Liberty Environmental, Inc.
505 Penn Street, Suite 400, Reading, PA 19601 610-375-9301 www.libertyenviro.com

July 30, 2018

Mr. William F. Durham
Director
West Virginia Department of Environmental Protection
Division of Air Quality
601 - 57th Street SE
Charleston, WV 25304

Re: Title V Operating Permit Renewal Application for the Armstrong World Industries, Inc. Millwood, WV Slag Wool Production Plant
Plant ID No. 035-00049
Permit No. R30-03500049-2014

Dear Mr. Durham:

Armstrong World Industries, Inc. (Armstrong) operates a slag wool manufacturing facility located in Millwood, Jackson County, West Virginia under Title V Operating Permit No. R30-03500049-2014. Armstrong is submitting the enclosed Title V operating permit renewal application for the Millwood plant. This application is being submitted six months prior to the Title V permit expiration date of February 3, 2019. Armstrong believes that the enclosed submittal provides all the information required by the WV DAQ for technical review of the Title V renewal. As such, Armstrong believes that this submittal constitutes an administratively complete and timely Title V renewal application.

We are enclosing one (1) copy of the application which has been signed by a responsible official. The WV DAQ application forms are provided electronically on two (2) CDs that are included inside the cover of the application. Armstrong understands that no application fee is required and that WV DAQ will address the public and affected state notification requirements.

Facility Changes
The changes to the facility over the term of the permit include the following:

1. Revisions to the electric arc furnace (EAF, EU-1S) carbon monoxide (CO) emission limit, revisions to the lime scrubber (CD-1C) and furnace operating requirements 2015 (R13-2864B, MM01);

2. Installation of room air ventilation fans with associated small (0.0098 tpy) potential formaldehyde emissions in 2015 (PD15-106, no permit required);

3. Installation of a propane fired sand dryer (EU-18S) in 2018 (PD17-89, permit required R13-2864C, MM02 [proposed]).

Other changes include:

Housekeeping Vacuum System
The housekeeping vacuum system (EU-5S) was never installed and should be removed from the permit.

Glycol Additive Storage Tank
The glycol additive storage tank (EU-14S) has recently been deactivated and is slated for removal. The tank is being removed because the facility is using new surfactant/binder materials that are brought onsite in totes. Revised emissions estimates for surfactant/binder material usage are provided in Attachment I (EU3S and 4S) and MSDS for these new materials are provided in Attachment J.

Backup Generator and Diesel Storage Tank #1
The emergency generator (EU-7S) and its associated diesel storage tank (EU-12S) have incorrect specifications listed in the operating permit. The generator is a 500 kW Caterpillar generator equipped with a 762 hp engine, not a 565kW Volvo unit. The associated diesel tank is 900 gallons, not 500 gallon. Revised emission unit forms are provide in Attachment E and revised emission estimates are provided in Attachment I.

Hydrated Lime Storage Silo
The hydrated lime storage silo bin vent (CD-6C) is listed in the permit as 3,300 cfm, but the emissions calculations were based on a 1,500 cfm exhaust flow rate. Revised emission unit forms are provided in Attachment E and revised emission estimates are provided in Attachment I.

Slag Wool Processing Lines #1 and #2
Armstrong requests that the design capacity for slag processing lines #1 and #2 (EU-15S and 16S) be revised to reflect a design capacity of 28,000 lb/hr on a “24-hour average” in order to accommodate process fluctuations.

Air Quality Regulatory Changes

Compliance Assurance Monitoring
The Compliance Assurance Monitoring (CAM) provisions of 40 CFR 64 require sources with control devices with pre-control emissions greater than major source thresholds to submit a CAM plan. The Millwood facility’s control devices/CAM status is as follows:

EUID	EU Description	CDID	Control Device Description	Pollutant	Emissions	CAM Applicability
1S	Raw Material Transfer and EAF	1C	EAF Scrubber	SO2	Post-Control > 100 TPY	N/A. EAF is equipped winth SO2 CEMS
1S	Raw Material Transfer and EAF	2C	EAF Dust Collector	PM/PM10/PM2.5	Pre-Control > 100 tpy Post Control < 100tpy	Applicable
3S	Spinner Collection Chamber #1	3C	Spinner #1 Dust Collector	PM/PM10/PM2.5	Pre-Control > 100 tpy Post Control < 100tpy	N/A. Inherent process equipment, used for the collection of wool fibers from the spinner.
4S	Spinner Collection Chamber #2	4C	Spinner #2 Dust Collector	PM/PM10/PM2.5	Pre-Control > 100 tpy Post Control < 100tpy	N/A, See above.
5S	Housekeeping Vacuum System	5C	Housekeeping Vacuum System	PM/PM10/PM2.5	N/D	N/A. This system was never installed.
6S	Hydrated Lime Silo	6C	Hydrated Lime Storage Silo	PM/PM10/PM2.5	Pre-Control < 100tpy	N/A. Due to the relatively small size of this bin vent (3,300 cfm), pre-control emissions are assumed to be less than 100 tpy.
Fugitive	Haul Roads	WS	Wet Suppression	PM/PM10/PM2.5	N/D	N/A. Wet suppression is not a control device as it does not "destroy or remove" pollutants.
15S/16S	Slag Wool Processing Lines #1 and 2	7C	Slag Wool Processing Dust Collector	PM/PM10/PM2.5	Pre-Control > 100 tpy Post Control < 100tpy	Applicable

Armstrong is proposing that CAM for the affected fabric filters (2C and 7C) be parametric monitoring of pressure differential across the filters to maintain it within the manufacturer's recommended range. Additional detail is provided in Attachment H.

Startup, Shutdown and Maintenance

The WVDEP recently promulgated regulations at §45-1 allowing for the establishment of alternative emission limitations during startup, shutdown, or maintenance (SSM) activities. The current permit requires compliance with numerous emission limits. Armstrong believes that good operating practices, in conjunction with operation of the existing control devices ensure that that the facility's emission units can meet the existing emission limits during periods of system startup and shutdown. Armstrong is therefore not requesting an alternative emission limit during SSM conditions under this new regulation.

40 CFR 60 Subpart OOO, UUU

Armstrong recently installed a small propane-fired sand dryer (EUID 18S). The source is used for drying batches (2000 lb/hr) of sand used to collect tapped off metal material from the bottom of the EAF. The metal is tapped off onto sand bed which must be dry due to its contact with molten metal. The sand drying operation is not subject to the Nonmetallic Mineral Processing Plants NSPS (Subpart OOO) because dryers are not an "affected facility" as listed by the regulation. The sand drying operation is not subject to the Calciners and Dryers in Mineral Industries NSPS (Subpart UUU) because and other regulated materials do not constitute the majority (>50%) of the materials processed at the Millwood facility The vast majority of materials handled consist of slag (raw material) and slag wool (product) that are not listed materials.

Facility Compliance Status

NOV/Draft Consent Assessment

On February 26, 2018, WVDEP issued a Notice of Violation(s) ("NOV") to Armstrong in regards to emissions testing for: (1) failure to provide the Director with a testing protocol for approval 30 days prior to testing and failure to notify the Director of intent to test 15 days prior to testing; (2) failure to conduct condensable PM emissions testing on the EAF; (3) failure to test the Spinners for PM emissions; and (4) failure to demonstrate ongoing compliance with the required periodic PM testing schedule. Armstrong has since

conducted the required testing and is in receipt of a draft consent assessment from WVDEP. Because the NOV was for a was a one-time issue – late testing that has since been completed – this matter is not a current "noncompliance" issue and therefore AWI is certifying compliance with all permit limits.

If you have any questions regarding the enclosed Title V application, please feel free to contact Mr. Patrick King, EHS Manager, at (304) 273-3900 or me at (610) 375-9301 ext. 2008.

Sincerely,

Gavin L. Biebuyck
Principal
Liberty Environmental, Inc., Inc.

cc: P. King – Armstrong Millwood
J. Ackiewicz – Armstrong Corporate EHS
M. Zeiders – Liberty Environmental

Armstrong

Title V Permit Renewal Application

Armstrong World Industries, Inc.

Millwood, West Virginia

Title V Permit R30-03500049-2014

Submitted to:

West Virginia Division of Air Quality
601 57th Street, SE
Charleston, WV 25304

Prepared by:

Liberty Environmental, Inc.
505 Penn Street, Suite 400
Reading, PA 19601
(610) 375-9301

JULY 2018

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WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF AIR QUALITY

601 57th Street SE

Charleston, WV 25304

Phone: (304) 926-0475

www.dep.wv.gov/daq

INITIAL/RENEWAL TITLE V PERMIT APPLICATION - GENERAL FORMS

Section 1: General Information

1. **Name of Applicant (As registered with the WV Secretary of State's Office):** Armstrong World Industries, Inc.	**2. Facility Name or Location:** Armstrong Millwood Plant Millwood, WV
3. DAQ Plant ID No.: 035-00049	**4. Federal Employer ID No. (FEIN):** 23-0366390

5. **Permit Application Type:**

☐ Initial Permit — When did operations commence? MM/DD/YYYY

☒ Permit Renewal — What is the expiration date of the existing permit? February 3, 2019

☐ Update to Initial/Renewal Permit Application

6. Type of Business Entity:

☒ Corporation ☐ Governmental Agency ☐ LLC ☐ Partnership ☐ Limited Partnership

8. Number of onsite employees:

60

7. Is the Applicant the:

☐ Owner ☐ Operator ☒ Both

If the Applicant is not both the owner and operator, please provide the name and address of the other party.

_____

_____

_____

9. Governmental Code:

☒ Privately owned and operated; 0

☐ Federally owned and operated; 1

☐ State government owned and operated; 2

☐ County government owned and operated; 3

☐ Municipality government owned and operated; 4

☐ District government owned and operated; 5

10. Business Confidentiality Claims

Does this application include confidential information (per 45CSR31)? ☐ Yes ☒ No

If yes, identify each segment of information on each page that is submitted as confidential, and provide justification for each segment claimed confidential, including the criteria under 45CSR§31-4.1, and in accordance with the DAQ's *"PRECAUTIONARY NOTICE-CLAIMS OF CONFIDENTIALITY"* guidance.

11. Mailing Address		
Street or P.O. Box: P.O. Box 220		
City: Millwood	**State:** WV	**Zip:** 25262
Telephone Number: 304-273-3900	**Fax Number:** ( ) -	

12. Facility Location		
Street: 141 Sensenich Drive	**City:** Millwood	**County:** Jackson
UTM Easting: 427.2 km	**UTM Northing:** 4,307 km	**Zone:** ☒ 17 or ☐ 18
Directions: From US-33 E, turn left onto WV 68 S. Continue on WV 68 S for 0.4 miles. Turn right onto WV 2 S. Continue for approximately 6 miles. Turn Right onto Jack Burlingame Road.		
Portable Source? ☐ Yes ☒ No		
Is facility located within a nonattainment area? ☐ Yes ☒ No		**If yes, for what air pollutants?**
Is facility located within 50 miles of another state? ☒ Yes ☐ No		**If yes, name the affected state(s).** Ohio
Is facility located within 100 km of a Class I Area[1]? ☐ Yes ☒ No **If no, do emissions impact a Class I Area[1]?** ☐ Yes ☒ No		**If yes, name the area(s).**

[1] *Class I areas include Dolly Sods and Otter Creek Wilderness Areas in West Virginia, and Shenandoah National Park and James River Face Wilderness Area in Virginia.*

13. Contact Information		
Responsible Official: Jarret M. Hill		**Title:** Plant Manager
Street or P.O. Box: P.O. Box 220		
City: Millwood	**State:** WV	**Zip:** 25262-9998
Telephone Number: 304-273-3902	**Fax Number:** ( ) -	
E-mail address: jhill@armstrongceilings.com		
Environmental Contact: Patrick King		**Title:** EHS Manager, Millwood
Street or P.O. Box: P.O. Box 220		
City: Millwood	**State:** WV	**Zip:** 25262-9998
Telephone Number:304-273-3903	**Fax Number:** ( ) -	
E-mail address:		
Application Preparer: Michael D. Zeiders		**Title:** Project Manager
Company: Liberty Environmental, Inc.		
Street or P.O. Box: 505 Penn Street, Suite 400		
City: Reading	**State:** PA	**Zip: 19601**
Telephone Number: 610-375-9301	**Fax Number:** ( ) -	
E-mail address: mzeiders@libertyenviro.com		

14. Facility Description

List all processes, products, NAICS and SIC codes for normal operation, in order of priority. Also list any process, products, NAICS and SIC codes associated with any alternative operating scenarios if different from those listed for normal operation.

Process	Products	NAICS	SIC
Slag wool insulation materials manufacturing	Slag wool	327993	3296

Provide a general description of operations.

The Armstrong World Industries Millwood plant is a slag wool manufacturing facility. It typically manufactures slag wool from silicon manganese slag. The plant receives the slag via truck or railcar, stores the slag in outdoor piles, and then transfers the slag to a belt conveyor via front-end loader. The slag is then transferred to a submerged Electric Arc Furnace (EAF) where the slag is melted using graphite electrodes. The molten slag is then transferred to one and or both spinners which spin the molten slag into slag wool fibers. The wool fibers are then collected in one of two collection chambers, further processed into slag wool bales, and then shipped off site.

15. Provide an **Area Map** showing plant location as **ATTACHMENT A**.

16. Provide a **Plot Plan(s)**, e.g. scaled map(s) and/or sketch(es) showing the location of the property on which the stationary source(s) is located as **ATTACHMENT B**. For instructions, refer to "Plot Plan - Guidelines."

17. Provide a detailed **Process Flow Diagram(s)** showing each process or emissions unit as **ATTACHMENT C**. Process Flow Diagrams should show all emission units, control equipment, emission points, and their relationships.

Section 2: Applicable Requirements

18. Applicable Requirements Summary	
Instructions: Mark all applicable requirements.	
☒ SIP	☐ FIP
☒ Minor source NSR (45CSR13)	☐ PSD (45CSR14)
☐ NESHAP (45CSR34)	☐ Nonattainment NSR (45CSR19)
☒ Section 111 NSPS	☒ Section 112(d) MACT standards
☐ Section 112(g) Case-by-case MACT	☐ 112(r) RMP
☐ Section 112(i) Early reduction of HAP	☐ Consumer/commercial prod. reqts., section 183(e)
☐ Section 129 Standards/Reqts.	☐ Stratospheric ozone (Title VI)
☐ Tank vessel reqt., section 183(f)	☐ Emissions cap 45CSR§30-2.6.1
☐ NAAQS, increments or visibility (temp. sources)	☐ 45CSR27 State enforceable only rule
☐ 45CSR4 State enforceable only rule	☐ Acid Rain (Title IV, 45CSR33)
☐ Emissions Trading and Banking (45CSR28)	☒ **C**ompliance **A**ssurance **M**onitoring (40CFR64)
☐ CAIR NO_x Annual Trading Program (45CSR39)	☐ CAIR NO_x Ozone Season Trading Program (45CSR40)
☐ CAIR SO_2 Trading Program (45CSR41)	

19. Non Applicability Determinations

List all requirements which the source has determined not applicable and for which a permit shield is requested. The listing shall also include the rule citation and the reason why the shield applies.

3.7.2. The following requirements specifically identified are not applicable to the source based on the determinations set forth below. The permit shield shall apply to the following requirements provided the conditions of the determinations are met.

a. NSPS: 40 CFR 60 Subpart CC - The Millwood plant does not include glass melting furnaces.

b. NSPS: 40 CFR 60 Subpart OOO - Slag is not classified as a "nonmetallic mineral". The sand dryer is not an "affected facility" as defined by the regulation.

c. NSPS: 40 CFR 60 Subpart UUU - The EAF is not classified as a calciner or dryer. The sand drying operation is not subject because sand and other regulated materials do not constitute the majority (>50%) of the materials processed at the Millwood facility

d. NESHAP: 40 CFR 63 Subpart DDD – The Millwood plant is not classified as a major HAP source because potential HAP emissions are < 10/25 tpy for any single/combination of HAPs. In addition, the EAF is not classified as a "cupola" and the plant does not operate a mineral wool "curing oven". For these reasons the "mineral wool production NESHAP" at 40 CFR 63 Subpart DDD is not applicable.

☒ Permit Shield

19. Non Applicability Determinations *(Continued)* - *Attach additional pages as necessary.*

List all requirements which the source has determined not applicable and for which a permit shield is requested. The listing shall also include the rule citation and the reason why the shield applies.

e. NESHAP: 40 CFR 63 Subpart JJJJJJ – The Millwood plant does not operate boilers and is therefore not subject to the Subpart JJJJJJ Area Source ICI Boiler NESHAP.

f. 45CSR7 - The Millwood slag processing operations are classified as "type a" operations involving "physical changes" and are not subject to the type b, c , or d standards under 45CSR7, Table 7A.

g. 45CSR17 - WV Fugitive emissions from material handling - Per 45CSR§7-6.1. if sources are subject to 45CSR7 they are exempt from the requirements of this Rule.

h. 45CSR19 & 21 - WV NSR permitting for non-attainment areas and VOC Regulations - Millwood plant is not located in affected areas.

i. 45CSR27 - WV Emissions of toxic air pollutants - Millwood plant does not operate any "chemical processing units" and does not use listed chemicals.

☒ Permit Shield

20. Facility-Wide Applicable Requirements

List all facility-wide applicable requirements. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*).

3.0. Facility-Wide Requirements

3.1. Limitations and Standards

3.1.1. Open burning. The open burning of refuse by any person is prohibited except as noted in 45CSR§6-3.1.
[45CSR§6-3.1.]

3.1.2. Open burning exemptions. The exemptions listed in 45CSR§6-3.1 are subject to the following stipulation: Upon notification by the Secretary, no person shall cause or allow any form of open burning during existing or predicted periods of atmospheric stagnation. Notification shall be made by such means as the Secretary may deem necessary and feasible.
[45CSR§6-3.2.]

3.1.3. Asbestos. The permittee is responsible for thoroughly inspecting the facility, or part of the facility, prior to commencement of demolition or renovation for the presence of asbestos and complying with 40 C.F.R. § 61.145, 40 C.F.R. § 61.148, and 40 C.F.R. § 61.150. The permittee must notify the Secretary at least ten (10) working days prior to the commencement of any asbestos removal on the forms prescribed by the Secretary if the permittee is subject to the notification requirements of 40 C.F.R. § 61.145(b)(3)(i). The USEPA, the Division of Waste Management and the Bureau for Public Health - Environmental Health require a copy of this notice to be sent to them.
[40 C.F.R. 61 and 45CSR34]

3.1.4. Odor. No person shall cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor at any location occupied by the public.
[45CSR§4-3.1 State-Enforceable only.]

3.1.5. Standby plan for reducing emissions. When requested by the Secretary, the permittee shall prepare standby plans for reducing the emissions of air pollutants in accordance with the objectives set forth in Tables I, II, and III of 45CSR11.
[45CSR§11-5.2]

3.1.6. Emission inventory. The permittee is responsible for submitting, on an annual basis, an emission inventory in accordance with the submittal requirements of the Division of Air Quality.
[W.Va. Code § 22-5-4(a)(14)]

☒ Permit Shield

20. Facility-Wide Applicable Requirements

List all facility-wide applicable requirements. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*).

3.1.7. Ozone-depleting substances. For those facilities performing maintenance, service, repair or disposal of appliances, the permittee shall comply with the standards for recycling and emissions reduction pursuant to 40 C.F.R. Part 82, Subpart F, except as provided for Motor Vehicle Air Conditioners (MVACs) in Subpart B:

a. Persons opening appliances for maintenance, service, repair, or disposal must comply with the prohibitions and required practices pursuant to 40 C.F.R. §§ 82.154 and 82.156.

b. Equipment used during the maintenance, service, repair, or disposal of appliances must comply with the standards for recycling and recovery equipment pursuant to 40 C.F.R. § 82.158.

c. Persons performing maintenance, service, repair, or disposal of appliances must be certified by an approved technician certification program pursuant to 40 C.F.R. § 82.161.
[40 C.F.R. 82, Subpart F]

3.1.8. Risk Management Plan. Should this stationary source, as defined in 40 C.F.R. § 68.3, become subject to Part 68, then the owner or operator shall submit a risk management plan (RMP) by the date specified in 40 C.F.R. § 68.10 and shall certify compliance with the requirements of Part 68 as part of the annual compliance certification as required by 40 C.F.R. Part 70 or 71.
[40 C.F.R. 68]

4.1.6. The total annual Mn emissions from the facility shall not exceed 9.6 tons per year based on a rolling 12 month total basis.
[45CSR13, R13-2864, 4.1.12.]

4.1.10. No person shall cause, suffer, allow or permit emission of smoke and/or particulate matter into the open air from any process source operation which is greater than twenty (20) percent opacity, except for smoke and/or particulate matter emitted from any process source operation which is less than forty (40) percent opacity for any period or periods aggregating no more than five (5) minutes in any sixty (60) minute period.
[45CSR§7-3.1 &45CSR§7-3.2, 45CSR13, R13-2864, 4.1.9.1 (1S, 3S, 4S, 5S, 15S, 16S, 18S)]

4.1.11. No person shall cause, suffer, allow or permit visible emissions from any storage structure(s) associated with any manufacturing process that pursuant to Condition 4.1.13. is required to have a full enclosure and be equipped with a particulate matter control device.
[45CSR§7-3.7. (6S)]

☒ Permit Shield

20. Facility-Wide Applicable Requirements

List all facility-wide applicable requirements. For each applicable requirement, include the underlying rule/regulation citation and/or <u>construction permit</u> with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*).

4.1.12. Any stack serving any process source operation or air pollution control equipment on any process source operation shall contain flow straightening devices or a vertical run of sufficient length to establish flow patterns consistent with acceptable stack sampling procedures.
[45CSR§7-4.12.]

4.1.13. No person shall cause, suffer, allow or permit any manufacturing process or storage structure generating fugitive particulate matter to operate that is not equipped with a system, which may include, but not be limited to, process equipment design, control equipment design or operation and maintenance procedures, to minimize the emissions of fugitive particulate matter. To minimize means such system shall be installed, maintained and operated to ensure the lowest fugitive particulate matter emissions reasonably achievable.
[45CSR§7-5.1., 45CSR13, R13-2864, 4.1.9.3]

4.1.16. Operation and Maintenance of Air Pollution Control Equipment. The permittee shall, to the extent practicable, install, maintain, and operate all pollution control equipment listed in Section 1.0 and associated monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions, or comply with any more stringent limits set forth in this permit or as set forth by any State rule, Federal regulation, or alternative control plan approved by the Secretary.
[45CSR§13-5.11., 45CSR13, R13-2864, 4.1.13]

☒ Permit Shield

For all facility-wide applicable requirements listed above, provide monitoring/testing / recordkeeping / reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number and/or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

3.2. Monitoring Requirements

3.2.1. None.

3.3. Testing Requirements

3.3.1. Stack testing. As per provisions set forth in this permit or as otherwise required by the Secretary, in accordance with the West Virginia Code, underlying regulations, permits and orders, the permittee shall conduct test(s) to determine compliance with the emission limitations set forth in this permit and/or established or set forth in underlying documents. The Secretary, or his duly authorized representative, may at his option witness or conduct such test(s). Should the Secretary exercise his option to conduct such test(s), the operator shall provide all necessary sampling connections and sampling ports to be located in such manner as the Secretary may require, power for test equipment and the required safety equipment, such as scaffolding, railings and ladders, to comply with generally accepted good safety practices. Such tests shall be conducted in accordance with the methods and procedures set forth in this permit or as otherwise approved or specified by the Secretary in accordance with the following:

a. The Secretary may on a source-specific basis approve or specify additional testing or alternative testing to the test methods specified in the permit for demonstrating compliance with 40 C.F.R. Parts 60, 61, and
63, if applicable, in accordance with the Secretary's delegated authority and any established equivalency
determination methods which are
applicable.

b. The Secretary may on a source-specific basis approve or specify additional testing or alternative testing to the test methods specified in the permit for demonstrating compliance with applicable requirements which do not involve federal delegation. In specifying or approving such alternative testing to the test methods, the Secretary, to the extent possible, shall utilize the same equivalency criteria as would be used in approving such changes under Section 3.3.1.a. of this permit.

c. All periodic tests to determine mass emission limits from or air pollutant concentrations in discharge stacks and such other tests as specified in this permit shall be conducted in accordance with an approved test protocol. Unless previously approved, such protocols shall be submitted to the Secretary in writing at least thirty (30) days prior to any testing and shall contain the information set forth by the Secretary. In addition, the permittee shall notify the Secretary at least fifteen (15) days prior to any testing so the Secretary may have the opportunity to observe such tests. This notification shall include the actual date and time during which the test will be conducted and, if appropriate, verification that the tests will fully conform to a referenced protocol previously approved by the Secretary.

Are you in compliance with all facility-wide applicable requirements? ☒ Yes ☐ No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

For all facility-wide applicable requirements listed above, provide monitoring/testing / recordkeeping / reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number and/or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

d. The permittee shall submit a report of the results of the stack test within 60 days of completion of the test. The test report shall provide the information necessary to document the objectives of the test and to determine whether proper procedures were used to accomplish these objectives. The report shall include the following: the certification described in paragraph 3.5.1; a statement of compliance status, also signed by a responsible official; and, a summary of conditions which form the basis for the compliance status evaluation. The summary of conditions shall include the following:

1. The permit or rule evaluated, with the citation number and language.

2. The result of the test for each permit or rule condition.

3. A statement of compliance or non-compliance with each permit or rule condition.

[WV Code § 22-5-4(a)(14-15) and 45CSR13]

3.4. Recordkeeping Requirements

3.4.1. Monitoring information. The permittee shall keep records of monitoring information that include the following:

a. The date, place as defined in this permit and time of sampling or measurements;

b. The date(s) analyses were performed;

c. The company or entity that performed the analyses;

d. The analytical techniques or methods used;

e. The results of the analyses; and

f. The operating conditions existing at the time of sampling or measurement.

[45CSR§30-5.1.c.2.A., 45CSR13, R13-2864, 4.4.1.]

3.4.2. Retention of records. The permittee shall retain records of all required monitoring data and support information for a period of at least five (5) years from the date of monitoring sample, measurement, report, application, or record creation date. Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by the permit. Where appropriate, records may be maintained in computerized form in lieu of the above records.

[45CSR§30-5.1.c.2.B.]

3.4.3. Odors. For the purposes of 45CSR4, the permittee shall maintain a record of all odor complaints received, any investigation performed in response to such a complaint, and any responsive action(s) taken.

[45CSR§30-5.1.c. State-Enforceable only.]

Are you in compliance with all facility-wide applicable requirements? ☒ Yes ☐ No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

For all facility-wide applicable requirements listed above, provide monitoring/testing / recordkeeping / reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number and/or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

3.5. Reporting Requirements

3.5.1. Responsible official. Any application form, report, or compliance certification required by this permit to be submitted to the DAQ and/or USEPA shall contain a certification by the responsible official that states that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate and complete. [45CSR§30-4.4. and 5.1.c.3.D.]

3.5.2. Confidential Information. A permittee may request confidential treatment for the submission of reporting required under 45CSR§30-5.1.c.3. pursuant to the limitations and procedures of W.Va. Code § 22-5-10 and 45CSR31.
[45CSR§30-5.1.c.3.E.]

3.5.3. Correspondence. Except for the electronic submittal of the annual certification to the USEPA as required in3.5.5 below, all notices, requests, demands, submissions and other communications required or permitted to be made to the Secretary of DEP and/or USEPA shall be made in writing and shall be deemed to have been duly given when delivered by hand, mailed first class, or by private carrier with postage prepaid to the address(es) set forth below or to such other person or address as the Secretary of the Department of Environmental Protection may designate:

If to the DAQ:

Director
WVDEP
Division of Air Quality
601 57th Street SE Charleston, WV 25304
Phone: 304/926-0475
FAX: 304/926-0478

If to the US EPA:
Associate Director
Office of Air Enforcement and Compliance
Assistance (3AP20)
U. S. Environmental Protection Agency
Region III
1650 Arch Street
Philadelphia, PA 19103-2029

3.5.4. Certified emissions statement. The permittee shall submit a certified emissions statement and pay fees on an annual basis in accordance with the submittal requirements of the Division of Air Quality.
[45CSR§30-8.]

Are you in compliance with all facility-wide applicable requirements? ☒ Yes ☐ No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

For all facility-wide applicable requirements listed above, provide monitoring/testing / recordkeeping / reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number and/or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

3.5.5. Compliance certification. The permittee shall certify compliance with the conditions of this permit on the forms provided by the DAQ. In addition to the annual compliance certification, the permittee may be required to submit certifications more frequently under an applicable requirement of this permit. The annual certification shall be submitted to the DAQ and USEPA on or before March 15 of each year, and shall certify compliance for the period ending December 31. The annual certification to the USEPA shall be submitted in electronic format only. It shall be submitted by e-mail to the following address: R3_APD_Permits@epa.gov. The permittee shall maintain a copy of the certification on site for five (5) years from submittal of the certification. [45CSR§30-5.3.e.]

3.5.6. Semi-annual monitoring reports. The permittee shall submit reports of any required monitoring on or before September 15 for the reporting period January 1 to June 30 and on or before March 15 for the reporting period July 1 to December 31. All instances of deviation from permit requirements must be clearly identified in such reports. All required reports must be certified by a responsible official consistent with 45CSR§30-4.4. [45CSR§30-5.1.c.3.A.]

3.5.7. Emergencies. For reporting emergency situations, refer to Section 2.17 of this permit.

3.5.8. Deviations.

a. In addition to monitoring reports required by this permit, the permittee shall promptly submit supplemental reports and notices in accordance with the following:

1. Any deviation resulting from an emergency or upset condition, as defined in 45CSR§30-5.7., shall be reported by telephone or telefax within one (1) working day of the date on which the permittee becomes aware of the deviation, if the permittee desires to assert the affirmative defense in accordance with 45CSR§30-5.7. A written report of such deviation, which shall include the probable cause of such deviations, and any corrective actions or preventative measures taken, shall be submitted and certified by a responsible official within ten (10) days of the deviation.

2. Any deviation that poses an imminent and substantial danger to public health, safety, or the environment shall be reported to the Secretary immediately by telephone or telefax. A written report of such deviation, which shall include the probable cause of such deviation, and any corrective actions or preventative measures taken, shall be submitted by the responsible official within ten (10) days of the deviation.

3. Deviations for which more frequent reporting is required under this permit shall be reported on the more frequent basis.

Are you in compliance with all facility-wide applicable requirements? ☒ Yes ☐ No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

For all facility-wide applicable requirements listed above, provide monitoring/testing / recordkeeping / reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number and/or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

4. All reports of deviations shall identify the probable cause of the deviation and any corrective actions or preventative measures taken.

[45CSR§30-5.1.c.3.C.]

b. The permittee shall, in the reporting of deviations from permit requirements, including those attributable to upset conditions as defined in this permit, report the probable cause of such deviations and any corrective actions or preventive measures taken in accordance with any rules of the Secretary. [45CSR§30-5.1.c.3.B.]

3.5.9. New applicable requirements. If any applicable requirement is promulgated during the term of this permit, the permittee will meet such requirements on a timely basis, or in accordance with a more detailed schedule if required by the applicable requirement.
[45CSR§30-4.3.h.1.B.]

4.2. Monitoring Requirements

4.2.1. The permittee shall install, maintain, and operate all monitoring equipment required by this permit in accordance with all manufacturers' recommendations concerning maintenance and performance.
[45CSR13, R13-2864, 4.2.1]

4.2.2. The permittee shall conduct visible emission checks and/or opacity monitoring and recordkeeping for all emission sources subject to an opacity limit.

The visible emission check shall determine the presence or absence of visible emissions. At a minimum, the observer must be trained and knowledgeable regarding the effects of background contrast, ambient lighting, observer position relative to lighting, wind, and the presence of uncombined water (condensing water vapor) on the visibility of emissions. This training may be obtained from written materials found in the References 1 and 2 from 40CFR Part 60, Appendix A, Method 22 or from the lecture portion of the 40CFR Part 60,
Appendix A, Method 9 certification course.

Visible emission checks shall be conducted at least once per calendar month with a maximum of forty-five (45)days between consecutive readings. These checks shall be performed at each source (stacks, conveyors, crushers, silos, bins, and screens) for a sufficient time interval, but no less than one (1) minute, to determine if any visible emissions are present. Visible emission checks shall be performed during periods of facility operation and appropriate weather conditions.

