# HOOD INDUSTRIES, INC.
# WAYNESBORO, MISSISSIPPI

## Application for Permit to Construct


**Prepared By:**
**H. M. Rollins Company, Inc.**
**P. O. Box 3471**
**Gulfport, Mississippi  39505**
**(228) 832-1738**


**May 23, 2025**

**Revised July 22, 2025**

# TABLE OF CONTENTS

# LIST OF EXHIBITS

# 1.0 INTRODUCTION

This application is for a mill modernization project which will involve the replacement of the current sawmill and planer mill located on the property; the removal of the wood-fired boiler, steam-heated lumber kiln, batch wood-fired lumber kiln, and all pneumatic conveyance systems; the modification of the existing continuous lumber dry kiln from wood-fired to natural gas-fired; and the construction of two log cranes and one new pneumatic conveyance system.

The emissions from this project have been evaluated and found to trigger PSD permitting. Additional information may be found in the following sections.

# 2.0 FACILITY AND PROCESS DESCRIPTION

The Hood Industries, Inc., Waynesboro, Mississippi, facility is located at 915 Industrial Park Road, approximately ¼ mile west of U.S. Highway 45 in Waynesboro, Wayne County, Mississippi. The facility produces pine lumber, with bark, wood shavings, sawdust, and wood chips produced as secondary products.

## 2.1 Facility Description

The facility is located in Section 18 of Township 8 North, Range 6 West. The property elevation is approximately 165 feet above sea level. A site topographic map of the area is included in Figure 1. Current improvements on the property include a planer mill, a sawmill, a wood-fired boiler, one steam-heated lumber drying kiln, a direct-fired batch lumber kiln, a direct-fired continuous lumber kiln, and an office building. The property also includes numerous lumber storage sheds, five wood residue pneumatic conveyance systems with cyclones, mechanical conveying systems, a log storage yard, a vehicle maintenance area, and chip and shaving load out areas. Railroad tracks run adjacent to the eastern boundary of the property, and the site is bounded to the south by Industrial Park Road. The land on which the facility is located is reasonably flat with no terrain irregularities which could have an obvious effect on pollution dispersion.

A site drawing showing the proposed layout of the modified facility is included in Figure 2.

## 2.2 Process Description

Lumber is produced at the mill as follows: (See process flow diagram in Figure 3)

- Southern pine logs arrive at the facility where they are debarked and cut to desired length. Bark and sawdust from the log debarking and bucking is conveyed to a hammer-hog where it is reduced to a more uniform particle size for sale. Any part of the log unusable for lumber proceeds to chippers where it is converted to chips used in the paper industry.

- The logs proceed to the sawmill where they are sawn into lumber and trimmed to the desired length. Sawdust from the sawmill is stored and sold as a by-product. Green residue lumber and slabs from the sawmill are sent to chippers for further processing.

- When cut in the sawmill, the lumber has a moisture content of approximately 55%. The lumber is heated in dry kilns to reduce the moisture content to approximately 19%. Heat is provided directly using natural gas burners attached to each kiln.

- After adequate drying, the lumber proceeds to the planer mill for final processing. In the planer mill, the lumber is planed to ensure uniform dimensions and trimmed to the appropriate length. Dry residue in the form of shavings, sawdust, and hogged wood is collected and shipped as a commercial by-product.

- After sorting and stacking in the planer mill, the finished lumber is then ready for distribution.

## 3.0 EMISSION INVENTORY

Post-project maximum potential emissions from existing and new sources will be quantified by the use of production rates, rated capacities, emission factors, and test data, where available.

The unloading, storage, handling, debarking, and bucking (sawing) operations are sources of fugitive emissions of particulate matter (PM). Vehicle travel on paved and unpaved plant roads is also a source of fugitive PM emissions, where applicable.

The lumber kilns used to dry lumber are a source of VOC, PM, CO, $NO_X$, SO2, and HAP emissions.

Dry wood residues from facility operations are pneumatically conveyed to a product separation device integral to the design of the system. This device separates the wood from the conveying air stream and deposits the wood into storage bins used to load trucks for shipment. The pneumatic conveyance system is a source of PM emissions.

Emissions from the storage of motor fuels, generally considered to be insignificant activities, have been calculated.

Maximum potential post-project emissions calculations are presented in Exhibit 2.

### 3.1 Insignificant Activities

A number of manufacturing process emission sources are defined as insignificant activities in 11 Miss. Admin. Codes Pt. 2, R.6.7. Those activities which are covered by subparagraphs B through D of that Rule are listed below:

- Oil and Fuel Oil Storage Tanks (B.7) (Subject to change)
    - 10,000 gallon aboveground diesel fuel tank
    - 2,000 gallon aboveground gasoline tank
    - 2,000 gallon hydraulic oil tank
    - 2,000 gallon rockdrill oil tank
    - 1,000 hydraulic oil tank
    - 4,000 gallon aboveground used oil tank
- Bark and wood storage and handling (B.13)
- Steam discharge, vents and leaks (B.25)
- Deaerator vents (B.26)
- Process and instrument air discharges (B.27)
- Maintenance room vent cyclone (less than 1.0 lbs/hr criteria pollutant emissions, 0.1 lb/hr HAP, D.1)

# 4.0 REGULATORY APPLICABILITY

The facility currently operates under emissions limitations set forth in Permit No. 2840-00004. The following is a description of State and Federal emissions limitations governing the operation of the facility:

## 4.1 State Operating Permit

The current State operating permit lists general requirements for PM emissions based on a process weight equation of $4.1\ (PW)^{0.67}$. The permit also includes opacity limitations. All operations are subject to a limit of 40% opacity.

## 4.2 New Source Performance Standards (NSPS)

None of the proposed air emissions sources are subject to NSPS.

## 4.3 New Source Review

### 4.3.1 Prevention of Significant Deterioration (PSD)

The facility is a major source of emissions with respect to the PSD regulations. Therefore, this modification has been reviewed to determine if the proposed emissions increases exceed the significant levels listed at 40 CFR 52.21. The removal and replacement of equipment proposed in this project result in reductions in most pollutants. However, the increase in drying capacity does yield increases in VOC emissions exceeding PSD significance levels. The PSD evaluation is found in Exhibit 3. A BACT analysis and Ambient Air Quality Impact analysis are found in Exhibit 4 as part of a New Source Review document.

#### 4.3.2 Non-Attainment

For the purpose of compliance with National Ambient Air Standards for Criteria Air Pollutants, the facility is not located in an area designated as a Non-Attainment Area for any criteria air pollutants.

### 4.4 NESHAP Part 63 Standards (MACT)

The facility is subject to National Emission Standards for Hazardous Air Pollutants from Source Categories (NESHAP) regulations for the Plywood and Composite Wood Products (PCWP) source category (40 CFR 63 Subpart DDDD), due to the presence of the lumber kilns. However, there are no requirements assigned in the regulations beyond initial notification. The facility is currently in compliance with this Subpart.

## 5.0 COMPLIANCE ASSURANCE MONITORING

The Compliance Assurance Monitoring (CAM) requirements found at 40 CFR Part 64 apply to a pollutant-specific emission unit if the following three criteria are met:

1. The unit must be subject to an emission limitation or standard for the applicable pollutant (or a surrogate thereof), other than an emission limitation or standard that is exempt under paragraph 40 CFR Part 64.2(b)(1);

2. The unit must use a control device to achieve compliance with an emission limitation or standard; and

3. The unit must have "potential pre-control device emissions" in the amount required to classify the pollutant-specific emission unit as a major source under 40 CFR Part 70.

Each emission unit must be evaluated according to these criteria. That evaluation shows that no proposed emissions units meet the three requirements requiring CAM.

# Exhibit 1

| FORM 5 | MDEQ | MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT |
|---|---|---|

## Facility (Agency Interest) Information — Section A

### 1. Name, Address, and Location of Facility

A. Owner/Company Name: Hood Industries, Inc.

B. Facility Name *(if different than A. above)*: ____________

C. Facility Air Permit No. *(if known)*: 2840-00004

D. Agency Interest No. *(if known)*: 7876

E. Physical Address
1. Street Address: 915 Industrial Park Road
2. City: Waynesboro 3. State: MS
4. County: Wayne 5. Zip Code: 39367
6. Telephone No.: 601-735-5038 7. Fax No.: ____________

F. Mailing Address *(if different from physical address)*
1. Street Address or P.O. Box: ____________
2. City: ____________
3. State: ____________ 4. Zip Code: ____________

G. Latitude/Longitude Data
1. Collection Point *(check one)*:
☒ Plant Entrance ☐ Other: ____________
2. Method of Collection *(check one)*:
☐ GPS Specify coordinate system (NAD 83, etc.) ____________
☒ Map Interpolation (Google Earth, etc.) ☐ Other: ____________
3. Latitude *(degrees/minutes/seconds)*: 31/39/12.5
4. Longitude *(degrees/minutes/seconds)*: -088/37/43
5. Elevation: 175 feet

H. SIC/NAICS Codes *(primary code listed first)*

| | | | | |
|---|---|---|---|---|
| SIC: | 2421 | | | |
| NAICS: | 321113 | | | |

*(NAICS Code should correspond with the SIC Code directly above.)*

### 2. Name and Address of Facility Contact

A. Name: Sam Newbill Title: Director, EHS

B. Mailing Address
1. Street Address or P.O. Box: 1978 Hood Blvd, Suite 100
2. City: Hattiesburg 3. State: MS
4. Zip Code: 39401 5. Email: snewbill@hoodindustries.com
6. Telephone No.: 601-762-0025 7. Fax No.:

| FORM 5 | MDEQ | MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT |
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## Facility (Agency Interest) Information — Section A

### 3. Name and Address of Air Contact *(if different from Facility Contact)*

A. Name: ____________ Title: ____________

B. Mailing Address
1. Street Address or P.O. Box: ____________
2. City: ____________ 3. State: ____________
4. Zip Code: ____________ 5. Email: ____________
6. Telephone No.: ____________ 7. Fax No.: ____________

### 4. Name and Address of the Responsible Official for the Facility

*The Responsible Official is defined as one of the following:*

a. *For a corporation: a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit and the facilities employ more than 250 persons or have gross annual sales or expenditures exceeding $25 million (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated in accordance with corporate procedures.*

b. *For a partnership or sole proprietorship: a general partner or the proprietor, respectively.*

c. *For a municipality, state, federal, or other public agency: either a principal executive officer or ranking elected official. For purposes of these regulations, a principal executive officer of a Federal agency includes the chief executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., a Regional Administrator of EPA). A principal executive officer of a military facility includes the facility commander, chief executive officer, or any other similar person who performs similar policy or decision-making functions for the institution.*

A. Name: Sam Newbill Title: Director, EHS

B. Mailing Address
1. Street Address or P.O. Box: 1978 Hood Blvd, Suite 100
2. City: Hattiesburg 3. State: MS
4. Zip Code: 39401 5. Email: snewbill@hoodindustries.com
6. Telephone No.: 601-762-0025 7. Fax No.: ____________

C. Is the person above a duly authorized representative and not a corporate officer? ☒ Yes ☐ No

If yes, has written notification of such authorization been submitted to MDEQ?

