



R14 PERMIT APPLICATION
Knauf Insulation, LLC > Inwood Facility

Permit No. R30-003000012-2013

Prepared By:

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Project 143901.0097

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1. INTRODUCTION

Knauf Insulation, LLC (Knauf) operates a fiberglass roll and batt insulation manufacturing facility in Inwood, West Virginia (Inwood facility). The facility was previously owned and operated by Guardian Fiberglass, Inc. and was recently purchased by Knauf. The facility currently operates in accordance with West Virginia Department of Environmental Protection (WVDEP) Division of Air Quality Title V operating permit R30-00300012-2013, issued on September 20, 2013.

Knauf is submitting this Rule 14 (R-14) permit application (Class II Administrative Update) to the West Virginia Department of Environmental Protection (WVDEP) to convert the glass fiberization technology on Line 1 at the Inwood Facility from Guardian technology to Knauf process technology. By the time Knauf begins the construction phase to implement the modifications requested in this permit, the facility will have switched 100% to Knauf's patented ECOSE Technology binder. ECOSE Technology binder is a non-phenol/formaldehyde binder, which contains no listed HAPs. The existing permit is R14-0015K.

1.1. FACILITY AND PROJECT DESCRIPTION

Knauf's Inwood facility is a wool fiberglass manufacturing facility covered under Standard Industrial Classification (SIC) Code 3296. The facility has the potential to operate 24 hours per day, 7 days per week. The facility consists of a raw materials receiving area and batch mixing point, electric melters, a series of natural gas fueled heaters, binder sprayers, curing ovens, and storage tanks.

The Inwood facility can produce two insulation types, a bonded product or an un-bonded product. The facility receives raw materials that are mixed into batch and the batch is then melted to form molten glass. The molten glass is separated into streams by use of a forehearth and fiber is spun into strands by the means of fiberizers. In bonded fiberglass production, the fine fibers are transferred to a fiber forming section where water, wax and ECOSE binder are added and are collected to form a binder coated fiber blanket, which is then cured in a three-zone oven. Upon exiting the curing oven the blanket is cooled via a "cooling table". The cooled blanket is then cut to size in rolls and batts of insulation per customer demand and packaged for shipment offsite. In the un-bonded process, the molten glass is processed into fine fibers which are collected in a forming section. Fluids are applied at various locations to enhance the performance of the end product. The product is then bagged and banded for storage and shipment. Wet scrubbers, an air tumbler, dust collectors and cyclones are used to control emissions at various points in the material handling and the resinated and non-resinated processes.

Knauf is planning to replace the existing wool fiberglass fiberization technology on Line 1 at the Inwood Facility with Knauf fiberization technology in order to be consistent with other operations at other Knauf facilities. Line 1 produces bonded product. The updated production process will operate more efficiently with the ECOSE Technology Binder, which will be used exclusively at the Inwood Facility beginning in May 2015.¹

Detailed descriptions of the proposed changes to each portion of the process as a result of the proposed project are provided in the following section.

¹ The conversion to ECOSE Technology Binder was previously authorized under WVDEP permit applicability determination PD14-148, dated November 17, 2014.

1.2. PROPOSED PROJECT UPDATES

1.2.1. Raw Material Handling Operations (Group 001)

The raw material operations consists of several storage bins for sand, aplite, borax, soda ash, cullet, batch houses which receive and mix the raw materials, and several miscellaneous binder mixing tanks. Outside of an increase in production, no changes are anticipated in the solids raw material handling. There are several storage tanks that will be removed and several storage tanks that will have their service changed. Table 1-1 and 1-2 includes a summary of the tank changes proposed at the Inwood facility.

Table 1-1. Storage Tank Updates

Tank ID	Proposed Tank Description	Tank Size	Proposed Change
T3	ECOSE Storage Tank	4,500 gallons	Modified storage contents
T4	ECOSE Storage Tank	4,500 gallons	Modified storage contents
T5	ECOSE Storage Tank	4,500 gallons	Modified storage contents
T6	ECOSE Storage Tank	4,500 gallons	Modified storage contents
T7A	Wax Storage Tank	5,000 gallons	N/A
T7B	Wax Storage Tank	5,000 gallons	N/A
T8	Ammonia (aqueous) Storage Tank	6,000 gallons	N/A
M1	Ammonium Sulfate Mix Tank	1,200 gallons	New
M2	Ammonium Sulfate Holding Tank	1,700 gallons	New
M3	Spare Storage Tank	1,700 gallons	Modified storage contents - ID changed from M-2 to M-3
M4	Filtered Water Hold Tank	3,200 gallons	Modified storage contents - ID changed from M-3 to M-4
M5	Binder Mix Tank	750 gallons	New
M6	Binder Holding Tank	1,700 gallons	Modified storage contents - ID changed from M-5 to M-6

Table 1-2. Removed Storage Tanks

Tank ID	Proposed Tank Description	Tank Size	Proposed Change
M1	Pre-React Mix Tank	1,200 gallons	Removed
M4	Additive Mix Tank	150 gallons	Removed
M6	Pre-React Holding Tank	50 gallons	Removed
M7	Ammonia (aqueous) Storage Tank	50 gallons	Removed
M8	Process Water Tank	50 gallons	Removed
M9	Additive Tank	50 gallons	Removed
M10	Binder Holding Tank	1,500 gallons	Never installed

1.2.2. Melt and Refining Line 1 (Group 002)

No significant changes will be made to the melter, conditioner, or forehearth. Knauf is proposing to increase the permitted glass pull rate of the melter from 8,000 lb/hr to 9,000 lb/hr. In order to accommodate the larger Knauf fiberizers, Knauf will expand the bushing spacing on the forehearth.

1.2.3. Forming and Collecting Line 1 (Group 004)

The existing forming/collection section on Line 1 will be replaced by a single module forming section utilizing Knauf fiberizers. There will be three forming/ fan zones and multiple cured product fiberizers fired with natural gas (Total rating at 13 MMBtu/hr). In addition, three (3) new wet venturi scrubbers will be installed on Line 1 forming collection area to replace the existing controls (dropout boxes with water sprays).

1.2.4. Curing and Cooling Line 1 (Group 006)

There will be no changes to the current configuration of the curing ovens and the regenerative thermal oxidizer (RTO) on Line 1. The curing and cooling section will have an increase in throughput as a result of the project.

1.3. R-13 APPLICATION ORGANIZATION

This R-14 permit application is organized as follows:

- > Section 2: Sample Emission Source Calculations;
- > Section 3: R-13 Application Forms;
- > Attachment A: Business Certificate;
- > Attachment B: Map;
- > Attachment C: Installation and Start Up Schedule;
- > Attachment D: Regulatory Discussion;
- > Attachment E: Plot Plan;
- > Attachment F: Detailed Process Flow Diagram;
- > Attachment G: Process Description;
- > Attachment I: Emission Units Table;
- > Attachment J: Emission Points Data Summary Sheet;
- > Attachment K: Fugitive Emissions Data Summary Sheet;
- > Attachment L: Emissions Unit Data Sheets;
- > Attachment M: Air Pollution Control Device Sheet;
- > Attachment N: Supporting Emission Calculations;
- > Attachment O: Monitoring/Recordkeeping/Reporting/Testing Plans
- > Attachment P: Legal Advertisement ;
- > Attachment S: Title V Modification and strikethrough Permit; and
- > Application Fee.

2. EMISSION SOURCE CALCULATIONS

Emission increases at existing units from the proposed project were calculated in accordance with the procedures described in Rule 45 CSR 14 subsection 3.4. This rule (subsection 3.4.c) states that “the actual-to-projected actual applicability test may be used for projects that only involve existing emissions units. A significant emissions increase of a regulated new source review pollutant is projected to occur if the sum of the difference between the projected actual emissions and the baseline actual emissions for each existing emissions unit, equals or exceeds the significant amount for that pollutant.”

2.1. BASELINE ACTUAL EMISSIONS

Pursuant to 45 CSR 14 subsection 2.8, Baseline Actual Emissions (BAE) must be calculated to cover a 24-month period within the ten-year period preceding receipt of a complete permit application. Based on this definition, the BAE was calculated using the period from 2006 to 2014. BAE for the bonded and unbonded lines were calculated using actual throughput rates for the applicable baseline years, per the emission inventory report for each year included in the baseline period. Emission factors for each pollutant were developed from testing at the Inwood Facility in various years from 2000 through 2013. The period from 2009 – 2010 was used to calculate the baseline VOC, CO and SO₂ emissions. The period from 2006 – 2007 was used to calculate baseline emissions for PM, PM₁₀, PM_{2.5}, and NO_x.

2.2. PROJECTED ACTUAL EMISSIONS

Subsection 2.63 states that to determine projected actual emissions (PAE) of a project, the calculations:

- > Shall consider all relevant information, including but not limited to, historical operational data, the company's own representations, the company's expected business activity and the company's highest projections of business activity, the company's filings with the State or Federal regulatory authorities, and compliance plans under the approved State Implementation Plan; and
- > Shall include fugitive emissions to the extent quantifiable, and emissions associated with startups, shutdowns, and malfunctions; and
- > Shall exclude, in calculating any increase in emissions that results from the particular project, that portion of the unit's emissions following the project that an existing unit could have accommodated during the consecutive 24- month period used to establish the baseline actual emissions and that are also unrelated to the particular project, including any increased utilization due to product demand growth

The project basis is to implement Knauf's technology into the Line 1 wool fiberglass production process. The emission rates for the modified equipment are expected to differ from those for the current equipment configuration. As such, to calculate projected actual emissions, the emission factors for the curing, cooling, forming, and collection areas on Line 1 were based on Knauf Technology binder emission factors at other facilities. Specifically, Knauf used emission factors developed from emissions testing at the Knauf facilities in Lanett, Alabama, and Shasta, California, which were using ECOSE technology binder and Knauf fiberization technology at the time of testing.

Projected actual emissions are calculated using the projected throughput for Line 1 (9,000 lb/hr at continuous operation). Emissions were calculated for the entire production process (i.e., including raw material handling and other associated operations) to include associated emission increase from the proposed project. Note that since no changes are being proposed in the material handling and cold end areas, the existing emission factors for these areas were retained.

It is important to note that Knauf has not included emissions that could have been accommodated during the baseline period. As such, the representation of projected actual emissions is conservatively high. A summary of the analysis,

compared to the PSD significant emission rates (SERs) is included in Table 2-1, with supporting calculations provided in Attachment N.

Table 2-1. Emissions increase Summary

Pollutant	Line 1 Projected Actual Emissions (tpy)	Line 1 Baseline Emissions (tpy)	Line 1 Emission Increase (tpy)	Significant Emission Rate (tpy)	Trigger Major NSR (Yes/No)	Percent of SER %
CO	40.43	69.08	0.00	100	No	0%
NO _x	10.58	16.70	0.00	40	No	0%
PM	43.69	36.54	7.15	25	No	29%
PM ₁₀	43.69	36.54	7.15	15	No	48%
PM _{2.5}	43.69	36.54	7.15	10	No	72%
VOC	21.20	14.20	7.01	40	No	18%
SO ₂	0.02	0.01	0.006	40	No	0%

1. Emission decreases are reported as zero.

3. R13 APPLICATION FORM

The WVDEP permit application forms contained in this application include all applicable R13 application forms including the required attachments.



WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF AIR QUALITY

601 57th Street, SE
Charleston, WV 25304
(304) 926-0475
www.dep.wv.gov/daq

**APPLICATION FOR NSR PERMIT
AND
TITLE V PERMIT REVISION
(OPTIONAL)**

PLEASE CHECK ALL THAT APPLY TO **NSR (45CSR13)** (IF KNOWN):

- CONSTRUCTION MODIFICATION RELOCATION
 CLASS I ADMINISTRATIVE UPDATE TEMPORARY
 CLASS II ADMINISTRATIVE UPDATE AFTER-THE-FACT

PLEASE CHECK TYPE OF **45CSR30 (TITLE V)** REVISION (IF ANY):

- ADMINISTRATIVE AMENDMENT MINOR MODIFICATION
 SIGNIFICANT MODIFICATION

IF ANY BOX ABOVE IS CHECKED, INCLUDE TITLE V REVISION INFORMATION AS **ATTACHMENT S** TO THIS APPLICATION

FOR TITLE V FACILITIES ONLY: Please refer to "Title V Revision Guidance" in order to determine your Title V Revision options (Appendix A, "Title V Permit Revision Flowchart") and ability to operate with the changes requested in this Permit Application.

Section I. General

1. Name of applicant (as registered with the WV Secretary of State's Office): Knauf Insulation, LLC		2. Federal Employer ID No. (FEIN): 35-1417383	
3. Name of facility (if different from above): Inwood Facility		4. The applicant is the: <input type="checkbox"/> OWNER <input type="checkbox"/> OPERATOR <input checked="" type="checkbox"/> BOTH	
5A. Applicant's mailing address: 4812 Tabler Station Road Inwood, WV 25428		5B. Facility's present physical address: 4812 Tabler Station Road Inwood, WV 25428	
6. West Virginia Business Registration. Is the applicant a resident of the State of West Virginia? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO – If YES, provide a copy of the Certificate of Incorporation/Organization/Limited Partnership (one page) including any name change amendments or other Business Registration Certificate as Attachment A . – If NO, provide a copy of the Certificate of Authority/Authority of L.L.C./Registration (one page) including any name change amendments or other Business Certificate as Attachment A .			
7. If applicant is a subsidiary corporation, please provide the name of parent corporation:			
8. Does the applicant own, lease, have an option to buy or otherwise have control of the <i>proposed site</i> ? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO – If YES, please explain: Owned – If NO, you are not eligible for a permit for this source.			
9. Type of plant or facility (stationary source) to be constructed, modified, relocated, administratively updated or temporarily permitted (e.g., coal preparation plant, primary crusher, etc.): Wool fiberglass manufacturing facility		10. North American Industry Classification System (NAICS) code for the facility: 327993	
11A. DAQ Plant ID No. (for existing facilities only): 003-00012		11B. List all current 45CSR13 and 45CSR30 (Title V) permit numbers associated with this process (for existing facilities only): R30-00300012-2013; R14-0015K	

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

<p>12A.</p> <ul style="list-style-type: none"> For Modifications, Administrative Updates or Temporary permits at an existing facility, please provide directions to the <i>present location</i> of the facility from the nearest state road; For Construction or Relocation permits, please provide directions to the <i>proposed new site location</i> from the nearest state road. Include a MAP as Attachment B. <p>¼ mile east of Tabler Station Road off I-81.</p>		
12.B. New site address (if applicable): NA	12C. Nearest city or town: Inwood	12D. County: Berkeley
12.E. UTM Northing (KM): 4,365.50	12F. UTM Easting (KM): 756.55	12G. UTM Zone: 17
<p>13. Briefly describe the proposed change(s) at the facility: Increase production rate of facility and install new fiberization technology</p>		
<p>14A. Provide the date of anticipated installation or change: September 2015</p> <ul style="list-style-type: none"> If this is an After-The-Fact permit application, provide the date upon which the proposed change did happen: / / 		<p>14B. Date of anticipated Start-Up if a permit is granted: October 2015</p>
<p>14C. Provide a Schedule of the planned Installation of/Change to and Start-Up of each of the units proposed in this permit application as Attachment C (if more than one unit is involved).</p>		
<p>15. Provide maximum projected Operating Schedule of activity/activities outlined in this application: Hours Per Day 24 Days Per Week 7 Weeks Per Year 52</p>		
<p>16. Is demolition or physical renovation at an existing facility involved? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO</p>		
<p>17. Risk Management Plans. If this facility is subject to 112(r) of the 1990 CAAA, or will become subject due to proposed changes (for applicability help see www.epa.gov/ceppo), submit your Risk Management Plan (RMP) to U. S. EPA Region III.</p>		
<p>18. Regulatory Discussion. List all Federal and State air pollution control regulations that you believe are applicable to the proposed process (<i>if known</i>). A list of possible applicable requirements is also included in Attachment S of this application (Title V Permit Revision Information). Discuss applicability and proposed demonstration(s) of compliance (<i>if known</i>). Provide this information as Attachment D.</p>		
<p>Section II. Additional attachments and supporting documents.</p>		
<p>19. Include a check payable to WVDEP – Division of Air Quality with the appropriate application fee (per 45CSR22 and 45CSR13).</p>		
<p>20. Include a Table of Contents as the first page of your application package.</p>		
<p>21. Provide a Plot Plan, e.g. scaled map(s) and/or sketch(es) showing the location of the property on which the stationary source(s) is or is to be located as Attachment E (Refer to Plot Plan Guidance) .</p> <ul style="list-style-type: none"> Indicate the location of the nearest occupied structure (e.g. church, school, business, residence). 		
<p>22. Provide a Detailed Process Flow Diagram(s) showing each proposed or modified emissions unit, emission point and control device as Attachment F.</p>		
<p>23. Provide a Process Description as Attachment G.</p> <ul style="list-style-type: none"> Also describe and quantify to the extent possible all changes made to the facility since the last permit review (if applicable). 		
<p>All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.</p>		
<p>24. Provide Material Safety Data Sheets (MSDS) for all materials processed, used or produced as Attachment H.</p> <ul style="list-style-type: none"> For chemical processes, provide a MSDS for each compound emitted to the air. 		

25. Fill out the Emission Units Table and provide it as Attachment I .
26. Fill out the Emission Points Data Summary Sheet (Table 1 and Table 2) and provide it as Attachment J .
27. Fill out the Fugitive Emissions Data Summary Sheet and provide it as Attachment K .
28. Check all applicable Emissions Unit Data Sheets listed below: <input type="checkbox"/> Bulk Liquid Transfer Operations <input type="checkbox"/> Haul Road Emissions <input type="checkbox"/> Quarry <input type="checkbox"/> Chemical Processes <input type="checkbox"/> Hot Mix Asphalt Plant <input type="checkbox"/> Solid Materials Sizing, Handling and Storage Facilities <input type="checkbox"/> Concrete Batch Plant <input type="checkbox"/> Incinerator <input checked="" type="checkbox"/> Storage Tanks <input type="checkbox"/> Grey Iron and Steel Foundry <input type="checkbox"/> Indirect Heat Exchanger <input checked="" type="checkbox"/> General Emission Unit, specify Melter, Forming and Collection, Curing and Cooling
Fill out and provide the Emissions Unit Data Sheet(s) as Attachment L .
29. Check all applicable Air Pollution Control Device Sheets listed below: <input type="checkbox"/> Absorption Systems <input type="checkbox"/> Baghouse <input type="checkbox"/> Flare <input type="checkbox"/> Adsorption Systems <input type="checkbox"/> Condenser <input type="checkbox"/> Mechanical Collector <input type="checkbox"/> Afterburner <input type="checkbox"/> Electrostatic Precipitator <input checked="" type="checkbox"/> Wet Collecting System <input type="checkbox"/> Other Collectors, specify
Fill out and provide the Air Pollution Control Device Sheet(s) as Attachment M .
30. Provide all Supporting Emissions Calculations as Attachment N , or attach the calculations directly to the forms listed in Items 28 through 31.
31. Monitoring, Recordkeeping, Reporting and Testing Plans. Attach proposed monitoring, recordkeeping, reporting and testing plans in order to demonstrate compliance with the proposed emissions limits and operating parameters in this permit application. Provide this information as Attachment O . ➤ Please be aware that all permits must be practically enforceable whether or not the applicant chooses to propose such measures. Additionally, the DAQ may not be able to accept all measures proposed by the applicant. If none of these plans are proposed by the applicant, DAQ will develop such plans and include them in the permit.
32. Public Notice. At the time that the application is submitted, place a Class I Legal Advertisement in a newspaper of general circulation in the area where the source is or will be located (See 45CSR§13-8.3 through 45CSR§13-8.5 and Example Legal Advertisement for details). Please submit the Affidavit of Publication as Attachment P immediately upon receipt.
33. Business Confidentiality Claims. Does this application include confidential information (per 45CSR31)? <input type="checkbox"/> YES <input checked="" type="checkbox"/> 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 found in the General Instructions as Attachment Q .
Section III. Certification of Information
34. Authority/Delegation of Authority. Only required when someone other than the responsible official signs the application. Check applicable Authority Form below: <input type="checkbox"/> Authority of Corporation or Other Business Entity <input type="checkbox"/> Authority of Partnership <input type="checkbox"/> Authority of Governmental Agency <input type="checkbox"/> Authority of Limited Partnership Submit completed and signed Authority Form as Attachment R .
<i>All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.</i>

35A. **Certification of Information.** To certify this permit application, a Responsible Official (per 45CSR§13-2.22 and 45CSR§30-2.28) or Authorized Representative shall check the appropriate box and sign below.

Certification of Truth, Accuracy, and Completeness

I, the undersigned **Responsible Official** / **Authorized Representative**, hereby certify that all information contained in this application and any supporting documents appended hereto, is true, accurate, and complete based on information and belief after reasonable inquiry I further agree to assume responsibility for the construction, modification and/or relocation and operation of the stationary source described herein in accordance with this application and any amendments thereto, as well as the Department of Environmental Protection, Division of Air Quality permit issued in accordance with this application, along with all applicable rules and regulations of the West Virginia Division of Air Quality and W.Va. Code § 22-5-1 et seq. (State Air Pollution Control Act). If the business or agency changes its Responsible Official or Authorized Representative, the Director of the Division of Air Quality will be notified in writing within 30 days of the official change.

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.

SIGNATURE Jason Wells DATE: 3/6/15
(Please use blue ink) (Please use blue ink)

35B. Printed name of signee: Jason Wells

35C. Title: Plant Manager

35D. E-mail:
jason.wells@knaufinsulation.com

36E. Phone: 304-267-6085

36F. FAX: 304-267-6885

36A. Printed name of contact person (if different from above): Grover Thomas

36B. Title: Manager HSE Special Projects

36C. E-mail:
grover.thomas@knaufinsulation.com

36D. Phone: 517-630-2700

36E. FAX: 517-630-2009

PLEASE CHECK ALL APPLICABLE ATTACHMENTS INCLUDED WITH THIS PERMIT APPLICATION:

- | | |
|--|--|
| <input checked="" type="checkbox"/> Attachment A: Business Certificate | <input checked="" type="checkbox"/> Attachment K: Fugitive Emissions Data Summary Sheet |
| <input checked="" type="checkbox"/> Attachment B: Map(s) | <input checked="" type="checkbox"/> Attachment L: Emissions Unit Data Sheet(s) |
| <input checked="" type="checkbox"/> Attachment C: Installation and Start Up Schedule | <input checked="" type="checkbox"/> Attachment M: Air Pollution Control Device Sheet(s) |
| <input checked="" type="checkbox"/> Attachment D: Regulatory Discussion | <input checked="" type="checkbox"/> Attachment N: Supporting Emissions Calculations |
| <input checked="" type="checkbox"/> Attachment E: Plot Plan | <input checked="" type="checkbox"/> Attachment O: Monitoring/Recordkeeping/Reporting/Testing Plans |
| <input checked="" type="checkbox"/> Attachment F: Detailed Process Flow Diagram(s) | <input checked="" type="checkbox"/> Attachment P: Public Notice |
| <input checked="" type="checkbox"/> Attachment G: Process Description | <input type="checkbox"/> Attachment Q: Business Confidential Claims |
| <input type="checkbox"/> Attachment H: Material Safety Data Sheets (MSDS) | <input type="checkbox"/> Attachment R: Authority Forms |
| <input checked="" type="checkbox"/> Attachment I: Emission Units Table | <input checked="" type="checkbox"/> Attachment S: Title V Permit Revision Information |
| <input checked="" type="checkbox"/> Attachment J: Emission Points Data Summary Sheet | <input checked="" type="checkbox"/> Application Fee |

Please mail an original and three (3) copies of the complete permit application with the signature(s) to the DAQ, Permitting Section, at the address listed on the first page of this application. Please DO NOT fax permit applications.

FOR AGENCY USE ONLY – IF THIS IS A TITLE V SOURCE:

- Forward 1 copy of the application to the Title V Permitting Group and:
- For Title V Administrative Amendments:
 - NSR permit writer should notify Title V permit writer of draft permit,
- For Title V Minor Modifications:
 - Title V permit writer should send appropriate notification to EPA and affected states within 5 days of receipt,
 - NSR permit writer should notify Title V permit writer of draft permit.
- For Title V Significant Modifications processed in parallel with NSR Permit revision:
 - NSR permit writer should notify a Title V permit writer of draft permit,
 - Public notice should reference both 45CSR13 and Title V permits,
 - EPA has 45 day review period of a draft permit.

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

ATTACHMENT A

Current Business Certificate

**WEST VIRGINIA
STATE TAX DEPARTMENT
BUSINESS REGISTRATION
CERTIFICATE**

ISSUED TO:
**KNAUF INSULATION, LLC
DBA GUARDIAN LAMINATION SERVICES
4812 TABLER STATION RD
INWOOD, WV 25428-4599**

BUSINESS REGISTRATION ACCOUNT NUMBER: 1028-9013

This certificate is issued on: 09/16/2014

*This certificate is issued by
the West Virginia State Tax Commissioner
in accordance with Chapter 11, Article 12, of the West Virginia Code*

*The person or organization identified on this certificate is registered
to conduct business in the State of West Virginia at the location above.*

This certificate is not transferrable and must be displayed at the location for which issued

This certificate shall be permanent until cessation of the business for which the certificate of registration was granted or until it is suspended, revoked or cancelled by the Tax Commissioner.

Change in name or change of location shall be considered a cessation of the business and a new certificate shall be required.

TRAVELING/STREET VENDORS: Must carry a copy of this certificate in every vehicle operated by them.
CONTRACTORS, DRILLING OPERATORS, TIMBER/LOGGING OPERATIONS: Must have a copy of this certificate displayed at every job site within West Virginia.

ATTACHMENT B

Map



Figure 1 - Map of Knuaf Inwood Facility

ATTACHMENT C

Startup and Installation Schedule

ATTACHMENT C

Schedule of Planned Installation and Start-Up

Unit	Installation Schedule	Startup Schedule
ES12C – Electric Melter Molten Capacity Increase	N/A	October 2015
ES12E – Forehearth for 1 st Line modifications and Capacity Increase	September 2015	October 2015
ES13A-ES13B – Forming and Collection modifications	September 2015	October 2015
ES14A-B – Curing and Cooling capacity increase	N/A	October 2015
TANKS (Group 1)	May 2015	May 2015

ATTACHMENT D

Regulatory Discussion

ATTACHMENT D - REGULATORY APPLICABILITY

This section documents the applicability determinations made for Federal and State air quality regulations. The monitoring, recordkeeping, reporting, and testing plan is presented in Attachment O. In this section, applicability or non-applicability of the following regulatory programs is addressed:

- > Prevention of Significant Deterioration (PSD) permitting;
- > Title V of the 1990 Clean Air Act Amendments;
- > New Source Performance Standards (NSPS);
- > National Emission Standards for Hazardous Air Pollutants (NESHAP); and
- > West Virginia State Implementation Plan (SIP) regulations.

This review is presented to supplement and/or add clarification to the information provided in the WVDEP R13 permit application forms. In addition to providing a summary of applicable requirements, this section of the application also provides non-applicability determinations for certain regulations, allowing the WVDEP to confirm that identified regulations are not applicable to the Inwood facility. Note that explanations of non-applicability are limited to those regulations for which there may be some question of applicability specific to the operations at the Inwood facility. Regulations that are categorically non-applicable are not discussed (e.g., NSPS Subpart J, Standards of Performance for Petroleum Refineries).

Prevention of Significant Deterioration (PSD) Source Classification

Federal construction permitting programs regulate new and modified sources of attainment pollutants under Prevention of Significant Deterioration (PSD) and new and modified sources of non-attainment pollutants under Non-Attainment New Source Review (NNSR). PSD and NNSR regulations apply when a major source makes a change, such as installing new equipment or modifying existing equipment, and a significant increase in emissions results from the change. The Inwood facility is a major source with respect to these programs since its potential emissions are above PSD major source thresholds. As summarized in Attachment N, emission increases for the proposed project are below the applicable significant emission rates (SERs) for the respective pollutants. As such, PSD permitting is not triggered by this proposed project.

Title V Operating Permit Program

Title 40 of the Code of Federal Regulations Part 70 (40 CFR 70) establishes the federal Title V operating permit program. West Virginia has incorporated the provisions of this federal program in its Title V operating permit program in West Virginia Code of State Regulations (CSR) 45-30. The major source thresholds with respect to the West Virginia Title V operating permit program regulations are 10 tons per year (tpy) of a single HAP, 25 tpy of any combination of HAP, and 100 tpy of all other regulated pollutants.¹ The Inwood facility is currently a major source with respect to the Title V permit program. Knauf will revised the Title V permit within 12 months of commencing operation after the proposed modifications.

¹ EPA's Tailoring Rule had established a Title V major source threshold of 100,000 tpy of greenhouse gas pollutants (on a carbon dioxide equivalent [CO₂e] basis). However, on June 23, 2014, the U.S. Supreme Court issued its decision in *Utility Air Regulatory Group v. EPA*, whereby the Court said that EPA may not treat GHGs as an air pollutant for purposes of determining whether a source is a major source required to obtain a PSD or Title V permit. Case No. 12-1146, decided June 23, 2014. http://www.supremecourt.gov/opinions/13pdf/12-1146_4g18.pdf.

New Source Performance Standards

New Source Performance Standards (NSPS), located in 40 CFR 60, require new, modified, or reconstructed sources to control emissions to the level achievable by the best demonstrated technology as specified in the applicable provisions. Moreover, any source subject to an NSPS is also subject to the general provisions of NSPS Subpart A, except where expressly noted. The following is a summary of applicability and non-applicability determinations for NSPS regulations of relevance to the Inwood Facility.

NSPS Subparts K, Ka, and Kb

These subparts apply to storage tanks of certain sizes constructed, reconstructed, or modified during various time periods. Subpart K applies to storage tanks constructed, reconstructed, or modified prior to 1978, and Subpart Ka applies to those constructed, reconstructed, or modified prior to 1984. Both Subparts K and Ka apply to storage tanks with a capacity greater than 40,000 gallons. Subpart Kb applies to volatile organic liquid (VOL) storage tanks constructed, reconstructed, or modified after July 23, 1984 with a capacity equal to or greater than 75 m³ (~19,813 gallons). All of the tanks at the Inwood facility have a capacity of 19,000 gallons or less. As such, Subparts K, Ka, and Kb do not apply to the storage tanks at the Inwood facility.

NSPS Subpart PPP – Standards of Performance for Wool Fiberglass Insulation Manufacturing Plants

40 CFR 60 Subpart PPP regulates PM emissions from rotary spin wool fiberglass insulation manufacturing lines which were constructed, reconstructed, or modified after February 7, 1984. Pursuant to this subpart, no owner or operator shall allow the discharge of gases which contain particulate matter in excess of 11.0 pounds per ton of glass pulled. Furthermore, if a wet scrubber control device is used to comply with the emission standard, the owner or operator shall calibrate, maintain, and operate monitoring devices which measure the pressure drop across each scrubber and the scrubbing liquid flow rate to each scrubber. Line 1 at the Inwood facility is currently subject to the requirements of Subpart PPP, and will continue to comply with the conditions of this subpart after the completion of the proposed project.

Non-Applicability of All Other NSPS

NSPS are developed for particular industrial source categories. Other than NSPS developed for wool fiberglass manufacturing plants (Subpart PPP) and associated equipment (Subparts D-Dc and K-Kb), the applicability of a particular NSPS to the Inwood facility can be readily ascertained based on the industrial source category covered. All other NSPS are categorically not applicable to wool fiberglass manufacturing plants.

National Emission Standards for Hazardous Air Pollutants (NESHAP)

Part 63 NESHAP allowable emission limits are established on the basis of a maximum achievable control technology (MACT) determination for a particular major source. A HAP major source is defined as having potential emissions in excess of 25 tpy for total HAP and/or potential emissions in excess of 10 tpy for any individual HAP. As a result of recent process changes to ECOSE Technology binder, the Inwood facility will be an Area (minor) source of HAP since its potential emissions of HAP are less than the 10/25 major source thresholds. The potentially applicable NESHAP to the production line is Subpart NNN, which is discussed below.

40 CFR 63 Subpart NNN - National Emission Standards for Hazardous Air Pollutants for Wool Fiberglass Manufacturing

Pursuant to 40 CFR 63.1381, 40 CFR 63 Subpart NNN regulates HAP emissions from various emission units at new and existing major source wool fiberglass manufacturing facilities, including: glass melting furnaces, rotary spin wool fiberglass manufacturing lines producing a bonded wool fiberglass insulation product using a phenol/formaldehyde binder. Pursuant to 40 CFR 63.2, a “major source” is any source which emits or has the potential to emit 10 tpy or more of any HAP, or 25 tpy or more of any combination of HAPs.

After the conversion to ECOSE Technology non-phenol/formaldehyde binder, the Inwood facility will no longer be an applicable source by definition (i.e., it will not use a phenol/formaldehyde binder). Therefore, the requirements of 40 CFR 63, Subpart NNN will not apply. Furthermore, the facility will also no longer be a major source of HAPs (i.e., facility-wide emissions will remain below 10/25 tpy).

West Virginia SIP Regulations

Knauf's Inwood facility is currently permitted under the regulations contained in West Virginia's Title 45 Legislative Rule Department of Environmental Protection Office of Air Quality (WVDEP regulations). The Code of State Regulations fall under two main categories, those regulations that are generally applicable (e.g., permitting requirements), and those that have specific applicability (e.g., PM standards for manufacturing equipment). This section of the report highlights applicability of specific West Virginia State Implementation Plan (SIP) regulations that may apply to proposed project at the Inwood facility

45 CSR 4: To Prevent and Control the Discharge of Air Pollutants into the Air Which Causes or Contributes to an Objectionable Odor

According to 45 CSR 4-3:

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.

The Inwood facility is generally subject to this requirement. In accordance with the Title V permit, Knauf maintains appropriate records and takes appropriate response measures of all odor complaints.

45 CSR 7: To Prevent and Control Particulate Matter Air Pollution from Manufacturing Processing and Associated Operations

The Inwood facility process operations are generally subject to this requirement, which includes process weight rate and opacity requirements. Knauf is proposing to maintain the existing emission limitations for processes in the current permit.

45 CSR 16: Standards of Performance for New Stationary Sources

45 CSR 16-1 incorporates the federal Clean Air Act (CAA) standards of performance for new stationary sources set forth in 40 CFR Part 60 by reference. As such, by complying with all applicable requirements of 40 CFR Part 60 at the Inwood facility, Knauf will be complying with 45 CSR 16.

45 CSR 17: To Prevent and Control Particulate Matter Air Pollution from Materials Handling, Preparation, Storage and Other Sources of Fugitive Particulate Matter

According to 45 CSR 17-3.1:

No person shall cause, suffer, allow or permit fugitive particulate matter to be discharged beyond the boundary lines of the property lines of the property on which the discharge originates or at any public or residential location, which causes or contributes to statutory air pollution.

Due to the nature of the activities at the Inwood facility it is unlikely that fugitive particulate matter emissions will be emitted under normal operating conditions. However, Knauf will take measures to ensure any fugitive particulate matter emissions will not cross the property boundary should any such emissions occur.

45 CSR 27: To Prevent and Control the Emissions of Toxic Air Pollutants

Due to the conversion to ECOSE Technology binder, the Inwood facility will no longer be using phenol formaldehyde resin. As such, the requirements related to these provisions are no longer applicable.

45 CSR 21-28: Petroleum Liquid Storage in Fixed Roof Tanks

45 CSR 21-28 applies to any fixed roof petroleum liquid storage tank with a capacity greater than 40,000 gallons. The capacity of the new storage tanks proposed for the Inwood facility are less than 40,000 gallons; therefore, 45 CSR 21-28 will not apply.