Are you in compliance with all facility-wide applicable requirements? ☒ Yes ☐ No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

For all facility-wide applicable requirements listed above, provide monitoring/testing / recordkeeping / reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number and/or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

If visible emissions are present at a source(s) for three (3) consecutive monthly checks, the permittee shall conduct an opacity reading at that source(s) using the procedures and requirements of Method 9 as soon as practicable, but within seventy-two (72) hours of the final visual emission check. Method 9 checks shall be performed on the source for at least six (6) minutes. A Method 9 observation at a source(s) restarts the count of the number of consecutive readings with the presence of visible emissions.
[45CSR13, R13-2864, 4.2.2 (1S, 3S, 4S, 5S, 6S, 15S, 16S)]

4.2.5. For the purposes of demonstrating compliance with the sulfur content limit in 4.1.15 of this permit, analytical testing results showing sulfur content shall be obtained from the fuel supplier. Alternatively, the permittee may obtain a fuel sample of each shipment and perform analytical testing to determine the sulfur content.
[45CSR13, R13-2864, 4.2.5]

4.2.10. To show compliance with the Mn emission limit in condition 4.1.6. of this permit, monthly Mn emissions from the facility shall be calculated (mass balance) by the 15th day of the subsequent month. A twelve month running total of emissions shall be maintained to verify compliance with the annual emission limitation. Each month a new twelve month total shall be calculated using the previous twelve months of data.
[45CSR13, R13-2864, 4.2.12]

4.4 Recordkeeping Requirements

4.4.1. Record of Maintenance of Air Pollution Control Equipment. For all pollution control equipment listed in Section 1.0, the permittee shall maintain accurate records of all required pollution control equipment inspection and/or preventative maintenance procedures.
[45CSR13, R13-2864, 4.4.2]

4.4.2. Record of Malfunctions of Air Pollution Control Equipment. For all air pollution control equipment listed in Section 1.0, the permittee shall maintain records of the occurrence and duration of any malfunction or operational shutdown of the air pollution control equipment during which excess emissions occur. For each such case, the following information shall be recorded:

a. The equipment involved.
b. Steps taken to minimize emissions during the event. c. The duration of the event.
d. The estimated increase in emissions during the event.

For each such case associated with an equipment malfunction, the additional information shall also be recorded:

e. The cause of the malfunction.
f. Steps taken to correct the malfunction.
g. Any changes or modifications to equipment or procedures that would help prevent future recurrences of the malfunction.

Are you in compliance with all facility-wide applicable requirements? ☒ Yes ☐ No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

For all facility-wide applicable requirements listed above, provide monitoring/testing / recordkeeping / reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number and/or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

4.4.5. The permittee shall maintain monthly records of slag wool production from the facility. Upon request the records shall be certified and made available to the Director or his/her duly authorized representative.
[45CSR13, R13-2864, 4.2.8. and 4.4.5]

4.4.6. In order to demonstrate compliance with the requirements of 4.2.2 of this permit, records of the Method 22 testing and any necessary Method 9 testing shall be retained on site by the permittee for at least five (5) years. Upon request the records shall be certified and made available to the Director or his/her duly authorized representative.
[45CSR13, R13-2864, 4.4.6]

4.4.7. In order to determine compliance with the requirements of conditions 4.1.15 and 4.2.5 of this permit, the permittee shall maintain records of the fuel oil sulfur content. Upon request the records shall be certified and made available to the Director or his/her duly authorized representative.
[45CSR13, R13-2864, 4.4.7]

4.5.1. Any violations of the allowable visible emission requirement for any emission source discovered during testing must be reported in writing to the Director of the Division of Air Quality as soon as practicable, but within ten calendar days, of the occurrence and shall include, at a minimum, the following information: the results of the visible determination of opacity of emissions, the cause or suspected cause of the violation(s), and any corrective measures taken or planned.
[45CSR13, R13-2864, 4.5.1]

4.5.3. The permittee shall comply with all applicable reporting requirements of 45CSR7, 45CSR10, and 45CSR13.
[45CSR13, R13-2864, 4.5.3]

Are you in compliance with all facility-wide applicable requirements? ☒ Yes ☐ No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

21. Active Permits/Consent Orders		
Permit or Consent Order Number	Date of Issuance MM/DD/YYYY	List any Permit Determinations that Affect the Permit *(if any)*
R30-03500049-2014	02/03/2018	Not applicable
R13-2864C	03/15/2018	Not applicable
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22. Inactive Permits/Obsolete Permit Conditions		
Permit Number	Date of Issuance	Permit Condition Number
Not applicable		
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Section 3: Facility-Wide Emissions

23. Facility-Wide Emissions Summary [Tons per Year]	
Criteria Pollutants	Potential Emissions
Carbon Monoxide (CO)	See Attachment I.
Nitrogen Oxides (NO_X)	
Lead (Pb)	
Particulate Matter ($PM_{2.5}$)[1]	
Particulate Matter (PM_{10})[1]	
Total Particulate Matter (TSP)	
Sulfur Dioxide (SO_2)	
Volatile Organic Compounds (VOC)	
Hazardous Air Pollutants[2]	Potential Emissions
Regulated Pollutants other than Criteria and HAP	Potential Emissions

[1]$PM_{2.5}$ and PM_{10} are components of TSP.
[2]For HAPs that are also considered PM or VOCs, emissions should be included in both the HAPs section and the Criteria Pollutants section.

Section 4: Insignificant Activities

24. Insignificant Activities (Check all that apply)		
☒	1.	Air compressors and pneumatically operated equipment, including hand tools.
☒	2.	Air contaminant detectors or recorders, combustion controllers or shutoffs.
☒	3.	Any consumer product used in the same manner as in normal consumer use, provided the use results in a duration and frequency of exposure which are not greater than those experienced by consumer, and which may include, but not be limited to, personal use items; janitorial cleaning supplies, office supplies and supplies to maintain copying equipment.
☒	4.	Bathroom/toilet vent emissions.
☐	5.	Batteries and battery charging stations, except at battery manufacturing plants.
☒	6.	Bench-scale laboratory equipment used for physical or chemical analysis, but not lab fume hoods or vents. Many lab fume hoods or vents might qualify for treatment as insignificant (depending on the applicable SIP) or be grouped together for purposes of description.
☐	7.	Blacksmith forges.
☐	8.	Boiler water treatment operations, not including cooling towers.
☒	9.	Brazing, soldering or welding equipment used as an auxiliary to the principal equipment at the source.
☐	10.	CO_2 lasers, used only on metals and other materials which do not emit HAP in the process.
☒	11.	Combustion emissions from propulsion of mobile sources, except for vessel emissions from Outer Continental Shelf sources.
☒	12.	Combustion units designed and used exclusively for comfort heating that use liquid petroleum gas or natural gas as fuel.
☒	13.	Comfort air conditioning or ventilation systems not used to remove air contaminants generated by or released from specific units of equipment.
☐	14.	Demineralized water tanks and demineralizer vents.
☐	15.	Drop hammers or hydraulic presses for forging or metalworking.
☐	16.	Electric or steam-heated drying ovens and autoclaves, but not the emissions from the articles or substances being processed in the ovens or autoclaves or the boilers delivering the steam.
☐	17.	Emergency (backup) electrical generators at residential locations.
☐	18.	Emergency road flares.
☒	19.	Emission units which do not have any applicable requirements and which emit criteria pollutants (CO, NO_x, SO_2, VOC and PM) into the atmosphere at a rate of less than 1 pound per hour and less than 10,000 pounds per year aggregate total for each criteria pollutant from all emission units. Please specify all emission units for which this exemption applies along with the quantity of criteria pollutants emitted on an hourly and annual basis: 12S Diesel Storage Tank #1 (VOC emissions: 0.02 lb/hr, 0.07 tpy) (All VOCs also conservatively considered HAPs) 13S Diesel Storage Tank #2 (VOC emissions: 0.01 lb/hr, 0.04 tpy) (All VOCs also conservatively considered HAPs) Surfactant/Binder - tote storage and handling. Emissions assumed negligible due to low vapor pressures _____ _____

24. Insignificant Activities (Check all that apply)		
☒	20.	Emission units which do not have any applicable requirements and which emit hazardous air pollutants into the atmosphere at a rate of less than 0.1 pounds per hour and less than 1,000 pounds per year aggregate total for all HAPs from all emission sources. This limitation cannot be used for any source which emits dioxin/furans nor for toxic air pollutants as per 45CSR27. Please specify all emission units for which this exemption applies along with the quantity of hazardous air pollutants emitted on an hourly and annual basis: 12S Diesel Storage Tank #1 (VOC emissions: 0.02 lb/hr, 0.07 tpy) (All VOCs also conservatively considered HAPs) 13S Diesel Storage Tank #2 (VOC emissions: 0.01 lb/hr, 0.04 tpy) (All VOCs also conservatively considered HAPs) Surfactant/Binder - tote storage and handling. Emissions assumed negligible due to low vapor pressures
☐	21.	Environmental chambers not using hazardous air pollutant (HAP) gases.
☐	22.	Equipment on the premises of industrial and manufacturing operations used solely for the purpose of preparing food for human consumption.
☐	23.	Equipment used exclusively to slaughter animals, but not including other equipment at slaughterhouses, such as rendering cookers, boilers, heating plants, incinerators, and electrical power generating equipment.
☐	24.	Equipment used for quality control/assurance or inspection purposes, including sampling equipment used to withdraw materials for analysis.
☐	25.	Equipment used for surface coating, painting, dipping or spray operations, except those that will emit VOC or HAP.
☐	26.	Fire suppression systems.
☐	27.	Firefighting equipment and the equipment used to train firefighters.
☐	28.	Flares used solely to indicate danger to the public.
☒	29.	Fugitive emission related to movement of passenger vehicle provided the emissions are not counted for applicability purposes and any required fugitive dust control plan or its equivalent is submitted.
☐	30.	Hand-held applicator equipment for hot melt adhesives with no VOC in the adhesive formulation.
☐	31.	Hand-held equipment for buffing, polishing, cutting, drilling, sawing, grinding, turning or machining wood, metal or plastic.
☐	32.	Humidity chambers.
☐	33.	Hydraulic and hydrostatic testing equipment.
☐	34.	Indoor or outdoor kerosene heaters.
☒	35.	Internal combustion engines used for landscaping purposes.
☐	36.	Laser trimmers using dust collection to prevent fugitive emissions.
☐	37.	Laundry activities, except for dry-cleaning and steam boilers.
☐	38.	Natural gas pressure regulator vents, excluding venting at oil and gas production facilities.
☐	39.	Oxygen scavenging (de-aeration) of water.
☐	40.	Ozone generators.

24. Insignificant Activities (Check all that apply)		
☒	41.	Plant maintenance and upkeep activities (e.g., grounds-keeping, general repairs, cleaning, painting, welding, plumbing, re-tarring roofs, installing insulation, and paving parking lots) provided these activities are not conducted as part of a manufacturing process, are not related to the source's primary business activity, and not otherwise triggering a permit modification. (Cleaning and painting activities qualify if they are not subject to VOC or HAP control requirements. Asphalt batch plant owners/operators must still get a permit if otherwise requested.)
☐	42.	Portable electrical generators that can be moved by hand from one location to another. "Moved by Hand" means that it can be moved without the assistance of any motorized or non-motorized vehicle, conveyance, or device.
☒	43.	Process water filtration systems and demineralizers.
☒	44.	Repair or maintenance shop activities not related to the source's primary business activity, not including emissions from surface coating or de-greasing (solvent metal cleaning) activities, and not otherwise triggering a permit modification.
☒	45.	Repairs or maintenance where no structural repairs are made and where no new air pollutant emitting facilities are installed or modified.
☐	46.	Routing calibration and maintenance of laboratory equipment or other analytical instruments.
☐	47.	Salt baths using nonvolatile salts that do not result in emissions of any regulated air pollutants. Shock chambers.
☐	48.	Shock chambers.
☐	49.	Solar simulators.
☐	50.	Space heaters operating by direct heat transfer.
☐	51.	Steam cleaning operations.
☐	52.	Steam leaks.
☐	53.	Steam sterilizers.
☐	54.	Steam vents and safety relief valves.
☐	55.	Storage tanks, reservoirs, and pumping and handling equipment of any size containing soaps, vegetable oil, grease, animal fat, and nonvolatile aqueous salt solutions, provided appropriate lids and covers are utilized.
☐	56.	Storage tanks, vessels, and containers holding or storing liquid substances that will not emit any VOC or HAP. Exemptions for storage tanks containing petroleum liquids or other volatile organic liquids should be based on size limits such as storage tank capacity and vapor pressure of liquids stored and are not appropriate for this list.
☐	57.	Such other sources or activities as the Director may determine.
☒	58.	Tobacco smoking rooms and areas.
☒	59.	Vents from continuous emissions monitors and other analyzers.

Section 5: Emission Units, Control Devices, and Emission Points

25. Equipment Table

Fill out the **Title V Equipment Table** and provide it as **ATTACHMENT D**.

26. Emission Units

For each emission unit listed in the **Title V Equipment Table**, fill out and provide an **Emission Unit Form** as **ATTACHMENT E**.

For each emission unit not in compliance with an applicable requirement, fill out a **Schedule of Compliance Form** as **ATTACHMENT F**.

27. Control Devices

For each control device listed in the **Title V Equipment Table**, fill out and provide an **Air Pollution Control Device Form** as **ATTACHMENT G**.

For any control device that is required on an emission unit in order to meet a standard or limitation for which the potential pre-control device emissions of an applicable regulated air pollutant is greater than or equal to the Title V Major Source Threshold Level, refer to the **Compliance Assurance Monitoring (CAM) Form(s)** for CAM applicability. Fill out and provide these forms, if applicable, for each Pollutant Specific Emission Unit (PSEU) as **ATTACHMENT H**.

Section 6: Certification of Information

28. Certification of Truth, Accuracy and Completeness and Certification of Compliance

*Note: This Certification must be signed by a responsible official. The **original**, signed in **blue ink**, must be submitted with the application. Applications without an **original** signed certification will be considered as incomplete.*

a. Certification of Truth, Accuracy and Completeness

I certify that I am a responsible official (as defined at 45CSR§30-2.38) and am accordingly authorized to make this submission on behalf of the owners or operators of the source described in this document and its attachments. I certify under penalty of law that I have personally examined and am familiar with the statements and information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false statements and information or omitting required statements and information, including the possibility of fine and/or imprisonment.

b. Compliance Certification

Except for requirements identified in the Title V Application for which compliance is not achieved, I, the undersigned hereby certify that, based on information and belief formed after reasonable inquiry, all air contaminant sources identified in this application are in compliance with all applicable requirements.

Responsible official (type or print)

Name: Jarret M. Hill	Title: Plant Manager

Responsible official's signature:

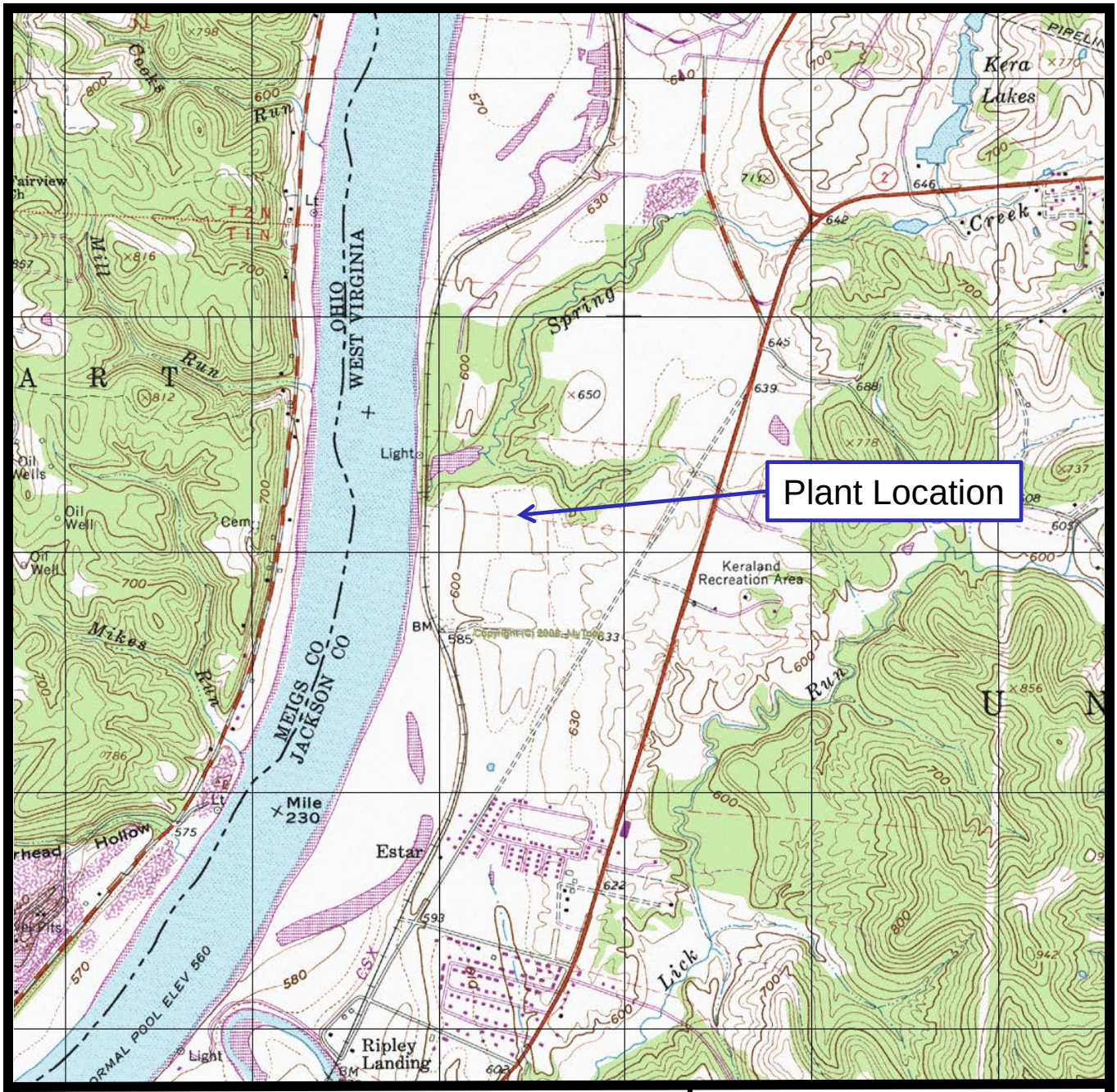
Signature: Jarret M. Hill Signature Date: 7/31/18

(Must be signed and dated in blue ink)

Note: Please check all applicable attachments included with this permit application:	
☒	ATTACHMENT A: Area Map
☒	ATTACHMENT B: Plot Plan(s)
☒	ATTACHMENT C: Process Flow Diagram(s)
☒	ATTACHMENT D: Equipment Table
☒	ATTACHMENT E: Emission Unit Form(s)
☐	ATTACHMENT F: Schedule of Compliance Form(s)
☒	ATTACHMENT G: Air Pollution Control Device Form(s)
☒	ATTACHMENT H: Compliance Assurance Monitoring (CAM) Form(s)

All of the required forms and additional information can be found and downloaded from, the DEP website at www.dep.wv.gov/daq, requested by phone (304) 926-0475, and/or obtained through the mail.

ATTACHMENT A
SITE LOCATION MAP



Liberty Environmental, Inc.

505 PENN STREET
SUITE 400
READING, PA 19601
PHONE: 610-375-9301

NORTH

ATTACHMENT A: AREA MAP

MILLWOOD SLAG WOOL MANUFACTURING FACILITY

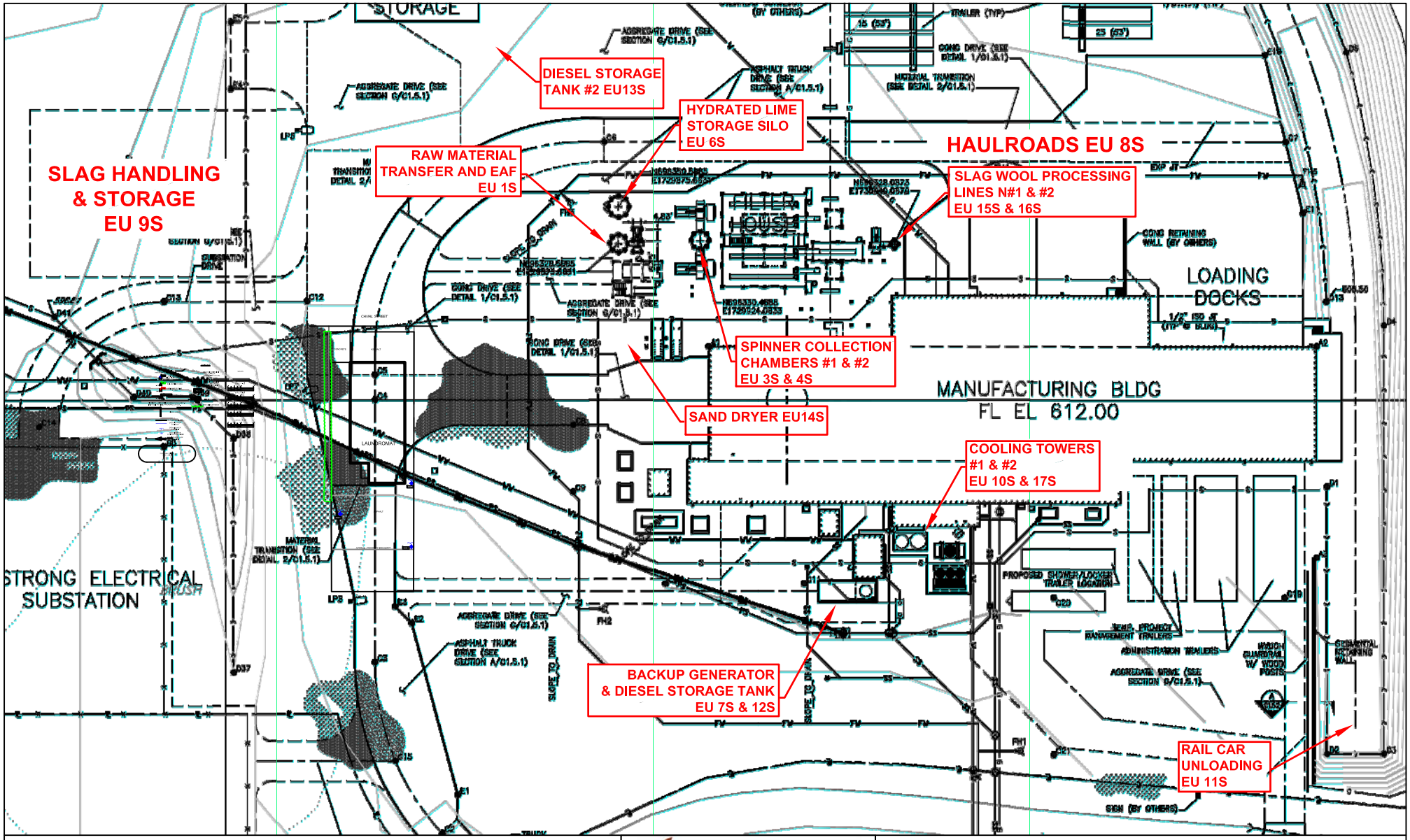
ARMSTRONG WORLD INDUSTRIES

USGS MAP QUADRANGLE: RAVENSWOOD, WV

SCALE : 1" = 2000 FEET

0 2000 4000

ATTACHMENT B
PLOT PLAN



Attachment B - Plot Plan

Armstrong World Industries, Inc.
Millwood Plant
Millwood, Jackson County, West Virginia

Liberty Environmental, Inc.
505 Penn St. Suite 400
Reading, PA 19601
Phone: 610-375-9301
www.libertyenviro.com

PROJECT NO.: 180425	REV: 0	PREPARED BY: JPB
DATE: JULY 20, 2018	SCALE: 1" = 80'	APPROVED BY: GLB

ATTACHMENT C
PROCESS FLOW DIAGRAM

Raw Material Delivery
Fugitive Dust
Fugitive Dust
Haul roads (EU8S)
Railcar Unloading (EU11S)
Fugitive Dust
Slag Handling and Storage (EU9S)
Loader
Slag Conveying
Stack 6E
Bin Vent Filter (CD6C)
Hydrated Lime Silo (EU6S)
Lime
Stack 1-2E
Submerged Electric Arc Furnace (EU1S)
Dry Scrubber (CD1C)
Furnace Baghouse (CD2C)
Molten Slag
Spinner and Collection Chamber (EU3S and 4S)
Spinner
Slag Wool
Collection Chamber
Baghouse (CD3C)
Baghouse (CD4C)
Stack 3-4E
Binder/Surfactant Totes
Slag Wool
Product Shipping
Fugitive Dust
Stack 8E
Baghouse (CD7C)
Baling Lines
Bales
Haul roads (EU8S)
Slag Wool Process Lines (EU15S and 16S)
Fugitive
Diesel
Diesel Storage Tank (EU13S)
Stack 7E
Fugitive
Backup Generator (EU7S)
Diesel
Diesel Storage Tank (EU12S)
Stack 10E
Stack 17E
Cooled Water
Cooling Tower (EU10S)
Cooling Tower (EU17S)
Process Water
Stack 18E
Dry Sand
Sand Dryer (EU18S)
Wet Sand/Propane Fuel

KEY

Material Flow

Air Emissions

Attachment C
Process Flow Diagram
Armstrong World Industries, Inc.
Millwood, WV Plant

ATTACHMENT D
TITLE V EQUIPMENT TABLE

ATTACHMENT D - Title V Equipment Table

(includes all emission units at the facility except those designated as insignificant activities in Section 4, Item 24 of the General Forms)

Emission Point ID[1]	Control Device[1]	Emission Unit ID[1]	Emission Unit Description	Design Capacity	Year Installed/ Modified
1-2E	1C & 2C	1S	Raw Material Transfer and EAF	40,000 lb/hr	2011
3-4E	3C	3S	Spinner Collection Chamber #1	34,500 lb/hr	2011
3-4E	4C	4S	Spinner Collection Chamber #2		
~~5E~~	~~5C~~	~~5S~~	~~Housekeeping Vacuum System*~~	~~1,000 cfm~~	~~2011~~
6E	6C	6S	Hydrated Lime Silo	3,300 cf	2011
7E	N/A	7S	Backup Generator	500 kW	2011
Fugitive	WS	8S	Haulroads	8,880 VMT/yr	2011
Fugitive	N/A	9S	Slag Handling and Storage	175,000 tpy	2011
10E	N/A	10S	Cooling Tower #1	1,500 gpm	2011
Fugitive	N/A	11S	Railcar Unloading	300 tph	2011
Fugitive	N/A	12S	Diesel Storage Tank #1 – Emergency Generator	900 Gal	2011
Fugitive	N/A	13S	Diesel Storage Tank #2 – Front End Loader	500 Gal	2011
~~Fugitive~~	~~N/A~~	~~14S~~	~~Glycol Additive Storage Tank~~	~~10,000 gallon~~	~~2011~~
8E	7C	15S	Slag Wool Processing Line #1	28,000 lb/hr	2011
8E	7C	16S	Slag Wool Processing Line #2		2011
17E	N/A	17S	Cooling Tower #2	800 gpm	2011
18E	N/A	18S	Propane-Fueled Sand Dryer	2,000 lb/hr sand 5 gal/hr propane	2018

[1]For 45CSR13 permitted sources, the numbering system used for the emission points, control devices, and emission units should be consistent with the numbering system used in the 45CSR13 permit. For grandfathered sources, the numbering system should be consistent with registrations or emissions inventory previously submitted to DAQ. For emission points, control devices, and emissions units which have not been previously labeled, use the following 45CSR13 numbering system: 1S, 2S, 3S,... or other appropriate description for emission units; 1C, 2C, 3C,... or other appropriate designation for control devices; 1E, 2E, 3E, ... or other appropriate designation for emission points.

*Not installed but included and permitted in construction permit.

ATTACHMENT E
EMISSION UNIT FORMS

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number: 1S	**Emission unit name:** Raw Material Transfer and EAF	**List any control devices associated with this emission unit:** 1C & 2C

Provide a description of the emission unit (type, method of operation, design parameters, etc.):

The slag is transferred from the storage piles via conveyers, hoppers, and a bucket elevator to the Electric Arc Furnace (EAF). The resistive heating created from electricity traveling between three cylindrical electrodes melts the slag. Two molten layers form, a molten metallic layer and the molten slag layer. The melted slag flows out of the furnace to the spinners. The emissions from Raw Material Transfer and the EAF are controlled by the Furnace Dust Collector (2C) and SO2 from the EAF is controlled by the Dry Lime Scrubber (1C).

Manufacturer: Tenova Pyromet	**Model number:** Custom	**Serial number:** Various
Construction date: 2011/2012	**Installation date:** 2012	**Modification date(s):** NA

Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 40,000 lb/hr slag feed rate to EAF

Maximum Hourly Throughput: 40,000 lb/hr slag	**Maximum Annual Throughput:** 175,200 tpy slag	**Maximum Operating Schedule:** 8760 hrs/yr

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? ___Yes _X_ No	**If yes, is it?** ___ Indirect Fired ___Direct Fired
Maximum design heat input and/or maximum horsepower rating: NA	**Type and Btu/hr rating of burners:** NA

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
NA

Describe each fuel expected to be used during the term of the permit.

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
NA	NA	NA	NA

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)*	See Attachment I	
Nitrogen Oxides (NO_X)		
Lead (Pb)		
Particulate Matter ($PM_{2.5}$)		
Particulate Matter (PM_{10})		
Total Particulate Matter (TSP)		
Sulfur Dioxide (SO_2)		
Volatile Organic Compounds (VOC)		
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY

List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).

See Attachment I "Emissions Inventory".

* CO emission rates following the 1/2013 performance testing results are being evaluated and CO potential emissions may be revised.

Applicable Requirements

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

Per Title V Permit No **R30-03500049-2014 (MM02 Proposed)§4.1** Limitations and Standards.:

4.1.1. Emissions from the facility shall not exceed the limitations set forth in Tables 4.1.1.1 and 4.1.1.2:

Table 4.1.1.1

Source	PM		[1]		NO_x		VOC		SO_2		CO	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
1S	2.60	11.39	2.60	11.39	5.00	21.90	5.00	21.90	55.94	245.00	55.00[2]	240.90
3S	7.09	31.06	7.09	31.06	--	--	0.38	1.65	--	--	--	--
4S	7.09	31.06	7.09	31.06	--	--	0.38	1.65	--	--	--	--
~~5S~~	~~0.34~~	~~1.50~~	~~0.34~~	~~1.50~~	~~--~~	~~--~~	~~--~~	~~--~~	~~--~~	~~--~~	~~--~~	~~--~~
6S	1.13	4.96	1.13	4.96	--	--	--	--	--	--	--	--
9S	--	1.98	--	0.97	--	--	--	--	--	--	--	--
11S	0.02	0.10	0.01	0.05	--	--	--	--	--	--	--	--
15S/16S	2.39	10.47	2.39	10.47	--	--	--	--	--	--	--	--
18S[3]	0.1	0.44	0.1	0.44	0.07	0.28	0.01	0.02	--	--	0.03	0.16

Table 4.1.1.2

Source	Mn		VOC HAP		Total HAP	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
1S	0.28	1.25	--	--	0.28	1.25
3S	0.78	3.40	--	--	0.78	3.40
4S	0.78	3.40	--	--	0.78	3.40
~~5S~~	~~0.04~~	~~0.16~~	~~--~~	~~--~~	~~0.04~~	~~0.16~~
6S	--	--	--	--	--	--
9S	0.02	0.22	--	--	0.02	0.22
10S	--	--	--	--	--	--
11S	0.01	0.01	--	--	0.01	0.01
15S/16S	0.26	1.15	--	--	0.26	1.15

Compliance with the PM emission limits shall demonstrate compliance with the less stringent PM emission limits of 45CSR§7-4.1. [45CSR13, R13-2864, 4.1.1 and 4.1.9.2, Tables 4.1.1.1 and 4.1.1.2, 45CSR§7-4.1.]

4.1.2. The total annual SO_2 emissions from the Submerged Electric Arc Furnace (1S) shall not exceed 245 tons per year based on a rolling 12 month total basis.
[45CSR13, R13-2864, 4.1.2]

4.1.3. The Furnace Dry Scrubber (1C) shall be designed, installed, operated and maintained so as to ensure compliance with the emission limits of 4.1.1. Operation of the scrubber is only required when necessary to meet the emission limits of 4.1.1.
[45CSR13, R13-2864, 4.1.3]

4.1.4. For the purpose of complying with the $PM/PM_{10}/PM_{2.5}$ emission limits of condition 4.1.1 of this permit, all of the dust collectors shall be operated according to the following requirements:

The permittee has determined the optimal ranges for the pressure drop across baghouses 2C, 3C, 4C and 7C. The permittee shall maintain on site, and update as necessary, a certified report listing the operating ranges. [45CSR13, R13-2864, 4.1.4]

4.1.5. Manganese content of the slag entering the furnace shall not exceed 10.95% (equivalent to 14.14% MnO).
[45CSR13, R13-2864, 4.1.5]

4.1.6. The total annual Mn emissions from the facility shall not exceed 9.6 tons per year based on a rolling 12 month total basis.
[45CSR13, R13-2864, 4.1.12.]