☒ Yes ☐ No ☐ Request for authorization is attached

| FORM 5 | MDEQ | MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT |
|---|---|---|

## Facility (Agency Interest) Information — Section A

## 5. Type of Permit Application *(Check all that apply)*

**State Permit to Construct (i.e., non-PSD or PSD avoidance)**

☐ Initial Application ☐ Modification

**New Source Review (NSR) Permit to Construct (includes both Prevention of Significant Deterioration (PSD) and Nonattainment)**

☒ Initial Application ☐ Modification

**Title V Operating Permit**

☐ Initial Application

☐ Re-issuance: *Are any modifications to the permit/facility being requested?* ☐ Yes ☐ No

*(If yes, provide a separate sheet identifying the modification(s) and resulting change to emissions.)*

☐ Modification (*Specify type):* ☐ Significant ☐ Minor ☐ Administrative

**Synthetic Minor Operating Permit *(Appendix B must be completed and attached.)***

☐ Initial Application

☐ Re-issuance: *Are any modifications to the permit/facility being requested? If yes, address such on a separate sheet.* ☐ Yes ☐ No

☐ Modification

**State Permit to Operate a Significant Minor Source *(defined in 11 Miss. Admin. Code Pt. 2, R.2.1.C(25).)***

☐ Initial Application

☐ Re-issuance: *Are any modifications to the permit/facility being requested? If yes, address such on a separate sheet.* ☐ Yes ☐ No

☐ Modification

**True Minor Determination**

☐ Uncontrolled potential to emit air pollutants is below the Title V thresholds

## 6. Process/Product Details

A. List Significant Raw Materials *(if applicable)*:
Southern Yellow Pine logs

B. List All Products *(if applicable)*: Lumber, wood chips, bark mulch

C. Brief Description of Principal Process(es):
Manufacture of Lumber

## 6. Process/Product Details (continued)

D. Maximum Throughput for Raw Material(s) *(if applicable)*:

| Raw Material | Throughput | Units |
|---|---|---|
| Logs | 200 | Tons/hr |
| | | |
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E. Maximum Throughput for Principal Product(s) *(if applicable)*:

| Product | Throughput | Units |
|---|---|---|
| Lumber | 50 | MBF/hr |
| | | |
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## 7. Facility Operating Information

A. Number of employees at the facility: 175

| | Average Actual | Maximum Potential |
|---|---|---|
| B. Hours per day the facility will operate: | 24 | 24 |
| C. Days per week the facility will operate: | 5 | 7 |
| D. Weeks per year the facility will operate: | 50 | 52 |
| E. Months the facility will operate: | 12 | 12 |

## 8. Maps

A. Attach a topographical map of the area extending to at least ½ mile beyond the property boundaries. The map must show the outline of the property boundaries.

B. Attach a site map/diagram showing the outline of the property, an outline of all buildings and roadways on the site, and the location of each significant air emission source.

## 9. Zoning

A. Is the facility (either existing or proposed) located in accordance with any applicable city and/or county zoning ordinances? If no, please explain.
Yes

B. Is the facility (either existing or proposed) required to obtain any zoning variance to locate/expand the facility at this site? If yes, please explain.
No

## 10. Risk Management Plan

A. Is the facility required to develop and register a risk management plan pursuant to Section 112(r), regulated under 40 CFR Part 68? ☐ Yes ☒ No

B. If yes, to whom was the plan submitted? ______________________
Date submitted: ______________________

## 11. *Is confidential information being submitted with this application?* ☐ Yes ☒ No

*If so, please follow the procedures outlined in the Mississippi Code Ann. Sections 49-17-39 and 17-17-27(6), as outlined in MCEQ-2 – "Regulation regarding the review and reproduction of public records".*

## 12. MS Secretary of State Registration / Certificate of Good Standing

*No permit will be issued to a company that is not authorized to conduct business in Mississippi. If the company applying for the permit is a corporation, limited liability company, a partnership or a business trust, the application package should include proof of registration with the Mississippi Secretary of State and/or a copy of the company's Certificate of Good Standing. The name listed on the permit will include the company name as it is registered with the Mississippi Secretary of State.*

*It should be noted that for an application submitted in accordance with 11 Miss. Admin. Code Pt. 2, R. 2.8.B. to renew a State Permit to Operate or in accordance with 11 Miss. Admin. Code Pt. 2, R. 6.2.A(1)(c). to renew a Title V Permit to be considered timely and complete, the applicant shall be registered and in good standing with the Mississippi Secretary of State to conduct business in Mississippi.*

| FORM 5 | MDEQ | MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT |
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## Facility (Agency Interest) Information — Section A

### 13. Certification

*Note: If approved by MDEQ, a duly authorized representative (DAR) may sign the air permit application. The DAR must be listed in Section 4 of this application.*

*I certify that to the best of my knowledge and belief formed after reasonable inquiry, the statements and information in this application are true, complete, and accurate, and that as a responsible official, my signature shall constitute an agreement that the applicant assumes the responsibility for any alteration, additions, or changes in operation that may be necessary to achieve and maintain compliance with all applicable Rules and Regulations. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.*

Sam Newbill (signature) — 5-28-2025

**Signature of Responsible Official/DAR** — **Date**

**Sam Newbill** — **Director, EHS**

**Printed Name** — **Title**

# Section B.0: Emission Point Descriptions & Status

This form should list all the of the Emission Points and descriptions as proposed or as otherwise identified in an existing permit. This worksheet should be updated to reflect changes to the Status of the emission points over time. Emission Point ID's should match those assigned in the current MDEQ permit. Facility ID is optional. For proposed emission points, the facility should leave the Emission Point ID blank but may complete the Facility ID (if any). Under "Status," for Emission Points that are proposed or under construction but not yet operating, indicate their status as "Proposed." For emissions points already operating or for which construction has been certified complete, indicate their status as "Operating." Include all control devices for each emission point and the pollutant(s) the device controls. Control devices may be specified in general terms (e.g., baghouse, catalytic oxidizer, fabric filter, wet ESP, etc.). When an Emission Point is removed, indicate so by changing the "Status" to "Removed." Remove the emissions on the subsequent worksheets or indicate they are removed with a "-" for all pollutants.

| Emission Point ID | Facility ID | Description | Status | Control Device | Controlled Pollutant(s) | Control Device | Controlled Pollutant(s) | Control Device | Controlled Pollutant(s) |
|---|---|---|---|---|---|---|---|---|---|
| AA-014 | CDK1 | Continuous Dry Kiln No. 1 | Operating | None | None | None | None | None | None |
| AA-019 | CDK2 | Continuous Dry Kiln No. 2 | Proposed | None | None | None | None | None | None |
| AA-020 | CDK3 | Continuous Dry Kiln No. 3 | Proposed | None | None | None | None | None | None |
| AA-021 | CDK4 | Continuous Dry Kiln No. 4 | Proposed | None | None | None | None | None | None |
| AA-022 | PCS | Pneumatic Conveyance System | Proposed | None | None | None | None | None | None |
| | FUG-LOG PREP | Sawmill Fugitives (Debarking, Sawing) | Proposed | None | None | None | None | None | None |
| | FUG-ROADS | Facility Roads Fugitives | Proposed | None | None | None | None | None | None |
| | Gas Tank | Gasoline Tank | Operating | None | None | None | None | None | None |
| | Diesel Tank | Diesel Tank | Operating | None | None | None | None | None | None |
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# Section B.1: Maximum Uncontrolled Emissions (under normal operating conditions)

Maximum Uncontrolled Emissions are the emissions at maximum capacity and prior to (in the absence of) pollution control, emission-reducing process equipment, or any other emission reduction. Calculate the hourly emissions using the worst case hourly emissions for each pollutant. For each pollutant, calculate the annual emissions as if the facility were operating at maximum plant capacity without pollution controls for 8760 hours per year, unless operating capacity and/or hours of operation are specifically limited in an enforceable permit. (Existing limits on operating conditions, not emissions or use of a control device, may be used when determining uncontrolled emissions.) Emission Point numbering must be consistent throughout the application package and, for existing emission points, should match any MDEQ ID's in the current permit. Fill all cells in this table with the emission numbers or a "-" symbol. A "-" symbol indicates that emissions of this pollutant are not expected. Emissions ≥ 0.01 ton/yr from a specific emission unit must be included. Please do not change the column widths on this table.

| Emission Point ID | TSP[1] (PM) | | PM-10[1] | | PM-2.5[1] | | $SO_2$ | | NOx | | CO | | VOC | | TRS[2] | | Lead | | Total HAPs | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr |
| AA-014 | 0.0838 | 0.3670 | 0.5864 | 2.5684 | 0.5864 | 2.5684 | 0.0265 | 0.1161 | 3.1572 | 13.8285 | 3.7061 | 16.2327 | 50.5708 | 221.5001 | - | - | | | 3.5248 | 15.4386 |
| AA-019 | 0.0838 | 0.3670 | 0.5864 | 2.5684 | 0.5864 | 2.5684 | 0.0265 | 0.1161 | 3.1572 | 13.8285 | 3.7061 | 16.2327 | 50.5708 | 221.5001 | - | - | | | 3.5248 | 15.4386 |
| AA-020 | 0.0838 | 0.3670 | 0.5864 | 2.5684 | 0.5864 | 2.5684 | 0.0265 | 0.1161 | 3.1572 | 13.8285 | 3.7061 | 16.2327 | 50.5708 | 221.5001 | - | - | | | 3.5248 | 15.4386 |
| AA-021 | 0.0838 | 0.3670 | 0.5864 | 2.5684 | 0.5864 | 2.5684 | 0.0265 | 0.1161 | 3.1572 | 13.8285 | 3.7061 | 16.2327 | 50.5708 | 221.5001 | - | - | | | 3.5248 | 15.4386 |
| AA-022 | 6.1361 | 26.8761 | 2.9967 | 13.1255 | 1.1088 | 4.8565 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| FUG-LOG PREP | 11.1355 | 48.7735 | 5.5677 | 24.3865 | 2.7838 | 12.1930 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| FUG-ROADS | 1.5985 | 7.0013 | 0.3197 | 1.4003 | 0.0784 | 0.3436 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| GAS TK | - | - | - | - | - | - | - | - | - | - | - | - | 0.0333 | 0.1460 | - | - | - | - | - | - |
| DSL TK | - | - | - | - | - | - | - | - | - | - | - | - | 0.0005 | 0.0021 | - | - | - | - | - | - |
| **Totals** | 19.2053 | 84.1189 | 11.2297 | 49.1859 | 6.3166 | 27.6667 | 0.1060 | 0.4644 | 12.6288 | 55.3140 | 14.8244 | 64.9308 | 202.3170 | 886.1485 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 14.0992 | 61.7544 |

[1] **Condensables:** Include condensable particulate matter emissions in particulate matter calculations for PM-10 and PM-2.5, but not for TSP (PM).

