STATE OF MISSISSIPPI
AIR POLLUTION CONTROL PERMIT

TO CONSTRUCT AIR EMISSIONS EQUIPMENT

THIS CERTIFIES THAT

Steel Dynamics Columbus
1945 Airport Road
Columbus, Lowndes, Mississippi

"Coating Line Project"

has been granted permission to construct air emissions equipment to comply with the emission limitations, monitoring requirements and other conditions set forth herein. This permit is issued in accordance with the provisions of the Mississippi Air and Water Pollution Control Law (Section 49-17-1 et. seq., Mississippi Code of 1972), and the regulations and standards adopted and promulgated thereunder.

MISSISSIPPI ENVIRONMENTAL QUALITY PERMIT BOARD

AUTHORIZED SIGNATURE
MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

Issued: January 22, 2016 **Permit No.: 1680-00064**

20296 PER20150001

SECTION 1

A. GENERAL CONDITIONS

1. This permit is for air pollution control purposes only. (Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.1.D.)

2. Any activities not identified in the application are not authorized by this permit. (Ref.: Miss. Code Ann. 49-17-29 1.b)

3. The knowing submittal of a permit application with false information may serve as the basis for the Permit Board to void the permit issued pursuant thereto or subject the applicant to penalties for operating without a valid permit pursuant to State Law. (Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.B(5).)

4. It is the responsibility of the applicant/permittee to obtain all other approvals, permits, clearances, easements, agreements, etc., which may be required including, but not limited to, all required local government zoning approvals or permits. (Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.1.D(6).)

5. The issuance of a permit does not release the permittee from liability for constructing or operating air emissions equipment in violation of any applicable statute, rule, or regulation of state or federal environmental authorities. (Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.B(7).)

6. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit, unless halting or reducing activity would create an imminent and substantial endangerment threatening the public health and safety of the lives and property of the people of this state. (Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.B(15)(a).)

7. The permit and/or any part thereof may be modified, revoked, reopened, and reissued, or terminated for cause. Sufficient cause for a permit to be reopened shall exist when an air emissions stationary source becomes subject to Title V. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition. (Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.B(15)(b).)

8. The permit does not convey any property rights of any sort, or any exclusive privilege. (Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.B(15)(c).)

9. The permittee shall furnish to the DEQ within a reasonable time any information the DEQ may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the DEQ copies of records required to be kept by the permit or, for information claimed to be confidential, the permittee shall furnish such records to the DEQ along with a claim of confidentiality. The permittee may furnish such

records directly to the Administrator along with a claim of confidentiality. (Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.B(15)(d).)

10. Design and Construction Requirements: The stationary source shall be designed and constructed so as to operate without causing a violation of an Applicable Rules and Regulations, without interfering with the attainment and maintenance of State and National Ambient Air Quality Standards, and such that the emission of air toxics does not result in an ambient concentration sufficient to adversely affect human health and well-being or unreasonably and adversely affect plant or animal life beyond the stationary source boundaries. (Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.5.A.)

11. Solids Removal: The necessary facilities shall be constructed so that solids removed in the course of control of air emissions may be disposed of in a manner such as to prevent the solids from becoming windborne and to prevent the materials from entering State waters without the proper environmental permits. (Ref.: Miss. Code Ann. 49-17-29)

12. Diversion and Bypass of Air Pollution Controls: The air pollution control facilities shall be constructed such that diversion from or bypass of collection and control facilities is not needed except as provided for in 11 Miss. Admin. Code Pt. 2, R. 1.10., "Air Emission Regulations for the Prevention, Abatement, and Control of Air Contaminants", Section 10. (Ref.: 11 Miss. Admin. Code Pt. 2, R. 1.10.)

13. Fugitive Dust Emissions from Construction Activities: The construction of the stationary source shall be performed in such a manner so as to reduce fugitive dust emissions from construction activities to a minimum. (Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.5.A(4).)

14. Right of Entry: The permittee shall allow the Mississippi Department of Environmental Quality Office of Pollution Control and the Mississippi Environmental Quality Permit Board and/or their representatives upon presentation of credentials:

    a) To enter upon the permittee's premises where an air emission source is located or in which any records are required to be kept under the terms and conditions of this permit; and

    b) At reasonable times to have access to and copy any records required to be kept under the terms and conditions of this permit; to inspect any monitoring equipment or monitoring method required in this permit; and to sample any air emissions. (Ref.: Miss. Code Ann. 49-17-21)

15. Permit Modification or Revocation: After notice and opportunity for a hearing, the Permit Board may modify the permit or revoke it in whole or in part for good cause shown including, but not limited to:

    a) Persistent violation of any of the terms or conditions of this permit;

b) Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts; or

c) A change in federal, state, or local laws or regulations that require either a temporary or permanent reduction or elimination of previously authorized air emission.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.C.)

16. Public Record and Confidential Information: Except for data determined to be confidential under the Mississippi Air & Water Pollution Control Law, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Mississippi Department of Environmental Quality, Office of Pollution Control. (Ref.: Miss. Code Ann. 49-17-39)

17. Permit Transfer: This permit shall not be transferred except upon approval of the Permit Board. (Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.16.B)

18. Severability: The provisions of this permit are severable. If any provision of the permit, or the application of any provision of the permit to any circumstances, is challenged or held invalid, the validity of the remaining permit provisions and/or portions thereof or their application to other persons or sets of circumstances, shall not be affected thereby. (Ref. 11 Miss. Admin. Code Pt. 2, R. 2.1.D(7).)

19. Permit Expiration: The permit to construct will expire if construction does not begin within eighteen (18) months from the date of issuance or if construction is suspended for eighteen (18) months or more. (Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.5.C(1).)

20. Certification of Construction: A new stationary source issued a Permit to Construct cannot begin operation until certification of construction by the permittee. (Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.5.D(3).)