ATTACHMENT E

Plot Plan

ATTACHMENT F

Detailed Process Flow Diagram

Knauf Insulation, LLC
Simplified Process Flow Diagram

Indoor Fugitives, FP11

ES1A/CD1A
Raw Materials Storage Bin
(Sand)
w/Whirl Air Bin
Vent DC Model 195-42

ES1G/CD1G
Raw Materials Storage Bin
(Lime)
w/Whirl Air Bin
Vent DC Model 195-42

ES1B/CD1B
Raw Materials Storage Bin
(Borax)
w/Whirl Air Bin
Vent DC Model 195-42

ES1H/CD1H
Raw Materials Storage Bin
(Cullet)
w/Whirl Air Bin
Vent DC Model 195-42

ES1C/CD1B
Raw Materials Storage Bin
(Borax)
w/Whirl Air Bin
Vent DC Model 195-42

ES1I/CD1I
Raw Materials Storage Bin
(Cullet)
w/Whirl Air Bin
Vent DC Model 195-42

ES1D/CD1D
Raw Materials Storage Bin
(Soda Ash)
w/Whirl Air Bin
Vent DC Model 195-42

ES1J/CD1F
Raw Materials Storage Bin
(Cullet)
w/Whirl Air Bin
Vent DC Model 195-42

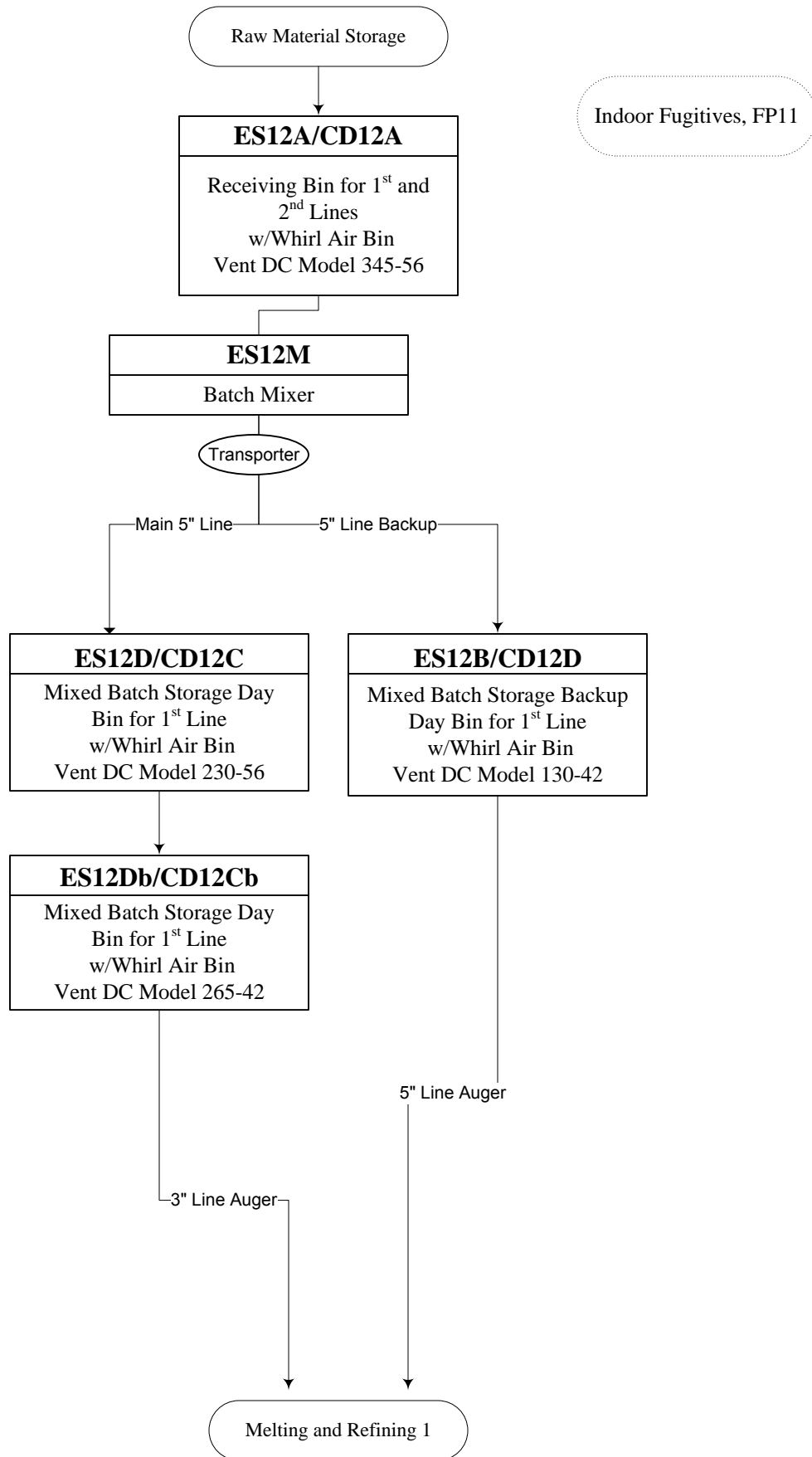
ES1E/CD1D
Raw Materials Storage Bin
(Soda Ash)
w/Whirl Air Bin
Vent DC Model 195-42

ES1K/CD1K
Raw Materials Storage Bin
(Baghouse Dust)
w/Whirl Air Bin
Vent DC Model 55-30

ES1F/CD1F
Raw Materials Storage Bin
(Aplite)
w/Whirl Air Bin
Vent DC Model 195-42

Knauf Insulation, LLC

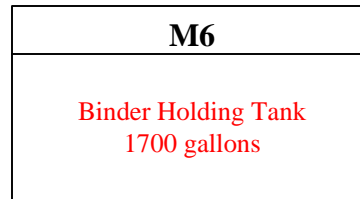
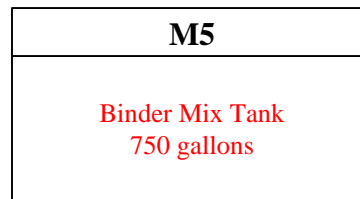
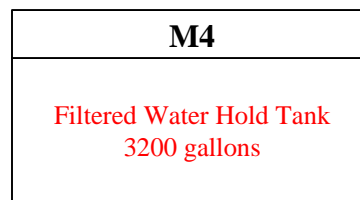
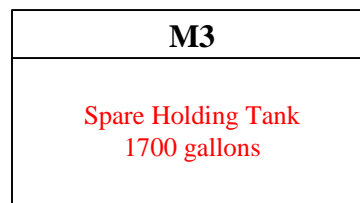
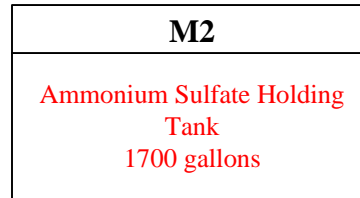
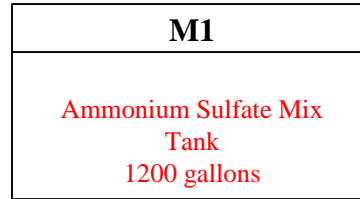
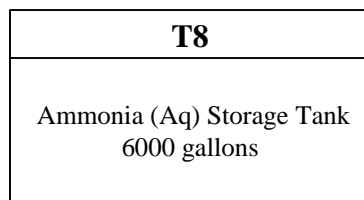
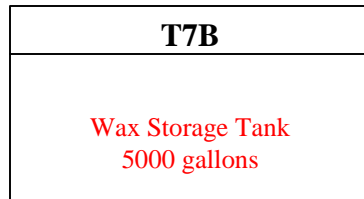
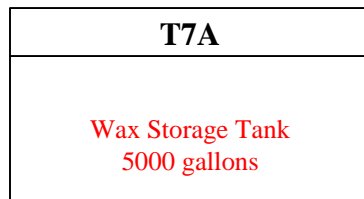
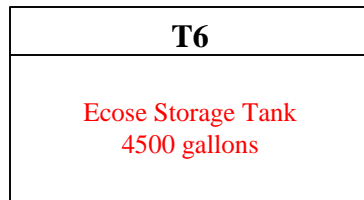
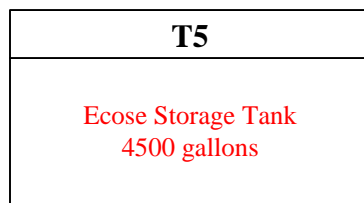
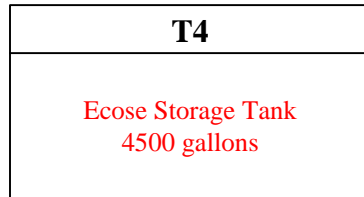
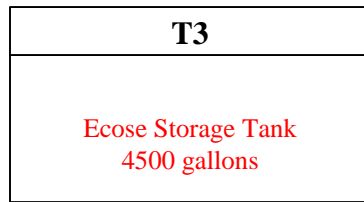
Simplified Process Flow Diagram



Knauf Insulation, LLC

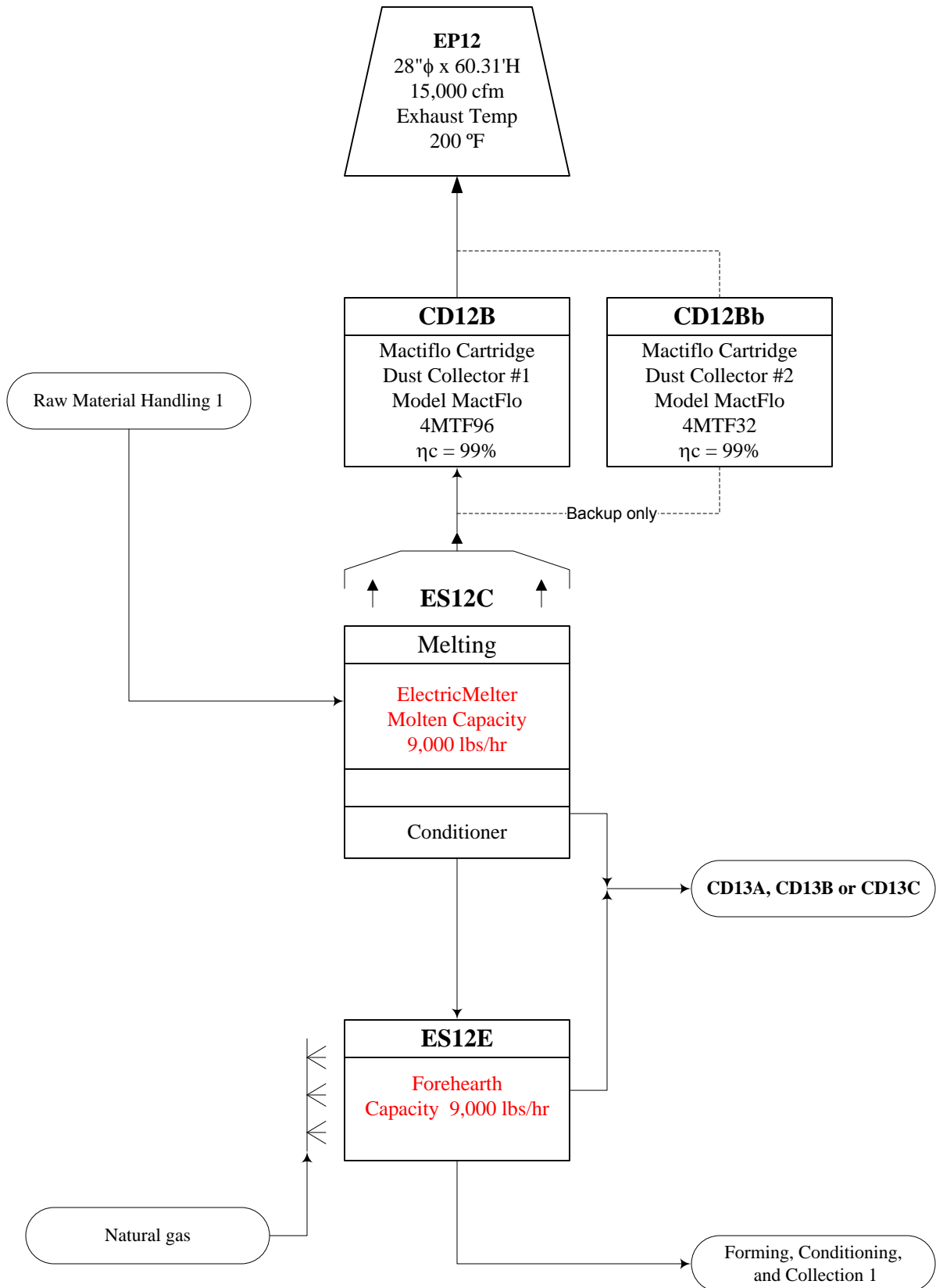
Simplified Process Flow Diagram

Indoor Fugitives, FP11



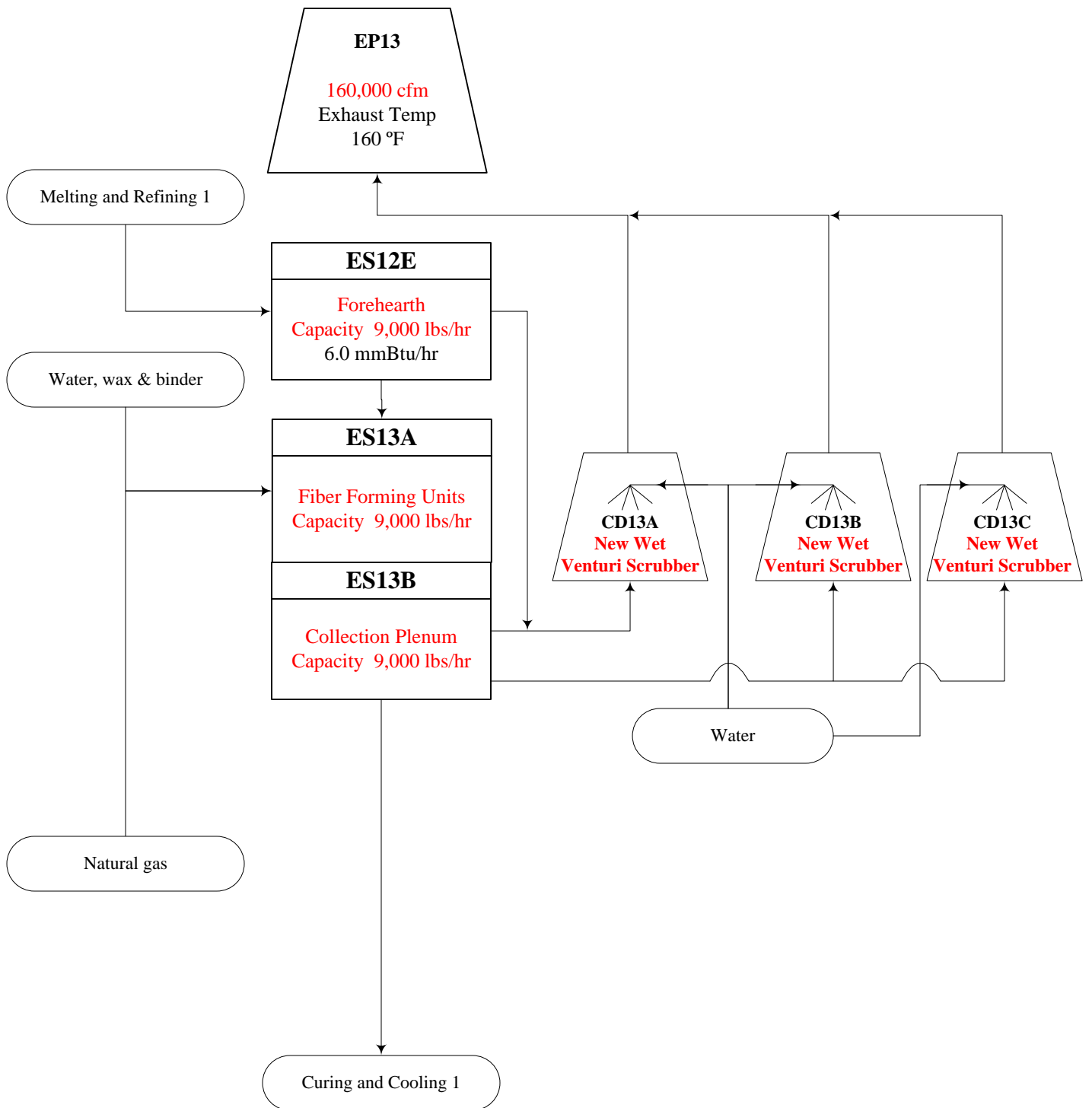
Knauf Insulation, LLC

Simplified Process Flow Diagram



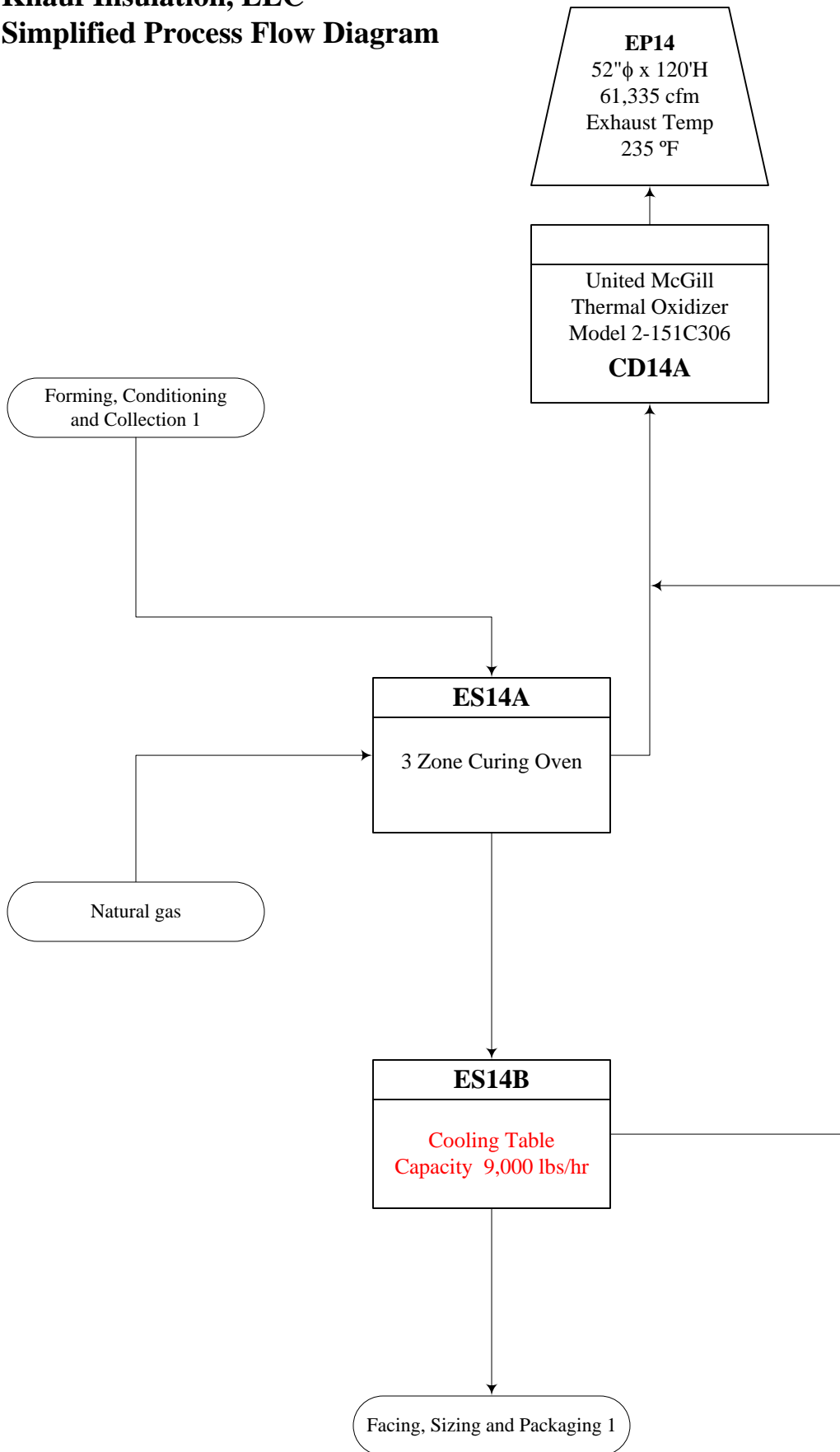
Knauf Insulation, LLC

Simplified Process Flow Diagram



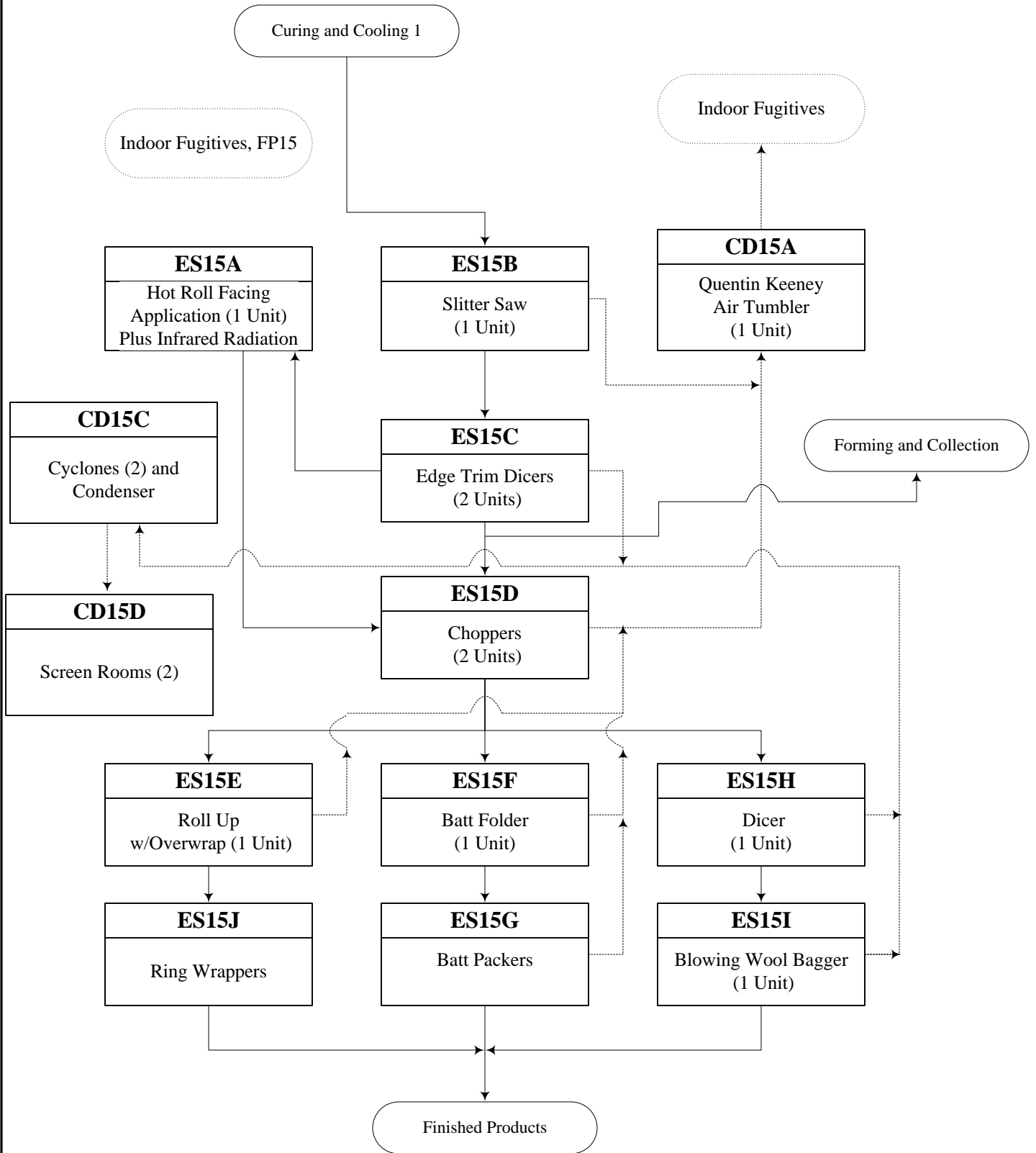
Knauf Insulation, LLC

Simplified Process Flow Diagram



Knauf Insulation, LLC

Simplified Process Flow Diagram



ATTACHMENT G

Process Description

ATTACHMENT G - PROCESS DESCRIPTION

Knauf Insulation, LLC's (Knauf's) Inwood, West Virginia Facility manufactures fiberglass roll and batt insulation. As part of this application, Knauf is proposing to replace the existing wool fiberglass fiberization technology on Line 1 with Knauf fiberization technology to be consistent with other similar Knauf facilities.

The Inwood facility can produce two insulation types, a bonded product or an unbonded product. Line 1 produces only bonded products. The facility receives raw materials that are mixed into batch and the batch is then melted to form glass. The molten glass is separated into streams by use of a forehearth and fiber is spun into strands by the means of fiberizers. In bonded fiberglass production, the fine fibers are transferred to a fiber forming section where water, wax and ECOSE binder are added and are collected to form a blanket which is then cured in a three-zone oven. Upon exiting the curing oven, the blanket is cooled via a "cooling table". The cooled blanket is then cut to size in rolls and batts of insulation per customer demand and packaged for shipment off-site. The updated production process will operate more efficiently with the ECOSE Technology Binder, which will be used exclusively at the Inwood Facility beginning in May 2015.¹

The proposed changes to Line 1 include:

- > Increasing the production of Line 1 from 8,000 lb/hr to 9,000 lb/hr. No physical changes are required for the melter to accommodate the change;
- > Modifying the fiber forming section by replacing the existing fiberizers with new Knauf technology fiberizers. The fiberizers will be fired with natural gas, rated at 14 MMBtu/hr, total;
- > Replacing the existing forming/collection control devices with new wet scrubbers;
- > Minor changes to tanks storage, including removing existing tanks, installing three (3) new tanks and changing storage tank contents.

No changes are being proposed for the "cold end" (i.e., packaging and sizing) or for the batch preparation area (outside of throughput increases).

A process flow diagram is included as Attachment F.

¹ The conversion to ECOSE Technology Binder was previously authorized under WVDEP permit applicability determination PD14-148, dated November 17, 2014.

ATTACHMENT I

Emission Units Table

Emission Units Table
(includes all emission units and air pollution control devices
that will be part of this permit application review, regardless of permitting status)

Emission Unit ID ¹	Emission Point ID ²	Emission Unit Description	Year Installed/ Modified	Design Capacity	Type ³ and Date of Change	Control Device ⁴
ES1A	FP11	Raw Material Storage Bin for Sand	07/25/1998	178.35 tons	N/A - Increased Throughput	CD1A
ES1B	FP11	Raw Material Storage Bin for Borax	07/25/1998	137.45 tons	N/A - Increased Throughput	CD1B
ES1C	FP11	Raw Material Storage Bin for Borax	07/25/1998	137.45 tons	N/A - Increased Throughput	CD1B
ES1D	FP11	Raw Material Storage Bin for Soda Ash	07/25/1998	137.45 tons	N/A - Increased Throughput	CD1D
ES1E	FP11	Raw Material Storage Bin for Soda Ash	07/25/1998	137.45 tons	N/A - Increased Throughput	CD1D
ES1F	FP11	Raw Material Storage Bin for Aplite	07/25/1998	137.45 tons	N/A - Increased Throughput	CD1F
ES1G	FP11	Raw Material Storage Bin for Lime	07/25/1998	109.50 tons	N/A - Increased Throughput	CD1G
ES1H	FP11	Raw Material Storage Bin for Cullet	07/25/1998	108.50 tons	N/A - Increased Throughput	CD1I
ES1I	FP11	Raw Material Storage Bin for Cullet	07/25/1998	108.50 tons	N/A - Increased Throughput	CD1I
ES1J	FP11	Raw Material Storage Bin for Cullet	07/25/1998	137.45 tons	N/A - Increased Throughput	CD1F
ES1K	FP11	Raw Material Storage Bin for Baghouse Dust	07/25/1998	75.00 tons	N/A - Increased Throughput	CD1K
ES12A	FP11	Batch Mixers' Receiving Bin	07/25/1998		N/A - Increased Throughput	CD12A
ES12B	FP11	Mixed Batch Storage Backup Day Bin	07/25/1998	21.72 tons	N/A - Increased Throughput	CD12D
ES12D	FP11	Mixed Batch Storage Day Bin	07/25/1998	39.0 tons	N/A - Increased Throughput	CD12C
ES12Db	FP11	Mixed Batch Storage Day Bin	07/25/1998	1.31 tons	N/A - Increased Throughput	CD12Cb
T3	FP11	ECOSE Storage Tank	07/25/1998	4,500 gallons	Modified storage contents	None
T4	FP11	ECOSE Storage Tank	07/25/1998	4,500 gallons	Modified storage contents	None
T5	FP11	ECOSE Storage Tank	07/25/1998	4,500 gallons	Modified storage contents	None
T6	FP11	ECOSE Storage Tank	07/25/1998	4,500 gallons	Modified storage contents	None
T7A	FP11	Wax Storage Tank	07/25/1998	5,000 gallons	N/A	None
T7B	FP11	Wax Storage Tank	07/25/1998	5,000 gallons	N/A	None
T8	FP11	Ammonia (aqueous) Storage Tank	07/25/1998	6,000 gallons	N/A	None
M1	FP11	Ammonium Sulfate Mix Tank	2015	1,200 gallons	New	None
M2	FP11	Ammonium Sulfate Hold Tank	2015	1,700 gallons	New	None

M3	FP11	Spare Holding Tank	2015	1,700 gallons	Modified storage contents	None
M4	FP11	Filtered Water Hold Tank	2015	3,200 gallons	Modified storage contents	None
M5	FP11	Binder Mix Tank	2015	750 gallons	New	None
M6	FP11	Binder Holding Tanks	2015	1,700 gallons	Modified storage contents	None
ES12C	EP12	Line 1 Melter	07/25/1998	4.5 TPH	N/A - Increased Throughput	CD12B and CD12Bb
ES12E	EP13	Line 1 Forhearth	2015	4.5 TPH	Modification	CD13A, CD13B, or CD13C (new)
ES13A	EP13	Line 1 Forming Units	2015	4.5 TPH	Modification	CD13A, CD13B, or CD13C (new)
ES13C	EP13	Line 1 Collection Plenum	2015	4.5 TPH	Modification	CD13A, CD13B, or CD13C (new)
ES14A	EP14	Line 1 Curing Oven	07/25/1998	4.5 TPH	N/A - Increased Throughput	CD14A
ES14B	EP14	Line 1 Cooling Table	07/25/1998	4.5 TPH	N/A - Increased Throughput	CD14A
ES15A	FP15	Hot Roll – Facing Application	07/25/1998	N/A	N/A - Increased Throughput	None
ES15Aa	FP15	Infrared Radiation – Facing Application	2004	N/A	N/A - Increased Throughput	CD15A
ES15B	FP15	Slitter Saw	07/25/1998	N/A	N/A - Increased Throughput	CD15A
ES15C	FP15	Edge Trimmer and Dicers (or Cubes)	07/25/1998	N/A	N/A - Increased Throughput	CD15C and CD15D
ES15D	FP15	Choppers	07/25/1998	N/A	N/A - Increased Throughput	CD15A
ES15E	FP15	Roll Up	07/25/1998	N/A	N/A - Increased Throughput	CD15A
ES15F	FP15	Batt Folder	07/25/1998	N/A	N/A - Increased Throughput	CD15A
ES15G	FP15	Batt Packers	07/25/1998	N/A	N/A - Increased Throughput	CD15A
ES15H	FP15	Dicers or Cubers	07/25/1998	N/A	N/A - Increased Throughput	CD15C and CD15D
ES15I	FP15	Blowing Wool Bagger	07/25/1998	N/A	N/A - Increased Throughput	CD15C and CD15D
ES15J	FP15	Ring Wrapper	07/25/1998	N/A	N/A - Increased Throughput	CD15A

¹ For Emission Units (or Sources) use the following numbering system: 1S, 2S, 3S,... or other appropriate designation.

² For Emission Points use the following numbering system: 1E, 2E, 3E, ... or other appropriate designation.

³ New, modification, removal

⁴ For Control Devices use the following numbering system: 1C, 2C, 3C,... or other appropriate designation.

Emission Points Data Summary Sheet

**Attachment J
EMISSION POINTS DATA SUMMARY SHEET**

Table 1: Emissions Data

Emission Point ID No. (Must match Emission Units Table & Plot Plan)	Emission Point Type ¹	Emission Unit Vented Through This Point (Must match Emission Units Table & Plot Plan)		Air Pollution Control Device (Must match Emission Units Table & Plot Plan)		Vent Time for Emission Unit (chemical processes only)		All Regulated Pollutants - Chemical Name/CAS ³ (Speciate VOCs & HAPS)	Maximum Potential Uncontrolled Emissions ⁴		Maximum Potential Controlled Emissions ⁵		Emission Form or Phase (At exit conditions, Solid, Liquid or Gas/Vapor)	Est. Method Used ⁶	Emission Concentration ⁷ (ppmv or mg/m ⁴)
		ID No.	Source	ID No.	Device Type	Short Term ²	Max (hr/yr)		lb/hr	ton/yr	lb/hr	ton/yr			
EP12	Upward Vertical Stack	ES12C, ES12E	Line 1 Melter	CD12B, CD12Bb	Dust Collector Filters &	NA	NA	NO _x CO VOC SO ₂ PM/PM ₁₀ /PM _{2.5}	0.14 3.29 0.99 0.00 un	0.53 12.79 3.85 0.00 known	0.14 3.29 0.99 0.00 0.32	0.53 12.79 3.85 0.00 1.23	Solid (PM) Gas/Vapor (other)	A	
EP13	Upward Vertical Stack	ES12E, ES13A, ES13B	Line 1 Forehearth, Forming, Collection	CD13A, CD13B, CD13C	New Wet Venturi Scrubbers	NA	NA	NO _x CO VOC SO ₂ PM/PM ₁₀ /PM _{2.5}	1.44 16.20 12.87 0.00 un	5.61 63.07 45.90 0.02 known	1.44 16.20 12.87 0.00 15.62	5.61 63.07 50.11 0.02 60.79	Solid (PM) Gas/Vapor (other)	A	
EP14	Upward Vertical Stack	ES14A, ES14B	Line 1 Curing, Cooling	CD14A	Thermal Oxidizer	NA	NA	NO _x CO VOC SO ₂ PM/PM ₁₀ /PM _{2.5}	un	known	16.88 B B 0.00 2.07	65.7 B B 0.00 8.06	Solid (PM) Gas/Vapor (other)	A	
FP15	Upward Vertical Stack	ES15A, ES15Aa, ES15B-J	Line 1 Facing, Sizing & Packaging	CD15A, CD15C, CD15D	Air Tumbler, Cyclones, Condenser, Screenroom	NA	NA	VOC PM/PM ₁₀ /PM _{2.5}	1.21 un	5.34 known	1.21 0.11	5.34 0.49	Solid (PM) Gas/Vapor (other)	A	
FP11	Fugitive	ES1A-K, ES12A, B,D,Db	Line 1 Raw Material Handling	CD1A,B, F,G,I,K, CD12A, D,C,Db	Whirl Air Flow Bin Vent DC	NA	NA	PM/PM ₁₀ /PM _{2.5}	un	known	0.35	1.53	Solid	A	

A- Potential annual and lb/TGP emissions will remain unchanged. Emissions taken from March 2013 Title V renewal application. EP12 PM is based on filterable-only permit limits.

B- Emission limit is combined between EP13 and EP14.

The EMISSION POINTS DATA SUMMARY SHEET provides a summation of emissions by emission unit. Note that uncaptured process emission unit emissions are not typically considered to be fugitive and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET. Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions). Please complete the FUGITIVE EMISSIONS DATA SUMMARY SHEET for fugitive emission activities.

- ¹ Please add descriptors such as upward vertical stack, downward vertical stack, horizontal stack, relief vent, rain cap, etc.
- ² Indicate by "C" if venting is continuous. Otherwise, specify the average short-term venting rate with units, for intermittent venting (ie., 15 min/hr). Indicate as many rates as needed to clarify frequency of venting (e.g., 5 min/day, 2 days/wk).
- ³ List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. **LIST** Acids, CO, CS₂, VOCs, H₂S, Inorganics, Lead, Organics, O₃, NO, NO₂, SO₂, SO₃, all applicable Greenhouse Gases (including CO₂ and methane), etc. **DO NOT LIST** H₂, H₂O, N₂, O₂, and Noble Gases.
- ⁴ Give maximum potential emission rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).
- ⁵ Give maximum potential emission rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).
- ⁶ Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).
- ⁷ Provide for all pollutant emissions. Typically, the units of parts per million by volume (ppmv) are used. If the emission is a mineral acid (sulfuric, nitric, hydrochloric or phosphoric) use units of milligram per dry cubic meter (mg/m³) at standard conditions (68 °F and 29.92 inches Hg) (see 45CSR7). If the pollutant is SO₂, use units of ppmv (See 45CSR10).

Attachment J EMISSION POINTS DATA SUMMARY SHEET

Table 2: Release Parameter Data

Emission Point ID No. <i>(Must match Emission Units Table)</i>	Inner Diameter (ft.)	Exit Gas			Emission Point Elevation (ft)		UTM Coordinates (km)	
		Temp. (°F)	Volumetric Flow ¹ (acfm) <i>at operating conditions</i>	Velocity (fps)	Ground Level <i>(Height above mean sea level)</i>	Stack Height ² <i>(Release height of emissions above ground level)</i>	Northing	Easting

¹ Give at operating conditions. Include inerts.
² Release height of emissions above ground level.

Fugitive Emissions Data Summary Sheet

Attachment K

FUGITIVE EMISSIONS DATA SUMMARY SHEET

The FUGITIVE EMISSIONS SUMMARY SHEET provides a summation of fugitive emissions. Fugitive emissions are those emissions which could not reasonably pass through a stack, chimney, vent or other functionally equivalent opening. Note that uncaptured process emissions are not typically considered to be fugitive, and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET.

Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions).