4.1.9. Total slag throughput to the EAF shall not exceed 175,200 tons per year on a rolling 12 month total.
[45CSR13, R13-2864, 4.1.8]

4.1.10. No person shall cause, suffer, allow or permit emission of smoke and/or particulate matter into the open air from any process source operation which is greater than twenty (20) percent opacity, except for smoke and/or particulate matter emitted from any process source operation which is less than forty (40) percent opacity for any period or periods aggregating no more than five (5) minutes in any sixty (60) minute period.
[45CSR§7-3.1 &45CSR§7-3.2, 45CSR13, R13-2864, 4.1.9.1 (1S, 3S, 4S, 5S, 15S, 16S, 18S)]

4.1.11. No person shall cause, suffer, allow or permit visible emissions from any storage structure(s) associated with any manufacturing process that pursuant to Condition 4.1.13. is required to have a full enclosure and be equipped with a particulate matter control device.
[45CSR§7-3.7. (6S)]

4.1.12. Any stack serving any process source operation or air pollution control equipment on any process source operation shall contain flow straightening devices or a vertical run of sufficient length to establish flow patterns consistent with acceptable stack sampling procedures.
[45CSR§7-4.12.]

4.1.13. No person shall cause, suffer, allow or permit any manufacturing process or storage structure generating fugitive particulate matter to operate that is not equipped with a system, which may include, but not be limited to, process equipment design, control equipment design or operation and maintenance procedures, to minimize the emissions of fugitive particulate matter. To minimize means such system shall be installed, maintained and operated to ensure the lowest fugitive particulate matter emissions reasonably achievable.
[45CSR§7-5.1., 45CSR13, R13-2864, 4.1.9.3]

4.1.15 No person shall cause, suffer, allow or permit the emission into the open air from any source operation an in-stack sulfur dioxide concentration exceeding 2,000 parts per million by volume from existing source operations, except as provided in subdivisions 4.1.a through 4.1.e. of 45CSR10.
[45CSR§10-4.1., 45CSR13, R13-2864, 4.1.10. (1S)]

4.1.16. Operation and Maintenance of Air Pollution Control Equipment. The permittee shall, to the extent practicable, install, maintain, and operate all pollution control equipment listed in Section 1.0 and associated monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions, or comply with any more stringent limits set forth in this permit or as set forth by any State rule, Federal regulation, or alternative control plan approved by the Secretary.
[45CSR§13-5.11., 45CSR13, R13-2864, 4.1.13]

_X_ Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

Initial emissions and performance testing of 1/2013 will be followed by additional testing for PM, NOx, CO, VOC, and SO2.

Per Title V Permit No **R30-03500049-2014 (MM02 Proposed)§4.2**. Monitoring Requirements.:

4.2 Monitoring Requirements

4.2.1. The permittee shall install, maintain, and operate all monitoring equipment required by this permit in accordance with all manufacturers' recommendations concerning maintenance and performance.
[45CSR13, R13-2864, 4.2.1]

4.2.2. The permittee shall conduct visible emission checks and/or opacity monitoring and recordkeeping for all emission sources subject to an opacity limit.

The visible emission check shall determine the presence or absence of visible emissions. At a minimum, the observer must be trained and knowledgeable regarding the effects of background contrast, ambient lighting, observer position relative to lighting, wind, and the presence of uncombined water (condensing water vapor) on the visibility of emissions. This training may be obtained from written materials found in the References 1 and 2 from 40CFR Part 60, Appendix A, Method 22 or from the lecture portion of the 40CFR Part 60, Appendix A, Method 9 certification course.

Visible emission checks shall be conducted at least once per calendar month with a maximum of forty-five (45) days between consecutive readings. These checks shall be performed at each source (stacks, conveyors, crushers, silos, bins, and screens) for a sufficient time interval, but no less than one (1) minute, to determine if any visible emissions are present. Visible emission checks shall be performed during periods of facility operation and appropriate weather conditions.

If visible emissions are present at a source(s) for three (3) consecutive monthly checks, the permittee shall conduct an opacity reading at that source(s) using the procedures and requirements of Method 9 as soon as practicable, but within seventy-two (72) hours of the final visual emission check. Method 9 checks shall be performed on the source for at least six (6) minutes. A Method 9 observation at a source(s) restarts the count of the number of consecutive readings with the presence of visible emissions.
[45CSR13, R13-2864, 4.2.2 (1S, 3S, 4S, 5S, 6S, 15S, 16S)]

4.2.3. The permittee shall install, maintain and operate instrumentation to continuously monitor and record at least once per operating day the control device parameters (1C, 2C, 3C, 4C and 7C) as determined by conditions 4.1.3 and 4.1.4 of this permit at all times that the emission source(s) is/are in operation.
[45CSR13, R13-2864, 4.2.3]

4.2.4. A continuous emission monitoring system (CEMS) shall be installed, operated, and maintained to measure the emissions of SO_2, from the EAF exhaust stack. The CEMS shall be designed, installed, operated and maintained in compliance with the USEPA Part 60, Appendix B, Performance Specification 2 as appropriate, and Performance Specification 4, 4a or 4b (CO) as appropriate.
[45CSR13, R13-2864, 4.2.4]

4.2.5. For the purposes of demonstrating compliance with the sulfur content limit in 4.1.15 of this permit, analytical testing results showing sulfur content shall be obtained from the fuel supplier. Alternatively, the permittee may obtain a fuel sample of each shipment and perform analytical testing to determine the sulfur content.

[45CSR13, R13-2864, 4.2.5]

4.2.6. To show compliance with the SO_2 limit in condition 4.1.2 of this permit, monthly SO_2 emissions from the submerged electric arc furnace shall be calculated (using SO_2 CEMS) by the 15th of the subsequent month. A twelve month running total of emissions shall be maintained to verify compliance with the annual emission limitation. Each month a new twelve month total shall be calculated using the previous twelve months of data.
[45CSR13, R13-2864, 4.2.7]

4.2.7. In order to determine compliance with conditions 4.1.1. and 4.1.5 of this permit, the permittee shall obtain representative samples from each shipment of slag from each supplier for the first week of operation (i.e. one sample taken from the total slag delivered during the day from each supplier for 1 week) to be analyzed for the Manganese content (percent Manganese by weight). The manganese content from each type of slag shall be averaged for the week in order to determine a baseline manganese content for that suppliers slag. After the first week of samples, the permittee shall continue to collect the weeks' worth of samples (i.e. one sample taken from the total slag delivered during the day from each supplier for 1 week) at least once per month to either confirm the existing or reestablish a new baseline Mn level for that supplier. If the permittee adds a new slag supplier, the permittee shall collect samples for each shipment for one week in order to establish the baseline Mn content for that supplier.

If the baseline Mn content of the slag from any supplier exceeds the Mn level permitted in condition 4.1.5 of this permit, Armstrong shall maintain a record documenting, any time that specific slag is used in the furnace, that the Mn content of the slag blend entering the furnace does not exceed the Mn level permitted in Condition 4.1.5 of this permit.
[45CSR13, R13-2864, 4.2.9]

4.2.8. A continuous emission monitoring system (CEMS) shall be installed, operated, and maintained to measure the emissions of CO, from the EAF exhaust stack. The CEMS shall be designed, installed, operated and maintained in compliance with the USEPA Part 60, Appendix B, Performance Specification 4, 4a or 4b as appropriate.
[45CSR13, R13-2864, 4.2.6]

4.2.9. The permittee shall maintain monthly records of slag throughput to the EAF.
[45CSR13, R13-2864, 4.2.11]

4.2.10. To show compliance with the Mn emission limit in condition 4.1.6. of this permit, monthly Mn emissions from the facility shall be calculated (mass balance) by the 15th day of the subsequent month. A twelve month running total of emissions shall be maintained to verify compliance with the annual emission limitation. Each month a new twelve month total shall be calculated using the previous twelve months of data.
[45CSR13, R13-2864, 4.2.12]

4.2.11. To show compliance with the CO limit in condition 4.1.1 of this permit, monthly CO emissions from the submerged electric arc furnace shall be calculated (using CO CEMS) by the 15th date of the subsequent month. A twelve month running total of emissions shall be maintained to verify compliance with the annual emission limitation. Each month a new twelve month total shall be calculated using the previous twelve months of data.
[45CSR13, R13-2864, 4.2.10]

Per Title V Permit No **R30-03500049-2014 (MM02 Proposed)§4.3**. Testing Requirements.:

4.3 Testing Requirements

4.3.1. The permittee shall complete the following performance testing:

4.3.1.1 The permittee shall perform or have performed EPA approved stack tests to determine emissions of NO_x, VOCs, PM and PM_{10} from the submerged electric arc furnace.

4.3.1.2 The permittee shall perform or have performed EPA approved stack tests to determine emissions of PM and PM_{10} from one of the spinner collection chambers.

4.3.1.3 The permittee shall perform or have performed EPA approved stack tests to determine emissions of Manganese from one of the spinner collection chambers and the submerged electric arc furnace.
[45CSR13, R13-2864, 4.3.1]

4.3.2. Ongoing compliance shall be demonstrated by repeating the above testing according to the following schedule:

Test	Test Results	Testing Frequency
Initial	< 10% of limits	Testing Frequency
Initial	Between 10% and 50% of limits	Once/5 years
Initial	Between 50% and 90% limits	Once/3 years
Initial	≥90% of limits	Annual
Annual	After two successive tests indicate emission rates :s;50% of limits	Once/5 years
Annual	After two successive tests indicate emission rates <90% of limits	Once/3 years
Annual	≥90% of limits	Annual
Once/3 years	After two successive tests indicate emission rates :s;50% of limits	Once/5 years
Once/3 years	After two successive tests indicate emission rates <90% of limits	Once/3 years
Once/3 years	≥90% of limits	Annual
Once/5 years	After two successive tests indicate emission rates <10% of limits	Upon Directors request
Once/5 years	≤50% of limits	Once/5 years
Once/5 years	Between 50% and 90% of limits	Once/3 years
Once/5 years	≥90% of limits	Annual

[45CSR13, R13-2864, 4.3.2]

Per Title V Permit No **R30-03500049-2014 (MM02 Proposed)§4.4.** Recordkeeping Requirements

4.4. Recordkeeping Requirements

4.4.1. Record of Maintenance of Air Pollution Control Equipment. For all pollution control equipment listed in Section 1.0, the permittee shall maintain accurate records of all required pollution control equipment inspection and/or preventative maintenance procedures.
[45CSR13, R13-2864, 4.4.2]

4.4.2. Record of Malfunctions of Air Pollution Control Equipment. For all air pollution control equipment listed in Section 1.0, the permittee shall maintain records of the occurrence and duration of any malfunction or operational shutdown of the air pollution control equipment during which excess emissions occur. For each such case, the following information shall be recorded:

a. The equipment involved.
b. Steps taken to minimize emissions during the event. c.
The duration of the event.
d. The estimated increase in emissions during the event.
For each such case associated with an equipment malfunction, the additional information shall also be recorded:

e. The cause of the malfunction.
f. Steps taken to correct the malfunction.
g. Any changes or modifications to equipment or procedures that would help prevent future recurrences of the malfunction.
[45CSR13, R13-2864, 4.4.3]

4.4.3. Reserved

4.4.4. In order to determine compliance with condition 4.1.5 of this permit, the permittee shall keep monthly records of the Manganese content of the slag. Upon request the records shall be certified and made available

to the Director or his/her duly authorized representative.
[45CSR13, R13-2864, 4.4.4]

4.4.5. The permittee shall maintain monthly records of slag wool production from the facility. Upon request the records shall be certified and made available to the Director or his/her duly authorized representative. [45CSR13, R13-2864, 4.2.8. and 4.4.5]

4.4.6. In order to demonstrate compliance with the requirements of 4.2.2 of this permit, records of the Method 22 testing and any necessary Method 9 testing shall be retained on site by the permittee for at least five (5) years. Upon request the records shall be certified and made available to the Director or his/her duly authorized representative.
[45CSR13, R13-2864, 4.4.6]

4.4.7. In order to determine compliance with the requirements of conditions 4.1.15 and 4.2.5 of this permit, the permittee shall maintain records of the fuel oil sulfur content. Upon request the records shall be certified and made available to the Director or his/her duly authorized representative.
[45CSR13, R13-2864, 4.4.7]

4.4.8. In order to determine compliance with the requirements of condition 4.1.4 of this permit, the permittee shall maintain daily records of the pressure drop across each baghouse. Upon request the records shall be certified and made available to the Director or his/her duly authorized representative.
[45CSR13, R13-2864, 4.4.8]

4.4.9. In order to determine compliance with condition 4.2.9 of this permit, the permittee shall maintain monthly records of slag throughput to the EAF. Upon request the records shall be certified and made available to the Director or his/her duly authorized representative.
[45CSR13, R13-2864, 4.4.9]

Per Title V Permit No **R30-03500049-2014 (MM02 Proposed)§4.5** Reporting Requirements

4.5 Reporting Requirements

4.5.1. Any violations of the allowable visible emission requirement for any emission source discovered during testing must be reported in writing to the Director of the Division of Air Quality as soon as practicable, but within ten calendar days, of the occurrence and shall include, at a minimum, the following information: the results of the visible determination of opacity of emissions, the cause or suspected cause of the violation(s), and any corrective measures taken or planned.
[45CSR13, R13-2864, 4.5.1]

4.5.2. With regard to testing required by section 4.3 of this permit, results shall be submitted to the Director no more than 60 days after the date the testing takes place.
[45CSR13, R13-2864, 4.5.2]

4.5.3. The permittee shall comply with all applicable reporting requirements of 45CSR7, 45CSR10, and 45CSR13.
[45CSR13, R13-2864, 4.5.3]

Are you in compliance with all applicable requirements for this emission unit? ___Yes _X_No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number: 3S	**Emission unit name:** Spinner Collection Chamber #1	**List any control devices associated with this emission unit:** 3C

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
Spinner Collection Chamber #1 collects slag wool fibers from Spinner #1. Emissions are controlled by the Collection Chamber Baghouse #1 (3C) after the slag wool is treated with surfactants/binders.

Manufacturer: Danser	**Model number:** 001	**Serial number:** Various
Construction date: 2011/2012	**Installation date:** 2012	**Modification date(s):** NA

Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 34,500 lb/hr slag wool between Spinner Collection Chamber #1 and #2

Maximum Hourly Throughput: 34,500 lb/hr slag wool between Spinner Collection Chamber #1 and #2	**Maximum Annual Throughput:** 151,110 tons/yr slag wool between Spinner Collection Chamber #1 and #2	**Maximum Operating Schedule:** 8760 hrs/yr

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? ___Yes _X_ No	**If yes, is it?** ___ Indirect Fired ___Direct Fired
Maximum design heat input and/or maximum horsepower rating: NA	**Type and Btu/hr rating of burners:** NA

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
NA

Describe each fuel expected to be used during the term of the permit.

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
NA	NA	NA	NA

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	See Attachment I	
Nitrogen Oxides (NO_X)		
Lead (Pb)		
Particulate Matter ($PM_{2.5}$)		
Particulate Matter (PM_{10})		
Total Particulate Matter (TSP)		
Sulfur Dioxide (SO_2)		
Volatile Organic Compounds (VOC)		
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY

List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).

See Attachment I "Emissions Inventory".

Applicable Requirements

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

Per Title V Permit No **R30-03500049-2014 (MM02 Proposed)§4.1** Limitations and Standards.:

4.1.1. Emissions from the facility shall not exceed the limitations set forth in Tables 4.1.1.1 and 4.1.1.2:

Table 4.1.1.1

Source	PM		[1]		NO_x		VOC		SO_2		CO	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
1S	2.60	11.39	2.60	11.39	5.00	21.90	5.00	21.90	55.94	245.00	55.00[2]	240.90
3S	7.09	31.06	7.09	31.06	--	--	0.38	1.65	--	--	--	--
4S	7.09	31.06	7.09	31.06	--	--	0.38	1.65	--	--	--	--
~~5S~~	~~0.34~~	~~1.50~~	~~0.34~~	~~1.50~~	~~--~~	~~--~~	~~--~~	~~--~~	~~--~~	~~--~~	~~--~~	~~--~~
6S	1.13	4.96	1.13	4.96	--	--	--	--	--	--	--	--
9S	--	1.98	--	0.97	--	--	--	--	--	--	--	--
11S	0.02	0.10	0.01	0.05	--	--	--	--	--	--	--	--
15S/16S	2.39	10.47	2.39	10.47	--	--	--	--	--	--	--	--
18S[3]	0.1	0.44	0.1	0.44	0.07	0.28	0.01	0.02	--	--	0.03	0.16

Table 4.1.1.2

Source	Mn		VOC HAP		Total HAP	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
1S	0.28	1.25	--	--	0.28	1.25
3S	0.78	3.40	--	--	0.78	3.40
4S	0.78	3.40	--	--	0.78	3.40
~~5S~~	~~0.04~~	~~0.16~~	~~--~~	~~--~~	~~0.04~~	~~0.16~~
6S	--	--	--	--	--	--
9S	0.02	0.22	--	--	0.02	0.22
10S	--	--	--	--	--	--
11S	0.01	0.01	--	--	0.01	0.01
15S/16S	0.26	1.15	--	--	0.26	1.15

Compliance with the PM emission limits shall demonstrate compliance with the less stringent PM emission limits of 45CSR§7-4.1. [45CSR13, R13-2864, 4.1.1 and 4.1.9.2, Tables 4.1.1.1 and 4.1.1.2, 45CSR§7-4.1.]

4.1.4. For the purpose of complying with the $PM/PM_{10}/PM_{2.5}$ emission limits of condition 4.1.1 of this permit, all of the dust collectors shall be operated according to the following requirements:

The permittee has determined the optimal ranges for the pressure drop across baghouses 2C, 3C, 4C and 7C. The

permittee shall maintain on site, and update as necessary, a certified report listing the operating ranges. [45CSR13, R13-2864, 4.1.4]

4.1.6. The total annual Mn emissions from the facility shall not exceed 9.6 tons per year based on a rolling 12 month total basis.
[45CSR13, R13-2864, 4.1.12.]

4.1.10. No person shall cause, suffer, allow or permit emission of smoke and/or particulate matter into the open air from any process source operation which is greater than twenty (20) percent opacity, except for smoke and/or particulate matter emitted from any process source operation which is less than forty (40) percent opacity for any period or periods aggregating no more than five (5) minutes in any sixty (60) minute period.
[45CSR§7-3.1 &45CSR§7-3.2, 45CSR13, R13-2864, 4.1.9.1 (1S, 3S, 4S, 5S, 15S, 16S, 18S)]

4.1.11. No person shall cause, suffer, allow or permit visible emissions from any storage structure(s) associated with any manufacturing process that pursuant to Condition 4.1.13. is required to have a full enclosure and be equipped with a particulate matter control device.
[45CSR§7-3.7. (6S)]

4.1.12. Any stack serving any process source operation or air pollution control equipment on any process source operation shall contain flow straightening devices or a vertical run of sufficient length to establish flow patterns consistent with acceptable stack sampling procedures.
[45CSR§7-4.12.]

4.1.13. No person shall cause, suffer, allow or permit any manufacturing process or storage structure generating fugitive particulate matter to operate that is not equipped with a system, which may include, but not be limited to, process equipment design, control equipment design or operation and maintenance procedures, to minimize the emissions of fugitive particulate matter. To minimize means such system shall be installed, maintained and operated to ensure the lowest fugitive particulate matter emissions reasonably achievable.
[45CSR§7-5.1., 45CSR13, R13-2864, 4.1.9.3]

4.1.16. Operation and Maintenance of Air Pollution Control Equipment. The permittee shall, to the extent practicable, install, maintain, and operate all pollution control equipment listed in Section 1.0 and associated monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions, or comply with any more stringent limits set forth in this permit or as set forth by any State rule, Federal regulation, or alternative control plan approved by the Secretary.
[45CSR§13-5.11., 45CSR13, R13-2864, 4.1.13]

__X__ Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

Per Title V Permit No **R30-03500049-2014 (MM02 Proposed)§4.2**. Monitoring Requirements.:

4.2.Monitoring Requirements

4.2.1. The permittee shall install, maintain, and operate all monitoring equipment required by this permit in accordance with all manufacturers' recommendations concerning maintenance and performance.
[45CSR13, R13-2864, 4.2.1]

4.2.2. The permittee shall conduct visible emission checks and/or opacity monitoring and recordkeeping for all emission sources subject to an opacity limit.

The visible emission check shall determine the presence or absence of visible emissions. At a minimum, the observer must be trained and knowledgeable regarding the effects of background contrast, ambient lighting, observer position relative to lighting, wind, and the presence of uncombined water (condensing water vapor) on

the visibility of emissions. This training may be obtained from written materials found in the References 1 and 2 from 40CFR Part 60, Appendix A, Method 22 or from the lecture portion of the 40CFR Part 60, Appendix A, Method 9 certification course.

Visible emission checks shall be conducted at least once per calendar month with a maximum of forty-five (45) days between consecutive readings. These checks shall be performed at each source (stacks, conveyors, crushers, silos, bins, and screens) for a sufficient time interval, but no less than one (1) minute, to determine if any visible emissions are present. Visible emission checks shall be performed during periods of facility operation and appropriate weather conditions.

If visible emissions are present at a source(s) for three (3) consecutive monthly checks, the permittee shall conduct an opacity reading at that source(s) using the procedures and requirements of Method 9 as soon as practicable, but within seventy-two (72) hours of the final visual emission check. Method 9 checks shall be performed on the source for at least six (6) minutes. A Method 9 observation at a source(s) restarts the count of the number of consecutive readings with the presence of visible emissions.
[45CSR13, R13-2864, 4.2.2 (1S, 3S, 4S, 5S, 6S, 15S, 16S)]

4.2.3. The permittee shall install, maintain and operate instrumentation to continuously monitor and record at least once per operating day the control device parameters (1C, 2C, 3C, 4C and 7C) as determined by conditions 4.1.3 and 4.1.4 of this permit at all times that the emission source(s) is/are in operation.
[45CSR13, R13-2864, 4.2.3]

4.2.5. For the purposes of demonstrating compliance with the sulfur content limit in 4.1.15 of this permit, analytical testing results showing sulfur content shall be obtained from the fuel supplier. Alternatively, the permittee may obtain a fuel sample of each shipment and perform analytical testing to determine the sulfur content.
[45CSR13, R13-2864, 4.2.5]

4.2.10. To show compliance with the Mn emission limit in condition 4.1.6. of this permit, monthly Mn emissions from the facility shall be calculated (mass balance) by the 15th day of the subsequent month. A twelve month running total of emissions shall be maintained to verify compliance with the annual emission limitation. Each month a new twelve month total shall be calculated using the previous twelve months of data.
[45CSR13, R13-2864, 4.2.12]

Per Title V Permit No **R30-03500049-2014 (MM02 Proposed)§4.3**. Testing Requirements.:

4.3 Testing Requirements

4.3.1. The permittee shall complete the following performance testing:

4.3.1.1 The permittee shall perform or have performed EPA approved stack tests to determine emissions of NO_x, VOCs, PM and PM_{10} from the submerged electric arc furnace.

4.3.1.2 The permittee shall perform or have performed EPA approved stack tests to determine emissions of PM and PM_{10} from one of the spinner collection chambers.

4.3.1.3 The permittee shall perform or have performed EPA approved stack tests to determine emissions of Manganese from one of the spinner collection chambers and the submerged electric arc furnace.
[45CSR13, R13-2864, 4.3.1]

4.3.2. Ongoing compliance shall be demonstrated by repeating the above testing according to the following schedule:

Test	Test Results	Testing Frequency
Initial	< 10% of limits	Testing Frequency
Initial	Between 10% and 50% of limits	Once/5 years

Initial	Between 50% and 90% limits	Once/3 years
Initial	≥90% of limits	Annual
Annual	After two successive tests indicate emission rates :s;50% of limits	Once/5 years
Annual	After two successive tests indicate emission rates <90% of limits	Once/3 years
Annual	≥90% of limits	Annual
Once/3 years	After two successive tests indicate emission rates :s;50% of limits	Once/5 years
Once/3 years	After two successive tests indicate emission rates <90% of limits	Once/3 years
Once/3 years	≥90% of limits	Annual
Once/5 years	After two successive tests indicate emission rates <10% of limits	Upon Directors request
Once/5 years	≤50% of limits	Once/5 years
Once/5 years	Between 50% and 90% of limits	Once/3 years
Once/5 years	≥90% of limits	Annual

[45CSR13, R13-2864, 4.3.2]

Per Title V Permit No **R30-03500049-2014 (MM02 Proposed)§4.4.** Recordkeeping Requirements

4.4. Recordkeeping Requirements

4.4.1. Record of Maintenance of Air Pollution Control Equipment. For all pollution control equipment listed in Section 1.0, the permittee shall maintain accurate records of all required pollution control equipment inspection and/or preventative maintenance procedures.
[45CSR13, R13-2864, 4.4.2]

4.4.2. Record of Malfunctions of Air Pollution Control Equipment. For all air pollution control equipment listed in Section 1.0, the permittee shall maintain records of the occurrence and duration of any malfunction or operational shutdown of the air pollution control equipment during which excess emissions occur. For each such case, the following information shall be recorded:

a. The equipment involved.
b. Steps taken to minimize emissions during the event. c.
The duration of the event.
d. The estimated increase in emissions during the event.

For each such case associated with an equipment malfunction, the additional information shall also be recorded:

e. The cause of the malfunction.
f. Steps taken to correct the malfunction.
g. Any changes or modifications to equipment or procedures that would help prevent future recurrences of the malfunction.
[45CSR13, R13-2864, 4.4.3]

4.4.3. Reserved

4.4.4. In order to determine compliance with condition 4.1.5 of this permit, the permittee shall keep monthly records of the Manganese content of the slag. Upon request the records shall be certified and made available to the Director or his/her duly authorized representative.
[45CSR13, R13-2864, 4.4.4]

4.4.5. The permittee shall maintain monthly records of slag wool production from the facility. Upon request the records shall be certified and made available to the Director or his/her duly authorized representative. [45CSR13, R13-2864, 4.2.8. and 4.4.5]

4.4.6. In order to demonstrate compliance with the requirements of 4.2.2 of this permit, records of the

Method 22 testing and any necessary Method 9 testing shall be retained on site by the permittee for at least five (5) years. Upon request the records shall be certified and made available to the Director or his/her duly authorized representative.
[45CSR13, R13-2864, 4.4.6]

4.4.7. In order to determine compliance with the requirements of conditions 4.1.15 and 4.2.5 of this permit, the permittee shall maintain records of the fuel oil sulfur content. Upon request the records shall be certified and made available to the Director or his/her duly authorized representative.
[45CSR13, R13-2864, 4.4.7]

4.4.8. In order to determine compliance with the requirements of condition 4.1.4 of this permit, the permittee shall maintain daily records of the pressure drop across each baghouse. Upon request the records shall be certified and made available to the Director or his/her duly authorized representative.
[45CSR13, R13-2864, 4.4.8]

Per Title V Permit No **R30-03500049-2014 (MM02 Proposed)§4.5** Reporting Requirements

4.5 Reporting Requirements

4.5.1. Any violations of the allowable visible emission requirement for any emission source discovered during testing must be reported in writing to the Director of the Division of Air Quality as soon as practicable, but within ten calendar days, of the occurrence and shall include, at a minimum, the following information: the results of the visible determination of opacity of emissions, the cause or suspected cause of the violation(s), and any corrective measures taken or planned.
[45CSR13, R13-2864, 4.5.1]

4.5.2. With regard to testing required by section 4.3 of this permit, results shall be submitted to the Director no more than 60 days after the date the testing takes place.
[45CSR13, R13-2864, 4.5.2]

4.5.3. The permittee shall comply with all applicable reporting requirements of 45CSR7, 45CSR10, and 45CSR13.
[45CSR13, R13-2864, 4.5.3]

Are you in compliance with all applicable requirements for this emission unit? _X_Yes ___No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number: 4S	**Emission unit name:** Spinner Collection Chamber #2	**List any control devices associated with this emission unit:** 4C

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
Spinner Collection Chamber #2 collects slag wool fibers from Spinner #2. Emissions are controlled by the Collection Chamber Baghouse #2 (4C) after the slag wool is treated with surfactants/binders..

Manufacturer: Danser	**Model number:** 002	**Serial number:** Various
Construction date: 2011/2012	**Installation date:** 2012	**Modification date(s):** NA

Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 34,500 lb/hr slag wool between Spinner Collection Chamber #1 and #2

Maximum Hourly Throughput: 34,500 lb/hr slag wool between Spinner Collection Chamber #1 and #2	**Maximum Annual Throughput:** 151,110 tons/yr slag wool between Spinner Collection Chamber #1 and #2	**Maximum Operating Schedule:** 8760 hrs/yr

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? ___Yes _X_ No	**If yes, is it?** ___ Indirect Fired ___Direct Fired
Maximum design heat input and/or maximum horsepower rating: NA	**Type and Btu/hr rating of burners:** NA

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
NA

Describe each fuel expected to be used during the term of the permit.

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
NA	NA	NA	NA

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	See Attachment I	
Nitrogen Oxides (NO_X)		
Lead (Pb)		
Particulate Matter ($PM_{2.5}$)		
Particulate Matter (PM_{10})		
Total Particulate Matter (TSP)		
Sulfur Dioxide (SO_2)		
Volatile Organic Compounds (VOC)		
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY

List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).

See Attachment I "Emissions Inventory".

Applicable Requirements

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

Per Title V Permit No **R30-03500049-2014 (MM02 Proposed)§4.1** Limitations and Standards.:

4.1.1. Emissions from the facility shall not exceed the limitations set forth in Tables 4.1.1.1 and 4.1.1.2:

Table 4.1.1.1

Source	PM		[1]		NO_x		VOC		SO_2		CO	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
1S	2.60	11.39	2.60	11.39	5.00	21.90	5.00	21.90	55.94	245.00	55.00[2]	240.90
3S	7.09	31.06	7.09	31.06	--	--	0.38	1.65	--	--	--	--
4S	7.09	31.06	7.09	31.06	--	--	0.38	1.65	--	--	--	--
~~5S~~	~~0.34~~	~~1.50~~	~~0.34~~	~~1.50~~	~~--~~	~~--~~	~~--~~	~~--~~	~~--~~	~~--~~	~~--~~	~~--~~
6S	1.13	4.96	1.13	4.96	--	--	--	--	--	--	--	--
9S	--	1.98	--	0.97	--	--	--	--	--	--	--	--
11S	0.02	0.10	0.01	0.05	--	--	--	--	--	--	--	--
15S/16S	2.39	10.47	2.39	10.47	--	--	--	--	--	--	--	--
18S[3]	0.1	0.44	0.1	0.44	0.07	0.28	0.01	0.02	--	--	0.03	0.16

Table 4.1.1.2

Source	Mn		VOC HAP		Total HAP	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
1S	0.28	1.25	--	--	0.28	1.25
3S	0.78	3.40	--	--	0.78	3.40
4S	0.78	3.40	--	--	0.78	3.40
~~5S~~	~~0.04~~	~~0.16~~	~~--~~	~~--~~	~~0.04~~	~~0.16~~
6S	--	--	--	--	--	--
9S	0.02	0.22	--	--	0.02	0.22
10S	--	--	--	--	--	--
11S	0.01	0.01	--	--	0.01	0.01
15S/16S	0.26	1.15	--	--	0.26	1.15

Compliance with the PM emission limits shall demonstrate compliance with the less stringent PM emission limits of 45CSR§7-4.1. [45CSR13, R13-2864, 4.1.1 and 4.1.9.2, Tables 4.1.1.1 and 4.1.1.2, 45CSR§7-4.1.]

4.1.4. For the purpose of complying with the $PM/PM_{10}/PM_{2.5}$ emission limits of condition 4.1.1 of this permit, all of the dust collectors shall be operated according to the following requirements:

The permittee has determined the optimal ranges for the pressure drop across baghouses 2C, 3C, 4C and 7C. The permittee shall maintain on site, and update as necessary, a certified report listing the operating ranges. [45CSR13, R13-2864, 4.1.4]

4.1.6. The total annual Mn emissions from the facility shall not exceed 9.6 tons per year based on a rolling 12 month total basis.
[45CSR13, R13-2864, 4.1.12.]

4.1.10. No person shall cause, suffer, allow or permit emission of smoke and/or particulate matter into the open air from any process source operation which is greater than twenty (20) percent opacity, except for smoke and/or particulate matter emitted from any process source operation which is less than forty (40) percent opacity for any period or periods aggregating no more than five (5) minutes in any sixty (60) minute period.
[45CSR§7-3.1 &45CSR§7-3.2, 45CSR13, R13-2864, 4.1.9.1 (1S, 3S, 4S, 5S, 15S, 16S, 18S)]

4.1.11. No person shall cause, suffer, allow or permit visible emissions from any storage structure(s) associated with any manufacturing process that pursuant to Condition 4.1.13. is required to have a full enclosure and be equipped with a particulate matter control device.
[45CSR§7-3.7. (6S)]

4.1.12. Any stack serving any process source operation or air pollution control equipment on any process source operation shall contain flow straightening devices or a vertical run of sufficient length to establish flow patterns consistent with acceptable stack sampling procedures.
[45CSR§7-4.12.]

