



ARMSTRONG HARDWOOD FLOORING
P.O. Box 160 Route 250 South
Beverly, WV 26253
www.armstrong.com

July 14, 2017

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

**Subject: Title V Permit Renewal Application
Armstrong Hardwood Flooring Company – Beverly, WV
Plant ID 08300025
Title V Permit No. R30-08300025-2013**

Dear Sir or Madam:

Armstrong Hardwood Flooring Company is hereby submitting an application for renewal of Title V Permit No. R30-08300025-2013, for the facility located in Beverly, West Virginia. Please note that although the Flooring Mill and Finish Lines are subject to 40 CFR 64, Compliance Assurance Monitoring, applicable monitoring and recordkeeping requirements have already been implemented in the permit so that no changes are requested to existing monitoring and recordkeeping requirements.

For questions regarding any information contained in this application, please contact Jeff Arbogast, Safety Manager at (304) 338-7729 or Dennis Ruth, EHS Manager at (304) 338-7619.

Sincerely,

Steve Bullock
Plant Manager

Attachments

11. Mailing Address		
Street or P.O. Box: P.O. Box 160		
City: Beverly	State: WV	Zip: 26253
Telephone Number: (304) 338-4100		Fax Number: (304) 338-4124

12. Facility Location		
Street: Route 250 South	City: Beverly	County: Randolph
UTM Easting: 597.41 km	UTM Northing: 4,296.88 km	Zone: <input checked="" type="checkbox"/> 17 or <input type="checkbox"/> 18
Directions: From Charleston, take Interstate 79 North to exit 99. Proceed east on US Route 33 to Elkins, West Virginia. Take US Route 250 South from Elkins to Beverly. The facility is located on the right of and adjacent to US Route 250, approximately 1.6 miles south of Beverly in Randolph County.		
Portable Source? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Is facility located within a nonattainment area? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes, for what air pollutants?	
Is facility located within 50 miles of another state? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes, name the affected state(s). Virginia Maryland	
Is facility located within 100 km of a Class I Area¹? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes, name the area(s). Dolly Sods Wilderness Area Otter Creek Wilderness Area	
If no, do emissions impact a Class I Area¹? <input type="checkbox"/> Yes <input type="checkbox"/> No		
¹ Class I areas include Dolly Sods and Otter Creek Wilderness Areas in West Virginia, and Shenandoah National Park and James River Face Wilderness Area in Virginia.		

13. Contact Information		
Responsible Official: Steven Bullock		Title: Plant Manager
Street or P.O. Box: P.O. Box 160		
City: Beverly	State: WV	Zip: 26253
Telephone Number: (304) 338-7629	Fax Number: (304) 338-4124	
E-mail address: SABullock@armstrongflooring.com		
Environmental Contact: Jeff Arbogast		Title: Safety Manager
Street or P.O. Box: P.O. Box 160		
City: Beverly	State: WV	Zip: 26253
Telephone Number: (304) 338-7729	Fax Number: (304) 338-4105	
E-mail address: JArbogast@armstrongflooring.com		
Application Preparer: Sandra Alvarado		Title: Associate
Company: EPS, Inc.		
Street or P.O. Box: 1050 Crown Pointe Pkwy, Ste 550		
City: Atlanta	State: GA	Zip: 30338
Telephone Number: (404) 315-9113	Fax Number: 404) 315-8509	
E-mail address: salvarado@envplanning.com		

14. Facility Description

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

Process	Products	NAICS	SIC
Lumber Stacking	Green Lumber	321999	2421
Lumber Drying	Kiln-Dried Lumber	321999	2421
Hardwood Flooring Mill	Unfinished Hardwood Flooring	321918	2426
Finishing Line	Finished Hardwood Flooring	321918	2426
Wood-Fired Boilers	Steam	22133	4961

Provide a general description of operations.

Green lumber is purchased and stacked in the Mill Yard to facilitate air drying of the lumber. The lumber is then further dried in the steam heated pre-dryer and/or one of 38 lumber kilns. Kiln-dried lumber is transferred by one of two lumber tilts to the Mill rough end saws. The rough end saws cut the lumber into strips for transfer to one of six lines of knot saws, side matchers, and end matchers. The unfinished wood flooring is graded, stacked and either stored or transferred to one of two finishing lines. Finished hardwood flooring is graded and packaged for shipment to mill customers. Two 48.8 MMBtu/hr wood-fired boilers provide heat and steam to the plant. A portable 33.5 MMBtu/hr natural gas-fired boiler provides backup heat and steam to the plant as needed.

A 22 kW natural gas emergency generator provides backup power supply for emergency lighting and other critical plant operations.

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

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

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

Section 2: Applicable Requirements

18. Applicable Requirements Summary	
Instructions: Mark all applicable requirements.	
<input checked="" type="checkbox"/> SIP	<input type="checkbox"/> FIP
<input checked="" type="checkbox"/> Minor source NSR (45CSR13)	<input type="checkbox"/> PSD (45CSR14)
<input checked="" type="checkbox"/> NESHAP (45CSR34)	<input type="checkbox"/> Nonattainment NSR (45CSR19)
<input checked="" type="checkbox"/> Section 111 NSPS	<input type="checkbox"/> Section 112(d) MACT standards
<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 checked="" 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 checked="" type="checkbox"/> 45CSR4 State enforceable only rule	<input type="checkbox"/> Acid Rain (Title IV, 45CSR33)
<input type="checkbox"/> Emissions Trading and Banking (45CSR28)	<input checked="" type="checkbox"/> Compliance Assurance Monitoring (40CFR64)
<input type="checkbox"/> CAIR NO _x Annual Trading Program (45CSR39)	<input type="checkbox"/> CAIR NO _x Ozone Season Trading Program (45CSR40)
<input type="checkbox"/> CAIR SO ₂ Trading Program (45CSR41)	

19. Non Applicability Determinations
<p>List all requirements which the source has determined not applicable and for which a permit shield is requested. The listing shall also include the rule citation and the reason why the shield applies.</p> <ul style="list-style-type: none"> • 40 CFR 60 Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units. The two (2) wood-fired boilers are not subject to these requirements because the boilers were purchased/manufactured prior to the date the rule was proposed. • 40 CFR 63 Subpart QQQQ – National Emission Standards for Hazardous Air Pollutants: Surface Coating of Wood Building Products. Armstrong demonstrated prior to the compliance date of May 15, 2006 that the facility was a minor source of HAP and requested emission limits below major source thresholds to avoid applicability of 40 CFR 63 Subpart QQQQ.
<input type="checkbox"/> Permit Shield

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

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

Permit Shield

20. Facility-Wide Applicable Requirements

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

Facility-wide annual HAP emission rate of 9.4 tpy of any single HAP or 24.4 tpy aggregated HAP

Open Burning - 45CSR§6-3.1 and 3.2

Asbestos - 40CFR§61 and 45CSR34

Odor - 45CSR§4-3.1 (State enforceable only)

Standby Plan for Reducing Emissions - 45CSR§11-5.2

Emission Inventory - WV Code § 22-5-4(a)(14)

Ozone-Depleting Substances - 40 CFR 82, Subpart F

Risk Management Plan - 40 CFR 68

Particulate Matter Controls - 45CSR§7-5.2, 45CSR13, R13-1147 (Condition 3.1.9)

Operation & Maintenance of Air Pollution Control Equipment - 45CSR13; R13-1147 (Conditions 3.1.8 & 4.1.10)

Permit Shield

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

Monitoring:

Testing: WV Code § 22-5-4(a)(15) and 45CSR13

Record Keeping Requirements:

- Monitoring Information - 45CSR§30-5.1.c.2.A
- Retention of Records - 45CSR§30-5.1.c.2.B
- Odor - 45CSR§30-5.1.c (State enforceable only)
- Record of Maintenance of Air Pollution Control Equipment - 45CSR13
- Record of Malfunctions of Air Pollution Control Equipment - 45CSR13

Reporting Requirements:

- Responsible Official - 45CSR§30-4.4, 5.1.c.3.D and 5.1.c.3.E
- Certified Emissions Statement - 45CSR§30-8
- Compliance Certification - 45CSR§30-5.3.e
- Semi-Annual Monitoring Reports - 45CSR§30-5.1.c.3.A
- Emergencies – Section 2.17 of Title V permit
- Deviations - 45CSR§30-5.1.c.3.B through D
- New Applicable Requirements - 45CSR§30-4.3.h.1.B
- Violation(s) of Allowable Visible Emission Requirements - 45CSR§30-5.1.c.3

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

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

20. Facility-Wide Applicable Requirements (Continued) - Attach additional pages as necessary.

List all facility-wide applicable requirements. For each applicable requirement, include the rule citation and/or permit with the condition number.

Permit Shield

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

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

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

22. Inactive Permits/Obsolete Permit Conditions

Permit Number	Date of Issuance	Permit Condition Number
	MM/DD/YYYY	
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Section 3: Facility-Wide Emissions

23. Facility-Wide Emissions Summary [Tons per Year]	
Criteria Pollutants	Potential Emissions
Carbon Monoxide (CO)	245.72
Nitrogen Oxides (NO _x)	115.15
Lead (Pb)	0.02
Particulate Matter (PM _{2.5}) ¹	16.06
Particulate Matter (PM ₁₀) ¹	34.75
Total Particulate Matter (TSP)	154.59
Sulfur Dioxide (SO ₂)	95.11
Volatile Organic Compounds (VOC)	224.0 (Permit Limit)
Hazardous Air Pollutants ²	Potential Emissions
Hydrogen Chloride (HCl)	8.12
Formaldehyde	1.89
Total HAP	24.4 (Permit Limit)
Regulated Pollutants other than Criteria and HAP	Potential Emissions
N/A	

¹PM_{2.5} and PM₁₀ are components of TSP.
²For HAPs that are also considered PM or VOCs, emissions should be included in both the HAPs section and the Criteria Pollutants section.

Section 4: Insignificant Activities

24. Insignificant Activities (Check all that apply)	
<input checked="" type="checkbox"/>	1. Air compressors and pneumatically operated equipment, including hand tools.
<input type="checkbox"/>	2. Air contaminant detectors or recorders, combustion controllers or shutoffs.
<input checked="" type="checkbox"/>	3. Any consumer product used in the same manner as in normal consumer use, provided the use results in a duration and frequency of exposure which are not greater than those experienced by consumer, and which may include, but not be limited to, personal use items; janitorial cleaning supplies, office supplies and supplies to maintain copying equipment.
<input checked="" type="checkbox"/>	4. Bathroom/toilet vent emissions.
<input checked="" type="checkbox"/>	5. Batteries and battery charging stations, except at battery manufacturing plants.
<input checked="" type="checkbox"/>	6. Bench-scale laboratory equipment used for physical or chemical analysis, but not lab fume hoods or vents. Many lab fume hoods or vents might qualify for treatment as insignificant (depending on the applicable SIP) or be grouped together for purposes of description.
<input type="checkbox"/>	7. Blacksmith forges.
<input checked="" type="checkbox"/>	8. Boiler water treatment operations, not including cooling towers.
<input checked="" type="checkbox"/>	9. Brazing, soldering or welding equipment used as an auxiliary to the principal equipment at the source.
<input type="checkbox"/>	10. CO ₂ lasers, used only on metals and other materials which do not emit HAP in the process.
<input checked="" type="checkbox"/>	11. Combustion emissions from propulsion of mobile sources, except for vessel emissions from Outer Continental Shelf sources.
<input checked="" type="checkbox"/>	12. Combustion units designed and used exclusively for comfort heating that use liquid petroleum gas or natural gas as fuel.
<input checked="" type="checkbox"/>	13. Comfort air conditioning or ventilation systems not used to remove air contaminants generated by or released from specific units of equipment.
<input checked="" type="checkbox"/>	14. Demineralized water tanks and demineralizer vents.
<input checked="" type="checkbox"/>	15. Drop hammers or hydraulic presses for forging or metalworking.
<input checked="" type="checkbox"/>	16. Electric or steam-heated drying ovens and autoclaves, but not the emissions from the articles or substances being processed in the ovens or autoclaves or the boilers delivering the steam.
<input type="checkbox"/>	17. Emergency (backup) electrical generators at residential locations.
<input type="checkbox"/>	18. Emergency road flares.
<input checked="" type="checkbox"/>	<p>19. Emission units which do not have any applicable requirements and which emit criteria pollutants (CO, NO_x, SO₂, VOC and PM) into the atmosphere at a rate of less than 1 pound per hour and less than 10,000 pounds per year aggregate total for each criteria pollutant from all emission units.</p> <p>Please specify all emission units for which this exemption applies along with the quantity of criteria pollutants emitted on an hourly and annual basis:</p> <p><u>(38) Steam-heated drying kilns (0.1 lb/hr & 0.43 tpy VOC each)</u></p> <p><u>(2) 1.6 MMBtu/hr natural gas stain ovens (<1 lb/hr and 10,000 lbs/yr for all criteria pollutants)</u></p> <p><u>1.0 MMBtu/hr natural gas drying oven (<1 lb/hr and 10,000 lbs/yr for all criteria pollutants)</u></p> <p><u>Pre-heater kiln (0.67 lb/hr & 2.92 tpy VOC)</u></p> <p><u>500-gal gasoline storage tank and dispensing station <60,000 gal/yr (0.034 lb/hr & 0.15 tpy VOC)</u></p> <p><u>(2) 1000-gal diesel storage tanks dispensing < 240,000 gal/yr (0.00032 lb/hr & 0.0014 tpy VOC)</u></p> <p><u>(4) 275-gal Lube Oil Tanks (0.000065 lb/hr & 0.00028 tpy VOC per tank)</u></p> <p><u>300-gal Hydraulic Fluid South Stacker (0.000039 lb/hr & 0.00017 tpy VOC)</u></p> <p><u>300-gal Hydraulic Fluid North Stacker (0.000039 lb/hr & 0.00017 tpy VOC)</u></p> <p><u>Boiler Ash Dumpster Fugitive Emissions (0.68 lb/hr & 3.0 tpy PM/PM-10)</u></p> <p><u>Solvent Reclaim Unit (<1 lb/hr & 0.02 tpy VOC)</u></p>

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

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

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

25. Equipment Table
Fill out the Title V Equipment Table and provide it as ATTACHMENT D .
26. Emission Units
For each emission unit listed in the Title V Equipment Table , fill out and provide an Emission Unit Form as ATTACHMENT E .
For each emission unit not in compliance with an applicable requirement, fill out a Schedule of Compliance Form as ATTACHMENT F .
27. Control Devices
For each control device listed in the Title V Equipment Table , fill out and provide an Air Pollution Control Device Form as ATTACHMENT G .
For any control device that is required on an emission unit in order to meet a standard or limitation for which the potential pre-control device emissions of an applicable regulated air pollutant is greater than or equal to the Title V Major Source Threshold Level, refer to the Compliance Assurance Monitoring (CAM) Form(s) for CAM applicability. Fill out and provide these forms, if applicable, for each Pollutant Specific Emission Unit (PSEU) as ATTACHMENT H .