APPLICATION FORMS CHECKLIST - FUGITIVE EMISSIONS
1.) Will there be haul road activities? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No- minimal truck traffic from semi-trucks <input type="checkbox"/> If YES, then complete the HAUL ROAD EMISSIONS UNIT DATA SHEET.
2.) Will there be Storage Piles? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If YES, complete Table 1 of the NONMETALLIC MINERALS PROCESSING EMISSIONS UNIT DATA SHEET.
3.) Will there be Liquid Loading/Unloading Operations? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No - Facility has liquid unloading operations, however, they are not affected by this project. <input type="checkbox"/> If YES, complete the BULK LIQUID TRANSFER OPERATIONS EMISSIONS UNIT DATA SHEET.
4.) Will there be emissions of air pollutants from Wastewater Treatment Evaporation? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET.
5.) Will there be Equipment Leaks (e.g. leaks from pumps, compressors, in-line process valves, pressure relief devices, open-ended valves, sampling connections, flanges, agitators, cooling towers, etc.)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If YES, complete the LEAK SOURCE DATA SHEET section of the CHEMICAL PROCESSES EMISSIONS UNIT DATA SHEET.
6.) Will there be General Clean-up VOC Operations? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET.
7.) Will there be any other activities that generate fugitive emissions? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET or the most appropriate form.
If you answered "NO" to all of the items above, it is not necessary to complete the following table, "Fugitive Emissions Summary."

FUGITIVE EMISSIONS SUMMARY	All Regulated Pollutants - Chemical Name/CAS ¹	Maximum Potential Uncontrolled Emissions ²		Maximum Potential Controlled Emissions ³		Est. Method Used ⁴
		lb/hr	ton/yr	lb/hr	ton/yr	
Haul Road/Road Dust Emissions Paved Haul Roads	NA	neg	neg	neg	neg	--
Unpaved Haul Roads	NA	--	--	--	--	--
Storage Pile Emissions	NA	---	---	---	---	---
Loading/Unloading Operations	VOC	---	---	---	---	---
Wastewater Treatment Evaporation & Operations	NA	---	---	---	---	---
Equipment Leaks	VOC	---	---	---	---	---
General Clean-up VOC Emissions	NA	---	---	---	---	---
Other	NA	---	---	---	---	---

¹ List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. LIST Acids, CO, CS₂, VOCs, H₂S, Inorganics, Lead, Organics, O₃, NO, NO₂, SO₂, SO₃, all applicable Greenhouse Gases (including CO₂ and methane), etc. DO NOT LIST H₂, H₂O, N₂, O₂, and Noble Gases.

² Give rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

³ Give rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

⁴ Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).

ATTACHMENT L

Emission Unit Data Sheet

Attachment L EMISSIONS UNIT DATA SHEET STORAGE TANKS

Provide the following information for each new or modified bulk liquid storage tank as shown on the *Equipment List Form* and other parts of this application. A tank is considered modified if the material to be stored in the tank is different from the existing stored liquid.

IF USING US EPA'S TANKS EMISSION ESTIMATION PROGRAM (AVAILABLE AT www.epa.gov/tnn/tanks.html), APPLICANT MAY ATTACH THE SUMMARY SHEETS IN LIEU OF COMPLETING SECTIONS III, IV, & V OF THIS FORM. HOWEVER, SECTIONS I, II, AND VI OF THIS FORM MUST BE COMPLETED. US EPA'S AP-42, SECTION 7.1, "ORGANIC LIQUID STORAGE TANKS," MAY ALSO BE USED TO ESTIMATE VOC AND HAP EMISSIONS (<http://www.epa.gov/tnn/chief/>).

I. GENERAL INFORMATION (required)

1. Bulk Storage Area Name ECOSE Storage	2. Tank Name ECOSE Tanks
3. Tank Equipment Identification No. (as assigned on <i>Equipment List Form</i>) T3 through T6	4. Emission Point Identification No. (as assigned on <i>Equipment List Form</i>) T3 through T6
5. Date of Commencement of Construction (for existing tanks)	
6. Type of change <input type="checkbox"/> New Construction <input checked="" type="checkbox"/> New Stored Material <input type="checkbox"/> Other Tank Modification	
7. Description of Tank Modification (if applicable)	
7A. Does the tank have more than one mode of operation? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (e.g. Is there more than one product stored in the tank?)	
7B. If YES, explain and identify which mode is covered by this application (Note: A separate form must be completed for each mode).	
7C. Provide any limitations on source operation affecting emissions, any work practice standards (e.g. production variation, etc.): None	

II. TANK INFORMATION (required)

8. Design Capacity (specify barrels or gallons). Use the internal cross-sectional area multiplied by internal height. 4,500 gal each	
9A. Tank Internal Diameter (ft)	9B. Tank Internal Height (or Length) (ft)
10A. Maximum Liquid Height (ft)	10B. Average Liquid Height (ft)
11A. Maximum Vapor Space Height (ft)	11B. Average Vapor Space Height (ft)
12. Nominal Capacity (specify barrels or gallons). This is also known as "working volume" and considers design liquid levels and overflow valve heights. 4,500 gal each	

13A. Maximum annual throughput (gal/yr)	13B. Maximum daily throughput (gal/day)
14. Number of Turnovers per year (annual net throughput/maximum tank liquid volume)	
15. Maximum tank fill rate (gal/min) TBD	
16. Tank fill method <input type="checkbox"/> Submerged <input checked="" type="checkbox"/> Splash <input type="checkbox"/> Bottom Loading	
17. Complete 17A and 17B for Variable Vapor Space Tank Systems <input type="checkbox"/> Does Not Apply	
17A. Volume Expansion Capacity of System (gal) TBD	17B. Number of transfers into system per year TBD
18. Type of tank (check all that apply): <input checked="" type="checkbox"/> Fixed Roof <input checked="" type="checkbox"/> vertical ___ horizontal ___ flat roof <input checked="" type="checkbox"/> cone roof ___ dome roof ___ other (describe) <input type="checkbox"/> External Floating Roof ___ pontoon roof ___ double deck roof <input type="checkbox"/> Domed External (or Covered) Floating Roof <input type="checkbox"/> Internal Floating Roof ___ vertical column support ___ self-supporting <input type="checkbox"/> Variable Vapor Space ___ lifter roof ___ diaphragm <input type="checkbox"/> Pressurized ___ spherical ___ cylindrical <input type="checkbox"/> Underground <input type="checkbox"/> Other (describe)	

III. TANK CONSTRUCTION & OPERATION INFORMATION (optional if providing TANKS Summary Sheets)

19. Tank Shell Construction: <input type="checkbox"/> Riveted <input type="checkbox"/> Gunitite lined <input type="checkbox"/> Epoxy-coated rivets <input type="checkbox"/> Other (describe)		
20A. Shell Color	20B. Roof Color	20C. Year Last Painted
21. Shell Condition (if metal and unlined): <input type="checkbox"/> No Rust <input type="checkbox"/> Light Rust <input type="checkbox"/> Dense Rust <input type="checkbox"/> Not applicable		
22A. Is the tank heated? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		
22B. If YES, provide the operating temperature (°F)		
22C. If YES, please describe how heat is provided to tank.		
23. Operating Pressure Range (psig): 0		
24. Complete the following section for Vertical Fixed Roof Tanks <input type="checkbox"/> Does Not Apply		
24A. For dome roof, provide roof radius (ft)		
24B. For cone roof, provide slope (ft/ft)		
25. Complete the following section for Floating Roof Tanks <input checked="" type="checkbox"/> Does Not Apply		
25A. Year Internal Floaters Installed:		
25B. Primary Seal Type: <input type="checkbox"/> Metallic (Mechanical) Shoe Seal <input type="checkbox"/> Liquid Mounted Resilient Seal <input type="checkbox"/> Vapor Mounted Resilient Seal <input type="checkbox"/> Other (describe):		
25C. Is the Floating Roof equipped with a Secondary Seal? <input type="checkbox"/> YES <input type="checkbox"/> NO		
25D. If YES, how is the secondary seal mounted? (check one) <input type="checkbox"/> Shoe <input type="checkbox"/> Rim <input type="checkbox"/> Other (describe):		
25E. Is the Floating Roof equipped with a weather shield? <input type="checkbox"/> YES <input type="checkbox"/> NO		

25F. Describe deck fittings; indicate the number of each type of fitting:		
ACCESS HATCH		
BOLT COVER, GASKETED:	UNBOLTED COVER, GASKETED:	UNBOLTED COVER, UNGASKETED:
AUTOMATIC GAUGE FLOAT WELL		
BOLT COVER, GASKETED:	UNBOLTED COVER, GASKETED:	UNBOLTED COVER, UNGASKETED:
COLUMN WELL		
BUILT-UP COLUMN – SLIDING COVER, GASKETED:	BUILT-UP COLUMN – SLIDING COVER, UNGASKETED:	PIPE COLUMN – FLEXIBLE FABRIC SLEEVE SEAL:
LADDER WELL		
PIP COLUMN – SLIDING COVER, GASKETED:	PIPE COLUMN – SLIDING COVER, UNGASKETED:	
GAUGE-HATCH/SAMPLE PORT		
SLIDING COVER, GASKETED:	SLIDING COVER, UNGASKETED:	
ROOF LEG OR HANGER WELL		
WEIGHTED MECHANICAL ACTUATION, GASKETED:	WEIGHTED MECHANICAL ACTUATION, UNGASKETED:	SAMPLE WELL-SLIT FABRIC SEAL (10% OPEN AREA)
VACUUM BREAKER		
WEIGHTED MECHANICAL ACTUATION, GASKETED:	WEIGHTED MECHANICAL ACTUATION, UNGASKETED:	
RIM VENT		
WEIGHTED MECHANICAL ACTUATION GASKETED:	WEIGHTED MECHANICAL ACTUATION, UNGASKETED:	
DECK DRAIN (3-INCH DIAMETER)		
OPEN:	90% CLOSED:	
STUB DRAIN		
1-INCH DIAMETER:		
OTHER (DESCRIBE, ATTACH ADDITIONAL PAGES IF NECESSARY)		

26. Complete the following section for Internal Floating Roof Tanks		<input checked="" type="checkbox"/> Does Not Apply
26A. Deck Type: <input type="checkbox"/> Bolted <input type="checkbox"/> Welded		
26B. For Bolted decks, provide deck construction:		
26C. Deck seam:		
<input type="checkbox"/> Continuous sheet construction 5 feet wide <input type="checkbox"/> Continuous sheet construction 6 feet wide <input type="checkbox"/> Continuous sheet construction 7 feet wide <input type="checkbox"/> Continuous sheet construction 5 × 7.5 feet wide <input type="checkbox"/> Continuous sheet construction 5 × 12 feet wide <input type="checkbox"/> Other (describe)		
26D. Deck seam length (ft)	26E. Area of deck (ft ²)	
For column supported tanks:	26G. Diameter of each column:	
26F. Number of columns:		

IV. SITE INFORMANTION (optional if providing TANKS Summary Sheets)

27. Provide the city and state on which the data in this section are based. Inwood, WV - located indoors
28. Daily Average Ambient Temperature (°F)
29. Annual Average Maximum Temperature (°F)
30. Annual Average Minimum Temperature (°F)
31. Average Wind Speed (miles/hr)
32. Annual Average Solar Insulation Factor (BTU/(ft ² ·day))
33. Atmospheric Pressure (psia)

V. LIQUID INFORMATION (optional if providing TANKS Summary Sheets)

34. Average daily temperature range of bulk liquid: located indoors			
34A. Minimum (°F)	34B. Maximum (°F)		
35. Average operating pressure range of tank:			
35A. Minimum (psig)	35B. Maximum (psig)		
36A. Minimum Liquid Surface Temperature (°F)	36B. Corresponding Vapor Pressure (psia)		
37A. Average Liquid Surface Temperature (°F)	37B. Corresponding Vapor Pressure (psia)		
38A. Maximum Liquid Surface Temperature (°F)	38B. Corresponding Vapor Pressure (psia)		
39. Provide the following for <u>each</u> liquid or gas to be stored in tank. Add additional pages if necessary.			
39A. Material Name or Composition	Condensate (mixture)		
39B. CAS Number	N/A		
39C. Liquid Density (lb/gal)			
39D. Liquid Molecular Weight (lb/lb-mole)			
39E. Vapor Molecular Weight (lb/lb-mole)			

Maximum Vapor Pressure 39F. True (psia)	neg		
39G. Reid (psia)			
Months Storage per Year 39H. From			
39I. To			

VI. EMISSIONS AND CONTROL DEVICE DATA (required)

40. Emission Control Devices (check as many as apply): Does Not Apply

- Carbon Adsorption¹
- Condenser¹
- Conservation Vent (psig)
 - Vacuum Setting
 - Pressure Setting
- Emergency Relief Valve (psig)
- Inert Gas Blanket of
- Insulation of Tank with
- Liquid Absorption (scrubber)¹
- Refrigeration of Tank
- Rupture Disc (psig)
- Vent to Incinerator¹
- Other¹ (describe):

¹ Complete appropriate Air Pollution Control Device Sheet.

41. Expected Emission Rate (submit Test Data or Calculations here or elsewhere in the application).

Material Name & CAS No.	Breathing Loss (lb/hr)	Working Loss		Annual Loss (lb/yr)	Estimation Method ¹
		Amount	Units		
Negligible emissions					

¹ EPA = EPA Emission Factor, MB = Material Balance, SS = Similar Source, ST = Similar Source Test, Throughput Data, O = Other (specify)

Remember to attach emissions calculations, including TANKS Summary Sheets if applicable.

Attachment L EMISSIONS UNIT DATA SHEET STORAGE TANKS

Provide the following information for each new or modified bulk liquid storage tank as shown on the *Equipment List Form* and other parts of this application. A tank is considered modified if the material to be stored in the tank is different from the existing stored liquid.

IF USING US EPA'S TANKS EMISSION ESTIMATION PROGRAM (AVAILABLE AT www.epa.gov/tnn/tanks.html), APPLICANT MAY ATTACH THE SUMMARY SHEETS IN LIEU OF COMPLETING SECTIONS III, IV, & V OF THIS FORM. HOWEVER, SECTIONS I, II, AND VI OF THIS FORM MUST BE COMPLETED. US EPA'S AP-42, SECTION 7.1, "ORGANIC LIQUID STORAGE TANKS," MAY ALSO BE USED TO ESTIMATE VOC AND HAP EMISSIONS (<http://www.epa.gov/tnn/chief/>).

I. GENERAL INFORMATION (required)

1. Bulk Storage Area Name Binder Room	2. Tank Name Mix Binder Tanks
3. Tank Equipment Identification No. (as assigned on <i>Equipment List Form</i>) M1-M6	4. Emission Point Identification No. (as assigned on <i>Equipment List Form</i>) M1-M6
5. Date of Commencement of Construction (for existing tanks)	
6. Type of change <input checked="" type="checkbox"/> New Construction <input checked="" type="checkbox"/> New Stored Material <input type="checkbox"/> Other Tank Modification	
7. Description of Tank Modification (if applicable) Change of service	
7A. Does the tank have more than one mode of operation? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (e.g. Is there more than one product stored in the tank?)	
7B. If YES, explain and identify which mode is covered by this application (Note: A separate form must be completed for each mode).	
7C. Provide any limitations on source operation affecting emissions, any work practice standards (e.g. production variation, etc.): None	

II. TANK INFORMATION (required)

8. Design Capacity (specify barrels or gallons). Use the internal cross-sectional area multiplied by internal height. M1 – 1,200 gal; M2 – 1,700 gal; M3 – 1,700 gal; M4 – 3,200 gal; M5 – 750 gal; M6 – 1,700 gal	
9A. Tank Internal Diameter (ft)	9B. Tank Internal Height (or Length) (ft)
10A. Maximum Liquid Height (ft)	10B. Average Liquid Height (ft)
11A. Maximum Vapor Space Height (ft)	11B. Average Vapor Space Height (ft)
12. Nominal Capacity (specify barrels or gallons). This is also known as "working volume" and considers design liquid levels and overflow valve heights. M1 – 1,200 gal; M2 – 1,700 gal; M3 – 1,700 gal; M4 – 3,200 gal; M5 – 750 gal; M6 – 1,700 gal	

13A. Maximum annual throughput (gal/yr)	13B. Maximum daily throughput (gal/day)
14. Number of Turnovers per year (annual net throughput/maximum tank liquid volume)	
15. Maximum tank fill rate (gal/min) TBD	
16. Tank fill method <input type="checkbox"/> Submerged <input checked="" type="checkbox"/> Splash <input type="checkbox"/> Bottom Loading	
17. Complete 17A and 17B for Variable Vapor Space Tank Systems <input type="checkbox"/> Does Not Apply	
17A. Volume Expansion Capacity of System (gal) TBD	17B. Number of transfers into system per year TBD
18. Type of tank (check all that apply): <input checked="" type="checkbox"/> Fixed Roof <input checked="" type="checkbox"/> vertical ___ horizontal ___ flat roof <input checked="" type="checkbox"/> cone roof ___ dome roof ___ other (describe) <input type="checkbox"/> External Floating Roof ___ pontoon roof ___ double deck roof <input type="checkbox"/> Domed External (or Covered) Floating Roof <input type="checkbox"/> Internal Floating Roof ___ vertical column support ___ self-supporting <input type="checkbox"/> Variable Vapor Space ___ lifter roof ___ diaphragm <input type="checkbox"/> Pressurized ___ spherical ___ cylindrical <input type="checkbox"/> Underground <input type="checkbox"/> Other (describe)	

III. TANK CONSTRUCTION & OPERATION INFORMATION (optional if providing TANKS Summary Sheets)

19. Tank Shell Construction: <input type="checkbox"/> Riveted <input type="checkbox"/> Gunitite lined <input type="checkbox"/> Epoxy-coated rivets <input type="checkbox"/> Other (describe)		
20A. Shell Color	20B. Roof Color	20C. Year Last Painted
21. Shell Condition (if metal and unlined): <input type="checkbox"/> No Rust <input type="checkbox"/> Light Rust <input type="checkbox"/> Dense Rust <input type="checkbox"/> Not applicable		
22A. Is the tank heated? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		
22B. If YES, provide the operating temperature (°F)		
22C. If YES, please describe how heat is provided to tank.		
23. Operating Pressure Range (psig): 0		
24. Complete the following section for Vertical Fixed Roof Tanks <input type="checkbox"/> Does Not Apply		
24A. For dome roof, provide roof radius (ft)		
24B. For cone roof, provide slope (ft/ft)		
25. Complete the following section for Floating Roof Tanks <input checked="" type="checkbox"/> Does Not Apply		
25A. Year Internal Floaters Installed:		
25B. Primary Seal Type: <input type="checkbox"/> Metallic (Mechanical) Shoe Seal <input type="checkbox"/> Liquid Mounted Resilient Seal <input type="checkbox"/> Vapor Mounted Resilient Seal <input type="checkbox"/> Other (describe):		
25C. Is the Floating Roof equipped with a Secondary Seal? <input type="checkbox"/> YES <input type="checkbox"/> NO		
25D. If YES, how is the secondary seal mounted? (check one) <input type="checkbox"/> Shoe <input type="checkbox"/> Rim <input type="checkbox"/> Other (describe):		
25E. Is the Floating Roof equipped with a weather shield? <input type="checkbox"/> YES <input type="checkbox"/> NO		

25F. Describe deck fittings; indicate the number of each type of fitting:		
ACCESS HATCH		
BOLT COVER, GASKETED:	UNBOLTED COVER, GASKETED:	UNBOLTED COVER, UNGASKETED:
AUTOMATIC GAUGE FLOAT WELL		
BOLT COVER, GASKETED:	UNBOLTED COVER, GASKETED:	UNBOLTED COVER, UNGASKETED:
COLUMN WELL		
BUILT-UP COLUMN – SLIDING COVER, GASKETED:	BUILT-UP COLUMN – SLIDING COVER, UNGASKETED:	PIPE COLUMN – FLEXIBLE FABRIC SLEEVE SEAL:
LADDER WELL		
PIP COLUMN – SLIDING COVER, GASKETED:	PIPE COLUMN – SLIDING COVER, UNGASKETED:	
GAUGE-HATCH/SAMPLE PORT		
SLIDING COVER, GASKETED:	SLIDING COVER, UNGASKETED:	
ROOF LEG OR HANGER WELL		
WEIGHTED MECHANICAL ACTUATION, GASKETED:	WEIGHTED MECHANICAL ACTUATION, UNGASKETED:	SAMPLE WELL-SLIT FABRIC SEAL (10% OPEN AREA)
VACUUM BREAKER		
WEIGHTED MECHANICAL ACTUATION, GASKETED:	WEIGHTED MECHANICAL ACTUATION, UNGASKETED:	
RIM VENT		
WEIGHTED MECHANICAL ACTUATION GASKETED:	WEIGHTED MECHANICAL ACTUATION, UNGASKETED:	
DECK DRAIN (3-INCH DIAMETER)		
OPEN:	90% CLOSED:	
STUB DRAIN		
1-INCH DIAMETER:		
OTHER (DESCRIBE, ATTACH ADDITIONAL PAGES IF NECESSARY)		

26. Complete the following section for Internal Floating Roof Tanks		<input checked="" type="checkbox"/> Does Not Apply
26A. Deck Type: <input type="checkbox"/> Bolted <input type="checkbox"/> Welded		
26B. For Bolted decks, provide deck construction:		
26C. Deck seam:		
<input type="checkbox"/> Continuous sheet construction 5 feet wide <input type="checkbox"/> Continuous sheet construction 6 feet wide <input type="checkbox"/> Continuous sheet construction 7 feet wide <input type="checkbox"/> Continuous sheet construction 5 × 7.5 feet wide <input type="checkbox"/> Continuous sheet construction 5 × 12 feet wide <input type="checkbox"/> Other (describe)		
26D. Deck seam length (ft)	26E. Area of deck (ft ²)	
For column supported tanks:	26G. Diameter of each column:	
26F. Number of columns:		

IV. SITE INFORMANTION (optional if providing TANKS Summary Sheets)

27. Provide the city and state on which the data in this section are based. Inwood, WV - located indoors
28. Daily Average Ambient Temperature (°F)
29. Annual Average Maximum Temperature (°F)
30. Annual Average Minimum Temperature (°F)
31. Average Wind Speed (miles/hr)
32. Annual Average Solar Insulation Factor (BTU/(ft ² ·day))
33. Atmospheric Pressure (psia)

V. LIQUID INFORMATION (optional if providing TANKS Summary Sheets)

34. Average daily temperature range of bulk liquid: located indoors			
34A. Minimum (°F)	34B. Maximum (°F)		
35. Average operating pressure range of tank:			
35A. Minimum (psig)	35B. Maximum (psig)		
36A. Minimum Liquid Surface Temperature (°F)	36B. Corresponding Vapor Pressure (psia)		
37A. Average Liquid Surface Temperature (°F)	37B. Corresponding Vapor Pressure (psia)		
38A. Maximum Liquid Surface Temperature (°F)	38B. Corresponding Vapor Pressure (psia)		
39. Provide the following for <u>each</u> liquid or gas to be stored in tank. Add additional pages if necessary.			
39A. Material Name or Composition	Condensate (mixture)		
39B. CAS Number	N/A		
39C. Liquid Density (lb/gal)			
39D. Liquid Molecular Weight (lb/lb-mole)			
39E. Vapor Molecular Weight (lb/lb-mole)			

Maximum Vapor Pressure 39F. True (psia)	neg		
39G. Reid (psia)			
Months Storage per Year 39H. From			
39I. To			

VI. EMISSIONS AND CONTROL DEVICE DATA (required)

40. Emission Control Devices (check as many as apply): Does Not Apply

- Carbon Adsorption¹
- Condenser¹
- Conservation Vent (psig)
 - Vacuum Setting
 - Pressure Setting
- Emergency Relief Valve (psig)
- Inert Gas Blanket of
- Insulation of Tank with
- Liquid Absorption (scrubber)¹
- Refrigeration of Tank
- Rupture Disc (psig)
- Vent to Incinerator¹
- Other¹ (describe):

¹ Complete appropriate Air Pollution Control Device Sheet.

41. Expected Emission Rate (submit Test Data or Calculations here or elsewhere in the application).

Material Name & CAS No.	Breathing Loss (lb/hr)	Working Loss		Annual Loss (lb/yr)	Estimation Method ¹
		Amount	Units		
Negligible emissions					

¹ EPA = EPA Emission Factor, MB = Material Balance, SS = Similar Source, ST = Similar Source Test, Throughput Data, O = Other (specify)

Remember to attach emissions calculations, including TANKS Summary Sheets if applicable.

Attachment L
EMISSIONS UNIT DATA SHEET
GENERAL

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*): ES12C, ES12E

<p>1. Name or type and model of proposed affected source:</p> <p>Line 1 Electric melter and forehearth</p>
<p>2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.</p>
<p>3. Name(s) and maximum amount of proposed process material(s) charged per hour:</p> <p>Approximately 10,350 lb/hr of glass batch mix (soda, cullet, sand, borax, etc.)</p>
<p>4. Name(s) and maximum amount of proposed material(s) produced per hour:</p> <p>9,000 lb/hr of molten glass produced from melter</p>
<p>5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:</p> <p>N/A</p>

* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

6. Combustion Data (if applicable):			
(a) Type and amount in appropriate units of fuel(s) to be burned:			
Forehearth - Natural gas – 6 MMbtu/hr			
(b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:			
Pipeline quality natural gas with negligible H ₂ S and ash content.			
(c) Theoretical combustion air requirement (ACF/unit of fuel):			
@	°F and	psia.	
(d) Percent excess air:			
(e) Type and BTU/hr of burners and all other firing equipment planned to be used:			
natural gas fired external combustion heaters – 6.00 MMbtu/hr input rating			
(f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired:			
NA			
(g) Proposed maximum design heat input:		6.00	× 10 ⁶ BTU/hr.
7. Projected operating schedule:			
Hours/Day	24	Days/Week	7
		Weeks/Year	52

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used:

@	°F and	psia
a. NO _x	0.14 lb/hr	grains/ACF
b. SO ₂	0.00 lb/hr	grains/ACF
c. CO	3.29 lb/hr	grains/ACF
d. PM ₁₀	Unknown (> 0.32) lb/hr	grains/ACF
e. Hydrocarbons	lb/hr	grains/ACF
f. VOCs	0.99 lb/hr	grains/ACF
g. Pb	lb/hr	grains/ACF
h. Specify other(s)	lb/hr	grains/ACF
	lb/hr	grains/ACF
	lb/hr	grains/ACF
	lb/hr	grains/ACF
	lb/hr	grains/ACF

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.
 (2) Complete the Emission Points Data Sheet.

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing
 Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING
 Title V Condition 5.2
 Bag leak detection on melter baghouse
 Glass pull rate monitoring for melter

 Title V Condition 6.2
 Pressure drop of scrubbers and liquid flow rate

RECORDKEEPING
 Title V Condition 5.4
 Record of bag leak detection alarms

 Title V Condition 6.4
 Records of pressure drop and liquid flow rate

REPORTING
 Semiannual deviation reports

TESTING
 None.

MONITORING. PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

RECORDKEEPING. PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

REPORTING. PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

TESTING. PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty

Attachment L
EMISSIONS UNIT DATA SHEET
GENERAL

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*): ES13A, ES13B

<p>1. Name or type and model of proposed affected source:</p> <p>Line 1 forming and collection</p>
<p>2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.</p>
<p>3. Name(s) and maximum amount of proposed process material(s) charged per hour:</p> <p>9,000 lb/hr of molten glass</p>
<p>4. Name(s) and maximum amount of proposed material(s) produced per hour:</p> <p>9,000 lb/hr of spun fiberglass</p>
<p>5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:</p> <p>N/A</p>

* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

6. Combustion Data (if applicable):			
(a) Type and amount in appropriate units of fuel(s) to be burned:			
Fiberizers - Natural gas – Total- 13 MMbtu/hr			
(b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:			
Pipeline quality natural gas with negligible H ₂ S and ash content.			
(c) Theoretical combustion air requirement (ACF/unit of fuel):			
@	°F and	psia.	
(d) Percent excess air:			
(e) Type and BTU/hr of burners and all other firing equipment planned to be used:			
natural gas fired external combustion heaters – 13 MMbtu/hr Total heat input rating			
(f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired:			
NA			
(g) Proposed maximum design heat input:		13.00	× 10 ⁶ BTU/hr.
7. Projected operating schedule:			
Hours/Day	24	Days/Week	7
		Weeks/Year	52

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used:

@	Unknown	°F and	psia
a. NO _x	1.44	lb/hr	grains/ACF
b. SO ₂	0.00	lb/hr	grains/ACF
c. CO	16.20	lb/hr	grains/ACF
d. PM ₁₀	Unknown	lb/hr	grains/ACF
e. Hydrocarbons		lb/hr	grains/ACF
f. VOCs	12.87 (combined with EP14)	lb/hr	grains/ACF
g. Pb		lb/hr	grains/ACF
h. Specify other(s)		lb/hr	grains/ACF
		lb/hr	grains/ACF
		lb/hr	grains/ACF
		lb/hr	grains/ACF

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.

(2) Complete the Emission Points Data Sheet.

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing
 Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING
 Title V Condition 6.2
 Pressure drop of scrubbers and liquid flow rate

RECORDKEEPING
 Title V Condition 6.4
 Records of pressure drop and liquid flow rate

REPORTING
 Semiannual deviation reports

TESTING
 None.

MONITORING. PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

RECORDKEEPING. PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

REPORTING. PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

TESTING. PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty

Attachment L
EMISSIONS UNIT DATA SHEET
GENERAL

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*): ES14A, ES14B

<p>1. Name or type and model of proposed affected source:</p> <p>Line 1 Curing and cooling</p>
<p>2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.</p>
<p>3. Name(s) and maximum amount of proposed process material(s) charged per hour:</p> <p>9,000 lb/hr of fiberglass</p>
<p>4. Name(s) and maximum amount of proposed material(s) produced per hour:</p> <p>9,000 lb/hr of fiberglass</p>
<p>5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:</p> <p>N/A</p>

* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

6. Combustion Data (if applicable):			
(a) Type and amount in appropriate units of fuel(s) to be burned:			
Curing Oven - Natural gas – 18 MMbtu/hr			
(b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:			
Pipeline quality natural gas with negligible H ₂ S and ash content.			
(c) Theoretical combustion air requirement (ACF/unit of fuel):			
@		°F and	psia.
(d) Percent excess air:			
(e) Type and BTU/hr of burners and all other firing equipment planned to be used:			
Direct fired curing oven – 18 MMbtu/hr input rating			
(f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired:			
NA			
(g) Proposed maximum design heat input:		18.0	× 10 ⁶ BTU/hr.
7. Projected operating schedule:			
Hours/Day	24	Days/Week	7
		Weeks/Year	52

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used:

@	Unknown	°F and	psia
a. NO _x	Unknown	lb/hr	grains/ACF
b. SO ₂	0.00	lb/hr	grains/ACF
c. CO	Unknown	lb/hr	grains/ACF
d. PM ₁₀	Unknown	lb/hr	grains/ACF
e. Hydrocarbons		lb/hr	grains/ACF
f. VOCs	Unknown	lb/hr	grains/ACF
g. Pb		lb/hr	grains/ACF
h. Specify other(s)		lb/hr	grains/ACF
		lb/hr	grains/ACF
		lb/hr	grains/ACF
		lb/hr	grains/ACF
		lb/hr	grains/ACF

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.
 (2) Complete the Emission Points Data Sheet.

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing
 Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

<p>MONITORING Title V Condition 7.2 Operating temperature of incinerator</p>	<p>RECORDKEEPING Title V Condition 7.4 Records of operating temperature of incinerator</p>
---	---

<p>REPORTING Semiannual deviation reports</p>	<p>TESTING None.</p>
---	--

MONITORING. PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

RECORDKEEPING. PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

REPORTING. PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

TESTING. PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty

ATTACHMENT M

Air Pollution Control Device Sheet

Attachment M
Air Pollution Control Device Sheet
(WET COLLECTING SYSTEM-SCRUBBER)

Control Device ID No. (must match Emission Units Table): CD13A, B, C

Equipment Information

1. Manufacturer: Knauf Insulation Model No.	2. Method: <input type="checkbox"/> Packed Bed <input checked="" type="checkbox"/> Venturi <input type="checkbox"/> Spray Tower <input type="checkbox"/> Cyclone <input type="checkbox"/> Mechanical <input type="checkbox"/> Orifice <input type="checkbox"/> Other, specify
3. Provide diagram(s) of unit describing capture system with duct arrangement and size of duct, air volume, capacity, horsepower of movers. If applicable, state hood face velocity and hood collection efficiency.	
4. Provide a scale diagram of the scrubber showing internal construction. Please include packing type and size, spray configurations, baffle plates, and mist eliminators.	
5. What type of liquid entrainment eliminators or system will be used? Submit a schematic diagram showing thickness, mesh, and material of construction.	
6. Describe the scrubber's construction material: Stainless steel	
7. What will be the power requirements of the collector? Fan TBD HP Inlet scrubbing liquid pump: TBD HP	
8. What type of fan(s) will be used? Type of fan blade: Number of blades: Diameter of blade: in. Also supply a fan curve for each fan to be used.	
9. Estimated gas pressure drop at maximum flow rate: 0-10" design (3-5" expected) inches H ₂ O	

Scrubbing Liquor Characteristics

<table border="1"> <tr> <th data-bbox="129 1161 649 1249">10. Scrubbing Liquor Composition</th> <th data-bbox="649 1161 812 1249">Weight %</th> </tr> <tr> <td data-bbox="129 1249 649 1312">1 Water</td> <td data-bbox="649 1249 812 1312">100</td> </tr> <tr> <td data-bbox="129 1312 649 1375">2</td> <td data-bbox="649 1312 812 1375"></td> </tr> <tr> <td data-bbox="129 1375 649 1438">3</td> <td data-bbox="649 1375 812 1438"></td> </tr> <tr> <td data-bbox="129 1438 649 1480">4</td> <td data-bbox="649 1438 812 1480"></td> </tr> </table>	10. Scrubbing Liquor Composition	Weight %	1 Water	100	2		3		4		11. Scrubbing liquor losses (evaporation, etc.): gal/1000 ACF gas 12. Liquor pressure to scrubber: TBD PSIA 13. Pressure drop through scrubber: TBD in. H ₂ O
10. Scrubbing Liquor Composition	Weight %										
1 Water	100										
2											
3											
4											
14. Source of liquor (explain): Recirculating was water system	15. Liquor flow rates to scrubber: Design maximum: 500 gal/min Average expected: 270 gal/min										
16. Describe system to be used to supply liquor to collector: Closed loop recirculating loop with vibrating screens to remove solids.											
17. Give the expected solids content of the liquor: 0.5-1.5%											

18. If the liquor is to be recirculated, describe any treatment performed:
None

19. Data for Venturi Scrubber: Throat Dimensions: TBD (Specify Units) Throat Velocity: TBD ft/sec	20. Data for Packed Towers: Type of Packing: Superficial Gas Velocity through Bed:
--	--

Gas Stream Characteristics

21. Gas flow into the collector: ~50,000 ACF @ 160 °F and PSIA	22. Gas stream temperature: Inlet: 150 °F Outlet: 110 °F
---	--

23. Gas flow rate: Design Maximum: ~50,000 ACFM Average Expected: ~50,000 ACFM	24. Particulate Grain Loading in grains/scf: Inlet: Unknown Outlet:
--	---

25. Emission rate of each pollutant (specify) into and out of collector:

Pollutant	IN		OUT		Guaranteed Minimum Collection Efficiency
	lb/hr	grains/acf	lb/hr	grains/acf	
A PM/PM10/PM2.5	Unknown		1.72 lb/ton expected		
B					
C					
D					
E					

26. Type of pollutant(s) controlled: SO_x Odor
 Particulate (type): Other:

27. By what method were the uncontrolled emissions calculated? Material Balance Stack Test
 Pilot Test Other:

28. Dimensions of stack: Height ft. Diameter ft

29. Supply an equilibrium curve and/or solubility data (at various temperatures) for the proposed system.

30. Supply a curve showing proposed collection efficiency versus gas volume from 25 to 100 percent of design rating of collector.

Particulate Distribution

31. Complete the table:		Fraction Efficiency of Collector
Particulate Size Range (microns)	Particle Size Distribution at Inlet to Collector	
	Weight % for Size Range	Weight % for Size Range
0 – 2		
2 – 4		
4 – 6		
6 – 8		
8 – 10		
10 – 12		
12 – 16		
16 – 20		
20 – 30		
30 – 40		
40 – 50		
50 – 60		
60 – 70		
70 – 80		
80 – 90		
90 – 100		
>100		
32. Describe any air pollution control device inlet and outlet gas conditioning processes (e.g., gas cooling, gas reheating, gas humidification):		
33. Describe the collection material disposal system:		
34. Have you included Wet Collecting (Scrubber) Control Device in the Emissions Points Data Summary Sheet?		

35. Proposed Monitoring, Recordkeeping, Reporting, and Testing

Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING:

Pressure drop and liquid flow

RECORDKEEPING:

Pressure drop and liquid flow

REPORTING:

Semiannual deviation reporting

TESTING:

MONITORING:

Please list and describe the process parameters and ranges that are proposed to be monitored in order to demonstrate compliance with the operation of this process equipment or air control device.