21. Beginning Operation: Except as prohibited in Part I, Condition 24 of this permit, after certification of construction by the permittee, the Permit to Construct shall be deemed to satisfy the requirement for a permit to operate until the date the application for issuance or modification of the Title V Permit or the application for issuance or modification of the State Permit to Operate, whichever is applicable, is due. This provision is not applicable to a source excluded from the requirement for a permit to operate as provided by 11 Miss. Admin. Code Pt. 2, R. 2.13.G. (Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.5.D(4).)

22. Application for a Permit to Operate: Except as otherwise specified in Part I, Condition 24 of this permit, the application for issuance or modification of the State Permit to Operate or the Title V Permit, whichever is applicable, is due twelve (12) months after beginning operation or such earlier date or time as specified in the Permit to Construct. The Permit Board may specify an earlier date or time for submittal of the application. Beginning operation will be assumed to occur upon certification of construction, unless the permittee specifies differently in writing. (Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.5.D(5).)

23. Operating Under a Permit to Construct: Except as otherwise specified in Part I, Condition 24 of this permit, upon submittal of a timely and complete application for issuance or modification of a State Permit to Operate or a Title V Permit, whichever is applicable, the applicant may continue to operate under the terms and conditions of the Permit to Construct and in compliance with the submitted application until the Permit Board issues, modifies, or denies the Permit to Operate. (Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.5.D(6).)

24. Application Requirements for a Permit to Operate for Moderate Modifications: For moderate modifications that require contemporaneous enforceable emissions reductions from more than one emission point in order to "net" out of PSD/NSR, the applicable Title V Permit to Operate or State Permit to Operate must be modified prior to beginning operation of the modified facilities. (Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.5.D(7).)

25. Compliance Testing: Regarding compliance testing:

    a) The results of any emissions sampling and analysis shall be expressed both in units consistent with the standards set forth in any Applicable Rules and Regulations or this permit and in units of mass per time.

    b) Compliance testing will be performed at the expense of the permittee.

    c) Each emission sampling and analysis report shall include but not be limited to the following:

        (1) detailed description of testing procedures;

        (2) sample calculation(s);

        (3) results; and

        (4) comparison of results to all Applicable Rules and Regulations and to emission limitations in the permit.

    (Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.6.B(3), (4), and (6).)

B. GENERAL NOTIFICATION REQUIREMENTS

1. Within fifteen (15) days of beginning actual construction, the permittee must notify DEQ in writing that construction has begun. (Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.5.C(2).)

2. The permittee must notify DEQ in writing when construction does not begin within eighteen (18) months of issuance or if construction is suspended for eighteen (18) months or more. (Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.5.C(3).)

3. Upon the completion of construction or installation of an approved stationary source or modification, the applicant shall notify the Permit Board that construction or installation was

performed in accordance with the approved plans and specifications on file with the Permit Board. (Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.5.D(1).)

4. The Permit Board shall be promptly notified in writing of any change in construction from the previously approved plans and specifications or permit. If the Permit Board determines the changes are substantial, it may require the submission of a new application to construct with "as built" plans and specifications. Notwithstanding any provision herein to the contrary, the acceptance of an "as built" application shall not constitute a waiver of the right to seek compliance penalties pursuant to State Law. (Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.5.D(2).)

SECTION 2
EMISSION POINT DESCRIPTION

The permittee is authorized to construct and operate, upon certification of construction, air emissions equipment, as described in the following table.

Emission Point ID	Description
Coating Line – Comprised of the equipment necessary to mix, apply, and cure the desired coatings (i.e. AA-030a, AA-030c, and AA-030d). This group also contains the control equipment used to limit the emissions of Volatile Organic Compounds from the coatings (i.e. AA-030b).	
AA-030	• AA-030a - Curing Oven – A custom curing oven equipped with natural gas-fired, Low NO_X Burners which provide 20 MMBtu/hr to the unit. AA-030a is equipped with a closed vent system with 100% capture efficiency that is routed to the thermal oxidizer (AA-030b) for emission control. • AA-030b - Thermal Oxidizer – Manufacturer and Model have yet to be determined; natural gas-fired Recuperative Thermal Oxidizer to control VOC/HAP emissions originating from the Coating Line. The unit operates with a maximum burner rating of 65 MMBtu/hr and 99% minimum destruction efficiency. • AA-030c - Continuous Roll Coating Machine – A custom roll coating machine used to apply various primers and topcoats, with varying VOC/HAP contents, to metal coils. AA-030c is also equipped with a closed vent system with 100% capture efficiency that is routed to the thermal oxidizer (AA-030b) for emission control. • AA-030d - Primer and Topcoat Mixing Area – Emissions from this area originate from the volatilization of VOC/HAPs that occur when mixing coatings prior to application. AA-030d is also equipped with a closed vent system with 100% capture efficiency that is routed to the thermal oxidizer (AA-030b) for emission control.

