April 11, 2013

Mr. John A. Benedict
Director
West Virginia Department of Environmental Protection
Division of Air Quality
601 - 57th Street SE
Charleston, WV 25304

Re: Initial Title V Operating Permit Application for the Armstrong World Industries, Inc. Millwood, WV Slag Wool Production Plant
Plant ID No. 035-00049
Permit No. R13-2864A

Dear Mr. Benedict:

Armstrong World Industries, Inc. (Armstrong) operates a slag wool manufacturing facility located in Millwood, Jackson County, West Virginia. Armstrong is submitting the enclosed initial Title V operating permit application for the Millwood plant. This application is being submitted within twelve months of the startup of the facility operations in April 2012. Armstrong believes that the enclosed submittal provides all the information required by the WV DAQ for technical review of the Title V application. As such, Armstrong believes that this submittal constitutes an administratively complete and timely Title V application.

Please note that the application includes a "schedule of compliance" (Attachment F) that proposes a compliance plan to address excess carbon monoxide (CO) emissions that were measured during initial performance testing conducted in January 2013. Armstrong met with WV DAQ Compliance and Enforcement and Permitting staff on March 26, 2013 to discuss the results of the test program and to outline proposed steps to address the excess CO emissions. Armstrong anticipates entering into a legal Consent Order in the near future that will identify the compliance steps and schedule. For this reason, Armstrong may need to revise the compliance plan provided in the enclosed application to be consistent with the final Consent Order. Armstrong is also providing WV DAQ Compliance and Enforcement with a copy of this application submittal.

Armstrong also anticipates submitting a request to revise some of the permit limits in the current air permit including the CO emissions limits and the current requirement to operate a dry lime scrubber to control sulfur dioxide (SO2) emissions. The January 2013 performance testing demonstrated that SO2 emissions from the electric arc furnace are well below the permit limits at the scrubber inlet and Armstrong therefore intends to propose discontinuing operation of the lime scrubber. The enclosed Title V application does not reflect these anticipated changes to the permitted CO and SO2 emissions limits but instead reflects the current permitted emission rates. Armstrong anticipates revising or supplementing the Title V application when these changes are made to the current permit.

Mr. John A. Benedict
WV DAQ
April 11, 2013

We are enclosing two (2) printed copies of the application signature forms which have been signed by a responsible official. We are also enclosing the entire application in electronic format on two (2) CDs. Armstrong understands that no application fee is required and that WV DAQ will address the public and affected state notification requirements.

If you have any questions regarding the enclosed Title V application, please feel free to contact Mr. Matthew S. McVay, EHS Manager, at (304) 206-2847.

Sincerely,

Steve Woolard

Steve Woolard
Plant Manager
Armstrong World Industries, Inc.
Millwood Plant

cc: Robert Keatley – WV DAQ Compliance and Enforcement
M. McVay – Armstrong Millwood
J. Ackiewicz – Armstrong Corporate EHS
G. Biebuyck – Liberty Environmental

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.: 0 3 5 — 0 0 0 4 9	**4. Federal Employer ID No. (FEIN):** 2 3 0 3 6 6 3 9 0

5. **Permit Application Type:**

☒ Initial Permit — When did operations commence? 04/12 /2012
☐ Permit Renewal — What is the expiration date of the existing permit?
☐ Update to Initial/Renewal Permit Application

6. Type of Business Entity: ☒ Corporation ☐ Governmental Agency ☐ LLC ☐ Partnership ☐ Limited Partnership	**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.
8. Number of onsite employees: 49	

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: William S. Woolard		**Title:** Plant Manager
Street or P.O. Box: P.O. Box 220		
City: Millwood	**State:** WV	**Zip: 25262-9998**
Telephone Number: (304) 273-3900	**Fax Number:** ( ) -	
E-mail address: WSWoolard@armstrong.com		
Environmental Contact: Matthew S. McVay		**Title:** EHS Manager, Millwood
Street or P.O. Box: P.O. Box 220		
City: Millwood	**State:** WV	**Zip: 25262-9998**
Telephone Number: (304) 206-2847	**Fax Number:** ( ) -	
E-mail address: msmcvay@armstrong.com		
Application Preparer: Gavin L. Biebuyck		**Title:** Principal Consultant
Company: Liberty Environmental, Inc.		
Street or P.O. Box: 50 N. Fifth Street, Fifth Floor		
City: Reading	**State:** PA	**Zip: 19601-3417**
Telephone Number: (610) 375-9301	**Fax Number:** (610) 375-9302	
E-mail address: gbiebuyck@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 silicomanganese 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 of two 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 (45CSR15)	☐ 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. (1) PSD construction permitting (40 CFR 52.21) – The Millwood plant is classified as a minor source under the PSD regulations because potential emissions are < 250 tpy for each criteria pollutant and < 100,000 tpy CO2e. (2) NSPS (40 CFR 60) Subparts CC, OOO, and UUU – The Millwood plant does not include glass melting furnaces (Subpart CC is not applicable), slag is not classified as a "nonmetallic mineral" (Subpart OOO is not applicable), and the EAF is not classified as a calciner or dryer (Subpart UUU is not applicable). (3) 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. (4) NESHAP (40 CFR 63) Subpart JJJJJJ – The Millwood plant does not operate boilers or process heaters and is therefore not subject to the Subpart JJJJJ Area Source ICI Boiler NESHAP. (5) WV PM "type b, c, and d" standards (45CSR7A) – 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 45 CSR 7A.
☒ 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.

(6) WV Fugitive emissions from material handling (45 CSR 17) - Per 45CSR§7-6.1. if sources are subject to 45CSR7 they are exempt from the requirements of this Rule.
(7) WV NSR permitting for non-attainment areas and VOC Regulations (45 CSR 19 & 21) – Millwood plant is not located in affected areas.
(8) WV Emissions of toxic air pollutants (45 CSR 27) – 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*).

All facility activities shall comply with the guidelines, regulations, and requirements set forth in the Armstrong World Industries Millwood, WV Facility Construction Permit No **R13-2864A§2.0**.

Per Construction Permit No **R13-2864A§3.0** Facility-Wide Requirements.:

3.1. Limitations and Standards

3.1.1. Open Burning. The open burning of refuse by any person, firm, corporation, association, or public agency is prohibited except as noted in 45CSR§6-3.1.
[45CSR§6-3.1.]

3.1.2. Open burning exemptions listed in 45CSR§6-3.1 are restricted by the stipulation of 45CSR§6-3.2. **[45CSR§6-3.2]**

3.1.3. Asbestos. The permittee is responsible for following proper demolition/renovation methods in accordance with 40CFR§61.145, 40CFR§61.148, and 40CFR§61.150.
[40CFR§61.145(b) and 45CSR§34]

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. Permanent shutdown. A source which has not operated at least 500 hours in one 12-month period within the previous five (5) year time period may be considered permanently shutdown, unless such source can provide to the Secretary, with reasonable specificity, information to the contrary. All permits may be modified or revoked and/or reapplication or application for new permits may be required for any source determined to be permanently shutdown.
[45CSR§13-10.5.]

3.1.6. 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.]**

The Millwood, WV slag wool manufacturing facility is subject to provisions set forth by W. Va. Title V Permitting**.**
[45CSR30.]

Per Construction Permit No **R13-2864A§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 of R13-2864A§4.1.1.

4.1.5. Manganese content of the slag entering the furnace shall not exceed 10.95 percent.

4.1.9. Total slag throughput to the EAF shall not exceed the limitations put forth by R13-2864A§4.1.9.

4.1.10.1. Opacity from any process source operation shall not exceed 20% except for opacity which is less than 40% for a period or periods aggregating no more than 5 minutes in any 60 minute period.
[45CSR§7-3.1 & 45CSR§7-3.2.]