RECORDKEEPING:

Please describe the proposed recordkeeping that will accompany the monitoring.

REPORTING:

Please describe any proposed emissions testing for this process equipment on air pollution control device.

TESTING:

Please describe any proposed emissions testing for this process equipment on air pollution control device.

36. Manufacturer's Guaranteed Capture Efficiency for each air pollutant.

37. Manufacturer's Guaranteed Control Efficiency for each air pollutant.

38. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty.

ATTACHMENT N

Supporting Emission Calculations

Line 1		
Annualized Glass Pull Rate	9,000	lb/hr
Utilization	100%	
Maximum Glass Pull Rate	9,000	lb/hr

Actual to Projected Actual NSR Emissions Analysis

Pollutant	Line 1 Projected Actual Emissions	Line 1 Baseline Emissions	Line 1 Emission Increase	Significant Emission Rate	Trigger Major NSR	Percent of SER
	(tpy)	(tpy)	(tpy)	(tpy)	(Yes/No)	%
CO	40.43	69.08	0.00	100	No	0%
NO _x	10.58	16.70	0.00	40	No	0%
PM	43.69	36.54	7.15	25	No	29%
PM ₁₀	43.69	36.54	7.15	15	No	48%
PM _{2.5}	43.69	36.54	7.15	10	No	72%
VOC	21.20	14.20	7.01	40	No	18%
SO ₂	0.02	0.01	0.006	40	No	0%

1. Emission decreases are reported as zero.

Line 1 Projected Actual Emission Summary

Process Description	CO	PM/PM ₁₀ /PM _{2.5}	NO _x	SO ₂	VOC
	tpy	tpy	tpy	tpy	tpy
Line 1 Raw Material Handling/Storage	--	0.98	--	--	--
Line 1 Melting & Refining	4.95	1.22	0.13	0.002	3.43
Line 1 Forming & Collection	16.95	33.90	2.76	0.02	7.29
Line 1 Curing & Cooling	18.53	6.70	7.69	0.002	6.09
Line 1 Facing, Sizing & Packaging	--	0.89	--	--	4.39
Total Line 1 Emissions	40.4	43.7	10.6	0.0	21.2

CO									
Process	Emissions (tpy)								
	2013	2012	2011	2010	2009	2008	2007	2006	Baseline
Line 1 Raw Materials Handling/Storage	---	---	---	---	---	---	---	---	---
Melting & Refining Line #1	3.93	3.20	3.13	3.20	3.26	3.17	2.73	2.98	
Res Line#1 Forming & Coll	60.72	59.46	58.84	60.99	61.53	58.23	55.64	50.85	
Res Line#1 Curing &Cooling	4.26	4.41	4.35	4.51	4.66	4.47	4.61	5.54	
Line 1 Facing, Sizing & Packaging Area	---	---	---	---	---	---	---	---	
Total Line 1 Emissions	68.90	67.07	66.32	68.70	69.46	65.87	62.98	59.37	69.08

(Baseline Years)
2009/2010

PM									
Process	Emissions (tpy)								
	2013	2012	2011	2010	2009	2008	2007	2006	Baseline
Line 1 Raw Materials Handling/Storage	0.68	0.62	0.59	0.58	0.58	0.55	0.52	0.57	
Melting & Refining Line #1 ¹	0.93	0.88	0.77	0.79	0.81	0.78	0.67	0.38	
Res Line#1 Forming & Coll	21.02	15.83	15.66	16.23	16.38	15.50	14.81	49.29	
Res Line#1 Curing &Cooling	1.68	1.20	1.19	1.23	1.24	1.18	1.12	4.01	
Line 1 Facing, Sizing & Packaging Area	0.79	0.86	0.86	0.86	0.86	0.86	0.85	0.86	
Total Line 1 Emissions	25.10	19.39	19.07	19.70	19.87	18.87	17.98	55.10	36.54

(Baseline Years)
2006/2007

1. For 2013-2010, PM_{2.5} total was greater than PM₁₀ total, so PM_{2.5} emissions were used

PM ₁₀									
Process	Emissions (tpy)								
	2013	2012	2011	2010	2009	2008	2007	2006	Baseline
Line 1 Raw Materials Handling/Storage ¹	0.68	0.62	0.59	0.58	0.58	0.55	0.52	0.57	
Melting & Refining Line #1 ²	0.93	0.88	0.77	0.79	0.81	0.78	0.67	0.38	
Res Line#1 Forming & Coll	21.02	15.83	15.66	16.23	16.38	15.50	14.81	49.29	
Res Line#1 Curing &Cooling	1.68	1.20	1.19	1.23	1.24	1.18	1.12	4.01	
Line 1 Facing, Sizing & Packaging Area ¹	0.79	0.86	0.86	0.86	0.86	0.86	0.85	0.86	
Total Line 1 Emissions	25.10	19.39	19.07	19.70	19.87	18.87	17.98	55.10	36.54

(Baseline Years)
2006/2007

1. Assumes all PM is PM_{2.5}

2. For 2013-2010, PM_{2.5} total was greater than PM₁₀ total, so PM_{2.5} emissions were used

PM _{2.5}									
Process	Emissions (tpy)								
	2013	2012	2011	2010	2009	2008	2007	2006	Baseline
Line 1 Raw Materials Handling/Storage ¹	0.68	0.62	0.59	0.58	0.58	0.55	0.52	0.57	
Melting & Refining Line #1	0.93	0.88	0.77	0.79	0.81	0.78	0.67	0.38	
Res Line#1 Forming & Coll	21.02	15.83	15.66	16.23	16.38	15.50	14.81	49.29	
Res Line#1 Curing &Cooling	1.68	1.20	1.19	1.23	1.24	1.18	1.12	4.01	
Line 1 Facing, Sizing & Packaging Area ¹	0.79	0.86	0.86	0.86	0.86	0.86	0.85	0.86	
Total Line 1 Emissions	25.10	19.39	19.07	19.70	19.87	18.87	17.98	55.10	36.54

(Baseline Years)
2006/2007

1. Assumes all PM is PM_{2.5}

NO _x									
Process	Emissions (tpy)								
	2013	2012	2011	2010	2009	2008	2007	2006	Baseline
Line 1 Raw Materials Handling/Storage	---	---	---	---	---	---	---	---	---
Melting & Refining Line #1	0.08	0.09	0.08	0.09	0.09	0.08	0.07	0.08	
Res Line#1 Forming & Coll	1.59	1.02	1.01	1.04	1.05	1.00	0.95	1.20	
Res Line#1 Curing &Cooling	13.41	12.21	12.09	12.53	12.46	12.03	11.61	19.49	
Line 1 Facing, Sizing & Packaging Area	---	---	---	---	---	---	---	---	
Total Line 1 Emissions	15.08	13.31	13.18	13.66	13.60	13.11	12.64	20.77	16.70

(Baseline Years)
2006/2007

VOC									
Process	Emissions (tpy)								
	2013	2012	2011	2010	2009	2008	2007	2006	Baseline
Line 1 Raw Materials Handling/Storage	---	---	---	---	---	---	---	---	---
Melting & Refining Line #1	2.34	2.22	2.17	2.22	2.26	2.20	1.89	2.07	
Res Line#1 Forming & Coll	5.93	10.26	10.15	10.52	10.62	10.05	9.60	12.02	
Res Line#1 Curing &Cooling	0.19	0.38	0.37	0.38	0.53	0.49	0.72	0.67	
Line 1 Facing, Sizing & Packaging Area	1.14	1.07	0.93	0.79	1.07	0.13	0.08	0.09	
Total Line 1 Emissions	9.60	13.93	13.63	13.91	14.48	12.86	12.30	14.84	14.20

(Baseline Years)
2009/2010

SO ₂									
Process	Emissions (tpy)								
	2013	2012	2011	2010	2009	2008	2007	2006	Baseline
Line 1 Raw Materials Handling/Storage	---	---	---	---	---	---	---	---	---
Melting & Refining Line #1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Res Line#1 Forming & Coll	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
Res Line#1 Curing &Cooling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Line 1 Facing, Sizing & Packaging Area	---	---	---	---	---	---	---	---	
Total Line 1 Emissions	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

(Baseline Years)
2009/2010

Inwood Line 1 Forming and Collection Emission Factors

Regulated Air Pollutants	Emission Factor (lb/ton glass pulled)	
	2013 Emission Factor	Proposed Knauf ²
Particulate matter PM/PM ₁₀ /PM _{2.5} ¹	1.53	1.72
Carbon monoxide	4.41	0.86
Nitrogen oxides	0.12	0.14
Ammonia	2.71	3.30
Volatile organic compounds	0.43	0.37

1. Method 5/5E

2. Emission factors are based on Knauf test data at a different facilities.

Inwood Line 1 Curing and Cooling Emission Factors

Regulated Air Pollutants	Emission Factor (lb/ton glass pulled)	
	2013 Emission Factor	Proposed Knauf ²
Particulate matter PM/PM ₁₀ /PM _{2.5} ¹	0.12	0.34
Carbon monoxide	0.31	0.94
Nitrogen oxides	0.97	0.39
Sulfur dioxides	0.0001	0.0001
Ammonia	0.11	0.34
Volatile organic compounds	0.01	0.30

1. Method 5/5E

2. Emission factors are based on Knauf test data at a different facilities.

Melting and Refining Emission Calculations - Line #1 (Emission Point EP12)

Regulated air pollutant emissions from melting and refining were characterized by the USEPA in Section 11.13 Glass Fiber Manufacturing of AP-42 for wool fiberglass electric furnaces used for melting operations. Emissions from exhaust system serving the melting and refining processes, are vertically discharged to the outside ambient air by stack No. EP12.

Regulated air pollutant emissions from the melting and refining operation were determined using source test data from Line #1 Inwood facility and 2010 melter stack data from Albion & Winnsboro. VOC emission rates for the melting and refining operation were obtained from the Inwood WV, 2003 compliance test reports. SOx was obtained from Inwood WV, 1999 test reports. PM, NOx, CO emission factors were obtained from Inwood Line #1 melter stack tests conducted in 2012. PM 2.5 stack test results were used from the Winnsboro facility.

Presented in the following table is the measured data used to develop emission factors for determining potential regulated air pollutant emissions for the melting and refining #1 Line operations.

Regulated Air Pollutants	Emission Rate (lbs/hr)	Measured Process Rate (lbs glass pulled/hr)	Knauf's Air Permit Emission Factor (lbs/ton of glass pulled)	Knuaff Emission Factor (lbs/ton of glass pulled)
Total PM			0.136	0.054
Sulfur dioxides	0.00026	5,804	0.00013	0.00009
Nitrogen oxides	0.02	6,869	0.03	0.006
Carbon monoxide	0.75	6,869	0.73	0.218
Volatile organic compounds	0.52000	6,869	0.22	0.15

computed based on calculating PM cond. And adding to PM filt.

Projected	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002
39,420	30,945	29,304	28,679	29,309	29,859	29,078	25,012	27,304	24,824	31,731	32,648	28,807

The glass pull rate for melter No. 1 was

To be conservative, production rates at the melters have been estimated to be the higher of: 1.15 times the glass pull rate or the melter camera measured pull rate: Therefore, the conservative melter production rates are:

45333 tons per year (tpy).

tons per year (tpy).

Emissions of PM from the electric furnace are required by permit to be controlled with the bag filter dust collectors.

Emissions of PM, CO and VOC from the melting operations were estimated with the following relationship:

$$E = \text{Sum of (Production Rate, tons per unit time) x (Emission Factor)}$$

Presented in the following table are the estimated annual controlled emissions of PM & PM 2.5, and uncontrolled emissions of SOx, NOx, CO and VOC from the #1 Line melting operations.

Regulated Air Pollutants from Electric glass furnace	Emission Rates (tpy) ¹												
	Projected	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002
Total PM/PM10	1.22	0.93	0.88	0.77	0.79	0.81	0.78	0.67	0.74	0.67	0.86	0.88	0.78
Sulfur dioxides	0.00	0.00	0.00	0.0013	0.0013	0.0013	0.0013	0.0011	0.0012	0.0011	0.0014	0.0015	0.0010
Nitrogen oxides	0.13	0.08	0.09	0.08	0.09	0.09	0.08	0.07	0.08	0.07	0.16	0.10	0.18
Carbon monoxide	4.95	3.93	3.20	3.13	3.20	3.26	3.17	2.73	2.98	2.71	5.45	3.56	5.25
Volatile organic compounds	3.43	2.34	2.22	2.17	2.22	2.26	2.20	1.89	2.07	1.88	2.40	2.47	1.56

1. Projected actual and baseline emissions calculated using throughput and emission factors.
2. Projected actual VOC emissions include Method 25A emissions plus formaldehyde, methanol, and acetaldehyde

Line #1 Forming and Collection Emission Calculations

Molten glass from the electric furnaces is drawn off to the forehearth or refining unit, which maintains the molten glass at a uniform temperature with a natural gas fired process heater. Emissions occurring from the combustion of natural gas in the forehearth process heater are released to the exhaust serving the forming and collection system.

Knauf Insulation uses a rotary spin process which consists of fiberizers, natural gas heat, and compressed air for fiber forming. Natural gas heated air is provided by the blowers. Subsequent to forming, the wool fibers enter a vacuum chamber (or collection) process. Emissions occurring from the forming and collection processes are exhausted via a common stack to the outside ambient air. The combustion of natural gas in the forming process heaters produce regulated air pollutants of SO₂, NO_x, and CO.

Regulated air pollutant emissions from the forming and collection operation were determined using source test data from Line #1 of the Inwood, WV, 2012 compliance test report for PM, NO_x, CO, and VOC for the collection stack. SO₂ was obtained from Inwood WV, 1999 test reports.

Presented in the following table is the measured data used to develop emission factors for determining regulated air pollutant emissions for the forming and collection #1 Line operations.

Regulated Air Pollutants	Current Facility Emission Factor ³ (lbs/ton of glass pulled)	Knuaff Technology Emission Factor ¹ (lbs/ton of glass pulled)
Forming and collection		
Particulate matter PM/PM ₁₀ /PM _{2.5} ²	3.47	1.72
Sulfur dioxides	0.001	0.00
Nitrogen oxides	0.32	0.14
Carbon monoxide	5.28	0.86
Volatile organic compounds	2.86	0.37
Ammonia	3.77	3.30

1. Emissions are based on testing from another Knauf facility. Sulfur dioxide emission factor assumed the same.
2. Method 5/5E. Assumes all PM is PM_{2.5}
3. Based on current Title V Inwood Air Permit

Annual emissions from line #1 forming and collection operations may be estimated with the following relationship:

$$E = (\text{Production Rate, tons per unit time}) \times (\text{Emission Factor}) \times (\text{LOI adjustment if applicable})$$

Line 1 tons of resinated glass pulled is projected to be 39,420 tons per year (tpy).

Presented in the following table are the estimated hourly and annual controlled emissions of PM, SO₂, NO_x, CO, VOC from the #1 Line forming and collection operations.

Presented in the following table are the estimated hourly and annual controlled emissions of PM, SO₂, NO_x, CO, VOC from the #1 Line forming and collection operations.

Regulated Air Pollutants from Forming and collection	Annual Emission Rates tpy ¹												
	Projected	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002
Particulate matter PM/PM ₁₀ /PM _{2.5}	33.90	21.02	15.83	15.66	16.23	16.38	15.50	14.81	49.29	39.66	27.04	33.12	35.48
Sulfur dioxides	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Nitrogen oxides	2.76	1.59	1.02	1.01	1.04	1.05	1.00	0.95	1.20	1.31	1.74	1.61	2.34
Carbon monoxide	16.95	60.72	59.46	58.84	60.99	61.53	58.23	55.64	50.85	50.00	28.31	37.78	52.87
Volatile organic compounds	7.29	5.93	10.26	10.15	10.52	10.62	10.05	9.60	12.02	5.53	4.17	27.13	24.52
Ammonia	65.04	29.90	32.48	33.59	34.82	42.44	40.16	38.37	33.54	28.71	41.08	28.91	34.76

1. 2002-2013 data was obtained from the corresponding emission inventory

Line #1 Curing and Cooling Emission Calculations

A continuous blanket of wool fiberglass from the forming and collection operations is conveyed through a natural gas fired curing oven. Emissions occurring from the curing and cooling of wool fiberglass are exhausted via a common stack to the outside ambient air. The combustion of natural gas in the curing oven will produce regulated air pollutants of SO₂, NO_x, and CO.

PM, NO_x, CO, and VOC for the curing and cooling operation were obtained from the Inwood, WV, 2012 compliance test reports of the #1 Line Incinerator stack. SO₂ was obtained from Inwood WV, 1999 test reports.

Presented in the following table is the measured data used to develop emission factors for determining regulated air pollutant emissions for the forming and collection #1 Line operations.

Regulated Air Pollutants	Current Facility Emission Factor³ (lbs/ton of glass pulled)	Knauff Technology Emission Factor¹ (lbs/ton of glass pulled)
Curing oven process heater (SCC 3-05-900-03)		
Particulate matter PM (5E)		0.17
Sulfur dioxides	0.0001	0.0001
Carbon monoxide	1.13	0.94
Nitrogen oxides	3.75	0.39
Volatile organic compounds	2.86	0.30
Ammonia	0.87	0.340

1. Emissions are based on testing from another Knauf facility. Sulfur dioxide emission factor assumed the same.
2. Method 5E. Assumes all PM is PM_{2.5}. Factor is based on Line 1 (Albion) emission factor.
3. Based on current Title V Inwood Air Permit

Line 1 tons of resinated glass pulled is projected to be 39,420 tons per year (tpy).
 $E = (\text{Production Rate, tons per unit time}) \times (\text{Emission Factor})$

Regulated Air Pollutants from Curing oven process heater (SCC 3-05-900-03)	Annual Emission Rates tpy¹											
	Projected	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003
Particulate matter PM/PM ₁₀ /PM _{2.5}	6.70	1.68	1.20	1.19	1.23	1.24	1.18	1.12	4.01	4.18	2.94	5.06
Sulfur dioxides	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Carbon monoxide	18.53	4.26	4.41	4.35	4.51	4.66	4.47	4.61	5.54	4.24	13.47	13.03
Nitrogen oxides	7.69	13.41	12.21	12.09	12.53	12.46	12.03	11.61	19.49	18.78	46.51	1.62
Volatile organic compounds ²	6.09	0.19	0.38	0.37	0.38	0.53	0.49	0.72	0.67	0.66	1.26	0.58
Ammonia	6.70	1.07	0.75	0.74	0.77	1.45	1.35	1.76	0.51	0.47	3.65	4.61

1. 2002-2013 data was obtained from the corresponding emission inventory
2. Projected actual VOC emissions include Method 25A emissions plus formaldehyde, methanol, and acetaldehyde

Facing, Sizing and Packaging Emission Calculations - Line 1 Associated Emissions

Potential particulate matter (PM) and volatile organic compound (VOC) emissions from the application of facing material to the wool fiberglass material were not characterized in AP-42. A PM emission factor of 0.05 lbs PM per ton of wool processed is presented on page C-65 of "Wool Fiberglass Insulation Manufacturing - Background Information for Proposed Standards" USEPA-450-3-83-002A. A representative (or conservative) VOC emission factor of 1.86 lbs VOC per ton of asphalt blowing coating produced, which is used by the asphalt manufacturing industry, was obtained from the USEPA FIRE database. Summarized in the following are the emission factors that were used to determine potential regulated air pollutant emissions from the facing application.

Regulated Air Pollutants from Facing application (SCC 3-05-012-99)	Emission Factors (lbs/ton of material processed)
Particulate Matter (PM)	0.05
Volatile organic compounds (VOC)	1.86

	Projected	2,013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002
The tons of resinated glass pulled was	39,420	27,561	26,732	26,450	27,417	27,663	26,177	25,012	27,304	24,824	26,516	30,016	28,807
The tons of asphalt based facing material used was	2,560	1,228	1,152	1,005	849	1,149	136	91	94	111	684	1,949	1,777

1. In year where both lines were operating, asphalt used was for Line 1 was based on the ratio of Line 1 resinated glass pulled to total resinated glass pulled.
2. Projected asphalt use was based on maximum ratio of asphalt used/total resinated glass pulled from 2002 through 2013.

The emissions from the facing application are uncontrolled and released to the in-plant environment. Therefore, the estimated annual emissions released to the in-plant environment from the facing application may be estimated with the following relationship:

$$E = (\text{Material Rate, tons per unit time}) \times (\text{Emission Factor}) \times (1 - \text{PM Control Efficiency, } 90)$$

Presented in the following table are the estimated annual controlled PM emission rates for facing application operation at the Knauf Insulation Inwood facility.

Regulated Air Pollutants from Facing application (SCC 3-05-012-99)	Annual Emission Rates tpy												
	Projected	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002
Particulate Matter (PM)	0.10	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.07	0.06	0.07	0.08	0.07
Volatile organic compounds (VOC)	2.38	1.14	1.07	0.93	0.79	1.07	0.13	0.08	0.09	0.10	0.64	1.81	1.65

Determination of fugitive VOC emissions from the Ink-jet Identification based on a material balance, as follows:

$$\begin{aligned}
 U &= \frac{439}{2,927} \text{ gals ink used/yr, or} & \text{Ink density} &= \frac{6.66}{6.18} \text{ lbs/gal ink} \\
 & \text{lbs ink used/yr} & \text{Ink voc} &= \text{lbs VOC/gal ink} \\
 \\
 U &= \frac{19}{127} \text{ gals solvent used/yr, at} & \frac{6.66}{6.66} \text{ lbs/gal Solvent} \\
 & \text{lbs solvent used/yr} & \text{lbs VOC/gal Solvent} \\
 \\
 F &= \frac{439}{2,843} \text{ gals Ink used/yr} \times \text{VOC /gal Ink} + \frac{19}{1.42} \text{ gals Solvent used/yr} \times \text{VOC /gal Solvent} \\
 & \text{lbs VOC/yr, or} & \text{tpy of rink \& solvent VOCs}
 \end{aligned}$$

Determination of fugitive VOC emissions from laminating adhesive based on a material balance, as follows:

$$\begin{aligned}
 U &= \frac{151}{1497} \text{ gals adhesive used/yr, or} & \text{Adhesive density} &= \frac{10}{8} \text{ lbs/gal} \\
 & \text{lbs adhesive used/yr} & \text{VOC Content} &= \text{lbs VOC/gal adhesive} \\
 \\
 F &= \frac{1170}{0.59} \text{ lbs/yr VOC} \\
 & \text{tpy VOC}
 \end{aligned}$$

For facing, sizing & packaging solvent throughputs, the projected actual throughput was calculated by multiplying a ratio of projected actual glass pull rate to 2013 glass pull rate by the 2013 usage.

Particulate dust control

Potential particulate matter (PM) emissions from the sizing and packaging area are collected and controlled by either an Air Tumbler or Venturi scrubber control device and exhausted, as fugitive point FP15, to the in-plant environment. The sizing and packaging areas consist of trimming and rolling, the K&S Roll Machine, blowing wool baggers, packaging equipment, choppers and dicers. The Air Tumbler uses cyclonic flow and wet impingement control techniques for the removal of particulates from the exhaust gas stream. The particulate matter removal efficiency for the Air Tumblers are 90% or greater. The Air Tumblers are designed with an allowable PM exhaust concentration of less than 0.01 lbs PM per 1000 lbs of exhaust air. The Venturi Scrubber is a Fisher Klostermann, model MS-650H which has a manufacturer's rated control efficiency at a minimum of 77%.

Potential PM emissions for the sizing and packaging area are estimated by multiplying the PM exhaust outlet concentration by the control devices rated volumetric air flowrate and by the control efficiency of 90% for the building as a process enclosure, as follows:

$$E = (0.005 \text{ lbs PM per 1000 lbs Air}) \times (\text{Total Air Flowrate of Air Tumbler, cfm}) + (0.01 \text{ lbs PM per 1000 lbs Air}) \times (\text{Total Air Flowrate of Screen Rooms, cfm}) \times (\text{units of conversion}) \times (1 - 90\%)$$

Sizing & Packaging PM Control Devices	Post 2012 Maximum Air Flowrate, cfm	Pre 2012 Maximum Rate Air Flowrate, cfm
Air Tumbler	20000	40,000
Screen Rooms	10000	10,000
Screen Rooms	10000	10,000
Total Air Flowrate	40000	60000

Presented in the following table are the estimated hourly and annual uncontrolled emissions of PM from the facing, sizing and packaging operations.

Selected units of conversion are: 60 min/hr; 8464.5 hr/yr; 29 lbs/lbmole air; 1 lbmol /385.5 cf air; and 2000 lbs/ton.

Regulated Air Pollutants from Sizing and packaging (SCC 3-05-012-99)	Post 2012 Annual Emission Rates		Pre 2012 Annual Emission Rates	
	lbs/hr	tpy	lbs/hr	tpy
Particulate Matter (PM)	0.14	0.72	0.18	0.79

Therefore the total particulates and VOCs from facing, sizing and packaging are summarized as follows:

Regulated Air Pollutants from Facing, Sizing and Packaging	Potential	Annual Emission Rates tpy											
		2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002
Particulate Matter (PM)	0.89	0.79	0.86	0.86	0.86	0.86	0.86	0.85	0.86	0.85	0.86	0.87	0.86
Volatile organic compounds (VOC)	4.39	1.14	1.07	0.93	0.79	1.07	0.13	0.08	0.09	0.10	0.64	1.81	1.65

PM emissions are for total packaging operations. Knauf has conservatively included all these emissions in Line 1 projections.

Inks were conservatively excluded from the baseline

Raw Materials Handling Emission Calculations - Line 1 Associated Emissions

Particulate matter emissions from raw materials handling were characterized by the USEPA in Section 11.13 Glass Fiber Manufacturing of AP-42 for unloading and conveying, storage bins, and mixing and weighing operations. Potential particulate matter emissions from these operations at Knauf Insulation are controlled with bag filter dust collectors and vented to the in-plant environment. Table 11.13-2 of AP-42 presents the particulate matter emission factors for glass fiber manufacturing. Summarized in following table are the AP-42 emission factors that were used to determine potential uncontrolled particulate matter emissions for the raw material handling operations.

Source	PM-10 Emission Factor (lbs/ton of material processed)
Unloading and conveying (SCC 3-05-012-21)	3.0
Storage bins (SCC 3-05-012-22)	0.2
Mixing and weighing (SCC 3-05-012-23)	0.6

The total tons of resinated glass pulled is equivalent to:

Projected	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002
39,420	27,561	26,732	26,450	27,417	27,663	26,177	25,012	27,304	24,824	26,516	30,016	28,807

tons per year (tpy).

The tons of raw material processed is equivalent to of the maximum production capacity specified
Therefore, the actual raw material processed is equivalent to

130%	123%	118%	112%	111%	111%	109%
------	------	------	------	------	------	------

of the fiberized pull rate.

Projected	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002
51,433	35,959	32,849	31,211	30,707	30,706	29,056	27,263	29,761	27,058	28,902	32,717	31,400

tons per year (tpy).

The particulate matter emissions from raw material handling are controlled with bag filter dust collectors, as well as process enclosures. The use of process enclosures and bag filter dust collectors were determined to have a minimum overall control device efficiency of 99%. Therefore, the maximum hourly and annual controlled PM emissions released to the in-plant environment, as fugitive point FP1, from raw material handling operations may be estimated with the following relationship:

$$E_{PM} = (\text{Production Rate, tons per unit time}) \times (\text{PM Emission Factor}) \times (1 - 0.99)$$

Presented in the following table are the estimated annual PM emission rates for Line 1 raw material handling operations at the Knauf Insulation facility.

Source	PM 10 Emissions (tpy)												
	Projected	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002
Unloading and conveying (SCC 3-05-012-21)	0.77	0.54	0.49	0.47	0.46	0.46	0.44	0.41	0.45	0.41	0.43	0.49	0.47
Storage bins (SCC 3-05-012-22)	0.05	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Mixing and weighing (SCC 3-05-012-23)	0.15	0.11	0.10	0.09	0.09	0.09	0.09	0.08	0.09	0.08	0.09	0.10	0.09
Total	0.98	0.68	0.62	0.59	0.58	0.58	0.55	0.52	0.57	0.51	0.55	0.62	0.60

Monitoring/Recordkeeping/Reporting/Testing Plans

ATTACHMENT O - MONITORING, RECORDING, REPORTING, AND TESTING PLANS

Plan Type	Emission unit	Pollutant	Requirements	Frequency	Method of Measurement	Regulatory Reference
Monitoring, Recordkeeping	ES12C	PM	Monitor and record alarms from bag leak detection system, including cause and corrective action	Per occurrence	Bag leak detection system	Title V Permit Condition 5.2
Monitoring, Recordkeeping	ES12E, ES13A,B	PM	Monitor and record scrubber pressure drop and liquid flow rate	Continuous	Continuous monitoring	Title V Permit Condition 6.2
Monitoring, Recordkeeping	ES14A-B	PM, VOC	Monitor and record incinerator temperature	Continuous	Continuous monitoring	Title V Permit Condition 7.2

ATTACHMENT P

Legal Advertisement

AIR QUALITY PERMIT NOTICE Notice of Application

Notice is given that Knauf Insulation, LLC has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a Class II administrative update to an existing R-14 permit to modify the existing wool fiberglass insulation operations located off Tabler Station Road in Inwood, Berkeley County, West Virginia. The site latitude and longitude coordinates are: 39.40279 °N, 78.02167° W.

The modifications will include increasing throughput for a production line, installing new fiberization technology and control devices.

Actual emissions are projected to decrease as a result of the proposed project. The applicant estimates the potential increase in the following Regulated Air Pollutants associated with the project after the installation of the proposed equipment:

Particulate Matter (PM) = < 0.00 tpy
Sulfur Dioxide (SO₂) = < 0.00 tpy
Volatile Organic Compounds (VOC) = < 0.00 tpy
Carbon Monoxide (CO) = < 0.00 tpy
Nitrogen Oxides (NO_x) = < 0.00 tpy
Hazardous Air Pollutants (HAPs) = < 0.00 tpy
Carbon Dioxide Equivalents (CO_{2e}) = < 0.00 tpy

Startup of operation will begin on or about October of 2015. Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57th Street, SE, Charleston, WV 25304, for at least 30 calendar days from the date of publication of this notice.

Any questions regarding this permit application should be directed to the DAQ at (304) 926-0499, extension 1227, during normal business hours.

Dated this the XX day of March, 2015.

By: Knauf Insulation, LLC
Jason Wells
Plant Manager
4812 Tabler Station Road
Inwood, WV 25428

Title V Modification and Strikethrough Permit

Attachment S
Title V Permit Revision Information

1. New Applicable Requirements Summary	
Mark all applicable requirements associated with the changes involved with this permit revision:	
<input type="checkbox"/> SIP	<input type="checkbox"/> FIP
<input type="checkbox"/> Minor source NSR (45CSR13)	<input type="checkbox"/> PSD (45CSR14)
<input type="checkbox"/> NESHAP (45CSR15)	<input type="checkbox"/> Nonattainment NSR (45CSR19)
<input type="checkbox"/> Section 111 NSPS (Subpart(s) _____)	<input type="checkbox"/> Section 112(d) MACT standards (Subpart(s) _____)
<input type="checkbox"/> Section 112(g) Case-by-case MACT	<input type="checkbox"/> 112(r) RMP
<input type="checkbox"/> Section 112(i) Early reduction of HAP	<input type="checkbox"/> Consumer/commercial prod. reqts., section 183(e)
<input type="checkbox"/> Section 129 Standards/Reqts.	<input type="checkbox"/> Stratospheric ozone (Title VI)
<input type="checkbox"/> Tank vessel reqt., section 183(f)	<input type="checkbox"/> Emissions cap 45CSR§30-2.6.1
<input type="checkbox"/> NAAQS, increments or visibility (temp. sources)	<input type="checkbox"/> 45CSR27 State enforceable only rule
<input type="checkbox"/> 45CSR4 State enforceable only rule	<input type="checkbox"/> Acid Rain (Title IV, 45CSR33)
<input type="checkbox"/> Emissions Trading and Banking (45CSR28)	<input type="checkbox"/> Compliance Assurance Monitoring (40CFR64) ⁽¹⁾
<input type="checkbox"/> NO _x Budget Trading Program Non-EGUs (45CSR1)	<input type="checkbox"/> NO _x Budget Trading Program EGU's (45CSR26)
<p>⁽¹⁾ If this box is checked, please include Compliance Assurance Monitoring (CAM) Form(s) for each Pollutants Specific Emission Unit (PSEU) (See Attachment H to Title V Application). If this box is not checked, please explain why Compliance Assurance Monitoring is not applicable:</p> <p style="padding-left: 40px;">There are no new applicable requirements triggered by the proposed change.</p>	

2. Non Applicability Determinations
<p>List all requirements, which the source has determined not applicable to this permit revision and for which a permit shield is requested. The listing shall also include the rule citation and a rationale for the determination.</p> <p>40 CFR 63 Subpart NNN is no longer applicable when using non-phenol formaldehyde resin.</p>
<input type="checkbox"/> Permit Shield Requested <i>(not applicable to Minor Modifications)</i>

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

3. Suggested Title V Draft Permit Language

Are there any changes involved with this Title V Permit revision outside of the scope of the NSR Permit revision? Yes No If Yes, describe the changes below.

Also, please provide **Suggested Title V Draft Permit language** for the proposed Title V Permit revision (including all applicable requirements associated with the permit revision and any associated monitoring /recordkeeping/ reporting requirements), OR attach a marked up pages of current Title V Permit. Please include appropriate citations (Permit or Consent Order number, condition number and/or rule citation (e.g. 45CSR§7-4.1)) for those requirements being added / revised.

See Strikethrough Permit

4. Active NSR Permits/Permit Determinations/Consent Orders Associated With This Permit Revision

Permit or Consent Order Number	Date of Issuance	Permit/Consent Order Condition Number
R14-0015K	09/24/2009	
	/ /	
	/ /	

5. Inactive NSR Permits/Obsolete Permit or Consent Orders Conditions Associated With This Revision

Permit or Consent Order Number	Date of Issuance	Permit/Consent Order Condition Number
NA		
	/ /	
	/ /	

6. Change in Potential Emissions

Pollutant	Change in Potential Emissions (+ or -), TPY
None	

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

7. Certification For Use Of Minor Modification Procedures (Required Only for Minor Modification Requests)

Note: This certification must be signed by a responsible official. Applications without a signed certification will be returned as incomplete. The criteria for allowing the use of Minor Modification Procedures are as follows:

- i. Proposed changes do not violate any applicable requirement;
- ii. Proposed changes do not involve significant changes to existing monitoring, reporting, or recordkeeping requirements in the permit;
- iii. Proposed changes do not require or change a case-by-case determination of an emission limitation or other standard, or a source-specific determination for temporary sources of ambient air quality impacts, or a visibility increment analysis;
- iv. Proposed changes do not seek to establish or change a permit term or condition for which there is no underlying applicable requirement and which permit or condition has been used to avoid an applicable requirement to which the source would otherwise be subject (synthetic minor). Such terms and conditions include, but are not limited to a federally enforceable emissions cap used to avoid classification as a modification under any provision of Title I or any alternative emissions limit approved pursuant to regulations promulgated under § 112(j)(5) of the Clean Air Act;
- v. Proposed changes do not involve preconstruction review under Title I of the Clean Air Act or 45CSR14 and 45CSR19;
- vi. Proposed changes are not required under any rule of the Director to be processed as a significant modification;

Notwithstanding subparagraph 45CSR§30-6.5.a.1.A. (items i through vi above), minor permit modification procedures may be used for permit modifications involving the use of economic incentives, marketable permits, emissions trading, and other similar approaches, to the extent that such minor permit modification procedures are explicitly provided for in rules of the Director which are approved by the U.S. EPA as a part of the State Implementation Plan under the Clean Air Act, or which may be otherwise provided for in the Title V operating permit issued under 45CSR30.

Pursuant to 45CSR§30-6.5.a.2.C., the proposed modification contained herein meets the criteria for use of Minor permit modification procedures as set forth in Section 45CSR§30-6.5.a.1.A. The use of Minor permit modification procedures are hereby requested for processing of this application.