SECTION 3
EMISSION LIMITATIONS AND STANDARDS

Emission Point ID	Applicable Requirement	Condition Number(s)	Pollutant/ Parameter	Limitations/Standards
AA-030	40 CFR 60, Subpart TT (§ 60.460)	3.1	VOC	Applicability
	Permit to Construct issued January 22, 2016 **(PSD Avoidance)**	3.2	VOC	39 tpy
	40 CFR 60, Subpart TT **(§**60.462(a)(3))	3.3	VOC	10 percent of VOC's applied (90 percent emission reduction) **Note:** Condition 3.8 requires a 99 percent VOC emission reduction.
	11 Miss. Admin. Code Pt. 2, R. 1.3.F(1).	3.4	PM (filterable only)	$E = 4.1p^{0.67}$
	11 Miss. Admin. Code Pt. 2, R. 1.3.D(1)(b).	3.5	PM (filterable only)	$E = 0.8808 * I^{-0.1667}$
	11 Miss. Admin. Code Pt. 2, R. 1.3.A(1)-(3), and R. 1.3.B.	3.6 3.7	Opacity	40% Opacity
	11 Miss. Admin. Code Pt. 2, R. 2.2.B(10).	3.8	VOC	No more than 1 percent of the VOC mixed or applied (99 percent emission reduction)
	11 Miss. Admin. Code Pt. 2, R. 2.2.B(10).	3.9	VOC	100 percent capture efficiency for closed vent system
	11 Miss. Admin. Code Pt. 2, R. 2.2.B(10).	3.10	VOC	Establish compliance operating parameters and limits
	Permit to Construct issued January 22, 2016	3.11	VOC	Continuous control of Coating Line
Facility Wide	Permit to Construct issued January 22, 2016	3.12	HAP	9.9 tpy individual and 24.9 tpy combined

3.1 For Emission Point AA-030, the permittee is subject to and shall comply with all applicable requirements of 40 CFR 60, Subpart TT – The Standards of Performance for Metal Coil Surface Coating.

Emission Point 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, it is an affected unit under 40 CFR 60, Subpart TT and subject to the applicable VOC emission limits, recordkeeping and reporting requirements.

(Ref.: § 60.460)

3.2 For Emission Point AA-030, the permittee shall limit volatile organic compound (VOC) emissions to no more than 39 tons/year (TPY) as determined for each consecutive 12-month period.

(Ref.: Permit to Construct issued January 22, 2016 **(PSD Avoidance)**)

3.3 For Emission Point AA-030, the permittee shall limit the emission of VOCs to 10 percent of the VOC's applied for each calendar month (90 percent emission reduction).

Note: Condition 3.8 requires a 99 percent VOC emission reduction.

(Ref.: 40 CFR 60.462(a)(3))

3.4 For Emission Point AA-030, the permittee shall not cause, permit, or allow the emission of particulate matter in total quantities in any one hour from any manufacturing process, which includes any associated stacks, vents, outlets, or combination thereof, to exceed the amount determined by the relationship $E = 4.1p^{0.67}$, where E is the emission rate in pounds per hour and p is the process weight input rate in tons per hour.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 1.3.F(1).)

3.5 For Emission Point AA-030, the permittee shall not exceed the emission rate determined by the following equation: $E = 0.8808 * I^{-0.1667}$, where E is the emission rate in pounds per million BTU per hour heat input and I is the heat input in million BTU per hour.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 1.3.D(1)(b).)

3.6 For Emission Point AA-030, the permittee shall not cause, permit, or allow the emission of smoke from a point source into the open air from any manufacturing, industrial, commercial or waste disposal process which exceeds forty (40) percent opacity subject to the exceptions provided in (a) and (b) below.

(a) Startup operations may produce emissions which exceed 40% opacity for up to fifteen (15) minutes per startup in any one hour and not to exceed three (3) startups per stack in any twenty-four (24) hour period.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 1.3.A(1)-(3).)

3.7 For Emission Point AA-030, the permittee shall not cause, allow, or permit the discharge into the ambient air from any point source or emissions, any air contaminant of such opacity as to obscure an observer's view to a degree in excess of 40% opacity, equivalent to that provided in 11 Miss. Admin. Code Pt. 2, R. 1.3.A(1). This shall not apply to vision obscuration caused by uncombined water droplets.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 1.3.B.)

3.8 For Emission Point AA-030, the permittee shall limit VOC emissions to no more than 1 percent of the VOC mixed or applied for each calendar month (99 percent reduction).

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.B(10).)

3.9 For Emission Point AA-030, the permittee shall maintain a 100% capture efficiency for the closed vent system.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.B(10).)

3.10 For Emission Point AA-030, the permittee shall establish operating limits for the following parameters during the performance testing outlined in Section 5.A of this permit. The permittee must meet the operating limits at all times after they have been established.

(a) For the thermal oxidizer (AA-030b), a minimum 3-hour rolling average combustion temperature.

(b) For the closed vent system, the operating parameter(s) and limit(s) identified in the monitoring plan developed in accordance with Section 5.A of this permit.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.B(10).)

3.11 For Emission Point AA-030, the permittee shall not operate the Coating Line unless the closed vent system and the thermal oxidizer are both in full operation. There shall be no bypass of the closed vent system and/or thermal oxidizer while the Coating Line is in operation.

(Ref: Permit to Construct issued January 22, 2016)

3.12 For the entire facility, the permittee shall maintain its designation of an area source of hazardous air pollutants (HAPs) by limiting HAP emissions to 9.9 tons per year of any individual HAP and 24.9 tons per year of all combined HAPs, as determined for each consecutive 12-month period.

(Ref.: Permit to Construct issued January 22, 2016)

SECTION 4
WORK PRACTICES

Emission Point ID	Applicable Requirement	Condition Number(s)	Pollutant/ Parameter	Work Practice
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SECTION 5.A
MONITORING AND RECORDKEEPING REQUIREMENTS