4.1.10.2. Particulate matter shall be vented into the open air according to the provisions outlined by R13-2864A§4.1.10.2.
[45CSR§7-4.1.]

4.1.10.3. Minimization of fugitive particulate matter shall be minimized according to R13-2864A§4.1.10.3.
[45CSR§7-5.1.]

4.1.13. The total annual Mn emissions from the facility shall not exceed 9.5 tons per year based on a rolling 12 month total basis.

4.1.14. 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 of the Permit to Construct 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.]

☒ 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.)

Per Construction Permit No. **R13-2864A§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.

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 and according to all specifications and provisions stated in R13-2864A§4.2.2.

4.2.7. The permittee shall maintain monthly records of slag wool production.

4.2.10. The permittee shall maintain monthly records of slag throughput to the EAF.

4.2.11. To show compliance with the Mn emission limit in condition R13-2864A§4.1.13, monthly Mn emissions from the facility shall be calculated according to R13-2864A4.2.11.

Per Construction Permit No. **R13-2864A§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 Permit to Construct No. R13-2864A and/or established or set forth in underlying documents. The Secretary has authority according to R13-2864A§3.3.1 and all tests shall be conducted in accordance with the methods and procedures set forth in Permit to Construct No. R13-2864A or as otherwise approved or specified by the Secretary in accordance with R13-2864A§3.3.1(a), R13-2864A§3.3.1(b), R13-2864A§3.3.1(c), and R13-2864A§3.3.1(d).

According to R13-2864A§3.3.1(a) and R13-2864A§3.3.1(b), the permit may be revised for any reason and according to 45CSR§13-4 or 45CSR§13-5.4 as applicable.

All periodic tests to determine mass emissions 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 and according to all specifications of R13-2864§3.3.1(c).

The permittee shall submit a report of the results of the stack test within sixty (60) days of completion of the test and according to all provisions set forth in R13-2864A§3.3.1(d).
[WV Code §22-5-4(a)(14-15) and 45CSR13]

Per Construction Permit No. **R13-2864A§4.3.** Testing Requirements.:

4.3.2. After the testing of R13-2864A§4.3.1 is completed, ongoing compliance shall be demonstrated by repeating the above testing according to the schedule of R13-2864A§4.3.2.

4.3.3. The permittee shall comply with all applicable testing requirements of 40CFR60 Subpart IIII.

Per Construction Permit No **R13-2864A§3.4.** Recordkeeping Requirements.:

3.4.1. Retention of records. The permittee shall maintain records of all information (including monitoring data, support information, reports and notifications) required by this permit recorded in a form suitable and readily available for expeditious inspection and review and according to all provisions and specifications set forth by R13-2864A§3.4.1.

3.4.2. Odors. For the purposes of 45CSR4, the permittee shall maintain a record of all odor complains received, any investigation performed in response to such a complaint, and any responsive action(s) taken.
[45CSR§4. *State-Enforceable only.]*

Per Construction Permit No. **R13-2864A§4.4.** Recordkeeping Requirements.:

4.4.1. Record of Monitoring. The permittee shall keep records of monitoring information according to the provisions put forth in R13-2864A§4.4.1.

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

4.4.3. Record of Malfunction of Air Pollution Control Equipment. For all pollution control equipment listed in Section 1.0 of R13-2864A, 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, information shall be recorded according to R13-2864A§4.4.3.

4.4.6. In order to determine compliance with R13-2864A§4.2.7, 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.

4.4.7. In order to demonstrate compliance with the requirements of R13-2864A§4.2.2., 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 tot eh Director or his/her duly authorized representative.

4.4.8. In order to determine compliance with the requirements of R13-2864A, 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.

4.4.11. In order to determine compliance with R13-2864A§4.2.10, the permittee shall keep 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.

Per Construction Permit No **R13-2864A§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.

3.5.2. Confidential information. A permittee may request confidential treatment for the submission of reporting required by this permit pursuant to the limitation and procedures of W.Va. Code § 22-5-10 and 45CSR31.

3.5.3. Correspondence. 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 delivered according to the provisions and specifications set forth in R1302864A§3.5.3.

3.5.5. Emission inventory. At such time(s) as the Secretary may designate, the permittee herein shall prepare and submit an emission inventory for the previous year, addressing the emissions from the facility and/or process(es) authorized herein, in accordance with the emission inventory submittal requirements of the Division of Air Quality. After the initial submittal, the Secretary may, based upon the type and quantity of the pollutants emitted, establish a frequency other than on an annual basis.

Per Construction Permit No. **R13-2864A§4.4.** Recordkeeping Requirements.:

4.4.5. In order to determine compliance with R13-2864A§4.1.5, 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.

Per Construction Permit No **R13-2864A§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 information according to R13-2864A§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.

4.5.3. The permittee shall comply with all applicable reporting requirements of 45CSR7, 45CSR10, 45CSR13 and 40CFR60 Subpart IIII.

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)*
Permit to Construct No. R13-2864A	11/16/2011	Not applicable
National Pollution Discharge Elimination System (NPDES) WV0116661	11/15/2011	Not applicable
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	

22. Inactive Permits/Obsolete Permit Conditions		
Permit Number	Date of Issuance	Permit Condition Number
Not applicable	MM/DD/YYYY	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	

Section 3: Facility-Wide Emissions

23. Facility-Wide Emissions Summary [Tons per Year]	
Criteria Pollutants	Potential Emissions
Carbon Monoxide (CO)	41.00
Nitrogen Oxides (NO_X)	50.22
Lead (Pb)	NA
Particulate Matter ($PM_{2.5}$)[1]	99.30
Particulate Matter (PM_{10})[1]	103.32
Total Particulate Matter (TSP)	114.66
Sulfur Dioxide (SO_2)	245.07
Volatile Organic Compounds (VOC)	23.11
Hazardous Air Pollutants[2]	Potential Emissions
Manganese Compounds	9.48
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: 0.01 lb/hr, 0.04 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) 14S Glycol Additive Storage Tank (VOC emissions: 0.01 lb/hr, 0.04 tpy)

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: 0.01 lb/hr, 0.04 tpy) (All HAPs also considered VOCs) 13S Diesel Storage Tank #2 (VOC emissions: 0.01 lb/hr, 0.04 tpy) (All HAPs also considered VOCs)
☐	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.
☒	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

24. Insignificant Activities (Check all that apply)		
		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: William S. Woolard	Title: Plant Manager

Responsible official's signature:

Signature: William S Woolard Signature Date: 4-11-13

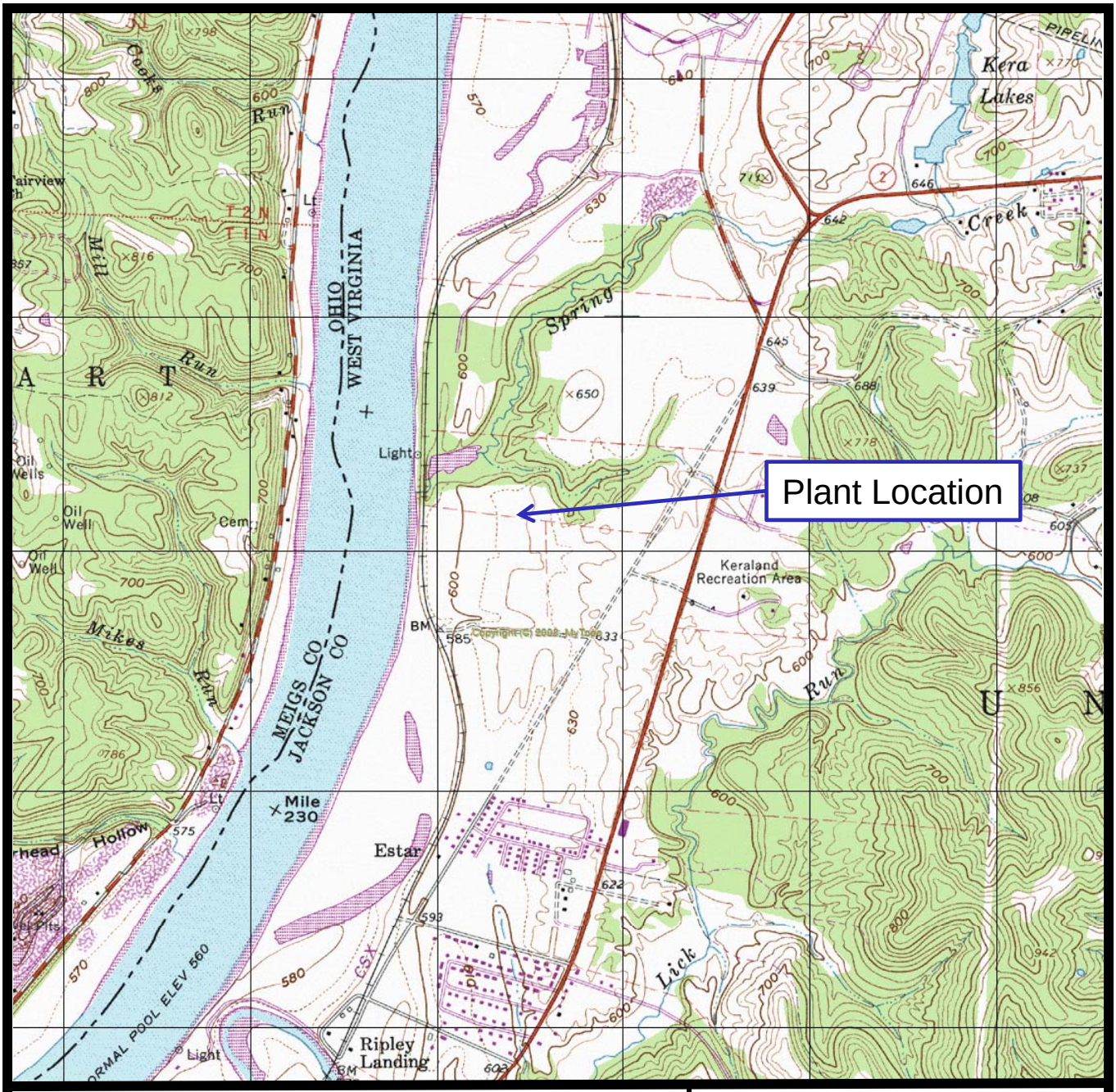
(Must be signed and dated in blue ink)

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.

TABLE OF CONTENTS

ATTACHMENT A
SITE LOCATION MAP



Liberty Environmental, Inc.

50 N. FIFTH STREET
5TH FLOOR
READING, PA 19601
PHONE: 610-375-9301
FAX: 610-375-9302

NORTH

SCALE : 1" = 2000 FEET

0 2000 4000

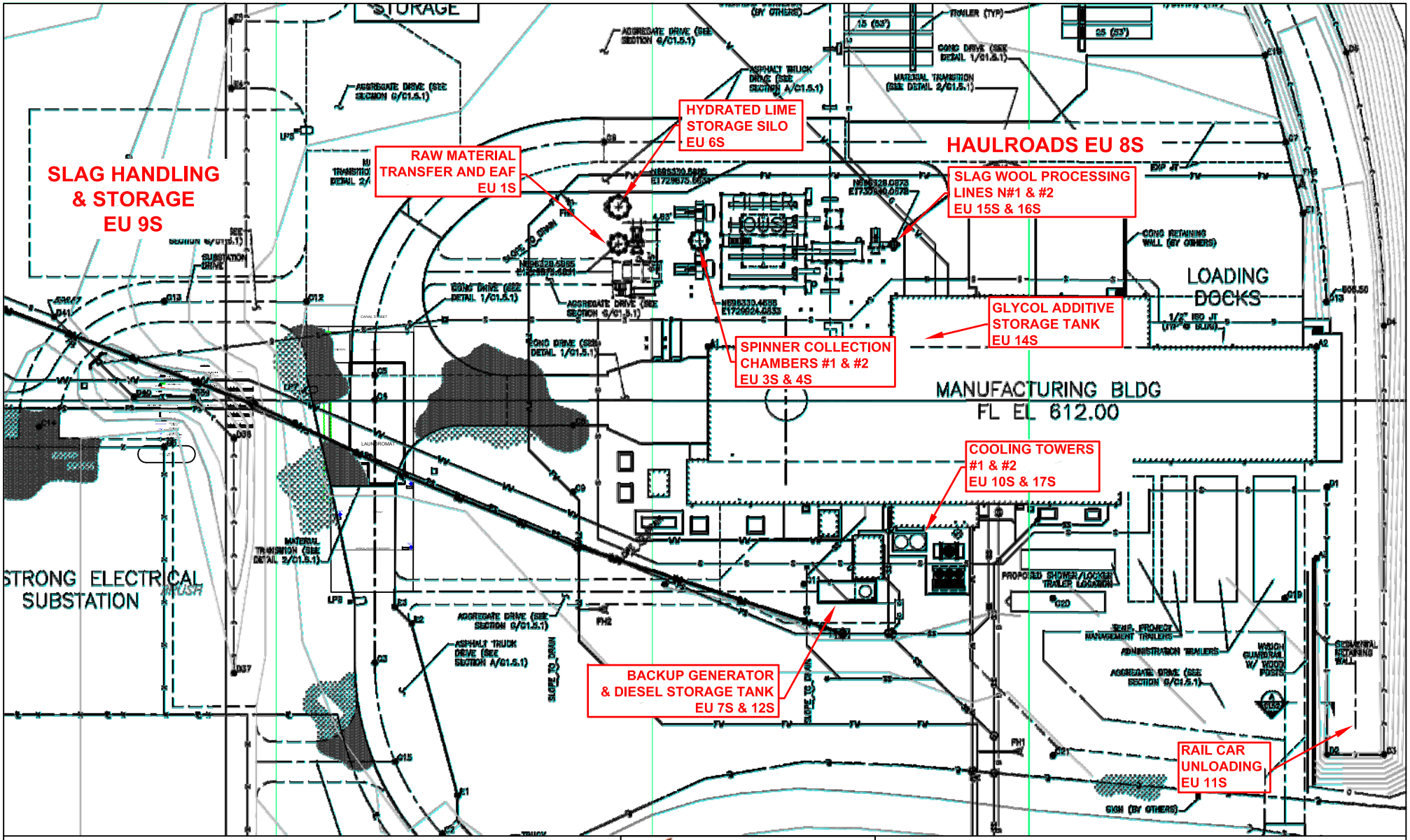
ATTACHMENT A: SITE LOCATION MAP

MILLWOOD SLAG WOOL MANUFACTURING FACILITY

ARMSTRONG WORLD INDUSTRIES

USGS MAP QUADRANGLE: RAVENSWOOD, WV

ATTACHMENT B
PLOT PLAN



N

SCALE 1" = 80'

0' 40' 80' 160'