4.1.13. No person shall cause, suffer, allow or permit any manufacturing process or storage structure generating fugitive particulate matter to operate that is not equipped with a system, which may include, but not be limited to, process equipment design, control equipment design or operation and maintenance procedures, to minimize the emissions of fugitive particulate matter. To minimize means such system shall be installed, maintained and operated to ensure the lowest fugitive particulate matter emissions reasonably achievable.
[45CSR§7-5.1., 45CSR13, R13-2864, 4.1.9.3]

4.1.16. Operation and Maintenance of Air Pollution Control Equipment. The permittee shall, to the extent practicable, install, maintain, and operate all pollution control equipment listed in Section 1.0 and associated monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions, or comply with any more stringent limits set forth in this permit or as set forth by any State rule, Federal regulation, or alternative control plan approved by the Secretary.
[45CSR§13-5.11., 45CSR13, R13-2864, 4.1.13]

_X_ Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

Per Title V Permit No **R30-03500049-2014 (MM02 Proposed)§4.2**. Monitoring Requirements.:

4.2.Monitoring Requirements

4.2.1. The permittee shall install, maintain, and operate all monitoring equipment required by this permit in accordance with all manufacturers' recommendations concerning maintenance and performance.
[45CSR13, R13-2864, 4.2.1]

4.2.2. The permittee shall conduct visible emission checks and/or opacity monitoring and recordkeeping for all emission sources subject to an opacity limit.

The visible emission check shall determine the presence or absence of visible emissions. At a minimum, the

observer must be trained and knowledgeable regarding the effects of background contrast, ambient lighting, observer position relative to lighting, wind, and the presence of uncombined water (condensing water vapor) on the visibility of emissions. This training may be obtained from written materials found in the References 1 and 2 from 40CFR Part 60, Appendix A, Method 22 or from the lecture portion of the 40CFR Part 60, Appendix A, Method 9 certification course.

Visible emission checks shall be conducted at least once per calendar month with a maximum of forty-five (45) days between consecutive readings. These checks shall be performed at each source (stacks, conveyors, crushers, silos, bins, and screens) for a sufficient time interval, but no less than one (1) minute, to determine if any visible emissions are present. Visible emission checks shall be performed during periods of facility operation and appropriate weather conditions.

If visible emissions are present at a source(s) for three (3) consecutive monthly checks, the permittee shall conduct an opacity reading at that source(s) using the procedures and requirements of Method 9 as soon as practicable, but within seventy-two (72) hours of the final visual emission check. Method 9 checks shall be performed on the source for at least six (6) minutes. A Method 9 observation at a source(s) restarts the count of the number of consecutive readings with the presence of visible emissions.
[45CSR13, R13-2864, 4.2.2 (1S, 3S, 4S, 5S, 6S, 15S, 16S)]

4.2.3. The permittee shall install, maintain and operate instrumentation to continuously monitor and record at least once per operating day the control device parameters (1C, 2C, 3C, 4C and 7C) as determined by conditions 4.1.3 and 4.1.4 of this permit at all times that the emission source(s) is/are in operation.
[45CSR13, R13-2864, 4.2.3]

4.2.5. For the purposes of demonstrating compliance with the sulfur content limit in 4.1.15 of this permit, analytical testing results showing sulfur content shall be obtained from the fuel supplier. Alternatively, the permittee may obtain a fuel sample of each shipment and perform analytical testing to determine the sulfur content.
[45CSR13, R13-2864, 4.2.5]

4.2.10. To show compliance with the Mn emission limit in condition 4.1.6. of this permit, monthly Mn emissions from the facility shall be calculated (mass balance) by the 15th day of the subsequent month. A twelve month running total of emissions shall be maintained to verify compliance with the annual emission limitation. Each month a new twelve month total shall be calculated using the previous twelve months of data.
[45CSR13, R13-2864, 4.2.12]

Per Title V Permit No **R30-03500049-2014 (MM02 Proposed)§4.3**. Testing Requirements.:

4.3 Testing Requirements

4.3.1. The permittee shall complete the following performance testing:

4.3.1.1 The permittee shall perform or have performed EPA approved stack tests to determine emissions of NO_x, VOCs, PM and PM_{10} from the submerged electric arc furnace.

4.3.1.2 The permittee shall perform or have performed EPA approved stack tests to determine emissions of PM and PM_{10} from one of the spinner collection chambers.

4.3.1.3 The permittee shall perform or have performed EPA approved stack tests to determine emissions of Manganese from one of the spinner collection chambers and the submerged electric arc furnace.
[45CSR13, R13-2864, 4.3.1]

4.3.2. Ongoing compliance shall be demonstrated by repeating the above testing according to the following schedule:

Test	Test Results	Testing Frequency

Initial	< 10% of limits	Testing Frequency
Initial	Between 10% and 50% of limits	Once/5 years
Initial	Between 50% and 90% limits	Once/3 years
Initial	≥90% of limits	Annual
Annual	After two successive tests indicate emission rates :s;50% of limits	Once/5 years
Annual	After two successive tests indicate emission rates <90% of limits	Once/3 years
Annual	≥90% of limits	Annual
Once/3 years	After two successive tests indicate emission rates :s;50% of limits	Once/5 years
Once/3 years	After two successive tests indicate emission rates <90% of limits	Once/3 years
Once/3 years	≥90% of limits	Annual
Once/5 years	After two successive tests indicate emission rates <10% of limits	Upon Directors request
Once/5 years	≤50% of limits	Once/5 years
Once/5 years	Between 50% and 90% of limits	Once/3 years
Once/5 years	≥90% of limits	Annual

[45CSR13, R13-2864, 4.3.2]

Per Title V Permit No **R30-03500049-2014 (MM02 Proposed)§4.4.** Recordkeeping Requirements

4.4. Recordkeeping Requirements

4.4.1. Record of Maintenance of Air Pollution Control Equipment. For all pollution control equipment listed in Section 1.0, the permittee shall maintain accurate records of all required pollution control equipment inspection and/or preventative maintenance procedures.
[45CSR13, R13-2864, 4.4.2]

4.4.2. Record of Malfunctions of Air Pollution Control Equipment. For all air pollution control equipment listed in Section 1.0, the permittee shall maintain records of the occurrence and duration of any malfunction or operational shutdown of the air pollution control equipment during which excess emissions occur. For each such case, the following information shall be recorded:

a. The equipment involved.
b. Steps taken to minimize emissions during the event. c.
The duration of the event.
d. The estimated increase in emissions during the event.
For each such case associated with an equipment malfunction, the additional information shall also be recorded:

e. The cause of the malfunction.
f. Steps taken to correct the malfunction.
g. Any changes or modifications to equipment or procedures that would help prevent future recurrences of the malfunction.
[45CSR13, R13-2864, 4.4.3]

4.4.3. Reserved

4.4.4. In order to determine compliance with condition 4.1.5 of this permit, the permittee shall keep monthly records of the Manganese content of the slag. Upon request the records shall be certified and made available to the Director or his/her duly authorized representative.
[45CSR13, R13-2864, 4.4.4]

4.4.5. The permittee shall maintain monthly records of slag wool production from the facility. Upon request the records shall be certified and made available to the Director or his/her duly authorized representative. [45CSR13, R13-2864, 4.2.8. and 4.4.5]

4.4.6. In order to demonstrate compliance with the requirements of 4.2.2 of this permit, records of the Method 22 testing and any necessary Method 9 testing shall be retained on site by the permittee for at least five (5) years. Upon request the records shall be certified and made available to the Director or his/her duly authorized representative.
[45CSR13, R13-2864, 4.4.6]

4.4.7. In order to determine compliance with the requirements of conditions 4.1.15 and 4.2.5 of this permit, the permittee shall maintain records of the fuel oil sulfur content. Upon request the records shall be certified and made available to the Director or his/her duly authorized representative.
[45CSR13, R13-2864, 4.4.7]

4.4.8. In order to determine compliance with the requirements of condition 4.1.4 of this permit, the permittee shall maintain daily records of the pressure drop across each baghouse. Upon request the records shall be certified and made available to the Director or his/her duly authorized representative.
[45CSR13, R13-2864, 4.4.8]

Per Title V Permit No **R30-03500049-2014 (MM02 Proposed)§4.5** Reporting Requirements

4.5 Reporting Requirements

4.5.1. Any violations of the allowable visible emission requirement for any emission source discovered during testing must be reported in writing to the Director of the Division of Air Quality as soon as practicable, but within ten calendar days, of the occurrence and shall include, at a minimum, the following information: the results of the visible determination of opacity of emissions, the cause or suspected cause of the violation(s), and any corrective measures taken or planned.
[45CSR13, R13-2864, 4.5.1]

4.5.2. With regard to testing required by section 4.3 of this permit, results shall be submitted to the Director no more than 60 days after the date the testing takes place.
[45CSR13, R13-2864, 4.5.2]

4.5.3. The permittee shall comply with all applicable reporting requirements of 45CSR7, 45CSR10, and 45CSR13.
[45CSR13, R13-2864, 4.5.3]

Are you in compliance with all applicable requirements for this emission unit? _X_ Yes ___ No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number: 6S	**Emission unit name:** Hydrated Lime Storage Silo	**List any control devices associated with this emission unit:** 6C

Provide a description of the emission unit (type, method of operation, design parameters, etc.):

The Hydrated Lime Silo is pneumatically filled from the lime tank trucks. The silo is controlled by bin vent filter (6C).

Manufacturer: Dustex	**Model number:** 11378-G-0021 711021	**Serial number:** Various
Construction date: 2011/2012	**Installation date:** 2012	**Modification date(s):** NA

Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 3,300 cf tank capacity

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:** 8760 hrs/yr

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? ___Yes _X_ No	**If yes, is it?** ___ Indirect Fired ___Direct Fired
Maximum design heat input and/or maximum horsepower rating: NA	**Type and Btu/hr rating of burners:** NA

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
NA

Describe each fuel expected to be used during the term of the permit.

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
NA	NA	NA	NA

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	See Attachment I	
Nitrogen Oxides (NO_X)		
Lead (Pb)		
Particulate Matter ($PM_{2.5}$)		
Particulate Matter (PM_{10})		
Total Particulate Matter (TSP)		
Sulfur Dioxide (SO_2)		
Volatile Organic Compounds (VOC)		
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
NA	NA	NA

List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).

See Attachment I "Emissions Inventory".

Applicable Requirements

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

Per Title V Permit No **R30-03500049-2014 (MM02 Proposed)§4.1** Limitations and Standards.:

4.1.1. Emissions from the facility shall not exceed the limitations set forth in Tables 4.1.1.1 and 4.1.1.2:

Table 4.1.1.1

Source	PM		[1]		NO_x		VOC		SO_2		CO	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
1S	2.60	11.39	2.60	11.39	5.00	21.90	5.00	21.90	55.94	245.00	55.00[2]	240.90
3S	7.09	31.06	7.09	31.06	--	--	0.38	1.65	--	--	--	--
4S	7.09	31.06	7.09	31.06	--	--	0.38	1.65	--	--	--	--
~~5S~~	~~0.34~~	~~1.50~~	~~0.34~~	~~1.50~~	~~--~~	~~--~~	~~--~~	~~--~~	~~--~~	~~--~~	~~--~~	~~--~~
6S	1.13	4.96	1.13	4.96	--	--	--	--	--	--	--	--
9S	--	1.98	--	0.97	--	--	--	--	--	--	--	--
11S	0.02	0.10	0.01	0.05	--	--	--	--	--	--	--	--
15S/16S	2.39	10.47	2.39	10.47	--	--	--	--	--	--	--	--
18S[3]	0.1	0.44	0.1	0.44	0.07	0.28	0.01	0.02	--	--	0.03	0.16

Table 4.1.1.2

Source	Mn		VOC HAP		Total HAP	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
1S	0.28	1.25	--	--	0.28	1.25
3S	0.78	3.40	--	--	0.78	3.40
4S	0.78	3.40	--	--	0.78	3.40
~~5S~~	~~0.04~~	~~0.16~~	~~--~~	~~--~~	~~0.04~~	~~0.16~~
6S	--	--	--	--	--	--
9S	0.02	0.22	--	--	0.02	0.22
10S	--	--	--	--	--	--
11S	0.01	0.01	--	--	0.01	0.01
15S/16S	0.26	1.15	--	--	0.26	1.15

Compliance with the PM emission limits shall demonstrate compliance with the less stringent PM emission limits of 45CSR§7-4.1. [45CSR13, R13-2864, 4.1.1 and 4.1.9.2, Tables 4.1.1.1 and 4.1.1.2, 45CSR§7-4.1.]

4.1.6. The total annual Mn emissions from the facility shall not exceed 9.6 tons per year based on a rolling 12 month total basis.
[45CSR13, R13-2864, 4.1.12.]

4.1.10. No person shall cause, suffer, allow or permit emission of smoke and/or particulate matter into the open air from any process source operation which is greater than twenty (20) percent opacity, except for smoke and/or particulate matter emitted from any process source operation which is less than forty (40) percent opacity for any period or periods aggregating no more than five (5) minutes in any sixty (60) minute period.
[45CSR§7-3.1 &45CSR§7-3.2, 45CSR13, R13-2864, 4.1.9.1 (1S, 3S, 4S, 5S, 15S, 16S, 18S)]

4.1.11. No person shall cause, suffer, allow or permit visible emissions from any storage structure(s) associated with any manufacturing process that pursuant to Condition 4.1.13. is required to have a full enclosure and be equipped with a particulate matter control device.
[45CSR§7-3.7. (6S)]

4.1.12. Any stack serving any process source operation or air pollution control equipment on any process source operation shall contain flow straightening devices or a vertical run of sufficient length to establish flow patterns consistent with acceptable stack sampling procedures.
[45CSR§7-4.12.]

4.1.13. No person shall cause, suffer, allow or permit any manufacturing process or storage structure generating fugitive particulate matter to operate that is not equipped with a system, which may include, but not be limited to, process equipment design, control equipment design or operation and maintenance procedures, to minimize the emissions of fugitive particulate matter. To minimize means such system shall be installed, maintained and operated to ensure the lowest fugitive particulate matter emissions reasonably achievable.
[45CSR§7-5.1., 45CSR13, R13-2864, 4.1.9.3]

4.1.16. Operation and Maintenance of Air Pollution Control Equipment. The permittee shall, to the extent practicable, install, maintain, and operate all pollution control equipment listed in Section 1.0 and associated monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions, or comply with any more stringent limits set forth in this permit or as set forth by any State rule, Federal regulation, or alternative control plan approved by the Secretary.
[45CSR§13-5.11., 45CSR13, R13-2864, 4.1.13]

_X_ Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)
Per Title V Permit No **R30-03500049-2014 (MM02 Proposed)§4.2**. Monitoring Requirements.:

4.2.Monitoring Requirements

4.2.1. The permittee shall install, maintain, and operate all monitoring equipment required by this permit in accordance with all manufacturers' recommendations concerning maintenance and performance.
[45CSR13, R13-2864, 4.2.1]

4.2.2. The permittee shall conduct visible emission checks and/or opacity monitoring and recordkeeping for all emission sources subject to an opacity limit.

The visible emission check shall determine the presence or absence of visible emissions. At a minimum, the observer must be trained and knowledgeable regarding the effects of background contrast, ambient lighting, observer position relative to lighting, wind, and the presence of uncombined water (condensing water vapor) on the visibility of emissions. This training may be obtained from written materials found in the References 1 and 2 from 40CFR Part 60, Appendix A, Method 22 or from the lecture portion of the 40CFR Part 60, Appendix A, Method 9 certification course.

Visible emission checks shall be conducted at least once per calendar month with a maximum of forty-five (45) days between consecutive readings. These checks shall be performed at each source (stacks, conveyors, crushers, silos, bins, and screens) for a sufficient time interval, but no less than one (1) minute, to determine if any visible

emissions are present. Visible emission checks shall be performed during periods of facility operation and appropriate weather conditions.

If visible emissions are present at a source(s) for three (3) consecutive monthly checks, the permittee shall conduct an opacity reading at that source(s) using the procedures and requirements of Method 9 as soon as practicable, but within seventy-two (72) hours of the final visual emission check. Method 9 checks shall be performed on the source for at least six (6) minutes. A Method 9 observation at a source(s) restarts the count of the number of consecutive readings with the presence of visible emissions.
[45CSR13, R13-2864, 4.2.2 (1S, 3S, 4S, 5S, 6S, 15S, 16S)]

4.2.5. For the purposes of demonstrating compliance with the sulfur content limit in 4.1.15 of this permit, analytical testing results showing sulfur content shall be obtained from the fuel supplier. Alternatively, the permittee may obtain a fuel sample of each shipment and perform analytical testing to determine the sulfur content.
[45CSR13, R13-2864, 4.2.5]

4.2.10. To show compliance with the Mn emission limit in condition 4.1.6. of this permit, monthly Mn emissions from the facility shall be calculated (mass balance) by the 15th day of the subsequent month. A twelve month running total of emissions shall be maintained to verify compliance with the annual emission limitation. Each month a new twelve month total shall be calculated using the previous twelve months of data.
[45CSR13, R13-2864, 4.2.12]

Per Title V Permit No **R30-03500049-2014 (MM02 Proposed)§4.3**. Testing Requirements.:

Per Title V Permit No **R30-03500049-2014 (MM02 Proposed)§4.4.** Recordkeeping Requirements

4.4. Recordkeeping Requirements

4.4.1. Record of Maintenance of Air Pollution Control Equipment. For all pollution control equipment listed in Section 1.0, the permittee shall maintain accurate records of all required pollution control equipment inspection and/or preventative maintenance procedures.
[45CSR13, R13-2864, 4.4.2]

4.4.2. Record of Malfunctions of Air Pollution Control Equipment. For all air pollution control equipment listed in Section 1.0, the permittee shall maintain records of the occurrence and duration of any malfunction or operational shutdown of the air pollution control equipment during which excess emissions occur. For each such case, the following information shall be recorded:

a. The equipment involved.

b. Steps taken to minimize emissions during the event. c.

The duration of the event.

d. The estimated increase in emissions during the event.

For each such case associated with an equipment malfunction, the additional information shall also be recorded:

e. The cause of the malfunction.

f. Steps taken to correct the malfunction.

g. Any changes or modifications to equipment or procedures that would help prevent future recurrences of the malfunction.

[45CSR13, R13-2864, 4.4.3]

4.4.3. Reserved

4.4.4. In order to determine compliance with condition 4.1.5 of this permit, the permittee shall keep monthly records of the Manganese content of the slag. Upon request the records shall be certified and made available to the Director or his/her duly authorized representative.
[45CSR13, R13-2864, 4.4.4]

4.4.5. The permittee shall maintain monthly records of slag wool production from the facility. Upon request the records shall be certified and made available to the Director or his/her duly authorized representative. [45CSR13, R13-2864, 4.2.8. and 4.4.5]

4.4.6. In order to demonstrate compliance with the requirements of 4.2.2 of this permit, records of the Method 22 testing and any necessary Method 9 testing shall be retained on site by the permittee for at least five (5) years. Upon request the records shall be certified and made available to the Director or his/her duly authorized representative.
[45CSR13, R13-2864, 4.4.6]

4.4.7. In order to determine compliance with the requirements of conditions 4.1.15 and 4.2.5 of this permit, the permittee shall maintain records of the fuel oil sulfur content. Upon request the records shall be certified and made available to the Director or his/her duly authorized representative.
[45CSR13, R13-2864, 4.4.7]

Per Title V Permit No **R30-03500049-2014 (MM02 Proposed)§4.5** Reporting Requirements

4.5 Reporting Requirements

4.5.1. Any violations of the allowable visible emission requirement for any emission source discovered during testing must be reported in writing to the Director of the Division of Air Quality as soon as practicable, but within ten calendar days, of the occurrence and shall include, at a minimum, the following information: the results of the visible determination of opacity of emissions, the cause or suspected cause of the violation(s), and any corrective measures taken or planned.
[45CSR13, R13-2864, 4.5.1]

4.5.3. The permittee shall comply with all applicable reporting requirements of 45CSR7, 45CSR10, and 45CSR13.
[45CSR13, R13-2864, 4.5.3]

.

Are you in compliance with all applicable requirements for this emission unit? _X_Yes ___No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number: 7S	**Emission unit name:** Backup Generator	**List any control devices associated with this emission unit:** NA

Provide a description of the emission unit (type, method of operation, design parameters, etc.):

The backup diesel-fired generator is an “emergency” generator to be used to provide electricity to the Millwood facility in the event that the grid power is unavailable.

Manufacturer: Caterpillar	**Model number:** Generator: 500kW Engine Caterpillar Model:C15 Family: 8CPXL15.2ELW	**Serial number:** Generator: G6B15172 Engine: N/D
Construction date: 2008	**Installation date:** 2012	**Modification date(s):** NA

Design Capacity (examples: furnaces - tons/hr, tanks - gallons): Generator: 500kW power output, Engine 762 HP

Maximum Hourly Throughput: 36.2 gal/hr	**Maximum Annual Throughput:** 18,100 gal/yr @ 500 hr/yr	**Maximum Operating Schedule:** 500 hrs/yr
Fuel Usage Data **(fill out all applicable fields)**		
Does this emission unit combust fuel? _X_ Yes ___ No		**If yes, is it?** ___ Indirect Fired _X_ Direct Fired
Maximum design heat input and/or maximum horsepower rating: Engine: 762 hp		**Type and Btu/hr rating of burners:** N/A
List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each. ULSD, 36.2 gal/hr, 18,100 gal/yr		

Describe each fuel expected to be used during the term of the permit.

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
ULSD	15 ppm	NA	139,000 Btu/gal

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	See Attachment I	
Nitrogen Oxides (NO_X)		
Lead (Pb)		
Particulate Matter ($PM_{2.5}$)		
Particulate Matter (PM_{10})		
Total Particulate Matter (TSP)		
Sulfur Dioxide (SO_2)		
Volatile Organic Compounds (VOC)		
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY

List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).

See Attachment I "Emissions Inventory".

Applicable Requirements

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

Per Title V Permit No **R30-03500049-2014 (MM02 Proposed)§5.1** Limitations and Standards.:

6.1. Limitations and Standards

6.1.1. Emissions from the backup generator, 7S, shall not exceed the following limitations:

Pollutant	Hourly limit in lb/hr	Annual limit in tpy
PM	0.05	0.013
PM_{101}	0.05	0.013
NO_x	7.69	1.92
VOC	0.034	0.01
SO_2	0.01	0.01
CO	1.06	0.26
VOC HAP	0.01	0.01
Total HAP	0.01	0.01

[1]All PM_{10} is assumed to be $PM_{2.5}$ and all PM, PM_{10}, $PM_{2.5}$ emission limits include both filterable and condensable particulate matter.

[45CSR13, R13-2864, 4.1.1, Tables 4.1.1.1 and 4.1.1.2; State-enforceable only]

6.1.2. The permittee shall comply with all applicable requirements of 40 CFR 60 Subpart IIII (backup generator 7S) including but not limited to the following:

Emissions from the Backup Generator (7S) shall not exceed the following:

NOx+NMHC (g/kW-hr)	CO (g/kW-hr)	PM (g/kW-hr)
6.4	3.5	0.2

[40 CFR§60.4204(b), 45CSR13, R13-2864, 4.1.11.1, 45CSR16] .

6.1.3. The permittee shall operate and maintain the backup generator (7S) according to the manufacturers written instructions or procedures developed by the owner or operator that are approved by the engine manufacturer over the entire life of the engine.

[40 CFR§60.4206, 45CSR13, R13-2864, 4.1.11.2, 45CSR16]

6.1.4. The nonroad diesel fuel that is used in the backup generator must have a sulfur content less than 15 parts per million.

[40 CFR§60.4207(b), 45CSR13, R13-2864, 4.1.11.3, 45CSR16]

6.1.5. a. If you are an owner or operator and must comply with the emission standards specified in this subpart, you must do all of the following, except as permitted under Condition 6.1.5.c. of this permit:

1. Operate and maintain the stationary CI internal combustion engine and control device according to the manufacturer's emission-related written instructions;

_X_ Permit Shield
For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)
Are you in compliance with all applicable requirements for this emission unit? _X_ Yes ___No If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number: 8S	**Emission unit name:** Fugitive Dust from Traffic	**List any control devices associated with this emission unit:** NA

Provide a description of the emission unit (type, method of operation, design parameters, etc.):

Emissions from unpaved roads of the facility result from traffic of various vehicles used for material transfer hauling.

Manufacturer: NA	**Model number:** NA	**Serial number:** NA
Construction date: 2011/2012	**Installation date:** 2012	**Modification date(s):** NA

Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 8,880 VMT/yr

Maximum Hourly Throughput: 1.01 VMT/hr	**Maximum Annual Throughput:** 8,880 VMT/yr	**Maximum Operating Schedule:** 8760 hrs/yr

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? ___Yes _X_ No	**If yes, is it?** ___ Indirect Fired ___Direct Fired
Maximum design heat input and/or maximum horsepower rating: NA	**Type and Btu/hr rating of burners:** NA

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
NA

Describe each fuel expected to be used during the term of the permit.

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
NA	NA	NA	NA

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	See Attachment I	
Nitrogen Oxides (NO_X)		
Lead (Pb)		
Particulate Matter ($PM_{2.5}$)		
Particulate Matter (PM_{10})		
Total Particulate Matter (TSP)		
Sulfur Dioxide (SO_2)		
Volatile Organic Compounds (VOC)		
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY

List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).

See Attachment I "Emissions Inventory".

Applicable Requirements

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or <u>construction permit</u> with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

Per Title V Permit No **R30-03500049-2014 (MM02 Proposed)§4.1** Limitations and Standards.:

4.1.7. Fugitive particulate emissions resulting from use of haulroads and mobile work areas shall be minimized by the following:

a. The permittee shall maintain a water truck on site and in good operating condition, and shall utilize same
to apply a either water or a mixture of water and an environmentally acceptable dust control additive, hereinafter referred to as solution, as often as is necessary in order to minimize the atmospheric entrainment of fugitive particulate emissions that may be generated from unpaved haulroads and other unpaved work areas where mobile equipment is used. The spraybar shall be equipped with commercially available spray nozzles, of sufficient size and number, so as to provide adequate coverage to the area being treated.

The pump delivering the solution, shall be of sufficient size and capacity so as to be capable of delivering to the spray nozzle(s) an adequate quantity of solution, and at a sufficient pressure, so as to assure that the treatment process will minimize the atmospheric entrainment of fugitive particulate emissions generated from the unpaved haulroads and work areas where mobile equipment is used.

b. All unpaved haulroads, access roads, stockpile and work areas shall be kept clean and in good condition by replacing base material and/or grading as required.

c. If tracking of solids by vehicular traffic from access and/or haulroads onto any public road or highway occurs and generates or has the potential to generate fugitive particulate emissions, the registrant shall properly operate and maintain an underbody truck wash, rumble strips or employ other suitable measures to maintain effective fugitive dust control of the premises and minimize the emission of particulate matter.
[45CSR13, R13-2864, 4.1.6]

4.1.8. The permittee shall ensure that the water trucks and/or water sprays are properly equipped with winterization systems capable of operating in a manner such that all such fugitive dust control systems remain effective and functional, to the maximum extent practicable, during winter months and cold weather. At all times, including periods of cold weather, the registrant shall comply with the water trucks and/or water sprays requirements of this permit.
[45CSR13, R13-2864, 4.1.7]

4.1.14. The owner or operator of a plant shall maintain particulate matter control of the plant premises, and plant owned, leased or controlled access roads, by paving, application of asphalt, chemical dust suppressants or other suitable dust control measures. Good operating practices shall be implemented and when necessary particulate matter suppressants shall be applied in relation to stockpiling and general material handling to minimize particulate matter generation and atmospheric entrainment.
[45CSR§7-5.2., 45CSR13, R13-2864, 4.1.9.4]

__X_ Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

Are you in compliance with all applicable requirements for this emission unit? _X_Yes ___No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:** NA
9S	Slag Handling and Storage	

Provide a description of the emission unit (type, method of operation, design parameters, etc.):

Slag Handling and Storage Emissions include emissions from the transfer of slag material to storage piles and wind erosion from the slag storage piles.

Manufacturer:	**Model number:**	**Serial number:**
NA	NA	NA
Construction date:	**Installation date:**	**Modification date(s):**
NA	NA	NA

Design Capacity (examples: furnaces - tons/hr, tanks - gallons): NA

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
NA	NA	8760 hrs/yr

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? ___Yes _X_ No	**If yes, is it?** ___ Indirect Fired ___Direct Fired
Maximum design heat input and/or maximum horsepower rating: NA	**Type and Btu/hr rating of burners:** NA

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.

NA

Describe each fuel expected to be used during the term of the permit.

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
NA	NA	NA	NA

Emissions Data			
Criteria Pollutants	Potential Emissions		
	PPH	TPY	
Carbon Monoxide (CO)	See Attachment I		
Nitrogen Oxides (NO_X)			
Lead (Pb)			
Particulate Matter ($PM_{2.5}$)			
Particulate Matter (PM_{10})			
Total Particulate Matter (TSP)			
Sulfur Dioxide (SO_2)			
Volatile Organic Compounds (VOC)			
Hazardous Air Pollutants	Potential Emissions		
	PPH	TPY	
Regulated Pollutants other than Criteria and HAP	Potential Emissions		
	PPH	TPY	
List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.). See Attachment I "Emissions Inventory".			

Applicable Requirements

Per Title V Permit No **R30-03500049-2014 (MM02 Proposed)§4.1** Limitations and Standards.:

4.1.1. Emissions from the facility shall not exceed the limitations set forth in Tables 4.1.1.1 and 4.1.1.2:

Table 4.1.1.1

Source	PM		[1]		NO_x		VOC		SO_2		CO	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
1S	2.60	11.39	2.60	11.39	5.00	21.90	5.00	21.90	55.94	245.00	55.00[2]	240.90
3S	7.09	31.06	7.09	31.06	--	--	0.38	1.65	--	--	--	--
4S	7.09	31.06	7.09	31.06	--	--	0.38	1.65	--	--	--	--
~~5S~~	~~0.34~~	~~1.50~~	~~0.34~~	~~1.50~~	~~--~~	~~--~~	~~--~~	~~--~~	~~--~~	~~--~~	~~--~~	~~--~~
6S	1.13	4.96	1.13	4.96	--	--	--	--	--	--	--	--
9S	--	1.98	--	0.97	--	--	--	--	--	--	--	--
11S	0.02	0.10	0.01	0.05	--	--	--	--	--	--	--	--
15S/16S	2.39	10.47	2.39	10.47	--	--	--	--	--	--	--	--
18S[3]	0.1	0.44	0.1	0.44	0.07	0.28	0.01	0.02	--	--	0.03	0.16

Table 4.1.1.2

Source	Mn		VOC HAP		Total HAP	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
1S	0.28	1.25	--	--	0.28	1.25
3S	0.78	3.40	--	--	0.78	3.40
4S	0.78	3.40	--	--	0.78	3.40
~~5S~~	~~0.04~~	~~0.16~~	~~--~~	~~--~~	~~0.04~~	~~0.16~~
6S	--	--	--	--	--	--
9S	0.02	0.22	--	--	0.02	0.22
10S	--	--	--	--	--	--
11S	0.01	0.01	--	--	0.01	0.01
15S/16S	0.26	1.15	--	--	0.26	1.15

Compliance with the PM emission limits shall demonstrate compliance with the less stringent PM emission limits of 45CSR§7-4.1. [45CSR13, R13-2864, 4.1.1 and 4.1.9.2, Tables 4.1.1.1 and 4.1.1.2, 45CSR§7-4.1.]

4.1.6. The total annual Mn emissions from the facility shall not exceed 9.6 tons per year based on a rolling 12 month total basis.
[45CSR13, R13-2864, 4.1.12.]

4.1.10. No person shall cause, suffer, allow or permit emission of smoke and/or particulate matter into the open air from any process source operation which is greater than twenty (20) percent opacity, except for smoke and/or particulate matter emitted from any process source operation which is less than forty (40) percent opacity for any period or periods aggregating no more than five (5) minutes in any sixty (60) minute period.
[45CSR§7-3.1 &45CSR§7-3.2, 45CSR13, R13-2864, 4.1.9.1 (1S, 3S, 4S, 5S, 15S, 16S, 18S)]

4.1.11. No person shall cause, suffer, allow or permit visible emissions from any storage structure(s) associated with any manufacturing process that pursuant to Condition 4.1.13. is required to have a full enclosure and be equipped with a particulate matter control device.
[45CSR§7-3.7. (6S)]

4.1.12. Any stack serving any process source operation or air pollution control equipment on any process source operation shall contain flow straightening devices or a vertical run of sufficient length to establish flow patterns consistent with acceptable stack sampling procedures.
[45CSR§7-4.12.]