Emission Point ID	Applicable Requirement	Condition Number(s)	Pollutant/ Parameter	Monitoring/Recordkeeping Requirement
AA-030	40 CFR 60, Subpart A (§60.8(a)) 40 CFR 60, Subpart TT (§60.463(b))	5.A.1	VOC	Initial and monthly performance testing
	11 Miss. Admin. Code Pt. 2, R. 2.2.B(11).	5.A.2	VOC	Monitoring – Characterization and Usage of each VOC Containing Material
	11 Miss. Admin. Code Pt. 2, R. 2.2.B(11).	5.A.3	VOC	Calculate VOC emission rate for each consecutive 12-month period (monthly)
	40 CFR 60, Subpart TT (§60.463(c)(2))	5.A.4	VOC	Determine overall reduction efficiency (monthly)
	40 CFR 60, Subpart TT (§60.464(c))	5.A.5	VOC	Monitoring –Thermal oxidizer temperature monitoring (continuous)
	11 Miss. Admin. Code Pt. 2, R. 2.2.B(11).	5.A.6	VOC	Recordkeeping – VOC Emissions
	40 CFR 60, Subpart TT (§60.466(a-c))	5.A.7	VOC	Performance test methods
	11 Miss. Admin. Code Pt. 2, R. 2.2.B(11). 40 CFR 60, Subpart A (§60.8(a))	5.A.8	VOC	Initial and Biennial Performance Tests – Destruction efficiency of thermal oxidizer
	11 Miss. Admin. Code Pt. 2, R. 2.2.B(11).	5.A.9	VOC	Initial and annual determination of closed vent system capture efficiency
	11 Miss. Admin. Code Pt. 2, R. 2.2.B(11).	5.A.10	VOC	Monitoring – Thermal oxidizer temperature monitoring (continuous)
	11 Miss. Admin. Code Pt. 2, R. 2.2.B(11).	5.A.11	VOC	Closed vent system monitoring plan
	11 Miss. Admin. Code Pt. 2, R. 2.2.B(11).	5.A.12 5.A.13	VOC	Recordkeeping
Facility Wide	11 Miss. Admin. Code Pt. 2, R. 2.2.B(11).	5.A.14	HAP	Monitoring – Characterization and Usage of each HAP Containing Material
	11 Miss. Admin. Code Pt. 2, R. 2.2.B(11).	5.A.15	HAP	Calculate HAP emission rate for each consecutive 12-month period (monthly)
	11 Miss. Admin. Code Pt. 2, R. 2.2.B(11).	5.A.16	HAP	Recordkeeping

5.A.1 For Emission Point AA-030, the permittee shall conduct an initial performance test as required under 40 CFR 60.8(a) and thereafter a performance test each calendar month according to the procedures outlined in Condition 5.A.4 below.

(Ref.: 40 CFR 60.8(a); 40 CFR 60.463(b))

5.A.2 For Emission Point AA-030, the permittee shall determine for each coating, solvent, or other VOC containing material used:

(a) The quantity used (gallons);

(b) The percentage of VOCs by weight;

(c) The percentage of each individual VOC and total VOC by weight;

(d) The density (lbs/gal);

The permittee may utilize data supplied by the manufacturer, or analysis of VOC content by EPA Test Method 24, 40 CFR 60, Appendix A and/or EPA Test Method 311, 40 CFR 63, Appendix A, and/or an alternate EPA approved test method.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.B(11).)

5.A.3 For Emission Point AA-030, the permittee shall determine the total VOC emission rate in tons/yr for each consecutive 12-month period on a monthly basis.

Emission rates shall be determined utilizing a mass balance approach, based on the assumption that 100 percent of all VOCs contained in each coating, solvent, or other VOC containing material used are volatilized, captured by the closed vent system and routed to a thermal oxidizer with a 99 percent minimum destruction efficiency.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.B(11).)

5.A.4 For Emission Point AA-030, the permittee shall use the following procedures for determining the overall reduction efficiency of the Coating Line emission control systems.

(1) Determine the overall reduction efficiency (R) for the closed vent system and thermal oxidizer.

For the initial performance test, the overall reduction efficiency (R) shall be determined as prescribed in paragraphs (A), (B), and (C) of this section. Performance testing conducted in accordance with Condition 5.A.8 of this permit will satisfy the initial performance test requirements of this condition. In subsequent months, the permittee may use the most recently determined reduction efficiency (R) for the performance test, providing the thermal oxidizer and closed vent system operating conditions have not changed. The procedure in paragraphs (A), (B), and (C) of this section, shall be repeated when directed by MDEQ or when the permittee elects to operate the thermal oxidizer or closed vent system at conditions different from the initial performance test.

(A) Determine the fraction (F) of total VOC's emitted by AA-030 that enters the thermal oxidizer using the following equation:

$$F = \frac{\sum_{i=1}^{l} C_{bi}Q_{bi}}{\sum_{i=1}^{l} C_{bi}Q_{bi} + \sum_{i=1}^{p} C_{fi}Q_{fi}}$$

Where:

l is the number of gas streams entering the thermal oxidizer,

p is the number of gas streams emitted directly to the atmosphere,

C_b is the VOC concentration of gas stream i entering the thermal oxidizer (parts per million by volume, as carbon),

Q_{bi} is the volumetric flow rate of gas stream i entering the thermal oxidizer (dry standard cubic meters per hour),

C_{fi} is the VOC concentration of gas stream i emitted directly to the atmosphere (parts per million by volume, as carbon), and

Q_{fi} is the volumetric flow rate of gas stream i emitted directly to the atmosphere (dry standard cubic meters per hour).

(B) Determine the destruction efficiency of the thermal oxidizer (E, fraction) using values of the volumetric flow rate of each of the gas streams and the VOC content (as carbon) of each of the gas streams in and out of the thermal oxidizer by the following equation:

$$E = \frac{\sum_{i=1}^{n} Q_{bi}C_{bi} - \sum_{i=1}^{m} Q_{aj}C_{aj}}{\sum_{i=1}^{n} Q_{bi}C_{bi}}$$

Where:

n is the number of gas streams entering the thermal oxidizer,

m is the number of gas streams leaving the thermal oxidizer and entering the atmosphere,

C_a is the VOC concentration of gas stream i leaving the thermal oxidizer and entering the atmosphere (parts per million by volume, as carbon), and

Q_a is the volumetric flow rate of gas stream i leaving the thermal oxidizer and entering the atmosphere (dry standard cubic meters per hour).