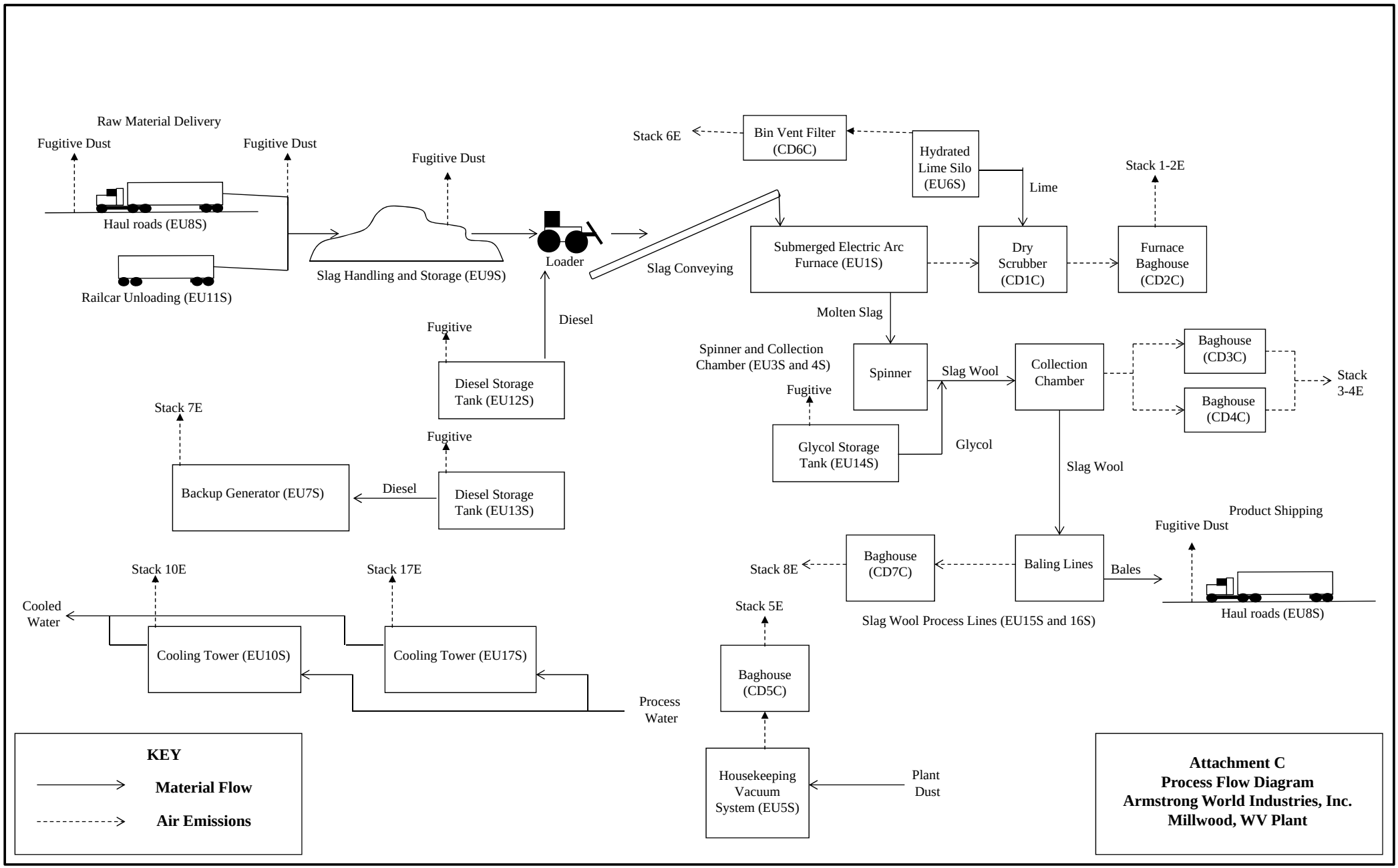
Attachment B - Plot Plan

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

Liberty Environmental, Inc.
50 N. Fifth St. 5th Floor
Reading, PA 19601
Phone: 610-375-9301
Fax: 610-375-9302
www.libertyenviro.com

PROJECT NO.: 120123	REV: 0	PREPARED BY: JPB
DATE: APRIL 11, 2013	SCALE: 1" = 80'	APPROVED BY: GLB

ATTACHMENT C
PROCESS FLOW DIAGRAM


Raw Material Delivery
Fugitive Dust
Fugitive Dust
Fugitive Dust
Haul roads (EU8S)
Railcar Unloading (EU11S)
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
Fugitive
Diesel
Diesel Storage Tank (EU12S)
Spinner and Collection Chamber (EU3S and 4S)
Spinner
Slag Wool
Collection Chamber
Baghouse (CD3C)
Baghouse (CD4C)
Stack 3-4E
Fugitive
Glycol Storage Tank (EU14S)
Glycol
Slag Wool
Stack 7E
Fugitive
Backup Generator (EU7S)
Diesel
Diesel Storage Tank (EU13S)
Product Shipping
Fugitive Dust
Stack 8E
Baghouse (CD7C)
Baling Lines
Bales
Haul roads (EU8S)
Slag Wool Process Lines (EU15S and 16S)
Stack 10E
Stack 17E
Cooled Water
Cooling Tower (EU10S)
Cooling Tower (EU17S)
Process Water
Stack 5E
Baghouse (CD5C)
Housekeeping Vacuum System (EU5S)
Plant Dust
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	37,500 lb/hr	2011
3-4E	3C	3S	Spinner Collection Chamber #1	18,542 lb/hr	2011
3-4E	4C	4S	Spinner Collection Chamber #2	18,542 lb/hr	2011
5E	5C	5S	Housekeeping Vacuum System*	1,000 cfm	2011
6E	6C	6S	Hydrated Lime Silo	3,300 cf	2011
7E	N	7S	Backup Generator	565 kW	2011
Fugitive	WS	8S	Haulroads	8,880 VMT/yr	2011
Fugitive	N	9S	Slag Handling and Storage	--	2011
10E	N	10S	Cooling Tower #1	1,500 gpm	2011
Fugitive	N	11S	Railcar Unloading	300 tph	2011
8E	7C	15S	Slag Wool Processing Line #1	17,500 lb/hr	2011
8E	7C	16S	Slag Wool Processing Line #2	17,500 lb/hr	2011
17E	N	17S	Cooling Tower #2	800 gpm	2011

[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): 37,500 lb/hr slag feed rate to EAF

Maximum Hourly Throughput: 37,500 lb/hr slag	**Maximum Annual Throughput:** 164,250 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)*	5.0	21.9
Nitrogen Oxides (NO_X)	5.0	21.9
Lead (Pb)	NA	NA
Particulate Matter ($PM_{2.5}$)	3.7	16.2
Particulate Matter (PM_{10})	3.7	16.2
Total Particulate Matter (TSP)	3.7	16.2
Sulfur Dioxide (SO_2)	55.9	245.0
Volatile Organic Compounds (VOC)	5.0	21.9
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Manganese compounds	0.28	1.23
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".

* 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 <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 Construction Permit No **R13-2864A§4.1** Limitations and Standards.:

4.1.2. The total annual SO2 emissions from the EAF (1S) shall not exceed 245 tons per year based on a rolling 12 month total basis.

4.1.3. For the purpose of complying with the 245 tpy SO2 emission limitation, the Furnace Dry Scrubber (1C) shall be operated in accordance with the provisions set forth in R13-2864A§4.1.3.1.