Section 6: Certification of Information

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

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

a. Certification of Truth, Accuracy and Completeness

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

b. Compliance Certification

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

Responsible official (type or print)

Name: Steven Bullock

Title: Plant Manager

Responsible official's signature:

Signature: _____

Signature Date: 7/14/2017

(Must be signed and dated in blue ink)

Note: Please check all applicable attachments included with this permit application:

- | | |
|-------------------------------------|---|
| <input checked="" type="checkbox"/> | ATTACHMENT A: Area Map |
| <input checked="" type="checkbox"/> | ATTACHMENT B: Plot Plan(s) |
| <input checked="" type="checkbox"/> | ATTACHMENT C: Process Flow Diagram(s) |
| <input checked="" type="checkbox"/> | ATTACHMENT D: Equipment Table |
| <input checked="" type="checkbox"/> | ATTACHMENT E: Emission Unit Form(s) |
| <input type="checkbox"/> | ATTACHMENT F: Schedule of Compliance Form(s) |
| <input checked="" type="checkbox"/> | ATTACHMENT G: Air Pollution Control Device Form(s) |
| <input type="checkbox"/> | ATTACHMENT H: Compliance Assurance Monitoring (CAM) Form(s) |

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

ATTACHMENT A
AREA MAP



Armstrong Flooring, Inc. – Beverly Plant
P.O. Box 160
Beverly, WV 26253

AREA MAP
TITLE V PERMIT APPLICATION

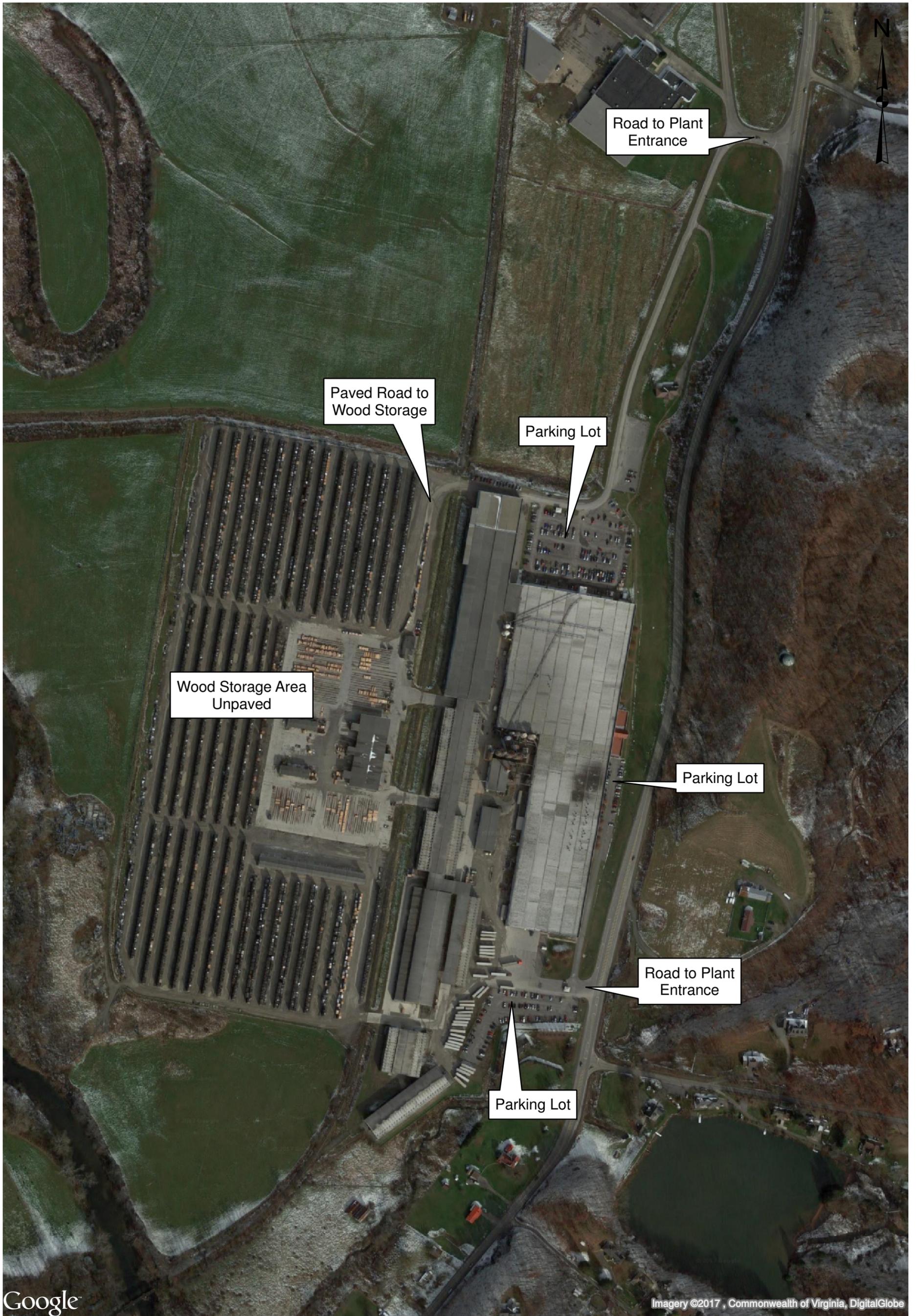
ATTACHMENT B
PLOT PLAN



Armstrong Flooring, Inc. – Beverly Plant
 Beverly, West Virginia

Site Map

Attachment B - Figure No. 1



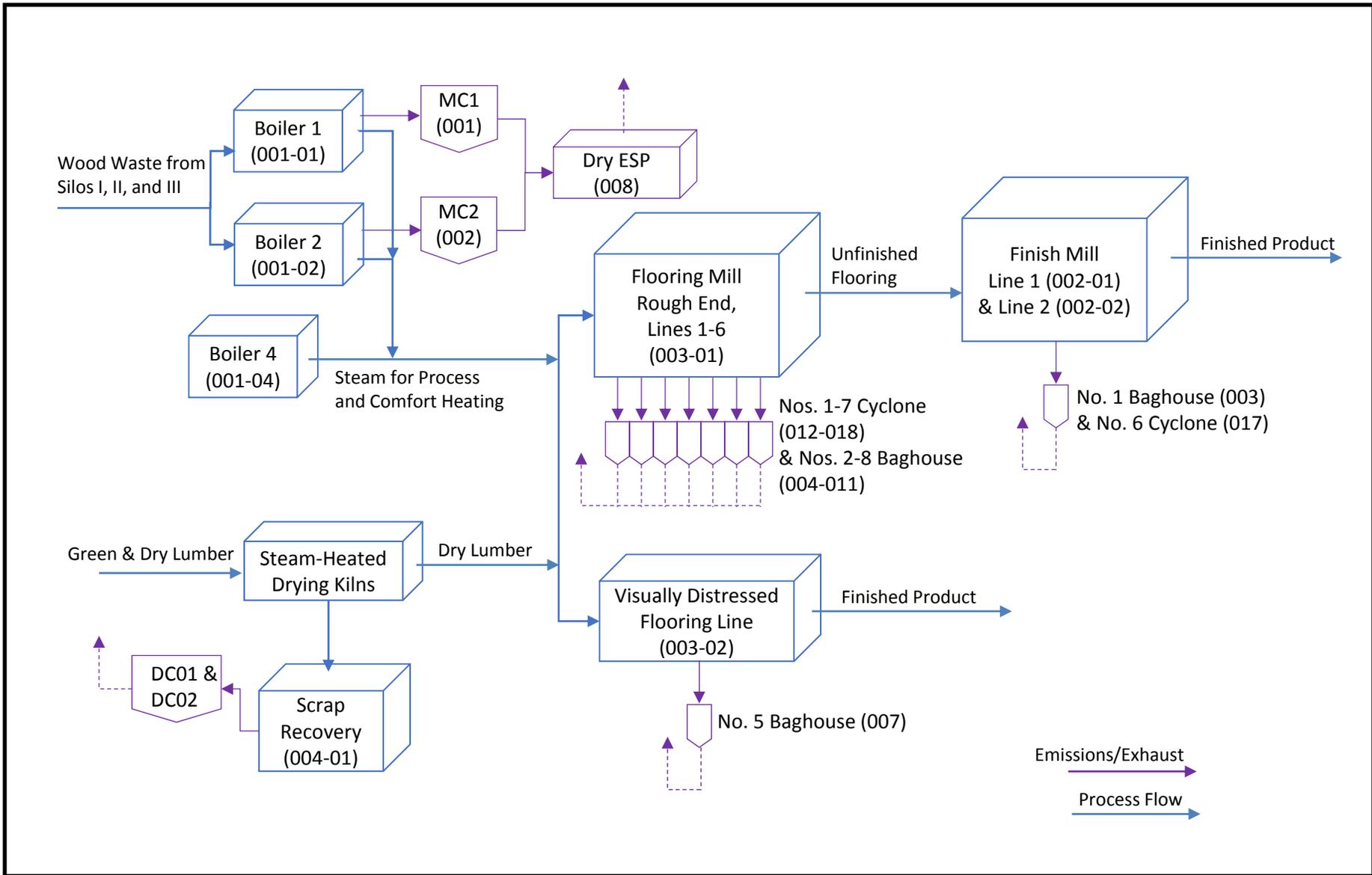
0 200 400 800 Feet
1" = 400'

Armstrong Flooring, Inc. - Beverly Plant
Beverly, West Virginia

**Plot Plan
(Roads and Parking Lot)**

Attachment B - Figure No. 2

ATTACHMENT C
PROCESS FLOW DIAGRAM



1050 Crown Pointe Parkway
 Suite 550
 Atlanta, GA 30338
 Phone (404) 315-9113
 Fax (404) 315-8509

Armstrong Flooring, Inc. – Beverly Plant
 Route 250 South
 Beverly, WV 26253

Process Flow Diagram

ATTACHMENT

C

ATTACHMENT D
EQUIPMENT TABLE

ATTACHMENT D - Title V Equipment Table
(includes all emission units at the facility except those designated as
insignificant activities in Section 4, Item 24 of the General Forms)

Emission Point ID ¹	Control Device ¹	Emission Unit ID ¹	Emission Unit Description	Design Capacity	Year Installed/Modified
S08	Dry ESP (008)	001-01	No. 1 Wood-Fired Boiler	48.8 MMBtu/hr	1990
S08	Dry ESP (008)	001-02	No. 2 Wood-Fired Boiler	48.8 MMBtu/hr	1990
S34	N/A	001-04	Natural Gas-Fired Boiler	33.5 MMBtu/hr	2016
S03	No. 1 Baghouse (003)	002-01	No. 1 Finish Line	8,500 ft ² /hr	1993
S03	No. 1 Baghouse (003)	002-02	No. 2 Finish Line	8,500 ft ² /hr	1993
S12.04 Connected to S03	No. 1 Baghouse (003)	002-04A	Soft Scrape Cell	5,000 ft ² /shift	2010
S04 – S11	Baghouses (004-007, 09-011)	003-01	Flooring Mill	350,000 ft ² /day (Output)	1990
S07 & S29 – S33	N/A	003-02	Visually Distressed Flooring Line (planer, de-nibber, sander, scuffer, vacuum coater)	3,620 ft ² /hr	Modified 2016
S07	No. 5 Baghouse (007)	003-03	Visually distressed Flooring Line (planer, sander, brushing, rework)	3,620 ft ² /hr	2014
FUG	Dust Collection System DC01 & DC02	004-01	Yard Operations – Scrap Recovery	6,640 ft ² /hr	2017
S35	N/A	005-01	Natural Gas Emergency Generator	22 kW (29.5 hp)	2017
Control Devices					
S08	008	N/A	Dry Electrostatic Precipitator – Services No. 1 & No. 2 Boilers	9.6 KW	2003
S03	003	N/A	No. 1 Baghouse (Services No. 1 and No. 2 Finish Line Sanders)	79,556 acfm	1993
S04	004	N/A	No. 2 Baghouse (Services No. 2 & No.5 Flooring Mill Lines & Flooring Mill Rough End)	49,701 acfm	1990
S05	005	N/A	No. 3 Baghouse (Services No. 2 Wood Hog and No. 5 Wood Hog (No. 4 Cyclone), No. 5 & No. 6 Flooring Mill Lines)	57,077 acfm	1990
S06	006	N/A	No. 4 Baghouse (Services No. 3 Wood Hog (No. 3 Cyclone)	27,489 acfm	1990
S07	007	N/A	No. 5 Baghouse (Services No. 3 Flooring Mill Line & Visually Distressed Flooring Line)	43,295 acfm	2003
S09	009	N/A	No. 6 Baghouse (Services No. 4 Wood Hog (No. 1 Cyclone) & No. 1 Wood Hog (No. 5 Cyclone)) & Main Relay Line (No. 6 Cyclone)	59,748 acfm	2005
S10	010	N/A	No. 7 Baghouse (Services No.1 Flooring Mill Line, Rough End & No. 1 Wood Hog (No. 7 Cyclone))	49,857 acfm	2005
S11	011	N/A	No. 8 Baghouse (Services Flooring Mill Rough End)	68,597 acfm	2005
S09	012	N/A	No. 1 Cyclone (From No. 4 Wood Hog to Silo II)	24,100 acfm	1990
S05	018	N/A	No. 2 Cyclone (Boilers/ESP to Silo III)	27,489 acfm	1990
S06	013	N/A	No. 3 Cyclone (From No. 3 Wood Hog to Silo III)	6,500 acfm	2005

ATTACHMENT D - Title V Equipment Table
(includes all emission units at the facility except those designated as insignificant activities in Section 4, Item 24 of the General Forms)

Emission Point ID ¹	Control Device ¹	Emission Unit ID ¹	Emission Unit Description	Design Capacity	Year Installed/Modified
S07	014	N/A	No. 4 Cyclone (From No. 2 Wood Hog to No. 1 Cyclone)	16,157 acfm	2005
S09	016	N/A	No. 5 Cyclone (From No. 7 Cyclone (No. 1 Wood Hog) to Silo I)	4,768 acfm	2005
S09	017	N/A	No. 6 Cyclone (From No. 1, 2, 3, 4, & 5 Baghouse to No. 6 Baghouse)	27,490 acfm	2005
S10	015	N/A	No. 7 Cyclone (From No. 1 Wood Hog, Exhaust to No. 7 Baghouse)	24,100 acfm	1990
---	DC01	N/A	Dust Collection System (DC-01) Nederman, Model No. S-750 (From Yard Operation – Scrap Recovery)	3,500 scfm	2017
---	DC02	N/A	Dust Collection System (DC-02) Nederman, Model No. S-1000 (From Yard Operation – Scrap Recovery)	5,000 scfm	2017

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

ATTACHMENT E
EMISSION UNIT FORMS

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number: 001-01	Emission unit name: No. 1 Wood-Fired Boiler	List any control devices associated with this emission unit: Cyclone No. 2, Dry EPS (008) Electrostatic Precipitator (008)
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Provide a description of the emission unit (type, method of operation, design parameters, etc.):
 The No. 1 Boiler is a wood-fired boiler equipped with 7,600 square feet of heat surface for generating steam from the combustion of wood waste. Sawdust and wood waste from mill operations are collected in silos and burned as fuel in this boiler. The boiler is designed to generate a maximum of 37,110 pounds per hour of steam by burning a maximum of 6,445 pounds per hour of hogged fuel. The boiler is rated for 1,200 horsepower. Wood waste can contain trace amounts of stains and coating from plant processes.

Manufacturer: Industrial Boiler Co., Inc.	Model number: 3-7600-300	Serial number: H-7600-03
Construction date: 10/31/1989	Installation date: 04/01/1990	Modification date(s): 03/10/2003

Design Capacity (examples: furnaces - tons/hr, tanks - gallons):
 48.8 million BTU per hour heat input.
 37,110 pounds per hour steam production.
 6,445 pounds per hour of hogged fuel feed to boiler.

Maximum Hourly Throughput: 48.8 MMBTU	Maximum Annual Throughput: 427,488 MMBTU	Maximum Operating Schedule: 8,760 hours per year
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Fuel Usage Data (fill out all applicable fields)

Does this emission unit combust fuel? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes, is it? <input checked="" type="checkbox"/> Indirect Fired <input type="checkbox"/> Direct Fired
Maximum design heat input and/or maximum horsepower rating: 6,445 pounds per hour of hogged fuel design input 1,200 horsepower.	Type and Btu/hr rating of burners: 1,200 horsepower HRT firetube 48.8 MMBTU per hour.

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
 Primary fuel is supplied by hogged fuel and/or planer shavings generated on site. The maximum hourly fuel usage is 6,445 pounds per hour of hogged fuel and the maximum annual fuel usage is 28,299 short tons of hogged fuel per year. There are no secondary fuels for this boiler.

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

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Hogged Fuel	0.05%	0.75%	7,570

<i>Emissions Data</i>		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	25.78 (Permit Limit = 51.56 No.1 & No. 2 Boilers combined)	112.92 (Permit Limit = 225.83 No.1 & No. 2 Boilers combined)
Nitrogen Oxides (NO _x)	12.10 (Permit Limit = 24.20 No.1 & No. 2 Boilers combined)	53.00 (Permit Limit = 106.00 No.1 & No. 2 Boilers combined)
Lead (Pb)	0.002	0.01
Particulate Matter (PM _{2.5})	2.54	11.11
Particulate Matter (PM ₁₀)	2.78	12.18
Total Particulate Matter (TSP)	8.17 (Permit Limit = 16.34 No.1 & No. 2 Boilers combined)	35.78 (Permit Limit = 71.57 No.1 & No. 2 Boilers combined)
Sulfur Dioxide (SO ₂)	32.29 (Permit Limit = 64.58 No.1 & No. 2 Boilers combined)	47.51 (Permit Limit = 95.01 No.1 & No. 2 Boilers combined)
Volatile Organic Compounds (VOC)	4.51 (Permit Limit = 9.02 No.1 & No. 2 Boilers combined)	19.76 (Permit Limit = 39.52 No.1 & No. 2 Boilers combined)
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Acrolein	0.20	0.88
Benzene	0.21	0.90
Formaldehyde	0.22	0.94
Hydrogen Chloride (HCl)	0.93	4.08
Total HAP	1.87	8.19
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
<p>List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).</p> <ul style="list-style-type: none"> Total particulate and PM-10 emission rates are based on emission factors for electrostatic precipitator from AP-42 Table 1.6-1, September 2003 revision. Carbon monoxide, NO_x, and sulfur dioxide emission rates are based on emission factors for dry wood-fired boilers from AP-42 Table 1.6-2, September 2003 revision. Hazardous Air Pollutant emission rates are based on emission factors from AP-42 Table 1.6-3, September 2003 revision. The lead emission rate is based on the emission factor from AP-42 Table 1.6-4, September 2003 revision. All emission calculations are based on maximum boiler design heat input rate of 48.8 MMBTU per hour and 8,760 hours of operation per year. 		