The permittee shall construct the VOC emission reduction system so that all volumetric flow rates and total VOC emissions can be accurately determined by the applicable test methods and procedures specified in 5.A of this permit. The permittee shall construct a temporary enclosure around the coating applicator and flash-off area during the performance test for the purpose of evaluating the capture efficiency of the system. The enclosure must be maintained at a negative pressure to ensure that all VOC emissions are measurable. If a permanent enclosure exists prior to the performance test and MDEQ is satisfied that the enclosure is adequately containing VOC emissions, no additional enclosure is required for the performance test.

(C) Determine overall reduction efficiency (R, fraction) using the following equation:

R = E*F

If the overall reduction efficiency (R) is equal to or greater than 0.90, the permittee is in compliance and no further computations are necessary.

(Ref.: 40 CFR 60.463(c)(2))

5.A.5 For Emission Point AA-030, the permittee shall install, calibrate, operate, and maintain a device that records the combustion temperature of the thermal oxidizer to achieve compliance with the limitations outlined in Section 3 of this permit. This device shall have an accuracy of ±2.5 °C or ±0.75 percent of the temperature being measured expressed in degrees Celsius, whichever is greater, and shall collect data at least once every fifteen (15) minutes. The permittee shall also record all periods (during actual coating operations) in excess of 3 hours during which the average temperature in the thermal oxidizer remains more than 28 °C (50 °F) below the temperature at which compliance with Condition 3.3 of this permit was demonstrated.

Note: Temperature monitoring device must also meet the specifications contained in Condition 5.A.10 of this permit.

(Ref.: 40 CFR 60.464(c))

5.A.6 For Emission Point AA-030, the permittee shall maintain sufficient records to document:

(a) The identification of each coating, solvent, or other VOC containing material and the total gallons of each coating, solvent, or other VOC containing material used on a monthly basis and in each consecutive 12-month period;

(b) The VOC content(s) of each coating, solvent, or other VOC containing material used. A description of the method used to determine the VOC content shall accompany this data;

(c) The density of each coating, solvent, or other VOC containing material used;

(d) The total VOC emission rate in tons/yr for each consecutive 12-month period, determined on a monthly basis.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.B(11).)

5.A.7 For Emission Point AA-030, the permittee shall comply with the following for determining compliance with Condition 3.3 of this permit. Performance testing conducted in accordance with Condition 5.A.8 of this permit will satisfy the requirements of this condition.

(a) Utilize the Reference Methods in Appendix A of 40 CFR 60, except as provided under 40 CFR 60.8(b) as follows:

(1) Method 24, or data provided by the formulator of the coating, shall be used for determining the VOC content of each coating as applied to the surface of the metal coil. In the event of a dispute, Method 24 shall be the reference method. When VOC content of waterborne coatings, determined by Method 24, is used to determine compliance, the results of the Method 24 analysis shall be adjusted as described in Section 12.6 of Method 24;

(2) Method 25, both for measuring the VOC concentration in each gas stream entering and leaving the thermal oxidizer;

(3) Method 1 for sample and velocity traverses;

(4) Method 2 for velocity and volumetric flow rate;

(5) Method 3 for gas analysis; and

(6) Method 4 for stack gas moisture.

(b) For Method 24, the coating sample must be at least a 1-liter sample taken at a point where the sample will be representative of the coating as applied to the surface of the metal coil.

(c) For Method 25, the sampling time for each of three runs is to be at least 60 minutes, and the minimum sampling volume is to be at least 0.003 dscm (0.11 dscf); however, shorter sampling times or smaller volumes, when necessitated by process variables or other factors, may be approved by MDEQ.

(Ref.: 40 CFR 60.466(a-c))

5.A.8 For Emission Point AA-030, within 60 days after achieving the maximum production rate at which the Coating Line will operate, but no later than 180 days from the startup of the Coating Line, the permittee shall conduct an initial performance test to establish the destruction or removal efficiency of the thermal oxidizer, according to the methods and procedures in paragraphs (a) and (c) below. Biennial performance tests shall be conducted within 24 months of the last performance test. During the performance testing, the permittee shall establish the operating limits required by Section 3 of this permit, according to paragraph (d) below.

Performance testing conducted in accordance with this condition will satisfy the initial performance test requirements outlined in Conditions 5.A.4 and 5.A.7 of this permit.

(a) A performance test to establish the destruction or removal efficiency of the thermal oxidizer shall be conducted such that inlet and outlet testing is conducted simultaneously. The data must be reduced in accordance with the test methods and procedures in paragraphs (1) through (9) below.

(1) Method 1 or 1A of 40 CFR Part 60, appendix A, is used for sample and velocity traverses to determine sampling locations.

(2) Method 2, 2A, 2C, 2D, 2F, or 2G of 40 CFR Part 60, appendix A, is used to determine gas volumetric flow rate.

(3) Method 3, 3A, or 3B of 40 CFR Part 60, appendix A, used for gas analysis to determine dry molecular weight. The permittee may also use as an alternative to Method 3B, the manual method for measuring the oxygen, carbon dioxide, and carbon monoxide content of exhaust gas, ANSI/ASME PTC 19.10–1981, “Flue and Exhaust Gas Analyses” (incorporated by reference, see 40 CFR 63.14).

(4) Method 4 of 40 CFR Part 60, appendix A, is used to determine stack gas moisture.

(5) Methods for determining gas volumetric flow rate, dry molecular weight, and stack gas moisture must be performed, as applicable, during each test run, as specified in paragraph (a)(7) below.