[2] **TRS:** Total reduced sulfur (TRS) is the sum of the sulfur compounds hydrogen sulfide ($H_2S$), methyl mercaptan ($CH_4S$), dimethyl sulfide ($C_2H_6S$), and dimethyl disulfide ($C_2H_6S_2$).

# Section B.2: Proposed Allowable Emissions

Proposed Allowable Emissions (Potential to Emit) are those emissions the facility is currently permitted to emit as limited by a specific permit requirement or federal/state standard (e.g., a MACT standard); or the emission rate at which the facility proposes to emit considering emissions control devices, restrictions to operating rates/hours, or other requested permit limits that reduce the maximum emission rates. Emission Point numbering must be consistent throughout the application package and, for existing emission points, should match any MDEQ ID's in the current permit. Fill all cells in this table with the emission numbers or a "-" symbol. A "-" symbol indicates that emissions of this pollutant are not expected. Emissions ≥ 0.01 ton/yr from a specific emission unit must be included. Additional columns may be added if there are regulated pollutants (other than HAPs and GHGs) emitted at the facility. List HAPs in Section B.3 and GHGs in Section B.4 (if applicable).

| Emission Point ID | TSP[1] | | PM10[1] | | PM2.5[1] | | $SO_2$ | | NOx | | CO | | VOC | | TRS | | Lead | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr |
| AA-014 | 0.0838 | 0.3670 | 0.5864 | 2.5684 | 0.5864 | 2.5684 | 0.0265 | 0.1161 | 3.1572 | 13.8285 | 3.7061 | 16.2327 | 50.5708 | 221.5001 | - | - | | |
| AA-019 | 0.0838 | 0.3670 | 0.5864 | 2.5684 | 0.5864 | 2.5684 | 0.0265 | 0.1161 | 3.1572 | 13.8285 | 3.7061 | 16.2327 | 50.5708 | 221.5001 | - | - | | |
| AA-020 | 0.0838 | 0.3670 | 0.5864 | 2.5684 | 0.5864 | 2.5684 | 0.0265 | 0.1161 | 3.1572 | 13.8285 | 3.7061 | 16.2327 | 50.5708 | 221.5001 | - | - | | |
| AA-021 | 0.0838 | 0.3670 | 0.5864 | 2.5684 | 0.5864 | 2.5684 | 0.0265 | 0.1161 | 3.1572 | 13.8285 | 3.7061 | 16.2327 | 50.5708 | 221.5001 | - | - | | |
| AA-022 | 6.1361 | 26.8761 | 2.9967 | 13.1255 | 1.1088 | 4.8565 | - | - | - | - | - | - | - | - | - | - | - | - |
| FUG-LOG PREP | 11.1355 | 48.7735 | 5.5677 | 24.3865 | 2.7838 | 12.1930 | - | - | - | - | - | - | - | - | - | - | - | - |
| FUG-ROADS | 1.5985 | 7.0013 | 0.3197 | 1.4003 | 0.0784 | 0.3436 | - | - | - | - | - | - | - | - | - | - | - | - |
| GAS TK | - | - | - | - | - | - | - | - | - | - | - | - | 0.0333 | 0.1460 | - | - | - | - |
| DSL TK | - | - | - | - | - | - | - | - | - | - | - | - | 0.0005 | 0.0021 | - | - | - | - |
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| | | | | | | | | | | | | | | | | | | |
| **Totals** | 19.2053 | 84.1189 | 11.2297 | 49.1859 | 6.3166 | 27.6667 | 0.1060 | 0.4644 | 12.6288 | 55.3140 | 14.8244 | 64.9308 | 202.3170 | 886.1485 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

[1] **Condensables:** Include condensable particulate matter emissions in particulate matter calculations for PM-10 and PM-2.5, but not for TSP (PM).

[2] **TRS:** Total reduced sulfur (TRS) is the sum of the sulfur compounds hydrogen sulfide ($H_2S$), methyl mercaptan ($CH_4S$), dimethyl sulfide ($C_2H_6S$), and dimethyl disulfide ($C_2H_6S_2$).

# Section B.3: Proposed Allowable Hazardous Air Pollutants (HAPs)

Proposed Allowable HAPs (Potential to Emit) are those emissions the facility is currently permitted to emit as limited by a specific permit requirement or federal/state standard (e.g., a MACT standard); or the emission rate at which the facility proposes to emit considering emissions control devices, restrictions to operating rates/hours, or other requested permit limits that reduce the maximum emission rates. Select an inidividual HAP from the dropdown list provided. **Emissions ≥ 0.01 ton/yr of an indiviudal HAP from a specific emission unit must be provided.** Emission Point numbering must be consistent throughout the application package and, for existing emission points, should match any MDEQ ID's in the current permit. Fill all cells in this table with the emission numbers or a "-" symbol. A "-" symbol indicates that emissions of this pollutant are not expected or are below the reporting threshold. Select the appropriate HAP from the drop down menu in the header cell of the given column in the table below. Additional columns may be added as necessary to address each HAP.

| Emission Point ID | Total HAPs | | Acetaldehyde | | Acrolein | | Formaldehyde | | Methanol | | Phenol | | Propionaldehyde | | Hexane | | Choose Pollutant Name from Drop Down Menu | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr |
| AA-014 | 3.5248 | 15.4386 | 0.4566 | 1.9999 | 0.0457 | 0.2002 | 0.7452 | 3.2645 | 2.0548 | 9.0000 | 0.1142 | 0.5002 | 0.0457 | 0.2002 | 0.0794 | 0.3478 | | |
| AA-019 | 3.5248 | 15.4386 | 0.4566 | 1.9999 | 0.0457 | 0.2002 | 0.7452 | 3.2645 | 2.0548 | 9.0000 | 0.1142 | 0.5002 | 0.0457 | 0.2002 | 0.0794 | 0.3478 | | |
| AA-020 | 3.5248 | 15.4386 | 0.4566 | 1.9999 | 0.0457 | 0.2002 | 0.7452 | 3.2645 | 2.0548 | 9.0000 | 0.1142 | 0.5002 | 0.0457 | 0.2002 | 0.0794 | 0.3478 | | |
| AA-021 | 3.5248 | 15.4386 | 0.4566 | 1.9999 | 0.0457 | 0.2002 | 0.7452 | 3.2645 | 2.0548 | 9.0000 | 0.1142 | 0.5002 | 0.0457 | 0.2002 | 0.0794 | 0.3478 | | |
| AA-022 | | | | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | | |
| **Totals:** | 14.0992 | 61.7544 | 1.8264 | 7.9996 | 0.1828 | 0.8008 | 2.9808 | 13.0580 | 8.2192 | 36.0000 | 0.4568 | 2.0008 | 0.1828 | 0.8008 | 0.3176 | 1.3912 | | |

# Section B.4: Greenhouse Gas (GHG) Emissions

**This form is required for facilities that have or will require a Title V Operating Permit and for all industries in the energy and oil and gas sectors (i.e., SIC codes beginning with 13, 29, 46, and 49).** Proposed Allowable GHGs (Potential to Emit) are those emissions the facility is currently permitted to emit as limited by a specific permit requirement or federal/state standard; or the emission rate at which the facility proposes to emit considering emissions control devices, restrictions to operating rates/hours, or other requested permit limits that reduce the maximum emission rates. Applicants must report potential emission rates in SHORT TONS per year, as opposed to metric tons required by Part 98. Emission Point numbering must be consistent throughout the application package and, for existing emission points, should match any MDEQ ID's in the current permit. Only those emission points with emissions of greenhouse gases are required to be provided on this form.

| | | $CO_2$ (non-biogenic) ton/yr | $CO_2$ (biogenic)[2] ton/yr | $N_2O$ ton/yr | $CH_4$ ton/yr | $SF_6$ ton/yr | PFC/HFC[3] ton/yr | | | | Total GHG Mass Basis ton/yr[5] | Total $CO_2e$ ton/yr[6] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Point ID** | **GWPs [1]** | **1** | **1** | **298** | **25** | **22,800** | **footnote 4** | | | | | |
| **AA-014** | **mass GHG** | 23,043 | | 0.0435 | 0.4346 | | | | | | 23,043.4781 | |
| | **$CO_2e$** | 23,043 | | 13 | 11 | | | | | | | 23,067.0 |
| **AA-019** | **mass GHG** | 23,043 | | 0.0435 | 0.4346 | | | | | | 23,043.4781 | |
| | **$CO_2e$** | 23,043 | | 13 | 11 | | | | | | | 23,067.0 |
| **AA-020** | **mass GHG** | 23,043 | | 0.0435 | 0.4346 | | | | | | 23,043.4781 | |
| | **$CO_2e$** | 23,043 | | 13 | 11 | | | | | | | 23,067.0 |
| **AA-021** | **mass GHG** | 23,043 | | 0.0435 | 0.4346 | | | | | | 23,043.4781 | |
| | **$CO_2e$** | 23,043 | | 13 | 11 | | | | | | | 23,067.0 |
| | **mass GHG** | | | | | | | | | | | |
| | **$CO_2e$** | | | | | | | | | | | |
| | **mass GHG** | | | | | | | | | | | |
| | **$CO_2e$** | | | | | | | | | | | |
| | **mass GHG** | | | | | | | | | | | |
| | **$CO_2e$** | | | | | | | | | | | |
| | **mass GHG** | | | | | | | | | | | |
| | **$CO_2e$** | | | | | | | | | | | |
| | **mass GHG** | | | | | | | | | | | |
| | **$CO_2e$** | | | | | | | | | | | |
| | **mass GHG** | | | | | | | | | | | |
| | **$CO_2e$** | | | | | | | | | | | |
| | **mass GHG** | | | | | | | | | | | |
| | **$CO_2e$** | | | | | | | | | | | |
| | **mass GHG** | | | | | | | | | | | |
| | **$CO_2e$** | | | | | | | | | | | |
| **FACILITY TOTAL** | **mass GHG** | 92,172 | | 0.17 | 1.74 | | | | | | 92,174 | |
| | **$CO_2e$** | 92,172 | | 52 | 44 | | | | | | | 92,268 |

[1] **GWP** (Global Warming Potential): Applicants must use the most current GWPs codified in Table A-1 of 40 CFR part 98. GWPs are subject to change, therefore, applicants need to check 40 CFR 98 to confirm GWP values.