4.1.13. No person shall cause, suffer, allow or permit any manufacturing process or storage structure generating fugitive particulate matter to operate that is not equipped with a system, which may include, but not be limited to, process equipment design, control equipment design or operation and maintenance procedures, to minimize the emissions of fugitive particulate matter. To minimize means such system shall be installed, maintained and operated to ensure the lowest fugitive particulate matter emissions reasonably achievable.
[45CSR§7-5.1., 45CSR13, R13-2864, 4.1.9.3]

4.1.14. The owner or operator of a plant shall maintain particulate matter control of the plant premises, and plant owned, leased or controlled access roads, by paving, application of asphalt, chemical dust suppressants or other suitable dust control measures. Good operating practices shall be implemented and when necessary particulate matter suppressants shall be applied in relation to stockpiling and general material handling to minimize particulate matter generation and atmospheric entrainment.
[45CSR§7-5.2., 45CSR13, R13-2864, 4.1.9.4]

__X_ Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)
Per Title V Permit No **R30-03500049-2014 (MM02 Proposed)§4.2**. Monitoring Requirements.:

4.2.Monitoring Requirements

4.2.1. The permittee shall install, maintain, and operate all monitoring equipment required by this permit in accordance with all manufacturers' recommendations concerning maintenance and performance.
[45CSR13, R13-2864, 4.2.1]

4.2.2. The permittee shall conduct visible emission checks and/or opacity monitoring and recordkeeping for all emission sources subject to an opacity limit.

The visible emission check shall determine the presence or absence of visible emissions. At a minimum, the observer must be trained and knowledgeable regarding the effects of background contrast, ambient lighting, observer position relative to lighting, wind, and the presence of uncombined water (condensing water vapor) on the visibility of emissions. This training may be obtained from written materials found in the References 1 and 2 from 40CFR Part 60, Appendix A, Method 22 or from the lecture portion of the 40CFR Part 60, Appendix A, Method 9 certification course.

Visible emission checks shall be conducted at least once per calendar month with a maximum of forty-five (45) days between consecutive readings. These checks shall be performed at each source (stacks, conveyors, crushers, silos, bins, and screens) for a sufficient time interval, but no less than one (1) minute, to determine if any visible emissions are present. Visible emission checks shall be performed during periods of facility operation and

appropriate weather conditions.

If visible emissions are present at a source(s) for three (3) consecutive monthly checks, the permittee shall conduct an opacity reading at that source(s) using the procedures and requirements of Method 9 as soon as practicable, but within seventy-two (72) hours of the final visual emission check. Method 9 checks shall be performed on the source for at least six (6) minutes. A Method 9 observation at a source(s) restarts the count of the number of consecutive readings with the presence of visible emissions.
[45CSR13, R13-2864, 4.2.2 (1S, 3S, 4S, 5S, 6S, 15S, 16S)]

4.2.5. For the purposes of demonstrating compliance with the sulfur content limit in 4.1.15 of this permit, analytical testing results showing sulfur content shall be obtained from the fuel supplier. Alternatively, the permittee may obtain a fuel sample of each shipment and perform analytical testing to determine the sulfur content.
[45CSR13, R13-2864, 4.2.5]

4.2.10. To show compliance with the Mn emission limit in condition 4.1.6. of this permit, monthly Mn emissions from the facility shall be calculated (mass balance) by the 15th day of the subsequent month. A twelve month running total of emissions shall be maintained to verify compliance with the annual emission limitation. Each month a new twelve month total shall be calculated using the previous twelve months of data.
[45CSR13, R13-2864, 4.2.12]

Per Title V Permit No **R30-03500049-2014 (MM02 Proposed)§4.4.** Recordkeeping Requirements

4.4. Recordkeeping Requirements

4.4.1. Record of Maintenance of Air Pollution Control Equipment. For all pollution control equipment listed in Section 1.0, the permittee shall maintain accurate records of all required pollution control equipment inspection and/or preventative maintenance procedures.
[45CSR13, R13-2864, 4.4.2]

4.4.2. Record of Malfunctions of Air Pollution Control Equipment. For all air pollution control equipment listed in Section 1.0, the permittee shall maintain records of the occurrence and duration of any malfunction or operational shutdown of the air pollution control equipment during which excess emissions occur. For each such case, the following information shall be recorded:

a. The equipment involved.
b. Steps taken to minimize emissions during the event. c.
The duration of the event.
d. The estimated increase in emissions during the event.
For each such case associated with an equipment malfunction, the additional information shall also be recorded:

e. The cause of the malfunction.
f. Steps taken to correct the malfunction.
g. Any changes or modifications to equipment or procedures that would help prevent future recurrences of the malfunction.
[45CSR13, R13-2864, 4.4.3]

4.4.3. Reserved

4.4.4. In order to determine compliance with condition 4.1.5 of this permit, the permittee shall keep monthly records of the Manganese content of the slag. Upon request the records shall be certified and made available to the Director or his/her duly authorized representative.
[45CSR13, R13-2864, 4.4.4]

4.4.5. The permittee shall maintain monthly records of slag wool production from the facility. Upon request the records shall be certified and made available to the Director or his/her duly authorized representative. [45CSR13, R13-2864, 4.2.8. and 4.4.5]

4.4.6. In order to demonstrate compliance with the requirements of 4.2.2 of this permit, records of the

Method 22 testing and any necessary Method 9 testing shall be retained on site by the permittee for at least five (5) years. Upon request the records shall be certified and made available to the Director or his/her duly authorized representative.
[45CSR13, R13-2864, 4.4.6]

4.4.7. In order to determine compliance with the requirements of conditions 4.1.15 and 4.2.5 of this permit, the permittee shall maintain records of the fuel oil sulfur content. Upon request the records shall be certified and made available to the Director or his/her duly authorized representative.
[45CSR13, R13-2864, 4.4.7]

Per Title V Permit No **R30-03500049-2014 (MM02 Proposed)§4.5** Reporting Requirements

4.5 Reporting Requirements

4.5.1. Any violations of the allowable visible emission requirement for any emission source discovered during testing must be reported in writing to the Director of the Division of Air Quality as soon as practicable, but within ten calendar days, of the occurrence and shall include, at a minimum, the following information: the results of the visible determination of opacity of emissions, the cause or suspected cause of the violation(s), and any corrective measures taken or planned.
[45CSR13, R13-2864, 4.5.1]

4.5.3. The permittee shall comply with all applicable reporting requirements of 45CSR7, 45CSR10, and 45CSR13.
[45CSR13, R13-2864, 4.5.3]

Are you in compliance with all applicable requirements for this emission unit? _X_Yes ___No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number: 10S	**Emission unit name:** Cooling Tower #1	**List any control devices associated with this emission unit:** NA

Provide a description of the emission unit (type, method of operation, design parameters, etc.):

Cooling Tower #1 is one of two towers used to chill water associated with the EAF continuous cooling process.

Manufacturer: Evertrough	**Model number:** UII855303-01	**Serial number:** Various
Construction date: 2011/2012	**Installation date:** 2012	**Modification date(s):** NA

Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 1,500 gpm

Maximum Hourly Throughput: 90,000 gal/hr	**Maximum Annual Throughput:** 788.4 mmgal/yr	**Maximum Operating Schedule:** 8760

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? ___Yes _X_ No	**If yes, is it?** ___ Indirect Fired ___Direct Fired
Maximum design heat input and/or maximum horsepower rating: NA	**Type and Btu/hr rating of burners:** NA

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
NA

Describe each fuel expected to be used during the term of the permit.

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
NA	NA	NA	NA

Emissions Data			
Criteria Pollutants	Potential Emissions		
	PPH	TPY	
Carbon Monoxide (CO)	See Attachment I		
Nitrogen Oxides (NO_X)			
Lead (Pb)			
Particulate Matter ($PM_{2.5}$)			
Particulate Matter (PM_{10})			
Total Particulate Matter (TSP)			
Sulfur Dioxide (SO_2)			
Volatile Organic Compounds (VOC)			
Hazardous Air Pollutants	Potential Emissions		
	PPH	TPY	
Regulated Pollutants other than Criteria and HAP	Potential Emissions		
	PPH	TPY	
List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.). See Attachment I "Emissions Inventory".			

Applicable Requirements

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or <u>construction permit</u> with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

Per Title V Permit No **R30-03500049-2014 (MM02 Proposed)§5.1** Limitations and Standards.:

5.1.2. Emissions from the cooling towers shall not exceed the limitations set forth below:

Source	PM		PM_{10}[1]	
	lb/hr	tpy	lb/hr	tpy
10S	0.77	3.37	0.77	3.37
17S	0.41	1.80	0.41	1.80

[1]All PM_{10} is assumed to be $PM_{2.5}$ and all PM, PM_{10}, $PM_{2.5}$ emission limits include both filterable and condensable particulate matter .

[45CSR13, R13-2864, 4.1.1, Table 4.1.1.1; State-enforceable only]

__X_ Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

Are you in compliance with all applicable requirements for this emission unit? _X_ Yes ___No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number: 11S	**Emission unit name:** Railcar Unloading (Fugitive)	**List any control devices associated with this emission unit:** NA

Provide a description of the emission unit (type, method of operation, design parameters, etc.):

Railcar unloading fugitive emissions result from material transfer operations.

Manufacturer: NA	**Model number:** NA	**Serial number:** NA
Construction date: NA	**Installation date:** 2012	**Modification date(s):** NA

Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 300 tph

Maximum Hourly Throughput: 300 tph	**Maximum Annual Throughput:** 2,628 mtph	**Maximum Operating Schedule:** 8760

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? ___Yes _X_ No	**If yes, is it?** ___ Indirect Fired ___Direct Fired
Maximum design heat input and/or maximum horsepower rating: NA	**Type and Btu/hr rating of burners:** NA

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
NA

Describe each fuel expected to be used during the term of the permit.

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
NA	NA	NA	NA

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	See Attachment I	
Nitrogen Oxides (NO_X)		
Lead (Pb)		
Particulate Matter ($PM_{2.5}$)		
Particulate Matter (PM_{10})		
Total Particulate Matter (TSP)		
Sulfur Dioxide (SO_2)		
Volatile Organic Compounds (VOC)		
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
	NA	NA

List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).

See Attachment I "Emissions Inventory".

Applicable Requirements

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

Per Title V Permit No **R30-03500049-2014 (MM02 Proposed)§4.1** Limitations and Standards.:

4.1.1. Emissions from the facility shall not exceed the limitations set forth in Tables 4.1.1.1 and 4.1.1.2:

Table 4.1.1.1

Source	PM		[1]		NO_x		VOC		SO_2		CO	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
1S	2.60	11.39	2.60	11.39	5.00	21.90	5.00	21.90	55.94	245.00	55.00[2]	240.90
3S	7.09	31.06	7.09	31.06	--	--	0.38	1.65	--	--	--	--
4S	7.09	31.06	7.09	31.06	--	--	0.38	1.65	--	--	--	--
~~5S~~	~~0.34~~	~~1.50~~	~~0.34~~	~~1.50~~	~~--~~	~~--~~	~~--~~	~~--~~	~~--~~	~~--~~	~~--~~	~~--~~
6S	1.13	4.96	1.13	4.96	--	--	--	--	--	--	--	--
9S	--	1.98	--	0.97	--	--	--	--	--	--	--	--
11S	0.02	0.10	0.01	0.05	--	--	--	--	--	--	--	--
15S/16S	2.39	10.47	2.39	10.47	--	--	--	--	--	--	--	--
18S[3]	0.1	0.44	0.1	0.44	0.07	0.28	0.01	0.02	--	--	0.03	0.16

Table 4.1.1.2

Source	Mn		VOC HAP		Total HAP	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
1S	0.28	1.25	--	--	0.28	1.25
3S	0.78	3.40	--	--	0.78	3.40
4S	0.78	3.40	--	--	0.78	3.40
~~5S~~	~~0.04~~	~~0.16~~	~~--~~	~~--~~	~~0.04~~	~~0.16~~
6S	--	--	--	--	--	--
9S	0.02	0.22	--	--	0.02	0.22
10S	--	--	--	--	--	--
11S	0.01	0.01	--	--	0.01	0.01
15S/16S	0.26	1.15	--	--	0.26	1.15

Compliance with the PM emission limits shall demonstrate compliance with the less stringent PM emission limits of 45CSR§7-4.1. [45CSR13, R13-2864, 4.1.1 and 4.1.9.2, Tables 4.1.1.1 and 4.1.1.2, 45CSR§7-4.1.]

4.1.6. The total annual Mn emissions from the facility shall not exceed 9.6 tons per year based on a rolling 12 month total basis.
[45CSR13, R13-2864, 4.1.12.]

4.1.10. No person shall cause, suffer, allow or permit emission of smoke and/or particulate matter into the open air from any process source operation which is greater than twenty (20) percent opacity, except for smoke and/or particulate matter emitted from any process source operation which is less than forty (40) percent opacity for any period or periods aggregating no more than five (5) minutes in any sixty (60) minute period.
[45CSR§7-3.1 &45CSR§7-3.2, 45CSR13, R13-2864, 4.1.9.1 (1S, 3S, 4S, 5S, 15S, 16S, 18S)]

4.1.11. No person shall cause, suffer, allow or permit visible emissions from any storage structure(s) associated with any manufacturing process that pursuant to Condition 4.1.13. is required to have a full enclosure and be equipped with a particulate matter control device.
[45CSR§7-3.7. (6S)]

4.1.12. Any stack serving any process source operation or air pollution control equipment on any process source operation shall contain flow straightening devices or a vertical run of sufficient length to establish flow patterns consistent with acceptable stack sampling procedures.
[45CSR§7-4.12.]

4.1.13. No person shall cause, suffer, allow or permit any manufacturing process or storage structure generating fugitive particulate matter to operate that is not equipped with a system, which may include, but not be limited to, process equipment design, control equipment design or operation and maintenance procedures, to minimize the emissions of fugitive particulate matter. To minimize means such system shall be installed, maintained and operated to ensure the lowest fugitive particulate matter emissions reasonably achievable.
[45CSR§7-5.1., 45CSR13, R13-2864, 4.1.9.3]

4.1.14. The owner or operator of a plant shall maintain particulate matter control of the plant premises, and plant owned, leased or controlled access roads, by paving, application of asphalt, chemical dust suppressants or other suitable dust control measures. Good operating practices shall be implemented and when necessary particulate matter suppressants shall be applied in relation to stockpiling and general material handling to minimize particulate matter generation and atmospheric entrainment.
[45CSR§7-5.2., 45CSR13, R13-2864, 4.1.9.4]

_X_ Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)
Per Title V Permit No **R30-03500049-2014 (MM02 Proposed)§4.2**. Monitoring Requirements.:

4.2.Monitoring Requirements

4.2.1. The permittee shall install, maintain, and operate all monitoring equipment required by this permit in accordance with all manufacturers' recommendations concerning maintenance and performance.
[45CSR13, R13-2864, 4.2.1]

4.2.2. The permittee shall conduct visible emission checks and/or opacity monitoring and recordkeeping for all emission sources subject to an opacity limit.

The visible emission check shall determine the presence or absence of visible emissions. At a minimum, the observer must be trained and knowledgeable regarding the effects of background contrast, ambient lighting, observer position relative to lighting, wind, and the presence of uncombined water (condensing water vapor) on the visibility of emissions. This training may be obtained from written materials found in the References 1 and 2 from 40CFR Part 60, Appendix A, Method 22 or from the lecture portion of the 40CFR Part 60, Appendix

A, Method 9 certification course.

Visible emission checks shall be conducted at least once per calendar month with a maximum of forty-five (45) days between consecutive readings. These checks shall be performed at each source (stacks, conveyors, crushers, silos, bins, and screens) for a sufficient time interval, but no less than one (1) minute, to determine if any visible emissions are present. Visible emission checks shall be performed during periods of facility operation and appropriate weather conditions.

If visible emissions are present at a source(s) for three (3) consecutive monthly checks, the permittee shall conduct an opacity reading at that source(s) using the procedures and requirements of Method 9 as soon as practicable, but within seventy-two (72) hours of the final visual emission check. Method 9 checks shall be performed on the source for at least six (6) minutes. A Method 9 observation at a source(s) restarts the count of the number of consecutive readings with the presence of visible emissions.
[45CSR13, R13-2864, 4.2.2 (1S, 3S, 4S, 5S, 6S, 15S, 16S)]

4.2.5. For the purposes of demonstrating compliance with the sulfur content limit in 4.1.15 of this permit, analytical testing results showing sulfur content shall be obtained from the fuel supplier. Alternatively, the permittee may obtain a fuel sample of each shipment and perform analytical testing to determine the sulfur content.
[45CSR13, R13-2864, 4.2.5]

4.2.10. To show compliance with the Mn emission limit in condition 4.1.6. of this permit, monthly Mn emissions from the facility shall be calculated (mass balance) by the 15th day of the subsequent month. A twelve month running total of emissions shall be maintained to verify compliance with the annual emission limitation. Each month a new twelve month total shall be calculated using the previous twelve months of data.
[45CSR13, R13-2864, 4.2.12]

Per Title V Permit No **R30-03500049-2014 (MM02 Proposed)§4.4.** Recordkeeping Requirements

4.4. Recordkeeping Requirements

4.4.1. Record of Maintenance of Air Pollution Control Equipment. For all pollution control equipment listed in Section 1.0, the permittee shall maintain accurate records of all required pollution control equipment inspection and/or preventative maintenance procedures.
[45CSR13, R13-2864, 4.4.2]

4.4.2. Record of Malfunctions of Air Pollution Control Equipment. For all air pollution control equipment listed in Section 1.0, the permittee shall maintain records of the occurrence and duration of any malfunction or operational shutdown of the air pollution control equipment during which excess emissions occur. For each such case, the following information shall be recorded:

a. The equipment involved.
b. Steps taken to minimize emissions during the event. c.
The duration of the event.
d. The estimated increase in emissions during the event.

For each such case associated with an equipment malfunction, the additional information shall also be recorded:

e. The cause of the malfunction.
f. Steps taken to correct the malfunction.
g. Any changes or modifications to equipment or procedures that would help prevent future recurrences of the malfunction.
[45CSR13, R13-2864, 4.4.3]

4.4.3. Reserved

4.4.4. In order to determine compliance with condition 4.1.5 of this permit, the permittee shall keep monthly records of the Manganese content of the slag. Upon request the records shall be certified and made available to the Director or his/her duly authorized representative.
[45CSR13, R13-2864, 4.4.4]

4.4.5. The permittee shall maintain monthly records of slag wool production from the facility. Upon request the records shall be certified and made available to the Director or his/her duly authorized representative. [45CSR13, R13-2864, 4.2.8. and 4.4.5]

4.4.6. In order to demonstrate compliance with the requirements of 4.2.2 of this permit, records of the Method 22 testing and any necessary Method 9 testing shall be retained on site by the permittee for at least five (5) years. Upon request the records shall be certified and made available to the Director or his/her duly authorized representative.
[45CSR13, R13-2864, 4.4.6]

4.4.7. In order to determine compliance with the requirements of conditions 4.1.15 and 4.2.5 of this permit, the permittee shall maintain records of the fuel oil sulfur content. Upon request the records shall be certified and made available to the Director or his/her duly authorized representative.
[45CSR13, R13-2864, 4.4.7]

Per Title V Permit No **R30-03500049-2014 (MM02 Proposed)§4.5** Reporting Requirements

4.5 Reporting Requirements

4.5.1. Any violations of the allowable visible emission requirement for any emission source discovered during testing must be reported in writing to the Director of the Division of Air Quality as soon as practicable, but within ten calendar days, of the occurrence and shall include, at a minimum, the following information: the results of the visible determination of opacity of emissions, the cause or suspected cause of the violation(s), and any corrective measures taken or planned.
[45CSR13, R13-2864, 4.5.1]

4.5.3. The permittee shall comply with all applicable reporting requirements of 45CSR7, 45CSR10, and 45CSR13.
[45CSR13, R13-2864, 4.5.3]

Are you in compliance with all applicable requirements for this emission unit? _X_ Yes ___ No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number: 12S	**Emission unit name:** Diesel Storage Tank #1	**List any control devices associated with this emission unit:** NA

Provide a description of the emission unit (type, method of operation, design parameters, etc.):

900 gallon diesel storage tank for emergency generator (7S)

Manufacturer: NA	**Model number:** NA	**Serial number:** NA
Construction date: NA	**Installation date:** 2012	**Modification date(s):** NA

Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 900 gallons

Maximum Hourly Throughput: 900 Gallons	**Maximum Annual Throughput:** N/D	**Maximum Operating Schedule:** 8760

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? ___Yes _X_ No	**If yes, is it?** ___ Indirect Fired ___Direct Fired
Maximum design heat input and/or maximum horsepower rating: NA	**Type and Btu/hr rating of burners:** NA

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
NA

Describe each fuel expected to be used during the term of the permit.

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
NA	NA	NA	NA

Emissions Data

Criteria Pollutants	Potential Emissions	
	PPH	TPY

Carbon Monoxide (CO)	See Attachment I	
Nitrogen Oxides (NO_X)		
Lead (Pb)		
Particulate Matter ($PM_{2.5}$)		
Particulate Matter (PM_{10})		
Total Particulate Matter (TSP)		
Sulfur Dioxide (SO_2)		
Volatile Organic Compounds (VOC)	0.02	0.07
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
VOC HAPs	0.02	0.07
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY

List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).

See Attachment I "Emissions Inventory".

Applicable Requirements

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or <u>construction permit</u> with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

Per Title V Permit No **R30-03500049-2014 (MM02 Proposed)§4.1** Limitations and Standards.:

5.1. Limitations and Standards

5.1.1. Emissions from the storage tanks shall not exceed the limitations set forth below:

Source	VOC		VOC HAP		Total HAP	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
12S	0.02	0.07	0.02	0.07	0.02	0.07
13S	0.01	0.04	0.01	0.04	0.01	0.04
~~14S~~	~~0.01~~	~~0.04~~	~~0.01~~	~~0.04~~	~~0.01~~	~~0.04~~

__X__ Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

Are you in compliance with all applicable requirements for this emission unit? _X_ Yes ___No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number: 13S	**Emission unit name:** Diesel Storage Tank #2	**List any control devices associated with this emission unit:** NA

Provide a description of the emission unit (type, method of operation, design parameters, etc.):

500 gallon diesel storage tank for mobile equipment (e.g. front end loader).

Manufacturer: NA	**Model number:** NA	**Serial number:** NA
Construction date: NA	**Installation date:** 2012	**Modification date(s):** NA

Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 500 gallons

Maximum Hourly Throughput: 500 Gallons	**Maximum Annual Throughput:** N/D	**Maximum Operating Schedule:** 8760

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? ___Yes _X_ No	**If yes, is it?** ___ Indirect Fired ___Direct Fired
Maximum design heat input and/or maximum horsepower rating: NA	**Type and Btu/hr rating of burners:** NA

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
NA

Describe each fuel expected to be used during the term of the permit.

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
NA	NA	NA	NA

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)		
Nitrogen Oxides (NO_X)		
Lead (Pb)		
Particulate Matter ($PM_{2.5}$)		
Particulate Matter (PM_{10})		
Total Particulate Matter (TSP)		
Sulfur Dioxide (SO_2)		
Volatile Organic Compounds (VOC)	0.01	0.04
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
VOC HAPs	0.01	0.04
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY

List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).

See Attachment I "Emissions Inventory".

Applicable Requirements

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or <u>construction permit</u> with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

Per Title V Permit No **R30-03500049-2014 (MM02 Proposed)§4.1** Limitations and Standards.:

5.1. Limitations and Standards

5.1.1. Emissions from the storage tanks shall not exceed the limitations set forth below:

Source	VOC		VOC HAP		Total HAP	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
12S	0.02	0.07	0.02	0.07	0.02	0.07
13S	0.01	0.04	0.01	0.04	0.01	0.04
~~14S~~	~~0.01~~	~~0.04~~	~~0.01~~	~~0.04~~	~~0.01~~	~~0.04~~

__X__ Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

Are you in compliance with all applicable requirements for this emission unit? _X_ Yes ___No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number: 15S	**Emission unit name:** Slag Wool Processing Line #1	**List any control devices associated with this emission unit:** 7C

Provide a description of the emission unit (type, method of operation, design parameters, etc.):

The Slag Wool Processing Line #1 includes the infrastructure which transports the slag wool from Spinner Collection Chamber #1, prepares it for baling, and aids in the baling process.

Manufacturer: Balemaster	**Model number:** 11201A	**Serial number:** Various
Construction date: 2011/2012	**Installation date:** 2012	**Modification date(s):** NA

Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 28,000 lb/hr slag wool between Slag Wool Processing Line#1 and #2

Maximum Hourly Throughput: 28,000 lb/hr slag wool between Slag Wool Processing Line#1 and #2	**Maximum Annual Throughput:** 122,640 tons/yr slag wool between Slag Wool Processing Line #1 and #2	**Maximum Operating Schedule:** 8760 hrs/yr

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? ___Yes _X_ No	**If yes, is it?** ___ Indirect Fired ___Direct Fired
Maximum design heat input and/or maximum horsepower rating: NA	**Type and Btu/hr rating of burners:** NA

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
NA

Describe each fuel expected to be used during the term of the permit.

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
NA	NA	NA	NA

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	See Attachment I	
Nitrogen Oxides (NO_X)		
Lead (Pb)		
Particulate Matter ($PM_{2.5}$)		
Particulate Matter (PM_{10})		
Total Particulate Matter (TSP)		
Sulfur Dioxide (SO_2)		
Volatile Organic Compounds (VOC)		
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY

List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).

See Attachment I "Emissions Inventory".

Applicable Requirements

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

Per Title V Permit No **R30-03500049-2014 (MM02 Proposed)§4.1** Limitations and Standards.:

4.1.1. Emissions from the facility shall not exceed the limitations set forth in Tables 4.1.1.1 and 4.1.1.2:

Table 4.1.1.1

Source	PM		[1]		NO_x		VOC		SO_2		CO	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
1S	2.60	11.39	2.60	11.39	5.00	21.90	5.00	21.90	55.94	245.00	55.00[2]	240.90
3S	7.09	31.06	7.09	31.06	--	--	0.38	1.65	--	--	--	--
4S	7.09	31.06	7.09	31.06	--	--	0.38	1.65	--	--	--	--
~~5S~~	~~0.34~~	~~1.50~~	~~0.34~~	~~1.50~~	~~--~~	~~--~~	~~--~~	~~--~~	~~--~~	~~--~~	~~--~~	~~--~~
6S	1.13	4.96	1.13	4.96	--	--	--	--	--	--	--	--
9S	--	1.98	--	0.97	--	--	--	--	--	--	--	--
11S	0.02	0.10	0.01	0.05	--	--	--	--	--	--	--	--
15S/16S	2.39	10.47	2.39	10.47	--	--	--	--	--	--	--	--
18S[3]	0.1	0.44	0.1	0.44	0.07	0.28	0.01	0.02	--	--	0.03	0.16

Table 4.1.1.2

Source	Mn		VOC HAP		Total HAP	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
1S	0.28	1.25	--	--	0.28	1.25
3S	0.78	3.40	--	--	0.78	3.40
4S	0.78	3.40	--	--	0.78	3.40
~~5S~~	~~0.04~~	~~0.16~~	~~--~~	~~--~~	~~0.04~~	~~0.16~~
6S	--	--	--	--	--	--
9S	0.02	0.22	--	--	0.02	0.22
10S	--	--	--	--	--	--
11S	0.01	0.01	--	--	0.01	0.01
15S/16S	0.26	1.15	--	--	0.26	1.15

Compliance with the PM emission limits shall demonstrate compliance with the less stringent PM emission limits of 45CSR§7-4.1. [45CSR13, R13-2864, 4.1.1 and 4.1.9.2, Tables 4.1.1.1 and 4.1.1.2, 45CSR§7-4.1.]

4.1.4. For the purpose of complying with the $PM/PM_{10}/PM_{2.5}$ emission limits of condition 4.1.1 of this permit, all of the dust collectors shall be operated according to the following requirements:

The permittee has determined the optimal ranges for the pressure drop across baghouses 2C, 3C, 4C and 7C. The

permittee shall maintain on site, and update as necessary, a certified report listing the operating ranges. [45CSR13, R13-2864, 4.1.4]

4.1.6. The total annual Mn emissions from the facility shall not exceed 9.6 tons per year based on a rolling 12 month total basis.
[45CSR13, R13-2864, 4.1.12.]

4.1.10. No person shall cause, suffer, allow or permit emission of smoke and/or particulate matter into the open air from any process source operation which is greater than twenty (20) percent opacity, except for smoke and/or particulate matter emitted from any process source operation which is less than forty (40) percent opacity for any period or periods aggregating no more than five (5) minutes in any sixty (60) minute period.
[45CSR§7-3.1 &45CSR§7-3.2, 45CSR13, R13-2864, 4.1.9.1 (1S, 3S, 4S, 5S, 15S, 16S, 18S)]

4.1.11. No person shall cause, suffer, allow or permit visible emissions from any storage structure(s) associated with any manufacturing process that pursuant to Condition 4.1.13. is required to have a full enclosure and be equipped with a particulate matter control device.
[45CSR§7-3.7. (6S)]

4.1.12. Any stack serving any process source operation or air pollution control equipment on any process source operation shall contain flow straightening devices or a vertical run of sufficient length to establish flow patterns consistent with acceptable stack sampling procedures.
[45CSR§7-4.12.]

4.1.13. No person shall cause, suffer, allow or permit any manufacturing process or storage structure generating fugitive particulate matter to operate that is not equipped with a system, which may include, but not be limited to, process equipment design, control equipment design or operation and maintenance procedures, to minimize the emissions of fugitive particulate matter. To minimize means such system shall be installed, maintained and operated to ensure the lowest fugitive particulate matter emissions reasonably achievable.
[45CSR§7-5.1., 45CSR13, R13-2864, 4.1.9.3]

4.1.16. Operation and Maintenance of Air Pollution Control Equipment. The permittee shall, to the extent practicable, install, maintain, and operate all pollution control equipment listed in Section 1.0 and associated monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions, or comply with any more stringent limits set forth in this permit or as set forth by any State rule, Federal regulation, or alternative control plan approved by the Secretary.
[45CSR§13-5.11., 45CSR13, R13-2864, 4.1.13]

__X_ Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

Per Title V Permit No **R30-03500049-2014 (MM02 Proposed)§4.2**. Monitoring Requirements.:

4.2.Monitoring Requirements

4.2.1. The permittee shall install, maintain, and operate all monitoring equipment required by this permit in accordance with all manufacturers' recommendations concerning maintenance and performance.
[45CSR13, R13-2864, 4.2.1]

4.2.2. The permittee shall conduct visible emission checks and/or opacity monitoring and recordkeeping for all emission sources subject to an opacity limit.

The visible emission check shall determine the presence or absence of visible emissions. At a minimum, the observer must be trained and knowledgeable regarding the effects of background contrast, ambient lighting, observer position relative to lighting, wind, and the presence of uncombined water (condensing water vapor) on the visibility of emissions. This training may be obtained from written materials found in the References 1 and 2

from 40CFR Part 60, Appendix A, Method 22 or from the lecture portion of the 40CFR Part 60, Appendix A, Method 9 certification course.

Visible emission checks shall be conducted at least once per calendar month with a maximum of forty-five (45) days between consecutive readings. These checks shall be performed at each source (stacks, conveyors, crushers, silos, bins, and screens) for a sufficient time interval, but no less than one (1) minute, to determine if any visible emissions are present. Visible emission checks shall be performed during periods of facility operation and appropriate weather conditions.

If visible emissions are present at a source(s) for three (3) consecutive monthly checks, the permittee shall conduct an opacity reading at that source(s) using the procedures and requirements of Method 9 as soon as practicable, but within seventy-two (72) hours of the final visual emission check. Method 9 checks shall be performed on the source for at least six (6) minutes. A Method 9 observation at a source(s) restarts the count of the number of consecutive readings with the presence of visible emissions.
[45CSR13, R13-2864, 4.2.2 (1S, 3S, 4S, 5S, 6S, 15S, 16S)]

4.2.3. The permittee shall install, maintain and operate instrumentation to continuously monitor and record at least once per operating day the control device parameters (1C, 2C, 3C, 4C and 7C) as determined by conditions 4.1.3 and 4.1.4 of this permit at all times that the emission source(s) is/are in operation.
[45CSR13, R13-2864, 4.2.3]

4.2.5. For the purposes of demonstrating compliance with the sulfur content limit in 4.1.15 of this permit, analytical testing results showing sulfur content shall be obtained from the fuel supplier. Alternatively, the permittee may obtain a fuel sample of each shipment and perform analytical testing to determine the sulfur content.
[45CSR13, R13-2864, 4.2.5]

4.2.10. To show compliance with the Mn emission limit in condition 4.1.6. of this permit, monthly Mn emissions from the facility shall be calculated (mass balance) by the 15th day of the subsequent month. A twelve month running total of emissions shall be maintained to verify compliance with the annual emission limitation. Each month a new twelve month total shall be calculated using the previous twelve months of data.
[45CSR13, R13-2864, 4.2.12]

Per Title V Permit No **R30-03500049-2014 (MM02 Proposed)§4.3**. Testing Requirements.:

Per Title V Permit No **R30-03500049-2014 (MM02 Proposed)§4.4.** Recordkeeping Requirements

4.4. Recordkeeping Requirements

4.4.1. Record of Maintenance of Air Pollution Control Equipment. For all pollution control equipment listed in Section 1.0, the permittee shall maintain accurate records of all required pollution control equipment inspection and/or preventative maintenance procedures.
[45CSR13, R13-2864, 4.4.2]

4.4.2. Record of Malfunctions of Air Pollution Control Equipment. For all air pollution control equipment listed in Section 1.0, the permittee shall maintain records of the occurrence and duration of any malfunction or operational shutdown of the air pollution control equipment during which excess emissions occur. For each such case, the following information shall be recorded:

a. The equipment involved.
b. Steps taken to minimize emissions during the event. c.
The duration of the event.
d. The estimated increase in emissions during the event.