4.1.8. A minimum of 65% of the sulfur contained in the slag shall be retained in the product mineral wool.

4.1.11.1 The in stack SO2 concentration from the EAF shall not exceed 2,000 ppm.
[45CSR§10-4.1.]

Per Construction Permit No. **R13-2864A** the EAF has emission limits of 2.6 lb/hr and 11.4 tpy PM, 5.0 lb/hr and 21.9 tpy VOC, 55.94 lb/hr and 245.0 tpy SO2, 5.0 lb/hr and 21.9 tpy CO, and 0.28 lb/hr and 1.25 tpy Mn compounds.

_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 Construction Permit No **R13-2864A§4.2**. Monitoring Requirements.:

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 R13-2864A at all times that the emission source(s) is/are in operation.

4.2.4. For the purpose of determining compliance with the permit limits based on the hydrated lime injection rate associated with the Dry Scrubber as described in condition 4.1.3 of R13-2864A, the permittee shall obtain representative samples of slag according to the method outlined in R13-2864A§4.2.4.

4.2.5. For the purposes of demonstrating compliance with the sulfur content limit in R13-2864A 4.1.11, analytical testing results showing sulfur content shall be obtained from the fuel supplier with each shipment of fuel. Alternatively, the permittee may obtain a fuel sample of each shipment and perform analytical testing to determine the sulfur content.

4.2.6. To show compliance with the SO2 limit in condition R13-2864A§4.1.2, monthly SO2 emissions from the submerged electric arc furnace shall be calculated (mass balance) 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.

4.2.8. The permittee shall collect representative samples of slag from each supplier according to in R13-2864A§4.2.8.

4.2.9. In order to determine compliance with conditions R13-2864A§4.1.2 and R13-2864A4.1.8, at least once per month, the permittee shall analyze a sample of product mineral wool for sulfur content.

Per Construction Permit No. **R13-2864A§4.4.** Recordkeeping Requirements.:

4.4.4. In order to determine compliance with R13-2864A§4.1.2 and R13-2864A§4.1.3, the permittee shall keep hourly records of the hydrated lime injection rate to the scrubber and monthly records of the sulfur content of the slag. Upon request the records shall be certified and made available to the Director or his/her duly authorized representative.

4.4.10. In order to determine compliance with R13-2864A§4.2.9, the permittee shall keep monthly records of the sulfur content of the product slag wool. Upon request the records shall be certified and made available to the Director or his/her duly authorized representative.

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 polyethylene glycol (PEG).

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): 18,542 lb/hr slag wool

Maximum Hourly Throughput: 18,542 lb/hr slag wool	**Maximum Annual Throughput:** 81,213 tons/yr slag wool	**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)	NA	NA
Nitrogen Oxides (NO_X)	NA	NA
Lead (Pb)	NA	NA
Particulate Matter ($PM_{2.5}$)	7.1	31.1
Particulate Matter (PM_{10})	7.1	31.1
Total Particulate Matter (TSP)	7.1	31.1
Sulfur Dioxide (SO_2)	NA	NA
Volatile Organic Compounds (VOC)	0.04	0.17
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Manganese compounds	0.78	3.40
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 <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 Construction Permit No. **R13-2864A** the Spinner Collection Chamber #1 has emission limits of 7.1 lb/hr and 31.1 tpy PM, 0.05 lb/hr and 0.2 tpy VOC, and 0.78 lb/hr and 3.4 tpy Mn compounds.

____ 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 Construction Permit No **R13-2864A§4.2**. Monitoring Requirements.:

> 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 R13-2864A at all times that the emission source(s) is/are in operation.
>
> 4.2.8. The permittee shall collect representative samples of slag from each supplier according to in R13-2864A§4.2.8.

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 #1. Emissions are controlled by the Collection Chamber Baghouse #2 (4C) after the slag wool is treated with polyethylene glycol (PEG).

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): 18,542 lb/hr slag wool

Maximum Hourly Throughput: 18,542 lb/hr slag wool	**Maximum Annual Throughput:** 81,213 tons/yr slag wool	**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)	NA	NA
Nitrogen Oxides (NO_X)	NA	NA
Lead (Pb)	NA	NA
Particulate Matter ($PM_{2.5}$)	7.1	31.1
Particulate Matter (PM_{10})	7.1	31.1
Total Particulate Matter (TSP)	7.1	31.1
Sulfur Dioxide (SO_2)	NA	NA
Volatile Organic Compounds (VOC)	0.04	0.17
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Manganese compounds	0.78	3.40
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 <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 Construction Permit No. **R13-2864A** the Spinner Collection Chamber #2 has emission limits of 7.1 lb/hr and 31.1 tpy PM, 0.05 lb/hr and 0.2 tpy VOC, and 0.78 lb/hr and 3.4 tpy Mn compounds.

____ 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 Construction Permit No **R13-2864A§4.2**. Monitoring Requirements.:

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 R13-2864A at all times that the emission source(s) is/are in operation.

4.2.8. The permittee shall collect representative samples of slag from each supplier according to in R13-2864A§4.2.8.

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: 5S	**Emission unit name:** Housekeeping Vacuum System	**List any control devices associated with this emission unit:** 5C

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
The Housekeeping Vacuum System provides vacuum collection pick-up locations within the fabrication areas of the facility for maintenance operations.

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): 1,000 cfm

Maximum Hourly Throughput: 60,000 ft^3	**Maximum Annual Throughput:** 525.6 mmcf	**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)	NA	NA
Nitrogen Oxides (NO_X)	NA	NA

Lead (Pb)	NA	NA
Particulate Matter ($PM_{2.5}$)	0.3	1.5
Particulate Matter (PM_{10})	0.3	1.5
Total Particulate Matter (TSP)	0.3	1.5
Sulfur Dioxide (SO_2)	NA	NA
Volatile Organic Compounds (VOC)	NA	NA
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Manganese compounds	0.04	0.16
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 <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 Construction Permit No. **R13-2864A** the Housekeeping Vacuum System has emission limits of 0.34 lb/hr and 1.5 tpy PM and 0.04 lb/hr and 0.16 tpy Mn compounds.

____ 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 Construction Permit No **R13-2864A§4.2**. Monitoring Requirements.:

4.2.8. The permittee shall collect representative samples of slag from each supplier according to in R13-2864A§4.2.8.

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)	NA	NA
Nitrogen Oxides (NO_X)	NA	NA
Lead (Pb)	NA	NA
Particulate Matter ($PM_{2.5}$)	0.5	2.3
Particulate Matter (PM_{10})	0.5	2.3
Total Particulate Matter (TSP)	0.5	2.3
Sulfur Dioxide (SO_2)	NA	NA
Volatile Organic Compounds (VOC)	NA	NA
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
NA	NA	NA
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 <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 Construction Permit No. **R13-2864A** the Hydrated Lime Storage Silo has emission limits of 0.53 lb/hr and 2.3 tpy PM.

_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.)

Please see "General Forms".

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: Volvo Penta	**Model number:** TAD16416E	**Serial number:** Various
Construction date: 2011/2012	**Installation date:** 2012	**Modification date(s):** NA

Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 565 kW power output

Maximum Hourly Throughput: 40.5 gal ULSD/hr	**Maximum Annual Throughput:** 354,780 gal ULSD/yr	**Maximum Operating Schedule:** 8760 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:	**Type and Btu/hr rating of burners:** 5670 mBtu/hr

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, 40.5 gal ULSD/hr, 354,780 gal ULSD/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)	4.36	19.10
Nitrogen Oxides (NO_X)	6.46	28.32
Lead (Pb)	NA	NA
Particulate Matter ($PM_{2.5}$)	0.25	1.09
Particulate Matter (PM_{10})	0.25	1.09
Total Particulate Matter (TSP)	0.25	1.09
Sulfur Dioxide (SO_2)	0.011	0.049
Volatile Organic Compounds (VOC)	0.199	0.873
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
NA	NA	NA
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 <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 Construction Permit No **R13-2864A§4.1** Limitations and Standards.:

4.1.12.1. Emissions from the Backup Generator (7S) shall not exceed the following limits: 6.4 g/hp-hr NOx+NMHC, 3.5 g/hp/hr CO, and 0.20 g/hp-hr PM.
[40CFR§60-4204(b).]