(Signed): _____ <i>(Please use blue ink)</i>	Date: _____ / ____ / ____ <i>(Please use blue ink)</i>
Named (typed): _____	Title: _____

Note: Please check if the following included (if applicable):

<input type="checkbox"/>	Compliance Assurance Monitoring Form(s)
<input checked="" type="checkbox"/>	Suggested Title V Draft Permit Language

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

*West Virginia Department of Environmental Protection
Division of Air Quality*

*Earl Ray Tomblin
Governor*

*Randy C. Huffman
Cabinet Secretary*

Permit to



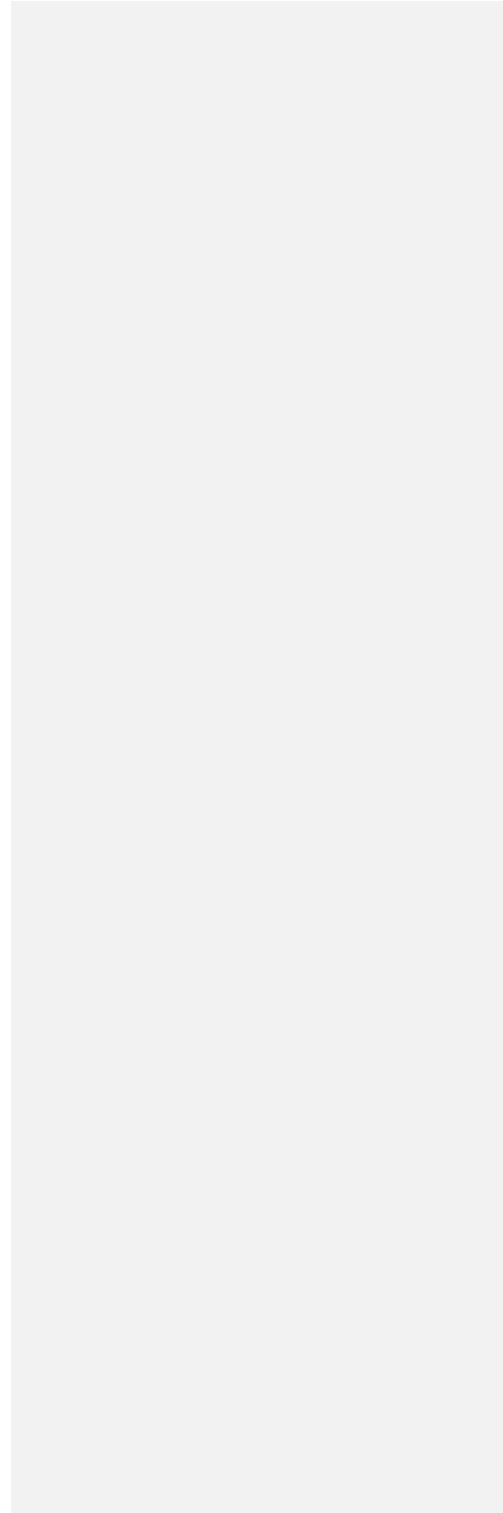
Operate

*Pursuant to
Title V
of the Clean Air Act*

Issued to:
Guardian Fiberglass, Inc. Knauf Insulation, LLC
Inwood Plant
R30-00300012-2013

*John A. Benedict
Director*

Issued: September 20, 2013 • Effective: October 4, 2013
Expiration: September 20, 2018 • Renewal Application Due: March 20, 2018



Permit Number: **R30-00300012-2013**

Permittee: ~~Guardian Fiberglass, Inc.~~ Knauf Insulation, LLC

Facility Name: **Inwood Plant**

Mailing Address: **4812 Tabler Station Road, Inwood, West Virginia 25428**

This permit is issued in accordance with the West Virginia Air Pollution Control Act (West Virginia Code §§ 22-5-1 et seq.) and 45CSR30 — Requirements for Operating Permits. The permittee identified at the above-referenced facility is authorized to operate the stationary sources of air pollutants identified herein in accordance with all terms and conditions of this permit.

Facility Location:	Inwood, Berkeley County, West Virginia
Mailing Address:	4812 Tabler Station Road, Inwood, WV 25428
Telephone Number:	(304) 267-6085
Type of Business Entity:	Corporation
Facility Description:	Manufacturing of Wool Fiberglass Insulation
SIC Codes:	3296 Primary; None Secondary; None Tertiary
UTM Coordinates:	756.55 km Easting ☒ 4365.50 km Northing ☒ Zone 17
Permit Writer:	Denton McDerment

Any person whose interest may be affected, including, but not necessarily limited to, the applicant and any person who participated in the public comment process, by a permit issued, modified or denied by the Secretary may appeal such action of the Secretary to the Air Quality Board pursuant to article one [§§ 22B-1-1 et seq.], Chapter 22B of the Code of West Virginia. West Virginia Code §22-5-14.

Issuance of this Title V Operating Permit does not supersede or invalidate any existing permits under 45CSR13, 14 or 19, although all applicable requirements from such permits governing the facility's operation and compliance have been incorporated into the Title V Operating Permit.

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1.0. Emission Units and Active R13, R14, and R19 Permits

1.1 Emission Units

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
RAW MATERIAL HANDLING OPERATIONS (Group 001)					
ES1A	FP11	Raw Material Storage Bin for Sand	07/25/1998	178.35 Tons	CD1A
CD1A	FP11	Whirl-Air Flow Bin Vent DC Model: 195-42	07/25/1998	585 acfm	None
ES1B	FP11	Raw Material Storage Bin for Borax	07/25/1998	137.45 tons	CD1B
CD1B	FP11	Whirl-Air Flow Bin Vent DC Model: 195-42	07/25/1998	585 acfm	None
ES1C	FP11	Raw Material Storage Bin for Borax	07/25/1998	137.45 tons	CD1B
ES1D	FP11	Raw Material Storage Bin for Soda Ash	07/25/1998	137.45 tons	CD1D
CD1D	FP11	Whirl-Air Flow Bin Vent DC Model: 195-42	07/25/1998	585 acfm	None
ES1E	FP11	Raw Material Storage Bin for Soda Ash	07/25/1998	137.45 tons	CD1D
ES1F	FP11	Raw Material Storage Bin for Aplite	07/25/1998	137.45 tons	CD1F
ES1J	FP11	Raw Material Storage Bin for Cullet	07/25/1998	137.45 tons	CD1F
CD1F	FP11	Whirl-Air Flow Bin Vent DC Model: 195-42	07/25/1998	585 acfm	None
ES1G	FP11	Raw Material Storage Bin for Lime	07/25/1998	109.5 tons	CD1G
CD1G	FP11	Whirl-Air Flow Bin Vent DC 2 Model: 195-42	07/25/1998	585 acfm	None
ES1H	FP11	Raw Material Storage Bin for Cullet	07/25/1998	108.50 Tons	CD1I
ES1I	FP11	Raw Material Storage Bin for Cullet	07/25/1998	108.50 Tons	CD1I
CD1I	FP11	Whirl-Air Flow Bin Vent DC Model: 195-42	07/25/1998	585 acfm	None
ES1K	FP11	Raw Material Storage Bin for Baghouse Dust	07/25/1998	75.00 tons	CD1K
CD1K	FP11	Whirl-Air Flow Bin Vent DC Model: 55-30	07/25/1998	165 acfm	None
ES12A	FP11	Batch Mixer Receiving Bin for 1st and 2nd Line	07/25/1998	8,000 lbs.	CD12A
CD12A	FP11	Whirl-Air Flow Bin Vent DC Model: 345-56	07/25/1998	1,035 acfm	None
ES22A	FP11	Batch Mixer Receiving Bin for 2nd Line	2004	8,000 lbs.	CD22A
CD22A	FP11	IAC Bin-Vent Model: 96TB-FRIP	07/25/1998	2,917 acfm	None
ES12B	FP11	Mixed Batch Storage backup day bin for 1st Line	07/25/1998	21.72 tons	CD12D
CD12D	FP11	Whirl-Air Flow Bin Vent DC Model: 130-42	07/25/1998	390 acfm	None
ES22B	FP11	Mixed Batch Storage Day Bin for 2nd Line	2004	6,675 tons	CD22C
CD22C	FP11	IAC Bin-Vent Model: 96TB-FRIP	07/25/1998	2,917 acfm	None

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
ES22Bb	FP11	Mixed Batch Storage Backup Day Bin for 2nd Line	2004	42 tons	CD22C
ES12D	FP11	Mixed Batch Storage Day Bin for 1st Line	07/25/1998	39.0 tons	CD12C
CD12C	FP11	Whirl-Air Flow Bin Vent DC Model: 230-56	07/25/1998	690 acfm	None
ES12Db	FP11	Mixed Batch Storage Silo for 1st Line	07/25/1998	1.31 tons	CD12Cb
CD12Cb	FP11	Whirl-Air Flow Bin Vent DC Model: 265-42	07/25/1998	795 acfm	None
TANKS (Group 001)					
T3	FP11	Resin-ECOSE Storage Tank	07/25/1998	4,500 gallons	NA
T4	FP11	Resin-ECOSE Storage Tank	07/25/1998	4,500 gallons	NA
T5	FP11	Resin-ECOSE Storage Tank	07/25/1998	4,500 gallons	NA
T6	FP11	Resin-ECOSE Storage Tank	07/25/1998	4,500 gallons	NA
T7A	FP11	Dedusting Oil/Wax Emulsion Storage Tank	07/25/1998 2014	4,787.5,000 gallons	NA
T7B	FP11	Dedusting Oil/Wax Emulsion Storage Tank	07/25/1998 2014	4,787.5,000 gallons	NA
T8	FP11	Ammonia (aqueous) Storage Tank	07/25/1998	6,000 gallons	NA
M1	FP11	Pre-React Mix Tank Tank Type: Fixed Covers, an access hatch with cover, and an opening for the Mixing Impeller Shaft.	07/25/1998	1,200 gallons	NA
M1	FP11	Ammonia Sulfate Mix Tank	2015	1,200 gallons	NA
M2	FP11	Ammonia Sulfate Holding Tank	2015	1,700 gallons	NA
M2M3	FP11	Pre-React Holding Spare Tank Tank Type: Fixed Covers, an access hatch with cover, and an opening for the Mixing Impeller Shaft.	07/25/1998	1,700 gallons	NA
M3M4	FP11	Pre-React Holding Filtered Water Hold Tank	07/25/1998	3,200 gallons	NA
M5	FP11	Binder Mix Tank	2015	750 gallons	NA
M4	FP11	Additive Mix Tank	07/25/1998	450 gallons	NA
M5M6	FP11	Mix-Binder Hold Tank	07/25/1998	1,700 gallons	NA
M6	FP11	Pre-React Holding Tank	07/25/1998	50 gallons	NA
M7	FP11	Ammonia (aqueous) Storage Tank	07/25/1998	50 gallons	NA
M8	FP11	Process Water Tank	07/25/1998	50 gallons	NA
M9	FP11	Additive Tank	07/25/1998	50 gallons	NA
M10	FP11	Binder Holding Tank	2008	750 gallons	NA
FP11		In-Plant Fugitive Emissions Released	07/25/1998		NA
MELTING & REFINING LINE 1 (Group 002) [8,000 2,000 lbs/hr or 35,040 39,420 TPY Production Rate]					
ES12C	EP12	Melter Hood for 1st Line Custom Built by Guardian Fiberglass	07/25/1998	4.56 4.50 TPH of glass batch; 4.0 TPH of melted glass	CD12B & CD12Bb
CD12B	EP12	Mactiflo Cartridge Dust Collector Filter ²	07/25/1998	15,000 acfm	None

Commented [WU1]: This tank will be removed

Commented [WU2]: This is a new stainless steel tank and will be designated as the M-1 Ammonia Sulfate Mixing tank.

Commented [WU3]: This is a new stainless steel tank and will be designated as the M-2 Ammonia Sulfate Holding tank.

Commented [WU4]: This is the old M2 tank and will be retained as Spare with the designation of M3.

Commented [WU5]: This is the old M3 tank and will be designated as the M4 Filtered Water Hold Tank.

Commented [WU6]: This is a new tank and will be designated as the M5 Binder Mixing Tank.

Commented [WU7]: This tank will be removed.

Commented [WU8]: This is the old M5 tank and will be designated the M-6 Binder Hold Tank.

Commented [WU9]: This tank will be removed

Commented [WU10]: This tank will be removed

Commented [WU11]: This tank will be removed

Commented [WU12]: This tank will be removed

Commented [WU13]: This tank was never installed.

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
		Model: MAC 4 – MTF96 Configuration: Closed Pressure Filter Material: Polyester Cartridge Filter Cleaning Method: Pulse Air Captured Efficiency: 99% Filter Area: 28,320 ft ²			
CD12Bb (Backup)	EP12	Mactiflo Cartridge Dust Collector Model: MactFlo 4MTF32 Filter Configuration: Closed Pressure Filter Material: Polyester cartridge filter Cleaning Method: Pulse Air Captured Efficiency: 99% Filter Area: 3,520 ft ²	07/25/1998	10,000 acfm	None
ES12E	EP12 and EP13	Forehearth for 1st Line Natural Gas Fired Brick Holding Process Heater Tank Max Heat Input Rate: 5.5 MMBtu/hr Custom Design by Guardian Fiberglass	07/25/1998	8,000 9,000 lbs/hr of Molten Glass	CD13A, & CD13B or CD13C
CD13A	EP13	Water Spray with Dropout Boxes Wet Venturi Scrubber Type: Wet Collecting System Captured Efficiency: 99%	07/25/1998 2015	40,000 52,667 cfm	None
CD13B	EP13 2	Water Spray with Dropout Boxes Wet Venturi Scrubber Type: Wet Collecting System Captured Efficiency: 99%	07/25/1998 2015	40,000 52,667 cfm	None
CD13C	EP13	Wet Venturi Scrubber	2015	52,667 cfm	None
MELTING & REFINING LINE 2 (Group 003) [8,000 lbs/hr or 35,040 TPY Production Rate]					
ES22C	EP22	Melter Hood for 2nd Line Custom Built by Guardian Fiberglass	2004	4.56 TPH of glass batch; 4.0 TPH of melted glass	CD22B & CD22Bb
CD22B (duty cycled)	EP22	Mactiflo Cartridge Dust Collector Model: MAC 4 – MTF96 Filter Configuration: Closed Pressure Filter Material: Fabric Filter Cleaning Method: Pulse Air Captured Efficiency: 99% Filter Area: 28,320 ft ²	2004	15,000 acfm	None
CD22Bb (duty cycled)	EP22	Mactiflo Cartridge Dust Collector Model: MAC 4 – MTF96 Filter Configuration: Closed Pressure	2004	15,000 acfm	None

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
		Filter Material: Fabric Filter			
		Cleaning Method: Pulse Air			
		Captured Efficiency: 99%			
		Filter Area: 28,320 ft ²			
ES22E	EP23	Forehearth for 2nd Line	2004	8,000 lbs/hr of Molten Glass	CD23A, CD23B, CD23C
		Natural Gas Fired Brick Holding Process Heater Tank			
		Max Heat Input Rate: 6.0 MMBtu/hr			
		Custom Design by Guardian Fiberglass			
CD23A	EP23	Water Venturi Scrubbers	2004	40,000 cfm	None
		Manufacturer: Fisher-Klosterman, Inc			
		Model: MS-850H			
		Captured Efficiency: 85 %			
		Scrubbing Liquid: Water			
CD23B	EP23	Water Venturi Scrubbers	2004	40,000 cfm	None
		Manufacturer: Fisher-Klosterman, Inc			
		Model: MS-850H			
		Captured Efficiency: 85 %			
		Scrubbing Liquid: Water			
CD23C (non-resinated)	EP23	Water Venturi Scrubbers	2004	20,000 cfm	None
		Manufacturer: Fisher-Klosterman, Inc.			
		Model: MS-650H			
		Captured Efficiency: 85 %			
		Scrubbing Liquid: Water			
FORMING & COLLECTING 1 (Group 004)					
ES13A	EP13	Fiber Forming Units with Advanced Water-Jet Rings Forming Process Heater	07/25/1998 2015	8,000 9,000 lbs/hr	CD13A, & CD13B & CD13C
		Natural Gas Fired			
		Max Heat Input Rate: 8.40 MMBtu/hr			
		Custom Design by <u>Knauf Insulation, LLC</u> <u>Guardian Fiberglass</u>			
ES13B	EP13	Vacuum Chamber for 1st Line	07/25/1998	8,000 lbs/hr	CD13A & CD13B
		Custom Design by <u>Guardian Fiberglass</u>			
ES13C	EP13	Collection Plenum for 1st Line	07/25/1998 2015	8,000 9,000 lbs/hr	CD13A, & CD13B & CD13C
		Custom Design by <u>Knauf Insulation, LLC</u> <u>Guardian Fiberglass</u>			
FORMING & COLLECTING 2 (Group 005)					
ES23A	EP23	Fiber Forming Units with Advanced Water-Jet Rings Forming Process Heaters	2004	8,000 lbs/hr	CD23A, CD23B, CD23C
		Natural Gas Fired			
		Max Heat Input Rate: 9.60 MMBtu/hr			
		Custom Design by Guardian Fiberglass			
ES23B	EP23	Vacuum Chamber for 2nd Line	2004	8,000 lbs/hr	CD23A,

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
		Custom Design by Guardian Fiberglass			CD23B, CD23C
ES23C	EP23	Collection Plenum for 2nd Line Custom Design by Guardian Fiberglass	2004	8,000 lbs/hr	CD23A, CD23B, CD23C
CURING & COOLING LINE 1 (Group 006)					
ES14A	EP14	3 Zone Curing Oven for 1st Line Manufacturer: B&M Steel of New Castle Indiana Natural Gas Fired Max Heat Input Rate: 18.0 MMBtu/hr	07/25/1998	8,000 9,000 lbs/hr	CD14A
CD14A	EP14	Thermal Oxidizer Manufacturer: United McGill Corp. Model No.: 2-151C306 Captured Efficiency: 95% for VOC	07/25/1998	2.628 MMft ³ / hr at 150.0 °F	None
ES14B	EP14	Cooling Table for 1st Line	07/25/1998	8,000 lbs/hr	CD14A
CURING & COOLING LINE 2 (Group 007)					
ES24A	EP24	3 Zone Curing Oven for 1st Line Manufacturer: B&M Steel of New Castle Indiana Natural Gas Fired Max Heat Input Rate: 18.0 MMBtu/hr	2004	8,000 lbs/hr	CD24A
CD24A	EP24	McGill AirClean RTO Thermal Oxidizer Manufacturer: McGill AirClean Model No.: MCT 30.0 Captured Efficiency: 95 % for VOC	2004	1.785 MMft ³ / hr at 250.0 °F	None
ES24B	EP24	Cooling Table for 2nd Line	2004	8,000 lbs/hr	CD24B
CD24B	EP24	Venturi Scrubber Manufacturer: Fisher-Klosterman, Inc. Model: MS-650H Captured Efficiency: 85 % Scrubbing Liquid: Water	2004	20,000 cfm	None
FACING SIZING & PACKAGING FOR LINE 1 (Group 008)					
ES15A	FP15	Hot Roll – Facing Application Manufacturer: Budzar Model No.: 10T-180180-G0L Type: Electric Hot Oil Heater	07/25/1998	50-400°F @ 180 GPM	None
ES15Aa	FP15	Infrared Radiation – Facing Application Manufacturer: Solaronics IRT Model No. IRT-MiniFlex Type: Electric	2004	50-400°F @ 200 amps	CD15A
ES15B	FP15	Slitter Saw Manufacturer: Guardian Fiberglass Knauf Insulation, LLC	07/25/1998	NA	CD15A

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
		Model No.: NA			
		Type: NA			
CD15A	FP15	Wet Collection System (Dynamic Separator)	07/25/1998	20,000 cfm	None
		Manufacturer: Quentin Keeney			
		Type: Air Tumber			
		Model No.: 35-W-C			
		Captured Efficiency: 80 %			
ES15C	FP15	Edge Trimmer and Dicers (or Cubes)	07/25/1998	NA	CD15C and CD15D
		Manufacturer: Guardian Fiberglass Knauf Insulation, LLC			
		Model No.: NA			
		Type: NA			
ES15D	FP15	Choppers	07/25/1998	NA	CD15A
		Manufacturer: United Tool			
		Model No.: UX-431			
		Type: NA			
ES15E	FP15	Roll Up	07/25/1998	NA	CD15A
		Manufacturer: Kaibel & Sieber			
		Model No.: WM87-3000			
		Type: NA			
ES15F	FP15	Batt Folder	07/25/1998	NA	CD15A
		Manufacturer: Guardian Fiberglass Knauf Insulation, LLC			
		Model No.: NA			
		Type: NA			
ES15G	FP15	Batt Packers	07/25/1998	NA	CD15A
		Manufacturer: Guardian Fiberglass Knauf Insulation, LLC			
		Model No.: NA			
		Type: NA			
ES15H	FP15	Dicers or Cubers	07/25/1998	NA	CD15C and CD15D
		Manufacturer: Guardian Fiberglass Knauf Insulation, LLC			
		Model No.: NA			
		Type: NA			
ES15I	FP15	Blowing Wool Bagger	07/25/1998	NA	CD15A, CD15C, and CD15D
		Manufacturer: Guardian Fiberglass Knauf Insulation, LLC			
		Model No.: NA			
		Type: NA			
ES15J	FP15	Ring Wrapper	07/25/1998	NA	CD15A
		Manufacturer: Samuel Strapping Systems			
		Model No. SOA750			
		Type: NA			
CD15C	FP15	Dual Cyclone and Condenser	2006	NA	CD15D

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
		Manufacturer: OMNI S.P.A. Model No.: ARP 2400			
CD15D	FP15	Screen Rooms (2) 8' x 8' x 16' Woven Polyester Capture Efficiency	2007/2012	Total 20,000 cfm	None
FACING SIZING & PACKAGING FOR LINE 2 (Group 008)					
ES25A	FP15	Infrared Radiation – Facing Application Manufacturer: Solartronics IRT Model No.: IRT-MiniFlex Type: Electric	2004	50-400 °F @ 200 amps	None
ES25B	FP15	Slitter Saw Manufacturer: Guardian Fiberglass Model No.: NA Type: NA	2004	NA	CD25A
CD25A		Water Venturi Scrubbers Manufacturer: Fisher-Klosterman, Inc. Model: MS-650H Captured Efficiency: 85 % Scrubbing Liquid: Water	2004	20,000 cfm	None
ES25C	FP15	Edge Trimmer and Dicers (or Cubes) Manufacturer: Guardian Fiberglass Model No.: NA Type: NA	2004	NA	CD25A
ES25D	FP15	Choppers Manufacturer: United Tool Model No.: UX-431 Type: NA	2004	NA	CD25A
ES25F	FP15	Batt Folder Manufacturer: Guardian Fiberglass Model No.: NA Type: NA	2004	NA	CD25A
ES25G	FP15	Batt Packers Manufacturer: Guardian Fiberglass Model No.: NA Type: NA	2004	NA	CD25A
ES25H	FP15	Dicers or Cubers Manufacturer: Guardian Fiberglass Model No.: NA Type: NA	2004	NA	CD25C and CD25D
ES25I	FP15	Blowing Wool Bagger Manufacturer: Guardian Fiberglass Model No.: NA Type: NA	2004	NA	CD25C and CD25D

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
CD25C	FP15	Dual Cyclone and Condenser Manufacturer: Van Dommele	2004	NA	CD25D
CD25D	FP15	Screen Room 8' x 8' x 16' Woven Polyester Capture efficiency 95%	2007/2012	10,000 cfm	None
ES25J	FP15	Dicers Manufacturer: Guardian Fiberglass Model No.: NA Type: NA	2004	NA	CD25A
ES25K	FP15	Silicone & De-Dusting Oil Application Manufacturer: Guardian Fiberglass Model No.: NA Type: NA	2004	NA	CD25C and CD25D
ES25L	FP15	Blowing Wool Bagger Manufacturer: Guardian Fiberglass Model No.: NA Type: NA	2004	NA	CD25C and CD25D
SUPPORT FACILITIES (Group 009)					
ESDG12	EP16	Emergency Generator Manufacture: Caterpillar Diesel Fired Internal Combustion Engine Model No.: 3406 Fuel: Diesel	07/25/1998	Limited to 500 Hours of Operations 500 gallon fuel tank 587-bhp 400.2 MMBtu/hour-heat	None
ESDG13	EP17	Emergency Backup Generator Manufacture: Caterpillar Diesel Fired Internal Combustion Engine Model No.: 3456 Fuel: Diesel	2004	Limited to 500 Hours of Operations 250 gallon fuel tank 610-bhp 400.2 MMBtu/hour-heat	None
ESFW11	EP18	Emergency Fire Water Manufacturer: Cummins Diesel-fired Internal Combustion Engine Model No.: NT-855-F1	07/25/1998	255 hp (265 gallon fuel tank)	None

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
		Horsepower: 255 HP Fuel: Diesel			
ESWH15	EP20	5-0.075 MMBtu/hr Water Heater Fuel: Pipeline Quality Natural Gas	07/25/1998	0.375 MMBtu/hr	
ESSH15	EP19	Air Handling Unit: Rapid Engineering, Model: 4089 Fuel: Pipeline Quality Natural Gas	07/25/1998	8.525 MMBtu/hr	
ESSH16	EP22	Air Handling Unit; Rapid Engineering, Model 4089 Fuel: Pipeline Quality Natural Gas	2004	7.875 MMBtu/hr	

Commented [WU14]: Hot Water Heaters will be removed.

1.2. Active R13, R14, and R19 Permits

The underlying authority for any conditions from R13, R14, and/or R19 permits contained in this operating permit is cited using the original permit number (e.g. R13-1234). The current applicable version of such permit(s) is listed below:

Permit Number	Date of Issuance
R14-0015K R14 0014L	September 24, 2009 2015

2.0. General Conditions

2.1. Definitions

- 2.1.1. All references to the "West Virginia Air Pollution Control Act" or the "Air Pollution Control Act" mean those provisions contained in W.Va. Code §§ 22-5-1 to 22-5-18.
- 2.1.2. The "Clean Air Act" means those provisions contained in 42 U.S.C. §§ 7401 to 7671q, and regulations promulgated thereunder.
- 2.1.3. "Secretary" means the Secretary of the Department of Environmental Protection or such other person to whom the Secretary has delegated authority or duties pursuant to W.Va. Code §§ 22-1-6 or 22-1-8 (45CSR§30-2.12.). The Director of the Division of Air Quality is the Secretary's designated representative for the purposes of this permit.
- 2.1.4. Unless otherwise specified in a permit condition or underlying rule or regulation, all references to a "rolling yearly total" shall mean the sum of the monthly data, values or parameters being measured, monitored, or recorded, at any given time for the previous twelve (12) consecutive calendar months.

2.2. Acronyms

CAAA	Clean Air Act Amendments	NSPS	New Source
CBI	Confidential Business Information		Performance Standards
CEM	Continuous Emission Monitor	PM	Particulate Matter
CES	Certified Emission Statement	PM₁₀	Particulate Matter less than 10µm in diameter
C.F.R. or CFR	Code of Federal Regulations	pph	Pounds per Hour
CO	Carbon Monoxide	ppm	Parts per Million
C.S.R. or CSR	Codes of State Rules	PSD	Prevention of Significant Deterioration
DAQ	Division of Air Quality	psi	Pounds per Square Inch
DEP	Department of Environmental Protection	SIC	Standard Industrial Classification
FOIA	Freedom of Information Act	SIP	State Implementation Plan
HAP	Hazardous Air Pollutant	SO₂	Sulfur Dioxide
HON	Hazardous Organic NESHAP	TAP	Toxic Air Pollutant
HP	Horsepower	TPY	Tons per Year
lbs/hr or lb/hr	Pounds per Hour	TRS	Total Reduced Sulfur
LDAR	Leak Detection and Repair	TSP	Total Suspended Particulate
m	Thousand	USEPA	United States Environmental Protection Agency
MACT	Maximum Achievable Control Technology	UTM	Universal Transverse Mercator
mm	Million	VEE	Visual Emissions Evaluation
mmBtu/hr	Million British Thermal Units per Hour	VOC	Volatile Organic Compounds
mmft³/hr or mmcf/hr	Million Cubic Feet Burned per Hour		
NA or N/A	Not Applicable		
NAAQS	National Ambient Air Quality Standards		
NESHAPS	National Emissions Standards for Hazardous Air Pollutants		
NO_x	Nitrogen Oxides		

2.3. Permit Expiration and Renewal

- 2.3.1. Permit duration. This permit is issued for a fixed term of five (5) years and shall expire on the date specified on the cover of this permit, except as provided in 45CSR§30-6.3.b. and 45CSR§30-6.3.c.
[45CSR§30-5.1.b.]
- 2.3.2. A permit renewal application is timely if it is submitted at least six (6) months prior to the date of permit expiration.
[45CSR§30-4.1.a.3.]
- 2.3.3. Permit expiration terminates the source's right to operate unless a timely and complete renewal application has been submitted consistent with 45CSR§30-6.2. and 45CSR§30-4.1.a.3.
[45CSR§30-6.3.b.]
- 2.3.4. If the Secretary fails to take final action to deny or approve a timely and complete permit application before the end of the term of the previous permit, the permit shall not expire until the renewal permit has been issued or denied, and any permit shield granted for the permit shall continue in effect during that time.
[45CSR§30-6.3.c.]

2.4. Permit Actions

- 2.4.1. This permit may be modified, revoked, reopened and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition.
[45CSR§30-5.1.f.3.]

2.5. Reopening for Cause

- 2.5.1. This permit shall be reopened and revised under any of the following circumstances:
 - a. Additional applicable requirements under the Clean Air Act or the Secretary's legislative rules become applicable to a major source with a remaining permit term of three (3) or more years. Such a reopening shall be completed not later than eighteen (18) months after promulgation of the applicable requirement. No such reopening is required if the effective date of the requirement is later than the date on which the permit is due to expire, unless the original permit or any of its terms and conditions has been extended pursuant to 45CSR§30-6.6.a.1.A. or B.
 - b. Additional requirements (including excess emissions requirements) become applicable to an affected source under Title IV of the Clean Air Act (Acid Deposition Control) or other legislative rules of the Secretary. Upon approval by U.S. EPA, excess emissions offset plans shall be incorporated into the permit.
 - c. The Secretary or U.S. EPA determines that the permit contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of the permit.
 - d. The Secretary or U.S. EPA determines that the permit must be revised or revoked and reissued to assure compliance with the applicable requirements.

[45CSR§30-6.6.a.]

2.6. Administrative Permit Amendments

- 2.6.1. The permittee may request an administrative permit amendment as defined in and according to the procedures specified in 45CSR§30-6.4.
[45CSR§30-6.4.]

2.7. Minor Permit Modifications

- 2.7.1. The permittee may request a minor permit modification as defined in and according to the procedures specified in 45CSR§30-6.5.a.
[45CSR§30-6.5.a.]

2.8. Significant Permit Modification

- 2.8.1. The permittee may request a significant permit modification, in accordance with 45CSR§30-6.5.b., for permit modifications that do not qualify for minor permit modifications or as administrative amendments.
[45CSR§30-6.5.b.]

2.9. Emissions Trading

- 2.9.1. No permit revision shall be required, under any approved economic incentives, marketable permits, emissions trading, and other similar programs or processes for changes that are provided for in the permit and that are in accordance with all applicable requirements.
[45CSR§30-5.1.h.]

2.10. Off-Permit Changes

- 2.10.1. Except as provided below, a facility may make any change in its operations or emissions that is not addressed nor prohibited in its permit and which is not considered to be construction nor modification under any rule promulgated by the Secretary without obtaining an amendment or modification of its permit. Such changes shall be subject to the following requirements and restrictions:
- a. The change must meet all applicable requirements and may not violate any existing permit term or condition.
 - b. The permittee must provide a written notice of the change to the Secretary and to U.S. EPA within two (2) business days following the date of the change. Such written notice shall describe each such change, including the date, any change in emissions, pollutants emitted, and any applicable requirement that would apply as a result of the change.
 - c. The change shall not qualify for the permit shield.
 - d. The permittee shall keep records describing all changes made at the source that result in emissions of regulated air pollutants, but not otherwise regulated under the permit, and the emissions resulting from those changes.
 - e. No permittee may make any change subject to any requirement under Title IV of the Clean Air Act (Acid Deposition Control) pursuant to the provisions of 45CSR§30-5.9.

- f. No permittee may make any changes which would require preconstruction review under any provision of Title I of the Clean Air Act (including 45CSR14 and 45CSR19) pursuant to the provisions of 45CSR§30-5.9.

[45CSR§30-5.9]

2.11. Operational Flexibility

- 2.11.1. The permittee may make changes within the facility as provided by § 502(b)(10) of the Clean Air Act. Such operational flexibility shall be provided in the permit in conformance with the permit application and applicable requirements. No such changes shall be a modification under any rule or any provision of Title I of the Clean Air Act (including 45CSR14 and 45CSR19) promulgated by the Secretary in accordance with Title I of the Clean Air Act and the change shall not result in a level of emissions exceeding the emissions allowable under the permit.

[45CSR§30-5.8]

- 2.11.2. Before making a change under 45CSR§30-5.8., the permittee shall provide advance written notice to the Secretary and to U.S. EPA, describing the change to be made, the date on which the change will occur, any changes in emissions, and any permit terms and conditions that are affected. The permittee shall thereafter maintain a copy of the notice with the permit, and the Secretary shall place a copy with the permit in the public file. The written notice shall be provided to the Secretary and U.S. EPA at least seven (7) days prior to the date that the change is to be made, except that this period may be shortened or eliminated as necessary for a change that must be implemented more quickly to address unanticipated conditions posing a significant health, safety, or environmental hazard. If less than seven (7) days notice is provided because of a need to respond more quickly to such unanticipated conditions, the permittee shall provide notice to the Secretary and U.S. EPA as soon as possible after learning of the need to make the change.

[45CSR§30-5.8.a.]

- 2.11.3. The permit shield shall not apply to changes made under 45CSR§30-5.8., except those provided for in 45CSR§30-5.8.d. However, the protection of the permit shield will continue to apply to operations and emissions that are not affected by the change, provided that the permittee complies with the terms and conditions of the permit applicable to such operations and emissions. The permit shield may be reinstated for emissions and operations affected by the change:

- a. If subsequent changes cause the facility's operations and emissions to revert to those authorized in the permit and the permittee resumes compliance with the terms and conditions of the permit, or
- b. If the permittee obtains final approval of a significant modification to the permit to incorporate the change in the permit.

[45CSR§30-5.8.c.]

- 2.11.4. "Section 502(b)(10) changes" are changes that contravene an express permit term. Such changes do not include changes that would violate applicable requirements or contravene enforceable permit terms and conditions that are monitoring (including test methods), recordkeeping, reporting, or compliance certification requirements.

[45CSR§30-2.39]

2.12. Reasonably Anticipated Operating Scenarios

2.12.1. The following are terms and conditions for reasonably anticipated operating scenarios identified in this permit.

- a. Contemporaneously with making a change from one operating scenario to another, the permittee shall record in a log at the permitted facility a record of the scenario under which it is operating and to document the change in reports submitted pursuant to the terms of this permit and 45CSR30.
- b. The permit shield shall extend to all terms and conditions under each such operating scenario; and
- c. The terms and conditions of each such alternative scenario shall meet all applicable requirements and the requirements of 45CSR30.

[45CSR§30-5.1.i.]

2.13. Duty to Comply

2.13.1. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the West Virginia Code and the Clean Air Act and is grounds for enforcement action by the Secretary or USEPA; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

[45CSR§30-5.1.f.1.]

2.14. Inspection and Entry

2.14.1. The permittee shall allow any authorized representative of the Secretary, upon the presentation of credentials and other documents as may be required by law, to perform the following:

- a. At all reasonable times (including all times in which the facility is in operation) enter upon the permittee's premises where a source is located or emissions related activity is conducted, or where records must be kept under the conditions of this permit;
- b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
- c. Inspect at reasonable times (including all times in which the facility is in operation) any facilities, equipment (including monitoring and air pollution Control equipment), practices, or operations regulated or required under the permit;
- d. Sample or monitor at reasonable times substances or parameters to determine compliance with the permit or applicable requirements or ascertain the amounts and types of air pollutants discharged.

[45CSR§30-5.3.b.]

2.15. Schedule of Compliance

2.15.1. For sources subject to a compliance schedule, certified progress reports shall be submitted consistent with the applicable schedule of compliance set forth in this permit and 45CSR§30-4.3.h., but at least every six (6) months, and no greater than once a month, and shall include the following:

- a. Dates for achieving the activities, milestones, or compliance required in the schedule of compliance, and dates when such activities, milestones or compliance were achieved; and
- b. An explanation of why any dates in the schedule of compliance were not or will not be met, and any preventative or corrective measure adopted.

[45CSR§30-5.3.d.]

2.16. Need to Halt or Reduce Activity not a Defense

2.16.1. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. However, nothing in this paragraph shall be construed as precluding consideration of a need to halt or reduce activity as a mitigating factor in determining penalties for noncompliance if the health, safety, or environmental impacts of halting or reducing operations would be more serious than the impacts of continued operations.

[45CSR§30-5.1.f.2.]

2.17. Emergency

2.17.1. An "emergency" means any situation arising from sudden and reasonably unforeseeable events beyond the control of the source, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology-based emission limitation under the permit, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error.

[45CSR§30-5.7.a.]

2.17.2. Effect of any emergency. An emergency constitutes an affirmative defense to an action brought for noncompliance with such technology-based emission limitations if the conditions of 45CSR§30-8.7.c. are met.

[45CSR§30-5.7.b.]

2.17.3. The affirmative defense of emergency shall be demonstrated through properly signed, contemporaneous operating logs, or other relevant evidence that:

- a. An emergency occurred and that the permittee can identify the cause(s) of the emergency;
- b. The permitted facility was at the time being properly operated;
- c. During the period of the emergency the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements in the permit; and
- d. Subject to the requirements of 45CSR§30-5.1.c.3.C.1, the permittee submitted notice of the emergency to the Secretary within one (1) working day of the time when emission limitations were exceeded due to the emergency and made a request for variance, and as applicable rules provide. This notice, report, and

variance request fulfills the requirement of C. S. R. § 45-30-5.1.c.3.B. This notice must contain a detailed description of the emergency, any steps taken to mitigate emissions, and corrective actions taken.