For each such case associated with an equipment malfunction, the additional information shall also be recorded:

e. The cause of the malfunction.
f. Steps taken to correct the malfunction.
g. Any changes or modifications to equipment or procedures that would help prevent future recurrences of the malfunction.

[45CSR13, R13-2864, 4.4.3]

4.4.3. Reserved

4.4.4. In order to determine compliance with condition 4.1.5 of this permit, the permittee shall keep monthly records of the Manganese content of the slag. Upon request the records shall be certified and made available to the Director or his/her duly authorized representative.
[45CSR13, R13-2864, 4.4.4]

4.4.5. The permittee shall maintain monthly records of slag wool production from the facility. Upon request the records shall be certified and made available to the Director or his/her duly authorized representative. [45CSR13, R13-2864, 4.2.8. and 4.4.5]

4.4.6. In order to demonstrate compliance with the requirements of 4.2.2 of this permit, records of the Method 22 testing and any necessary Method 9 testing shall be retained on site by the permittee for at least five (5) years. Upon request the records shall be certified and made available to the Director or his/her duly authorized representative.
[45CSR13, R13-2864, 4.4.6]

4.4.7. In order to determine compliance with the requirements of conditions 4.1.15 and 4.2.5 of this permit, the permittee shall maintain records of the fuel oil sulfur content. Upon request the records shall be certified and made available to the Director or his/her duly authorized representative.
[45CSR13, R13-2864, 4.4.7]

4.4.8. In order to determine compliance with the requirements of condition 4.1.4 of this permit, the permittee shall maintain daily records of the pressure drop across each baghouse. Upon request the records shall be certified and made available to the Director or his/her duly authorized representative.
[45CSR13, R13-2864, 4.4.8]

Per Title V Permit No **R30-03500049-2014 (MM02 Proposed)§4.5** Reporting Requirements

4.5 Reporting Requirements

4.5.1. Any violations of the allowable visible emission requirement for any emission source discovered during testing must be reported in writing to the Director of the Division of Air Quality as soon as practicable, but within ten calendar days, of the occurrence and shall include, at a minimum, the following information: the results of the visible determination of opacity of emissions, the cause or suspected cause of the violation(s), and any corrective measures taken or planned.
[45CSR13, R13-2864, 4.5.1]

4.5.3. The permittee shall comply with all applicable reporting requirements of 45CSR7, 45CSR10, and 45CSR13.
[45CSR13, R13-2864, 4.5.3]

Are you in compliance with all applicable requirements for this emission unit? _X_ Yes ___No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number: 16S	**Emission unit name:** Slag Wool Processing Line #2	**List any control devices associated with this emission unit:** 7C

Provide a description of the emission unit (type, method of operation, design parameters, etc.):

The Slag Wool Processing Line #2 includes the infrastructure which transports the slag wool from Spinner Collection Chamber #2, prepares it for baling, and aids in the baling process.

Manufacturer: Balemaster	**Model number:** 11202A	**Serial number:** Various
Construction date: 2011/2012	**Installation date:** 2012	**Modification date(s):** NA

Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 28,000 lb/hr slag wool between Slag Wool Processing Line#1 and #2

Maximum Hourly Throughput: 28,000 lb/hr slag wool between Slag Wool Processing Line#1 and #2	**Maximum Annual Throughput:** 122,640 tons/yr slag wool between Slag Wool Processing Line #1 and #2	**Maximum Operating Schedule:** 8760 hrs/yr

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? ___Yes _X_ No	**If yes, is it?** ___ Indirect Fired ___Direct Fired
Maximum design heat input and/or maximum horsepower rating: NA	**Type and Btu/hr rating of burners:** NA

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
NA

Describe each fuel expected to be used during the term of the permit.

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
NA	NA	NA	NA

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	See Attachment I	
Nitrogen Oxides (NO_X)		
Lead (Pb)		
Particulate Matter ($PM_{2.5}$)		
Particulate Matter (PM_{10})		
Total Particulate Matter (TSP)		
Sulfur Dioxide (SO_2)		
Volatile Organic Compounds (VOC)		
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY

List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).

See Attachment I "Emissions Inventory".

Applicable Requirements

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

Per Title V Permit No **R30-03500049-2014 (MM02 Proposed)§4.1** Limitations and Standards.:

4.1.1. Emissions from the facility shall not exceed the limitations set forth in Tables 4.1.1.1 and 4.1.1.2:

Table 4.1.1.1

Source	PM		[1]		NO_x		VOC		SO_2		CO	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
1S	2.60	11.39	2.60	11.39	5.00	21.90	5.00	21.90	55.94	245.00	55.00[2]	240.90
3S	7.09	31.06	7.09	31.06	--	--	0.38	1.65	--	--	--	--
4S	7.09	31.06	7.09	31.06	--	--	0.38	1.65	--	--	--	--
~~5S~~	~~0.34~~	~~1.50~~	~~0.34~~	~~1.50~~	~~--~~	~~--~~	~~--~~	~~--~~	~~--~~	~~--~~	~~--~~	~~--~~
6S	1.13	4.96	1.13	4.96	--	--	--	--	--	--	--	--
9S	--	1.98	--	0.97	--	--	--	--	--	--	--	--
11S	0.02	0.10	0.01	0.05	--	--	--	--	--	--	--	--
15S/16S	2.39	10.47	2.39	10.47	--	--	--	--	--	--	--	--
18S[3]	0.1	0.44	0.1	0.44	0.07	0.28	0.01	0.02	--	--	0.03	0.16

Table 4.1.1.2

Source	Mn		VOC HAP		Total HAP	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
1S	0.28	1.25	--	--	0.28	1.25
3S	0.78	3.40	--	--	0.78	3.40
4S	0.78	3.40	--	--	0.78	3.40
~~5S~~	~~0.04~~	~~0.16~~	~~--~~	~~--~~	~~0.04~~	~~0.16~~
6S	--	--	--	--	--	--
9S	0.02	0.22	--	--	0.02	0.22
10S	--	--	--	--	--	--
11S	0.01	0.01	--	--	0.01	0.01
15S/16S	0.26	1.15	--	--	0.26	1.15

Compliance with the PM emission limits shall demonstrate compliance with the less stringent PM emission limits of 45CSR§7-4.1. [45CSR13, R13-2864, 4.1.1 and 4.1.9.2, Tables 4.1.1.1 and 4.1.1.2, 45CSR§7-4.1.]

4.1.4. For the purpose of complying with the $PM/PM_{10}/PM_{2.5}$ emission limits of condition 4.1.1 of this permit, all of the dust collectors shall be operated according to the following requirements:

The permittee has determined the optimal ranges for the pressure drop across baghouses 2C, 3C, 4C and 7C. The

permittee shall maintain on site, and update as necessary, a certified report listing the operating ranges. [45CSR13, R13-2864, 4.1.4]

4.1.6. The total annual Mn emissions from the facility shall not exceed 9.6 tons per year based on a rolling 12 month total basis.
[45CSR13, R13-2864, 4.1.12.]

4.1.10. No person shall cause, suffer, allow or permit emission of smoke and/or particulate matter into the open air from any process source operation which is greater than twenty (20) percent opacity, except for smoke and/or particulate matter emitted from any process source operation which is less than forty (40) percent opacity for any period or periods aggregating no more than five (5) minutes in any sixty (60) minute period.
[45CSR§7-3.1 &45CSR§7-3.2, 45CSR13, R13-2864, 4.1.9.1 (1S, 3S, 4S, 5S, 15S, 16S, 18S)]

4.1.11. No person shall cause, suffer, allow or permit visible emissions from any storage structure(s) associated with any manufacturing process that pursuant to Condition 4.1.13. is required to have a full enclosure and be equipped with a particulate matter control device.
[45CSR§7-3.7. (6S)]

4.1.12. Any stack serving any process source operation or air pollution control equipment on any process source operation shall contain flow straightening devices or a vertical run of sufficient length to establish flow patterns consistent with acceptable stack sampling procedures.
[45CSR§7-4.12.]

4.1.13. No person shall cause, suffer, allow or permit any manufacturing process or storage structure generating fugitive particulate matter to operate that is not equipped with a system, which may include, but not be limited to, process equipment design, control equipment design or operation and maintenance procedures, to minimize the emissions of fugitive particulate matter. To minimize means such system shall be installed, maintained and operated to ensure the lowest fugitive particulate matter emissions reasonably achievable.
[45CSR§7-5.1., 45CSR13, R13-2864, 4.1.9.3]

4.1.16. Operation and Maintenance of Air Pollution Control Equipment. The permittee shall, to the extent practicable, install, maintain, and operate all pollution control equipment listed in Section 1.0 and associated monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions, or comply with any more stringent limits set forth in this permit or as set forth by any State rule, Federal regulation, or alternative control plan approved by the Secretary.
[45CSR§13-5.11., 45CSR13, R13-2864, 4.1.13]

_X__ Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

Per Title V Permit No **R30-03500049-2014 (MM02 Proposed)§4.2**. Monitoring Requirements.:

4.2.Monitoring Requirements

4.2.1. The permittee shall install, maintain, and operate all monitoring equipment required by this permit in accordance with all manufacturers' recommendations concerning maintenance and performance.
[45CSR13, R13-2864, 4.2.1]

4.2.2. The permittee shall conduct visible emission checks and/or opacity monitoring and recordkeeping for all emission sources subject to an opacity limit.

The visible emission check shall determine the presence or absence of visible emissions. At a minimum, the observer must be trained and knowledgeable regarding the effects of background contrast, ambient lighting, observer position relative to lighting, wind, and the presence of uncombined water (condensing water vapor) on the visibility of emissions. This training may be obtained from written materials found in the References 1 and 2

from 40CFR Part 60, Appendix A, Method 22 or from the lecture portion of the 40CFR Part 60, Appendix A, Method 9 certification course.

Visible emission checks shall be conducted at least once per calendar month with a maximum of forty-five (45) days between consecutive readings. These checks shall be performed at each source (stacks, conveyors, crushers, silos, bins, and screens) for a sufficient time interval, but no less than one (1) minute, to determine if any visible emissions are present. Visible emission checks shall be performed during periods of facility operation and appropriate weather conditions.

If visible emissions are present at a source(s) for three (3) consecutive monthly checks, the permittee shall conduct an opacity reading at that source(s) using the procedures and requirements of Method 9 as soon as practicable, but within seventy-two (72) hours of the final visual emission check. Method 9 checks shall be performed on the source for at least six (6) minutes. A Method 9 observation at a source(s) restarts the count of the number of consecutive readings with the presence of visible emissions.
[45CSR13, R13-2864, 4.2.2 (1S, 3S, 4S, 5S, 6S, 15S, 16S)]

4.2.3. The permittee shall install, maintain and operate instrumentation to continuously monitor and record at least once per operating day the control device parameters (1C, 2C, 3C, 4C and 7C) as determined by conditions 4.1.3 and 4.1.4 of this permit at all times that the emission source(s) is/are in operation.
[45CSR13, R13-2864, 4.2.3]

4.2.5. For the purposes of demonstrating compliance with the sulfur content limit in 4.1.15 of this permit, analytical testing results showing sulfur content shall be obtained from the fuel supplier. Alternatively, the permittee may obtain a fuel sample of each shipment and perform analytical testing to determine the sulfur content.
[45CSR13, R13-2864, 4.2.5]

4.2.10. To show compliance with the Mn emission limit in condition 4.1.6. of this permit, monthly Mn emissions from the facility shall be calculated (mass balance) by the 15th day of the subsequent month. A twelve month running total of emissions shall be maintained to verify compliance with the annual emission limitation. Each month a new twelve month total shall be calculated using the previous twelve months of data.
[45CSR13, R13-2864, 4.2.12]

Per Title V Permit No **R30-03500049-2014 (MM02 Proposed)§4.3**. Testing Requirements.:

Per Title V Permit No **R30-03500049-2014 (MM02 Proposed)§4.4.** Recordkeeping Requirements

4.4. Recordkeeping Requirements

4.4.1. Record of Maintenance of Air Pollution Control Equipment. For all pollution control equipment listed in Section 1.0, the permittee shall maintain accurate records of all required pollution control equipment inspection and/or preventative maintenance procedures.
[45CSR13, R13-2864, 4.4.2]

4.4.2. Record of Malfunctions of Air Pollution Control Equipment. For all air pollution control equipment listed in Section 1.0, the permittee shall maintain records of the occurrence and duration of any malfunction or operational shutdown of the air pollution control equipment during which excess emissions occur. For each such case, the following information shall be recorded:

a. The equipment involved.
b. Steps taken to minimize emissions during the event. c.
The duration of the event.
d. The estimated increase in emissions during the event.

For each such case associated with an equipment malfunction, the additional information shall also be recorded:

e. The cause of the malfunction.
f. Steps taken to correct the malfunction.
g. Any changes or modifications to equipment or procedures that would help prevent future recurrences of the malfunction.

[45CSR13, R13-2864, 4.4.3]

4.4.3. Reserved

4.4.4. In order to determine compliance with condition 4.1.5 of this permit, the permittee shall keep monthly records of the Manganese content of the slag. Upon request the records shall be certified and made available to the Director or his/her duly authorized representative.
[45CSR13, R13-2864, 4.4.4]

4.4.5. The permittee shall maintain monthly records of slag wool production from the facility. Upon request the records shall be certified and made available to the Director or his/her duly authorized representative. [45CSR13, R13-2864, 4.2.8. and 4.4.5]

4.4.6. In order to demonstrate compliance with the requirements of 4.2.2 of this permit, records of the Method 22 testing and any necessary Method 9 testing shall be retained on site by the permittee for at least five (5) years. Upon request the records shall be certified and made available to the Director or his/her duly authorized representative.
[45CSR13, R13-2864, 4.4.6]

4.4.7. In order to determine compliance with the requirements of conditions 4.1.15 and 4.2.5 of this permit, the permittee shall maintain records of the fuel oil sulfur content. Upon request the records shall be certified and made available to the Director or his/her duly authorized representative.
[45CSR13, R13-2864, 4.4.7]

4.4.8. In order to determine compliance with the requirements of condition 4.1.4 of this permit, the permittee shall maintain daily records of the pressure drop across each baghouse. Upon request the records shall be certified and made available to the Director or his/her duly authorized representative.
[45CSR13, R13-2864, 4.4.8]

Per Title V Permit No **R30-03500049-2014 (MM02 Proposed)§4.5** Reporting Requirements

4.5 Reporting Requirements

4.5.1. Any violations of the allowable visible emission requirement for any emission source discovered during testing must be reported in writing to the Director of the Division of Air Quality as soon as practicable, but within ten calendar days, of the occurrence and shall include, at a minimum, the following information: the results of the visible determination of opacity of emissions, the cause or suspected cause of the violation(s), and any corrective measures taken or planned.
[45CSR13, R13-2864, 4.5.1]

4.5.3. The permittee shall comply with all applicable reporting requirements of 45CSR7, 45CSR10, and 45CSR13.
[45CSR13, R13-2864, 4.5.3]

Are you in compliance with all applicable requirements for this emission unit? _X_ Yes ___No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number: 17S	**Emission unit name:** Cooling Tower #2	**List any control devices associated with this emission unit:** NA

Provide a description of the emission unit (type, method of operation, design parameters, etc.):

Cooling Tower #2 is one of two towers used to chill water associated with the EAF continuous cooling process.

Manufacturer: Evertrough	**Model number:** UIII855303-02	**Serial number:** Various
Construction date: 2011/2012	**Installation date:** 2012	**Modification date(s):** NA

Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 800 gpm

Maximum Hourly Throughput: 800 gpm	**Maximum Annual Throughput:** 420.48 mmgal/yr	**Maximum Operating Schedule:** 8760 hrs/yr

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? ___Yes _X_ No	**If yes, is it?** ___ Indirect Fired ___Direct Fired
Maximum design heat input and/or maximum horsepower rating: NA	**Type and Btu/hr rating of burners:** NA

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
NA

Describe each fuel expected to be used during the term of the permit.

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
NA	NA	NA	NA

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	See Attachment I	
Nitrogen Oxides (NO_X)		
Lead (Pb)		
Particulate Matter ($PM_{2.5}$)		
Particulate Matter (PM_{10})		
Total Particulate Matter (TSP)		
Sulfur Dioxide (SO_2)		
Volatile Organic Compounds (VOC)		
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY

List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).

See Attachment I "Emissions Inventory".

Applicable Requirements

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or <u>construction permit</u> with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

Per Title V Permit No **R30-03500049-2014 (MM02 Proposed)§5.1** Limitations and Standards.:

5.1.2. Emissions from the cooling towers shall not exceed the limitations set forth below:

Source	PM		PM_{10}[1]	
	lb/hr	tpy	lb/hr	tpy
10S	0.77	3.37	0.77	3.37
17S	0.41	1.80	0.41	1.80

[1]All PM_{10} is assumed to be $PM_{2.5}$ and all PM, PM_{10}, $PM_{2.5}$ emission limits include both filterable and condensable particulate matter .

[45CSR13, R13-2864, 4.1.1, Table 4.1.1.1; State-enforceable only]

_X__ Permit Shield
For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)
Are you in compliance with all applicable requirements for this emission unit? _X_Yes ___No If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number: 18S	**Emission unit name:** Propane-Fueled Sand Dryer	**List any control devices associated with this emission unit:** NA

Provide a description of the emission unit (type, method of operation, design parameters, etc.):

Propane fueled sand dryer

Manufacturer: N/D	**Model number:** N/D	**Serial number:** N/D
Construction date: ND	**Installation date:** 2018	**Modification date(s):** NA

Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 2,000 lbs/hr sand, 5 gal/hr propane.

Maximum Hourly Throughput: 2,000 lbs/hr sand, 5 gal/hr propane	**Maximum Annual Throughput:** 950 tons sand, 4,800 gallons propane	**Maximum Operating Schedule:** 80 hours/month

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? _X_ Yes __ No	**If yes, is it?** ___ Indirect Fired _X_ Direct Fired
Maximum design heat input and/or maximum horsepower rating: 5 gal/hr propane @ 90,500 Btu//gal = 0.4255MMBtu/hr	**Type and Btu/hr rating of burners:** Same

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
Propane, 5 gal hr * 80 hours/month * 12 months/yr = 4,800 gallons propane/yr

Describe each fuel expected to be used during the term of the permit.

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Propane	Neg.	Neg.	90,500 Btu/gal

Emissions Data

Criteria Pollutants	Potential Emissions	
	PPH	TPY

Carbon Monoxide (CO)	See Attachment I	
Nitrogen Oxides (NO_X)		
Lead (Pb)		
Particulate Matter ($PM_{2.5}$)		
Particulate Matter (PM_{10})		
Total Particulate Matter (TSP)		
Sulfur Dioxide (SO_2)		
Volatile Organic Compounds (VOC)		
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY

List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).

See Attachment I "Emissions Inventory".

Applicable Requirements

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or <u>construction permit</u> with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

Per Title V Permit No **R30-03500049-2014 (MM02 Proposed)§4.1** Limitations and Standards.:

4..1. Limitations and Standards

4.1.1. Emissions from the storage tanks shall not exceed the limitations set forth below:

Source	PM		[1]		NO_x		VOC		SO_2		CO	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
1S	2.60	11.39	2.60	11.39	5.00	21.90	5.00	21.90	55.94	245.00	55.00[2]	240.90
3S	7.09	31.06	7.09	31.06	--	--	0.38	1.65	--	--	--	--
4S	7.09	31.06	7.09	31.06	--	--	0.38	1.65	--	--	--	--
~~5S~~	~~0.34~~	~~1.50~~	~~0.34~~	~~1.50~~	~~--~~	~~--~~	~~--~~	~~--~~	~~--~~	~~--~~	~~--~~	~~--~~

6S	1.13	4.96	1.13	4.96	--	--	--	--	--	--	--	--
9S	--	1.98	--	0.97	--	--	--	--	--	--	--	--
11S	0.02	0.10	0.01	0.05	--	--	--	--	--	--	--	--
15S/16S	2.39	10.47	2.39	10.47	--	--	--	--	--	--	--	--
18S[3]	0.1	0.44	0.1	0.44	0.07	0.28	0.01	0.02	--	--	0.03	0.16

[10]

[1]All PM is assumed to be $PM_{2.5}$ and all PM, PM_{10}, $PM_{2.5}$ emission limits include both filterable and condensable particulate matter.
[2]Hourly CO emission limits from the EAF are 55 pounds per hour based on a rolling 30 day average and 100 pounds per hour based on a rolling24 hour average.
[3]Hourly emissions for the Propane-fueled Sand Dryer (18S) are calculated based on burning 5 gal/hr of propane; Annual emissions for the Propane-fueled Sand Dryer (18S) are based on operating for 8,760 hr/yr.
[45CSR13, R13-2864, 4.1.1 and 4.1.9.2, Tables 4.1.1.1 and 4.1.1.2, 45CSR§7-4.1.]

4.1.6. The total annual Mn emissions from the facility shall not exceed 9.6 tons per year based on a rolling 12 month total basis.
[45CSR13, R13-2864, 4.1.12.]

4.1.10. No person shall cause, suffer, allow or permit emission of smoke and/or particulate matter into the open air from any process source operation which is greater than twenty (20) percent opacity, except for smoke and/or particulate matter emitted from any process source operation which is less than forty (40) percent opacity for any period or periods aggregating no more than five (5) minutes in any sixty (60) minute period.
[45CSR§7-3.1 &45CSR§7-3.2, 45CSR13, R13-2864, 4.1.9.1 (1S, 3S, 4S, 5S, 15S, 16S, 18S)]

4.1.11. No person shall cause, suffer, allow or permit visible emissions from any storage structure(s) associated with any manufacturing process that pursuant to Condition 4.1.13. is required to have a full enclosure and be equipped with a particulate matter control device.
[45CSR§7-3.7. (6S)]

4.1.12. Any stack serving any process source operation or air pollution control equipment on any process source operation shall contain flow straightening devices or a vertical run of sufficient length to establish flow patterns consistent with acceptable stack sampling procedures.
[45CSR§7-4.12.]

4.1.13. No person shall cause, suffer, allow or permit any manufacturing process or storage structure generating fugitive particulate matter to operate that is not equipped with a system, which may include, but not be limited to, process equipment design, control equipment design or operation and maintenance procedures, to minimize the emissions of fugitive particulate matter. To minimize means such system shall be installed, maintained and operated to ensure the lowest fugitive particulate matter emissions reasonably achievable.
[45CSR§7-5.1., 45CSR13, R13-2864, 4.1.9.3]

4.1.16. Operation and Maintenance of Air Pollution Control Equipment. The permittee shall, to the extent practicable, install, maintain, and operate all pollution control equipment listed in Section 1.0 and associated monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions, or comply with any more stringent limits set forth in this permit or as set forth by any State rule, Federal regulation, or alternative control plan approved by the Secretary.
[45CSR§13-5.11., 45CSR13, R13-2864, 4.1.13]

__X__ Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

4.2. Monitoring Requirements

4.2.1. The permittee shall install, maintain, and operate all monitoring equipment required by this permit in accordance with all manufacturers' recommendations concerning maintenance and performance.
[45CSR13, R13-2864, 4.2.1]

4.2.2. The permittee shall conduct visible emission checks and/or opacity monitoring and recordkeeping for all emission sources subject to an opacity limit.

The visible emission check shall determine the presence or absence of visible emissions. At a minimum, the observer must be trained and knowledgeable regarding the effects of background contrast, ambient lighting, observer position relative to lighting, wind, and the presence of uncombined water (condensing water vapor) on the visibility of emissions. This training may be obtained from written materials found in the References 1 and 2 from 40CFR Part 60, Appendix A, Method 22 or from the lecture portion of the 40CFR Part 60, Appendix A, Method 9 certification course.

Visible emission checks shall be conducted at least once per calendar month with a maximum of forty-five (45) days between consecutive readings. These checks shall be performed at each source (stacks, conveyors, crushers, silos, bins, and screens) for a sufficient time interval, but no less than one (1) minute, to determine if any visible emissions are present. Visible emission checks shall be performed during periods of facility operation and appropriate weather conditions.

If visible emissions are present at a source(s) for three (3) consecutive monthly checks, the permittee shall conduct an opacity reading at that source(s) using the procedures and requirements of Method 9 as soon as practicable, but within seventy-two (72) hours of the final visual emission check. Method 9 checks shall be performed on the source for at least six (6) minutes. A Method 9 observation at a source(s) restarts the count of the number of consecutive readings with the presence of visible emissions.
[45CSR13, R13-2864, 4.2.2 (1S, 3S, 4S, 5S, 6S, 15S, 16S)]

4.2.5. For the purposes of demonstrating compliance with the sulfur content limit in 4.1.15 of this permit, analytical testing results showing sulfur content shall be obtained from the fuel supplier. Alternatively, the permittee may obtain a fuel sample of each shipment and perform analytical testing to determine the sulfur content.
[45CSR13, R13-2864, 4.2.5]

4.2.10. To show compliance with the Mn emission limit in condition 4.1.6. of this permit, monthly Mn emissions from the facility shall be calculated (mass balance) by the 15th day of the subsequent month. A twelve month running total of emissions shall be maintained to verify compliance with the annual emission limitation. Each month a new twelve month total shall be calculated using the previous twelve months of data.
[45CSR13, R13-2864, 4.2.12]

4.2.12. To show compliance with the emission limits given in condition 4.1.1. of this permit, the permittee shall keep a monthly record of hours of operation and propane fuel usage for the Sand Dryer (18S). These monthly records shall be used to calculate a twelve month rolling average hourly fuel usage rate which should not exceed 5gal/hr of propane consumption.
[45CSR13, R13-2864, 4.2.13.]

4.4. Recordkeeping Requirements

4.4.6. In order to demonstrate compliance with the requirements of 4.2.2 of this permit, records of the Method 22 testing and any necessary Method 9 testing shall be retained on site by the permittee for at least five (5) years. Upon request the records shall be certified and made available to the Director or his/her duly authorized representative.
[45CSR13, R13-2864, 4.4.6]

4.5. Reporting Requirements

4.5.1. Any violations of the allowable visible emission requirement for any emission source discovered during testing must be reported in writing to the Director of the Division of Air Quality as soon as practicable, but within ten

calendar days, of the occurrence and shall include, at a minimum, the following information: the results of the visible determination of opacity of emissions, the cause or suspected cause of the violation(s), and any corrective measures taken or planned.
[45CSR13, R13-2864, 4.5.1]

4.5.3. The permittee shall comply with all applicable reporting requirements of 45CSR7, 45CSR10, and 45CSR13.
[45CSR13, R13-2864, 4.5.3]

Are you in compliance with all applicable requirements for this emission unit? _X_ Yes ___No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

ATTACHMENT F
SCHEDULE OF COMPLIANCE FORM (NOT APPLICABLE)

ATTACHMENT G
AIR POLLUTION CONTROL DEVICE FORM

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: 1C – Dry Lime Scrubber	**List all emission units associated with this control device.** 1S	
Manufacturer: Dustex	**Model number: 10357-PFD-1**	**Installation date:** 2012

Type of Air Pollution Control Device:

___ Baghouse/Fabric Filter	___ Venturi Scrubber	___ Multiclone
___ Carbon Bed Adsorber	___ Packed Tower Scrubber	___ Single Cyclone
___ Carbon Drum(s)	___ Other Wet Scrubber	___ Cyclone Bank
___ Catalytic Incinerator	___ Condenser	___ Settling Chamber
___ Thermal Incinerator	___ Flare	_X_ Other (describe) Dry Lime Scrubber
___ Wet Plate Electrostatic Precipitator		___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
SO_2	100%	88% (for slag content of 3% by wt.)

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).
50,000 ACFM volumetric flowrate

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes _X_ No

If Yes, **Complete ATTACHMENT H**

If No**, Provide justification.**

The Dry Lime Scrubber (1C) provides control of SO2 for the EAF (1S). Potential pre and post-control SO2 emissions from the EAF exceed major source thresholds so the scrubber is potentially subject to the CAM requirements of 40 CFR 64. However, 40 CFR 64 specifically exempts mission limitations or standards for which a part 70 or 71 permit specifies a continuous compliance determination method, The EAF is equipped with SO2 CEMS as required by the existing Title V Operating Permit. Therefore this control device is exempt from the CAM Provisions of 40 CFR 64.

Describe the parameters monitored and/or methods used to indicate performance of this control device.

SO2 CEMS

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: 2C – Furnace Dust Collector	**List all emission units associated with this control device.** 1S	
Manufacturer: Dustex	**Model number: 11378-A-0201-2**	**Installation date:** 2012

Type of Air Pollution Control Device:

_X_ Baghouse/Fabric Filter	___ Venturi Scrubber	___ Multiclone
___ Carbon Bed Adsorber	___ Packed Tower Scrubber	___ Single Cyclone
___ Carbon Drum(s)	___ Other Wet Scrubber	___ Cyclone Bank
___ Catalytic Incinerator	___ Condenser	___ Settling Chamber
___ Thermal Incinerator	___ Flare	___ Other (describe)_____
___ Wet Plate Electrostatic Precipitator		___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
$PM/PM_{10}/PM_{2.5}$	100%	99.9%
Mn	100%	99.9%

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).
50,000 ACFM volumetric flowrate

Is this device subject to the CAM requirements of 40 C.F.R. 64? _X__ Yes _ _ No

If Yes, **Complete ATTACHMENT H**

If No**, Provide justification.**

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Monitoring of pressure drop across the control device.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: 3C – Spinner Collection Chamber Baghouse #1	**List all emission units associated with this control device.** 3S	
Manufacturer: Dustex	**Model number: 11378-A-0001**	**Installation date:** 2012

Type of Air Pollution Control Device:

_X_ Baghouse/Fabric Filter	___ Venturi Scrubber	___ Multiclone
___ Carbon Bed Adsorber	___ Packed Tower Scrubber	___ Single Cyclone
___ Carbon Drum(s)	___ Other Wet Scrubber	___ Cyclone Bank
___ Catalytic Incinerator	___ Condenser	___ Settling Chamber
___ Thermal Incinerator	___ Flare	___ Other (describe) _____
___ Wet Plate Electrostatic Precipitator		___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
$PM/PM_{10}/PM_{2.5}$	100%	99.9%
Mn	100%	99.9%

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).
150,000 ACFM volumetric flowrate

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes _X_ No

If Yes, **Complete ATTACHMENT H**

If No**, Provide justification.**

The Spinner Collection Chamber Baghouse #1 (3C) collects slag wool fibers from Spinner Collection Chamber #1 and conveys them to the Slag Wool Processing Lines. The Spinner Collection Chamber Baghouse #1 has potential pre-control emission in excess of the major source threshold and potential post control emissions less than the major source threshold and is therefore potentially subject to the CAM requirements of 40 CFR 64. However 40 CFR 64 applies only to control devices. The Spinner Collection Chamber Baghouse is inherent process equipment used for material handling and is therefore not considered a control device under 40 CFR 64 and is therefore not subject to CAM.

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Pressure drop across control device.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: 4C – Collection Chamber Baghouse #2	**List all emission units associated with this control device.** 4S	
Manufacturer: Dustex	**Model number: 11378-A-0002**	**Installation date:** 2012

Type of Air Pollution Control Device:

_X_ Baghouse/Fabric Filter	___ Venturi Scrubber	___ Multiclone
___ Carbon Bed Adsorber	___ Packed Tower Scrubber	___ Single Cyclone
___ Carbon Drum(s)	___ Other Wet Scrubber	___ Cyclone Bank
___ Catalytic Incinerator	___ Condenser	___ Settling Chamber
___ Thermal Incinerator	___ Flare	___ Other (describe) _____
___ Wet Plate Electrostatic Precipitator		___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
$PM/PM_{10}/PM_{2.5}$	100%	99.9%
Mn	100%	99.9%

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).
150,000 ACFM volumetric flowrate

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes _X_ No

If Yes, **Complete ATTACHMENT H**

If No**, Provide justification.**

The Spinner Collection Chamber Baghouse #2 (4C) collects slag wool fibers from Spinner Collection Chamber #2 and conveys them to the Slag Wool Processing Lines. The Spinner Collection Chamber Baghouse #2 has potential pre-control emission in excess of the major source threshold and potential post control emissions less than the major source threshold and is therefore potentially subject to the CAM requirements of 40 CFR 64. However 40 CFR 64 applies only to control devices. The Spinner Collection Chamber Baghouse is inherent process equipment used for material handling and is therefore not considered a control device under 40 CFR 64 and is therefore not subject to CAM.