[2] Biogenic CO2 is defined as carbon dioxide emissions resulting from the combustion or decomposition of non-fossilized and biodegradable organic material originating from plants, animals, or micro-organisms.

[3] For **HFCs** or **PFCs** describe the specific HFC or PFC compound and use a separate column for each individual compound.

[4] For each new compound, enter the appropriate GWP for each HFC or PFC compound from Table A-1 in 40 CFR 98.

[5] Greenhouse gas emissions on a **mass basis** is the ton per year greenhouse gas emission before adjustment with its GWP. Include both biogenic and non-biogenic GHG in this total.

[6] **$CO_2e$** means Carbon Dioxide Equivalent and is calculated by multiplying the ton/yr mass emissions of the greenhouse gas by its GWP. Include both biogenic and non-biogenic $CO_2e$ in this total.

# Section B.5: Stack Parameters and Exit Conditions

Emission Point numbering must be consistent throughout the application package and, for existing emission points, should match any MDEQ ID's in the current permit.

| Emission Point ID | Orientation (H-Horizontal V=Vertical) | Rain Caps (Yes or No) | Height Above Ground (ft) | Base Elevation (ft) | Exit Temp. ($^oF$) | Inside Diameter or Dimensions (ft) | Velocity (ft/sec) | Moisture by Volume (%) | Geographic Position (degrees/minutes/seconds) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Latitude | Longitude |
| AA-014E | V | No | 36 | 190 | 150 | 2.67 | 58.3 | 26 | TBD | TBD |
| AA-014W | V | No | 36 | 190 | 150 | 2.67 | 58.3 | 26 | TBD | TBD |
| AA-019E | V | No | 36 | 190 | 150 | 2.67 | 58.3 | 26 | TBD | TBD |
| AA-019W | V | No | 36 | 190 | 150 | 2.67 | 58.3 | 26 | TBD | TBD |
| AA-020E | V | No | 36 | 190 | 150 | 2.67 | 58.3 | 26 | TBD | TBD |
| AA-020W | V | No | 36 | 190 | 150 | 2.67 | 58.3 | 26 | TBD | TBD |
| AA-021E | V | No | 36 | 190 | 150 | 2.67 | 58.3 | 26 | TBD | TBD |
| AA-021W | V | No | 36 | 190 | 150 | 2.67 | 58.3 | 26 | TBD | TBD |
| AA-022 | V | No | 50 | 190 | Ambient | 5.83 | 6.1 | 12 | TBD | TBD |
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[1] A WAAS-capable GPS receiver should be used and in the WGS84 or NAD83 coordinate system.

| FORM 5 | MDEQ | MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT |
|---|---|---|

# Fuel Burning Equipment – External Combustion Sources — Section C

## 1. Emission Point Description

A. Emission Point Designation (Ref. No.): AA-014

B. Equipment Description: Continuous Direct-Fired Lumber Kiln (CDK) No. 1

C. Manufacturer: USNR D. Model Yr. and No.: 2016 High Temp CFC

E. Maximum Heat Input (higher heating value): 45 MMBtu/hr F. Nominal Heat Input Capacity: 35 (Avg) MMBtu/hr

G. For units subject to NSPS Db, is the heat release rate > 70,000 Btu/hr-ft$^3$? ☐ Yes ☐ No

H. Use: ☐ Electrical Generation ☐ Steam ☒ Process Heat
☐ Space Heat ☐ Standby/Emergency ☐ Other (describe): ______

I. Heat Mechanism: ☒ Direct ☐ Indirect

J. Burner Type (e.g., pulverized coal, forced draft, atomizing oil, low-$NO_x$, etc.): Natural gas

K. Additional Design Controls (e.g., FGR, etc.): ______

L. Status: ☒ Operating ☒ Proposed ☐ Under Construction

M. Date of construction, reconstruction, or most recent modification (for existing sources) or date of anticipated construction: June 2026 (mod)

## 2. Fuel Type

Complete the following table, identifying each type of fuel and the amount used. Specify the units for heat content, hourly usage, and yearly usage.

| FUEL TYPE[1] | HEAT CONTENT | % SULFUR | % ASH | MAXIMUM HOURLY USAGE | MAXIMUM YEARLY USAGE |
|---|---|---|---|---|---|
| Natural Gas | 1020 BTU/scf | Neg | Neg | 44,120 scf/hr | 386.5 MMscf |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Please list any fuel components that are hazardous air pollutants and the percentage in the fuel:
_____

[1] Boilers burning solid waste may be considered "solid waste incinerators" for purposes of complying with federal regulations. However, you are only required to complete Section C, not I, of this application as long as the wastes combusted are indicated in the table above.

| FORM 5 | MDEQ | MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT |
|---|---|---|

## Fuel Burning Equipment – External Combustion Sources — Section C

## 1. Emission Point Description

A. Emission Point Designation (Ref. No.): AA-019

B. Equipment Description: Continuous Direct-Fired Lumber Kiln (CDK) No. 2

C. Manufacturer: TBD  D. Model Yr. and No.: TBD

E. Maximum Heat Input (higher heating value): 45 MMBtu/hr  F. Nominal Heat Input Capacity: 35 (Avg) MMBtu/hr

G. For units subject to NSPS Db, is the heat release rate > 70,000 Btu/hr-ft$^3$? ☐ Yes ☐ No

H. Use: ☐ Electrical Generation ☐ Steam ☒ Process Heat
☐ Space Heat ☐ Standby/Emergency ☐ Other (describe): ______

I. Heat Mechanism: ☒ Direct ☐ Indirect

J. Burner Type (e.g., pulverized coal, forced draft, atomizing oil, low-$NO_x$, etc.): Natural gas

K. Additional Design Controls (e.g., FGR, etc.): ______

L. Status: ☐ Operating ☒ Proposed ☐ Under Construction

M. Date of construction, reconstruction, or most recent modification (for existing sources) or date of anticipated construction: June 2026

## 2. Fuel Type

Complete the following table, identifying each type of fuel and the amount used. Specify the units for heat content, hourly usage, and yearly usage.

| FUEL TYPE[1] | HEAT CONTENT | % SULFUR | % ASH | MAXIMUM HOURLY USAGE | MAXIMUM YEARLY USAGE |
|---|---|---|---|---|---|
| Natural Gas | 1020 BTU/scf | Neg | Neg | 44,120 scf/hr | 386.5 MMscf |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Please list any fuel components that are hazardous air pollutants and the percentage in the fuel: _____

[1] Boilers burning solid waste may be considered “solid waste incinerators” for purposes of complying with federal regulations. However, you are only required to complete Section C, not I, of this application as long as the wastes combusted are indicated in the table above.

| FORM 5 | MDEQ | MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT |
|---|---|---|

# Fuel Burning Equipment – External Combustion Sources — Section C

## 1. Emission Point Description

A. Emission Point Designation (Ref. No.): AA-020

B. Equipment Description: Continuous Direct-Fired Lumber Kiln (CDK) No. 3

C. Manufacturer: TBD  D. Model Yr. and No.: TBD

E. Maximum Heat Input (higher heating value): 45 MMBtu/hr  F. Nominal Heat Input Capacity: 35 (Avg) MMBtu/hr

G. For units subject to NSPS Db, is the heat release rate > 70,000 Btu/hr-ft$^3$? ☐ Yes ☐ No

H. Use: ☐ Electrical Generation ☐ Steam ☒ Process Heat

☐ Space Heat ☐ Standby/Emergency ☐ Other (describe): ____________

I. Heat Mechanism: ☒ Direct ☐ Indirect

J. Burner Type (e.g., pulverized coal, forced draft, atomizing oil, low-$NO_x$, etc.): Natural gas

K. Additional Design Controls (e.g., FGR, etc.): ____________

L. Status: ☐ Operating ☒ Proposed ☐ Under Construction

M. Date of construction, reconstruction, or most recent modification (for existing sources) or date of anticipated construction: June 2026

## 2. Fuel Type

Complete the following table, identifying each type of fuel and the amount used. Specify the units for heat content, hourly usage, and yearly usage.

| FUEL TYPE[1] | HEAT CONTENT | % SULFUR | % ASH | MAXIMUM HOURLY USAGE | MAXIMUM YEARLY USAGE |
|---|---|---|---|---|---|
| Natural Gas | 1020 BTU/scf | Neg | Neg | 44,120 scf/hr | 386.5 MMscf |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Please list any fuel components that are hazardous air pollutants and the percentage in the fuel:

_____

[1] Boilers burning solid waste may be considered "solid waste incinerators" for purposes of complying with federal regulations. However, you are only required to complete Section C, not I, of this application as long as the wastes combusted are indicated in the table above.

| FORM 5 | MDEQ | MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT |
|---|---|---|