Applicable Requirements

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

R13-1147 §4.1.1

- Emissions controlled by electrostatic precipitator (ESP).
- Only Boiler 001-01 or 001-02 can be operated during unavoidable malfunction or maintenance of ESP.
- Keep records of ESP shutdown and which of two boilers operating during this period.

R13-1147 §4.1.2

- Maximum emissions from ESP limited to above rates.

R13-1147 §4.1.5, §4.1.6, §4.1.7, and §4.1.8; 45CSR2 §3.1, §3.2, §3.3 §5.1, and §9.2

- Opacity not to exceed 10% based on a six minute block average.
- Opacity requirement determined per 40CFR60, Appendix A, Method 9 or continuous opacity monitoring systems approved by Director.
- Director may approve alternate visible emission standard up to 30% for soot blowing or cleaning of fire box.
- Fugitive particulate matter sources require a fugitive particulate matter control system.
- During start-ups, shutdowns or malfunctions, maintain and operate boiler and ESP consistent with good air pollution control practice for minimizing emissions.

R13-1147 §4.1.9; 45CSR10 §3.4.a

- Individual stack shall not exceed 25% the emission rate determined by prorating total allowable emission rate specified by 45CSR10.

Permit Shield

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

Monitoring Requirements:

- Perform weekly Method 22 visible emission reading during normal operations. If emissions observed during weekly visible emissions check, perform Method 9 reading as soon as practicable, but within 72 hours.
- Perform Method 9 visible emission reading during soot blowing operating if variance in limitation 4.1.7 applies.

Testing Requirements:

- Director may require testing or conduct testing to determine compliance.

Recordkeeping Requirements

- Maintain records of visible emission monitoring data and opacity evaluations.
- Maintain records of operating schedule and the quantity and quality of wood consumed.

Reporting Requirements:

- Report violations of allowable visible emissions requirements within 10 days calendar days.
- Report malfunctions of boiler or ESP that results in excess particulate matter emissions or opacity in the time frame and manner per 45CSR2 §9.3.

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

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

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number: 001-02	Emission unit name: No. 2 Wood-Fired Boiler	List any control devices associated with this emission unit: Cyclone No. 2, Dry EPS (008) Electrostatic Precipitator (008)
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Provide a description of the emission unit (type, method of operation, design parameters, etc.):
 The No. 2 Boiler is a wood-fired boiler equipped with 7,600 square feet of heat surface for generating steam from the combustion of wood waste. Sawdust and wood waste from mill operations are collected in silos and burned as fuel in this boiler. The boiler is designed to generate a maximum of 37,110 pounds per hour of steam by burning a maximum of 6,445 pounds per hour of hogged fuel. The boiler is rated for 1,200 horsepower. Wood waste can contain trace amounts of stains and coatings from plant processes.

Manufacturer: Industrial Boiler Co., Inc.	Model number: 3-7600-300	Serial number: H-7600-03
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Construction date: 10/31/1989	Installation date: 04/01/1990	Modification date(s): 03/10/2003
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Design Capacity (examples: furnaces - tons/hr, tanks - gallons):
 48.8 million BTU per hour heat input.
 37,110 pounds per hour steam production.
 6,445 pounds per hour of hogged fuel feed to boiler

Maximum Hourly Throughput: 48.8 MMBTU	Maximum Annual Throughput: 427,488 MMBTU	Maximum Operating Schedule: 8,760 hours per year
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Fuel Usage Data (fill out all applicable fields)

Does this emission unit combust fuel? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes, is it? <input checked="" type="checkbox"/> Indirect Fired <input type="checkbox"/> Direct Fired
--	---

Maximum design heat input and/or maximum horsepower rating: 6,445 pounds per hour of hogged fuel design input 1,200 horsepower.	Type and Btu/hr rating of burners: 1,200 horsepower HRT firetube 48.8 MMBTU per hour.
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List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
 Primary fuel is supplied by hogged fuel and/or planer shavings generated on site. The maximum hourly fuel usage is 6,445 pounds per hour of hogged fuel, and the maximum annual fuel usage is 28,299 short tons of hogged fuel per year. There are no secondary fuels for this boiler.

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

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Hogged Fuel	0.05%	0.75%	7,570

<i>Emissions Data</i>		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	25.78 (Permit Limit = 51.56 No.1 & No. 2 Boilers combined)	112.92 (Permit Limit = 225.83 No.1 & No. 2 Boilers combined)
Nitrogen Oxides (NO _x)	12.10 (Permit Limit = 24.20 No.1 & No. 2 Boilers combined)	53.00 (Permit Limit = 106.00 No.1 & No. 2 Boilers combined)
Lead (Pb)	0.002	0.01
Particulate Matter (PM _{2.5})	2.54	11.11
Particulate Matter (PM ₁₀)	2.78	12.18
Total Particulate Matter (TSP)	8.17 (Permit Limit = 16.34 No.1 & No. 2 Boilers combined)	35.78 (Permit Limit = 71.57 No.1 & No. 2 Boilers combined)
Sulfur Dioxide (SO ₂)	32.29 (Permit Limit = 64.58 No.1 & No. 2 Boilers combined)	47.51 (Permit Limit = 95.01 No.1 & No. 2 Boilers combined)
Volatile Organic Compounds (VOC)	4.51 (Permit Limit = 9.02 No.1 & No. 2 Boilers combined)	19.76 (Permit Limit = 39.52 No.1 & No. 2 Boilers combined)
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Acrolein	0.20	0.88
Benzene	0.21	0.90
Formaldehyde	0.22	0.94
Hydrogen Chloride (HCl)	0.93	4.08
Total HAP	1.87	8.19
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
<p>List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).</p> <ul style="list-style-type: none"> • Total particulate and PM-10 emission rates are based on emission factors for electrostatic precipitator from AP-42 Table 1.6-1, September 2003 revision. • Carbon monoxide, NO_x, and sulfur dioxide emission rates are based on emission factors for dry wood-fired boilers from AP-42 Table 1.6-2, September 2003 revision. • Hazardous Air Pollutant emission rates are based on emission factors from AP-42 Table 1.6-3, September 2003 revision. • The lead emission rate is based on the emission factor from AP-42 Table 1.6-4, September 2003 revision. • All emission calculations are based on maximum boiler design heat input rate of 48.8 MMBTU per hour and 8,760 hours of operation per year. 		

Applicable Requirements

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

R13-1147 §4.1.1

- Emissions controlled by electrostatic precipitator (ESP).
- Only Boiler 001-01 or 001-02 can be operated during unavoidable malfunction or maintenance of ESP.
- Keep records of ESP shutdown and which of two boilers operating during this period.

R13-1147 §4.1.2

- Maximum emissions from ESP limited to above rates.

R13-1147 §4.1.5, §4.1.6, §4.1.7, and §4.1.8; 45CSR2 §3.1, §3.2, §3.3 §5.1, and §9.2

- Opacity not to exceed 10% based on a six-minute block average.
- Opacity requirement determined per 40CFR60, Appendix A, Method 9 or continuous opacity monitoring systems approved by Director.
- Director may approve alternate visible emission standard up to 30% for soot blowing or cleaning of firebox.
- Fugitive particulate matter sources require a fugitive particulate matter control system.
- During start-ups, shutdowns or malfunctions, maintain and operate boiler and ESP consistent with good air pollution control practice for minimizing emissions.

R13-1147 §4.1.9; 45CSR10 §3.4.a

- Individual stack shall not exceed 25% the emission rate determined by prorating total allowable emission rate specified by 45CSR10.

Permit Shield

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

Monitoring Requirements:

- Perform weekly Method 22 visible emission reading during normal operation. If emissions observed during weekly visible emissions check, perform Method 9 reading as soon as practicable, but within 72 hours.
- Perform Method 9 visible emission reading during soot blowing operating if variance in limitation 4.1.7 applies.

Testing Requirements:

- Director may require testing or conduct testing to determine compliance.

Recordkeeping Requirements:

- Maintain records of visible emission monitoring data and opacity evaluations.
- Maintain records of operating schedule and the quantity and quality of wood consumed.

Reporting Requirements:

- Report violations of allowable visible emissions requirements within 10 days calendar days.
- Report malfunctions of boiler or ESP that results in excess particulate matter emissions or opacity in the time frame and manner per 45CSR2 §9.3.

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

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

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number: 001-04	Emission unit name: Natural Gas-Fired Boiler	List any control devices associated with this emission unit:
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Provide a description of the emission unit (type, method of operation, design parameters, etc.):
 The natural gas-fired portable boiler will serve as a backup unit to operate only when needed.
 Design Steam flow = 27,600 lbs per hour.

Manufacturer: Cleaver Brooks	Model number: CBRLE200-800	Serial number: T4977-1-1
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Construction date: 2016	Installation date: 07/01/2016	Modification date(s):
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Design Capacity (examples: furnaces - tons/hr, tanks - gallons):
 33.5 MMBtu/hr heat input.

Maximum Hourly Throughput: 33.5 MMBtu/hr	Maximum Annual Throughput: 293,460 MMBTU	Maximum Operating Schedule: 8,760 hours per year
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Fuel Usage Data (fill out all applicable fields)

Does this emission unit combust fuel? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes, is it? <input checked="" type="checkbox"/> Indirect Fired <input type="checkbox"/> Direct Fired
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Maximum design heat input and/or maximum horsepower rating: 33.5 MMBtu/hr or 800 horsepower	Type and Btu/hr rating of burners: Natural gas – 33.5 MMBtu/hr
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List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
 Natural gas – 33,480 scf/hr or 293 MMcf/yr

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

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	<2 grains per 1,000 scf	N/A	1,020 BTU/scf

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	2.76	12.08
Nitrogen Oxides (NO _x)	1.64	7.19
Lead (Pb)	N/A	N/A
Particulate Matter (PM _{2.5})	0.25	1.09
Particulate Matter (PM ₁₀)	0.25	1.09
Total Particulate Matter (TSP)	0.25	1.09
Sulfur Dioxide (SO ₂)	0.02	0.09
Volatile Organic Compounds (VOC)	0.18	0.79
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Formaldehyde	0.002	0.01
Hexane	0.06	0.26
Total HAP	0.06	0.28
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
<p>List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).</p> <ul style="list-style-type: none"> PM, PM10, PM2.5, SO2, and VOC emission rates were calculated from US EPA AP-42 emission factors from Table 1.4-2. CO and NOx emission rates were calculated from US EPA AP-42 emission factors from Table 1.4-1 for low-NOx small boilers. All emission calculations are based on maximum boiler design heat input rate and 8,760 hours of operation per year. 		

Applicable Requirements

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

R13-1147 §4.1.3

- The boiler shall burn only natural gas at rates not to exceed 32,850 scf/hr and 287.7 MMscf/yr.

R13-1147 §4.1.5, §4.1.6, §4.1.7, and §4.1.8; 45CSR2 §3.1, §3.2, §3.3 §5.1, and §9.2

- Opacity not to exceed 10% based on a six-minute block average.
- Opacity requirement determined per 40CFR60, Appendix A, Method 9 or continuous opacity monitoring systems approved by Director.
- Fugitive particulate matter sources require a fugitive particulate matter control system.
- During start-ups, shutdowns or malfunctions, maintain and operate boiler consistent with good air pollution control practice for minimizing emissions.

Permit Shield

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

Monitoring Requirements:

- Perform weekly Method 22 visible emission reading during normal operations. If emissions observed during visible emissions check, perform Method 9 reading as soon as practicable, but within 72 hours.

Recordkeeping Requirements:

- Maintain records of visible emission monitoring data and opacity evaluations.
- Maintain records of operating schedule and the quantity of natural gas consumed on a monthly basis.

Reporting Requirements:

- Report violations of allowable visible emissions requirements within 10 days calendar days.
- Report any malfunctions that result in excess particulate matter emissions rate or excess opacity and include required information regarding magnitude of exceedance, date and time of occurrence, factors involved or cause of the malfunction, and corrective actions taken.

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

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

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number: 002-01	Emission unit name: No. 1 Finishing Line	List any control devices associated with this emission unit: Baghouse No. 1 (003)
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Provide a description of the emission unit (type, method of operation, design parameters, etc.):
 Unfinished hardwood flooring is supplied to the No. 1 Finishing Line for sanding, staining, sealing, application of topcoat, and packaging for shipment. The No. 1 Line contains (3) three-head de-nibbers , a fill coater, a stain rollcoater unit with stain applicators and a two-zone, 1.6 MMBtu/hr natural gas-fired high velocity stain cure oven; a sealer rollcoater unit with hooded roll applicators and UV cure oven; a hooded topcoat rollcoater and UV cure oven; and two-stage hooded topcoat rollcoater.

Manufacturer: DuBois Machine Company	Model number: Custom	Serial number: 2909
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Construction date: 12/15/1993	Installation date: 12/15/1993	Modification date(s): 01/25/2005 & 2009
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Design Capacity (examples: furnaces - tons/hr, tanks - gallons): The No. 1 Finishing Line is designed to produce 8,500 square feet of finished hardwood flooring per hour, equivalent to 74,460,000 square feet per year.

Maximum Hourly Throughput: 8,500 Square Feet	Maximum Annual Throughput: 74,460,000 Square Feet	Maximum Operating Schedule: 8,760 hours per year
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Fuel Usage Data (fill out all applicable fields)

Does this emission unit combust fuel? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes, is it? <input checked="" type="checkbox"/> Indirect Fired <input type="checkbox"/> Direct Fired
--	---

Maximum design heat input and/or maximum horsepower rating: 1.6 MMBTU per hour	Type and Btu/hr rating of burners: 1,600,000 BTU per hour gas burner
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List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.

The two-zone, natural gas-fired high velocity stain cure oven has been converted to operate with indirect heat supplied by steam generated from emission units 001-01 and 001-02. When steam is not available to heat the stain cure oven, the oven can be heated by firing natural gas.

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

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	<2 grains per 1,000 scf	N/A	1,020 BTU/scf

<i>Emissions Data</i>		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	0.13	0.58
Nitrogen Oxides (NO _x)	0.16	0.69
Lead (Pb)	<0.001	<0.001
Particulate Matter (PM _{2.5})	N/A	N/A
Particulate Matter (PM ₁₀)	0.69 (Lines 1 & 2 Totals)	3.04 (Lines 1 & 2 Totals)
Total Particulate Matter (TSP)	3.42 (Lines 1 & 2 Totals)	14.98 (Lines 1 & 2 Totals)
Sulfur Dioxide (SO ₂)	0.001	0.004
Volatile Organic Compounds (VOC)	88.54 (Lines 1 & 2 Totals)	204.5 (Lines 1 & 2 Totals)
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Total HAP (Lines 1 & 2)	5.64 Single HAP	7.94 Aggregated HAPs
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
<p>List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).</p> <ul style="list-style-type: none"> • Total particulate emissions are calculated from the baghouse air flow rate and the design exhaust grain loading for the No. 1 Baghouse. • The PM-10 emissions are calculated by multiplying the total particulate emissions by a factor of 0.20 (based on assumption that PM-10 is 20% of total particulate emissions). • Carbon monoxide, sulfur dioxide, lead and nitrogen oxide emissions are based on emission factors for natural gas combustion from AP-42 Tables 1.4-1 and 1.4-2. • Emission rates for VOC and HAP list established permit limits for the two finishing lines combined. 		

Applicable Requirements

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

R13-1147 §6.1.1, §6.1.2, §6.1.3, and §6.1.4

- Particulate matter, VOC, and HAP permitted emissions limits are listed above.

R13-1147 §6.1.5

- Finish Lines No. 1 and No. 2 are each limited to 8,500 ft²/hr. Compliance with annual process rate determined using 12-month rolling total.

R13-1147 §6.1.6

- Soft Scrape Cell (ID 002-04A) shall be connected to Finish Line No. 1 and only operated when one of the denibbers on Finish Line No. 1 is not operating.