4.1.12.2. 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.
[40CFR§60-4206.]

4.1.12.3. The nonroad diesel fuel that is used in the backup generator must have a sulfur content less than 15 parts per million. **[40CFR§60-4207(b).]**

Per Construction Permit No. **R13-2864A** the Backup diesel-fired generator has emission limits of 4.37 lb/hr and 19.1 tpy CO, 6.47 lb/yr and 28.3 tpy NOx, 0.26 lb/hr and 1.1 tpy PM, and 0.01 lb/hr and 0.04 tpy SO2.

_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.)

Please see "General Forms".

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)	NA	NA
Nitrogen Oxides (NO_X)	NA	NA
Lead (Pb)	NA	NA
Particulate Matter ($PM_{2.5}$)	ND	0.39
Particulate Matter (PM_{10})	ND	3.88
Total Particulate Matter (TSP)	ND	14.56
Sulfur Dioxide (SO_2)	NA	NA
Volatile Organic Compounds (VOC)	NA	NA
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
NA	NA	NA
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 <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 Construction Permit No **R13-2864A§4.1** Limitations and Standards.:

4.1.6. Fugitive particulate emissions resulting from the use of haulroads and mobile work areas shall be minimized according to the measures set forth by R13-2864A§4.1.6(a), R13-2864A§4.1.6(b), and R13-2864A§4.1.6(c).

4.1.7. 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.

4.1.10.4. The owner or operator of the 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 when necessary and according to R13-2864A§4.10.4.
[45CSR§7-5.2.]

____ 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.)

Please see "General Forms".

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)	NA	NA
Nitrogen Oxides (NO_X)	NA	NA
Lead (Pb)	NA	NA
Particulate Matter ($PM_{2.5}$)	ND	0.08
Particulate Matter (PM_{10})	ND	0.04
Total Particulate Matter (TSP)	ND	0.01
Sulfur Dioxide (SO_2)	NA	NA
Volatile Organic Compounds (VOC)	NA	NA
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Mn compounds	ND	0.01
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 <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 Construction Permit No **R13-2864A§4.1** Limitations and Standards.:

4.1.7. 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.

4.1.10.4. The owner or operator of the 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 when necessary and according to R13-2864A§4.10.4. **[45CSR§7-5.2.]**

Per Construction Permit No. **R13-2864A**, Slag Handling and Storage has emission limits of 1.2 tpy PM, 0.6 tpy PM10, and 0.13 tpy Mn.

____ 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 Construction Permit No **R13-2864A§4.2**. Monitoring Requirements.:

4.2.8. The permittee shall collect representative samples of slag from each supplier according to in R13-2864A§4.2.8.

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)	NA	NA
Nitrogen Oxides (NO_X)	NA	NA
Lead (Pb)	NA	NA
Particulate Matter ($PM_{2.5}$)	0.77	3.37
Particulate Matter (PM_{10})	0.77	3.37
Total Particulate Matter (TSP)	0.77	3.37
Sulfur Dioxide (SO_2)	NA	NA
Volatile Organic Compounds (VOC)	NA	NA
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
NA	NA	NA
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 <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 Construction Permit No. **R13-2864A**, Cooling Tower #1 has an emission limit of 0.78 lb/hr and 3.4 tpy PM.

____ 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.)

Please see "General Forms".

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)	NA	NA
Nitrogen Oxides (NO_X)	NA	NA
Lead (Pb)	NA	NA
Particulate Matter ($PM_{2.5}$)	0.001	0.006
Particulate Matter (PM_{10})	0.01	0.04
Total Particulate Matter (TSP)	0.02	0.08
Sulfur Dioxide (SO_2)	NA	NA
Volatile Organic Compounds (VOC)	NA	NA
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Mn compounds	0.00	0.01
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 <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 Construction Permit No **R13-2864A§4.1** Limitations and Standards.:

> 4.1.7. 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.
>
> 4.1.10.4. The owner or operator of the 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 when necessary and according to R13-2864A§4.10.4.
> **[45CSR§7-5.2.]**

Per Construction Permit No. **R13-2864A**, Railcar Unloading has emission limits of 0.1 tpy PM, 0.04 tpy PM10, and 0.01 tpy Mn.

____ 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 Construction Permit No **R13-2864A§4.2**. Monitoring Requirements.:

4.2.8. The permittee shall collect representative samples of slag from each supplier according to in R13-2864A§4.2.8.

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): 17,500 lb/hr slag wool

Maximum Hourly Throughput: 17,500 lb/hr slag wool	**Maximum Annual Throughput:** 76,650 tpy slag wool	**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)	NA	NA
Nitrogen Oxides (NO_X)	NA	NA
Lead (Pb)	NA	NA
Particulate Matter ($PM_{2.5}$)	1.20	5.23
Particulate Matter (PM_{10})	1.20	5.23
Total Particulate Matter (TSP)	1.20	5.23
Sulfur Dioxide (SO_2)	NA	NA
Volatile Organic Compounds (VOC)	NA	NA
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Mn compounds	0.13	0.57
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 <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 Construction Permit No. **R13-2864A** Slag Wool Processing Lines #1 and #2 have collective emission limits of 2.4 lb/hr and 10.5 tpy PM and 0.26 lb/hr and 1.15tpy Mn compounds.

____ 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 Construction Permit No **R13-2864A§4.2**. Monitoring Requirements.:

> 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 R13-2864A at all times that the emission source(s) is/are in operation.
>
> 4.2.8. The permittee shall collect representative samples of slag from each supplier according to in R13-2864A§4.2.8.

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, completes tasks, such as shot removal, to prepare the slag wool for baling, and facilitates 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): 17,500 lb/hr slag wool

Maximum Hourly Throughput: 17,500 lb/hr slag wool	**Maximum Annual Throughput:** 76,650 tpy	**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)	NA	NA
Nitrogen Oxides (NO_X)	NA	NA
Lead (Pb)	NA	NA
Particulate Matter ($PM_{2.5}$)	1.20	5.23
Particulate Matter (PM_{10})	1.20	5.23
Total Particulate Matter (TSP)	1.20	5.23
Sulfur Dioxide (SO_2)	NA	NA
Volatile Organic Compounds (VOC)	NA	NA
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Mn compounds	0.13	0.57
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 <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 Construction Permit No. **R13-2864A** Slag Wool Processing Lines #1 and #2 have collective emission limits of 2.4 lb/hr and 10.5 tpy PM and 0.26 lb/hr and 1.15tpy Mn compounds.

____ 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 Construction Permit No **R13-2864A§4.2**. Monitoring Requirements.:

> 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 R13-2864A at all times that the emission source(s) is/are in operation.
>
> 4.2.8. The permittee shall collect representative samples of slag from each supplier according to in R13-2864A§4.2.8.

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)	NA	NA
Nitrogen Oxides (NO_X)	NA	NA
Lead (Pb)	NA	NA
Particulate Matter ($PM_{2.5}$)	0.41	1.80
Particulate Matter (PM_{10})	0.41	1.80
Total Particulate Matter (TSP)	0.41	1.80
Sulfur Dioxide (SO_2)	NA	NA
Volatile Organic Compounds (VOC)	NA	NA
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
NA	NA	NA
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 <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 Construction Permit No. **R13-2864A**, Cooling Tower #2 has emission limits of 0.42 lb/hr and 1.8 tpy PM.