# Fuel Burning Equipment – External Combustion Sources — Section C

## 1. Emission Point Description

A. Emission Point Designation (Ref. No.): AA-021

B. Equipment Description: Continuous Direct-Fired Lumber Kiln (CDK) No. 4

C. Manufacturer: TBD    D. Model Yr. and No.: TBD

E. Maximum Heat Input (higher heating value): 45 MMBtu/hr    F. Nominal Heat Input Capacity: 35 (Avg) MMBtu/hr

G. For units subject to NSPS Db, is the heat release rate > 70,000 Btu/hr-ft$^3$?  ☐ Yes  ☐ No

H. Use: ☐ Electrical Generation  ☐ Steam  ☒ Process Heat
☐ Space Heat  ☐ Standby/Emergency  ☐ Other (describe): ______

I. Heat Mechanism: ☒ Direct  ☐ Indirect

J. Burner Type (e.g., pulverized coal, forced draft, atomizing oil, low-$NO_x$, etc.): Natural gas

K. Additional Design Controls (e.g., FGR, etc.): ______

L. Status: ☐ Operating  ☒ Proposed  ☐ Under Construction

M. Date of construction, reconstruction, or most recent modification (for existing sources) or date of anticipated construction: June 2027

## 2. Fuel Type

Complete the following table, identifying each type of fuel and the amount used. Specify the units for heat content, hourly usage, and yearly usage.

| FUEL TYPE[1] | HEAT CONTENT | % SULFUR | % ASH | MAXIMUM HOURLY USAGE | MAXIMUM YEARLY USAGE |
|---|---|---|---|---|---|
| Natural Gas | 1020 BTU/scf | Neg | Neg | 44,120 scf/hr | 386.5 MMscf |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Please list any fuel components that are hazardous air pollutants and the percentage in the fuel:
_____

[1] Boilers burning solid waste may be considered "solid waste incinerators" for purposes of complying with federal regulations. However, you are only required to complete Section C, not I, of this application as long as the wastes combusted are indicated in the table above.

| FORM 5 | MDEQ | MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT |
|---|---|---|

## Manufacturing Processes — Section E

### 1. Emission Point Description

A. Emission Point Designation (Ref.: No.): AA-014

B. Process Description: Continuous Direct-Fired Lumber Kiln (CDK), Kiln #1

C. Manufacturer: USNR    D. Model: High Temp CFC

E. Max. Design Capacity (specify units): 100 MMBF/yr
Equivalent to: 30.92 tons/hr

F. Status: ☒ Operating ☒ Proposed ☐ Under Construction

G. Operating Schedule (Actual): 24 hrs/day 7 days/week 50 weeks/yr

H. Date of construction, reconstruction, or most recent modification (for existing sources) or date of anticipated construction: June 2026 (mod)

### 2. Raw Material Input

| MATERIAL | QUANTITY/HR AVERAGE | QUANITITY/HR MAXIMUM | QUANTITY/YEAR MAXIMUM |
|---|---|---|---|
| Raw Lumber | 10.00 MBF | 11.42 MBF | 100 MMBF |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

### 3. Product Output

| MATERIAL | QUANTITY/HR AVERAGE | QUANITITY/HR MAXIMUM | QUANTITY/YEAR MAXIMUM |
|---|---|---|---|
| Dry Lumber | 10.00 MBF | 11.42 MBF | 100 MMBF |
| | | | |
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| FORM 5 | MDEQ | MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT |
|---|---|---|

## Manufacturing Processes — Section E

### 1. Emission Point Description

A. Emission Point Designation (Ref.: No.): AA-019

B. Process Description: Continuous Direct-Fired Lumber Kiln (CDK), Kiln #2

C. Manufacturer: TBD  D. Model: TBD

E. Max. Design Capacity (specify units): 100 MMBF/yr
Equivalent to: 30.92 tons/hr

F. Status: ☐ Operating ☒ Proposed ☐ Under Construction

G. Operating Schedule (Actual): 24 hrs/day 7 days/week 50 weeks/yr

H. Date of construction, reconstruction, or most recent modification (for existing sources) or date of anticipated construction: June 2026

### 2. Raw Material Input

| MATERIAL | QUANTITY/HR AVERAGE | QUANITITY/HR MAXIMUM | QUANTITY/YEAR MAXIMUM |
|---|---|---|---|
| Raw Lumber | 10.00 MBF | 11.42 MBF | 100 MMBF |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

### 3. Product Output

| MATERIAL | QUANTITY/HR AVERAGE | QUANITITY/HR MAXIMUM | QUANTITY/YEAR MAXIMUM |
|---|---|---|---|
| Dry Lumber | 10.00 MBF | 11.42 MBF | 100 MMBF |
| | | | |
| | | | |
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| FORM 5 | MDEQ | MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT |
|---|---|---|

## Manufacturing Processes — Section E

### 1. Emission Point Description

A. Emission Point Designation (Ref.: No.): AA-020

B. Process Description: Continuous Direct-Fired Lumber Kiln (CDK), Kiln #3

C. Manufacturer: TBD    D. Model: TBD

E. Max. Design Capacity (specify units): 100 MMBF/yr
Equivalent to: 30.92 tons/hr

F. Status: ☐ Operating ☒ Proposed ☐ Under Construction

G. Operating Schedule (Actual): 24 hrs/day 7 days/week 50 weeks/yr

H. Date of construction, reconstruction, or most recent modification (for existing sources) or date of anticipated construction: June 2026

### 2. Raw Material Input

| MATERIAL | QUANTITY/HR AVERAGE | QUANITITY/HR MAXIMUM | QUANTITY/YEAR MAXIMUM |
|---|---|---|---|
| Raw Lumber | 10.00 MBF | 11.42 MBF | 100 MMBF |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

### 3. Product Output

| MATERIAL | QUANTITY/HR AVERAGE | QUANITITY/HR MAXIMUM | QUANTITY/YEAR MAXIMUM |
|---|---|---|---|
| Dry Lumber | 10.00 MBF | 11.42 MBF | 100 MMBF |
| | | | |
| | | | |
| | | | |
| | | | |

| FORM 5 | MDEQ | MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT |
|---|---|---|

## Manufacturing Processes — Section E

### 1. Emission Point Description

A. Emission Point Designation (Ref.: No.): AA-021

B. Process Description: Continuous Direct-Fired Lumber Kiln (CDK), Kiln #4

C. Manufacturer: TBD    D. Model: TBD

E. Max. Design Capacity (specify units): 100 MMBF/yr
Equivalent to: 30.92 tons/hr

F. Status: ☐ Operating ☒ Proposed ☐ Under Construction

G. Operating Schedule (Actual): 24 hrs/day 7 days/week 50 weeks/yr

H. Date of construction, reconstruction, or most recent modification (for existing sources) or date of anticipated construction: June 2027

### 2. Raw Material Input

| MATERIAL | QUANTITY/HR AVERAGE | QUANITITY/HR MAXIMUM | QUANTITY/YEAR MAXIMUM |
|---|---|---|---|
| Raw Lumber | 10.00 MBF | 11.42 MBF | 100 MMBF |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

### 3. Product Output

| MATERIAL | QUANTITY/HR AVERAGE | QUANITITY/HR MAXIMUM | QUANTITY/YEAR MAXIMUM |
|---|---|---|---|
| Dry Lumber | 10.00 MBF | 11.42 MBF | 100 MMBF |
| | | | |
| | | | |
| | | | |
| | | | |

| FORM 5 | MDEQ | MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT |
|---|---|---|

## Manufacturing Processes — Section E

## 1. Emission Point Description

A. Emission Point Designation (Ref.: No.): AA-022

B. Process Description: Pneumatic conveyance system. Collects wood residues from the dry lumber planer as well as hogged materials and transports to a cyclone which separates out the wood and deposits it into either a truck loading bin or into a channel which mechanically conveys the materials to a metering bin.

C. Manufacturer: TBD D. Model: TBD

E. Max. Design Capacity (specify units): 74,000 lbs/hr (DUST)
Equivalent to: 37 tons/hr

F. Status: ☐ Operating ☒ Proposed ☐ Under Construction

G. Operating Schedule (Actual): 24 hrs/day 7 days/week 50 weeks/yr

H. Date of construction, reconstruction, or most recent modification (for existing sources) or date of anticipated construction: June 2026

## 2. Raw Material Input

| MATERIAL | QUANTITY/HR AVERAGE | QUANITITY/HR MAXIMUM | QUANTITY/YEAR MAXIMUM |
|---|---|---|---|
| Rough Lumber | 44 tons | 55 tons | 385,440 tons |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

## 3. Product Output

| MATERIAL | QUANTITY/HR AVERAGE | QUANITITY/HR MAXIMUM | QUANTITY/YEAR MAXIMUM |
|---|---|---|---|
| Planed Lumber | 44 tons | 55 tons | 385,440 tons |
| | | | |
| | | | |
| | | | |
| | | | |

| FORM 5 | MDEQ | MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT |
|---|---|---|

## Manufacturing Processes — Section E

### 1. Emission Point Description

A. Emission Point Designation (Ref.: No.): Planer Mill

B. Process Description: Planing and cutting to length finished dry lumber

C. Manufacturer: TBD D. Model: TBD

E. Max. Design Capacity (specify units): 400 MMBF/yr
Equivalent to: 150 tons/hr

F. Status: ☐ Operating ☒ Proposed ☐ Under Construction

G. Operating Schedule (Actual): 24 hrs/day 7 days/week 50 weeks/yr

H. Date of construction, reconstruction, or most recent modification (for existing sources) or date of anticipated construction: June 2026

### 2. Raw Material Input

| MATERIAL | QUANTITY/HR AVERAGE | QUANITITY/HR MAXIMUM | QUANTITY/YEAR MAXIMUM |
|---|---|---|---|
| Rough Dry Lumber | 75 MBF/hr | 100 MBF/hr | 400 MMBF/year |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

### 3. Product Output

| MATERIAL | QUANTITY/HR AVERAGE | QUANITITY/HR MAXIMUM | QUANTITY/YEAR MAXIMUM |
|---|---|---|---|
| Finished Lumber | 75 MBF | 100 MBF | 400 MMBF |
| Planer Shavings | 12 tons | 18 tons | 60,000 tons |
| Fines | 2 tons | 3 tons | 9,000 tons |
| | | | |
| | | | |