R13-1147 §6.1.7, §6.1.8, and §6.1.9; 45CSR7 §3.1, §3.7, and §5.1

- Opacity not to exceed 20% except as noted in 45CSR7 Section 3.
- Visible emissions from any storage structure are required to have a full enclosure and equipment with particulate matter control device.
- Minimize particulate matter fugitive emissions from manufacturing process or storage structure by using process equipment design, control equipment design, or operation and maintenance procedures.

Permit Shield

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

Monitoring Requirements:

- Perform weekly Method 22 visible emission reading for emission point S03 during normal operations. If emissions observed during test, conduct opacity reading per 45CSR7A as soon as practicable, but within 72 hours.
- Operate and maintain No. 1 Baghouse in accordance with manufacturer's specification to ensure proper operation and 99.9% control efficiency. Includes replacement of broken bags, proper fan operations, prompt replace of fans and ductwork, and daily inspections and pressure drop readings. Baghouse's normal operating pressure drop range is 0.2 to 0.65 inches of water.
- Maintain monthly records of natural gas usage for Stain Ovens (002-01C and 002-02C) and production records for Finish Lines No. 1 and No. 2.
- Calibration gauges for the No. 1 Baghouse will be checked at least once per year to ensure accurate readings.

Recordkeeping Requirements:

- Maintain monthly records of name and usage of each material applied, VOC content of each material, and hours of operation of each coating line. Additionally, within 30 days of the end of the calendar month prepare summary report of the average hourly, monthly, and rolling 12 month VOC mass emission rates and hours of operation for application of materials.
- Maintain monthly records of the name and material usage of each HAP containing material as applied speciated HAP content of each material, and hours of operation of each coating line. Additionally, within 30 days of the end of the calendar month prepare summary report of the average hourly, monthly, and rolling 12 month aggregated and speciated HAP mass emission rates and hours of operation for application of materials.
- Maintain records of the amount of material processed on Finish Line No. 1 and No. 2 respectively.
- Maintain records of all visible emission monitoring data.
- Maintain records of baghouse monitoring data involved with proper operations, daily inspections, and pressure drop reading as well as calibration records for the gauges.
- Maintain copies of SDS, certified product data sheets, or manufacturer's formulations for each surface coating, fill coating, clean-up solvent, and other related materials.

Reporting Requirements:

- Report violations of allowable visible emissions requirements within 10 days calendar days.

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

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

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number: 002-02	Emission unit name: No. 2 Finishing Line	List any control devices associated with this emission unit: Baghouse No. 1 (003)
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Provide a description of the emission unit (type, method of operation, design parameters, etc.):
 Unfinished hardwood flooring is supplied to the No. 2 Finishing Line for sanding, staining, sealing, application of topcoat, and packaging for shipment. The No. 2 Line contains a stain rollcoater unit with stain applicators and a two-zone, natural gas-fired high velocity stain cure oven; a sealer rollcoater unit with hooded roll applicators and UV cure oven; a hooded topcoat rollcoater and UV cure oven; and two-stage hooded topcoat rollcoater.

Manufacturer: DuBois Machine Company	Model number: Custom	Serial number: 3264
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Construction date: 12/15/1993	Installation date: 12/15/1993	Modification date(s): 01/25/2005
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Design Capacity (examples: furnaces - tons/hr, tanks - gallons): The No. 2 Finishing Line is designed to produce 8,500 square feet of finished hardwood flooring per hour, equivalent to 74,460,000 square feet per year.

Maximum Hourly Throughput: 8,500 Square Feet	Maximum Annual Throughput: 74,460,000 Square Feet	Maximum Operating Schedule: 8,760 hours per year
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Fuel Usage Data (fill out all applicable fields)

Does this emission unit combust fuel? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes, is it? <input checked="" type="checkbox"/> Indirect Fired <input type="checkbox"/> Direct Fired
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Maximum design heat input and/or maximum horsepower rating: 1.6 MMBTU per hour	Type and Btu/hr rating of burners: 1,600,000 BTU per hour gas burner
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List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
 The two-zone, natural gas-fired high velocity stain cure oven has been converted to operate with indirect heat supplied by steam generated from emission units 001-01 and 001-02. When steam is not available to heat the stain cure oven, the oven can be heated by firing natural gas.

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

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	<2 grains per 1,000 scf	N/A	1,020 BTU/scf

<i>Emissions Data</i>		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	0.13	0.58
Nitrogen Oxides (NO _x)	0.16	0.69
Lead (Pb)	<0.001	<0.001
Particulate Matter (PM _{2.5})	N/A	N/A
Particulate Matter (PM ₁₀)	0.69 (Lines 1 & 2 Totals)	3.04 (Lines 1 & 2 Totals)
Total Particulate Matter (TSP)	3.42 (Lines 1 & 2 Totals)	14.98 (Lines 1 & 2 Totals)
Sulfur Dioxide (SO ₂)	0.001	0.004
Volatile Organic Compounds (VOC)	88.54 (Lines 1 & 2 Totals)	204.5 (Lines 1 & 2 Totals)
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Total HAP (Lines 1 & 2)	5.64 Single HAP	7.94 Aggregated HAPs
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
<p>List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).</p> <ul style="list-style-type: none"> • Total particulate emissions are calculated from the baghouse air flow rate and the design exhaust grain loading for the No. 1 Baghouse. • The PM-10 emissions are calculated by multiplying the total particulate emissions by a factor of 0.20 (based on assumption that PM-10 is 20% of total particulate emissions). • Carbon monoxide, sulfur dioxide, lead and nitrogen oxide emissions are based on emission factors for natural gas combustion from AP-42 Tables 1.4-1 and 1.4-2, July 1998 revision. • Emission rates for VOC and HAP list established permit limits for the two finishing lines combined. 		

Applicable Requirements

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

R13-1147 §6.1.1, §6.1.2, §6.1.3, and §6.1.4

- Particulate matter, VOC, and HAP emissions limited to above.

R13-1147 §6.1.5

- Finish Lines No. 1 and No. 2 are each limited to 8,500 ft²/hr. Compliance with annual process rate determined using 12-month rolling total.

R13-1147 §6.1.7, §6.1.8, and §6.1.9; 45CSR7 §3.1, §3.7, and §5.1

- Opacity not to exceed 20% except as noted in 45CSR7 Section 3.
- Visible emissions from any storage structure are required to have a full enclosure and equipment with particulate matter control device.
- Minimize particulate matter fugitive emissions from manufacturing process or storage structure by using process equipment design, control equipment design, or operation and maintenance procedures.

Permit Shield

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

Monitoring Requirements:

- Perform weekly Method 22 visible emission reading for emission point S03 during normal operations. If emissions observed during test, conduct opacity reading per 45CSR7A as soon as practicable, but within 72 hours.
- Operate and maintain No. 1 Baghouse in accordance with manufacturer's specification to ensure proper operation and 99.9% control efficiency. Includes replacement of broken bags, proper fan operations, prompt replace of fans and ductwork, and daily inspections and pressure drop readings. Baghouse's normal operating pressure drop range is 0.2 to 0.65 inches of water.
- Maintain monthly records of natural gas usage for Stain Ovens (002-01C and 002-02C) and production records for Finish Lines No. 1 and No. 2.
- Calibration gauges for the No. 1 Baghouse will be checked at least once per year to ensure accurate readings.

Recordkeeping Requirements:

- Maintain monthly records of name and usage of each material applied, VOC content of each material, and hours of operation of each coating line. Additionally, within 30 days of the end of the calendar month prepare summary report of the average hourly, monthly, and rolling 12 month VOC mass emission rates

and hours of operation for the application of materials.

- Maintain monthly records of the name and material usage of each HAP containing material as applied, speciated HAP content of each material, and hours of operation of each coating line. Additionally, within 30 days of the end of the calendar month prepare summary report of the average hourly, monthly, and rolling 12 month aggregated and speciated HAP mass emission rates and hours of operation for the application of materials.
- Maintain records of the amount of material processed on Finish Line No. 1 and No. 2 respectively.
- Maintain records of all visible emission monitoring data.
- Maintain records of baghouse monitoring data involved with proper operations, daily inspections, and pressure drop reading as well as calibration records for the gauges.
- Maintain copies of SDS, certified product data sheets, or manufacturer's formulations for each surface coating, fill coating, clean-up solvent, and other related materials.

Reporting Requirements:

- Report violations of allowable visible emissions requirements within 10 days calendar days.

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

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

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number: 003-01	Emission unit name: Flooring Mill	List any control devices associated with this emission unit: Baghouses (004-007, 009-011)
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Provide a description of the emission unit (type, method of operation, design parameters, etc.):
 The Flooring Mill consists of six (6) lines where cutting, planing, and edging operations are performed to convert kiln-dried hardwood lumber into unfinished hardwood flooring. The kiln-dried lumber is fed to the rough end for preliminary sorting, cutting, and sizing and then to one of the six processing lines. The Flooring Mill also includes several hogs, three hogged fuel silos, and two truck loadouts for hogged fuel.

Manufacturer: Custom	Model number: Custom	Serial number: Various
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Construction date: 06/06/1990	Installation date: 06/06/1990	Modification date(s): 01/25/2005
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Design Capacity (examples: furnaces - tons/hr, tanks - gallons): The Flooring Mill is designed to produce 350,000 square feet of unfinished hardwood flooring per day.

Maximum Hourly Throughput: 350,000 ft2 per day	Maximum Annual Throughput: 127,750,000 Board-Feet	Maximum Operating Schedule: 8,760 hours per year
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Fuel Usage Data (fill out all applicable fields)

Does this emission unit combust fuel? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes, is it? <input type="checkbox"/> Indirect Fired <input type="checkbox"/> Direct Fired
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Maximum design heat input and/or maximum horsepower rating: N/A	Type and Btu/hr rating of burners: N/A
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List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
 N/A - Steam generated by emission units 001-01 and 001-02 is used to heat the building where the unfinished flooring is produced.

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

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
N/A	N/A	N/A	N/A

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	N/A	N/A
Nitrogen Oxides (NO _x)	N/A	N/A
Lead (Pb)	N/A	N/A
Particulate Matter (PM _{2.5})	N/A	N/A
Particulate Matter (PM ₁₀)	3.05	13.36
Total Particulate Matter (TSP)	15.25	66.78
Sulfur Dioxide (SO ₂)	N/A	N/A
Volatile Organic Compounds (VOC)	N/A	N/A
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
N/A		
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
N/A		

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

- Total particulate emissions are calculated from the baghouse air flow rate and the design exhaust grain loading or the No. 2, No. 3, No. 4, No. 5, No. 6, No. 7, and No. 8 Baghouses. The sum of the emission rates for the seven baghouses comprises the total particulate emission rate from the Flooring Mill.
- The PM-10 emissions are calculated by multiplying the total particulate emissions by a factor of 0.20 (based on assumption that PM-10 is 20% of total particulate emissions).

Applicable Requirements

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

R13-1147 §5.1.1

- Emission rates listed in the permit for baghouses No. 2 through No. 8 are summed above.

R13-1147 §5.1.2

- Cyclone systems (control device IDs 012 -017 maintained and operated in accordance with manufacturer's performance specifications.

R13-1147 §5.1.3, §5.1.4, and §5.1.5; 45CSR7 §3.1, §3.7, §5.1, and §9.1

- Opacity not to exceed 20% except as noted in 45CSR7 Section 3.
- Visible emissions from any storage structure are required to have a full enclosure and equipment with particulate matter control device.
- Minimize particulate matter fugitive emissions from manufacturing process or storage structure by using process equipment design, control equipment design, or operation and maintenance procedures.
- Emissions exceeding 45CSR7 limits due to unavoidable malfunction may be permitted by the Director not to exceed 10 days. Application made within 24 hours of malfunction. Additional time may be granted by the Director for major equipment failure,

Permit Shield

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

Monitoring Requirements:

- Perform weekly Method 22 visible emission reading for emission points S3, S4, S5, S6, S7, S9, S10, S11 during normal operations. If emissions observed during test, conduct opacity reading per 45CSR7A as soon as practicable, but within 72 hours.
- Operate and maintain each baghouse in accordance with manufacturer's specification to ensure 99.9% control efficiency. Includes replacement of broken bags, proper fan operations, prompt replace of fans and ductwork, and daily inspections. Each baghouse's normal operating pressure drop range is 0.2 to 0.65 inches of water.

Recordkeeping Requirements:

- Maintain records of visible emission monitoring data and opacity evaluations.
- Maintain records of monitoring data involved with proper operation, daily inspections, and pressure drop readings.

Reporting Requirements:

- Report violations of allowable visible emissions requirements within 10 days calendar days.

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

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

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number: 004-01	Emission unit name: Yard Operations	List any control devices associated with this emission unit: N/A
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Provide a description of the emission unit (type, method of operation, design parameters, etc.):
 Yard operations consist of receiving green lumber, transfer of green lumber to the pre-dryer and/or lumber kilns, and transfer of dried lumber from the lumber kilns to dry storage. The mill operates one steam-heated pre-dryer and 38 steam-heated lumber kilns to dry green lumber for further processing in the mill and finishing lines. Rolling stock transport of lumber results in the generation of fugitive particulate emissions. The scrap recovery system consisting of a scrap grinder, rip saw, and knot saws will be used to resize and recover scrap wood for use in the lumber yard and will exhaust to two Nederman dust collection systems which will collect wood chips and saw dust to be used as hog fuel in the boilers or will be sold as useful material for animal bedding or other beneficial product.

Manufacturer: Brunner Hildebrand	Model number: Custom	Serial number: Various
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Construction date: 01/02/1990	Installation date: 01/02/1990	Modification date(s): 04/26/2000
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Design Capacity (examples: furnaces - tons/hr, tanks - gallons): The pre-dryer is designed for 1,600,000 boardfeet per charge (charge cycle is approximately 35 days). Each of the 38 lumber kilns is designed for 110,000 boardfeet per charge (charge cycle normally averages 15 days).

Maximum Hourly Throughput: 14,840 Board-Feet	Maximum Annual Throughput: 130,000,000 Board-Feet	Maximum Operating Schedule: 8,760 hours per year
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Fuel Usage Data (fill out all applicable fields)

Does this emission unit combust fuel? ___ Yes <input checked="" type="checkbox"/> No	If yes, is it? ___ Indirect Fired ___ Direct Fired
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Maximum design heat input and/or maximum horsepower rating: N/A	Type and Btu/hr rating of burners: N/A
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List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
 N/A - Steam generated by emission units 001-01 and 001-02 is used to heat the pre-dryer and lumber kilns indirectly. Because none of the kilns is direct-fired, this emission unit does not consume any fuels.

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

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
N/A	N/A	N/A	N/A

<i>Emissions Data</i>		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	N/A	N/A
Nitrogen Oxides (NO _x)	N/A	N/A
Lead (Pb)	N/A	N/A
Particulate Matter (PM _{2.5})	N/A	N/A
Particulate Matter (PM ₁₀)	0.15	0.07
Total Particulate Matter (TSP)	N/A	N/A
Sulfur Dioxide (SO ₂)	N/A	N/A
Volatile Organic Compounds (VOC)	N/A	N/A
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
N/A		
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
N/A		
<p>List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).</p> <ul style="list-style-type: none"> PM-10 emissions are calculated using the maximum outlet grain loading and air flows for the dust control equipment and maximum hours of operation per year of 8,760 hrs. The rated control efficiency for the dust control equipment is 99.9% for PM10. 		

Applicable Requirements

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

- N/A

Permit Shield

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

N/A

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

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

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number: 005-01	Emission unit name: Natural Gas-Fired Emergency Generator	List any control devices associated with this emission unit: N/A
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Provide a description of the emission unit (type, method of operation, design parameters, etc.):
22 kW Natural Gas-Fired Emergency Generator will supply backup power for emergency lighting and other critical plant operations.