(6) Method 25 or 25A of 40 CFR Part 60, appendix A, is used to determine total gaseous non-methane organic matter concentration. Use the same test method for both the inlet and outlet measurements, which must be conducted simultaneously. The permittee shall submit notification of the intended test method to the MDEQ for approval. The permittee shall use Method 25A if any of the conditions described in paragraphs (A) through (C) below apply to the thermal oxidizer.

(A) The oxidizer exhaust gas volatile organic matter concentration of 50 ppmv or less is required to comply with the limits established in Section 3 of this permit; or

(B) The volatile organic matter concentration at the inlet to the oxidizer and the required level of control are such that they result in exhaust gas volatile organic matter concentrations of 50 ppmv or less; or

(C) Due to the high efficiency of the oxidizer, the anticipated volatile organic matter concentration at the oxidizer exhaust is 50 ppmv or less, regardless of inlet concentration.

(7) Each performance test must consist of three separate runs; each run must be conducted for at least 1 hour under the conditions that exist when the affected source is operating under normal operating conditions. For the purpose of determining volatile organic matter concentrations and mass flow rates, the average of the results of all runs will apply.

(8) The permittee shall determine the thermal oxidizer destruction or removal efficiency, for each run, by calculating the volatile organic matter mass flow rates using the following equation:

$$M_f = Q_{sd} C_c (12)(0.0416)(\mathbf{10^{-6}})$$

Where:

M_f=total organic volatile matter mass flow rate, kg/per hour (h).

C_c=concentration of organic compounds as carbon in the vent gas, as determined by Method 25 or Method 25A, ppmv, dry basis.

Q_{sd}=volumetric flow rate of gases entering or exiting the thermal oxidizer, as determined by Method 2, 2A, 2C, 2D, 2F, or 2G, dry standard cubic meters (dscm)/h.

0.0416=conversion factor for molar volume, kg-moles per cubic meter (mol/m^3) (@ 293 Kelvin (K) and 760 millimeters of mercury (mmHg)).

(9) For each run, determine the thermal oxidizer destruction or removal efficiency, DRE, using Equation 2 of this section:

$$DRE = \frac{M_{fi} - M_{fo}}{M_{fi}} x\, 10\mathbf{0}$$

Where:

DRE=organic emissions destruction or removal efficiency of the thermal oxidizer, percent.

M_{fi}=organic volatile matter mass flow rate at the inlet to the thermal oxidizer, kg/h.

M_{fo}=organic volatile matter mass flow rate at the outlet of the thermal oxidizer, kg/h.

(10) The thermal oxidizer destruction or removal efficiency (DRE) is determined as the average of the efficiencies determined in the three test runs and calculated in the above equation.

(b) The permittee shall record such process information as may be necessary to determine the conditions in existence at the time of the performance test. Operations during periods of start-up, shutdown, and malfunction will not constitute representative conditions for the purpose of a performance test.

(c) The permittee shall operate the Coating Line as close to its maximum rated capacity as operating conditions allow during the performance test.

(d) The permittee shall establish the applicable operating limits required by Section 3 of this permit, which apply to the oxidizer. The permittee shall establish the operating limits during the performance test according paragraphs (c)(1) through (c)(2) below.

(1) During the performance test, the permittee shall monitor and record the combustion temperature at least once every 15 minutes during each of the three test runs. The permittee shall monitor the temperature in the firebox of the thermal oxidizer or immediately downstream of the firebox before any substantial heat exchange occurs.

(2) Use the data collected during the performance test to calculate and record the average combustion temperature maintained during the performance test. This average combustion temperature will be the minimum operating limit for the thermal oxidizer until the next biennial performance test is conducted.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.B(11). and 40 CFR 60.8(a))

5.A.9 For Emission Point AA-030, within 60 days after achieving the maximum production rate at which the Coating Line will operate, but no later than 180 days from the startup of the Coating Line, the permittee shall determine capture efficiency of the closed vent system to meet the requirements of Section 3 of this permit. The permittee shall determine capture efficiency using the procedures in (a) and (c) below, as applicable. Annual closed vent system capture efficiency shall be determined within 12 months of the last determination

(a) For an enclosure that meets the criteria for a PTE, the permittee may assume it achieves 100 percent capture efficiency. The permittee shall confirm that the capture system is a PTE by demonstrating that it meets the requirements of Section 6 of EPA Method 204 of 40 CFR Part 51, Appendix M (or an EPA approved alternative method), and that all exhaust gases from the enclosure are delivered to the thermal oxidizer.

(b) The permittee may determine capture efficiency, CE, according to the protocols for testing with temporary total enclosures that are specified in Method 204A through F of 40 CFR Part 51, Appendix M.

(c) The permittee shall operate the Coating Line as close to its maximum rated capacity as operating conditions allow during the capture efficiency determination.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.B(11).)

5.A.10 For Emission Point AA-030, the permittee shall demonstrate continuous compliance through continuous monitoring of combustion temperature, in accordance with paragraphs (a) and (b) below. Any deviation from the minimum oxidizer combustion temperature established during the initial performance test will be considered a deviation from the oxidizer destruction efficiency limit established in Section 3 of this permit.

(a) Install, calibrate, maintain, and operate temperature monitoring equipment according to manufacturer's specifications. The calibration of the chart recorder, data logger, or temperature indicator must be verified every 3 months; or the chart recorder, data logger, or temperature indicator must be replaced. Permittee must replace the equipment either if permittee chooses not to perform the calibration, or if the equipment cannot be calibrated properly. Each temperature monitoring device must be equipped with a continuous recorder. The device must have an accuracy of ±1 percent of the temperature being monitored in degrees Celsius, or ±1 °Celsius, whichever is greater.

Note: Temperature monitoring device must also meet the specifications contained in Condition 5.A.5 of this permit.