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|---|---|---|

## Manufacturing Processes — Section E

### 1. Emission Point Description

A. Emission Point Designation (Ref.: No.): Sawmill

B. Process Description: Debarking and sawing of green lumber

C. Manufacturer: TBD  D. Model: TBD

E. Max. Design Capacity (specify units): 189 tons/hr
Equivalent to: 189 tons/hr

F. Status: ☐ Operating ☒ Proposed ☐ Under Construction

G. Operating Schedule (Actual): 24 hrs/day 7 days/week 50 weeks/yr

H. Date of construction, reconstruction, or most recent modification (for existing sources) or date of anticipated construction: June 2026

### 2. Raw Material Input

| MATERIAL | QUANTITY/HR AVERAGE | QUANITITY/HR MAXIMUM | QUANTITY/YEAR MAXIMUM |
|---|---|---|---|
| Pine Logs | 189 tons/hr | 189 tons/hr | 1,653,336 tons/yr |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

### 3. Product Output

| MATERIAL | QUANTITY/HR AVERAGE | QUANITITY/HR MAXIMUM | QUANTITY/YEAR MAXIMUM |
|---|---|---|---|
| Green Lumber | 75 MBF | 100 MBF | 400 MMBF |
| Bark | 20 tons | 30 tons | 108,000 tons |
| Chips/Sawdust | 70 tons | 110 tons | 365,000 tons |
| | | | |
| | | | |

| FORM 5 | MDEQ | MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT |
|---|---|---|

## Tank Summary — Section H

## 1. Emission Point Description

*Note: Sections 3-7 below do not have to be completed if all of the required information is provided elsewhere, such as in a report generated by EPA's TANKS software, and attached to the application.*

A. Emission Point Designation (Ref. No.): ____________________

B. Product(s) Stored: Diesel Fuel

C. Status: ☒ Operating ☐ Proposed ☐ Under Construction

D. Date of construction, reconstruction, or most recent modification (for existing sources) or date of anticipated construction: ____________________

## 2. Tank Data

A. Tank Specifications:

| | | | | | |
|---|---|---|---|---|---|
| 1. | Design capacity | 10000 | gallons | | |
| 2. | True vapor pressure at storage temperature: | 0.006 | psia @ | 60 | ºF |
| 3. | Maximum true vapor pressure (as defined in §60.111b) | | psia @ | | ºF |
| 4. | Reid vapor pressure at storage temperature: | | psia @ | | ºF |
| 5. | Density of product at storage temperature: | 7.1 | lb/gal | | |
| 6. | Molecular weight of product vapor at storage temp. | 130 | lb/lbmol | | |

B. Tank Orientation: ☒ Vertical ☐ Horizontal

C. Type of Tank:

☒ Fixed Roof ☐ External Floating Roof ☐ Internal Floating Roof

☐ Pressure ☐ Variable Vapor Space ☐ Other: __________

D. Is the tank equipped with a Vapor Recovery System? ☐ Yes ☒ No
*If yes, describe below and include the efficiency.*

_____

E. Closest City:

☐ Jackson, MS ☒ Meridian, MS ☐ Tupelo, MS ☐ Mobile, AL

☐ New Orleans, LA ☐ Memphis, TN ☐ Baton Rouge, LA

F. Is an EPA TANKS report included for this tank in the application? ☒ Yes ☐ No

| FORM 5 | MDEQ | MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT |
|---|---|---|

## Tank Summary — Section H

### 3. Horizontal Fixed Roof Tank

A. Shell Length: 27 feet
B. Shell Diameter: 8 feet
C. Working Volume: 10000 gal
D. Maximum Throughput: 120000 gal/yr
E. Is the tank heated? ☐ Yes ☒ No
F. Is the tank underground? ☐ Yes ☒ No
G. Shell Color/Shade:
☐ ☐ Aluminum/Specular ☐ Aluminum/Diffuse
☒ Gray/Light ☐ Gray/Medium ☐ Red/Primer
H. Shell Condition: ☒ Good ☐ Poor

### 4. Vertical Fixed Roof Tank

A. Dimensions:
1. Shell Height: ________ feet
2. Shell Diameter: ________ feet
3. Maximum Liquid Height: ________ feet
4. Average Liquid Height: ________ feet
5. Working Volume: ________ gal
6. Turnovers per year: ________
7. Maximum throughput: ________ gal/yr
8. Is the tank heated? ☐ Yes ☐ No

B. Shell Characteristics:
1. Shell Color/Shade:
☐ White/White ☐ Aluminum/Specular ☐ Aluminum/Diffuse
☐ Gray/Light ☐ Gray/Medium ☐ Red/Primer
2. Shell Condition: ☐ Good ☐ Poor

C. Roof Characteristics:
1. Roof Color/Shade:
☐ White/White ☐ Aluminum/Specular ☐ Aluminum/Diffuse
☐ Gray/Light ☐ Gray/Medium ☐ Red/Primer
2. Roof Condition: ☐ Good ☐ Poor
3. Type: ☐ Cone ☐ Dome
4. Height: ________ feet

| FORM 5 | MDEQ | MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT |
|---|---|---|

**Tank Summary** | **Section H**

## 5. Internal Floating Roof Tank

A. Tank Characteristics:

1. Diameter: ____________ feet
2. Tank Volume: ____________ gal
3. Turnovers per year: ____________
4. Maximum Throughput: ____________ gal/yr
5. Number of Columns: ____________
6. Self-Supporting Roof? ☐ Yes ☐ No
7. Effective Column Diameter:
   ☐ 9"x7" Built-up Column ☐ 8" Diameter Pipe ☐ Unknown
8. Internal Shell Condition:
   ☐ Light Rust ☐ Dense Rust ☐ Gunite Lining
9. External Shell Color/Shade:
   ☐ White/White ☐ Aluminum/Specular ☐ Aluminum/Diffuse
   ☐ Gray/Light ☐ Gray/Medium ☐ Red/Primer
10. External Shell Condition: ☐ Good ☐ Poor
11. Roof Color/Shade:
    ☐ White/White ☐ Aluminum/Specular ☐ Aluminum/Diffuse
    ☐ Gray/Light ☐ Gray/Medium ☐ Red/Primer
12. Roof Condition: ☐ Good ☐ Poor

B. Rim Seal System:

1. Primary Seal: ☐ Mechanical Shoe ☐ Liquid-mounted ☐ Vapor-mounted
2. Secondary Seal: ☐ Shoe-mounted ☐ Rim-mounted ☐ None

C. Deck Characteristics:

1. Deck Type: ☐ Bolted ☐ Welded
2. Deck Fitting Category: ☐ Typical ☐ Detail

## 6. External Floating Roof Tank

A. Tank Characteristics

1. Diameter: ____________ feet
2. Tank Volume: ____________ gal
3. Turnovers per year: ____________
4. Maximum Throughput: ____________ gal/yr
5. Internal Shell Condition:
   ☐ Light Rust ☐ Dense Rust ☐ Gunite Lining

| FORM 5 | MDEQ | MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT |
|---|---|---|

## Tank Summary — Section H

### 6. External Floating Roof Tank (continued)

A. Tank Characteristics (continued):

6. Paint Color/Shade:

☐ White/White ☐ Aluminum/Specular ☐ Aluminum/Diffuse

☐ Gray/Light ☐ Gray/Medium ☐ Red/Primer

7. Paint Condition: ☐ Good ☐ Poor

B. Roof Characteristics

1. Roof Type: ☐ Pontoon ☐ Double Deck

2. Roof Fitting Category: ☐ Typical ☐ Detail

C. Tank Construction and Rim-Seal System:

1. Tank Construction: ☐ Welded ☐ Riveted

2. Primary Seal:

☐ Mechanical Shoe ☐ Liquid-mounted ☐ Vapor-mounted

3. Secondary Seal

☐ None ☐ Shoe-mounted ☐ Rim-mounted ☐ Weather shield

### 7. Pollutant Emissions

A. Fixed Roof Emissions:

| Pollutant[1] | Working Loss (tons/yr) | Breathing Loss (tons/yr) | Total Emissions (tons/yr) |
|---|---|---|---|
| VOC | 0.0011 | 0.00097 | 0.0021 |
| | | | |
| | | | |
| | | | |

B. Floating Roof Emissions:

| Pollutant[1] | Rim Seal Loss (tons/yr) | Withdrawal Loss (tons/yr) | Deck Fitting Loss (tons/yr) | Deck Seam Loss (tons/yr) | Landing Loss[2] (tons/yr) | Total Emissions (tons/yr) |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

1. All regulated air pollutants including hazardous air pollutants emitted from this source should be listed in accordance with the Permit Application Instructions. A list of regulated air pollutants and hazardous air pollutants is provided in the Application Instructions.
2. Landing losses should be determined according to the procedures in *Organic Liquid Storage Tanks* chapter of EPA's AP-42 emission factors. If the roof is not landed at least once/yr, enter "NA".

| FORM 5 | MDEQ | MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT |
|---|---|---|

**Tank Summary** — **Section H**

## 1. Emission Point Description

*Note: Sections 3-7 below do not have to be completed if all of the required information is provided elsewhere, such as in a report generated by EPA's TANKS software, and attached to the application.*

A. Emission Point Designation (Ref. No.): ____________________

B. Product(s) Stored: Gasoline

C. Status: ☒ Operating ☐ Proposed ☐ Under Construction

D. Date of construction, reconstruction, or most recent modification (for existing sources) or date of anticipated construction: ____________________

## 2. Tank Data

A. Tank Specifications:

| | | | | | |
|---|---|---|---|---|---|
| 1. | Design capacity | 2000 | gallons | | |
| 2. | True vapor pressure at storage temperature: | 5.2 | psia @ | 60 | ºF |
| 3. | Maximum true vapor pressure (as defined in §60.111b) | | psia @ | | ºF |
| 4. | Reid vapor pressure at storage temperature: | | psia @ | | ºF |
| 5. | Density of product at storage temperature: | 5.6 | lb/gal | | |
| 6. | Molecular weight of product vapor at storage temp. | 66 | lb/lbmol | | |

B. Tank Orientation: ☒ Vertical ☐ Horizontal

C. Type of Tank:

☒ Fixed Roof ☐ External Floating Roof ☐ Internal Floating Roof

☐ Pressure ☐ Variable Vapor Space ☐ Other: __________

D. Is the tank equipped with a Vapor Recovery System? ☐ Yes ☒ No
*If yes, describe below and include the efficiency.*

_____

E. Closest City:

☐ Jackson, MS ☒ Meridian, MS ☐ Tupelo, MS ☐ Mobile, AL

☐ New Orleans, LA ☐ Memphis, TN ☐ Baton Rouge, LA

F. Is an EPA TANKS report included for this tank in the application? ☒ Yes ☐ No

| FORM 5 | MDEQ | MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT |
|---|---|---|