Manufacturer: Generac Power Systems	Model number: G0065521	Serial number: 3000599826
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Construction date:	Installation date: 2017	Modification date(s):
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Design Capacity (examples: furnaces - tons/hr, tanks - gallons):

Maximum Hourly Throughput: 0.28 MMBtu/hr	Maximum Annual Throughput: 140.5 MMBtu/yr	Maximum Operating Schedule: 500 hrs/yr
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Fuel Usage Data (fill out all applicable fields)

Does this emission unit combust fuel? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes, is it? <input type="checkbox"/> Indirect Fired <input type="checkbox"/> Direct Fired
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Maximum design heat input and/or maximum horsepower rating: 29.5 hp	Type and Btu/hr rating of burners: N/A
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List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
Natural Gas

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

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	<15 ppm	N/A	1,020 Btu/scf

<i>Emissions Data</i>		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	25.15	6.29
Nitrogen Oxides (NO _x)	0.65	0.16
Lead (Pb)	N/A	N/A
Particulate Matter (PM _{2.5})	2.81E-03	7.02E-04
Particulate Matter (PM ₁₀)	2.81E-03	7.02E-04
Total Particulate Matter (TSP)	2.81E-03	7.02E-04
Sulfur Dioxide (SO ₂)	1.65E-04	4.13E-05
Volatile Organic Compounds (VOC)	0.033	0.01
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Formaldehyde	1.48E-02	3.71E-03
Acetaldehyde	2.35E-03	5.87E-04
Acrolein	1.44E-03	3.61E-04
Total HAP	0.02	5.07E-03
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
N/A		
<p>List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).</p> <p>Carbon monoxide (CO) and Nitrogen Oxides (NO_x) were calculated from emissions standards from Table of 40 CFR 60 Subpart JJJJ for Stationary Emergency Engines > 25 hp.</p> <p>PM, PM₁₀, PM_{2.5} SO₂, and VOC emission rates were calculated based on emission factors obtained from AP-42 Table 3.2-2 for a 4-stroke lean-burn engine.</p>		

Applicable Requirements

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

Emissions standards and fuel sulfur content as required by 40 CFR 60 Subpart JJJJ.

Operating restrictions and preventative maintenance as required by 40 CFR 63 Subpart ZZZZ

Permit Shield

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

Recordkeeping Requirements:

- All notifications submitted in accordance with 40 CFR 60 Subpart JJJJ.
- Records of maintenance conducted on the engine.
- If the stationary SI internal combustion engine is a certified engine, documentation from the manufacturer that the engine is certified to meet the emission standards and information as required in 40 CFR parts 90, 1048, 1054, and 1060, as applicable.
- Records of monthly and total calendar year hours of operation and the reason for operating to demonstrate the emergency generator was operated as an emergency stationary ICE.
- Records showing that the maximum twelve-month rolling total for the emergency generator engine did not exceed 500 hr/yr, excluding emergency hours of operation.

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

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

ATTACHMENT G
AIR POLLUTION CONTROL DEVICE FORMS

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: 008	List all emission units associated with this control device. 001-01 No. 1 Boiler 001-02 No. 2 Boiler
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Manufacturer: PPC Industries	Model number: 11R-1124-1712S	Installation date: 07/23/2003
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Type of Air Pollution Control Device:

<input type="checkbox"/> Baghouse/Fabric Filter	<input type="checkbox"/> Venturi Scrubber	<input type="checkbox"/> Multiclone
<input type="checkbox"/> Carbon Bed Adsorber	<input type="checkbox"/> Packed Tower Scrubber	<input type="checkbox"/> Single Cyclone
<input type="checkbox"/> Carbon Drum(s)	<input type="checkbox"/> Other Wet Scrubber	<input type="checkbox"/> Cyclone Bank
<input type="checkbox"/> Catalytic Incinerator	<input type="checkbox"/> Condenser	<input type="checkbox"/> Settling Chamber
<input type="checkbox"/> Thermal Incinerator	<input type="checkbox"/> Flare	<input type="checkbox"/> Other (describe) _____
<input type="checkbox"/> Wet Plate Electrostatic Precipitator	<input checked="" type="checkbox"/> Dry Plate Electrostatic Precipitator	

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
Particulate Matter	100%	99.9%
PM-10	100%	99.9%

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).

The electrostatic precipitator controls emissions from the No. 1 Boiler and the No. 2 Boiler that have been collected in the No. 1 and the No. 2 Multiclone vents for additional particulate control in the electrostatic precipitator. The electrostatic precipitator is designed for an operating power of 9.6 kilowatts, an exhaust flow rate of 25,044 cubic feet per minute, and a pressure drop of 0.5 inches of water column.

Is this device subject to the CAM requirements of 40 C.F.R. 64? No

If Yes, **Complete ATTACHMENT H**

If No, **Provide justification.**

The boilers are subject to Area Source Boiler NESHAP 40 CFR 63 Subpart JJJJJ standards for PM.

Describe the parameters monitored and/or methods used to indicate performance of this control device.

N/A

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: 003	List all emission units associated with this control device. 004-01 No. 1 Finishing Line 004-02 No. 2 Finishing Line
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Manufacturer: MAC Equipment, Inc.	Model number: 144MCF756	Installation date: 06/06/1990
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Type of Air Pollution Control Device:

Baghouse/Fabric Filter
 Venturi Scrubber
 Multiclone
 Carbon Bed Adsorber
 Packed Tower Scrubber
 Single Cyclone
 Carbon Drum(s)
 Other Wet Scrubber
 Cyclone Bank
 Catalytic Incinerator
 Condenser
 Settling Chamber
 Thermal Incinerator
 Flare
 Other (describe) _____
 Wet Plate Electrostatic Precipitator
 Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
Particulate Matter	99.9%	99.7%
PM-10	99.9%	99.7%

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).
 The No. 1 Baghouse controls sander dust emissions from the No. 1 and No. 2 Finishing Lines. The baghouse is equipped with 797 filter bags for a total of 10,962 square feet of cloth area. The design air flow rate from the baghouse is 79,556 cubic feet per minute.

Is this device subject to the CAM requirements of 40 C.F.R. 64? Yes No

If Yes, **Complete ATTACHMENT H – Applicable CAM monitoring has already been implemented in the Title V permit for this source.**

If No, **Provide justification.**

Describe the parameters monitored and/or methods used to indicate performance of this control device.
 Weekly visible emissions checks. Pressure drop range of 0.2 to 6.5 inches of water column.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: 004	List all emission units associated with this control device. 003 Mill Operations
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Manufacturer: MAC Equipment, Inc.	Model number: 144MCF572	Installation date: 06/06/1990
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Type of Air Pollution Control Device:

<input checked="" type="checkbox"/> Baghouse/Fabric Filter	<input type="checkbox"/> Venturi Scrubber	<input type="checkbox"/> Multiclone
<input type="checkbox"/> Carbon Bed Adsorber	<input type="checkbox"/> Packed Tower Scrubber	<input type="checkbox"/> Single Cyclone
<input type="checkbox"/> Carbon Drum(s)	<input type="checkbox"/> Other Wet Scrubber	<input type="checkbox"/> Cyclone Bank
<input type="checkbox"/> Catalytic Incinerator	<input type="checkbox"/> Condenser	<input type="checkbox"/> Settling Chamber
<input type="checkbox"/> Thermal Incinerator	<input type="checkbox"/> Flare	<input type="checkbox"/> Other (describe) _____
<input type="checkbox"/> Wet Plate Electrostatic Precipitator	<input type="checkbox"/> Dry Plate Electrostatic Precipitator	

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
Particulate Matter	99.9%	99.7%
PM-10	99.9%	99.7%

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).
 The No. 2 Baghouse controls sawing and planer dust emissions from the No. 2 & No. 5 Flooring Mill Lines and the Flooring Mill Rough End. The baghouse is equipped with 700 filter bags for a total of 8,294 square feet of cloth area. The design air flow rate from the baghouse is 49,701 cubic feet per minute.

Is this device subject to the CAM requirements of 40 C.F.R. 64? Yes No

If Yes, **Complete ATTACHMENT H – Applicable CAM monitoring has already been implemented in the Title V permit for this source.**

If No, **Provide justification.**

Describe the parameters monitored and/or methods used to indicate performance of this control device.
 Weekly visible emissions checks. Pressure drop range of 0.2 to 6.5 inches of water column.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: 005	List all emission units associated with this control device. 003 Mill Operations
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Manufacturer: MAC Equipment, Inc.	Model number: 144MCF572	Installation date: 06/06/1990
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Type of Air Pollution Control Device:

<input checked="" type="checkbox"/> Baghouse/Fabric Filter	<input type="checkbox"/> Venturi Scrubber	<input type="checkbox"/> Multiclone
<input type="checkbox"/> Carbon Bed Adsorber	<input type="checkbox"/> Packed Tower Scrubber	<input type="checkbox"/> Single Cyclone
<input type="checkbox"/> Carbon Drum(s)	<input type="checkbox"/> Other Wet Scrubber	<input type="checkbox"/> Cyclone Bank
<input type="checkbox"/> Catalytic Incinerator	<input type="checkbox"/> Condenser	<input type="checkbox"/> Settling Chamber
<input type="checkbox"/> Thermal Incinerator	<input type="checkbox"/> Flare	<input type="checkbox"/> Other (describe) _____
<input type="checkbox"/> Wet Plate Electrostatic Precipitator	<input type="checkbox"/> Dry Plate Electrostatic Precipitator	

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
Particulate Matter	99.9%	99.7%
PM-10	99.9%	99.7%

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).
 The No. 3 Baghouse controls sawing and planer dust emissions from the No. 5 & No. 6 Flooring Mill Lines and No. 4 Cyclone. The baghouse is equipped with 600 filter bags for a total of 8,294 square feet of cloth area. The design air flow rate from the baghouse is 57,077 cubic feet per minute.

Is this device subject to the CAM requirements of 40 C.F.R. 64? Yes No

If Yes, **Complete ATTACHMENT H – Applicable CAM monitoring has already been implemented in the Title V permit for this source.**

If No, **Provide justification.**

Describe the parameters monitored and/or methods used to indicate performance of this control device.
 Weekly visible emissions checks. Pressure drop range of 0.2 to 6.5 inches of water column.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: 006	List all emission units associated with this control device. 003 Mill Operations
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Manufacturer: MAC Equipment, Inc.	Model number: 144MCF255	Installation date: 06/06/1990
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Type of Air Pollution Control Device:

<input checked="" type="checkbox"/> Baghouse/Fabric Filter	<input type="checkbox"/> Venturi Scrubber	<input type="checkbox"/> Multiclone
<input type="checkbox"/> Carbon Bed Adsorber	<input type="checkbox"/> Packed Tower Scrubber	<input type="checkbox"/> Single Cyclone
<input type="checkbox"/> Carbon Drum(s)	<input type="checkbox"/> Other Wet Scrubber	<input type="checkbox"/> Cyclone Bank
<input type="checkbox"/> Catalytic Incinerator	<input type="checkbox"/> Condenser	<input type="checkbox"/> Settling Chamber
<input type="checkbox"/> Thermal Incinerator	<input type="checkbox"/> Flare	<input type="checkbox"/> Other (describe) _____
<input type="checkbox"/> Wet Plate Electrostatic Precipitator	<input type="checkbox"/> Dry Plate Electrostatic Precipitator	

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
Particulate Matter	99.9%	99.7%
PM-10	99.9%	99.7%

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).
 The No. 4 Baghouse controls emissions from the No. 3 Wood Hog and No. 3 Cyclone. The baghouse is equipped with 300 filter bags for a total of 3,698 square feet of cloth area. The design air flow rate from the baghouse is 27,489 cubic feet per minute.

Is this device subject to the CAM requirements of 40 C.F.R. 64? Yes No

If Yes, **Complete ATTACHMENT H – Applicable CAM monitoring has already been implemented in the Title V permit for this source.**

If No, **Provide justification.**

Describe the parameters monitored and/or methods used to indicate performance of this control device.
 Weekly visible emissions checks. Pressure drop range of 0.2 to 6.5 inches of water column.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: 007	List all emission units associated with this control device. 003 Mill Operations
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Manufacturer: MAC Equipment, Inc.	Model number: 144MPH494-475	Installation date: 05/15/2003
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Type of Air Pollution Control Device:

<input checked="" type="checkbox"/> Baghouse/Fabric Filter	<input type="checkbox"/> Venturi Scrubber	<input type="checkbox"/> Multiclone
<input type="checkbox"/> Carbon Bed Adsorber	<input type="checkbox"/> Packed Tower Scrubber	<input type="checkbox"/> Single Cyclone
<input type="checkbox"/> Carbon Drum(s)	<input type="checkbox"/> Other Wet Scrubber	<input type="checkbox"/> Cyclone Bank
<input type="checkbox"/> Catalytic Incinerator	<input type="checkbox"/> Condenser	<input type="checkbox"/> Settling Chamber
<input type="checkbox"/> Thermal Incinerator	<input type="checkbox"/> Flare	<input type="checkbox"/> Other (describe) _____
<input type="checkbox"/> Wet Plate Electrostatic Precipitator	<input type="checkbox"/> Dry Plate Electrostatic Precipitator	

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
Particulate Matter	99.9%	99.7%
PM-10	99.9%	99.7%

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).
 The No. 5 Baghouse controls emissions from the No. 3 Flooring Mill Line and the Visually Distressed Flooring Line. The No. 5 Baghouse is equipped with 480 filter bags for a total of 6,887 square feet of cloth area. The design air flow rate from the baghouse is 43,295 cubic feet per minute.

Is this device subject to the CAM requirements of 40 C.F.R. 64? Yes No

If Yes, **Complete ATTACHMENT H – Applicable CAM monitoring has already been implemented in the Title V permit for this source.**

If No, **Provide justification.**

Describe the parameters monitored and/or methods used to indicate performance of this control device.
 Weekly visible emissions checks. Pressure drop range of 0.2 to 6.5 inches of water column.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: 009	List all emission units associated with this control device. 003 Mill Operations
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Manufacturer: Ligna-Con, LLC	Model number: 16.5-700-12 Super Can	Installation date: 05/01/2005
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Type of Air Pollution Control Device:

<input checked="" type="checkbox"/> Baghouse/Fabric Filter	<input type="checkbox"/> Venturi Scrubber	<input type="checkbox"/> Multiclone
<input type="checkbox"/> Carbon Bed Adsorber	<input type="checkbox"/> Packed Tower Scrubber	<input type="checkbox"/> Single Cyclone
<input type="checkbox"/> Carbon Drum(s)	<input type="checkbox"/> Other Wet Scrubber	<input type="checkbox"/> Cyclone Bank
<input type="checkbox"/> Catalytic Incinerator	<input type="checkbox"/> Condenser	<input type="checkbox"/> Settling Chamber
<input type="checkbox"/> Thermal Incinerator	<input type="checkbox"/> Flare	<input type="checkbox"/> Other (describe) _____
<input type="checkbox"/> Wet Plate Electrostatic Precipitator	<input type="checkbox"/> Dry Plate Electrostatic Precipitator	

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
Particulate Matter	99.9%	99.7%
PM-10	99.9%	99.7%

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).
 The No. 6 Baghouse controls emissions from the No. 1, No. 5, and No. 6 Cyclones. The No. 6 Baghouse is equipped with 600 filter bags for a total of 10,150 square feet of cloth area. The design air flow rate from the baghouse is 59,748 cubic feet per minute.

Is this device subject to the CAM requirements of 40 C.F.R. 64? Yes No

If Yes, **Complete ATTACHMENT H – Applicable CAM monitoring has already been implemented in the Title V permit for this source.**

If No, **Provide justification.**

Describe the parameters monitored and/or methods used to indicate performance of this control device.
 Weekly visible emissions checks. Pressure drop range of 0.2 to 6.5 inches of water column.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: 010	List all emission units associated with this control device. 003 Mill Operations
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Manufacturer: Ligna-Con, LLC	Model number: 14.5-500-12	Installation date: 05/01/2005
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Type of Air Pollution Control Device:

<input checked="" type="checkbox"/> Baghouse/Fabric Filter	<input type="checkbox"/> Venturi Scrubber	<input type="checkbox"/> Multiclone
<input type="checkbox"/> Carbon Bed Adsorber	<input type="checkbox"/> Packed Tower Scrubber	<input type="checkbox"/> Single Cyclone
<input type="checkbox"/> Carbon Drum(s)	<input type="checkbox"/> Other Wet Scrubber	<input type="checkbox"/> Cyclone Bank
<input type="checkbox"/> Catalytic Incinerator	<input type="checkbox"/> Condenser	<input type="checkbox"/> Settling Chamber
<input type="checkbox"/> Thermal Incinerator	<input type="checkbox"/> Flare	<input type="checkbox"/> Other (describe) _____
<input type="checkbox"/> Wet Plate Electrostatic Precipitator	<input type="checkbox"/> Dry Plate Electrostatic Precipitator	

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
Particulate Matter	99.9%	99.9%
PM-10	99.9%	99.9%

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).
 The No. 7 Baghouse controls emissions from the No. 1 Flooring Mill Line, Rough End, and the No. 7 Cyclone. The No. 7 Baghouse is equipped with 600 filter bags for a total of 7,250 square feet of cloth area. The design air flow rate from the baghouse is 49,857 cubic feet per minute.