(b) Install a thermocouple or temperature sensor in the combustion chamber at the location in the combustion zone established during the initial performance test.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.B(11).)

5.A.11 For Emission Point AA-030, the permittee shall develop a closed vent system monitoring plan containing the requirements specified in paragraphs (a) and (b) below. The permittee shall submit the monitoring plan to MDEQ’s Environmental Permits Division for approval prior to its implementation, in accordance with the requirements outlined in

Section 5.B of this permit. The permittee shall demonstrate continuous compliance with the closed vent system capture efficiency limit contained in Section 3 of this permit by continuously monitoring the system in accordance with the approved plan. Any deviation from the approved monitoring plan will be considered a deviation from closed vent system capture efficiency limit established in Section 3 of this permit. The permittee shall maintain the monitoring plan onsite and make it available for inspection by MDEQ personnel, upon request.

(a) The monitoring plan must:

(1) Identify the operating parameter(s) to be monitored to ensure that the capture efficiency measured during the initial compliance test is maintained,

(2) Explain why this parameter is appropriate for demonstrating ongoing compliance,

(3) Specify operating limits at the closed vent system operating parameter value, or range of values, that demonstrates compliance with the limit contained in Section 3 of this permit. The operating limits must represent the conditions indicative of proper operation and maintenance of the closed vent system, as established during the initial performance test.

(4) Provide the range of the proposed monitoring device(s) and the accuracy of said device(s), and

(5) Identify the specific monitoring procedures.

(b) The plan also must include a schematic including the following information:

(1) Emission Sources, closed vent system, thermal oxidizer,

(2) Location of monitoring device(s), and

(3) Potential bypasses that could divert gases away from the closed vent system and/or thermal oxidizer.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.B(11).)

5.A.12 For Emission Point AA-030, the permittee shall record the thermal oxidizer combustion temperature in accordance with paragraphs (a) through (c) below.

(a) Record the combustion temperature in accordance with the provisions of this section of the permit a minimum of once every 15 minutes that AA-030a, AA-030c and/or AA-030d is(are) in operation.

(b) Calculate a 1 hour average combustion temperature from at least four (4) temperature readings collected at equally spaced intervals during the hour

(c) Calculate a 3 hour average combustion temperature for each consecutive hour of operation. Compliance will be determined by comparing the thermal oxidizer 3 hour average combustion temperature with the minimum operating limit established in condition 5.A.8(d)(2) above.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.B(11).)

5.A.13 For Emission Point AA-030, the permittee shall maintain files of all information (including all reports and notifications) required by this permit recorded in a form suitable and readily available for expeditious inspection and review. The files shall be retained for at least 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. Such files may be maintained on microfilm, on a computer, on computer floppy disks, on magnetic tape disks, or on microfiche. Records shall include:

(a) The occurrence and duration of each exceedance of any applicable emission limitations prescribed in Section 3 of this permit;

(b) The occurrence and duration of each malfunction of process equipment, the closed vent system or the thermal oxidizer;

(c) All required maintenance performed on the closed vent system, thermal oxidizer and associated monitoring equipment;

(d) Corrective actions taken during periods, which exceeded limitations prescribed in Section 3 of this permit (including corrective actions to restore malfunctioning process equipment, the closed vent system or the thermal oxidizer and associated monitoring equipment to its normal or usual manner of operation);

(e) Each period during which the monitoring equipment for the closed vent system or the thermal oxidizer was malfunctioning or inoperative (including when the monitoring system failed and/or could not be calibrated);

(f) All required measurements and calculations needed to demonstrate compliance with the limitations prescribed in Section 3 of this permit (including, but not limited to, coating usage/property data, monitoring system data, raw performance testing measurements, and raw performance evaluation measurements);

(g) All results of performance tests (including thermal oxidizer destruction efficiency determinations and closed vent system capture efficiency determinations) and monitoring system performance evaluations;

(h) All measurements as may be necessary to determine the conditions of performance tests and performance evaluations;

(i) All monitoring system calibration checks;

(j) All adjustments and maintenance performed on the monitoring systems;

(k) All required monitoring system measurements (including: monitoring data recorded during unavoidable monitoring system breakdowns and out-of-control periods);

(l) The date and time identifying each period during which the monitoring system was inoperative;

(m) The date and time identifying each period during which the monitoring system failed and/or could not be calibrated;

(n) The specific identification (i.e., the date and time of commencement and completion) of each period in which closed vent system and thermal oxidizer operating parameter limitations, established according this section of the permit, were exceeded;

(o) The nature and cause of any malfunction (if known);

(p) The corrective action taken or preventive measures adopted;

(q) The nature of the repairs or adjustments to the monitoring system that was inoperative or failed and/or could not be calibrated;

(r) The total process operating time during the reporting period; and

(s) All procedures that are part of a quality control program developed and implemented for continuous monitoring systems.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.B(11).)

5.A.14 For the entire facility, the permittee shall determine for each coating, solvent, or other HAP containing material used:

(a) The quantity used (gallons);

(b) The percentage of HAPs by weight;

(c) The percentage of each individual HAP and total HAP by weight;

(d) The density (lbs/gal);

The permittee may utilize data supplied by the manufacturer, or analysis of HAP content by EPA Test Method 24, 40 CFR 60, Appendix A and/or EPA Test Method 311, 40 CFR 63, Appendix A, and/or an alternate EPA approved test method.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.B(11).)

5.A.15 For the entire facility, the permittee shall determine the emission rate of each individual HAP and the total HAP emission rate in tons/year for each consecutive 12-month period on a monthly basis.

For the Coating Line Project, emission rates shall be determined utilizing a mass balance approach, based on the assumption that 100 percent of all HAPs contained in each coating, solvent, or other HAP containing material used are volatilized, captured by the closed vent system and routed to a thermal oxidizer with a 99 percent minimum destruction efficiency.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.B(11).)