**Tank Summary** — **Section H**

## 3. Horizontal Fixed Roof Tank

A. Shell Length: 7 feet
B. Shell Diameter: 5 feet
C. Working Volume: 2000 gal
D. Maximum Throughput: 5000 gal/yr
E. Is the tank heated? ☐ Yes ☒ No
F. Is the tank underground? ☐ Yes ☒ No
G. Shell Color/Shade:
☐ ☐ Aluminum/Specular ☐ Aluminum/Diffuse
☒ Gray/Light ☐ Gray/Medium ☐ Red/Primer

H. Shell Condition: ☒ Good ☐ Poor

## 4. Vertical Fixed Roof Tank

A. Dimensions:
1. Shell Height: ______ feet
2. Shell Diameter: ______ feet
3. Maximum Liquid Height: ______ feet
4. Average Liquid Height: ______ feet
5. Working Volume: ______ gal
6. Turnovers per year: ______
7. Maximum throughput: ______ gal/yr
8. Is the tank heated? ☐ Yes ☐ No

B. Shell Characteristics:
1. Shell Color/Shade:
☐ White/White ☐ Aluminum/Specular ☐ Aluminum/Diffuse
☐ Gray/Light ☐ Gray/Medium ☐ Red/Primer

2. Shell Condition: ☐ Good ☐ Poor

C. Roof Characteristics:
1. Roof Color/Shade:
☐ White/White ☐ Aluminum/Specular ☐ Aluminum/Diffuse
☐ Gray/Light ☐ Gray/Medium ☐ Red/Primer

2. Roof Condition: ☐ Good ☐ Poor

3. Type: ☐ Cone ☐ Dome

4. Height: ______ feet

| FORM 5 | MDEQ | MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT |
|---|---|---|

**Tank Summary** — **Section H**

## 5. Internal Floating Roof Tank

A. Tank Characteristics:

1. Diameter: ____________________ feet
2. Tank Volume: ____________________ gal
3. Turnovers per year: ____________________
4. Maximum Throughput: ____________________ gal/yr
5. Number of Columns: ____________________
6. Self-Supporting Roof? ☐ Yes ☐ No
7. Effective Column Diameter:
   ☐ 9"x7" Built-up Column ☐ 8" Diameter Pipe ☐ Unknown
8. Internal Shell Condition:
   ☐ Light Rust ☐ Dense Rust ☐ Gunite Lining
9. External Shell Color/Shade:
   ☐ White/White ☐ Aluminum/Specular ☐ Aluminum/Diffuse
   ☐ Gray/Light ☐ Gray/Medium ☐ Red/Primer
10. External Shell Condition: ☐ Good ☐ Poor
11. Roof Color/Shade:
   ☐ White/White ☐ Aluminum/Specular ☐ Aluminum/Diffuse
   ☐ Gray/Light ☐ Gray/Medium ☐ Red/Primer
12. Roof Condition: ☐ Good ☐ Poor

B. Rim Seal System:

1. Primary Seal: ☐ Mechanical Shoe ☐ Liquid-mounted ☐ Vapor-mounted
2. Secondary Seal: ☐ Shoe-mounted ☐ Rim-mounted ☐ None

C. Deck Characteristics:

1. Deck Type: ☐ Bolted ☐ Welded
2. Deck Fitting Category: ☐ Typical ☐ Detail

## 6. External Floating Roof Tank

A. Tank Characteristics

1. Diameter: ____________________ feet
2. Tank Volume: ____________________ gal
3. Turnovers per year: ____________________
4. Maximum Throughput: ____________________ gal/yr
5. Internal Shell Condition:
   ☐ Light Rust ☐ Dense Rust ☐ Gunite Lining

| FORM 5 | MDEQ | MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT |
|---|---|---|

**Tank Summary** **Section H**

## 6. External Floating Roof Tank (continued)

A. Tank Characteristics (continued):

6. Paint Color/Shade:

☐ White/White ☐ Aluminum/Specular ☐ Aluminum/Diffuse

☐ Gray/Light ☐ Gray/Medium ☐ Red/Primer

7. Paint Condition: ☐ Good ☐ Poor

B. Roof Characteristics

1. Roof Type: ☐ Pontoon ☐ Double Deck

2. Roof Fitting Category: ☐ Typical ☐ Detail

C. Tank Construction and Rim-Seal System:

1. Tank Construction: ☐ Welded ☐ Riveted

2. Primary Seal:

☐ Mechanical Shoe ☐ Liquid-mounted ☐ Vapor-mounted

3. Secondary Seal

☐ None ☐ Shoe-mounted ☐ Rim-mounted ☐ Weather shield

## 7. Pollutant Emissions

A. Fixed Roof Emissions:

| Pollutant[1] | Working Loss (tons/yr) | Breathing Loss (tons/yr) | Total Emissions (tons/yr) |
|---|---|---|---|
| VOC | 0.02 | 0.13 | 0.15 |
| | | | |
| | | | |
| | | | |

B. Floating Roof Emissions:

| Pollutant[1] | Rim Seal Loss (tons/yr) | Withdrawal Loss (tons/yr) | Deck Fitting Loss (tons/yr) | Deck Seam Loss (tons/yr) | Landing Loss[2] (tons/yr) | Total Emissions (tons/yr) |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

1. All regulated air pollutants including hazardous air pollutants emitted from this source should be listed in accordance with the Permit Application Instructions. A list of regulated air pollutants and hazardous air pollutants is provided in the Application Instructions.

2. Landing losses should be determined according to the procedures in *Organic Liquid Storage Tanks* chapter of EPA's AP-42 emission factors. If the roof is not landed at least once/yr, enter "NA".

| FORM 5 | MDEQ | MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT |
|---|---|---|

# Cyclones — Section L2

## 1. Cyclone Description

A. Emission Point Designation (Ref. No.): AA-022

B. Equipment Description (include the process(es) that the cyclone(s) controls emissions from):
Low Pressure Pneumatic conveyance system with quad-pak cyclone.

C. Manufacturer: Heumann Environmental    D. Model: HEC-229-24.200-V-4

E. Status: ☐ Operating ☒ Proposed ☐ Under Construction

## 2. Cyclone Data

A. Cyclone Type:

☐ Conventional ☒ High Efficiency ☒ Multiclone ☐ Other: ________

B. Efficiency (PM): 99.99 %    C. Gas Viscosity: 0.000189 poise

D. Pressure Drop: 9.6 - 13 in. $H_2O$    E. Inlet air flow rate: 98,000 acfm

F. Pollutant particle diameter: Varies microns    G. Baffles/Louvers? ☐ Yes ☒ No

H. Cyclone Dimensions:

1. Inlet height: 50 ft
2. Inlet width: 5 ft
3. Cylinder diameter: 6.75 ft
4. Cylinder height: 9 ft
5. Cone height: 18 ft
6. Outlet pipe diameter: 3.75 ft
7. Dust exit diameter: 2 ft

I. Is wet spray used? ☐ Yes ☒ No

1. No. of nozzles: ________
2. Liquid used: ________
3. Flow rate: ________ gpm
4. Make-up rate: ________ gpm

J. Fan Location: ☒ Downstream (direct emissions) ☐ Downstream (auxiliary stack)

☐ Upstream (no cap/vertical emissions) ☐ Upstream (fixed cap/diffuse emissions)

☐ Upstream (wind respondent cap/horizontal emissions)

K. How is the collected dust stored, handled, and disposed of?
Metered out of cyclone hopper through rotary airlock, belt conveyed to truck loading bin, flow through bottom doors into truck, transported off-site for sale

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|---|---|---|

## Applicable Requirements and Status — Section N

### 1. Summary of Applicable Requirements

Provide a list of all applicable federal standards for which your facility is or will be subject to, as well as a list of all Construction Permits establishing limits or restrictions issued to your facility. The specific emission standards and limitations applicable to each emission point shall be provided on the following pages (Parts 2 and 3).

**Federal Regulations:**

| 40 CFR Part | Subpart |
|---|---|
| 63 | DDDD |
| 52.21 | |

**State Construction Permits[1]:**

| | MM/DD/YY[2] | PSD | PSD Avoidance[3] | Other |
|---|---|---|---|---|
| Permit to Construct issued: | 06/21/2016 | ☐ | ☒ | ☐ |
| | Mod 06/04/2018 | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |
| | | ☐ | ☐ | ☐ |

[1] Any Construction Permits containing requirements that are currently applicable to the facility should be addressed in this section.
[2] If the permit has been modified, give the most recent modification date.
[3] Because permits are issued on a pollutant-by-pollutant basis, a PSD permit may be significant for one pollutant while also containing PSD avoidance limits for another pollutant. Therefore, you may check multiple boxes for each permit.

| FORM 5 | MDEQ | MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT |
|---|---|---|

## Applicable Requirements and Status — Section N

### 2. Current Applicable Requirements

List all applicable state and federal requirements to the level of detail needed to identify each applicable emission standard and/or work practice standard and the applicable test methods or monitoring used to demonstrate compliance with each applicable requirement. Applicable provisions from any relevant Permit to Construct shall also be listed. Provide the compliance status as of the day the application is signed.

| EMISSION POINT NO. | APPLICABLE REQUIREMENT (Regulatory citation) | POLLUTANT | LIMITS/ REQUIREMENTS | TEST METHOD/ COMPLIANCE MONITORING | COMPLIANCE STATUS (In/Out)[1,2] |
|---|---|---|---|---|---|
| Facility | 11 Miss. Admin Code Pt. 2, R.1.3.B | Opacity | ≤40% Opacity | EPA Reference Method 9 | In |
| | 11 Miss. Admin Code Pt. 2, R.1.3.F(1) | PM | $E=4.1(p^{0.67})$ | Engineering Calculations | In |
| AA-014 | 40 CFR 63 Subpart DDDD | HAP | N/A | Initial Notification | In |
| | 11 Miss. Admin Code Pt. 2, R.1.4.B(1) | SO2 | ≤ 500 ppm | Wood Residue Fuel | In |
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[1] Per 11 Miss. Admin. Code Pt. 2, R. 6.2.C(8)(b)(1) for Title V sources, by specifying that the source is in compliance with the applicable requirement(s), I (the applicant) am certifying that I will continue to operate and maintain this source to assure compliance for the duration of the permit term.
[2] Per 11 Miss. Admin. Code Pt. 2, R. 6.2.C(8)(b)(3) for Title V sources, by specifying that the source is out of compliance with the applicable requirement(s), I (the applicant) am submitting a schedule, attached herein, which includes a description of the problems and proposed solutions in accordance with 11 Miss. Admin. Code Pt. 2, R. 6.2.C(8)(c).