Is this device subject to the CAM requirements of 40 C.F.R. 64? Yes No

If Yes, **Complete ATTACHMENT H – Applicable CAM monitoring has already been implemented in the Title V permit for this source.**

If No, **Provide justification.**

Describe the parameters monitored and/or methods used to indicate performance of this control device.
 Weekly visible emissions checks. Pressure drop range of 0.2 to 6.5 inches of water column.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: 011	List all emission units associated with this control device. 003 Mill Operations
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Manufacturer: Ligna-Con, LLC	Model number: 14.5-500-12	Installation date: 05/01/2005
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Type of Air Pollution Control Device:

<input checked="" type="checkbox"/> Baghouse/Fabric Filter	<input type="checkbox"/> Venturi Scrubber	<input type="checkbox"/> Multiclone
<input type="checkbox"/> Carbon Bed Adsorber	<input type="checkbox"/> Packed Tower Scrubber	<input type="checkbox"/> Single Cyclone
<input type="checkbox"/> Carbon Drum(s)	<input type="checkbox"/> Other Wet Scrubber	<input type="checkbox"/> Cyclone Bank
<input type="checkbox"/> Catalytic Incinerator	<input type="checkbox"/> Condenser	<input type="checkbox"/> Settling Chamber
<input type="checkbox"/> Thermal Incinerator	<input type="checkbox"/> Flare	<input type="checkbox"/> Other (describe) _____
<input type="checkbox"/> Wet Plate Electrostatic Precipitator	<input type="checkbox"/> Dry Plate Electrostatic Precipitator	

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
Particulate Matter	99.9%	99.9%
PM-10	99.9%	99.9%

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).
 The No. 8 Baghouse controls emissions from the Rough End. The No. 8 Baghouse is equipped with 700 filter bags for a total of 10,150 square feet of cloth area.. The design air flow rate from the baghouse is 68,597 cubic feet per minute.

Is this device subject to the CAM requirements of 40 C.F.R. 64? Yes No

If Yes, **Complete ATTACHMENT H – Applicable CAM monitoring has already been implemented in the Title V permit for this source.**

If No, **Provide justification.**

Describe the parameters monitored and/or methods used to indicate performance of this control device.
 Weekly visible emissions checks. Pressure drop range of 0.2 to 6.5 inches of water column.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: 012	List all emission units associated with this control device. 003 Mill Operations
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Manufacturer: Air Conveying, Inc.	Model number: Unknown	Installation date: 06/06/1990
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Type of Air Pollution Control Device:

<input type="checkbox"/> Baghouse/Fabric Filter	<input type="checkbox"/> Venturi Scrubber	<input type="checkbox"/> Multiclone
<input type="checkbox"/> Carbon Bed Adsorber	<input type="checkbox"/> Packed Tower Scrubber	<input checked="" type="checkbox"/> Single Cyclone
<input type="checkbox"/> Carbon Drum(s)	<input type="checkbox"/> Other Wet Scrubber	<input type="checkbox"/> Cyclone Bank
<input type="checkbox"/> Catalytic Incinerator	<input type="checkbox"/> Condenser	<input type="checkbox"/> Settling Chamber
<input type="checkbox"/> Thermal Incinerator	<input type="checkbox"/> Flare	<input type="checkbox"/> Other (describe) _____
<input type="checkbox"/> Wet Plate Electrostatic Precipitator	<input type="checkbox"/> Dry Plate Electrostatic Precipitator	

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
Particulate Matter	99.9%	Unknown
PM-10	99.9%	Unknown

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).
 The No. 1 Cyclone controls emissions from the No. 4 Wood Hog. The No. 1 Cyclone is designed for an air flow rate of 24,100 cubic feet per minute. Emissions from the No. 1 Cyclone are vented to the No. 6 Baghouse for additional control of particulate matter.

Is this device subject to the CAM requirements of 40 C.F.R. 64? Yes No

If Yes, **Complete ATTACHMENT H – Applicable CAM monitoring has already been implemented in the Title V permit for this source.**

If No, **Provide justification.**

Describe the parameters monitored and/or methods used to indicate performance of this control device.
 Weekly visible emissions checks.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: 018	List all emission units associated with this control device. 003 Mill Operations & 001-01 No. 1 Boiler & 001-02 No. 2 Boiler
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Manufacturer: Air Conveying, Inc.	Model number: 144" Diameter	Installation date: 06/06/1990
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Type of Air Pollution Control Device:

<input type="checkbox"/> Baghouse/Fabric Filter	<input type="checkbox"/> Venturi Scrubber	<input type="checkbox"/> Multiclone
<input type="checkbox"/> Carbon Bed Adsorber	<input type="checkbox"/> Packed Tower Scrubber	<input checked="" type="checkbox"/> Single Cyclone
<input type="checkbox"/> Carbon Drum(s)	<input type="checkbox"/> Other Wet Scrubber	<input type="checkbox"/> Cyclone Bank
<input type="checkbox"/> Catalytic Incinerator	<input type="checkbox"/> Condenser	<input type="checkbox"/> Settling Chamber
<input type="checkbox"/> Thermal Incinerator	<input type="checkbox"/> Flare	<input type="checkbox"/> Other (describe) _____
<input type="checkbox"/> Wet Plate Electrostatic Precipitator	<input type="checkbox"/> Dry Plate Electrostatic Precipitator	

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
Particulate Matter	95%	95%
PM-10	95%	95%

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).
 The No. 2 Cyclone controls emissions from the transfer of hogged fuel from the silos to the metering bins for the No. 1 and No. 2 Boilers. Exhaust air from the cyclone is returned to the silo relay system for transport of hogged fuel to the metering bins. The cyclone is designed for an air flow rate of 27,489 cubic feet per minute and a pressure drop of 2 inches water column.

Is this device subject to the CAM requirements of 40 C.F.R. 64? Yes No
 If Yes, **Complete ATTACHMENT H – Applicable CAM monitoring has already been implemented in the Title V permit for this source.**
 If No, **Provide justification.**

Describe the parameters monitored and/or methods used to indicate performance of this control device.
 Weekly visible emissions checks.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: 013	List all emission units associated with this control device. 003 Mill Operations
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Manufacturer: Bruning and Federle	Model number: 22C15	Installation date: 03/15/2004
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Type of Air Pollution Control Device:

<input type="checkbox"/> Baghouse/Fabric Filter	<input type="checkbox"/> Venturi Scrubber	<input type="checkbox"/> Multiclone
<input type="checkbox"/> Carbon Bed Adsorber	<input type="checkbox"/> Packed Tower Scrubber	<input checked="" type="checkbox"/> Single Cyclone
<input type="checkbox"/> Carbon Drum(s)	<input type="checkbox"/> Other Wet Scrubber	<input type="checkbox"/> Cyclone Bank
<input type="checkbox"/> Catalytic Incinerator	<input type="checkbox"/> Condenser	<input type="checkbox"/> Settling Chamber
<input type="checkbox"/> Thermal Incinerator	<input type="checkbox"/> Flare	<input type="checkbox"/> Other (describe) _____
<input type="checkbox"/> Wet Plate Electrostatic Precipitator	<input type="checkbox"/> Dry Plate Electrostatic Precipitator	

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
Particulate Matter	97%	97%
PM-10	97%	97%

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).
 The No. 3 Cyclone controls emissions from the No. 3 Wood Hog. The No. 3 Cyclone is designed for an air flow rate of 6,500 cubic feet per minute and a pressure drop of 2 inches water column. Emissions from the No. 3 Cyclone are vented to the No. 4 Baghouse for additional control of particulate matter.

Is this device subject to the CAM requirements of 40 C.F.R. 64? Yes No

If Yes, **Complete ATTACHMENT H – Applicable CAM monitoring has already been implemented in the Title V permit for this source.**

If No, **Provide justification.**

Describe the parameters monitored and/or methods used to indicate performance of this control device.
 Weekly visible emissions checks.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: 014	List all emission units associated with this control device. 003 Mill Operations
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Manufacturer: Associated Metal Works	Model number: 120" Diameter	Installation date: 05/01/2005
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Type of Air Pollution Control Device:

<input type="checkbox"/> Baghouse/Fabric Filter	<input type="checkbox"/> Venturi Scrubber	<input type="checkbox"/> Multiclone
<input type="checkbox"/> Carbon Bed Adsorber	<input type="checkbox"/> Packed Tower Scrubber	<input checked="" type="checkbox"/> Single Cyclone
<input type="checkbox"/> Carbon Drum(s)	<input type="checkbox"/> Other Wet Scrubber	<input type="checkbox"/> Cyclone Bank
<input type="checkbox"/> Catalytic Incinerator	<input type="checkbox"/> Condenser	<input type="checkbox"/> Settling Chamber
<input type="checkbox"/> Thermal Incinerator	<input type="checkbox"/> Flare	<input type="checkbox"/> Other (describe) _____
<input type="checkbox"/> Wet Plate Electrostatic Precipitator	<input type="checkbox"/> Dry Plate Electrostatic Precipitator	

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
Particulate Matter	97%	97%
PM-10	97%	97%

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).
 The No. 4 Cyclone controls emissions from the No. 2 Wood Hog. The No. 4 Cyclone is designed for an air flow rate of 16,157 cubic feet per minute and a pressure drop of 2 inches water column. Emissions from the No. 4 Cyclone are vented to the No. 5 Baghouse for additional control of particulate matter.

Is this device subject to the CAM requirements of 40 C.F.R. 64? Yes No

If Yes, **Complete ATTACHMENT H – Applicable CAM monitoring has already been implemented in the Title V permit for this source.**

If No, **Provide justification.**

Describe the parameters monitored and/or methods used to indicate performance of this control device.
 Weekly visible emissions checks.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: 016	List all emission units associated with this control device. 003 Mill Operations
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Manufacturer: Associated Metal Works	Model number: 64" Diameter	Installation date: 05/01/2005
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Type of Air Pollution Control Device:

<input type="checkbox"/> Baghouse/Fabric Filter	<input type="checkbox"/> Venturi Scrubber	<input type="checkbox"/> Multiclone
<input type="checkbox"/> Carbon Bed Adsorber	<input type="checkbox"/> Packed Tower Scrubber	<input checked="" type="checkbox"/> Single Cyclone
<input type="checkbox"/> Carbon Drum(s)	<input type="checkbox"/> Other Wet Scrubber	<input type="checkbox"/> Cyclone Bank
<input type="checkbox"/> Catalytic Incinerator	<input type="checkbox"/> Condenser	<input type="checkbox"/> Settling Chamber
<input type="checkbox"/> Thermal Incinerator	<input type="checkbox"/> Flare	<input type="checkbox"/> Other (describe) _____
<input type="checkbox"/> Wet Plate Electrostatic Precipitator	<input type="checkbox"/> Dry Plate Electrostatic Precipitator	

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
Particulate Matter	97%	97%
PM-10	97%	97%

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).
 The No. 5 Cyclone has a design air flow rate of 4,768 cubic feet per minute and a pressure drop of 2 inches water column. Emissions from the No. 5 Cyclone are vented to the No. 6 Baghouse for additional control of particulate matter.

Is this device subject to the CAM requirements of 40 C.F.R. 64? Yes No

If Yes, **Complete ATTACHMENT H – Applicable CAM monitoring has already been implemented in the Title V permit for this source.**

If No, **Provide justification.**

Describe the parameters monitored and/or methods used to indicate performance of this control device.
 Weekly visible emissions checks.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: 017	List all emission units associated with this control device. 003 Mill Operations
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Manufacturer: Associated Metal Works	Model number: 152" Diameter	Installation date: 05/01/2005
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Type of Air Pollution Control Device:

<input type="checkbox"/> Baghouse/Fabric Filter	<input type="checkbox"/> Venturi Scrubber	<input type="checkbox"/> Multiclone
<input type="checkbox"/> Carbon Bed Adsorber	<input type="checkbox"/> Packed Tower Scrubber	<input checked="" type="checkbox"/> Single Cyclone
<input type="checkbox"/> Carbon Drum(s)	<input type="checkbox"/> Other Wet Scrubber	<input type="checkbox"/> Cyclone Bank
<input type="checkbox"/> Catalytic Incinerator	<input type="checkbox"/> Condenser	<input type="checkbox"/> Settling Chamber
<input type="checkbox"/> Thermal Incinerator	<input type="checkbox"/> Flare	<input type="checkbox"/> Other (describe) _____
<input type="checkbox"/> Wet Plate Electrostatic Precipitator	<input type="checkbox"/> Dry Plate Electrostatic Precipitator	

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
Particulate Matter	97%	97%
PM-10	97%	97%

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).
 The No. 6 Cyclone controls emissions from the relay of dust from the Nos. 1, 2, 3, 4, & 5 Baghouses. The No. 6 Cyclone has a design air flow rate of 27,490 cubic feet per minute and a pressure drop of 2 inches water column. Emissions from the No. 6 Cyclone are vented to the No. 6 Baghouse for additional control of particulate matter.

Is this device subject to the CAM requirements of 40 C.F.R. 64? Yes No
 If Yes, **Complete ATTACHMENT H – Applicable CAM monitoring has already been implemented in the Title V permit for this source.**
 If No, **Provide justification.**

Describe the parameters monitored and/or methods used to indicate performance of this control device.
 Weekly visible emissions checks.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: 015	List all emission units associated with this control device. 003 Mill Operations
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Manufacturer: Unknown	Model number: Unknown	Installation date: 06/06/1990
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Type of Air Pollution Control Device:

<input type="checkbox"/> Baghouse/Fabric Filter	<input type="checkbox"/> Venturi Scrubber	<input type="checkbox"/> Multiclone
<input type="checkbox"/> Carbon Bed Adsorber	<input type="checkbox"/> Packed Tower Scrubber	<input checked="" type="checkbox"/> Single Cyclone
<input type="checkbox"/> Carbon Drum(s)	<input type="checkbox"/> Other Wet Scrubber	<input type="checkbox"/> Cyclone Bank
<input type="checkbox"/> Catalytic Incinerator	<input type="checkbox"/> Condenser	<input type="checkbox"/> Settling Chamber
<input type="checkbox"/> Thermal Incinerator	<input type="checkbox"/> Flare	<input type="checkbox"/> Other (describe) _____
<input type="checkbox"/> Wet Plate Electrostatic Precipitator	<input type="checkbox"/> Dry Plate Electrostatic Precipitator	

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
Particulate Matter	95%	95%
PM-10	95%	95%

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).
 The No. 7 Cyclone controls emissions from the No. 1 Wood Hog. The No. 7 Cyclone is designed for an air flow rate of 24,100 cubic feet per minute. Emissions from the No. 7 Cyclone are vented to the No. 7 Baghouse for additional control of particulate matter.

Is this device subject to the CAM requirements of 40 C.F.R. 64? Yes No
 If Yes, **Complete ATTACHMENT H – Applicable CAM monitoring has already been implemented in the Title V permit for this source.**
 If No, **Provide justification.**

Describe the parameters monitored and/or methods used to indicate performance of this control device.
 Weekly visible emissions checks.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: DC-01 and DC-02	List all emission units associated with this control device. Yard Operations - Scrap recovery system consisting of scrap grinder, rip saws, and knot saws.
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Manufacturer: Nederman	Model number: S-750 & S-1000	Installation date: 01/15/2017
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Type of Air Pollution Control Device:

<input checked="" type="checkbox"/> Baghouse/Fabric Filter	<input type="checkbox"/> Venturi Scrubber	<input type="checkbox"/> Multiclone
<input type="checkbox"/> Carbon Bed Adsorber	<input type="checkbox"/> Packed Tower Scrubber	<input type="checkbox"/> Single Cyclone
<input type="checkbox"/> Carbon Drum(s)	<input type="checkbox"/> Other Wet Scrubber	<input type="checkbox"/> Cyclone Bank
<input type="checkbox"/> Catalytic Incinerator	<input type="checkbox"/> Condenser	<input type="checkbox"/> Settling Chamber
<input type="checkbox"/> Thermal Incinerator	<input type="checkbox"/> Flare	<input type="checkbox"/> Other (describe) _____
<input type="checkbox"/> Wet Plate Electrostatic Precipitator	<input type="checkbox"/> Dry Plate Electrostatic Precipitator	

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
Particulate Matter	100%	99.99%
PM-10	100%	99.9%

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).
 Wood waste is filtered out by (24) Beane material filter bags and drops into collection bins or bags to be used as hog fuel or sold as animal bedding or other beneficial product.
 Pressure drop across the filter will be maintained between 0.2 to 6.5 in WC.

Is this device subject to the CAM requirements of 40 C.F.R. 64? Yes No
 If Yes, **Complete ATTACHMENT H**
 If No, **Provide justification.**
 Potential pre-control device emissions from the source are less than major source thresholds.