[45CSR§30-5.7.c.]

- 2.17.4. In any enforcement proceeding, the permittee seeking to establish the occurrence of an emergency has the burden of proof.

[45CSR§30-5.7.d.]

- 2.17.5. This provision is in addition to any emergency or upset provision contained in any applicable requirement.

[45CSR§30-5.7.e.]

2.18. Federally-Enforceable Requirements

- 2.18.1. All terms and conditions in this permit, including any provisions designed to limit a source's potential to emit and excepting those provisions that are specifically designated in the permit as "State-enforceable only", are enforceable by the Secretary, USEPA, and citizens under the Clean Air Act.

[45CSR§30-5.2.a.]

- 2.18.2. Those provisions specifically designated in the permit as "State-enforceable only" shall become "Federally-enforceable" requirements upon SIP approval by the USEPA.

2.19. Duty to Provide Information

- 2.19.1. The permittee shall furnish to the Secretary within a reasonable time any information the Secretary may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the Secretary copies of records required to be kept by the permittee. For information claimed to be confidential, the permittee shall furnish such records to the Secretary along with a claim of confidentiality in accordance with 45CSR31. If confidential information is to be sent to USEPA, the permittee shall directly provide such information to USEPA along with a claim of confidentiality in accordance with 40 C.F.R. Part 2.

[45CSR§30-5.1.f.5.]

2.20. Duty to Supplement and Correct Information

- 2.20.1. Upon becoming aware of a failure to submit any relevant facts or a submittal of incorrect information in any permit application, the permittee shall promptly submit to the Secretary such supplemental facts or corrected information.

[45CSR§30-4.2.]

2.21. Permit Shield

2.21.1. Compliance with the conditions of this permit shall be deemed compliance with any applicable requirements as of the date of permit issuance provided that such applicable requirements are included and are specifically identified in this permit or the Secretary has determined that other requirements specifically identified are not applicable to the source and this permit includes such a determination or a concise summary thereof.
[45CSR§30-5.6.a.]

2.21.2. Nothing in this permit shall alter or affect the following:

- a. The liability of an owner or operator of a source for any violation of applicable requirements prior to or at the time of permit issuance; or
- b. The applicable requirements of the Code of West Virginia and Title IV of the Clean Air Act (Acid Deposition Control), consistent with § 408 (a) of the Clean Air Act.
- c. The authority of the Administrator of U.S. EPA to require information under § 114 of the Clean Air Act or to issue emergency orders under § 303 of the Clean Air Act.

[45CSR§30-5.6.c.]

2.22. Credible Evidence

2.22.1. Nothing in this permit shall alter or affect the ability of any person to establish compliance with, or a violation of, any applicable requirement through the use of credible evidence to the extent authorized by law. Nothing in this permit shall be construed to waive any defenses otherwise available to the permittee including but not limited to any challenge to the credible evidence rule in the context of any future proceeding.
[45CSR§30-5.3.e.3.B. and §45-38]

2.23. Severability

2.23.1. The provisions of this permit are severable. If any provision of this permit, or the application of any provision of this permit to any circumstance is held invalid by a court of competent jurisdiction, the remaining permit terms and conditions or their application to other circumstances shall remain in full force and effect.
[45CSR§30-5.1.e.]

2.24. Property Rights

2.24.1. This permit does not convey any property rights of any sort or any exclusive privilege.
[45CSR§30-5.1.f.4]

2.25. Acid Deposition Control

- 2.25.1. Emissions shall not exceed any allowances that the source lawfully holds under Title IV of the Clean Air Act (Acid Deposition Control) or rules of the Secretary promulgated thereunder.
- a. No permit revision shall be required for increases in emissions that are authorized by allowances acquired pursuant to the acid deposition control program, provided that such increases do not require a permit revision under any other applicable requirement.
 - b. No limit shall be placed on the number of allowances held by the source. The source may not, however, use allowances as a defense to noncompliance with any other applicable requirement.
 - c. Any such allowance shall be accounted for according to the procedures established in rules promulgated under Title IV of the Clean Air Act.

[45CSR§30-5.1.d.]

- 2.25.2. Where applicable requirements of the Clean Air Act are more stringent than any applicable requirement of regulations promulgated under Title IV of the Clean Air Act (Acid Deposition Control), both provisions shall be incorporated into the permit and shall be enforceable by the Secretary and U. S. EPA.

[45CSR§30-5.1.a.2.]

3.0. Facility-Wide Requirements

3.1. Limitations and Standards

- 3.1.1. **Open burning.** The open burning of refuse by any person is prohibited except as noted in 45CSR§6-3.1.
[45CSR§6-3.1]
- 3.1.2. **Open burning exemptions.** The exemptions listed in 45CSR§6-3.1 are subject to the following stipulation: Upon notification by the Secretary, no person shall cause or allow any form of open burning during existing or predicted periods of atmospheric stagnation. Notification shall be made by such means as the Secretary may deem necessary and feasible.
[45CSR§6-3.2.]
- 3.1.3. **Asbestos.** The permittee is responsible for thoroughly inspecting the facility, or part of the facility, prior to commencement of demolition or renovation for the presence of asbestos and complying with 40 C.F.R. § 61.145, 40 C.F.R. § 61.148, and 40 C.F.R. § 61.150. The permittee, owner, or operator must notify the Secretary at least ten (10) working days prior to the commencement of any asbestos removal on the forms prescribed by the Secretary if the permittee is subject to the notification requirements of 40 C.F.R. § 61.145(b)(3)(i). The USEPA, the Division of Waste Management and the Bureau for Public Health - Environmental Health require a copy of this notice to be sent to them.
[40 C.F.R. §61.145(b) and 45CSR34]
- 3.1.4. **Odor.** No person shall cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor at any location occupied by the public.
[45CSR§4-3.1 State-Enforceable only.]
- 3.1.5. **Standby plan for reducing emissions.** When requested by the Secretary, the permittee shall prepare standby plans for reducing the emissions of air pollutants in accordance with the objectives set forth in Tables I, II, and III of 45CSR11.
[45CSR§11-5.2]
- 3.1.6. **Emission inventory.** The permittee is responsible for submitting, on an annual basis, an emission inventory in accordance with the submittal requirements of the Division of Air Quality.
[W.Va. Code § 22-5-4(a)(14)]
- 3.1.7. **Ozone-depleting substances.** For those facilities performing maintenance, service, repair or disposal of appliances, the permittee shall comply with the standards for recycling and emissions reduction pursuant to 40 C.F.R. Part 82, Subpart F, except as provided for Motor Vehicle Air Conditioners (MVACs) in Subpart B:
- a. Persons opening appliances for maintenance, service, repair, or disposal must comply with the prohibitions and required practices pursuant to 40 C.F.R. §§ 82.154 and 82.156.
 - b. Equipment used during the maintenance, service, repair, or disposal of appliances must comply with the standards for recycling and recovery equipment pursuant to 40 C.F.R. § 82.158.
 - c. Persons performing maintenance, service, repair, or disposal of appliances must be certified by an approved technician certification program pursuant to 40 C.F.R. § 82.161.

[40 C.F.R. 82, Subpart F]

- 3.1.8. **Risk Management Plan.** Should this stationary source, as defined in 40 C.F.R. § 68.3, become subject to Part 68, then the owner or operator shall submit a risk management plan (RMP) by the date specified in 40 C.F.R. § 68.10 and shall certify compliance with the requirements of Part 68 as part of the annual compliance certification as required by 40 C.F.R. Part 70 or 71.
[40 C.F.R. 68]
- 3.1.9. No person shall cause, suffer, allow or permit emission of smoke and/or particulate matter into the open air from any process source operation which is greater than twenty (20) percent opacity, except as noted in 45CSR§§7-3.2 (3.1.10.), and 3.7 (4.1.8.).
[45CSR§7-3.1.]
- 3.1.10. The provisions of 45CSR§7-3.1 (3.1.9.) shall not apply to smoke and/or particulate matter emitted from any process source operation which is less than forty (40) percent opacity for any period or periods aggregating no more than five (5) minutes in any sixty (60) minute period.
[45CSR§7-3.2.]
- 3.1.11. No person shall cause, suffer, allow or permit particulate matter to be vented into the open air from any type source operation or duplicate source operation, or from all air pollution control equipment installed on any type source operation or duplicate source operation in excess of the quantity specified under the appropriate source operation type in Table 45-7A. The allowable particulate matter emission rate for line 1 is 16.0 lb/hr (aggregated emissions from EP12, EP13, EP14). The allowable particulate matter emission rate for line 2 is 17.0 lb/hr (aggregated emissions from EP22, EP23, EP24). Compliance with the PM limits in conditions 5.1.6., 6.1.2., and 7.1.1. assures compliance with the limits in this permit condition.
[45CSR§7-4.1.]
- 3.1.12. Any stack serving any process source operation or air pollution control equipment on any process source operation shall contain flow straightening devices or a vertical run of sufficient length to establish flow patterns consistent with acceptable stack sampling procedures.
[45CSR§7-4.12.]
- 3.1.13. No person shall cause, suffer, allow, or permit any manufacturing process or storage structure generating fugitive particulate matter to operate that is not equipped with a system, which may include, but not be limited to, process equipment design, control equipment design or operation and maintenance procedures, to minimize the emissions of fugitive particulate matter. To minimize means such system shall be installed, maintained and operated to ensure the lowest fugitive particulate matter emissions reasonably achievable.
[45CSR§7-5.1.]
- 3.1.14. The owner or operator of a plant shall maintain dust control of the plant premises, and plant owned, leased or controlled access roads, by paving, application of asphalt, chemical dust suppressants or other suitable dust control measures. Good operating practices shall be implemented and when necessary dust suppressants shall be applied in relation to stockpiling and general material handling to prevent dust generation and atmospheric entrainment.
[45CSR§7-5.2.]
- 3.1.15. Due to unavoidable malfunction of equipment, emissions exceeding those set forth in 45CSR7 may be permitted by the Director for periods not to exceed ten (10) days upon specific application to the Director. Such

application shall be made within twenty-four (24) hours of the malfunction. In cases of major equipment failure, additional time periods may be granted by the Director provided a corrective program has been submitted by the owner or operator and approved by the Director.
[45CSR§7-9.1.]

3.1.16. ~~Fugitive emissions from equipment (e.g. pipes, pumps, flanges, etc.), which are placed in toxic air pollutant service, as defined by 45CSR§27-2.11, shall be integrated into the existing Leak Detection and Repair program. This Leak Detection and Repair program shall comply with the provision of 40 C.F.R. 61 Subpart V. All reports and notification required by Subpart V shall be submitted to the Director instead of the U.S. EPA Administrator.~~
[45CSR14, R14-0015, 5.1.13.; 45CSR§§27-4.1. and 10.3. (State-enforceable only)]

Commented [WU15]: Not applicable since phenol formaldehyde resin is being removed as a raw material ingredient.

3.1.17. The permittee shall install and maintain an industrial fence around this permitted facility as outlined in Appendix B of the December 7, 2001 submittal of the Prevention of Significant Deterioration Air Quality Dispersion Modeling Report. This industrial fence shall be constructed in such a manner to prevent the general public from accessing this permitted facility.
[45CSR14, R14-0015, 5.1.14.]

~~3.1.18. **Process Modifications.** On and after the date on which the performance test required to be conducted by 40 C.F.R. §§ 63.7 and 63.1384 is completed, the owner or operator must operate all affected control equipment and processes according to the following requirements given under applicable requirement 40 C.F.R. §63.1382(b)(8):~~

~~(i) The owner or operator must initiate corrective action within 1 hour when the monitored process parameter level(s) is outside the limit(s) established during the performance test as specified in 40 C.F.R. §63.1384 for the process modification(s) used to control formaldehyde emissions and complete corrective actions in a timely manner according to the procedures in the operations, maintenance, and monitoring plan (permit condition 3.2.1.);~~

~~(ii) The owner or operator must implement a QIP consistent with the compliance assurance monitoring provisions of 40 C.F.R. part 64, subpart D when the process parameter(s) is outside the limit(s) established during the performance test as specified in 40 C.F.R. §63.1384 for more than 5 percent of the total operating time in a 6-month block reporting period;~~

~~(iii) The owner or operator must operate the process modifications such that the monitored process parameter(s) is not outside the limit(s) established during the performance test as specified in §63.1384 for more than 10 percent of the total operating time in a 6-month block reporting period.~~

~~**[40 C.F.R. §63.1382(b)(8); 45CSR34]**~~

Commented [WU16]: NA - Not subject to NNN.

3.1.19. The permitted facility shall be constructed and operated in accordance with the plans and specifications filed in Permit Application R14-0015, R14-0015A, R14-0015B, R14-0015C, R14-0015D, R14-0015E, R14-0015F, R14-0015G, R14-0015H, R14-0015I, R14-0015J, R14-0015K and R14-0015L, and any modifications, administrative updates, or amendments thereto. The Secretary may suspend or revoke a permit if the plans and specifications upon which the approval was based are not adhered to.
[45CSR14, R14-0015, 2.5.1.; 45CSR§§13-5.11. and 10.3.]

~~3.1.20. All chemical processing units shall be properly instrumented to alert the operator of process upsets, leaks, and other abnormal discharges of toxic air pollutants into the air and the operator shall record all such incidents and~~

~~the associated emissions estimated from direct measurements of toxic air pollutant concentration and/or calculations using other process measurements.
[45CSR§27-3.4. (State-enforceable only)]~~

Commented [TM17]: Not applicable since phenol formaldehyde resin is being removed

- 3.1.21. Due to unavoidable malfunction of equipment or other conditions resulting in emissions exceeding a level established in the compliance program, emissions exceeding those provided for in this rule may be permitted by the Director for periods not to exceed ten (10) days upon specific application to the Director. Such application shall be made within twenty-four (24) hours of the malfunction. In cases of major equipment failure, additional time periods may be granted by the Director provided a corrective program has been submitted by the owner or operator and approved by the Director.
[45CSR§27-12.1. (State-enforceable only)]
- 3.1.22. On and after the date on which the performance test required to be conducted by 40 C.F.R. § 60.8 is completed, the permittee shall not cause to be discharged into the atmosphere from any affected facility any gases which contain particulate matter in excess of 5.5 kg/Mg (11.0 lb/ton) of glass pulled for each fiberglass production line.
[40 C.F.R. §60.682; 45CSR16]
- 3.1.23. **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 sub-section 1.1. 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.
[45CSR14, R14-0015, 4.1.4., and 5.1.15.; 45CSR§13-5.11.]
- 3.1.24. Except as provided in 45CSR§§27-3.2 and 3.3, the owner or operator of a plant that discharges or may discharge a toxic air pollutant into the open air in excess of the amount shown in the Table A of 45CSR27 shall employ BAT at all chemical processing units emitting the toxic air pollutant: Provided, that any source or equipment specifically subject to a federal regulation or standard shall not be required to comply with provisions more stringent than such regulation or standard.
[45CSR§27-3.1. (State-enforceable only)]

3.2. Monitoring Requirements

~~3.2.1. **Operations, Maintenance, and Monitoring Plan.** On and after the date on which the performance test required to be conducted by 40 C.F.R. §§ 63.7 and 63.1384 is completed, the owner or operator of each wool fiberglass manufacturing facility must prepare for each glass melting furnace, and rotary spin manufacturing line subject to the provisions of 40 C.F.R. 63 Subpart NNN, a written operations, maintenance, and monitoring plan. The plan must be submitted to the Administrator for review and approval as part of the application for a part 70 permit. The plan must include the following information:~~

- ~~(1) Procedures for the proper operation and maintenance of process modifications (permit condition 3.2.2.) and add-on control devices used to meet the emission limits in 40 C.F.R. §63.1382;~~
- ~~(2) Procedures for the proper operation and maintenance of monitoring devices used to determine compliance, including quarterly calibration and certification of accuracy of each monitoring device according to the manufacturer's instructions; and~~
- ~~(3) Corrective actions to be taken when process parameters or add-on control device parameters deviate from the limit(s) established during initial performance tests.~~

~~(4) Process parameter(s) to be monitored to demonstrate compliance with the applicable emission limits in §63.1382. Examples of process parameters include LOI, binder solids content, and binder application rate;~~

~~(5) Correlation(s) between process parameter(s) to be monitored and formaldehyde emissions;~~

~~(6) A schedule for monitoring the process parameter(s); and~~

~~(7) Recordkeeping procedures, consistent with the recordkeeping requirements of §63.1386, to show that the process parameter value(s) established during the performance test is not exceeded.~~

The operations, maintenance, and monitoring plan must specify corrective actions to be followed in the event of a bag leak detection system alarm. Example corrective actions that may be included in the plan include the following:

~~(i) Inspecting the baghouse for air leaks, torn or broken bags or filter media, or any other conditions that may cause and increase in emissions;~~

~~(ii) Sealing off defective bags or filter media;~~

~~(iii) Replacing defective bags or filter media, or otherwise repairing the control device;~~

~~(iv) Sealing off a defective baghouse compartment;~~

~~(v) Cleaning the bag leak detection system probe, or otherwise repairing the bag leak detection system;~~

~~(vi) Shutting down the process producing the particulate emissions.~~

~~[40 C.F.R. §§ 63.1383(a), 63.1383(b)(2), and 63.1383(i)(3); 45CSR34]~~

Commented [WU18]: NA – Not subject NNN

~~3.2.2. **Process Modifications Monitoring.**~~

~~(1) The owner or operator who uses process modifications to control formaldehyde emissions must establish a correlation between formaldehyde emissions and a process parameter(s) to be monitored.~~

~~(2) The owner or operator must monitor the established parameter(s) according to the procedures in the operations, maintenance, and monitoring plan (permit condition 3.2.1.).~~

~~(3) The owner or operator must include as part of their operations, maintenance, and monitoring plan (permit condition 3.2.1.) the following information:~~

~~(i) Procedures for the proper operation and maintenance of the process;~~

~~(ii) Process parameter(s) to be monitored to demonstrate compliance with the applicable emission limits in 40 C.F.R. §63.1382. Examples of process parameters include LOI, binder solids content, and binder application rate;~~

~~(iii) Correlation(s) between process parameter(s) to be monitored and formaldehyde emissions;~~

~~(iv) A schedule for monitoring the process parameter(s); and~~

~~(v) Record keeping procedures, consistent with the record keeping requirements of 40 C.F.R. §63.1386, to show that the process parameter value(s) established during the performance test is not exceeded.~~

~~[40 C.F.R. §63.1383(i); 45CSR34]~~

Commented [WU19]: NA – Not subject NNN

3.3. Testing Requirements

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

- a. The Secretary may on a source-specific basis approve or specify additional testing or alternative testing to the test methods specified in the permit for demonstrating compliance with 40 C.F.R. Parts 60, 61, and 63 in accordance with the Secretary's delegated authority and any established equivalency determination methods which are applicable. If a testing method is specified or approved which effectively replaces a test method specified in the permit, the permit will be revised in accordance with 45CSR§30-6.4. or 45CSR§30-6.5 as applicable.
- b. The Secretary may on a source-specific basis approve or specify additional testing or alternative testing to the test methods specified in the permit for demonstrating compliance with applicable requirements which do not involve federal delegation. In specifying or approving such alternative testing to the test methods, the Secretary, to the extent possible, shall utilize the same equivalency criteria as would be used in approving such changes under Section 3.3.1.a. of this permit. If a testing method is specified or approved which effectively replaces a test method specified in the permit, the permit will be revised in accordance with 45CSR§30-6.4. or 45CSR§30-6.5 as applicable.
- c. All periodic tests to determine mass emission limits from or air pollutant concentrations in discharge stacks and such other tests as specified in this permit shall be conducted in accordance with an approved test protocol. Unless previously approved, such protocols shall be submitted to the Secretary in writing at least thirty (30) days prior to any testing and shall contain the information set forth by the Secretary. In addition, the permittee shall notify the Secretary at least fifteen (15) days prior to any testing so the Secretary may have the opportunity to observe such tests. This notification shall include the actual date and time during which the test will be conducted and, if appropriate, verification that the tests will fully conform to a referenced protocol previously approved by the Secretary.
- d. The permittee shall submit a report of the results of the stack test within 60 days of completion of the test. The test report shall provide the information necessary to document the objectives of the test and to determine whether proper procedures were used to accomplish these objectives. The report shall include the following: the certification described in paragraph 3.5.1; a statement of compliance status, also signed by a responsible official; and, a summary of conditions which form the basis for the compliance status evaluation. The summary of conditions shall include the following:
 1. The permit or rule evaluated, with the citation number and language.
 2. The result of the test for each permit or rule condition.

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

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

- 3.3.2. At such reasonable times as the Director may designate, the operator of any manufacturing process source operation may be required to conduct or have conducted stack tests to determine the particulate matter loading in exhaust gases. Such tests shall be conducted in such manner as the Director may specify and be filed on forms and in a manner acceptable to the Director. The Director, or his duly authorized representative, may at his option witness or conduct such stack tests. Should the Director exercise his option to conduct such tests, the operator will provide all the necessary sampling connections and sampling ports to be located in such manner as the Director may require, power for test equipment and the required safety equipment such as scaffolding, railings and ladders to comply with generally accepted good safety practices.
[45CSR§7-8.1.]
- 3.3.3. The Director, or his duly authorized representative, may conduct such other tests as he or she may deem necessary to evaluate air pollution emissions.
[45CSR§7-8.2.]

~~3.3.4. For all control device and process operating parameters measured during the initial performance tests, the owners or operators of glass melting furnaces, or rotary spin manufacturing lines subject to 40 C.F.R. 63 Subpart NNN may change the limits established during the initial performance tests if additional performance testing is conducted to verify that, at the new control device or process parameter levels, they comply with the applicable emission limits in 40 C.F.R. §63.1382. The owner or operator shall conduct all additional performance tests according to the procedures in 40 C.F.R. 63 Subpart A and in 40 C.F.R. §63.1384.
[40 C.F.R. §63.1383(m); 45CSR34]~~

Commented [WU20]: NA – No longer subject to NNN.

~~3.3.5. The owner or operator subject to the provisions of this 40 C.F.R. 63 Subpart NNN shall conduct a performance test to demonstrate compliance with the applicable emission limits in 40 C.F.R. §63.1382. Compliance is demonstrated when the emission rate of the pollutant is equal to or less than each of the applicable emission limits in 40 C.F.R. §63.1382. The owner or operator shall conduct the performance test according to the procedures in 40 C.F.R. part 63, subpart A and in this section.~~

- ~~(1) All monitoring systems and equipment must be installed, operational, and calibrated prior to the performance test.~~
- ~~(2) Unless a different frequency is specified in this section, the owner or operator must monitor and record process and/or add-on control device parameters at least every 15 minutes during the performance tests. The arithmetic average for each parameter must be calculated using all of the recorded measurements for the parameter.~~
- ~~(3) During each performance test, the owner or operator must monitor and record the glass pull rate for each glass melting furnace and, if different, the glass pull rate for each rotary spin manufacturing line. Record the glass pull rate every 15 minutes during any performance test required by 40 C.F.R. 63 Subpart NNN and determine the arithmetic average of the recorded measurements for each test run and calculate the average of the three test runs.~~
- ~~(4) The owner or operator shall conduct a performance test for each existing and new glass melting furnace.~~
- ~~(8) The owner or operator must conduct a performance test for each rotary spin manufacturing line, subject to 40 C.F.R. 63 Subpart NNN, while producing the building insulation with the highest LOI~~

~~expected to be produced on that line.~~

- (9) ~~The owner or operator of each rotary spin manufacturing line regulated by 40 C.F.R. 63 Subpart NNN must conduct performance tests using the resin with the highest free formaldehyde content. During the performance test of each rotary spin manufacturing line regulated by 40 C.F.R. 63 Subpart NNN, the owner or operator shall monitor and record the free formaldehyde content of the resin, the binder formulation used, and the product LOI and density.~~
- (10) ~~During the performance test, the owner or operator of a rotary spin manufacturing line who plans to use process modifications to comply with the emission limits in 40 C.F.R. § 63.1382 must monitor and record the process parameter level(s), as specified in the operations, maintenance, and monitoring plan (permit condition 3.2.1.), which will be used to demonstrate compliance after the initial performance test.~~
- (12) ~~During the performance test, the owner or operator of a rotary spin manufacturing line shall continuously record the operating temperature of each incinerator and record the average during each 1-hour test; the average operating temperature of the three 1-hour tests shall be used to monitor compliance.~~
- (13) ~~Unless disapproved by the Administrator, an owner or operator of a rotary spin manufacturing line regulated by 40 C.F.R. 63 Subpart NNN may conduct short-term experimental production runs using binder formulations or other process modifications where the process parameter values would be outside those established during performance tests without first conducting performance tests. Such runs must not exceed 1 week in duration unless the Administrator approves a longer period. The owner or operator must notify the Administrator and postmark or deliver the notification at least 15 days prior to commencement of the short-term experimental production runs. The Administrator must inform the owner or operator of a decision to disapprove or must request additional information prior to the date of the short-term experimental production runs. Notification of intent to perform an experimental short-term production run shall include the following information:~~

- ~~(i) The purpose of the experimental production run;~~
- ~~(ii) The affected line;~~
- ~~(iii) How the established process parameters will deviate from previously approved levels;~~
- ~~(iv) The duration of the experimental production run;~~
- ~~(v) The date and time of the experimental production run; and~~
- ~~(vi) A description of any emission testing to be performed during the experimental production run.~~

~~[Note: Compliance with this condition ensures compliance with 3.3.10. a.i., a.iv., a.v., a.viii., and c.]~~

~~[40 C.F.R. §63.1384(a); 45CSR34; 45CSR14, R14-0015, 4.5.3.]~~

Commented [WU21]: NA – Not subject NNN

3.3.6. ~~To determine compliance with the PM emission limit for glass melting furnaces, use the following equation:~~

$$E = \frac{C \times Q \times K_1}{P} \quad (\text{Eq. 1})$$

Where:

E = Emission rate of PM, kg/Mg (lb/ton) of glass pulled;

C = Concentration of PM, g/dscm (gr/dscf);

Q = Volumetric flow rate of exhaust gases, dscm/h (dscf/h);

K_1 = Conversion factor, 1 kg/1,000 g (1 lb/7,000 gr); and

P = Average glass pull rate, Mg/h (tons/h).

[40 C.F.R. §63.1384(b); 45CSR34]

Commented [WU22]: NA – Not subject to NNN

- 3.3.7. To determine compliance with the emission limit for formaldehyde for rotary spin manufacturing lines, use the following equation:

$$E = \frac{C \times MW \times Q \times K_1 \times K_2}{K_3 \times P \times 10^6} \quad (\text{Eq. 2})$$

Where:

E = Emission rate of formaldehyde, kg/Mg (lb/ton) of glass pulled;

C = Measured volume fraction of formaldehyde, ppm;

MW = Molecular weight of formaldehyde, 30.03 g/g-mol;

Q = Volumetric flow rate of exhaust gases, dscm/h (dscf/h);

K_1 = Conversion factor, 1 kg/1,000 g (1 lb/453.6 g);

K_2 = Conversion factor, 1,000 L/m³ (28.3 L/ft³);

K_3 = Conversion factor, 24.45 L/g-mol; and

P = Average glass pull rate, Mg/h (tons/h).

[40 C.F.R. §63.1384(e); 45CSR34]

Commented [WU23]: NA – Not subject NNN

- 3.3.8. The owner or operator shall use the following methods to determine compliance with the applicable emission limits:

- (1) Method 1 (40 C.F.R. part 60, appendix A) for the selection of the sampling port location and number of sampling ports;
- (2) Method 2 (40 C.F.R. part 60, appendix A) for volumetric flow rate;
- (3) Method 3 or 3A (40 C.F.R. part 60, appendix A) for O₂ and CO₂ for diluent measurements needed to correct the concentration measurements to a standard basis;
- (4) Method 4 (40 C.F.R. part 60, appendix A) for moisture content of the stack gas;
- (5) Method 5 (40 C.F.R. part 60, appendix A) for the concentration of PM. Each run shall consist of a minimum run time of 2 hours and a minimum sample volume of 60 dry standard cubic feet (dscf). The probe and filter holder heating system may be set to provide a gas temperature no greater than 177 ± 14

°C (350 ±25 °F);

~~(6) Method 316 or Method 318 (appendix A of 40 C.F.R. 63) for the concentration of formaldehyde. Each run shall consist of a minimum run time of 1 hour;~~

~~(7) Method contained in appendix A of 40 C.F.R. 63 Subpart NNN for the determination of product LOI;~~

~~(8) Method contained in appendix B of 40 C.F.R. 63 Subpart NNN for the determination of the free formaldehyde content of resin;~~

~~(9) Method contained in appendix C of 40 C.F.R. 63 Subpart NNN for the determination of product density;~~

(10) An alternative method, subject to approval by the Administrator.

[40 C.F.R. §63.1385(a); 45CSR34]

3.3.9. Each performance test shall consist of 3 runs. The owner or operator shall use the average of the three runs in the applicable equation for determining compliance.

~~[40 C.F.R. §63.1385(b); 45CSR34]~~

3.3.10. For the purposes of demonstrating initial compliance with operational and emission limitations in conditions 6.1.2., 7.1.1., and 40 C.F.R. §63.7(a), the permittee shall conduct performance testing of the 1st and 2nd lines within 180 days after issuance of permit ~~R14 0015H (October 17, 2007)~~ R14 0015K (2015). Such testing shall determine the VOC, ~~formaldehyde, and phenol~~ emission rates from the collection and incinerator stacks of the both production lines. This testing shall establish and/or verify the operating parameters for the respective control devices of the production line. This testing shall be conducted as outlined in the following:

a. General Testing Requirements:

- i. This testing shall consist of three test runs. Each test run must last at least one hour;
- ii. Each test run must be conducted with the production line operating at no less 90 percent capacity;
- iii. During each test run, sampling of the collection and incinerator must occur simultaneously to each other;

~~iv. The line must be using a resin with the highest free formaldehyde content;~~

- v. The line must be producing a product with a highest LOI expected to be produce by this line;
- vi. Test(s) shall not be conducted during periods of startup, shutdown, or malfunctions as specified in 40 C.F.R. §63.7(e)(1);

~~vii. During such testing, the permittee shall measure and record the free formaldehyde content of the resin, the binder formulation used, and the product LOI, and density;~~

viii. During such testing, the permittee shall monitor and record all of the operating parameters respective to the production line as noted in condition 3.3.10. in ~~fifteen (15) minute~~ thirty (30) intervals. The arithmetic average shall be calculated for each parameters using all of recorded measurements. Such measurements and arithmetic averages shall be included with the testing report.

b. Demonstrating compliance with the VOC emission limit shall be conducted with a method(s) approved

Commented [WU24]: NA – Not subject NNN

Commented [WU25]: NA – Not subject NNN

Commented [WU26]: Not applicable since phenol formaldehyde resin is being removed as a raw material ingredient.

Commented [WU27]: Not applicable since phenol formaldehyde resin is being removed as a raw material ingredient.

Commented [WU28]: NA – Not subject NNN

Commented [WU29]: Facility subject to PPP not NNN so thirty (30) minutes intervals is appropriate.

by the Director. The permittee may propose a testing method as part of the required protocol of condition 3.3.1.;

- c. ~~Demonstrating compliance with the formaldehyde limits shall be conducted in accordance with U.S. EPA Method 316 or Method 318;~~
- d. ~~Demonstrating compliance with the phenol limits shall be conducted in accordance with U.S. EPA Method 318 or 320 or other method approved by the Director;~~
- e. Compliance with the VOC, ~~formaldehyde, and phenol limits~~ shall be determined by taking sum of the arithmetic average of the respective pollutant from the collection stack and incinerator stack. The reported emission rates shall be in terms of pounds per ton of glass pulled;
- f. Such testing shall be conducted in accordance with permit condition 3.3.1.

Commented [WU30]: Not applicable since phenol formaldehyde resin is being removed as a raw material ingredient.

Commented [WU31]: NA Not applicable since phenol formaldehyde resin is being removed as a raw material ingredient.

Commented [WU32]: Not applicable since phenol formaldehyde resin is being removed as a raw material ingredient.

[45CSR14, R14-0015, 4.3.1.]

3.3.11. ~~Within 180 days after completing modification of the 1st line to be capable of producing 8,000 pounds of glass pulled per hour, the permittee shall conduct performance testing to demonstrate compliance with the carbon dioxide, PM, VOC, formaldehyde, and phenol emission limits. Such testing shall be conducted as prescribed in condition 3.3.10 for VOC, formaldehyde, and phenol. For PM, such testing shall be conducted as outlined in condition 3.3.13. For carbon monoxide, such testing shall be conducted in accordance with U.S. EPA Method 10. This testing shall establish and/or verify the operating parameters for the respective control devices of the production line.~~

~~**[45CSR14, R14-0015, 4.3.2.]**~~

Commented [WU33]: NA - Applicable to a previous modification.

3.3.12. Once every five years, the permittee shall conduct emission testing to demonstrate compliance with the permitted CO and NO_x emission limits in 6.1.2. and 7.1.1. for the collection stack (EP13 and EP23) and incinerator stack (EP14 and EP24) of each production ~~line and to verify and/or establish maximum Thermox reading in millivolts for the fiberizers and forehearth as stipulated in 6.1.3. and 6.1.4.~~ This testing shall be conducted as outlined in permit conditions 3.3.1., 3.3.10.a., and as follows:

Commented [WU34]: NA - New Fiberization Technology - low CO emissions.

- a. Demonstrating compliance with the carbon monoxide limits shall be conducted in accordance with U.S. EPA Method 10,
- b. Demonstrating compliance with the oxides of nitrogen limits shall be conducted in accordance with U.S. EPA Method 7E.

[45CSR14, R14-0015, 4.3.3.]

3.3.13. Once every 5 years or within 180 days that when the production line will be producing a product with a LOI greater than the previous compliance test that demonstrated compliance with the permitted PM limits of this permit, the permittee shall conduct performance testing to determine the PM emission rate of the collection and incinerator stacks of the respective production line. Such testing shall be conducted as outlined in condition 3.3.10.a. and U.S. EPA Method 5E. This testing shall establish and/or verify the operating parameters for the respective control devices of the production line.

[45CSR14, R14-0015, 4.3.4.; 40 C.F.R. §60.685; 45CSR16]

- 3.3.14. Should the permittee elect to change binder formula or produce a product with a LOI that is greater than the one that was produced during a compliance test that demonstrated compliance with the permitted VOC, ~~formaldehyde, and phenol~~ limits of this permit, the permittee shall conduct performance testing within 180 days of after making such change to demonstrate compliance with the VOC, ~~formaldehyde, and phenol~~ emission limits. Such testing shall be conducted as prescribed in conditions 3.3.1. and 3.3.10. for VOC, ~~formaldehyde, and phenol~~ of the respective line that the change is effecting. This testing shall establish and/or verify the operating parameters for the respective control devices of the production line.
[45CSR14, R14-0015, 4.3.5.]

Commented [WU35]: NA Not applicable since phenol formaldehyde resin is being removed as a raw material ingredient.

- 3.3.15. Performance tests shall be conducted under such conditions as the Administrator shall specify to the plant operator based on representative performance of the affected facility. The owner or operator shall make available to the Administrator such records as may be necessary to determine the conditions of the performance tests. Operations during periods of startup, shutdown, and malfunction shall not constitute representative conditions for the purpose of a performance test nor shall emissions in excess of the level of the applicable emission limit during periods of startup, shutdown, and malfunction be considered a violation of the applicable emission limit unless otherwise specified in the applicable standard.
[40 C.F.R. §60.8(c); 45CSR16]
- 3.3.16. In conducting the performance tests required in 40 C.F.R. §60.8, the owner or operator shall use as reference methods and procedures the test methods in appendix A of § or other methods and procedures as specified in 40 C.F.R. §60.685, except as provided in 40 C.F.R. §60.8(b).
[40 C.F.R. §60.685(a); 45CSR16]
- 3.3.17. The owner or operator shall conduct performance tests while the product with the highest loss on ignition (LOI) expected to be produced by the affected facility is being manufactured.
[40 C.F.R. §60.685(b); 45CSR16]

- 3.3.18. The owner or operator shall determine compliance with the particulate matter standard in 40 C.F.R. §60.682 as follows:

- (1) The emission rate (E) of particulate matter shall be computed for each run using the following equation:

$$E = \frac{C_i Q_{sd}}{P_{avg} K}$$

where:

- E = emission rate of particulate matter, kg/Mg (lb/ton).
- C_i = concentration of particulate matter, g/dscm (gr/dscf).
- Q_{sd} = volumetric flow rate of effluent gas, dscm/hr (dscf/hr).
- P_{avg} = average glass pull rate, Mg/hr (ton/hr).
- K = 1,000 g/kg (7,000 gr/lb).