5.A.16 For the entire facility, the permittee shall maintain sufficient records to document:

(a) The identification of each coating, solvent, or other HAP containing material and the total gallons of each coating, solvent, or other HAP containing material used on a monthly basis and in each consecutive 12-month period;

(b) The HAP content(s) of each coating, solvent, or other HAP containing material used. A description of the method used to determine the HAP content shall accompany this data;

(c) The density of each coating, solvent, or other HAP containing material used;

(d) The emission rate of each individual HAP and the total HAP emission rate in tons/yr for each consecutive 12-month period, determined on a monthly basis.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.B(11).)

SECTION 5.B
REPORTING REQUIREMENTS

Emission Point ID	Applicable Requirement	Condition Number(s)	Reporting Requirement
AA-030	11 Miss. Admin. Code Pt. 2, R. 2.2.B(11).	5.B.1	Notification – Performance Tests
	11 Miss. Admin. Code Pt. 2, R. 2.2.B(11).	5.B.2	Reporting - Performance Test Results
	40 CFR 60, Subpart TT (§60.465(b)	5.B.3	Reporting – Additional Initial Performance Test Data
	40 CFR, Subpart A (§60.7(c))	5.B.4 5.B.5	Reporting - Semi-Annual Monitoring
	11 Miss. Admin. Code Pt. 2, R. 6.3.A(3)(c)(2).	5.B.6	Reporting - Deviations
Facility Wide	40 CFR, Subpart A (§60.7(c))	5.B.7 5.B.8	Reporting - Semi-Annual Monitoring
	11 Miss. Admin. Code Pt. 2, R. 6.3.A(3)(c)(1).	5.B.9	Reporting - Deviations

5.B.1 For Emission Point AA-030, the permittee must submit a Notification(s) of Performance Test for the thermal oxidizer and closed vent system at least 60 calendar days before the performance test(s) is(are) initially scheduled to begin to allow MDEQ, upon request, to review and approve the site-specific test plan and to have an observer present during the test. The notification for the closed vent system shall also include a site-specific monitoring plan, developed in accordance with Condition 5.A.11 of this permit, which identifies the operating parameter(s) to be monitored to ensure that the 100% capture efficiency measured during the performance test is maintained.
(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.B(11). and 40 CFR 60.8)

5.B.2 For Emission Point AA-030, the permittee shall report the results of the performance test(s) to MDEQ within 60 days following the completion of the performance test(s).

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.B(11).)

5.B. 3 For Emission Point AA-030, the permittee shall include the following data in the initial compliance report required by 40 CFR 60.8(a):

(a) The overall VOC destruction rate used to attain compliance and the calculated emission limit used to attain compliance, and;

(b) The combustion temperature of the thermal oxidizer used to attain compliance

(Ref.: 40 CFR 60.465(b))

5.B.4 For Emission Point AA-030, the permittee shall submit reports of any required monitoring by July 31 and January 31 for the preceding six-month period. Reports shall be postmarked by the 30th day following the end of the six-month period. All instances of deviations from permit requirements must be clearly identified in such reports and all required reports must be certified by a responsible official consistent with 11 Miss. Admin. Code Pt. 2, R. 6.2.E.

(Ref.: 40CFR 60.7(c))

5.B.5 For Emission Point AA-030, the permittee shall include the following information in the semi-annual reports:

(a) The identification of each coating, solvent, or other VOC containing material used;

(b) The VOC content(s) of each coating, solvent, or other VOC containing material used;

(c) The total gallons of each coating, solvent, or other VOC containing material used in each consecutive 12-month period;

(d) The total VOC emission rate in tons per month and TPY for each consecutive 12-month period.

(e) All periods (during actual coating operations) in excess of 3 hours during which the average combustion temperature in the thermal oxidizer remained more than 28 °C (50 °F) below the temperature at which compliance with Condition 3.3 of this permit was demonstrated.

(f) All deviations from the monitoring requirements and/or operating parameters being monitored in accordance with the conditions of this permit, along with an explanation as to the cause and a description of corrective actions taken.

(Ref.: 40 CFR 60.7(c) and 40 CFR 60.465(d))

5.B.6 For Emission Point AA-030, the permittee shall report any deviations from the permit requirements, including deviations attributable to upsets, within five (5) days of the time the deviation began. The report shall describe the nature of the deviation and include the cause of the deviation(s) and any corrective action(s) or preventive measure(s) taken. A copy of the report shall be maintained in accordance with the general recordkeeping provisions outlined in Section 5.B of this permit.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 6.3.A(3)(c)(2).)

5.B.7 For the entire facility, the permittee shall submit reports of any required monitoring by July 31 and January 31 for the preceding six-month period. Reports shall be postmarked by the 30th day following the end of the six-month period. All instances of deviations from permit requirements must be clearly identified in such reports and all required reports must be certified by a responsible official consistent with 11 Miss. Admin. Code Pt. 2, R. 6.2.E.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.B(11).)

5.B.8 For the entire facility, the permittee shall include the following information in the semi-annual reports:

(a) The identification of each coating, solvent, or other HAP containing material used;

(b) The HAP content(s) of each coating, solvent, or other HAP containing material used;

(c) The total gallons of each coating, solvent, or other HAP containing material used in each consecutive 12-month period;

(d) The emission rate of each individual HAP, and the total HAP emission rate in tons per month and TPY for each consecutive 12-month period.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.B(11).)

5.B.9 For the entire facility, the permittee shall report all deviations from permit requirements, including those attributable to upsets, the probable cause of such deviations, and any corrective actions or preventive measures taken. Said report shall be made within five (5) days of the time the deviation began.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.B(11).)