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Pressure drop across control device.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: 6C – Silo Bin Vent Filter	**List all emission units associated with this control device.** 6S	
Manufacturer: Dustex	**Model number: 11378-A-0208**	**Installation date:** 2012

Type of Air Pollution Control Device:

_X_ Baghouse/Fabric Filter	___ Venturi Scrubber	___ Multiclone
___ Carbon Bed Adsorber	___ Packed Tower Scrubber	___ Single Cyclone
___ Carbon Drum(s)	___ Other Wet Scrubber	___ Cyclone Bank
___ Catalytic Incinerator	___ Condenser	___ Settling Chamber
___ Thermal Incinerator	___ Flare	_X_ Other (describe) _silo bin vent filter_
___ Wet Plate Electrostatic Precipitator		___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
$PM/PM_{10}/PM_{2.5}$	100%	99.9%
Mn	100%	99.9%

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).
3,300 ACFM volumetric flowrate

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes _X_ No

If Yes, **Complete ATTACHMENT H**

If No**, Provide justification.**

Due to the small size (3,300 cfm) and batch nature of this bin vent's operation, it is assumed that potential pre-control emissions from this operation are less than major source thresholds and the unit is therefore not subject to CAM.

Describe the parameters monitored and/or methods used to indicate performance of this control device.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: 7C – Fiber Line Baghouse	**List all emission units associated with this control device.** 15S & 16S	
Manufacturer: Dustex	**Model number: 11378-A-0102**	**Installation date:** 2012

Type of Air Pollution Control Device:

_X_ Baghouse/Fabric Filter	___ Venturi Scrubber	___ Multiclone
___ Carbon Bed Adsorber	___ Packed Tower Scrubber	___ Single Cyclone
___ Carbon Drum(s)	___ Other Wet Scrubber	___ Cyclone Bank
___ Catalytic Incinerator	___ Condenser	___ Settling Chamber
___ Thermal Incinerator	___ Flare	___ Other (describe) _____
___ Wet Plate Electrostatic Precipitator		___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
$PM/PM_{10}/PM_{2.5}$	100%	99.9%
Mn	100%	99.9%

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).
40,000 ACFM volumetric flowrate

Is this device subject to the CAM requirements of 40 C.F.R. 64? _X_ Yes __ No

If Yes, **Complete ATTACHMENT H**

If No**, Provide justification.**

The Fiber Line Baghouse (7C) provides control of particulate matter emissions from the Slag Wool Processing Lines (#1 and 2). Pre control emissions are greater than major source thresholds so the dust collector is therefor subject to CAM.

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Pressure drop across control device.

ATTACHMENT H
COMPLIANCE ASSURANCE MONITORING (CAM) FORM

ATTACHMENT H - Compliance Assurance Monitoring (CAM) Plan Form

For definitions and information about the CAM rule, please refer to 40 CFR Part 64. Additional information (including guidance documents) may also be found at http://www.epa.gov/ttn/emc/cam.html

CAM APPLICABILITY DETERMINATION

1) Does the facility have a PSEU (Pollutant-Specific Emissions Unit considered separately with respect to **EACH** regulated air pollutant) that is subject to CAM (40 CFR Part 64), which must be addressed in this CAM plan submittal? To determine applicability, a PSEU must meet **all** of the following criteria (*If No, then the remainder of this form need not be completed*): ☒ YES ☐ NO

a. The PSEU is located at a major source that is required to obtain a Title V permit;

b. The PSEU is subject to an emission limitation or standard for the applicable regulated air pollutant that is NOT exempt;

LIST OF EXEMPT EMISSION LIMITATIONS OR STANDARDS:

- NSPS (40 CFR Part 60) or NESHAP (40 CFR Parts 61 and 63) proposed after 11/15/1990.
- Stratospheric Ozone Protection Requirements.
- Acid Rain Program Requirements.
- Emission Limitations or Standards for which a WVDEP Division of Air Quality Title V permit specifies a continuous compliance determination method, as defined in 40 CFR §64.1.
- An emission cap that meets the requirements specified in 40 CFR §70.4(b)(12).

c. The PSEU uses an add-on control device (as defined in 40 CFR §64.1) to achieve compliance with an emission limitation or standard;

d. The PSEU has potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than the Title V Major Source Threshold Levels; AND

e. The PSEU is NOT an exempt backup utility power emissions unit that is municipally-owned.

BASIS OF CAM SUBMITTAL

2) Mark the appropriate box below as to why this CAM plan is being submitted as part of an application for a Title V permit:

☒ RENEWAL APPLICATION. **ALL** PSEUs for which a CAM plan has NOT yet been approved need to be addressed in this CAM plan submittal.

☐ INITIAL APPLICATION (submitted after 4/20/98). **ONLY** large PSEUs (i. e., PSEUs with potential post-control device emissions of an applicable regulated air pollutant that are equal to or greater than Major Source Threshold Levels) need to be addressed in this CAM plan submittal.

☐ SIGNIFICANT MODIFICATION TO LARGE PSEUs. **ONLY** large PSEUs being modified after 4/20/98 need to be addressed in this cam plan submittal. For large PSEUs with an approved CAM plan, Only address the appropriate monitoring requirements affected by the significant modification.

3) [a] BACKGROUND DATA AND INFORMATION					
Complete the following table for **all** PSEUs that need to be addressed in this CAM plan submittal. This section is to be used to provide background data and information for each PSEU In order to supplement the submittal requirements specified in 40 CFR §64.4. If additional space is needed, attach and label accordingly.					
PSEU DESIGNATION	DESCRIPTION	POLLUTANT	CONTROL DEVICE	[b] EMISSION LIMITATION or STANDARD	[c] MONITORING REQUIREMENT
1S 15S 16S	EAF Slag Wool Line #1 Slag Wool Line #2	PM/PM10/Mn	Fabric Filter Dust Collectors (2C, 7C)	45 CSR 7-4 – process weight requirements R13-2864C	Weekly monitoring of fabric filter pressure drop and retention of maintenance records.
EXAMPLE Boiler No. 1	Wood-Fired Boiler	PM	Multiclone	45CSR§2-4.1.c.; 9.0 lb/hr	Monitor pressure drop across multiclone: Weekly inspection of multiclone

[a] If a control device is common to more than one PSEU, one monitoring plan may be submitted for the control device with the affected PSEUs identified and any conditions that must be maintained or monitored in accordance with 40 CFR §64.3(a). If a single PSEU is controlled by more than one control device similar in design and operation, one monitoring plan for the applicable control devices may be submitted with the applicable control devices identified and any conditions that must be maintained or monitored in accordance with 40 CFR §64.3(a).

[b] Indicate the emission limitation or standard for any applicable requirement that constitutes an emission limitation, emission standard, or standard of performance (as defined in 40 CFR §64.1).

[c] Indicate the monitoring requirements for the PSEU that are required by an applicable regulation or permit condition.

CAM MONITORING APPROACH CRITERIA			
Complete this section for **EACH** PSEU that needs to be addressed in this CAM plan submittal. This section may be copied as needed for each PSEU. This section is to be used to provide monitoring data and information for EACH indicator selected for EACH PSEU in order to meet the monitoring design criteria specified in 40 CFR §64.3 and §64.4. if more than two indicators are being selected for a PSEU or if additional space is needed, attach and label accordingly with the appropriate PSEU designation, pollutant, and indicator numbers.			
4a) PSEU Designation: 1S, 15S, 16S	**4b) Pollutant:** PM/PM10	**4c) [a] Indicator No. 1:** Baghouse daily pressure differential	**4d) [a] Indicator No. 2:**
5a) GENERAL CRITERIA Describe the MONITORING APPROACH used to measure the indicators:		Weekly monitoring of fabric filter pressure drop	
[b] Establish the appropriate INDICATOR RANGE or the procedures for establishing the indicator range which provides a reasonable assurance of compliance:		0-10.0 in. W.G.	
5b) PERFORMANCE CRITERIA Provide the SPECIFICATIONS FOR OBTAINING REPRESENTATIVE DATA, such as detector location, installation specifications, and minimum acceptable accuracy:		The pressure drop across the fabric filter will be monitored and recorded via Armstrong's Active Factory" software, or equivalent.	
[c] For new or modified monitoring equipment, provide VERIFICATION PROCEDURES, including manufacturer's recommendations, TO CONFIRM THE OPERATIONAL STATUS of the monitoring:		Not applicable – existing monitoring equipment.	
Provide QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC) PRACTICES that are adequate to ensure the continuing validity of the data, (i.e., daily calibrations, visual inspections, routine maintenance, RATA, etc.):		Not applicable	
[d] Provide the MONITORING FREQUENCY:		Weekly	
Provide the DATA COLLECTION PROCEDURES that will be used:		Weekly observation of "Active Factory" data, by plant personnel.	
Provide the DATA AVERAGING PERIOD for the purpose of determining whether an excursion or exceedance has occurred:		Weekly	

[a] Describe all indicators to be monitored which satisfies 40 CFR §64.3(a). Indicators of emission control performance for the control device and associated capture system may include measured or predicted emissions (including visible emissions or opacity), process and control device operating parameters that affect control device (and capture system) efficiency or emission rates, or recorded findings of inspection and maintenance activities.

[b] Indicator Ranges may be based on a single maximum or minimum value or at multiple levels that are relevant to distinctly different operating conditions, expressed as a function of process variables, expressed as maintaining the applicable indicator in a particular operational status or designated condition, or established as interdependent between more than one indicator. For CEMS, COMS, or PEMS, include the most recent certification test for the monitor.

[c] The verification for operational status should include procedures for installation, calibration, and operation of the monitoring equipment, conducted in accordance with the manufacturer's recommendations, necessary to confirm the monitoring equipment is operational prior to the commencement of the required monitoring.

[d] Emission units with post-control PTE ≥ 100 percent of the amount classifying the source as a major source (i.e., Large PSEU) must collect four or more values per hour to be averaged. A reduced data collection frequency may be approved in limited circumstances. Other emission units must collect data at least once per 24 hour period.

RATIONALE AND JUSTIFICATION

Complete this section for **EACH** PSEU that needs to be addressed in this CAM plan submittal. This section may be copied as needed for each PSEU. This section is to be used to provide rationale and justification for the selection of EACH indicator and monitoring approach and EACH indicator range in order to meet the submittal requirements specified in 40 CFR §64.4.

6a) PSEU Designation:	6b) Regulated Air Pollutant:
1S, 15S, 16S	PM/PM10

7) **INDICATORS AND THE MONITORING APPROACH**: Provide the rationale and justification for the selection of the indicators and the monitoring approach used to measure the indicators. Also provide any data supporting the rationale and justification. Explain the reasons for any differences between the verification of operational status or the quality assurance and control practices proposed, and the manufacturer's recommendations. (If additional space is needed, attach and label accordingly with the appropriate PSEU designation and pollutant):

The large fabric filter dust collectors control PM emissions from the EAF (1S), and the Slag Wool Processing Lines #1 and 2 (15S and 16S) Armstrong will operate these fabric filter collectors in accordance with good air pollution control operating and maintenance practices. To ensure the fabric filters are operated properly, Armstrong proposes weekly monitoring of the pressure differential across the filters and maintaining the pressure differential between 0 and 10.0 inches of water column. If the pressure differential is outside this range, Armstrong will investigate the cause and document corrective actions taken to return the units to this normal operating range. Armstrong will maintain records of the filter pressure differential readings and of maintenance performed on the fabric filter collectors.

8) **INDICATOR RANGES**: Provide the rationale and justification for the selection of the indicator ranges. The rationale and justification shall indicate how **EACH** indicator range was selected by either a COMPLIANCE OR PERFORMANCE TEST, a TEST PLAN AND SCHEDULE, or by ENGINEERING ASSESSMENTS. Depending on which method is being used for each indicator range, include the specific information required below for that specific indicator range. (If additional space is needed, attach and label accordingly with the appropriate PSEU designation and pollutant):

- COMPLIANCE OR PERFORMANCE TEST (Indicator ranges determined from control device operating parameter data obtained during a compliance or performance test conducted under regulatory specified conditions or under conditions representative of maximum potential emissions under anticipated operating conditions. Such data may be supplemented by engineering assessments and manufacturer's recommendations). The rationale and justification shall INCLUDE a summary of the compliance or performance test results that were used to determine the indicator range, and documentation indicating that no changes have taken place that could result in a significant change in the control system performance or the selected indicator ranges since the compliance or performance test was conducted.

- TEST PLAN AND SCHEDULE (Indicator ranges will be determined from a proposed implementation plan and schedule for installing, testing, and performing any other appropriate activities prior to use of the monitoring). The rationale and justification shall INCLUDE the proposed implementation plan and schedule that will provide for use of the monitoring as expeditiously as practicable after approval of this CAM plan, except that in no case shall the schedule for completing installation and beginning operation of the monitoring exceed 180 days after approval.

- ENGINEERING ASSESSMENTS (Indicator Ranges or the procedures for establishing indicator ranges are determined from engineering assessments and other data, such as manufacturers' design criteria and historical monitoring data, because factors specific to the type of monitoring, control device, or PSEU make compliance or performance testing unnecessary). The rationale and justification shall INCLUDE documentation demonstrating that compliance testing is not required to establish the indicator range.

RATIONALE AND JUSTIFICATION:

Based on manufacturer recommendations and operating experience, Armstrong believes that maintaining the pressure drop range of 0-10.0 in. W.G. across the fabric filters will ensure compliance with the applicable emissions requirements.

ATTACHMENT I
EMISSIONS INVENTORY

TABLE 1
SUMMARY OF FACILITY-WIDE AIR EMISSIONS
ARMSTRONG WORLD INDUSTRIES - MILLWOOD, WV

Emission Unit ID	Emission Point ID	Emission Unit	Control Device	Control Device ID	PM		PM_{10}		$PM_{2.5}$		NO_x		VOC		SO_2		CO		CO2		Mn		Total HAPs Excluding Mn	
					lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
1S	1-2E	Raw Material Transfer Operations and Submerged Electric Arc Furnace (EAF)	Dry Scrubber & Furnace Dust Collector	1C & 2C	2.60	11.39	2.60	11.39	2.60	11.39	5.00	21.90	5.00	21.90	55.94	245.02	55.00	240.90	747.39	3273.58	0.28	1.25	NA	NA
3S	3-4E	Spinner Collection Chamber #1	Collection Chamber Baghouse #1	3C	7.09	31.06	7.09	31.06	7.09	31.06	NA	NA	0.38	1.65	NA	NA	NA	NA	NA	NA	0.78	3.40	NA	NA
4S	3-4E	Spinner Collection Chamber #2	Collection Chamber Baghouse #2	4C	7.09	31.06	7.09	31.06	7.09	31.06	NA	NA	0.38	1.65	NA	NA	NA	NA	NA	NA	0.78	3.40	NA	NA
~~5S~~	~~5E~~	~~Housekeeping Vacuum System~~	~~Housekeeping Dust Collector~~	~~5C~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~NA~~	~~NA~~	~~NA~~	~~NA~~	~~NA~~	~~NA~~	~~NA~~	~~NA~~	~~NA~~	~~NA~~	~~0.00~~	~~0.00~~	~~NA~~	~~NA~~
6S	6E	Hydrated Lime Storage Silo	Silo Bin Vent Filter	6C	1.13	4.96	1.13	4.96	1.13	4.96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7S	7E	Backup Generator	None	NA	0.05	0.01	0.05	0.01	0.05	0.01	7.69	1.92	0.03	0.01	0.000	0.000	1.06	0.26	NA	NA	NA	NA	0.008	0.002
8S	Fugitive	Fugitive Dust from Traffic	None	NA	ND	14.56	ND	3.88	ND	0.39	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9S	Fugitive	Slag Handling and Storage (Fugitive)	None	NA	ND	1.98	ND	0.97	ND	0.15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.02	0.22	NA	NA
10S	10E	Cooling Tower #1	None	NA	0.77	3.37	0.77	3.37	0.77	3.37	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
11S	Fugitive	Railcar Unloading (Fugitive)	None	NA	0.02	0.10	0.01	0.05	0.002	0.008	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00	0.01	NA	NA
15S	8E	Slag Wool Processing Line #1																						
16S	8E	Slag Wool Processing Line #2	Fiber Line Baghouse	7C	2.39	10.47	2.39	10.47	2.39	10.47	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.26	1.15	NA	NA
17S	17E	Cooling Tower #2	None	NA	0.41	1.80	0.41	1.80	0.41	1.80	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18S	18E	Propane-Fueled Sand Dryer	None	None	0.1	0.44	0.1	0.44	0.01	0.44	0.07	0.28	0.01	0.02	9E-05	0.00039	0.038	0.16	62.50	273.80	NA	NA	NA	NA
Totals					**21.7**	**111.2**	**21.6**	**99.5**	**21.5**	**95.1**	**12.8**	**24.1**	**5.8**	**25.2**	**55.9**	**245.0**	**56.1**	**241.3**	**810**	**3,547**	**2.1**	**9.4**	**0.0**	**0.0**

TABLE 2
ELECTRIC ARC FURNACE (EU 1S)
ARMSTRONG WORLD INDUSTRIES - MILLWOOD, WV

	Slag Throughput		PM		PM_{10}		$PM_{2.5}$		NO_x		VOC		SO_2		CO		Mn	
Data Sources	**lb/hr**	**ton/year**	**lb/hr**	**ton/year**	**lb/hr**	**ton/year**	**lb/hr**	**ton/year**	**lb/hr**	**ton/year**	**lb/hr**	**ton/year**	**lb/hr**	**ton/year**	**lb/hr[c]**	**ton/year**	**lb/hr**	**ton/year**
PM emissions from EAF baghouse based on exhaust flowrate and outlet PM concentration.[a] NOx, VOC rates from WVDEP Engineering Evaluation/Fact Sheet.[b] CO emissions based on CEMS data collected by AWI at EAF baghouse exhaust.[c] SO2 emissions based on worst-case S-content of slag.	40,000	175,200	2.60	11.39	2.60	11.39	2.60	11.39	5.00	21.90	5.00	21.90	55.94	245.02	55.00	240.90	0.285	1.25

[a] EAF baghouse exhaust flowrate of 43,275 scfm and PM/PM10/PM2.5 outlet concentration of 0.007 gr/scf. Mn/PM ratio of 10.95%.
[b] WV DEP R13 Permit 12/2010.
[c] 55 lb/hr CO on a 30-day average based on CO CEMS data collected from 10/13 - 9/14.

TABLE 3
SPINNER COLLECTION CHAMBERS (EU 3S & 4S), HOUSEKEEPING BAGHOUSE (EU 5S), LIME SILO (EU 6S), & SLAG WOOL PROCESSING LINES (15S & 16S)
ARMSTRONG WORLD INDUSTRIES - MILLWOOD, WV

EU ID	Volumetric Flowrate (scfm)	Annual Operating Hours	Outlet PM/PM10 Concentration (gr/dscf)	Mn Constant (%, wt PM)	$PM/PM_{10}/PM_{2.5}$		Mn[c]		VOC From Surfactant/Binder			
					lb/hr	tpy	lb/hr	tpy	lb/hr used	% wt VOC	VOC lb/hr/line	tpy
3S	118,193	8,760	0.007	10.95	7.1	31.1	0.78	3.40	37.61	1.00	0.38	1.65
4S	118,193	8,760	0.007	10.95	7.1	31.1	0.78	3.40	37.61	1.00	0.38	1.65
~~5S~~	~~1,000~~	~~0~~	~~0~~	~~10.95~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~NA~~	~~NA~~	~~NA~~	~~NA~~
6S	3,300	8,760	0.04	10.95	1.13	4.96	NA	NA	NA	NA	NA	NA
15S[b] 16S[b]	39,849	8,760	0.007	10.95	2.39	10.47	0.26	1.15	NA	NA	NA	NA

[a] PM emissions calculated based on baghouse exhaust flowrates and PM/PM10/PM2.5 outlet concentrations.
[b] Exhaust flowrate of Fiber Line Baghouse (Control Device 7C) that controls PM emissions from both slag wool processing lines (15S and 16S).
[c] Based on Mn content in slag of 10.95% by weight.
dBased on Spinner Chamber #1 & #2 combined design capacity (34,500 tph) an application rate of 1 lb surfactant/ton wool, 3.36 lb binde/ton wool and the following VOC contents:

Surfactant: Rhodasurf L/4 STD 0.5% VOC (Conservatively assumed 1.0% VOC)
Binder: Xiameter (R) Mem-1727 Thread Finish (assumed VOC content similar to surfactant)

TABLE 4
FUGITIVE DUST FROM SLAG HANDLING & STORAGE (EU 9S & EU 11S)
ARMSTRONG WORLD INDUSTRIES - MILLWOOD, WV

EU ID	Transfer Points	Throughput		PM Emission Factor[a]	PM_{10} Emission Factor[a]	$PM_{2.5}$ Emission Factor[a]	Mn Content	PM Emissions		PM_{10} Emissions		$PM_{2.5}$ Emissions		Mn Emissions	
		ton/hr	ton/yr	(lb/ton)	(lb/ton)	(lb/ton)	(% wt)	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
9S	Transfer to Storage Pile (Truck)	20.00	175,200	0.0017	0.0008	0.0001	11.0	0.034	0.15	0.016	0.07	0.002	0.011	0.004	0.016
	Loading out from Storage Pile (Front end loader)	20.00	175,200	0.0017	0.0008	0.0001	11.0	0.034	0.15	0.016	0.07	0.002	0.011	0.004	0.016
	Four Raw Materials Grizzly Hopper Discharge Conveyers [CV-0001 - CV-0004]	20.00	175,200	0.0017	0.0008	0.0001	11.0	0.034	0.15	0.016	0.07	0.002	0.011	0.004	0.016
	Raw Materials Transfer Conveyer [CV-0005]	20.00	175,200	0.0017	0.0008	0.0001	11.0	0.034	0.15	0.016	0.07	0.002	0.011	0.004	0.016
	Raw Materials Inclined Conveyer [CV-0006]	20.00	175,200	0.0017	0.0008	0.0001	11.0	0.034	0.15	0.016	0.07	0.002	0.011	0.004	0.016
11S	Railcar Loading	14.00	122,640	0.0017	0.0008	0.0001	11.0	0.024	0.10	0.011	0.05	0.002	0.008	0.003	0.011

Constants and Assumed Variables

	k (particle size multiplier)	constant	U (mean wind speed)	constant	M (moisture content)	constant	Emission Factor (lb/ton)
TSP	0.74	0.0032	6	1.3	3	1.4	0.0017
PM10	0.35	0.0032	6	1.3	3	1.4	0.0008
PM2.5	0.054	0.0032	6	1.3	3	1.4	0.0001

[a]Emission factor , constants, and variables per US EPA, AP-42, Section 13.2.4.3 - Aggregate Handling and Storage Piles (11/2006), Equation 1.

TABLE 5
WIND EROSION FOR STORAGE PILES (EU 9S)
ARMSTRONG WORLD INDUSTRIES - MILLWOOD, WV

Pile	Surface Area (acres)	Emission Factor[a]				Emissions							
		PM	PM_{10}	$PM_{2.5}$	Mn[b]	PM		PM_{10}		$PM_{2.5}$		Mn	
		lb/acre-yr	lb/acre-yr	lb/acre-yr	lb/acre-yr	lb/yr	tons/yr	lb/yr	tons/yr	lb/yr	tons/yr	lb/yr	tons/yr
1	0.2	1,237	619	93	135.47	247.43	0.12	123.72	0.06	18.56	0.01	27.09	0.01
2	0.2	1,237	619	93	135.47	247.43	0.12	123.72	0.06	18.56	0.01	27.09	0.01
3	0.2	1,237	619	93	135.47	247.43	0.12	123.72	0.06	18.56	0.01	27.09	0.01
4	0.2	1,237	619	93	135.47	247.43	0.12	123.72	0.06	18.56	0.01	27.09	0.01
5	0.2	1,237	619	93	135.47	247.43	0.12	123.72	0.06	18.56	0.01	27.09	0.01
6	0.2	1,237	619	93	135.47	247.43	0.12	123.72	0.06	18.56	0.01	27.09	0.01
7	0.2	1,237	619	93	135.47	247.43	0.12	123.72	0.06	18.56	0.01	27.09	0.01
8	0.2	1,237	619	93	135.47	247.43	0.12	123.72	0.06	18.56	0.01	27.09	0.01
9	0.2	1,237	619	93	135.47	247.43	0.12	123.72	0.06	18.56	0.01	27.09	0.01
10	0.2	1,237	619	93	135.47	247.43	0.12	123.72	0.06	18.56	0.01	27.09	0.01
Totals						2474.34	1.24	1237.17	0.62	185.58	0.09	270.94	0.14

[a]Based on conical pile 7.6 meters high with a base diameter of 23.8 meters.

[b]Emission factor as calculated for Construction Permit Application dated 1/27/2011. Emission factors calculated per US EPA, AP-42, Section 13.2.5 (11/2006), Equation 2. - Industrial Wind Erosion, using wind data for the Mason Airport Weather station.

[c]Percent Mn weight of slag assumed to be 10.95% of PM (Data from Construction Permit Application dated 01/27/2011).

TABLE 6
BACKUP DIESEL GENERATOR (EU 7S)
ARMSTRONG WORLD INDUSTRIES - MILLWOOD, WV

Rated Engine Power	Maximum Fuel Usage	Fuel Heating Rate	Maximum Operation Duration	Emissions											
				$PM/PM_{10}/PM_{2.5}$[a]		NO_x		SO_2		CO		VOC		Total HAPs	
(HP)	(gal/hr)	(MMBtu/gal)	(hrs)	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
762	36.2	0.14	500	0.05	1.26E-02	7.69	1.92	9.25E-07	2.31E-07	1.06	0.26	3.36E-02	8.40E-03	8.43E-03	2.11E-03

[a]All particulate matter assumed less than 1 microm per US EPA, AP-42 Chapter 3.3.4.

Emission Factors

Pollutant	Emission Factors		Value (lbs/gal)
	Value	Units	
PM	0.03	g/hp	NA
NO_x	4.58	g/hp	NA
SO_2[b]	1.21E-09	lb/hp	N/A
CO	0.63	g/hp	NA
VOC	0.02	g/hp	NA
Total HAP[c]	0.0017	lb/MMBtu	2.33E-04

[b]SO_2 emission factor is based on 100% of engine load using fuel with 15 ppm sulfur content as required by NSPS IIII.
[c]Emission Factor per US EPA, AP-42, Section 3.3.4 - Large Stationary Diesel and All Stationary Dual-Fuel Engines (11/2006), Tables 3.4-3 and 3.
All others per manufacturer.

TABLE 7
FUGITIVE DUST FROM TRAFFIC EMISSIONS ON UNPAVED ROADS (EV 8S)
ARMSTRONG WORLD INDUSTRIES - MILLWOOD, WV

	Emissions Factors			Emissions		
VMT (Total vehicle miles traveled/yr)	PM (lb/VMT)	PM10 (lb/VMT)	PM2.5 (lb/VMT)	PM (tons/yr)	PM10 (tons/yr)	PM2.5 (tons/yr)
5708.6730	5.1024	1.3598	0.1360	14.5639	3.8812	0.3881

Values of Variables & Constants for Unpaved Roads Fugitive Emissions Calculation								
Particulate matter unit size	Particle size multiplier (k)[a]	% Silt by wt (s)[b]	Empirical constant (a)[a]	W[c]	Empirical constant (b)[a]	E[b]	P[d]	E_{ext}[e]
PM30 (TSP)	4.9	6	0.7	28.2724	0.45	8.2772	140	5.1024
PM10	1.5	6	0.9	28.2724	0.45	2.2058	140	1.3598
PM2.5	0.15	6	0.9	28.2724	0.45	0.2206	140	0.1360

[a]Constants from EPA AP-42 Section 13.2.2 (11/2006), Table 13.2.2-2.
[b]Plant surface silt content; per EPA AP-42 Section 13.2.2 (11/2006), Table 13.2.2-1.
[c]Weighted mean vehicle weight (tons); calculation per Construction Permit Application, Exhibit N-15 (10/2010).
[d]Number of days in a year with at least 0.254 mm (0.01 in) of precipitation; per EPA AP-42 Figure 13.2.2-1.

Constants and Assumed Variables

Vehicle	Average Weight (tons)	Distance (miles/trip)	Roundtrips/day	Miles/yr	Σ(Vehicle Wt[tons])$_i$ ((VMT[mi])$_i$)[c]	W[c]	P[d]
Slag trucks	25.5	0.13	24	1138.8	29039.40	NA	NA
Glycol truck	26.5	0.18	0.04	2.628	69.64	NA	NA
Product truck	26.5	0.21	20	1533	40624.50	NA	NA
Alloy truck	26.5	0.13	0.1	4.745	125.74	NA	NA
Production Mats (Baling wire, stretch wrap, pallets, bag film)	26.5	0.21	4	306.6	8124.90	NA	NA
Production Mats (Mobile Equiptment Fuel)	26.5	0.18	4	262.8	6964.20	NA	NA
Production Mats (Electrodes, sand)	26.5	0.13	2	94.9	2514.85	NA	NA
Front End Loader	41.5	0.05	96	1752	72708.00	NA	NA
Plant Trucks	2	0.21	8	613.2	1226.40	NA	NA
Means and Variable Values	NA	NA	NA	5708.6730	161397.6345	28.27235585	140

TABLE 8
COOLING TOWER DRIFT LOSS EMISSIONS (EU 10S)
ARMSTRONG WORLD INDUSTRIES - MILLWOOD, WV

EU ID	Total Flow Capacity (gpm)	Potential TDS Content[a] (ppmw)	Maximum Operating Schedule (hrs/yr)	Standard Drift Loss[b] (%)	Monthly Drift Loss (gal/mo)	Total Liquid Drift Loss[c] (lbs drift/Mgal)	Potential $PM/PM_{10}/PM_{2.5}$ Emission Factor (lbs/Mgal)	Potential PM/PM10/PM2.5 Emissions[d]	
								(lbs/hr)	(tons/yr)
10S	1,500	20,600	8,760	0.005	3,285	0.417	0.009	0.77	3.373
17S	800	20,600	8,760	0.005	1,752	0.417	0.009	0.41	1.796

[a]Overall average TDS content for induced flow cooling towers from US EPA, AP-42, Table 13.4-2.
[b]Assumed; per Construction Permit Application dated 10/2010.
[c]Densitiy of water is 8.34 lbs/gal.
[d]Calculation per US EPA, AP-42, Section 13.4.2 (11/2006).

TABLE 9

CARBON DIOXIDE (CO_2) EMISSIONS FROM ELECTRIC ARC FURNACE (EU 1S)

ARMSTRONG WORLD INDUSTRIES - MILLWOOD, WV

Material	Max. Hourly Throughput (lb/hr)	Carbon Content (%)	Molecular Weight of Carbon (lb/lbmol)	Molecular Weight of CO_2 (lb/lbmol)	Carbon converted to CO_2 (%)	CO_2 Emitted (lb/hr)[a]	CO_2 Emitted (tons/yr)[b]
Electrodes	93	90.0%	12	44	100%	747.4	3,273.6
Slag	40,000	0.3%					
Alloy in Slag	200	2.0%					
Non-Product Metals	193	2.0%					

[a]Adapted from Equation K-1 from 40CFR98.113(b)(2)(i) where total CO_2 emitted = (molar ratio CO_2/C * carbon content electrodes consumed) + (molar ratio CO_2/C * carbon content of slag processed) + (molar ratio CO_2/C * carbon content of alloys in slag) - (molar ratio CO_2/C * carbon content of non-metals product processed).

[b]Based on 8,760 hours of operation a year.

ARMSTRONG WORLD INDUSTRIES - MILLWOOD, WV

ATTACHMENT E
Supporting Calculations

Sand Dryer

Industrial Hygiene Sampling at the Sand Dryer Building

Max respirable dust reading = 0.703 mg/m^3

Proposed exhaust fan = 5000 ft^3/min

Conversion Factors:

mg =	0.001	g
g =	0.002205	lb
m^3 =	0.028317	ft^3
hr =	60	min

0.703 mg/m^3 x g/1000 mg x lb/453.59 g x $m^3/35.315$ ft^3 x 5000 ft^3/min x 60 min/hr =

0.013 lb/hr PM
0.058 tpy PM (based on 8760 hours per year of operation)

45 CSR 7 Process Weight Rate
Type 'a' source operation
Process weight = 2000 lb/hr

Table 45-7A

process lb/hr	allowable lb/hr
0	0
2000	x
2500	3

$$\frac{500}{2500} = \frac{3 - x}{3}$$

$500 \times 3 = 2500(3 - x)$

$1500 = 7500 - 2500x$

$2500x = 7500 - 1500$
$2500x = 6000$
$x = 2.4$

Allowable emission rate = 2.4 lb/hr

ARMSTRONG WORLD INDUSTRIES - MILLWOOD, WV

Sand Dryer Propane Burner

400 gallons per month

4 hours per day
5 days per week
80 hours per month

5 gallons per hour

	lbs per 1000 gal	lb/hr	tpy
PM-FIL	0.2	0.0010	0.0044
PM-CON	0.5	0.0025	0.011
PM-Total	0.7	0.0035	0.015
SO2	0.018	0.000090	0.00039
NOx	13	0.065	0.28
CO	7.5	0.038	0.16
TOC	1	0.0050	0.022
CO2	12500	62.5	273.8
CH4	0.2	0.0010	0.0044
N2O	0.9	0.0045	0.020

AP-42 Table 1.5-1.
tpy based on 8760 hours per year

ATTACHMENT J
MSDS INFORMATION

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

- Trade name RHODASURF L-4/STD

1.2 Relevant identified uses of the substance or mixture and uses advised against

Uses of the Substance / Mixture

- Industrial use
- Emulsifier

1.3 Details of the supplier of the safety data sheet

Company

Solvay USA Inc.,
NOVECARE
504 Carnegie Center
Princeton, NJ, 08540, US
Telephone Number: 800-973-7873

1.4 Emergency telephone

FOR EMERGENCIES INVOLVING A SPILL, LEAK, FIRE, EXPOSURE OR ACCIDENT CONTACT: CHEMTREC 800-424-9300 within the United States and Canada, or 703-527-3887 for international collect calls.