____ 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.)

Please see "General Forms".

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

ATTACHMENT F - Schedule of Compliance Form

Complete this section if you indicated noncompliance with any of the applicable requirements identified in the permit application. For each emission unit which is not in compliance, identify the applicable requirement, the reason(s) for noncompliance, a description of how the source will achieve compliance, and a detailed schedule of compliance. If there is a consent order that applies to this requirement, attach a copy to this form.

1. Applicable Requirement

Unit(s): Submerged Electric Arc Furnace (1S)	**Applicable Requirement:** Carbon monoxide (CO) emissions limits in Table 4.1.1.1 of Permit R13-2864A.

2. **Reason for Noncompliance:** Performance testing conducted in January 2013 showed noncompliance with the CO emission limit of 5.0 lb/hr at the submerged electric arc furnace baghouse exhaust stack (Emission Point ID 1-2E). Reason for excess CO emissions is not known but may have been caused by broken graphite electrodes in the furnace.

3. **How will Compliance be Achieved?** Armstrong plans to install and operate CO continuous emissions monitoring system (CEMS) at the furnace baghouse exhaust stack to better understand CO emissions variability and to develop a CO emissions factor. Based on this baseline CO emissions data, Armstrong will request that the CO permit limits be revised.

4. Consent Order Number (if applicable): Armstrong met with WV DEP compliance and enforcement staff on March 26, 2013 and expects that a Consent Order will be issued in the near future.

5. Schedule of Compliance. Provide a schedule of remedial measures, including an enforceable sequence of actions with milestones, leading to compliance, including a date for final compliance.

Remedial Measure or Action	Date to be Achieved
Procure and install CO CEMS on furnace exhaust	August 1, 2013
Conduct RATA testing to certify CEMS	October 1, 2013
Operate CO CEMS to collect baseline CO data	December 1, 2013
Submit permit application to revise CO limits	February 1, 2014
Achieve compliance with revised CO limits	No later than the date of approval of Armstrong's permit modification request by DEP unless the installation of CO pollution control equipment is necessary.

6. Submittal of Progress Reports.

Content of Progress Report: Status of remedial actions and schedule	**Report starting date:** 10/01/2013 **Submittal frequency:** Quarterly

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.**

According to the CAM requirements of 40 CFR 64.5, CAM plans for PSEU units with potential post-control emissions less than the major source threshold are not required to submit a CAM plan as part of the initial permit application. This device is therefore exempt from the CAM requirements of 40 CFR 64 until the renewal of the facility's Title V permit. Please see Appendix I "Facility-wide Emissions Summary" for control device-specific emissions.

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: 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
$PM_{10}/PM_{2.5}$	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? ___ Yes _X_ No

If Yes, **Complete ATTACHMENT H**

If No**, Provide justification.**

According to the CAM requirements of 40 CFR 64.5, CAM plans for PSEU units with potential post-control emissions less than the major source threshold are not required to submit a CAM plan as part of the initial permit application. This device is therefore exempt from the CAM requirements of 40 CFR 64 until the renewal of the facility's Title V permit. Please see Appendix I "Facility-wide Emissions Summary" for control device-specific emissions.

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: 3C – 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.**

According to the CAM requirements of 40 CFR 64.5, CAM plans for PSEU units with potential post-control emissions less than the major source threshold are not required to submit a CAM plan as part of the initial permit application. This device is therefore exempt from the CAM requirements of 40 CFR 64 until the renewal of the facility's Title V permit. Please see Appendix I "Facility-wide Emissions Summary" for control device-specific emissions.

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: 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.**

According to the CAM requirements of 40 CFR 64.5, CAM plans for PSEU units with potential post-control emissions less than the major source threshold are not required to submit a CAM plan as part of the initial permit application. This device is therefore exempt from the CAM requirements of 40 CFR 64 until the renewal of the facility's Title V permit. Please see Appendix I "Facility-wide Emissions Summary" for control device-specific emissions.

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: 5C – Housekeeping Dust Collector	**List all emission units associated with this control device.** 5S	
Manufacturer: Various	**Model number: NA**	**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.).
1,000 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.**

According to the CAM requirements of 40 CFR 64.5, CAM plans for PSEU units with potential post-control emissions less than the major source threshold are not required to submit a CAM plan as part of the initial permit application. This device is therefore exempt from the CAM requirements of 40 CFR 64 until the renewal of the facility's Title V permit. Please see Appendix I "Facility-wide Emissions Summary" for control device-specific emissions.

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: 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.).
1,500 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.**

According to the CAM requirements of 40 CFR 64.5, CAM plans for PSEU units with potential post-control emissions less than the major source threshold are not required to submit a CAM plan as part of the initial permit application. This device is therefore exempt from the CAM requirements of 40 CFR 64 until the renewal of the facility's Title V permit. Please see Appendix I "Facility-wide Emissions Summary" for control device-specific emissions.

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? ___ Yes _X_ No

If Yes, **Complete ATTACHMENT H**

If No**, Provide justification.**

According to the CAM requirements of 40 CFR 64.5, CAM plans for PSEU units with potential post-control emissions less than the major source threshold are not required to submit a CAM plan as part of the initial permit application. This device is therefore exempt from the CAM requirements of 40 CFR 64 until the renewal of the facility's Title V permit. Please see Appendix I "Facility-wide Emissions Summary" for control device-specific emissions.

Describe the parameters monitored and/or methods used to indicate performance of this 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
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:	**4b) Pollutant:**	**4c) [a] Indicator No. 1:**	**4d) [a] Indicator No. 2:**
5a) GENERAL CRITERIA Describe the MONITORING APPROACH used to measure the indicators:			
[b] Establish the appropriate INDICATOR RANGE or the procedures for establishing the indicator range which provides a reasonable assurance of compliance:			
5b) PERFORMANCE CRITERIA Provide the SPECIFICATIONS FOR OBTAINING REPRESENTATIVE DATA, such as detector location, installation specifications, and minimum acceptable accuracy:			
[c] For new or modified monitoring equipment, provide VERIFICATION PROCEDURES, including manufacturer's recommendations, TO CONFIRM THE OPERATIONAL STATUS of the monitoring:			
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.):			
[d] Provide the MONITORING FREQUENCY:			
Provide the DATA COLLECTION PROCEDURES that will be used:			
Provide the DATA AVERAGING PERIOD for the purpose of determining whether an excursion or exceedance has occurred:			

[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:

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):

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:

ATTACHMENT I
EMISSIONS INVENTORY

TABLE 1
SUMMARY OF FACILITY-WIDE AIR EMISSION INVENTORY
ARMSTORING 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		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
1S	1-2E	Raw Material Transfer Operations and Submerged Electric Arc Furnace (EAF)	Dry Scrubber & Furnace Dust Collector	1C & 2C	3.70	16.21	3.70	16.21	3.70	16.21	5.00	21.90	5.00	21.90	55.94	245.02	5.00	21.90	0.28	1.23	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	0.04	0.17	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	0.04	0.17	NA	NA	NA	NA	0.78	3.40	NA	NA
5S	5E	Housekeeping Vacuum System	Housekeeping Dust Collector	5C	0.34	1.50	0.34	1.50	0.34	1.50	NA	NA	NA	NA	NA	NA	NA	NA	0.04	0.16	NA	NA
6S	6E	Hydrated Lime Storage Silo	Silo Bin Vent Filter	6C	0.51	2.25	0.51	2.25	0.51	2.25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7S	7E	Backup Generator	None	NA	0.25	1.09	0.25	1.09	0.25	1.09	6.46	28.32	0.20	0.87	0.011	0.049	4.36	19.10	NA	NA	0.010	0.042
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
9S	Fugitive	Slag Handling and Storage (Fugitive)	None	NA	ND	1.20	ND	0.59	ND	0.09	NA	NA	NA	NA	NA	NA	NA	NA	0.01	0.13	NA	NA
10S	Fugitive	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
11S	Fugitive	Railcar Unloading (Fugitive)	None	NA	0.02	0.08	0.01	0.04	0.001	0.006	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	0.26	1.15	NA	NA
17S	Fugitive	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
Totals					**22.58**	**114.66**	**22.57**	**103.32**	**22.56**	**99.30**	**11.46**	**50.22**	**5.28**	**23.11**	**55.95**	**245.07**	**9.36**	**41.00**	**2.14**	**9.48**	**0.01**	**0.04**