- (2) Method 5E (40 C.F.R. part 60, Appendix A) shall be used to determine the particulate matter concentration (C_i) and the volumetric flow rate (Q_{sd}) of the effluent gas. The sampling time and sample volume shall be at least 120 minutes and 2.55 dscm (90.1 dscf).
- (3) The average glass pull rate (P_{avg}) for the manufacturing line shall be the arithmetic average of three glass pull rate (P_i) determinations taken at intervals of at least 30 minutes during each run. The individual glass pull rates (P_i) shall be computed using the following equation:

$$P_i = K' L_s W_m M \left[1.0 - \left(\frac{LOI}{100} \right) \right]$$

where:

P_i = glass pull rate at interval "i", Mg/hr (ton/hr).

L_s = line speed, m/min (ft/min).

W_m = trimmed mat width, m (ft).

M = mat gram weight, g/m² (lb/ft²).

LOI = loss on ignition, weight percent.

K' = conversion factor, 6×10^{-5} (min-Mg)/(hr-g) [3×10^{-2} (min-ton)/(hr-lb)].

- (i) ASTM D2584-68 (Reapproved 1985) or 94 (incorporated by reference -- see 40 C.F.R. § 60.17), shall be used to determine the LOI for each run.
- (ii) Line speed (L_s), trimmed mat width (W_m), and mat gram weight (M) shall be determined for each run from the process information or from direct measurements.

[40 C.F.R. §60.685(c); 45CSR16]

3.4. Recordkeeping Requirements

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

- a. The date, place as defined in this permit and time of sampling or measurements;
- b. The date(s) analyses were performed;
- c. The company or entity that performed the analyses;
- d. The analytical techniques or methods used;
- e. The results of the analyses; and
- f. The operating conditions existing at the time of sampling or measurement.

[45CSR§30-5.1.c.2.A.; 45CSR14, R14-0015, 4.4.1. and 5.4.1.]

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

[45CSR§30-5.1.c.2.B.]

3.4.3. **Odors.** For the purposes of 45CSR4, the permittee shall maintain a record of all odor complaints received, any investigation performed in response to such a complaint, and any responsive action(s) taken.
[45CSR§30-5.1.c. State-Enforceable only.]

3.4.4. As required by 40 C.F.R. §63.10(b) of 40 C.F.R. 63, the owner or operator shall maintain files of all information (including all reports and notifications) required by the general provisions of 40 C.F.R. 63 and this ~~40 C.F.R. 63 Subpart NNN;~~

Commented [WU36]: NA – Not subject to NNN

- (i) The owner or operator must retain each record for at least 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. The most recent 2 years of records must be retained at the facility. The remaining 3 years of records may be retained off site;
- (ii) The owner or operator may retain records on microfilm, on a computer, on computer disks, on magnetic tape, or on microfiche; and
- (iii) The owner or operator may report required information on paper or on a labeled computer disk using commonly available and EPA-compatible computer software.

~~[40 C.F.R. §63.1386(d)(1); 45CSR34]~~

Commented [WU37]: NA – Not subject to NNN

3.4.5. In addition to the general records required by 40 C.F.R. §63.10(b)(2), the owner or operator shall maintain records of the following information:

- (i) Any bag leak detection system alarms, including the date and time of the alarm, when corrective actions were initiated, the cause of the alarm, an explanation of the corrective actions taken, and when the cause of the alarm was corrected;

~~(v) The formulation of each binder batch and the LOI and density for each product manufactured on a rotary spin manufacturing line subject to the provisions of 40 C.F.R. 63 Subpart NNN, and the free formaldehyde content of each resin shipment received and used in the binder formulation;~~

~~(vi) Process parameter level(s) for RS manufacturing lines that use process modifications to comply with the emission limits, including any period when the parameter level(s) deviated from the established limit(s), the date and time of the deviation, when corrective actions were initiated, the cause of the deviation, an explanation of the corrective actions taken, and when the cause of the deviation was corrected;~~

Commented [WU38]: NA – Not subject to NNN.

- (viii) Incinerator operating temperature and results of periodic inspection of incinerator components, including any period when the temperature fell below the established average or the inspection identified problems with the incinerator, the date and time of the problem, when corrective actions were initiated, the cause of the problem, an explanation of the corrective actions taken, and when the cause of the problem was corrected;

~~(ix) Glass pull rate, including any period when the pull rate exceeded the average pull rate established during the performance test by more than 20 percent, the date and time of the exceedance, when corrective actions were initiated, the cause of the exceedance, an explanation of the corrective actions taken, and when the cause of the exceedance was corrected.~~

Commented [WU39]: NA – Not subject to NNN

~~[40 C.F.R. §63.1386(d)(2); 45CSR34]~~

Commented [WU40]: NA – Not subject to NNN

3.4.6. Written records shall be maintained that identify all pumps, compressors, pressure relief valves, valves,

sampling connections, open-ended lines, and flanges of a chemical processing unit that are in toxic air pollutant service. These records shall record the results of all monitoring and inspections, emissions control measures applied and the nature, timing, and results of repair efforts.
[45CSR§27-10.3. (State-enforceable only)]

- 3.4.7. The permittee shall monitor and record the hourly production on a daily basis for each line. These records shall include the monthly total and the 12 month rolling total for each line respectively.
[45CSR14, R14-0015, 4.2.1.]

~~3.4.8. The permittee shall monitor and record the free formaldehyde and phenol content of each resins shipment received at the facility. The free formaldehyde shall be determined using the method prescribed in Appendix B of 40 C.F.R. 63, Subpart NNN.
[40 C.F.R. §63.1383(j); 45CSR34; 45CSR14, R14-0015, 4.2.3.]~~

~~3.4.9. The permittee shall monitor and record the formulation of each batch of binder used.
[40 C.F.R. §63.1383(k); 45CSR34; 45CSR14, R14-0015, 4.2.4.]~~

~~3.4.10. The permittee shall monitor and record the product LOI and density of the each resinated product manufactured. The frequency of such monitoring shall not be less than once every eight hours. The LOI and density shall be determined using the methods prescribed in Appendix A and C of 40 CFR 63, Subpart NNN respectively.
[40 C.F.R. §63.1383(l); 45CSR34; 45CSR14, R14-0015, 4.2.5.]~~

- 3.4.11. **Record of Maintenance of Air Pollution Control Equipment.** For all pollution control equipment listed in subsection 1.1, the permittee shall maintain accurate records of all required pollution control equipment inspection and/or preventative maintenance procedures.
[45CSR14, R14-0015, 4.4.2. and 5.4.2.]

- 3.4.12. **Record of Malfunctions of Air Pollution Control Equipment.** For all air pollution control equipment listed in subsection 1.1, the permittee shall maintain records of the occurrence and duration of any malfunction or operational shutdown of the air pollution control equipment during which excess emissions occur. For each such case, the following information shall be recorded:

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

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

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

Commented [WU41]: NA – Not subject to NNN

of the malfunction.

[45CSR14, R14-0015, 4.4.3. and 5.4.3.]

- 3.4.13. The permittee shall maintain records of the any and all testing conducted as required in subsection 3.3.
[45CSR14, R14-0015, 4.4.4.]

3.5. Reporting Requirements

- 3.5.1. **Responsible official.** Any application form, report, or compliance certification required by this permit to be submitted to the DAQ and/or USEPA shall contain a certification by the responsible official that states that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate and complete.
[45CSR§30-4.4. and 5.1.c.3.D.]
- 3.5.2. A permittee may request confidential treatment for the submission of reporting required under 45CSR§30-5.1.c.3. pursuant to the limitations and procedures of W.Va. Code § 22-5-10 and 45CSR31.
[45CSR§30-5.1.c.3.E.]
- 3.5.3. Except for the electronic submittal of the annual certification to the USEPA as required in 3.5.5 below, all notices, requests, demands, submissions and other communications required or permitted to be made to the Secretary of DEP and/or USEPA shall be made in writing and shall be deemed to have been duly given when delivered by hand, mailed first class or by private carrier with postage prepaid to the address(es) set forth below or to such other person or address as the Secretary of the Department of Environmental Protection may designate:

Director
WVDEP
Division of Air Quality
601-57th Street
Charleston, WV 25304
Phone: 304/926-0499
FAX: 304/926-0478

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

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

- 3.5.5. **Compliance certification.** The permittee shall certify compliance with the conditions of this permit on the forms provided by the DAQ. In addition to the annual compliance certification, the permittee may be required to submit certifications more frequently under an applicable requirement of this permit. The annual certification shall be submitted to the DAQ and USEPA on or before March 15 of each year, and shall certify compliance for the period ending December 31. The annual certification to the USEPA shall be submitted in electronic format only. It shall be submitted by e-mail to the following address: R3-APD-Permits@epa.gov. The permittee shall maintain a copy of the certification on site for five (5) years from submittal of the certification.
[45CSR§30-5.3.e.]

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

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

3.5.8. **Deviations.**

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

1. Any deviation resulting from an emergency or upset condition, as defined in 45CSR§30-5.7., shall be reported by telephone or telefax within one (1) working day of the date on which the permittee becomes aware of the deviation, if the permittee desires to assert the affirmative defense in accordance with 45CSR§30-5.7. A written report of such deviation, which shall include the probable cause of such deviations, and any corrective actions or preventative measures taken, shall be submitted and certified by a responsible official within ten (10) days of the deviation.
2. Any deviation that poses an imminent and substantial danger to public health, safety, or the environment shall be reported to the Secretary immediately by telephone or telefax. A written report of such deviation, which shall include the probable cause of such deviation, and any corrective actions or preventative measures taken, shall be submitted by the responsible official within ten (10) days of the deviation.
3. Deviations for which more frequent reporting is required under this permit shall be reported on the more frequent basis.
4. All reports of deviations shall identify the probable cause of the deviation and any corrective actions or preventative measures taken.

[45CSR§30-5.1.c.3.C.]

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

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

~~3.5.10. **Notifications.** As required by 40 C.F.R. §§ 63.9(b) through (h), the owner or operator shall submit the following written initial notifications to the Administrator:~~

- ~~(4) Notification of intention to construct a new major source or reconstruct a major source; of the date construction or reconstruction commenced; of the anticipated date of startup; of the actual date of startup, where the initial startup of a new or reconstructed source occurs after June 14, 2002, and for which an application for approval or construction or reconstruction is required (See 40 C.F.R. §§ 63.9(b)(4) and (5));~~

~~(5) Notification of special compliance obligations;~~

~~(6) Notification of performance test; and~~

~~(7) Notification of compliance status;~~

~~[40 C.F.R. §63.1386(a); 45CSR34]~~

Commented [WU42]: NA – Not subject to NNN

~~3.5.11. Performance test report. As required by 40 C.F.R. §63.10(d)(2) of the general provisions, the owner or operator shall report the results of the initial performance test as part of the notification of compliance status required in permit condition 3.5.10. (7);~~

~~[40 C.F.R. §63.1386(b); 45CSR34]~~

Commented [WU43]: NA – Not subject to NNN

~~3.5.12. Startup, shutdown, and malfunction plan (SSMP). The owner or operator of an affected source must develop and implement a written startup, shutdown, and malfunction plan that describes, in detail, procedures for operating and maintaining the source during periods of startup, shutdown, and malfunction; a program of corrective action for malfunctioning process; and air pollution control and monitoring equipment used to comply with the relevant standard. This plan must be developed by the owner or operator by the source's compliance date for that relevant standard. The purpose of the startup, shutdown, and malfunction plan is to~~

~~(A) Ensure that, at all times, the owner or operator operate and maintain affected sources, including associated air pollution control and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions to the levels required by the relevant standards;~~

~~(B) Ensure that owners or operators are prepared to correct malfunctions as soon as practicable after their occurrence in order to minimize excess emissions of hazardous air pollutants; and~~

~~(C) Reduce the reporting burden associated with periods of startup, shutdown, and malfunction (including corrective action taken to restore malfunctioning process and air pollution control equipment to its normal or usual manner of operation);~~

~~This plan shall include:~~

~~(i) Procedures to determine and record the cause of the malfunction and the time the malfunction began and ended;~~

~~(ii) Corrective actions to be taken in the event of a malfunction of a control device or process modification, including procedures for recording the actions taken to correct the malfunction or minimize emissions; and~~

~~(iii) A maintenance schedule for each control device and process modification that is consistent with the manufacturer's instructions and recommendations for routine and long term maintenance;~~

~~[40 C.F.R. §§ 63.1386(e)(1), and 63.6(e)(3); 45CSR34]~~

Commented [WU44]: NA – Not subject to NNN

~~3.5.13. The owner or operator shall also keep records of each event as required by 40 C.F.R. §63.10(b) and record and report if an action taken during a startup, shutdown, or malfunction is not consistent with the procedures in the plan as described in 40 C.F.R. §63.10(e)(3)(iv);~~

~~[40 C.F.R. §63.1386(e)(2); 45CSR34]~~

Commented [WU45]: NA – Not subject to NNN

~~3.5.14. As required by 40 C.F.R. §63.10(e)(3)(v), the owner or operator shall report semiannually if measured emissions are in excess of the applicable standard or a monitored parameter deviates from the levels established during the performance test. The report shall contain the information specified in 40 C.F.R. §63.10(e) of this part as well as the additional records required by the recordkeeping requirements of 40 C.F.R. §63.1386 (d);~~

~~When no deviations have occurred, the owner or operator shall submit a report stating that no excess emissions occurred during the reporting period.
[40 C.F.R. §63.1386(e); 45CSR34]~~

Commented [WU46]: NA – Not subject to NNN

3.5.15. The emission to the air of any toxic air pollutant resulting from an abnormal release or spill in excess of the following amounts shall be reported to the Director or his authorized representative not later than 24-hours after the chemical processing unit owner/operator has knowledge of such emission:

- a. For ethylene oxide, and vinyl chloride, one (1) pound
- b. For acrylonitrile, and butadiene, ten (10) pounds
- c. For all other toxic air pollutants, fifty (50) pounds

The owner or operator shall file a written report with the Director stating the details of all such incidents resulting in the emission of more than fifty (50) pounds of any toxic air pollutant within seven (7) days of the occurrence. The owner/operator shall submit to the Director, at his request, records of all abnormal toxic air pollutant discharges to the air.

[45CSR14, R14-0015, 5.5.1.; 45CSR§27-10.4. (State-enforceable only)]

3.5.16. The permittee shall submit the results of testing required in subsection 3.3. before the close of business on the 60th day following the completion of such testing to the Director.
[45CSR14, R14-0015, 4.5.1.]

3.5.17. Any period of failure or inoperability of air pollution control equipment required by 45CSR27 shall be reported to the Director not later than 24-hours after the owner/operator has knowledge of such failure. Such reports shall be made in conjunction with necessary requests for variances as provided under 45CSR§27-12 (permit condition 3.1.21.).
[45CSR§27-10.5. (State-enforceable only)]

3.6. Compliance Plan

3.6.1. There is no compliance plan since a responsible official certified compliance with all requirements in the renewal application.

3.7. Permit Shield

3.7.1. The permittee is hereby granted a permit shield in accordance with 45CSR§30-5.6. The permit shield applies provided the permittee operates in accordance with the information contained within this permit.

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

3.7.2.1. **40 C.F.R. Part 64 – Compliance Assurance Monitoring.** One or more of the following characteristics of the permittee's emission units make the emission units, on a pollutant-specific basis, not subject to CAM.

- a. The emission unit emits particulate matter and such emissions are subject to 40 C.F.R. 60 Subpart PPP.

~~b. The emission unit emits particulate matter or formaldehyde, and such emissions are subject to 40 C.F.R. 63 Subpart NNN.~~

Commented [WU47]: NA – Not subject to NNN

- c. The emission unit emits other criteria pollutant(s) or HAPs in pre-control amounts less than the respective major source threshold.
- d. The emission unit has no associated control device for the specific pollutant emitted.

3.7.2.2. **45CSR10 to certain sources.** The emission units in the following table are not subject to 45CSR10:

Emission Unit ID	Description of Emission Unit	Rationale for Non-applicability of 45CSR10
ESDG12	Emergency backup generator, diesel IC engine	Internal combustion engines, including gas turbines and emergency generators, are not subject to 45CSR10 as per Director's verbal guidance.
ESDG13	Emergency backup generator, diesel IC engine	Internal combustion engines, including gas turbines and emergency generators, are not subject to 45CSR10 as per Director's verbal guidance.
ESFW11	Fire suppression water, diesel IC engine	Internal combustion engines, including gas turbines and emergency generators, are not subject to 45CSR10 as per Director's verbal guidance.
ESHW15	Hot water heaters (5 units) rated at 75,100 Btu/hr each	Not a "source operation" defined in 45CSR§10-2.19., therefore 4.1. does not apply. Also, exempt from sections 3, and 6 through 8 since less than 10 MMBtu/hr (per 45CSR§10-10.1.)
ESSH15	Space heating natural gas-fired make-up air heat exchanger, 8.525 MMBtu/hr	Not a "source operation" defined in 45CSR§10-2.19., therefore 4.1. does not apply. Also, exempt from sections 3, and 6 through 8 since less than 10 MMBtu/hr (per 45CSR§10-10.1.).
ESSH16	Space heating natural gas-fired make-up air heat exchanger, 7.875 MMBtu/hr	Not a "source operation" defined in 45CSR§10-2.19., therefore 4.1. does not apply. Also, exempt from sections 3, and 6 through 8 since less than 10 MMBtu/hr (per 45CSR§10-10.1.).

Commented [WU48]: Hot Water Heaters will be removed.

3.7.2.3. **40 C.F.R. 60 Subparts K, Ka, and Kb.** These subparts apply to storage tanks of certain sizes constructed, reconstructed, or modified during various time periods. Subpart K applies to petroleum liquids storage tanks constructed, reconstructed, or modified after June 11, 1973, and prior to May 19, 1978, and Subpart Ka applies to those constructed, reconstructed, or modified after May 18, 1978, and prior to July 23, 1984. Both Subparts K and Ka apply to storage tanks with a capacity greater than 40,000 gallons. Subpart Kb applies to volatile organic liquid (VOL) storage tanks constructed, reconstructed, or modified after July 23, 1984 with a capacity equal to or greater than 75 m³ (~19,813 gallons). All storage tanks at the Inwood facility have a capacity less than 75 m³. Therefore, Subparts K, Ka, and Kb do not apply to the storage tanks at the Inwood facility.

3.7.2.4. **40 C.F.R. 60 Subpart CC – Glass Manufacturing Plants.** This subpart applies to glass melting furnaces constructed after June 15, 1979. This subpart does not apply to furnaces that produce less than 4.55 Mg (5 tons) of glass per day and all-electric melters. An all-electric melter is a melting furnace in which all of the heat is provided by electric current, although some fossil fuel may be charged to the furnace as raw material only. The furnaces at the Inwood facility qualifies as all-electric melters and therefore Subpart CC does not apply.

3.7.2.5. **40 C.F.R. 60 Subpart IIII – Stationary Compression Ignition Internal Combustion Engines.** This subpart applies to manufacturers, owners, and operators of stationary compression ignition internal

combustion engines (ICE) that have been constructed, reconstructed, or modified after various dates, the earliest of which is July 11, 2005. All three diesel fired engines at the facility were in use on site prior to 2004. Therefore, NSPS Subpart IIII does not apply to the ICE at the Inwood facility.

- 3.7.2.6. **40 C.F.R. 60 Subpart JJJJ – Stationary Spark Ignition Internal Combustion Engines.** This subpart applies to manufacturers, owners, and operators of stationary spark ignition internal combustion engines (ICE) that have been constructed, reconstructed, or modified after various dates, the earliest of which is June 12, 2006. All of the engines at the Inwood facility, including emergency generators, are compression ignition IC engines, and therefore the requirements of this subpart do not apply.
- 3.7.2.7. **40 C.F.R. 61 Subpart N – Inorganic Arsenic Emissions from Glass Manufacturing Plants.** This NESHAP applies to glass melting furnaces that use commercial arsenic as a raw material. Since the Inwood facility does not use any arsenic as a raw material this subpart does not apply.
- 3.7.2.8. **40 C.F.R. 63 Subpart Q – Industrial Process Cooling Towers.** This NESHAP-MACT applies to industrial process cooling towers that remove heat from any chemical or industrial process as well as any combination of heating, ventilation, or cooling systems that uses chromium in the recirculating water as part of the system’s water treatment. This requirement does not apply to the Inwood facility. If at any time Guardian becomes subject to this requirement the proper notifications will be performed and records kept.
- 3.7.2.9. **40 C.F.R. 63 Subpart HHHH – Wet-formed Fiberglass Mat Production.** This NESHAP-MACT applies to drying and curing ovens at wet-formed fiberglass mat production facilities. Guardian’s Inwood facility is a wool-fiberglass production facility that produces insulation whereas the wet-formed fiberglass is a material used in the manufacture of asphalt roofing products (shingles and rolls). Therefore, Subpart HHHH does not apply to the Inwood facility.
- 3.7.2.10. **40 C.F.R. 63 Subpart DDDDD – Industrial, Commercial, and Institutional Boilers and Process Heaters.** This NESHAP-MACT standard applies to industrial, commercial, and institutional boilers and process heaters of various sizes and fuel types at major sources of HAP emissions. ~~Guardian’s Inwood facility is considered a major source for HAP. The recently finalized rule, effective April 1, 2013, includes exemptions for hot water heaters, which includes units heating water (not steam), rated at less than 1.6 MMBTU/hr. The water heater (Em. Unit ID: ESWH15) at the Inwood facility qualify for this exemption. The air makeup units are used to heat the manufacturing building and not used for process heat or steam and, therefore, are not subject to Subpart DDDDD. Based on these exemptions, there are no units at the Inwood facility subject to Subpart DDDDD.~~

Commented [WU49]: The Knauf Inwood facility is not a major source of HAP’s. As the only units are natural gas fired, they are exempt from 40 CFR 63 Subpart JJJJJ

Commented [WU50]: Water heaters are being removed.

4.0. Raw Material Handling Operation (Group 001) and emission unit IDs ES1A, CD1A, ES1B, CD1B, ES1C, ES1D, CD1D, ES1E, ES1F, CD1F, ES1G, CD1G, ES1H, ES1I, CD1I, ES1J, ES1K, CD1K, ES12A, CD12A, ES22A, CD22A, ES12B, CD12D, ES22B, CD22C, ES22Bb, ES12D, CD12C, ES12Db, CD12Cb; Tanks (Group 1) with emission Unit IDs T3, T4, T5, T6, T7A, T7B, T8, M1, M2, M3, M4, M5, M6, M7, M8, and M9 – Emission Point I.D. FP11

4.1. Limitations and Standards

4.1.1. The following storage devices shall be equipped and operated with the corresponding control devices or an equivalent bin vent manufactured by Whirl-Air or IAC or equivalent:

Emission Unit ID	Description	Control Equipment	Control Device ID
ES1A	Raw Material Storage Bin (sand)	Whirl-Air Flow Bin-Vent Model 195-42	CD1A
ES1B	Raw Material Storage Bin (borax)	Whirl-Air Flow Bin-Vent Model 195-42	CD1B
ES1C	Raw Material Storage Bin (borax)	Whirl-Air Flow Bin-Vent Model 195-42	CD1B
ES1D	Raw Material Storage Bin (soda ash)	Whirl-Air Flow Bin-Vent Model 195-42	CD1D
ES1E	Raw Material Storage Bin (soda ash)	Whirl-Air Flow Bin-Vent Model 195-42	CD1D
ES1F	Raw Material Storage Bin (aplite)	Whirl-Air Flow Bin-Vent Model 195-42	CD1F
ES1G	Raw Material Storage Bin (spare)	Whirl-Air Flow Bin-Vent Model 195-42	CD1G
ES1H	Raw Material Storage Bin (cullet)	Whirl-Air Flow Bin-Vent Model 195-42	CD1I
ES1I	Raw Material Storage Bin (cullet)	Whirl-Air Flow Bin-Vent Model 195-42	CD1I
ES1J	Raw Material Storage Bin (lime)	Whirl-Air Flow Bin-Vent Model 195-42	CD1F
ES1K	Raw Material Storage Bin (baghouse dust)	Whirl-Air Flow Bin-Vent Model 195-42	CD1K
ES12A	Batch Mixer Receiving Hopper (1 st Line)	Whirl-Air Flow Bin-Vent Model 345-56	CD12A
ES22A	Batch Mixer Receiving Hopper (2 nd Line)	IAC Bin-Vent Model No. 96TB-FRIP	CD22A
ES12B	Mixed Batch Storage Day Bin (1 st Line)	Whirl-Air Flow Bin-Vent Model 260-42	CD12D
ES22B	Mixed Batch Storage Bin (2 nd Line)	IAC Bin-Vent Model No. 96TB-FRIP	CD22C
ES12D	Mixed Batch Storage Day Bin (1 st Line)	Whirl-Air Flow Bin-Vent Model 230-56	CD12C
ES12Db	Mixed Batch Storage Bin (1 st Line)	Whirl-Air Flow Bin-Vent Model 55-30	CD12Cb

[45CSR14, R14-0015, 5.1.1.]

~~4.1.2. The four resin (T3, T4, T5, and T6) and two de-dusting oil wax (T7A and T7B) storage tanks shall not be operated in such a manner where the combined total potential to emit of VOCs exceed over 1,695 pounds of VOCs per year.~~

~~[45CSR14, R14-0015, 5.1.11.]~~

Commented [WU51]: NA- PF resin will be replaced with ECOSE and dedusting oil will be replaced with wax.

~~4.1.3. The pre-react tanks (mixing tank M1 and holding tanks M2 and M3) shall not be operated in such a manner where the combined total potential to emit of VOC from these sources exceed over 11.8 tons of VOCs per year.~~

~~[45CSR14, R14-0015, 5.1.12.]~~

Commented [WU52]: NA- PF binder raw material ingredients are being removed from process.

~~4.1.4. On and after the date on which the performance test required to be conducted by 40 C.F.R. §§ 63.7 and 63.1384 is completed, the owner or operator must operate all affected control equipment and processes according to the following requirements:~~

~~(i) The owner or operator must use a resin in the formulation of binder such that the free formaldehyde content of the resin used does not exceed the free formaldehyde range contained in the specification for the resin used during the performance test as specified in 40 C.F.R. §63.1384.~~

~~(ii) The owner or operator must use a binder formulation that does not vary from the specification and operating range established and used during the performance test as specified in 40 C.F.R. § 63.1384. For the purposes of this standard, adding or increasing the quantity of urea and/or lignin in the binder formulation does not constitute a change in the binder formulation.~~

~~[40 C.F.R. §§ 63.1382(b)(9) and (10); 45CSR34]~~

Commented [WU53]: NA – Not subject to NNN

4.1.5. Owners and operators of chemical processing units or facilities subject to the requirements of this regulation shall prevent and control working and filling losses of toxic air pollutants from tanks by routing such tank emissions to BAT control devices. The Director may approve the use of floating roof storage tanks as BAT, provided that such tanks are designed and operated in a manner which minimizes toxic air pollutant emissions taking into consideration the toxic air pollutant emission rate, tank size, and control efficiency associated with such tanks. On a case-by-case basis, the Director may exempt very small process or storage tanks or tanks storing material mixtures containing low mass fractions of toxic air pollutants from the BAT requirements taking into consideration the actual level of emissions control and/or the toxic air pollutant emission rate from the tank.

[45CSR§27-5.1. (State-enforceable only)] (M1, M2, M3, M4, M5, M6, ~~M7, M8, M9~~, T3, T4, T5, T6, and T8)

Commented [WU54]: Tanks in binder room in new configuration will be labeled M-1 through M-6.

~~4.1.6. The amount of resin consumed shall not exceed 1,692,850 gallons per year, calculated as the sum during a consecutive 12 month period.~~

~~[45CSR14, R14-0015, 5.1.9.]~~

Commented [WU55]: NA - PF binder will no longer be used.

~~4.1.7. The amount of de-dusting oil consumed shall not exceed 1,144,095 gallons per year, calculated as the sum during a consecutive 12 month period~~

~~[45CSR14, R14-0015, 5.1.10.]~~

Commented [WU56]: NA- Dedusting oil will not be used.

4.1.8. No person shall cause, suffer, allow or permit visible emissions from any storage structure(s) associated with any manufacturing process(es) that pursuant to 45CSR§7-5.1. (See permit condition 3.1.13.) is required to have a full enclosure and be equipped with a particulate matter control device.

[45CSR§7-3.7.] (ES1A, ES1B, ES1C, ES1D, ES1E, ES1F, ES1G, ES1H, ES1I, ES1J, ES1K, ES12A, ES22A, ES12B, ES22B, ES22Bb, ES12D, ES12Db)

4.2 Monitoring Requirements

4.2.1. Reserved.

4.3 Testing Requirements

4.3.1. Reserved.

4.4 Recordkeeping Requirements

~~4.4.1. To demonstrate compliance with condition 4.1.6., the permittee shall monitor and record on a monthly basis the amount of resin consumed at the permitted facility.
[45CSR14, R14-0015, 5.2.1.]~~

Commented [WU57]: NA- PF resin will be replaced with ECOSE.

~~4.4.2. To demonstrate compliance with conditions 4.1.2. and 4.1.7., the permittee shall monitor and record on a monthly basis the amount of de-dusting oil and wax emulsion consumed at the permitted facility.
[45CSR14, R14-0015, 5.2.2.]~~

Commented [WU58]: NA- Dedusting oil will be replaced with wax which has no VOC emissions.

~~4.4.3. To demonstrate compliance with condition 4.1.4., refer to conditions 3.4.8. and 3.4.9.~~

Commented [WU59]: NA - Not subject to NNN so this condition is not necessary.

~~4.4.4. To demonstrate compliance with condition 4.1.3., the permittee shall monitor and record on a monthly basis the actual raw material throughput for the pre-react tanks (mixing tank M1 and holding tanks M2 and M3).
[45CSR§§30-5.1.c. and 12.7.]~~

Commented [WU60]: NA- PF binder raw material ingredients are being removed from process.

4.5 Reporting Requirements

4.5.1. Reserved.

4.6 Compliance Plan

4.6.1. There is no compliance plan since a responsible official certified compliance with all requirements in the renewal application.

5.0 Melting & Refining Line #1 (Group 002) and emission unit IDs ES12C, CD12B, CD12Bb (backup) – Emission Point I.D. EP12 and Melting & Refining Line #2 (Group 003) and emission unit IDs ES22C, CD22B, CD22Bb (backup) – Emission Point I.D. EP22]

5.1. Limitations and Standards

~~5.1.1. On and after the date the initial performance test is completed or required to be completed under 40 C.F.R. §63.7, whichever date is earlier, the owner or operator shall not discharge or cause to be discharged into the atmosphere in excess of 0.25 kilogram (kg) of particulate matter (PM) per megagram (Mg) (0.5 pound [lb] of PM per ton) of glass pulled for each new or existing glass melting furnace.
[40 C.F.R. §63.1382(a)(1); 45CSR34] (Emission Point IDs: EP12 and EP22)~~

Commented [WU61]: NA – Not subject to NNN

~~5.1.2. On and after the date on which the performance test required to be conducted by 40 C.F.R. §§ 63.7 and 63.1384 is completed, the owner or operator must operate all affected control equipment and processes according to the following requirements:~~

- ~~(i) The owner or operator must initiate corrective action within 1 hour of an alarm from a bag leak detection system and complete corrective actions in a timely manner according to the procedures in the operations, maintenance, and monitoring plan (permit condition 3.2.1.);~~
- ~~(ii) The owner or operator must implement a Quality Improvement Plan (QIP) consistent with the compliance assurance monitoring provisions of 40 CFR part 64, subpart D when the bag leak detection system alarm is sounded for more than 5 percent of the total operating time in a 6 month block reporting period.~~

~~[40 C.F.R. §63.1382(b)(1); 45CSR34] (Control Device IDs: CD12B, CD12Bb, CD22B, CD22Bb)~~

Commented [WU62]: NA – Not subject to NNN

~~5.1.3. On and after the date on which the performance test required to be conducted by 40 C.F.R. §§ 63.7 and 63.1384 is completed, the owner or operator must operate all affected control equipment and processes according to the following requirements:~~

- ~~(i) The owner or operator must initiate corrective action within 1 hour when the average glass pull rate of any 4 hour block period for glass melting furnaces equipped with continuous glass pull rate monitors, or daily glass pull rate for glass melting furnaces not so equipped, exceeds the average glass pull rate established during the performance test as specified in 40 C.F.R. §63.1384, by greater than 20 percent and complete corrective actions in a timely manner according to the procedures in the operations, maintenance, and monitoring plan (permit condition 3.2.1.);~~
- ~~(ii) The owner or operator must implement a QIP consistent with the compliance assurance monitoring provisions of 40 C.F.R. Part 64, subpart D when the glass pull rate exceeds, by more than 20 percent, the average glass pull rate established during the performance test as specified in 40 C.F.R. § 63.1384 for more than 5 percent of the total operating time in a 6 month block reporting period.~~
- ~~(iii) The owner or operator must operate each glass melting furnace such that the glass pull rate does not exceed, by more than 20 percent, the average glass pull rate established during the performance test as specified in 40 C.F.R. § 63.1384 for more than 10 percent of the total operating time in a 6 month block reporting period.~~

~~[40 C.F.R. §63.1382(b)(5); 45CSR34] (Emission Unit IDs: ES12C, ES12E, ES22C, ES22E)~~

Commented [WU63]: NA – Not subject to NNN

5.1.4. Production of fiberglass insulation from the 1st line shall not exceed ~~8,000~~ 9,000 pounds of glass pulled per hour

or ~~35,040~~ 39,420 TPY. Compliance with this limit shall be based on a 12-month rolling total.
[45CSR14, R14-0015, 4.1.1.a.] (Emission Unit IDs: ES12C, ES12E)

5.1.5. Production of fiberglass insulation from the 2nd line shall not exceed 8,000 pounds of glass pulled per hour and 35,040 TPY. Compliance with this limit shall be based on a 12-month rolling total.
[45CSR14, R14-0015, 4.1.2.a.] (Emission Unit IDs: ES22C, ES22E)

5.1.6. Emissions from the line shall not exceed the following limits with respect to the corresponding emission point and pollutant:

Emission Limits for 1 st and 2 nd Lines				
Emission Point ID	CO (lb/TGP)	NOx (lb/TGP)	PM (lb/TGP)	PM10 (lb/TGP)
EP12	0.73	0.03	0.07	0.07
EP22	0.73	0.03	0.07	0.07

lb/TGP – pounds of pollutant per ton of glass pulled

[45CSR14, R14-0015, 4.1.1.b. and 4.1.2.b.]

5.1.7. Exhaust from the electric melter (ES12C) shall be vented into a closed loop system that routes this stream directly to either one of identified baghouses (CD12B or CD12Bb) at all times when the line is operating.
[45CSR14, R14-0015, 4.1.1.c.]

5.1.8. Exhaust from the electric melter (ES22C) shall be vented into a closed loop system that routes this stream directly to either one of identified baghouses (CD22B or CD22Bb) at all times when the line is operating
[45CSR14, R14-0015, 4.1.2.c.]

5.2. Monitoring Requirements

5.2.1. Where a baghouse is used to control PM emissions from a glass-melting furnace, the owner or operator shall install, calibrate, maintain, and continuously operate a bag leak detection system.

~~(i) The bag leak detection system must be certified by the manufacturer to be capable of detecting PM emissions at concentrations of 10 milligrams per actual cubic meter (0.0044 grains per actual cubic foot) or less.~~

~~(ii) The bag leak detection system sensor must produce output of relative PM emissions.~~

~~(iii) The bag leak detection system must be equipped with an alarm system that will sound automatically when an increase in relative PM emissions over a preset level is detected and the alarm must be located such that it can be heard by the appropriate plant personnel.~~

~~(iv) For positive pressure fabric filter systems, a bag leak detection system must be installed in each baghouse compartment or cell. If a negative pressure or induced air baghouse is used, the bag leak detection system must be installed downstream of the baghouse. Where multiple bag leak detection systems are required (for either type of baghouse), the system instrumentation and alarm may be shared among the monitors.~~

~~(v) A triboelectric bag leak detection system shall be installed, operated, adjusted, and maintained in a manner consistent with the U.S. Environmental Protection Agency guidance, "Fabric Filter Bag Leak Detection~~

Guidance" (EPA 454/R-98-015, September 1997). Other bag leak detection systems shall be installed, operated, adjusted, and maintained in a manner consistent with the manufacturer's written specifications and recommendations.

(vi) Initial adjustment of the system shall, at a minimum, consist of establishing the baseline output by adjusting the range and the averaging period of the device and establishing the alarm set points and the alarm delay time.

(vii) Following the initial adjustment, the owner or operator shall not adjust the range, averaging period, alarm setpoints, or alarm delay time except as detailed in the approved operations, maintenance, and monitoring plan (permit condition 3.2.1.). In no event shall the range be increased by more than 100 percent or decreased more than 50 percent over a 365-day period unless a responsible official as defined in 40 C.F.R. §63.2 of the general provisions in 40 C.F.R. 63 Subpart A of this part certifies that the baghouse has been inspected and found to be in good operating condition.

A bag leak detection system (BLDS) shall be installed and operated on the fabric filter baghouses identified as CD12B, CD12Bb, CD22B, and CD22Bb.

