/PM10 | Application of a Mist Eliminator | Application of a Mist Eliminator |
| AA-029 | Hours | ≤2,000 hours per year bypassing AA-027 and venting directly to the atmosphere | Monitoring of annual hours of bypassing AA-027 and venting directly to the atmosphere |