TABLE 2
ELECTRIC ARC FURNACE (EU 1S)
ARMSTRONG WORLD INDUSTRIES - MILLWOOD, WV

Slag Throughput		PM[a]		PM_{10}[a]		$PM_{2.5}$[a]		NO_x[c]		VOC[c]		SO_2[b]		CO[c]		Mn[b]	
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	ton/year	lb/hr	ton/year
26,685	116,880	3.70	16.21	3.70	16.21	3.70	16.21	5.00	21.90	5.00	21.90	55.94	245.02	5.00	21.90	0.28	1.23

[a]Based on volumteric flowrate and outlet grain loading of baghouse 1C, see Table3 for details
[b]Based on mass balance calculations of slag throughput developed by Armstrong.
[c]NO_x, CO, and VOC emission limits established by WV DEP.

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[b]		VOC			
					lb/hr	tpy	lb/hr	tpy	lb/hr PEG used	PEG % wt VOC	VOC lb/hr/line	tpy
3S	118,193	8,760	0.007	10.95	7.09158	31.06	0.776528	3.401193	43.83	0.089	0.039	0.171
4S	118,193	8,760	0.007	10.95	7.09158	31.06	0.776528	3.401193	43.83	0.089	0.039	0.171
5S	1,000	8,760	0.04	10.95	0.342857	1.50	0.037543	0.164438	NA	NA	NA	NA
6S	1,500	8,760	0.04	10.95	0.514286	2.252571	NA	NA	NA	NA	NA	NA
15S[a] 16S[a]	39,849	8,760	0.007	10.95	2.39094	10.47232	0.261808	1.146719	NA	NA	NA	NA

[a]Flow rate of Fiber Line Baghouse (Control Device 7C).
[b] Based on Mn content in slag of 10.95% by weight.

TABLE 4
FUGITIVE DUST FROM SLAG HANDLING & STORAGE (EU 9S & EU 11S)
ARMSTRONG WORLD INDUSTRIES - MILLWOOD, WV

EU ID	Transfer Points	Throughput ton/hr	Throughput ton/yr	PM Emission Factor[a] (lb/ton)	PM_{10} Emission Factor[a] (lb/ton)	$PM_{2.5}$ Emission Factor[a] (lb/ton)	Mn Content (% wt)	PM Emissions lb/hr	PM Emissions tpy	PM_{10} Emissions lb/hr	PM_{10} Emissions tpy	$PM_{2.5}$ Emissions lb/hr	$PM_{2.5}$ Emissions tpy	Mn Emissions lb/hr	Mn Emissions tpy
9S	Transfer to Storage Pile (Truck)	13.21	115,740	0.0017	0.0008	0.0001	11.0	0.022	0.10	0.011	0.05	0.002	0.007	0.002	0.011
	Loading out from Storage Pile (Front end loader)	10.00	87,600	0.0017	0.0008	0.0001	11.0	0.017	0.07	0.008	0.04	0.001	0.005	0.002	0.008
	Four Raw Materials Grizzly Hopper Discharge Conveyers [CV-0001 - CV-0004]	10.14	88,831	0.0017	0.0008	0.0001	11.0	0.017	0.08	0.008	0.04	0.001	0.006	0.002	0.008
	Raw Materials Transfer Conveyer [CV-0005]	10.14	88,831	0.0017	0.0008	0.0001	11.0	0.017	0.08	0.008	0.04	0.001	0.006	0.002	0.008
	Raw Materials Inclined Conveyer [CV-0006]	10.14	88,831	0.0017	0.0008	0.0001	11.0	0.017	0.08	0.008	0.04	0.001	0.006	0.002	0.008
11S	Railcar Unloading	10.21	89,479	0.0017	0.0008	0.0001	11.0	0.017	0.08	0.008	0.04	0.001	0.006	0.002	0.008

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	0.13	1,237	619	93	135.47	160.83	0.08	80.42	0.04	12.06	0.01	17.61	0.01
2	0.13	1,237	619	93	135.47	160.83	0.08	80.42	0.04	12.06	0.01	17.61	0.01
3	0.13	1,237	619	93	135.47	160.83	0.08	80.42	0.04	12.06	0.01	17.61	0.01
4	0.13	1,237	619	93	135.47	160.83	0.08	80.42	0.04	12.06	0.01	17.61	0.01
5	0.13	1,237	619	93	135.47	160.83	0.08	80.42	0.04	12.06	0.01	17.61	0.01
6	0.13	1,237	619	93	135.47	160.83	0.08	80.42	0.04	12.06	0.01	17.61	0.01
7	0.13	1,237	619	93	135.47	160.83	0.08	80.42	0.04	12.06	0.01	17.61	0.01
8	0.13	1,237	619	93	135.47	160.83	0.08	80.42	0.04	12.06	0.01	17.61	0.01
9	0.13	1,237	619	93	135.47	160.83	0.08	80.42	0.04	12.06	0.01	17.61	0.01
10	0.13	1,237	619	93	135.47	160.83	0.08	80.42	0.04	12.06	0.01	17.61	0.01
Totals						1608.32	0.80	804.16	0.40	120.62	0.06	176.11	0.09

[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 Power (kW)	Maximum Fuel Usage[a] (gal/hr)	Fuel Heating Rate (MMBtu/gal)	Maximum Operation Duration (hrs)	Emissions											
				$PM/PM_{10}/PM_{2.5}$[b]		NO_x		SO_2		CO		VOC		Total HAPs	
				lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
565	40.5	0.14	8,760	0.2491	1.0912	6.4648	28.3156	0.0112	0.0490	4.3597	19.0953	0.1993	0.8729	0.0095	0.0416

[a]Manufacturer specificifications indicate worst case fuel use of 228 g/kWh (25% load).
[b]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	0.2	g/kWh	NA
NO_x	5.19	g/kWh	NA
SO_2[c]	0.002	lb/MMBtu	0.000276
CO	3.5	g/kWh	NA
VOC	0.16	g/kWh	NA
Total HAP[d]	0.0017	lb/MMBtu	0.0002346

[c]SO_2 emission factor is based on 100% of engine load using fuel with 15 ppm sulfur content as required by NSPS IIII.
[d]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.

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).

ATTACHMENT J
DELEGATION OF AUTHORITY LETTER

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 Building Products, Millwood, WV Facility

DATE FORM PREPARED: March 7, 2013

FACILITY ID NO. (IF APPLICABLE): N/A

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:

Steve Woolard/ Matt McVay,

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

Executive VP & CEO ABP
TITLE OF SIGNATORY

Vic Grizzle
TYPED OR PRINTED NAME OF SIGNATORY

March / 11 / 2013
DATE

Steve Woolard/ Matt McVay
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.