[40 C.F.R. §63.1383(b)(1); 45CSR34; 45CSR14, R14-0015, 4.1.3.a.]

5.2.2. On and after the date on which the performance test required to be conducted by 40 C.F.R. §§ 63.7 and 63.1384 is completed, the owner or operator must monitor all affected control equipment and processes according to the following requirements:

(1) The owner or operator of an existing glass melting furnace equipped with continuous glass pull rate monitors must monitor and record the glass pull rate on an hourly basis. For glass melting furnaces that are not equipped with continuous glass pull rate monitors, the glass pull rate must be monitored and recorded once per day.

(2) On any new glass melting furnace, the owner or operator must install, calibrate, and maintain a continuous glass pull rate monitor that monitors and records on an hourly basis the glass pull rate.

[40 C.F.R. §63.1383(f); 45CSR34; 45CSR14, R14-0015, 4.1.2.g.]

5.3. Testing Requirements

5.3.1. To demonstrate compliance with condition 5.1.1., refer to condition 3.3.6.

5.3.2. To demonstrate compliance with condition 5.1.6., refer to conditions 3.3.8.

5.4. Recordkeeping Requirements

5.4.1. The permittee shall record the date and time of any bag leak detection system alarm. Such record shall include when corrective actions were initiated, the cause of the alarm, an explanation of the corrective actions taken, and when the cause of the alarm was corrected.

[40 C.F.R. §63.1386(d)(2)(i); 45CSR34; 45CSR14, R14-0015, 4.4.5.]

5.5. Reporting Requirements

Commented [WU64]: NA – not subject to NNN

Commented [WU65]: NA – not subject to NNN

Commented [WU66]: NA – not subject to NNN

Commented [WU67]: NA – Not subject to NNN

Commented [WU68]: NA – not subject to NNN

- 5.5.1. To demonstrate compliance with the operational requirements of conditions 5.1.7. and 5.1.8., the permittee shall submit a corresponding statement of compliance as part of the semiannual monitoring report required in condition 3.5.6.
[45CSR§30-5.3.e.]

5.6. Compliance Plan

- 5.6.1. There is no compliance plan since a responsible official certified compliance with all requirements in the renewal application.

6.0. Forming & Collecting Line 1 (Group 004) and Emission Unit IDs ES12E, ES13A, ES13B, ES13C, CD13A, ~~and CD13B~~ and CD13C – Emission Point ID EP13 and Forming & Collecting Line 2 (Group 005) and emission unit IDs ES22E, ES23A, ES23B, ES23C, CD23A, CD23B, and CD23C - Emission Point ID EP23

6.1. Limitations and Standards

~~6.1.1. Rotary spin manufacturing lines. On and after the date the initial performance test is completed or required to be completed under 40 C.F.R. §63.7 (permit condition 3.3.5.), whichever date is earlier, the owner or operator shall not discharge or cause to be discharged into the atmosphere in excess of:~~

- ~~(i) 0.6 kg of formaldehyde per megagram (1.2 lb of formaldehyde per ton) of glass pulled for each existing rotary spin manufacturing line.~~
- ~~(ii) 0.4 kg of formaldehyde per megagram (0.8 lb of formaldehyde per ton) of glass pulled for each new rotary spin manufacturing line.~~

~~[40 C.F.R. §63.1382(a)(2); 45CSR34]~~

Commented [WU69]: NA – Not subject to NNN

6.1.2. Emissions from the line shall not exceed the following limits with respect to the corresponding emission point and pollutant:

Emission Limits for 1 st and 2 nd Lines								
Emission Point ID	CO (lb/TGP)	NOx (lb/TGP)	PM (lb/TGP)	PM ₁₀ (lb/TGP)	VOC ⁽¹⁾ (lb/TGP)	HCOH (lb/TGP)	Phenol (lb/TGP)	NH ₃ ⁽²⁾ (lb/TGP)
EP13	5.28 <u>3.60</u>	0.32	3.47	3.47	2.86 ⁽²⁾	0.80 ⁽³⁾	1.55 ⁽³⁾	3.77 <u>4.64</u>
EP23	5.28	0.32	3.25	3.25	2.86 ⁽³⁾	0.80 ⁽³⁾	1.55 ⁽³⁾	3.77

lb/TGP – pounds of pollutant per ton of glass pulled.

- (1) VOC emissions shall not include methane and ethane.
- (2) Compliance with the emission limit shall be the sum of the respective pollutant from both EP13 and EP14 (condition 7.1.1.).
- (3) Compliance with the emission limit shall be the sum of the respective pollutant from both EP23 and EP24 (condition 7.1.1.).

Commented [WU70]: New Fiberizer Technology will result in substantially lower CO emissions from EP-13. Therefore, to eliminate CO monitoring requirement on EP-13, request a combined CO limit of 3.60 lb/ton on EP-13 and EP14 that is substantially lower than sum of existing individual CO limits [5.28 + 1.13 = 6.41 – 3.60 = 2.81 lb/ton reduction in CO]

Commented [WU71]: Request combined ammonia limit for EP13 & EP14 [3.77+0.87 = 4.64].

[45CSR14, R14-0015, 4.1.1.b. and 4.1.2.b.]

~~6.1.3. The fiberizers and forehearth of the 1st line shall be operated in such a manner the following air to fuel ratios are not exceeded:~~

- ~~Thermox Gas Ratio Setting for the fiberizers: 962 millivolts~~
- ~~Thermox Gas Ratio Setting for the forehearth: 823 millivolts~~

[45CSR14, R14-0015, 4.1.1.d.]

Commented [WU72]: NA - New Fiberizer Technology will result in substantially lower CO emissions from EP-13. Therefore, to eliminate CO monitoring requirement on EP-13, a combined CO limit of 3.60 lb/ton on EP-13 and EP14 was requested that is substantially lower than sum of existing individual CO limits by 2.81 lb/ton.

6.1.4. The fiberizers and forehearth of the 2nd line shall be operated in such a manner the following air to fuel ratios are not exceeded:

- Thermox Gas Ratio Setting for the fiberizers: 962 millivolts
- Thermox Gas Ratio Setting for the forehearth: 823 millivolts

[45CSR14, R14-0015, 4.1.2.d.]

6.1.5. Exhaust from the forehearth and fiberizers of the 1st line shall be vented into a closed loop system that routes this stream directly to either one of identified water sprays with drop-out boxes three venturi scrubbers (CD13A, CD13B, or CD13C) at all times when the line is operating.
[45CSR14, R14-0015, 4.1.1.e.]

Commented [WU73]: Water Spray with drop-out box will be replaced with three venturi scrubbers.

6.1.6. Exhaust from the forehearth and fiberizers of the 2nd line shall be vented into a closed loop system that routes this stream directly to one of three venturi scrubbers (CD23A, CD23B, or CD23C). Scrubbers CD23A or / and CD23B shall be operated when one or more of the fiberizers over the large collection chamber is in operation. Scrubber CD23C shall be operated when one or more of the fiberizers over the small collection chamber is in operation.
[45CSR14, R14-0015, 4.1.2.e.]

~~6.1.7. Each fiberizer that produces resinated (bonded) fiberglass shall be equipped, maintained, and operated with an advance water jet ring to minimize formaldehyde emissions from the fiber forming process.
[45CSR14, R14-0015, 4.1.3.b.]~~

Commented [WU74]: NA - PF binder will no longer be used in the

6.2. Monitoring Requirements

6.2.1. An owner or operator subject to the provisions of this 40 C.F.R. 60 Subpart PPP who uses a wet scrubbing control device to comply with the mass emission standard shall install, calibrate, maintain, and operate monitoring devices that measure the gas pressure drop across each scrubber and the scrubbing liquid flow rate to each scrubber. The pressure drop monitor is to be certified by its manufacturer to be accurate within ± 250 Pascal (± 1 inch water gauge) over its operating range, and the flow rate monitor is to be certified by its manufacturer to be accurate within ± 5 percent over its operating range.
[40 C.F.R. §60.683(a); 45CSR16]

6.2.2. All monitoring devices required under 40 C.F.R. §60.683 (conditions 6.2.4. and 6.2.5.) are to be recalibrated quarterly in accordance with procedures under 40 C.F.R. §60.13(b).
[40 C.F.R. §60.683(c); 45CSR16]

~~6.2.3. The permittee shall install, calibrate, maintain, and operate two ThermoX Premix (air to fuel) analyzers to measure and record the air to fuel ratio being fed to the fiberizers and forehearth for each production line. Each analyzer shall be maintained in such a way that the analyzer is available to analyze samples 90 percent of the time or greater. Each analyzer shall be calibrated once a month in accordance with the manufacturer's specifications and follow the Quality & Assurance guidelines recommended by the manufacturer. Readings shall be taken and recorded twice a day with a minimum of ten hours between readings.
[45CSR14, R14-0015, 4.2.6.]~~

Commented [WU75]: NA - New Fiberizer Technology will result in substantially lower CO emissions from EP-13. Therefore, to eliminate CO monitoring requirement on EP-13, a combined CO limit of 3.60 lb/ton on EP-13 and EP14 was requested that is substantially lower than sum of existing individual CO limits by 2.81 lb/ton.

6.2.4. A device that continuously measures and records the pressure drop across the scrubber shall be installed, calibrated, maintained, and operated for each venturi scrubber (CD13A, CD13B, CD13C, CD23A, CD23B, CD23C, and CD24B). Such device is to be certified by its manufacturer to be accurate within ± 250 pascals (± 1 inch water gauge) over its operating range.
[45CSR14, R14-0015, 4.1.3.c. and 4.2.2.; 40 C.F.R. §60.683(a); 45CSR16]

6.2.5. A device that continuously measures and records the scrubbing liquid flow to each scrubber and drop-out box shall be installed, calibrated, maintained, and operated for each venturi scrubber and drop-out box (CD13A,

CD13B, ~~CD13C~~, CD23A, CD23B, CD23C, and CD24B). Such device is to be certified by its manufacturer to be accurate within ± 5 percent over its operating range.

[45CSR14, R14-0015, 4.1.3.d. and 4.2.2.; 40 C.F.R. §60.683(a); 45CSR16]

~~6.2.6. A device that continuously measures and records the scrubbing liquid pressure at delivery to each drop-out box shall be installed, calibrated, maintained, and operated for each drop-out box (CD13A, and CD13B). Such device is to be certified by its manufacturer to be accurate within ± 5 percent over its operating range.~~

~~**[45CSR14, R14-0015, 4.1.3.e. and 4.2.2.]**~~

Commented [WU76]: The water sprays with drop-out box will be eliminated and replaced with three venturi scrubbers so this monitoring requirement will be eliminated and replaced with the requirement in 6.2.4.

6.3. Testing Requirements

6.3.1. To demonstrate compliance with condition 6.1.1., refer to condition 3.3.7.

6.3.2. To comply with 40 C.F.R. §60.684(d) (permit condition 6.4.3.), the owner or operator shall record measurements as required in 40 C.F.R. §60.684(a) (permit condition 6.4.1.) using the monitoring devices in 40 C.F.R. §60.683(a) (permit condition 6.2.1.) during the particulate matter runs.

[40 C.F.R. §60.685(d); 45CSR16]

6.3.3. To demonstrate compliance with the ammonia (NH₃) emission limits in 6.1.2., the permittee shall use US EPA Method 320 (FTIR) or US EPA Method CTM-027 (wet chemistry). Testing shall be performed within 180 days after making a binder formulation change or if the facility needs to qualify a higher LOI than previously qualified. During such testing, the permittee shall also demonstrate compliance with the VOC, ~~formaldehyde, and phenol~~ emission limits in accordance with condition 3.3.14.

[45CSR§30-12.7.]

Commented [WU77]: NA – PF binder will no longer be used in the facility.

6.4. Recordkeeping Requirements

6.4.1. At 30-minute intervals during each 2-hour test run of each performance test of a wet scrubber control device and drop-out boxes at least once every 4 hours thereafter, the owner or operator shall record the measurements required by 40 C.F.R. §60.683(a) (condition 6.2.1. of this permit).

[40 C.F.R. §60.684(a); 45CSR16; 45CSR14, R14-0015, 4.5.2.]

6.4.2. Records of the measurements required in paragraph (a) of 40 C.F.R. §60.684 (condition 6.4.1. of this permit) must be retained for at least 2 years.

[40 C.F.R. §60.684(c); 45CSR16]

6.4.3. Each owner or operator shall submit written semiannual reports of exceedances of control device (CD13A, CD13B, CD23A, CD23B, CD23C, and CD24B) operating parameters required to be monitored by paragraph (a) of 40 C.F.R. §60.684 (condition 6.4.1. of this permit) and written documentation of, and a report of corrective maintenance required as a result of, quarterly calibrations of the monitoring devices required in 40 C.F.R. §60.683(c) (condition 6.2.2. of this permit). For the purpose of these reports, exceedances are defined as any monitoring data that are less than 70 percent of the lowest value or greater than 130 percent of the highest value of each operating parameter recorded during the most recent performance test.

[40 C.F.R. §60.684(d); 45CSR16; 45CSR14, R14-0015, 4.5.2.]

6.5. Reporting Requirements

6.5.1. To demonstrate compliance with the operational requirements of conditions 6.1.5. and 6.1.6., the permittee shall

submit a corresponding statement of compliance as part of the semiannual monitoring report required in condition 3.5.6.
[45CSR§30-5.3.e.]

6.6. Compliance Plan

- 6.6.1. There is no compliance plan since a responsible official certified compliance with all requirements in the renewal application.

7.0 Curing & Cooling Line 1 (Group 006) and emission unit ID(s) ES14A, CD14A, and ES14B – Emission Point I.D. EP14 and Curing & Cooling Line 2 (Group 007) and emission unit ID(s) ES24A, CD24A, ES24B, and CD24B – Emission Point I.D. EP24

7.1. Limitations and Standards

7.1.1. Emissions from the line shall not exceed the following limits with respect to the corresponding emission point and pollutant:

Emission Limits for 1 st and 2 nd Lines								
Emission Point ID	CO ⁽²⁾ (lb/TGP)	NOx (lb/TGP)	PM (lb/TGP)	PM ₁₀ (lb/TGP)	VOC ⁽¹⁾ (lb/TGP)	HCOH (lb/TGP)	Phenol (lb/TGP)	NH ₃ ⁽²⁾ (lb/TGP)
EP14	1.13 3.60	3.75	0.46	0.46	2.86 ⁽²⁾	0.80 0.80 ⁽³⁾	1.55 1.55 ⁽³⁾	0.87 4.64
EP24	1.31	3.75	0.93	0.93	2.86 ⁽³⁾	0.80 ⁽³⁾	1.55 ⁽³⁾	0.87

lb/TGP – pounds of pollutant per ton of glass pulled.

- (1) VOC emissions shall not include methane and ethane.
- (2) Compliance with the emission limit shall be the sum of the respective pollutant from both EP14 and EP13 (condition 6.1.2).
- (3) Compliance with the emission limit shall be the sum of the respective pollutant from both EP24 and EP23 (condition 6.1.2).

[45CSR14, R14-0015, 4.1.1.b. and 4.1.2.b.]

7.1.2. Exhaust from the curing oven shall be vented into a closed loop system that routes this stream directly to the United McGill Thermal Oxidizer identified as CD14A at all times when the line is operating. The oxidizer shall be operated and maintained in accordance with the following:

- i. The temperature of combustion chamber shall not fall below 1,500°F or the average temperature recorded during the most recent performance testing that demonstrated compliance with the VOC, formaldehyde, and phenol emissions limits. Compliance with this limit shall be based on rolling three hour average.
- ii. The oxidizer shall not consume more than 5,000 cubic feet of natural gas per hour or 43.8 MMscf per year.

[45CSR14, R14-0015, 4.1.1.f.; ~~40 C.F.R. §63.1382(b)(6); 45CSR34~~]

7.1.3. Exhaust from the curing oven shall be vented into a closed loop system that routes this stream directly to the McGill AirClean Thermal Oxidizer identified as CD24A at all times when the line is operating. The oxidizer shall be operated and maintained in accordance with the following:

- i. The temperature of combustion chamber shall not fall below 1,500°F or the average temperature recorded during the most recent performance testing that demonstrated compliance with the VOC, formaldehyde, and phenol emissions limits. Compliance with this limit shall be based on rolling three hour average.
- ii. The oxidizer shall not consume more than 5,000 cubic feet of natural gas per hour or 43.8 MMscf per year.

[45CSR14, R14-0015, 4.1.2.f.; ~~40 C.F.R. §63.1382(b)(6); 45CSR34~~]

7.1.4. Exhaust from the cooling table of the 2nd line shall be vented into a closed loop system that routes this stream directly to a venturi scrubber (CD24B) at all times when the line is operating.

[45CSR14, R14-0015, 4.1.2.h.]

Commented [WU78]: New Fiberizer Technology will result in substantially lower CO emissions from EP-13. Therefore, to eliminate CO monitoring requirement on EP-13, request a combined CO limit of 3.60 lb/ton on EP-13 and EP14 that is substantially lower than sum of existing individual CO limits [5.28 + 1.13 = 6.41 – 3.60 = 2.81 lb/ton reduction in CO]

Commented [WU79]: NA- PF binder will no longer be used in the facility.

Commented [WU80]: Request combined ammonia limit for EP13 & EP14 [3.77+0.87 = 4.64].

Commented [WU81]: NA- PF binder will no longer be used in the facility.

Commented [WU82]: NA – not subject to NNN

Commented [WU83]: NA- PF binder will no longer be used in the facility.

Commented [WU84]: NA – not subject to NNN

7.2. Monitoring Requirements

~~7.2.1. Thermal Incinerator Firebox Temperature Monitoring~~

- ~~(1) The owner or operator who uses an incinerator to control formaldehyde emissions from forming or curing shall install, calibrate, maintain, and operate a monitoring device that continuously measures and records the operating temperature in the firebox of each incinerator.~~
- ~~(2) The owner or operator must inspect each incinerator at least once per year according to the procedures in the operations, maintenance, and monitoring plan (permit condition 3.2.1.). At a minimum, an inspection must include the following:~~
 - ~~(i) Inspect all burners, pilot assemblies, and pilot sensing devices for proper operation and clean pilot sensor, as necessary;~~
 - ~~(ii) Ensure proper adjustment of combustion air and adjust, as necessary;~~
 - ~~(iii) Inspect, when possible, internal structures, for example, baffles, to ensure structural integrity per the design specifications;~~
 - ~~(iv) Inspect dampers, fans, and blowers for proper operation;~~
 - ~~(v) Inspect for proper sealing;~~
 - ~~(vi) Inspect motors for proper operation;~~
 - ~~(vii) Inspect combustion chamber refractory lining and clean and repair/replace lining, as necessary;~~
 - ~~(viii) Inspect incinerator shell for corrosion and/or hot spots;~~
 - ~~(ix) For the burn cycle that follows the inspection, document that the incinerator is operating properly and make any necessary adjustments; and~~
 - ~~(x) Generally observe that the equipment is maintained in good operating condition;~~
 - ~~(xi) Complete all necessary repairs as soon as practicable.~~

~~[40 C.F.R. §63.1383(g); 45CSR34]~~

- 7.2.2. A device that continuously measures and records the temperature of the combustion chamber for each thermal oxidizer (CD14A, CD24A) shall be installed, calibrated, maintained, and continuously operated. Such device shall be certified by the manufacturer to be accurate within \pm one (1) degree Fahrenheit. **[45CSR14, R14-0015, 4.1.3.g. and 4.2.2.]**
- 7.2.3. Refer to permit condition 6.2.4. for CD24B.
- 7.2.4. Refer to permit condition 6.2.5. for CD24B.

Commented [WU85]: NA – not subject to NNN

7.3. Testing Requirements

- 7.3.1 To demonstrate compliance with the ammonia (NH₃) emission limits in 7.1.1., the permittee shall use US EPA Method 320 (FTIR) or US EPA Method CTM-027 (wet chemistry). Testing shall be performed within 180 days after making a binder formulation change or if the facility needs to qualify a higher LOI than previously qualified. During such testing, the permittee shall also demonstrate compliance with the VOC, formaldehyde, and phenol emission limits in accordance with condition 3.3.14. [45CSR§30-12.7.]

Commented [WU86]: NA- PF binder no longer being used at facility.

7.4. Recordkeeping Requirements

- 7.4.1. To demonstrate compliance with conditions 7.1.2.ii. and 7.1.3.ii., the permittee shall maintain monthly records and 12 month rolling total of hours operated and natural gas consumed by the United McGill Thermal Oxidizer Model 2-151C306 (CD14A) and the McGill AirClean Thermal Oxidizer Model MCT 30.0 (CD24A). [45CSR§30-5.1.c.]

7.5. Reporting Requirements

- 7.5.1. Reserved.

7.6. Compliance Plan

- 7.6.1. There is no compliance plan since a responsible official certified compliance with all requirements in the renewal application.

8.0 Facing Sizing & Packaging for Line 1 (Group 008) and emission unit IDs ES15A, ES15Aa, ES15B, CD15A, ES15C, ES15D, ES15E, ES15F, ES15G, ES15H, ES15I, ES15J, CD15C, CD15D – Emission Point ID FP15 and Facing Sizing & Packaging for Line 2 (Group 008) and emission unit IDs ES25A, ES25B, CD25A, ES25C, ES25D, ES25E, ES25F, ES25G, ES25H, ES25I, CD25C, CD25D, ES25J, ES25K, and ES25L – Emission Point ID FP15

8.1 Limitations and Standards

8.1.1. The permittee shall install, maintain, and operate the Quentin Keeney Air Tumblers (CD15A), the Fisher-Klosterman Scrubber (CD25A) in such a way that the PM and PM-10 emissions from FP15 do not exceed 0.25 pounds per hour and 1.1 tons per year.
[45CSR14, R14-0015, 5.1.2.]

8.1.2. Refer to permit condition 3.1.23.

8.2 Monitoring Requirements

8.2.1. Reserved.

8.3 Testing Requirements

8.3.1. Reserved.

8.4 Recordkeeping Requirements

8.4.1. Refer to permit conditions 3.4.11. and 3.4.12.

8.5 Reporting Requirements

8.5.1. Reserved.

8.6 Compliance Plan

8.6.1. There is no compliance plan since a responsible official certified compliance with all requirements in the renewal application.

9.0. Supporting Facilities (Group 009) and emission unit IDs ESDG12, ESDG13, ESW11, ESSH15, ESSH16, and ESHW15 – Emission Point IDs EP16, EP17, EP18, EP19, EP20, and EP22

9.1. Limitations and Standards

9.1.1. Emissions of the following pollutants to the atmosphere from the associated emission points shall not exceed the following:

Caterpillar 3406 (Emission Point EP16)		
Pollutant	Maximum Allowable Emission Rate	
	lb/hr	TPY
Particulate Matter	0.58	0.15
Sulfur Dioxide	3.80	0.90
Nitrogen Oxides	9.13	2.30
Carbon Monoxide	4.16	1.04
Volatile Organic Compounds	0.10	0.03

Caterpillar 3456 (Emission Point EP17)		
Pollutant	Maximum Allowable Emission Rate	
	lb/hr	TPY
Particulate Matter	0.09	0.03
Sulfur Dioxide	3.80	0.90
Nitrogen Oxides	10.96	2.74
Carbon Monoxide	0.62	0.56
Volatile Organic Compounds	0.11	0.03

Cummins NT-855-F1 (Emission Point EP18)		
Pollutant	Maximum Allowable Emission Rate	
	lb/hr	TPY
Particulate Matter	0.59	0.2
Sulfur Dioxide	0.56	0.1
Nitrogen Oxides	8.5	2.1
Carbon Monoxide	1.8	0.5
Volatile Organic Compounds	0.69	0.2

[45CSR14, R14-0015, 5.1.3.; 45CSR§30-12.7.] (*Emission Unit IDs: ESDG12, ESDG13, and ESW11*)

9.1.2. The two Caterpillar 3406 and 3456 (ID. No. ESDG12 and ESDG13) and Cummins NT-855-F1 (ID. No.

ESFW11) internal combustion engines shall not operate more than 500 hours per year per engine, calculated as the sum during a consecutive 12 month period.

[45CSR14, R14-0015, 5.1.4.] (*Emission Unit IDs: ESDG12, ESDG13, and ESW11*)

9.1.3. The two Caterpillar 3406 and 3456, and Cummins NT-855-F1 internal combustion engines shall not consume a fuel with a sulfur content of greater than 0.5 percent by weight.

[45CSR14, R14-0015, 5.1.5.] (*Emission Unit IDs: ESDG12, ESDG13, and ESW11*)

9.1.4. The 8.5 MMBTU/hr makeup air handling unit (ID. No. ESSH15), and 7.875 MMBtu/hr Air Handling Unit (ID. No. ESSH16), and ~~five (5) 75 MBTU/hr binder water heaters (ID. No. ESHW15)~~ shall only be fired with pipeline quality natural gas.

[45CSR14, R14-0015, 5.1.6.]

Commented [WU87]: NA - Binder water heaters are being removed.

9.1.5. Emissions of the following pollutants to the atmosphere from the 8.5 MMBTU/hr makeup air handling unit (ID No. ESSH15) shall not exceed the following:

Pollutant	Hourly Emission Rate	Annual Emission Rate
	lb/hr	TPY
Particulate Matter	0.03	0.1
Particulate Matter-10	0.03	0.1
Nitrogen Oxides	0.85	3.7
Carbon Monoxide	0.17	0.8
Volatile Organic Compounds	0.05	0.2

[45CSR14, R14-0015, 5.1.8.]

9.1.6. No person shall cause, suffer, allow or permit emission of smoke and/or particulate matter into the open air from any fuel burning unit which is greater than ten (10) percent opacity based on a six minute block average.

[45CSR§2-3.1.] (*Emission Unit IDs: ESHW15, ESSH15, ESSH16*)

9.1.7. Due to unavoidable malfunction of equipment or inadvertent fuel shortages, emissions exceeding those provided for in 45CSR10 may be permitted by the Director for periods not to exceed ten (10) days upon specific application to the Director. Such application shall be made within twenty-four (24) hours of the equipment malfunction or fuel shortage. In cases of major equipment failure or extended shortages of conforming fuels, additional time periods may be granted by the Director provided a corrective program has been submitted by the owner or operator and approved by the Director.

[45CSR§10-9.1.]

9.1.8. No owner or operator subject to the provisions of 45CSR10 shall build, erect, install, modify or use any article, machine, equipment or process, the use of which purposely conceals an emission which would otherwise constitute a violation of an applicable standard. Such concealment includes, but is not limited to, the use of gaseous diluents to achieve compliance with a standard that is based on the concentration of a pollutant in the gases discharged to the atmosphere.

[45CSR§10-11.1.]

9.1.9. If you have an existing stationary CI RICE with a site rating of less than or equal to 500 brake HP located at a

major source of HAP emissions, you must comply with the applicable emission limitations and operating limitations (permit condition 9.1.10.) no later than May 3, 2013.

[40 C.F.R. § 63.6595(a)(1); 45CSR34] (Emission Unit ID: ESW11)

9.1.10. For emergency stationary CI RICE¹, you must meet the following requirements, except during periods of startup:

- a. Change oil and filter every 500 hours of operation or annually, whichever comes first;²
- b. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary;
- c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.³

During periods of startup you must minimize the engine's time spent at idle and minimize the engine's startup time at startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes.

¹ If an emergency engine is operating during an emergency and it is not possible to shut down the engine in order to perform the work practice requirements on the schedule required in Table 2c of 40 C.F.R. 63 Subpart ZZZZ, or if performing the work practice on the required schedule would otherwise pose an unacceptable risk under Federal, State, or local law, the work practice can be delayed until the emergency is over or the unacceptable risk under Federal, State, or local law has abated. The work practice should be performed as soon as practicable after the emergency has ended or the unacceptable risk under Federal, State, or local law has abated. Sources must report any failure to perform the work practice on the schedule required and the Federal, State or local law under which the risk was deemed unacceptable.

² Sources have the option to utilize an oil analysis program as described in 40 C.F.R. §63.6625(i) (permit condition 9.1.14.) in order to extend the specified oil change requirement in Table 2c of 40 C.F.R. 63 Subpart ZZZZ.

³ Sources can petition the Administrator pursuant to the requirements of 40 C.F.R. §63.6(g) for alternative work practices.

[40 C.F.R. §63.6602, Table 2c, Item #1; 40 C.F.R. §63.6625(h); 45CSR34] (Emission Unit ID: ESW11)

9.1.11. At all times you must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require you to make any further efforts to reduce emissions if levels required by this standard have been achieved. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

[40 C.F.R. §63.6605(b); 45CSR34] (Emission Unit ID: ESW11)

9.1.12. If you own or operate an existing emergency stationary RICE with a site rating of less than or equal to 500 HP

located at a major source of HAP emissions, you must operate and maintain the stationary RICE and after-treatment control device (if any) according to the manufacturer's emission-related written instructions or develop your own maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions.

[40 C.F.R. §§63.6625(e) and 63.6625(e)(2); 40 C.F.R. §63.6640(a), Table 6, Item #9; 45CSR34] (Emission Unit ID: ESW11)

- 9.1.13. If you own or operate an existing emergency stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions, you must install a non-resettable hour meter if one is not already installed.

[40 C.F.R. §63.6625(f); 45CSR34] (Emission Unit ID: ESW11)

- 9.1.14. If you own or operate a stationary CI engine that is subject to the work, operation or management practices in Item # 1 of Table 2c to 40 C.F.R. 63 Subpart ZZZZ (permit condition 9.1.10.), you have the option of utilizing an oil analysis program in order to extend the specified oil change requirement in Tables 2c to 40 C.F.R. 63 Subpart ZZZZ. The oil analysis must be performed at the same frequency specified for changing the oil in Table 2c to 40 C.F.R. 63 Subpart ZZZZ (permit condition 9.1.10.a.). The analysis program must at a minimum analyze the following three parameters: Total Base Number, viscosity, and percent water content. The condemning limits for these parameters are as follows: Total Base Number is less than 30 percent of the Total Base Number of the oil when new; viscosity of the oil has changed by more than 20 percent from the viscosity of the oil when new; or percent water content (by volume) is greater than 0.5. If all of these condemning limits are not exceeded, the engine owner or operator is not required to change the oil. If any of the limits are exceeded, the engine owner or operator must change the oil within 2 days of receiving the results of the analysis; if the engine is not in operation when the results of the analysis are received, the engine owner or operator must change the oil within 2 days or before commencing operation, whichever is later. The owner or operator must keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for the engine. The analysis program must be part of the maintenance plan for the engine (permit condition 9.1.12.).

[40 C.F.R. §63.6625(i); 45CSR34] (Emission Unit ID: ESW11)

- 9.1.15. If you own or operate an emergency stationary RICE, you must operate the emergency stationary RICE according to the requirements in paragraphs (1) through (3) of this condition. In order for the engine to be considered an emergency stationary RICE under 40 C.F.R. 63 Subpart ZZZZ, any operation other than emergency operation, maintenance and testing, emergency demand response, and operation in non-emergency situations for 50 hours per year, as described in paragraphs (1) through (3) of this condition, is prohibited. If you do not operate the engine according to the requirements in paragraphs (1) through (3) of this condition, the engine will not be considered an emergency engine under 40 C.F.R. 63 Subpart ZZZZ and must meet all requirements for non-emergency engines.

(1) There is no time limit on the use of emergency stationary RICE in emergency situations.

Note that this operational standard of condition 9.1.15.(1) is streamlined by the more stringent 500 hours per year operational limitation in condition 9.1.2.

(2) You may operate your emergency stationary RICE for any combination of the purposes specified in paragraph (2)(i) of this condition for a maximum of 100 hours per calendar year. Any operation for non-

emergency situations as allowed by paragraph (3) of this condition counts as part of the 100 hours per calendar year allowed by this paragraph (2).

(i) Emergency stationary RICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency RICE beyond 100 hours per calendar year

(3) Emergency stationary RICE located at major sources of HAP may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in paragraph (2) of this condition.

[40 C.F.R. §§ 63.6640(f), 63.6640(f)(1), 63.6640(f)(2), 63.6640(f)(2)(i), and 63.6640(f)(3); 45CSR34] (Emission Unit ID: ESW11)

9.2. Monitoring Requirements

9.2.1. Reserved.

9.3. Testing Requirements

9.3.1. Reserved.

9.4. Recordkeeping Requirements

9.4.1. To demonstrate compliance with conditions 9.1.1. and 9.1.2., the permittee shall monitor and record the hours of operation of the engines for the generators and fire water pumps. Such records shall be kept on both a monthly and 12-month rolling total basis.

[45CSR14, R14-0015, 5.2.3.; 45CSR§30-5.1.c.] (Emission Unit IDs: ESDG12, ESDG13, and ESW11)

9.4.2. To demonstrate compliance with conditions 9.1.1. and 9.1.3., the permittee shall maintain records of sulfur content of the fuel oil received and/or vendors contractual sulfur specifications for the fuel oil.

[45CSR14, R14-0015, 5.4.4.] (Emission Unit IDs: ESDG12, ESDG13, and ESW11)

9.4.3. You must keep records of the maintenance conducted on the stationary RICE in order to demonstrate that you operated and maintained the stationary RICE and after-treatment control device (if any) according to your own maintenance plan (permit condition 9.1.12.) if you own or operate an existing stationary emergency RICE.

[40 C.F.R. §§63.6655(e) and 63.6655(e)(2); 45CSR34] (Emission Unit ID: ESW11)

9.4.4. If you own or operate an existing emergency stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions that does not meet the standards applicable to non-

emergency engines, you must keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. The owner or operator must document how many hours are spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency operation.

[40 C.F.R. §§63.6655(f) and 63.6655(f)(1); 45CSR34] (Emission Unit ID: ESFW11)

9.4.5. Form and Retention of Records for 40 C.F.R. 63 Subpart ZZZZ.

(a) Your records must be in a form suitable and readily available for expeditious review according to 40 C.F.R. §63.10(b)(1).

(b) As specified in 40 C.F.R. §63.10(b)(1), you must keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

(c) You must keep each record readily accessible in hard copy or electronic form for at least 5 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to 40 C.F.R. §63.10(b)(1).

[40 C.F.R. §§63.6660(a), (b), and (c); 45CSR34] (Emission Unit ID: ESFW11)

9.5. Reporting Requirements

9.5.1. To demonstrate compliance with conditions 9.1.4., 9.1.5., and 9.1.6., the permittee shall certify in the semiannual monitoring report (permit condition 3.5.6.) that only pipeline quality natural gas was combusted as fuel in the affected emission units.

[45CSR§30-5.1.c.]

9.5.2. If you are required to submit an Initial Notification but are otherwise not affected by the requirements of 40 C.F.R. 63 Subpart ZZZZ, in accordance with 40 C.F.R. §63.6590(b), your notification should include the information in 40 C.F.R. §63.9(b)(2)(i) through (v) (given below), and a statement that your stationary RICE has no additional requirements and explain the basis of the exclusion (for example, that it operates exclusively as an emergency stationary RICE if it has a site rating of more than 500 brake HP located at a major source of HAP emissions).

The owner or operator of an affected source that has an initial startup before the effective date of a relevant standard under this part shall notify the Administrator in writing that the source is subject to the relevant standard. The notification, which shall be submitted not later than 120 calendar days after the effective date of the relevant standard (or within 120 calendar days after the source becomes subject to the relevant standard), shall provide the following information:

- (i) The name and address of the owner or operator;
- (ii) The address (i.e., physical location) of the affected source;
- (iii) An identification of the relevant standard, or other requirement, that is the basis of the notification and the source's compliance date;
- (iv) A brief description of the nature, size, design, and method of operation of the source and an identification of the types of emission points within the affected source subject to the relevant standard and types of hazardous air pollutants emitted; and

(v) A statement of whether the affected source is a major source or an area source.

[40 C.F.R. §§ 63.6645(f), 63.6590(b)(1)(i), and 63.9(b)(2)(i) through (v); 45CSR34] (Emission Unit ID: ESDG13)

9.5.3. You must report each instance in which you did not meet each work practice in Table 2c to 40 C.F.R. 63 Subpart ZZZZ that apply to you (permit condition 9.1.10.). These instances are deviations from the emission and operating limitations in 40 C.F.R. 63 Subpart ZZZZ. These deviations must be reported according to the requirements in 40 C.F.R. §63.6650 (permit condition 9.5.5.).
[40 C.F.R. §63.6640(b); 45CSR34] (Emission Unit ID: ESW11)

9.5.4. You must also report each instance in which you did not meet the requirements in Table 8 to 40 C.F.R. 63 Subpart ZZZZ that apply to you.
[40 C.F.R. §63.6640(e); 45CSR34] (Emission Unit ID: ESW11)

9.5.5. The permittee must report all deviations as defined in 40 C.F.R. 63 Subpart ZZZZ in the semiannual monitoring report required by permit condition 3.5.6.
[40 C.F.R. §63.6650(f); 45CSR34] (Emission Unit ID: ESW11)

9.6. Compliance Plan

9.6.1. There is no compliance plan since a responsible official certified compliance with all requirements in the renewal application.