Describe the parameters monitored and/or methods used to indicate performance of this control device.
 N/A
 Pressure Drop (inches of WC) = 0.2 to 6.5

APPENDIX A
EMISSIONS CALCULATIONS

Armstrong Hardwood Flooring Company - Beverly Plant
Title V Renewal Application
Potential Emissions Calculations - July 2017

Site-Wide Potential Emissions Summary

Emissions Source	Potential Emissions (tons/yr)										
	CO	NOx	PM _{Total}	PM ₁₀	PM _{2.5}	SO ₂	VOC	Total HAP	HCl	Formaldehyde	Lead
Boiler 01 & 02 (001-01 & 001-02)	225.83	106.00	71.57	17.10	14.96	95.01	39.52	16.39	8.12	1.88	0.02
Boiler 04 (001-04)	12.08	7.19	1.09	1.09	1.09	0.09	0.79	0.28	-	-	-
Finishing Line (002-01, 002-02)	1.15	1.37	15.04	3.09		0.01	204.50	7.97	-	1.03E-03	-
Flooring Mill (003-02, 003-03)	0.36	0.43	66.81	13.39		0.00	5.12	0.01	-	3.22E-04	-
Scrap Recovery Operations (004-01)	-	-	0.07	0.07	-	-	-	-	-	-	-
Emergency Generator (005-01)	6.29	0.16	7.02E-04	7.02E-04	7.02E-04	4.13E-05	0.01	5.07E-03	-	3.71E-03	-
Total	245.72	115.15	154.59	34.75	16.06	95.11	249.94	24.65	8.12	1.89	0.02
Facility-Wide Emissions Limits	-	-	-	-	-	-	224.0	24.4	9.40	9.40	9.40

Notes:

1. Facility-wide limit of 9.4 TPY of any single HAP and 24.4 TPY of aggregated HAP (Permit Condition 3.1.1)
2. Finishing line has a limit of 204.5 TPY of VOC (Permit Condition 6.1.3)
3. Finishing line has a limit of 5.64 TPY of any single HAP and 7.94 TPY of aggregated HAP (Permit Condition 6.1.4)

Armstrong Hardwood Flooring Company - Beverly Plant
Title V Renewal Application
Potential Emissions Calculations - July 2017

Emissions from Boilers 01 & 02 (001-01 & 000-02)

Boiler Capacity 1200 hp
 Boiler Capacity 48.8 MMBtu/hr Each
 Total Boiler Capacity 97.6 MMBtu/hr
 Max Operating Hours 8760 Hrs/ Yr

Criteria Pollutants	Emission Factor (lb/MMBtu)	Max Hourly Emissions - Each (lb/hr)	Max Emissions - Each (tpy)	Combined Hourly Emissions (lb/hr)	Total Potential Emissions (tpy)	Emissions Factor Source
NOx	NA	12.10	53.00	24.20	106.00	Permit Limit
CO	NA	25.78	112.92	51.56	225.83	Permit Limit
PM-Total	NA	8.17	35.78	16.34	71.57	Permit Limit/45CSR2-4.1c
PM-Condensable	0.017	0.83	3.63	1.66	7.27	AP-42 Table 1.6-1
PM _{10F}	0.040	1.95	8.55	3.90	17.10	AP-42 Table 1.6-1
Total PM ₁₀	0.057	2.78	12.18	5.56	24.37	AP-42 Table 1.6-1
PM _{2.5F}	0.035	1.71	7.48	3.42	14.96	AP-42 Table 1.6-1
Total PM _{2.5}	0.052	2.54	11.11	5.08	22.23	AP-42 Table 1.6-1
PM-Filterable	0.054	2.64	11.54	5.27	23.08	AP-42 Table 1.6-1
SO ₂	NA	32.29	47.51	64.58	95.01	Permit Limit
VOC	NA	4.51	19.76	9.02	39.52	Permit Limit

HAP Emissions from Boilers 01 & 02 (001-01 & 000-02)

Hazardous Air Pollutants (HAP)	Emission Factor (lb/MMBtu)	Max Hourly Emissions - Each (lb/hr)	Max Emissions - Each (tpy)	Potential Emissions (lb/hr)	Potential Emissions (tpy)
Acenaphthene	9.10E-07	4.44E-05	1.95E-04	0.00	0.00
Acenaphthylene	5.00E-06	2.44E-04	1.07E-03	0.00	0.00
Acetaldehyde	8.30E-04	4.05E-02	1.77E-01	0.08	0.35
Acetophenone	3.20E-09	1.56E-07	6.84E-07	0.00	0.00
Acrolein	4.00E-03	1.95E-01	8.55E-01	0.39	1.71
Anthracene	3.00E-06	1.46E-04	6.41E-04	0.00	0.00
Benzene	4.20E-03	2.05E-01	8.98E-01	0.41	1.80
Benzo(a)anthracene	6.50E-08	3.17E-06	1.39E-05	0.00	0.00
Benzo(a)pyrene	2.60E-06	1.27E-04	5.56E-04	0.00	0.00
Benzo(b)fluoranthene	1.00E-07	4.88E-06	2.14E-05	0.00	0.00
Benzo(e)pyrene	2.60E-09	1.27E-07	5.56E-07	0.00	0.00
Benzo(g,h,i)perylene	9.30E-08	4.54E-06	1.99E-05	0.00	0.00
Benzo(j,k)fluoranthene	1.60E-07	7.81E-06	3.42E-05	0.00	0.00
Benzo(k)fluoranthene	3.60E-08	1.76E-06	7.69E-06	0.00	0.00
bis(2-Ethylhexyl)phthalate	4.70E-08	2.29E-06	1.00E-05	0.00	0.00
Bromomethane	1.50E-05	7.32E-04	3.21E-03	0.00	0.01
Carbazole	1.80E-06	8.78E-05	3.85E-04	0.00	0.00
Carbon tetrachloride	4.50E-05	2.20E-03	9.62E-03	0.00	0.02
Chlorine	7.90E-04	3.86E-02	1.69E-01	0.08	0.34
Chlorobenzene	3.30E-05	1.61E-03	7.05E-03	0.00	0.01
Chloroform	2.80E-05	1.37E-03	5.98E-03	0.00	0.01
Chloromethane	2.30E-05	1.12E-03	4.92E-03	0.00	0.01
2-Chloronaphthalene	2.40E-09	1.17E-07	5.13E-07	0.00	0.00
Chrysene	3.80E-08	1.85E-06	8.12E-06	0.00	0.00
Decachlorobiphenyl	2.70E-10	1.32E-08	5.77E-08	0.00	0.00
Dibenzo(a,h)anthracene	9.10E-09	4.44E-07	1.95E-06	0.00	0.00
Ethylbenzene	3.10E-05	1.51E-03	6.63E-03	0.00	0.01
Fluoranthene	1.60E-06	7.81E-05	3.42E-04	0.00	0.00
Fluorene	3.40E-06	1.66E-04	7.27E-04	0.00	0.00
Formaldehyde	4.40E-03	0.21	0.94	0.43	1.88
Heptachlorobiphenyl	6.60E-11	3.22E-09	1.41E-08	0.00	0.00
Hexachlorobiphenyl	5.50E-10	2.68E-08	1.18E-07	0.00	0.00
Heptachlorodibenzo-p-dioxins	2.00E-09	9.76E-08	4.27E-07	0.00	0.00
Heptachlorodibenzo-p-furans	2.40E-10	1.17E-08	5.13E-08	0.00	0.00
Hexachlorodibenzo-p-dioxins	1.60E-06	7.81E-05	3.42E-04	0.00	0.00

Armstrong Hardwood Flooring Company - Beverly Plant
Title V Renewal Application
Potential Emissions Calculations - July 2017

HAP Emissions from Boilers 01 & 02 (001-01 & 000-02)

Hazardous Air Pollutants (HAP)	Emission Factor (lb/MMBtu)	Max Hourly Emissions - Each (lb/hr)	Max Emissions - Each (tpy)	Potential Emissions (lb/hr)	Potential Emissions (tpy)
Hexachlorodibenzo-p-furans	2.80E-10	1.37E-08	5.98E-08	0.00	0.00
Hydrogen chloride	1.90E-02	0.93	4.06	1.85	8.12
2-Methylnaphthalene	1.60E-07	7.81E-06	3.42E-05	0.00	0.00
Naphthalene	9.70E-05	4.73E-03	2.07E-02	0.01	0.04
2-Nitrophenol	2.40E-07	1.17E-05	5.13E-05	0.00	0.00
4-Nitrophenol	1.10E-07	5.37E-06	2.35E-05	0.00	0.00
Octachlorodibenzo-p-dioxins	6.60E-08	3.22E-06	1.41E-05	0.00	0.00
Octachlorodibenzo-p-furans	8.80E-11	4.29E-09	1.88E-08	0.00	0.00
Pentachlorodibenzo-p-dioxins	1.50E-09	7.32E-08	3.21E-07	0.00	0.00
Pentachlorodibenzo-p-furans	4.20E-10	2.05E-08	8.98E-08	0.00	0.00
Pentachlorobiphenyl	1.20E-09	5.86E-08	2.56E-07	0.00	0.00
Pentachlorophenol	5.10E-08	2.49E-06	1.09E-05	0.00	0.00
Perylene	5.20E-10	2.54E-08	1.11E-07	0.00	0.00
Phenanthrene	7.00E-06	3.42E-04	1.50E-03	0.00	0.00
Phenol	5.10E-05	2.49E-03	1.09E-02	0.00	0.02
Propionaldehyde	6.10E-05	2.98E-03	1.30E-02	0.01	0.03
Pyrene	3.70E-06	1.81E-04	7.91E-04	0.00	0.00
Styrene	1.90E-03	9.27E-02	4.06E-01	0.19	0.81
2,3,7,8-Tetrachlorodibenzo-p-dioxins	8.60E-12	4.20E-10	1.84E-09	0.00	0.00
Tetrachlorodibenzo-p-dioxins	4.70E-10	2.29E-08	1.00E-07	0.00	0.00
2,3,7,8-Tetrachlorodibenzo-p-furans	9.00E-11	4.39E-09	1.92E-08	0.00	0.00
Tetrachlorodibenzo-p-furans	7.50E-10	3.66E-08	1.60E-07	0.00	0.00
Tetrachlorobiphenyl	2.50E-09	1.22E-07	5.34E-07	0.00	0.00
Tetrachloroethene	3.80E-05	1.85E-03	8.12E-03	0.00	0.02
o-Tolualdehyde	7.20E-06	3.51E-04	1.54E-03	0.00	0.00
p-Tolualdehyde	1.10E-05	5.37E-04	2.35E-03	0.00	0.00
Toluene	9.20E-04	4.49E-02	1.97E-01	0.09	0.39
Trichlorobiphenyl	2.60E-09	1.27E-07	5.56E-07	0.00	0.00
1,1,1-Trichloroethane	3.10E-05	1.51E-03	6.63E-03	0.00	0.01
2,4,6-Trichlorophenol	2.20E-08	1.07E-06	4.70E-06	0.00	0.00
Vinyl Chloride	1.80E-05	8.78E-04	3.85E-03	0.00	0.01
o-Xylene	2.50E-05	1.22E-03	5.34E-03	0.00	0.01
Antimony	7.90E-06	3.86E-04	1.69E-03	0.00	0.00
Arsenic	2.20E-05	1.07E-03	4.70E-03	0.00	0.01
Beryllium	1.10E-06	5.37E-05	2.35E-04	0.00	0.00
Cadmium	4.10E-06	2.00E-04	8.76E-04	0.00	0.00
Chromium, total	2.10E-05	1.02E-03	4.49E-03	0.00	0.01
Chromium, hexavalent	3.50E-06	1.71E-04	7.48E-04	0.00	0.00
Cobalt	6.50E-06	3.17E-04	1.39E-03	0.00	0.00
Lead	4.80E-05	2.34E-03	1.03E-02	0.00	0.02
Manganese	1.60E-03	7.81E-02	3.42E-01	0.16	0.68
Mercury	3.50E-06	1.71E-04	7.48E-04	0.00	0.00
Nickel	3.30E-05	1.61E-03	7.05E-03	0.00	0.01
Selenium	2.80E-06	1.37E-04	5.98E-04	0.00	0.00
Total		1.87	8.19	3.74	16.39

Conversion Factors:

2.2046 lbs/kg

Notes:

HAP emission factors were obtained from EPA AP-42 Tables 1.6-3 & 1.6-4.

Armstrong Hardwood Flooring Company - Beverly Plant
Title V Renewal Application
Potential Emissions Calculations - July 2017

Emissions from the Natural Gas Boiler (001-04)

Boiler Max Heat Input Capacity: 800 hp
33.50 MMBtu/hr
Fuel High Heat Value: 1020 Btu/scf
Max Operating Hrs: 8760 hr/yr
Max Annual Heat Input: 293,460 MMBtu/yr
Max Hourly Fuel Consumption: 33,480 scf/hr
Max Annual Fuel Consumption: 293 MMcf/yr

Pollutant	Emission Factor (lb/MMscf)	Potential Emissions (lb/hr)	Potential Emissions (tons/yr)
PM-Total	7.6	0.25	1.09
Total PM ₁₀	7.6	0.25	1.09
Total PM _{2.5}	7.6	0.25	1.09
NOx	50	1.64	7.19
CO	84	2.76	12.08
SO ₂	0.6	0.02	0.09
VOC	5.5	0.18	0.79

HAP Emissions from the Natural Gas Boiler (001-04)

Hazardous Air Pollutants (HAP)	Emission Factor (lb/MMscf)	Potential Emissions (lb/hr)	Potential Emissions (tons/yr)
Benzene	2.10E-03	7.03E-05	0.000
Toluene	3.40E-03	1.14E-04	0.000
Formaldehyde	7.50E-02	0.0025	0.011
Naphthalene	6.10E-04	2.04E-05	0.000
Acenaphthylene	1.80E-06	6.03E-08	0.000
Acenaphthene	1.80E-06	6.03E-08	0.000
Fluorene	2.80E-06	9.37E-08	0.000
Phenanthrene	1.70E-05	5.69E-07	0.000
Anthracene	2.40E-06	8.04E-08	0.000
Fluoranthene	3.00E-06	1.00E-07	0.000
Pyrene	5.00E-06	1.67E-07	0.000
Benzo(a)anthracene	1.80E-06	6.03E-08	0.000
Chrysene	1.80E-06	6.03E-08	0.000
Benzo(b)fluoranthene	1.80E-06	6.03E-08	0.000
Benzo(k)fluoranthene	1.80E-06	6.03E-08	0.000
Benzo(a)pyrene	1.20E-06	4.02E-08	0.000
Indeno(1,2,3,c,d)pyrene	1.80E-06	6.03E-08	0.000
Dibenzo(a,h)anthracene	1.20E-06	4.02E-08	0.000
Benzo(g,h,i)perylene	1.20E-06	4.02E-08	0.000
2-Methylnaphthalene	2.40E-05	8.04E-07	0.000

Armstrong Hardwood Flooring Company - Beverly Plant
Title V Renewal Application
Potential Emissions Calculations - July 2017

HAP Emissions from the Natural Gas Boiler (001-04)

Hazardous Air Pollutants (HAP)	Emission Factor (lb/MMscf)	Potential Emissions (lb/hr)	Potential Emissions (tons/yr)
3-Methylchloranthrene	1.80E-06	6.03E-08	0.000
7,12-Dimethylbenz(a)anthracene	1.60E-05	5.36E-07	0.000
Dichlorobenzene	1.20E-03	4.02E-05	0.000
Hexane	1.80E+00	0.06	0.264
Arsenic	2.00E-04	6.70E-06	0.000
Beryllium	1.20E-05	4.02E-07	0.000
Cadmium	1.10E-03	3.68E-05	0.000
Chromium	1.40E-03	4.69E-05	0.000
Cobalt	8.40E-05	2.81E-06	0.000
Manganese	3.80E-04	1.27E-05	0.000
Mercury	2.60E-04	8.70E-06	0.000
Nickel	2.10E-03	7.03E-05	0.000
Selenium	2.40E-05	8.04E-07	0.000
Total HAP:		0.063	0.28

Conversion Factors: 2.2046 lbs/kg

Notes:

1. Emission Factor Source: AP-42 Tables 1.4-1 through 1.4-3 for low NOx small boiler, where available.
2. PM10 and PM2.5 are assumed to be equal to PM.