SECTION 2: Hazards identification

Although OSHA has not adopted the environmental portion of the GHS regulations, this document may include information on environmental effects.

2.1 Classification of the substance or mixture

HCS 2012 (29 CFR 1910.1200)

Eye irritation, Category 2A — H319: Causes serious eye irritation.

2.2 Label elements

HCS 2012 (29 CFR 1910.1200)

Pictogram

Signal Word

- Warning

Hazard Statements

- H319 — Causes serious eye irritation.

Precautionary Statements

Prevention

- P264 — Wash skin thoroughly after handling.
- P280 — Wear eye protection/ face protection.

Response

- P305 + P351 + P338 — IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if

present and easy to do. Continue rinsing.

- P337 + P313 If eye irritation persists: Get medical advice/ attention.

2.3 Other hazards which do not result in classification

- H400: Very toxic to aquatic life.
- H412: Harmful to aquatic life with long lasting effects.

SECTION 3: Composition/information on ingredients

3.1 Substance

- Chemical nature Alcohols C10-16 ethoxylated

Hazardous Ingredients and Impurities

Chemical name	Identification number CAS-No.	Concentration [%]
Ethoxylated Lauryl Alcohols	68002-97-1	>= 90 - <= 100

The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

3.2 Mixture

Not applicable, this product is a substance.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice

- Show this material safety data sheet to the doctor in attendance.
- First responder needs to protect himself.
- Place affected apparel in a sealed bag for subsequent decontamination.

In case of inhalation

- Negligible or unlikely exposure pathways
- Move to fresh air in case of accidental inhalation of vapors.
- Consult a physician if necessary.

In case of skin contact

- In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
- Seek medical advice.
- Wash contaminated clothing before reuse.

In case of eye contact

- Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
- Seek medical advice.

In case of ingestion

- Do not induce vomiting without medical advice.
- If victim is conscious:

- Rinse mouth with water.
- Keep at rest.
- Do not give anything to drink.
- Do not leave the victim unattended.
- Vomiting may occur spontaneously
- Risk of product entering the lungs on vomiting after ingestion.
- Lay victim on side.
- Seek medical advice.

4.2 Most important symptoms and effects, both acute and delayed

Effects

- Skin contact may aggravate existing skin disease
- Inhalation of product may aggravate existing chronic respiratory problems such as asthma, emphysema or bronchitis

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician

- Treat symptomatically.
- There is no specific antidote available.

- All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

SECTION 5: Firefighting measures

Flash point	> 200 °F (> 93 °C) Pensky-Martens closed cup Flammability class: Will burn
Autoignition temperature	no data available
Flammability / Explosive limit	no data available

5.1 Extinguishing media

Suitable extinguishing media

- Water spray
- Foam
- Carbon dioxide (CO2)
- Multipurpose powders

Unsuitable extinguishing media

- High volume water jet
- (frothing possible)

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire fighting

- Under fire conditions:
- Will burn
- Hazardous decomposition products formed under fire conditions.

Hazardous combustion products:

- On combustion or on thermal decomposition (pyrolysis), releases:
- Carbon oxides

5.3 Advice for firefighters

Special protective equipment for fire-fighters

- Firefighters should wear NIOSH/MSHA approved self-contained breathing apparatus and full protective clothing.

Specific fire fighting methods

- Do not use a solid water stream as it may scatter and spread fire.

Further information

- Standard procedure for chemical fires.
- Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
- Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

- Wear suitable protective equipment.

- For further information refer to section 8 "Exposure controls / personal protection."

6.2 Environmental precautions

- Stop the leak. Turn leaking containers leak-side up to prevent the escape of liquid.
- Contain the spilled material by diking.
- Do not let product enter drains.
- Prevent product from entering sewage system.
- Do not flush into surface water or sanitary sewer system.
- Take all necessary measures to avoid accidental discharge of products into drains and waterways due to the rupture of containers or transfer systems.
- Spills may be reportable to the National Response Center (800-424-8802) and to state and/or local agencies

6.3 Methods and materials for containment and cleaning up

- Stop leak if safe to do so.

Recovery

- Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13).

- Shovel or sweep up.
- Never return spills in original containers for re-use.

- Keep in properly labeled containers.
- Keep in suitable, closed containers for disposal.

Decontamination / cleaning

- Wash nonrecoverable remainder with large amounts of water.
- Clean contaminated surface thoroughly.
- Recover the cleaning water for subsequent disposal.

- Decontaminate tools, equipment and personal protective equipment in a segregated area.

Disposal

- Dispose of in accordance with local regulations.

Additional advice

- Material can create slippery conditions.

6.4 Reference to other sections

- 7. HANDLING AND STORAGE
- 8. EXPOSURE CONTROLS/PERSONAL PROTECTION
- 13. DISPOSAL CONSIDERATIONS

SECTION 7: Handling and storage

7.1 Precautions for safe handling

- Do not use sparking tools.
- Ensure all equipment is electrically grounded before beginning transfer operations.

- Ethylene oxide may collect in container head space.
- Provide adequate ventilation.

- Freezing will affect the physical condition but will not damage the material. Thaw and mix before using.
- Avoid localized overheating.
- Vent drums while heating
- Homogenize before using.

- Handle in accordance with good industrial hygiene and safety practice.

- Avoid inhalation of vapor or mist.
- Avoid contact with skin and eyes.

Hygiene measures

- Personal hygiene is an important work practice exposure control measure and the following general measures should be taken when working with or handling this materials:
- 1) Do not store, use, and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is stored.
- 2) Wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics, or using the toilet.
- 3) Wash exposed skin promptly to remove accidental splashes or contact with material.

- The user is responsible for monitoring the working environment in accordance with local laws and regulations.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions

- Take all necessary measures to avoid accidental discharge of products into drains and waterways due to the rupture of containers or transfer systems.

- Stable under normal conditions.
- Keep in a dry, cool and well-ventilated place.
- Keep container tightly closed.

- Keep away from open flames, hot surfaces and sources of ignition.
- Keep away from incompatible materials to be indicated by the manufacturer

- Keep away from: Hazardous reactions may occur on contact with certain chemicals. (Refer to the list of incompatible materials section 10: "Stability-Reactivity").

Requirements for storage rooms and vessels

Recommended storage temperature: 59 - 120 °F (15 - 49 °C)

7.3 Specific end use(s)

- no data available

SECTION 8: Exposure controls/personal protection

Introductory Remarks: These recommendations provide general guidance for handling this product. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. Assistance with selection, use and maintenance of worker protection equipment is generally available from equipment manufacturers.

8.1 Control parameters

- Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Control measures

Engineering measures

- Where engineering controls are indicated by use conditions or a potential for excessive exposure exists, the following traditional exposure control techniques may be used to effectively minimize employee exposures :

- Effective exhaust ventilation system

Individual protection measures

Respiratory protection

- When respirators are required, select NIOSH/MSHA approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industrial recommendations.

Hand protection

- Recommended preventive skin protection
- Gloves

- Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time.

Eye protection

- Eye and face protection requirements will vary dependent upon work environment conditions and material handling practices. Appropriate ANSI Z87 approved equipment should be selected for the particular use intended for this material.
- Eye contact should be prevented through the use of:

- Safety glasses with side-shields

Skin and body protection

- Recommended preventive skin protection
- Footwear protecting against chemicals
- Impervious clothing

Hygiene measures

- Personal hygiene is an important work practice exposure control measure and the following general measures should be taken when working with or handling this materials:
- 1) Do not store, use, and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is stored.
- 2) Wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics, or using the toilet.
- 3) Wash exposed skin promptly to remove accidental splashes or contact with material.

- The user is responsible for monitoring the working environment in accordance with local laws and regulations.

Protective measures
- Ensure that eyewash stations and safety showers are close to the workstation location.
- Emergency equipment immediately accessible, with instructions for use.
- Selection of appropriate personal protective equipment should be based on an evaluation of the performance characteristics of the protective equipment relative to the task(s) to be performed, conditions present, duration of use, and the potential hazards, and/or risks that may occur during use.

- The protective equipment must be selected in accordance with current local standards and in cooperation with the supplier of the protective equipment.

SECTION 9: Physical and chemical properties

Physical and Chemical properties here represent typical properties of this product. Contact the business area using the Product information phone number in Section 1 for its exact specifications.

9.1 Information on basic physical and chemical properties

Appearance	Form: Physical state: Color:	viscous liquid clear to cloudy
Odor	slight	
Odor Threshold	no data available	
pH	5.0 - 7.5 (5 % (m / m))	
Melting point/freezing point	no data available	
Initial boiling point and boiling range	> Boiling point/boiling range: 302 °F (150 °C) (759.87 mmHg (1,013.08 hPa))	
Flash point	> 200 °F (> 93 °C) Pensky-Martens closed cup	
	Flammability class: Will burn	
Evaporation rate (Butylacetate = 1)	< 1	
Flammability (solid, gas)	no data available	
Flammability (liquids)	no data available	
Flammability / Explosive limit	no data available	
Autoignition temperature	no data available	
Vapor pressure	< 0.01 mmHg (0.01333 hPa) (77 °F (25 °C))	
Vapor density	no data available	
Density	0.95 g/cm3 (77 °F (25 °C))	

Relative density	0.95 (77 °F (25 °C))
Solubility	Water solubility: partly soluble
Partition coefficient: n-octanol/water	no data available
Decomposition temperature	no data available
Viscosity	Viscosity, dynamic : < 250 mPa.s (77 °F (25 °C))
Explosive properties	no data available
Oxidizing properties	no data available

9.2 Other information

Volatiles by Volume	< 0.5 %

SECTION 10: Stability and reactivity

10.1 Reactivity

- no data available

10.2 Chemical stability

- Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Polymerization

- Hazardous polymerization does not occur.

10.4 Conditions to avoid

- Keep away from heat and sources of ignition.
- Keep away from flames and sparks.

10.5 Incompatible materials

- no data available

10.6 Hazardous decomposition products

- On combustion or on thermal decomposition (pyrolysis), releases:
- (Carbon oxides (CO + CO2)).
- Smoke

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Acute oral toxicity

Ethoxylated Lauryl Alcohols	LD50 : 6,700 mg/kg - Rat The substance or mixture has no acute oral toxicity
Acute inhalation toxicity	no data available

Acute dermal toxicity

Ethoxylated Lauryl Alcohols	Not classified as harmful by contact with skin category approach
Acute toxicity (other routes of administration)	no data available

Skin corrosion/irritation

Ethoxylated Lauryl Alcohols	No skin irritation category approach

Serious eye damage/eye irritation

Ethoxylated Lauryl Alcohols	Rat Severe eye irritation Method: Draize Test Unpublished internal reports

Respiratory or skin sensitization

Ethoxylated Lauryl Alcohols	Does not cause skin sensitization. category approach Published data

Mutagenicity

Genotoxicity in vitro

Ethoxylated Lauryl Alcohols	In vitro tests did not show mutagenic effects category approach

Genotoxicity in vivo

Ethoxylated Lauryl Alcohols	In vivo tests did not show mutagenic effects category approach

Carcinogenicity no data available

This product does not contain any ingredient designated as probable or suspected human carcinogens by:

NTP
IARC
OSHA
ACGIH

Toxicity for reproduction and development

Toxicity to reproduction / fertility	no data available
Developmental Toxicity/Teratogenicity	no data available

STOT

STOT-single exposure

Ethoxylated Lauryl Alcohols	The substance or mixture is not classified as specific target organ toxicant, single exposure according to GHS criteria. internal evaluation, category approach
STOT-repeated exposure	no data available
Aspiration toxicity	no data available

SECTION 12: Ecological information

12.1 Toxicity

Aquatic Compartment

Acute toxicity to fish	no data available
Acute toxicity to daphnia and other aquatic invertebrates.	no data available
Toxicity to aquatic plants	no data available
Toxicity to microorganisms	no data available
Chronic toxicity to fish	no data available
Chronic toxicity to daphnia and other aquatic invertebrates.	no data available
Chronic Toxicity to aquatic plants	no data available

M-Factor

Ethoxylated Lauryl Alcohols	Acute aquatic toxicity = 1 (category approach)

12.2 Persistence and degradability

Abiotic degradation	no data available

Physical- and photo-chemical elimination	no data available

Biodegradation

Biodegradability
Ethoxylated Lauryl Alcohols — The substance fulfills the criteria for ultimate aerobic biodegradability and ready biodegradability
category approach

12.3 Bioaccumulative potential

Partition coefficient: n-octanol/water	no data available
Bioconcentration factor (BCF)	no data available

12.4 Mobility in soil

Adsorption potential (Koc)	no data available
Known distribution to environmental compartments	no data available

12.5 Results of PBT and vPvB assessment

Ethoxylated Lauryl Alcohols	This substance is not considered to be persistent, bioaccumulating, and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

12.6 Other adverse effects — no data available

Ecotoxicity assessment

Acute aquatic toxicity
Ethoxylated Lauryl Alcohols — Very toxic to aquatic life.

Chronic aquatic toxicity
Ethoxylated Lauryl Alcohols — Harmful to aquatic life with long lasting effects.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product Disposal

- Chemical additions, processing or otherwise altering this material may make the waste management information presented in this SDS incomplete, inaccurate or otherwise inappropriate. Please be advised that state and local requirements for waste disposal may be more restrictive or otherwise different from federal laws and regulations. Consult state and local regulations regarding the proper disposal of this material.

Waste Code

- Environmental Protection Agency
- Hazardous Waste – NO

Advice on cleaning and disposal of packaging

- Rinse with an appropriate solvent.
- Dispose of in accordance with local regulations.

SECTION 14: Transport information

Transportation status: IMPORTANT! Statements below provide additional data on listed transport classification.
The listed Transportation Classification does not address regulatory variations due to changes in package size, mode of shipment or other regulatory descriptors.

DOT

14.1 UN number	UN 3082
14.2 Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Ethoxylated C10-C16 Alcohols)
14.3 Transport hazard class	9
Label(s)	9
14.4 Packing group	
Packing group	III
ERG No	171
14.5 Environmental hazards	YES
Marine pollutant	

TDG

14.1 UN number	UN 3082
14.2 Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Ethoxylated C10-C16 Alcohols)
14.3 Transport hazard class	9
Label(s)	9
14.4 Packing group	
Packing group	III
ERG No	171
14.5 Environmental hazards	YES
Marine pollutant	

IMDG

14.1 UN number	UN 3082
14.2 Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Ethoxylated C10-C16 Alcohols)

IMDG Code segregation group	Not Relevant
14.3 Transport hazard class Label(s)	9 9
14.4 Packing group Packing group	III
14.5 Environmental hazards **Marine pollutant**	YES
14.6 Special precautions for user EmS	F-A , S-F

For personal protection see section 8.

IATA

14.1 UN number	UN 3082
14.2 Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Ethoxylated C10-C16 Alcohols)
14.3 Transport hazard class Label(s):	9 9
14.4 Packing group Packing group	III
Packing instruction (cargo aircraft) Max net qty / pkg Packing instruction (passenger aircraft) Max net qty / pkg	964 450.00 L 964 450.00 L
14.5 Environmental hazards	YES

14.6 Special precautions for user
For personal protection see section 8.

Note The above regulatory prescriptions are those valid on the date of publication of this sheet. Given the possible evolution of transportation regulations for hazardous materials, it would be advisable to check their validity with your sales office.

SECTION 15: Regulatory information

15.1 Notification status

Inventory Information	Status
United States TSCA Inventory	- On TSCA Inventory
Canadian Domestic Substances List (DSL)	- All components of this product are on the Canadian DSL
Australia Inventory of Chemical Substances (AICS)	- On the inventory, or in compliance with the inventory
Japan. CSCL - Inventory of Existing and New Chemical Substances	- On the inventory, or in compliance with the inventory
Korea. Korean Existing Chemicals Inventory (KECI)	- On the inventory, or in compliance with the inventory
China. Inventory of Existing Chemical Substances in China (IECSC)	- On the inventory, or in compliance with the inventory

15.2 Federal Regulations

US. EPA EPCRA SARA Title III

SARA Hazard Designation Sections 311/312 (40 CFR 370)

Fire Hazard	no
Reactivity Hazard	no
Sudden Release of Pressure Hazard	no
Acute Health Hazard	yes
Chronic Health Hazard	no

Section 313 Toxic Chemicals (40 CFR 372.65)
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Section 302 Emergency Planning Extremely Hazardous Substance Threshold Planning Quantity (40 CFR 355)
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

Section 302 Emergency Planning Extremely Hazardous Substance Reportable Quantity (40 CFR 355)

Ingredients	CAS-No.	Reportable quantity
Ethylene Oxide	75-21-8	10 lb

Section 304 Emergency Release Notification Reportable Quantity (40 CFR 355)

Ingredients	CAS-No.	Reportable quantity
Ethylene Oxide	75-21-8	10 lb

US. EPA CERCLA Hazardous Substances and Reportable Quantities (40 CFR 302.4)

Ingredients	CAS-No.	Reportable quantity
Ethylene Oxide	75-21-8	10 lb
1,4-Dioxane	123-91-1	100 lb
Acetaldehyde	75-07-0	1000 lb

15.3 State Regulations

US. California Safe Drinking Water & Toxic Enforcement Act (Proposition 65)

WARNING! This product contains a chemical known in the State of California to cause cancer.

Ingredients	CAS-No.
Acetaldehyde	75-07-0
1,4-Dioxane	123-91-1
Ethylene Oxide	75-21-8

WARNING: This product contains a chemical known in the State of California to cause birth defects or other reproductive harm.

Ingredients	CAS-No.
Ethylene Oxide	75-21-8

SECTION 16: Other information

NFPA (National Fire Protection Association) - Classification

Health	2 moderate
Flammability	1 slight
Instability or Reactivity	0 minimal

HMIS (Hazardous Materials Identification System (Paint & Coating)) - Classification

Health	2 moderate
Flammability	1 slight
Reactivity	0 minimal
PPE	Determined by User; dependent on local conditions

Further information

- Product evaluated under the US GHS format.
- This sheet was updated (refer to the date at the top of this page). Subheadings and text which have been modified since the previous version are indicated with two vertical bars.

Date Prepared: 07/05/2016

- ACGIH — American Conference of Governmental Industrial Hygienists
- OSHA — Occupational Safety and Health Administration
- NTP — National Toxicology Program
- IARC — International Agency for Research on Cancer
- NIOSH — National Institute for Occupational Safety and Health

XIAMETER(R) MEM-1727 THREAD FINISH

Version	Revision Date:	MSDS Number:	Date of last issue: 02/26/2015
1.1	06/08/2015	1475401-00002	Date of first issue: 02/26/2015

SECTION 1. IDENTIFICATION

Product name : XIAMETER(R) MEM-1727 THREAD FINISH

Product code : 000000000004088874

Manufacturer or supplier's details

Company name of supplier : Dow Corning Corporation

Address : South Saginaw Road
Midland Michigan 48686

Telephone : (989) 496-6000

Emergency telephone : 24 Hour Emergency Telephone : (989) 496-5900
CHEMTREC : (800) 424-9300

Recommended use of the chemical and restrictions on use

Recommended use : Lubricants and lubricant additives
Textiles and leather treatment

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Not a hazardous substance or mixture.

GHS Label element

Not a hazardous substance or mixture.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Chemical nature : Silicone emulsion

Hazardous ingredients

Chemical Name	CAS-No.	Concentration (%)
Paraffin waxes and Hydrocarbon waxes	8002-74-2	>= 5 - < 10

SECTION 4. FIRST AID MEASURES

If inhaled : If inhaled, remove to fresh air.
Get medical attention if symptoms occur.

In case of skin contact : Wash with water and soap as a precaution.
Get medical attention if symptoms occur.

In case of eye contact	:	Flush eyes with water as a precaution. Get medical attention if irritation develops and persists.
If swallowed	:	If swallowed, DO NOT induce vomiting. Get medical attention if symptoms occur. Rinse mouth thoroughly with water.
Most important symptoms and effects, both acute and delayed	:	None known.
Protection of first-aiders	:	No special precautions are necessary for first aid responders.
Notes to physician	:	Treat symptomatically and supportively.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	:	Water spray Alcohol-resistant foam Carbon dioxide (CO2) Dry chemical
Unsuitable extinguishing media	:	None known.
Specific hazards during fire fighting	:	Exposure to combustion products may be a hazard to health.
Hazardous combustion products	:	Carbon oxides Silicon oxides Formaldehyde Sulfur oxides Nitrogen oxides (NOx)
Specific extinguishing methods	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water spray to cool unopened containers. Remove undamaged containers from fire area if it is safe to do so. Evacuate area.
Special protective equipment for fire-fighters	:	Wear self-contained breathing apparatus for firefighting if necessary. Use personal protective equipment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Follow safe handling advice and personal protective equipment recommendations.
Environmental precautions	:	Discharge into the environment must be avoided.

Prevent further leakage or spillage if safe to do so.
Prevent spreading over a wide area (e.g. by containment or oil barriers).
Retain and dispose of contaminated wash water.
Local authorities should be advised if significant spillages cannot be contained.

Methods and materials for containment and cleaning up : Soak up with inert absorbent material.
For large spills, provide diking or other appropriate containment to keep material from spreading. If diked material can be pumped, store recovered material in appropriate container.
Clean up remaining materials from spill with suitable absorbent.
Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.
Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

SECTION 7. HANDLING AND STORAGE

Technical measures : See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

Local/Total ventilation : Use only with adequate ventilation.

Advice on safe handling : Handle in accordance with good industrial hygiene and safety practice.
Take care to prevent spills, waste and minimize release to the environment.

Conditions for safe storage : Keep in properly labeled containers.
Store in accordance with the particular national regulations.

Materials to avoid : Do not store with the following product types:
Strong oxidizing agents

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Ingredients	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Paraffin waxes and Hydrocarbon waxes	8002-74-2	TWA (Fumes)	2 mg/m3	ACGIH
		TWA (Fumes)	2 mg/m3	NIOSH REL

Engineering measures : Processing may form hazardous compounds (see section 10).
Ensure adequate ventilation, especially in confined areas.

Minimize workplace exposure concentrations.

Personal protective equipment

Respiratory protection : General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.

Hand protection

Remarks : Wash hands before breaks and at the end of workday.

Eye protection : Wear the following personal protective equipment:
Safety glasses

Skin and body protection : Skin should be washed after contact.

Hygiene measures : Ensure that eye flushing systems and safety showers are located close to the working place.
When using do not eat, drink or smoke.
Wash contaminated clothing before re-use.
These precautions are for room temperature handling. Use at elevated temperature or aerosol/spray applications may require added precautions.
For further information regarding the use of silicones / organic oils in consumer aerosol applications, please refer to the guidance document regarding the use of these type of materials in consumer aerosol applications that has been developed by the silicone industry (www.SEHSC.com) or contact the Dow Corning customer service group.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : liquid

Color : white to off-white

Odor : No data available

Odor Threshold : No data available

pH : No data available

Melting point/freezing point : No data available

Initial boiling point and boiling range	:	> 65 °C
Flash point	:	> 100 °C Method: closed cup
Evaporation rate	:	No data available
Flammability (solid, gas)	:	Not applicable
Upper explosion limit	:	No data available
Lower explosion limit	:	No data available
Vapor pressure	:	No data available
Relative vapor density	:	No data available
Relative density	:	0.97
Solubility(ies)		
Water solubility	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Autoignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity		
Viscosity, kinematic	:	400 cSt
Explosive properties	:	Not explosive
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.
Molecular weight	:	No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Not classified as a reactivity hazard.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	Use at elevated temperatures may form highly hazardous compounds. Can react with strong oxidizing agents. Hazardous decomposition products will be formed at elevated temperatures.

Conditions to avoid : None known.

Incompatible materials : Oxidizing agents

Hazardous decomposition products
Thermal decomposition : Formaldehyde

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure
Inhalation
Skin contact
Ingestion
Eye contact

Acute toxicity

Not classified based on available information.

Product:

Acute oral toxicity : Acute toxicity estimate: > 5,000 mg/kg
Method: Calculation method

Acute dermal toxicity : Acute toxicity estimate: > 5,000 mg/kg
Method: Calculation method

Ingredients:

Paraffin waxes and Hydrocarbon waxes:

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg
Method: OECD Test Guideline 420

Acute dermal toxicity : LD50 (Rabbit): > 3,600 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

Skin corrosion/irritation

Not classified based on available information.

Ingredients:

Paraffin waxes and Hydrocarbon waxes:
Species: Rabbit
Method: OECD Test Guideline 404
Result: No skin irritation

Serious eye damage/eye irritation

Not classified based on available information.

Ingredients:

Paraffin waxes and Hydrocarbon waxes:
Species: Rabbit
Result: No eye irritation
Method: OECD Test Guideline 405

Respiratory or skin sensitization

Skin sensitization: Not classified based on available information.
Respiratory sensitization: Not classified based on available information.

Ingredients:

Paraffin waxes and Hydrocarbon waxes:
Test Type: Maximization Test (GPMT)
Routes of exposure: Skin contact
Species: Guinea pig
Method: OECD Test Guideline 406
Result: negative

Germ cell mutagenicity

Not classified based on available information.

Ingredients:

Paraffin waxes and Hydrocarbon waxes:

Genotoxicity in vitro	:	Test Type: Chromosome aberration test in vitro Result: negative
Genotoxicity in vivo	:	Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay) Species: Mouse Application Route: Intraperitoneal injection Result: negative Remarks: Based on data from similar materials

Carcinogenicity

Not classified based on available information.

Ingredients:

Paraffin waxes and Hydrocarbon waxes:
Species: Rat
Application Route: Ingestion
Exposure time: 2 Years
Result: negative

IARC	No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
OSHA	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
NTP	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

Not classified based on available information.

Ingredients:

Paraffin waxes and Hydrocarbon waxes:

Effects on fertility : Test Type: Reproduction/Developmental toxicity screening test
Species: Rat
Application Route: Ingestion
Result: negative
Remarks: Based on data from similar materials

Effects on fetal development : Test Type: Fertility/early embryonic development
Species: Rat
Application Route: Skin contact
Result: negative
Remarks: Based on data from similar materials

STOT-single exposure

Not classified based on available information.

STOT-repeated exposure

Not classified based on available information.

Ingredients:

Paraffin waxes and Hydrocarbon waxes:

Routes of exposure: Ingestion
Assessment: No significant health effects observed in animals at concentrations of 100 mg/kg bw or less.

Repeated dose toxicity

Ingredients:

Paraffin waxes and Hydrocarbon waxes:

Species: Rat
Application Route: Ingestion
Exposure time: 90 d
Method: OECD Test Guideline 408

Aspiration toxicity

Not classified based on available information.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Ingredients:

Paraffin waxes and Hydrocarbon waxes:

Toxicity to fish : LL50 (Pimephales promelas (fathead minnow)): > 100 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 1,000 mg/l
Exposure time: 48 h

Remarks: Based on data from similar materials

Toxicity to algae : NOEC (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 10 mg/l
Exposure time: 21 d
Remarks: Based on data from similar materials

Persistence and degradability

Ingredients:

Paraffin waxes and Hydrocarbon waxes:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 31 %
Exposure time: 28 d
Method: OECD Test Guideline 301F
Remarks: Based on data from similar materials

Bioaccumulative potential

Ingredients:

Paraffin waxes and Hydrocarbon waxes:

Partition coefficient: n-octanol/water : log Pow: 5.3 - 6.7

Mobility in soil

No data available

Other adverse effects

No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Resource Conservation and Recovery Act (RCRA) : This product has been evaluated for RCRA characteristics and does not meet the criteria of hazardous waste if discarded in its purchased form.

Waste from residues : Dispose of in accordance with local regulations.

Contaminated packaging : Dispose of as unused product.
Empty containers should be taken to an approved waste handling site for recycling or disposal.

SECTION 14. TRANSPORT INFORMATION

International Regulation

UNRTDG
Not regulated as a dangerous good

IATA-DGR
Not regulated as a dangerous good

IMDG-Code
Not regulated as a dangerous good

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable for product as supplied.

Domestic regulation

49 CFR
Not regulated as a dangerous good

SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know

CERCLA Reportable Quantity

Ingredients	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Xylene	1330-20-7	100	166667
Ethylbenzene	100-41-4	1000	*

*: Calculated RQ exceeds reasonably attainable upper limit.

SARA 304 Extremely Hazardous Substances Reportable Quantity
This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards : No SARA Hazards

SARA 302 : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

US State Regulations

Pennsylvania Right To Know

Dimethyl siloxane, trimethylsiloxy-terminated	63148-62-9	70 - 90 %
Water	7732-18-5	10 - 20 %
Paraffin waxes and Hydrocarbon waxes	8002-74-2	5 - 10 %
Xylene	1330-20-7	0 - 0.1 %
Ethylbenzene	100-41-4	0 - 0.1 %

New Jersey Right To Know

Dimethyl siloxane, trimethylsiloxy-terminated	63148-62-9	70 - 90 %
Water	7732-18-5	10 - 20 %
Paraffin waxes and Hydrocarbon waxes	8002-74-2	5 - 10 %

California Prop 65

WARNING! This product contains a chemical known in the State of California to cause cancer.

Ethylbenzene	100-41-4
Ethylene oxide	75-21-8
1,4-Dioxane	123-91-1

WARNING: This product contains a chemical known in the State of California to cause birth defects or other reproductive harm.

Ethylene oxide	75-21-8
Methanol	67-56-1

The ingredients of this product are reported in the following inventories:

REACH	:	Consult your local Dow Corning office.
TSCA	:	All chemical substances in this material are included on or exempted from listing on the TSCA Inventory of Chemical Substances.
AICS	:	One or more ingredients are not listed or exempt.
IECSC	:	All ingredients listed or exempt.
KECI	:	All ingredients listed, exempt or notified.
PICCS	:	Consult your local Dow Corning office.
DSL	:	This product contains one or more substances which are not on the Canadian Domestic Substances List (DSL). Import of this product into Canada has volume limitations. For volume limits please consult Dow Corning Regulatory Compliance.

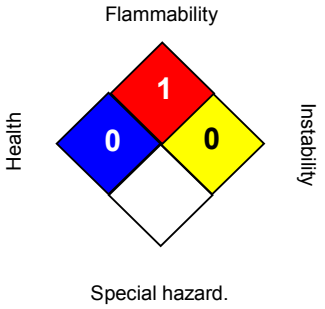
Inventories

AICS (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TSCA (USA)

SECTION 16. OTHER INFORMATION

Further information

NFPA:



HMIS III:

HEALTH	0
FLAMMABILITY	1
PHYSICAL HAZARD	0

0 = not significant, 1 =Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
NIOSH REL	:	USA. NIOSH Recommended Exposure Limits
ACGIH / TWA	:	8-hour, time-weighted average
NIOSH REL / TWA	:	Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek
Sources of key data used to compile the Material Safety Data Sheet	:	Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, http://echa.europa.eu/
Revision Date	:	06/08/2015

Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

US / Z8

ATTACHMENT K
DELEGATION OF AUTHORITY

ARMSTRONG FACILITY
DELEGATION OF AUTHORITY
FOR RESPONSIBLE OFFICIAL
TO A REPRESENTATIVE

This form shall be used by a responsible official to delegate authority to a representative of such person for signature on applications or certification of reports to be submitted pursuant to the **Clean Air Act, Clean Water Act, RCRA, and any other applicable environmental law or regulation**.

This form shall only be used for a corporation at which a President, Secretary, Treasurer, or Vice-President of the corporation in charge of business function, or any other person who performs similar policy or decision making functions for the corporation to transfer the authority as a responsible official to a representative of such person. The representative of such person must be responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit.

FACILITY INFORMATION:

FACILITY NAME: Armstrong World Industries, Millwood, WV Facility

DATE FORM PREPARED: September 1, 2017

FACILITY ID NO. (IF APPLICABLE): Various

TRANSFER OF AUTHORITY:

I, the undersigned, being a President, Secretary, Treasurer, or Vice-President of the corporation in charge of business function, or other person who performs similar policy or decision making functions for the corporation, hereby transfer the authority as a responsible official to:

Jarret Hill/Kendra Hersman,

They being a representative and responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit.

AUTHORIZED SIGNATURE

President & Chief Executive Officer
TITLE OF SIGNATORY

Vic Grizzle
TYPED OR PRINTED NAME OF SIGNATORY

9 / 5 / 2017
DATE

Jarret Hill/Kendra Hersman
DELEGATED REPRESENTATIVE

Plant Manager/Plant EHS Manager
TITLE OF DESIGNATED REPRESENTATIVE

In the event of either individual changing position, it is understood that this delegation shall be transferred from position to position.