Armstrong Hardwood Flooring Company - Beverly Plant
Title V Renewal Application
Potential Emissions Calculations - July 2017

Emissions from Finishing Lines 1 & 2 (002-01 & 002-02)

Permit Limits	lb/hr	tpy
VOC	88.54	204.50
Single HAP	-	5.64
Total HAP	-	7.94

Max exit loading	0.005	gr/cf
Max hours of operation	8760	hr/yr

Description (Stack ID)	Air Flow Capacity ACFM	Potential Emissions			
		PM Emissions (lbs/hr)	PM Emissions (tons/yr)	PM ₁₀ Emissions (lbs/hr)	PM ₁₀ Emissions (tons/yr)
No. 1 Baghouse (S03)	79,556	3.41	14.93	0.68	2.99

Notes:

1. Vendor emission factor for dry wood dust in 99.9% Efficient Donaldson DuraLife Bags is 0.005 grains/cf
2. PM10 emissions from the baghouse estimated as 20% of total PM emissions
3. Baghouse Emission Rate (lbs/hr) = Emission Factor (gr/cf) x Air Flow (cfm) x 60 min/hr / 7,000 (grains/lb)

Emissions from Natural Gas Ovens (002-01 & 002-02)

Line 1 Oven Capacity (002-01)	1.60	MMBtu/hr
Line 2 Oven Capacity (002-02)	1.60	MMBtu/hr
Total Capacity	3.20	MMBtu/hr
HHV of Natural Gas	1,020	Btu/scf
Max Fuel Sulfur Content	0.0015%	S by weight
Max Operating Hours	8,760	hr/yr
Max Hourly Fuel Rate	3,137	scf/hr
Max Annual Fuel Rate	27.48	MMscf/yr

Criteria Pollutants	Emission Factor (lb/MMscf)	Potential Emissions Each Line (lb/hr)	Potential Emissions Each Line (tpy)	Potential Emissions (lb/hr)	Potential Emissions (tpy)
PM-Total	7.6	0.01	0.05	0.02	0.10
Total PM ₁₀	7.6	0.01	0.05	0.02	0.10
Total PM _{2.5}	7.6	0.01	0.05	0.02	0.10
NOx	100	0.16	0.69	0.31	1.37
CO	84	0.13	0.58	0.26	1.15
SO ₂	0.6	0.001	0.004	0.00	8.24E-03
VOC	5.5	0.01	0.04	0.02	0.08

Armstrong Hardwood Flooring Company - Beverly Plant
Title V Renewal Application
Potential Emissions Calculations - July 2017

Emissions from Natural Gas Ovens (002-01 & 002-02) Cont.

Hazardous Air Pollutants (HAP)	Emission Factor (lb/MMscf)	Potential Emissions Each Line (lb/hr)	Potential Emissions Each Line (tpy)	Potential Emissions (lb/hr)	Potential Emissions (tons/yr)
Benzene	2.10E-03	3.29E-06	1.44E-05	6.59E-06	2.89E-05
Toluene	3.40E-03	5.33E-06	2.34E-05	1.07E-05	4.67E-05
Formaldehyde	7.50E-02	1.18E-04	5.15E-04	2.35E-04	1.03E-03
Naphthalene	6.10E-04	9.57E-07	4.19E-06	1.91E-06	8.38E-06
Acenaphthylene	1.80E-06	2.82E-09	1.24E-08	5.65E-09	2.47E-08
Acenaphthene	1.80E-06	2.82E-09	1.24E-08	5.65E-09	2.47E-08
Fluorene	2.80E-06	4.39E-09	1.92E-08	8.78E-09	3.85E-08
Phenanthrene	1.70E-05	2.67E-08	1.17E-07	5.33E-08	2.34E-07
Anthracene	2.40E-06	3.76E-09	1.65E-08	7.53E-09	3.30E-08
Fluoranthene	3.00E-06	4.71E-09	2.06E-08	9.41E-09	4.12E-08
Pyrene	5.00E-06	7.84E-09	3.44E-08	1.57E-08	6.87E-08
Benzo(a)anthracene	1.80E-06	2.82E-09	1.24E-08	5.65E-09	2.47E-08
Chrysene	1.80E-06	2.82E-09	1.24E-08	5.65E-09	2.47E-08
Benzo(b)flouranthene	1.80E-06	2.82E-09	1.24E-08	5.65E-09	2.47E-08
Benzo(k)flouranthene	1.80E-06	2.82E-09	1.24E-08	5.65E-09	2.47E-08
Benzo(a)pyrene	1.20E-06	1.88E-09	8.24E-09	3.76E-09	1.65E-08
Indeno(1,2,3,c,d)pyrene	1.80E-06	2.82E-09	1.24E-08	5.65E-09	2.47E-08
Dibenzo(a,h)anthracene	1.20E-06	1.88E-09	8.24E-09	3.76E-09	1.65E-08
Benzo(g,h,i)perylene	1.20E-06	1.88E-09	8.24E-09	3.76E-09	1.65E-08
2-Methylnaphthalene	2.40E-05	3.76E-08	1.65E-07	7.53E-08	3.30E-07
3-Methylchloranthrene	1.80E-06	2.82E-09	1.24E-08	5.65E-09	2.47E-08
7,12- Dimethylbenz(a)anthracene	1.60E-05	2.51E-08	1.10E-07	5.02E-08	2.20E-07
Dichlorobenzene	1.20E-03	1.88E-06	8.24E-06	3.76E-06	1.65E-05
Hexane	1.80E+00	2.82E-03	1.24E-02	5.65E-03	2.47E-02
Arsenic	2.00E-04	3.14E-07	1.37E-06	6.27E-07	2.75E-06
Beryllium	1.20E-05	1.88E-08	8.24E-08	3.76E-08	1.65E-07
Cadmium	1.10E-03	1.73E-06	7.56E-06	3.45E-06	1.51E-05
Chromium	1.40E-03	2.20E-06	9.62E-06	4.39E-06	1.92E-05
Cobalt	8.40E-05	1.32E-07	5.77E-07	2.64E-07	1.15E-06
Manganese	3.80E-04	5.96E-07	2.61E-06	1.19E-06	5.22E-06
Mercury	2.60E-04	4.08E-07	1.79E-06	8.16E-07	3.57E-06
Nickel	2.10E-03	3.29E-06	1.44E-05	6.59E-06	2.89E-05
Selenium	2.40E-05	3.76E-08	1.65E-07	7.53E-08	3.30E-07
Total HAP:	1.89	2.96E-03	1.30E-02	5.92E-03	2.59E-02

Conversion Factors: 2.2046 lbs/kg

Notes:

Emission factors were obtained from AP-42 Tables 1.4-1 through 1.4-3.

Armstrong Hardwood Flooring Company - Beverly Plant
Title V Renewal Application
Potential Emissions Calculations - July 2017

Emissions from Flooring Mill (003-02 & 003-03)

Permit Limit	lb/hr	tpy
Flooring Mill VOC Emissions	1.90	5.10

Max exit loading on baghouses	0.005	gr/cf
Max hours of operation	8760	hr/yr

Description (Stack ID)	Air Flow Capacity ACFM	Potential Emissions			
		PM Emissions (lbs/hr)	PM Emissions (tons/yr)	PM ₁₀ Emissions (lbs/hr)	PM ₁₀ Emissions (tons/yr)
No. 2 Baghouse (S04)	49,701	2.13	9.33	0.43	1.87
No. 3 Baghouse (S05)	57,077	2.45	10.71	0.49	2.14
No. 4 Baghouse (S06)	27,489	1.18	5.16	0.24	1.03
No. 5 Baghouse (S07)	43,295	1.86	8.13	0.37	1.63
No. 6 Baghouse (S09)	59,748	2.56	11.22	0.51	2.24
No. 7 Baghouse (S10)	49,857	2.14	9.36	0.43	1.87
No. 8 Baghouse (S11)	68,597	2.94	12.88	0.59	2.58
Total Flooring Mill Emissions		15.25	66.78	3.05	13.36

Notes:

1. Vendor emission factor for dry wood dust in 99.9% Efficient Donaldson DuraLife Bags is 0.005 grains/cf
2. PM10 emissions from the baghouse estimated as 20% of total PM emissions
3. Baghouse Emission Rate (lbs/hr) = Emission Factor (gr/cf) x Air Flow (cfm) x 60 min/hr / 7,000 (grains/lb)

Emissions from Natural Gas Oven (003-02D)

Heater Capacity	1.0	MMBtu/hr
HHV of Natural Gas	1,020	Btu/scf
Max Fuel Sulfur Content	0.0015%	S by weight
Max Operating Hours	8,760	hr/yr

Criteria Pollutants	Emission Factor (lb/MMscf)	Potential Emissions (lb/hr)	Potential Emissions (tpy)
NOx	100	0.10	0.43
CO	84	0.08	0.36
PM-Total	7.6	0.01	0.03
Total PM ₁₀	7.6	0.01	0.03
Total PM _{2.5}	7.6	0.01	0.03
SO ₂	0.6	0.00	2.58E-03
VOC	5.5	0.01	0.02

Armstrong Hardwood Flooring Company - Beverly Plant
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Emissions from Natural Gas Oven (003-02D) Cont.

Hazardous Air Pollutants (HAP)	Emission Factor (lb/MMscf)	Potential Emissions (lb/hr)	Potential Emissions (tons/yr)
Benzene	2.10E-03	2.06E-06	9.02E-06
Toluene	3.40E-03	3.33E-06	1.46E-05
Formaldehyde	7.50E-02	7.35E-05	3.22E-04
Naphthalene	6.10E-04	5.98E-07	2.62E-06
Acenaphthylene	1.80E-06	1.76E-09	7.73E-09
Acenaphthene	1.80E-06	1.76E-09	7.73E-09
Fluorene	2.80E-06	2.75E-09	1.20E-08
Phenanthrene	1.70E-05	1.67E-08	7.30E-08
Anthracene	2.40E-06	2.35E-09	1.03E-08
Fluoranthene	3.00E-06	2.94E-09	1.29E-08
Pyrene	5.00E-06	4.90E-09	2.15E-08
Benzo(a)anthracene	1.80E-06	1.76E-09	7.73E-09
Chrysene	1.80E-06	1.76E-09	7.73E-09
Benzo(b)fluoranthene	1.80E-06	1.76E-09	7.73E-09
Benzo(k)fluoranthene	1.80E-06	1.76E-09	7.73E-09
Benzo(a)pyrene	1.20E-06	1.18E-09	5.15E-09
Indeno(1,2,3,c,d)pyrene	1.80E-06	1.76E-09	7.73E-09
Dibenzo(a,h)anthracene	1.20E-06	1.18E-09	5.15E-09
Benzo(g,h,i)perylene	1.20E-06	1.18E-09	5.15E-09
2-Methylnaphthalene	2.40E-05	2.35E-08	1.03E-07
3-Methylchloranthrene	1.80E-06	1.76E-09	7.73E-09
7,12- Dimethylbenz(a)anthracene	1.60E-05	1.57E-08	6.87E-08
Dichlorobenzene	1.20E-03	1.18E-06	5.15E-06
Hexane	1.80E+00	1.76E-03	7.73E-03
Arsenic	2.00E-04	1.96E-07	8.59E-07
Beryllium	1.20E-05	1.18E-08	5.15E-08
Cadmium	1.10E-03	1.08E-06	4.72E-06
Chromium	1.40E-03	1.37E-06	6.01E-06
Cobalt	8.40E-05	8.24E-08	3.61E-07
Manganese	3.80E-04	3.73E-07	1.63E-06
Mercury	2.60E-04	2.55E-07	1.12E-06
Nickel	2.10E-03	2.06E-06	9.02E-06
Selenium	2.40E-05	2.35E-08	1.03E-07
Total HAP:	1.89	1.85E-03	8.11E-03

Conversion Factors: 2.2046 lbs/kg

Notes:

Emission factors for the oven were obtained from EPA AP-42 Tables 1.4-1 through 1.4-3

Armstrong Hardwood Flooring Company - Beverly Plant
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Potential Emissions Calculations - July 2017

Emissions from Natural Gas Emergency Generator

Parameter	Value	Units	Source
Max Output	22	kW	Manufacturer Engine Specs
	29.5	hp	Estimate from conversion
Hourly Max Input	0.281	MMBtu/hr	Manufacturer Engine Specs
Max Hrs of Operation	500	hrs/yr	Definition of Emergency Engine
Annual Max Input	140.5	MMBtu/yr	Calculation for 500 hrs of operation

Pollutant	Emission Factors (lb/MMBtu)	Units	Total Emissions (lbs/hr)	Total Emissions (tons/yr)	Emission Factor Source
CO	387	g/hp-hr	25.15	6.29	40 CFR 60 Subpart JJJ
NOx	10	g/hp-hr	0.65	0.16	40 CFR 60 Subpart JJJ
Total PM ₁₀	9.99E-03	lb/MMBtu	2.81E-03	7.02E-04	EPA AP-42 Table 3.2-2
Total PM _{2.5}	9.99E-03	lb/MMBtu	2.81E-03	7.02E-04	EPA AP-42 Table 3.2-2
SO ₂	5.88E-04	lb/MMBtu	1.65E-04	4.13E-05	EPA AP-42 Table 3.2-2
VOC	1.18E-01	lb/MMBtu	0.033	0.01	EPA AP-42 Table 3.2-2

HAP Emissions from Natural Gas Emergency Generator

Pollutant	Emission Factors (lb/MMBtu)	Total Emissions (lbs/hr)	Total Emissions (tons/yr)
1,1,2,2-Tetrachloroethane	4.00E-05	1.12E-05	2.81E-06
1,1,2-Trichloroethane	3.18E-05	8.94E-06	2.23E-06
1,3-Butadiene	2.67E-04	7.50E-05	1.88E-05
1,3-Dichloropropene	2.64E-05	7.42E-06	1.85E-06
2-Methylnaphthalene*	3.32E-05	9.33E-06	2.33E-06
2,2,4-Trimethylpentane	2.50E-04	7.03E-05	1.76E-05
Acenaphthene*	1.25E-06	3.51E-07	8.78E-08
Acenaphthylene*	5.53E-06	1.55E-06	3.88E-07
Acetaldehyde	8.36E-03	2.35E-03	5.87E-04
Acrolein	5.14E-03	1.44E-03	3.61E-04
Benzene	4.40E-04	1.24E-04	3.09E-05
Benzo(b)fluoranthene*	1.66E-07	4.66E-08	1.17E-08
Benzo(e)pyrene*	4.15E-07	1.17E-07	2.92E-08
Benzo(g,h,i)perylene*	4.14E-07	1.16E-07	2.91E-08
Biphenyl	2.12E-04	5.96E-05	1.49E-05
Carbon Tetrachloride	3.67E-05	1.03E-05	2.58E-06
Chlorobenzene	3.04E-05	8.54E-06	2.14E-06
Chloroform	2.85E-05	8.01E-06	2.00E-06
Chrysene	6.93E-07	1.95E-07	4.87E-08
Ethylbenzene	3.97E-05	1.12E-05	2.79E-06
Ethylene Dibromide	4.43E-05	1.24E-05	3.11E-06
Fluoranthene	1.11E-06	3.12E-07	7.80E-08
Fluorene	5.67E-06	1.59E-06	3.98E-07
Formaldehyde	5.28E-02	1.48E-02	3.71E-03

Armstrong Hardwood Flooring Company - Beverly Plant
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Potential Emissions Calculations - July 2017

HAP Emissions from Natural Gas Emergency Generator

Pollutant	Emission Factors (lb/MMBtu)	Total Emissions (lbs/hr)	Total Emissions (tons/yr)
Methanol	2.50E-03	7.03E-04	1.76E-04
Methylene Chloride	2.00E-05	5.62E-06	1.41E-06
n-Hexane	1.11E-03	3.12E-04	7.80E-05
Naphthalene	7.44E-05	2.09E-05	5.23E-06
PAH*	2.69E-05	7.56E-06	1.89E-06
Phenanthrene*	1.04E-05	2.92E-06	7.31E-07
Phenol	2.40E-05	6.74E-06	1.69E-06
Pyrene*	1.36E-06	3.82E-07	9.55E-08
Styrene	2.36E-05	6.63E-06	1.66E-06
Tetrachloroethane	2.48E-06	6.97E-07	1.74E-07
Toluene	4.08E-04	1.15E-04	2.87E-05
Vinyl Chloride	1.49E-05	4.19E-06	1.05E-06
Xylene	1.84E-04	5.17E-05	1.29E-05
Total HAP		0.02	5.07E-03
Total POM		0.00	5.59E-06

Conversion Factors:
2000 lbs/ton
1.341 hp/kw
453.59 grams/lb

Notes:

1. Total PM10 and PM2.5 include emission factors for PM10-filterable and PM2.5-filterable and PM-condensable.
2. Emission factors for organic compounds were obtained from EPA AP-42 Section 3.2 for a 4-stroke lean-burn engine.