| FORM 5 | MDEQ | MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT |
|---|---|---|

## Applicable Requirements and Status — Section N

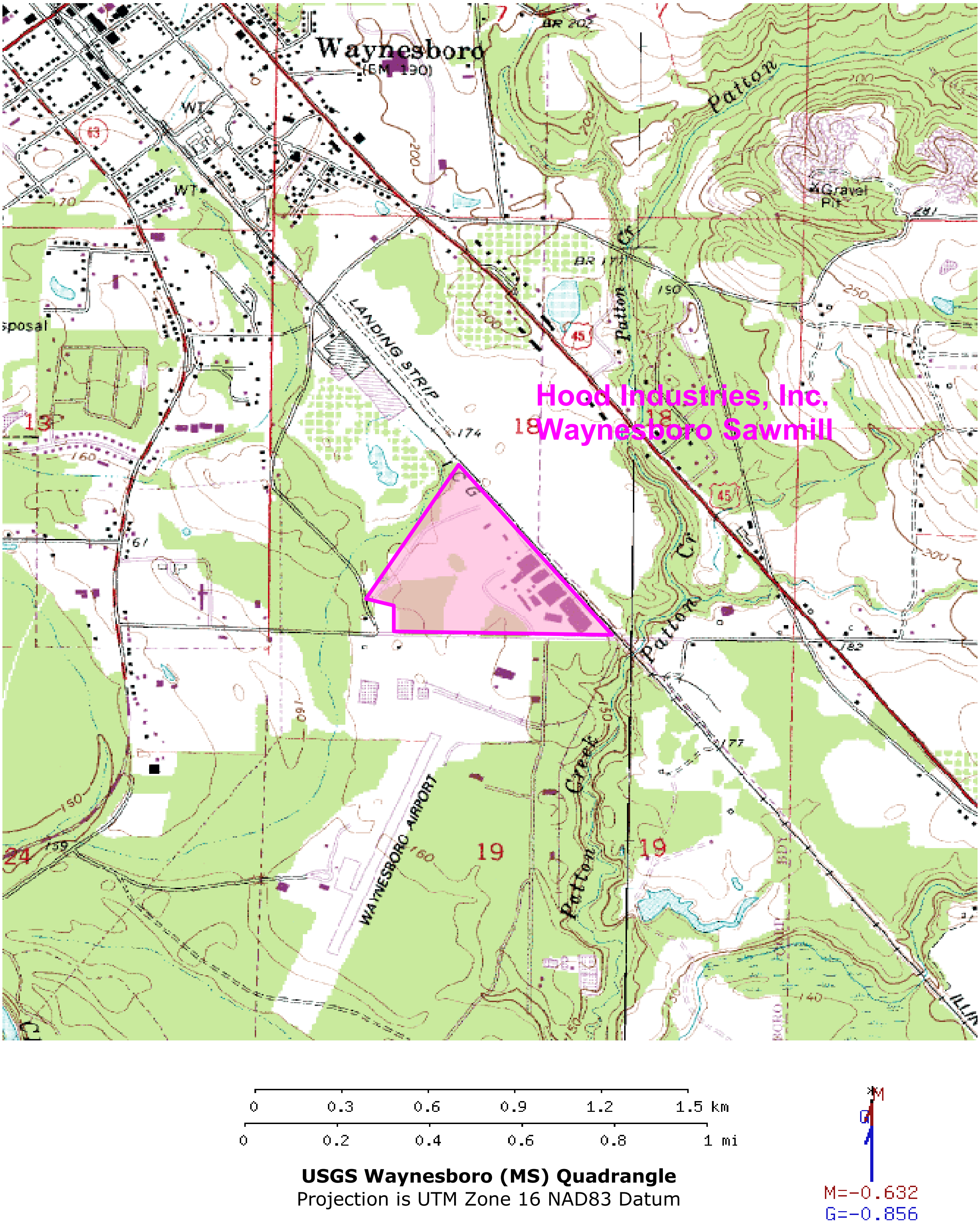
### 3. Future Applicable Requirements

List all future applicable state and federal requirements, including emission limits, operating restrictions, etc., and the applicable test methods or monitoring to be used to demonstrate compliance with each applicable requirement. Applicable provisions from any Permit to Construct for which certification of construction has not yet been submitted shall also be listed.

| EMISSION POINT NO. | FUTURE APPLICABLE REQUIREMENT (Regulation citation) | POLLUTANT | LIMITS/ REQUIREMENTS | TEST METHOD/ COMPLIANCE MONITORING | COMPLIANCE DATE[1] |
|---|---|---|---|---|---|
| Facility | 11 Miss. Admin Code Pt. 2, R.1.3.B | PM | ≤40% Opacity | EPA Reference Method 9 | Upon Startup |
| | 11 Miss. Admin Code Pt. 2, R.1.3.F(1) | | $E=4.1(p^{0.67})$ | Engineering Calculations | Upon Startup |
| AA-014, AA-019, AA-020, AA-021 | 40 CFR 63 Subpart DDDD | HAP | N/A | Initial Notification | Upon Startup |
| | 11 Miss. Admin Code Pt. 2, R.1.3.D(1)(b) | PM | $E = 0.8808* I^{-0.1667}$ | Engineering Calculations | Upon Startup |

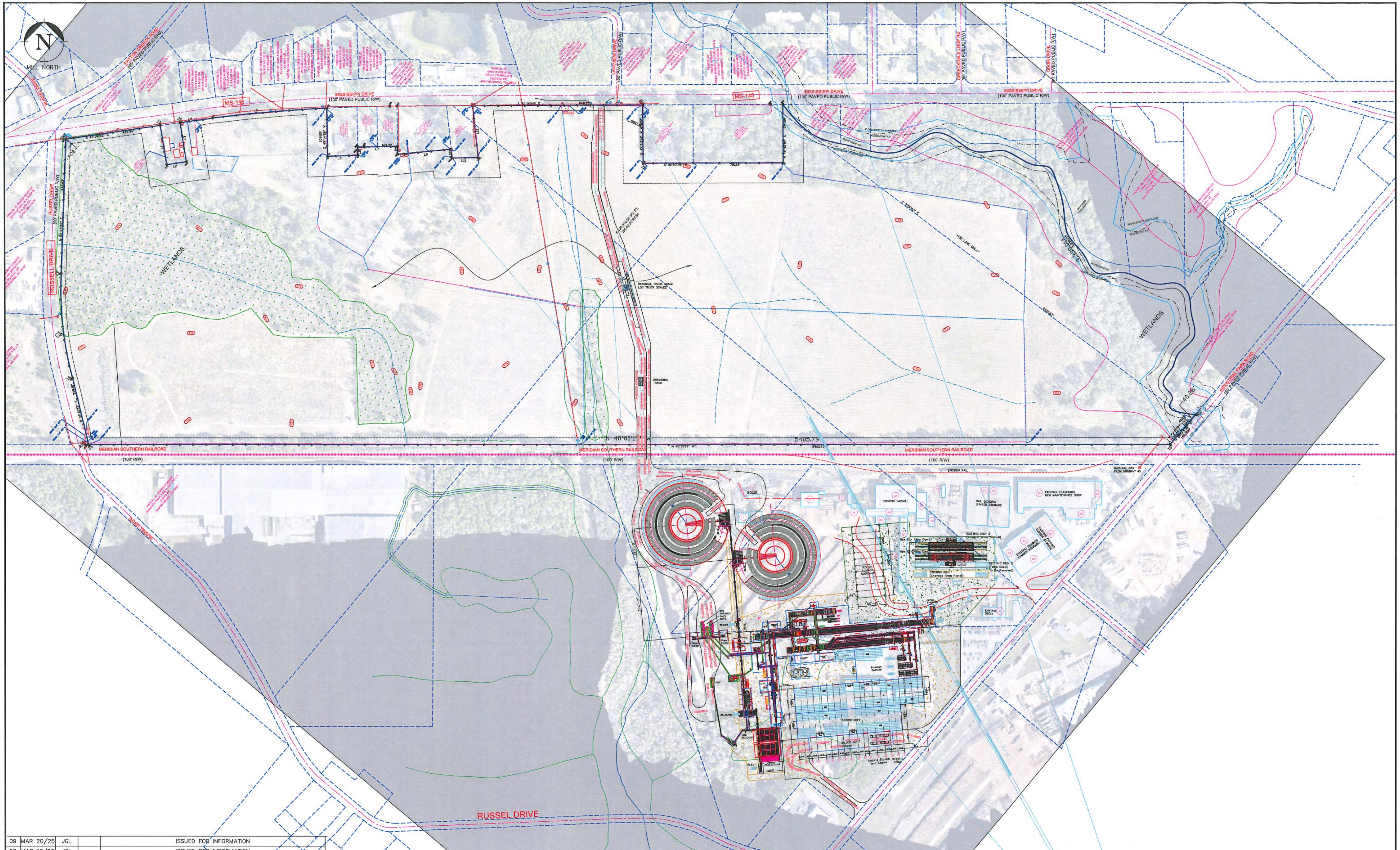
[1] Per 11 Miss. Admin. Code Pt. 2, R. 6.2.C(8)(b)(2). for Title V sources, I (the applicant) am certifying that I will meet future applicable requirements which will become effective during the permit term on a timely basis.

# Figure 1




**USGS Waynesboro (MS) Quadrangle**
Projection is UTM Zone 16 NAD83 Datum

# Figure 2




| REV | DATE | BY | CHKD | REVISION DESCRIPTION |
|---|---|---|---|---|
| 09 | MAR 20/25 | JGL | | ISSUED FOR INFORMATION |
| 08 | MAR 12/25 | JGL | | ISSUED FOR INFORMATION |
| 07 | FEB 20/25 | JGL | | REVISED FINISHED SHED AND TRUCK TRAFFIC – ISSUED FOR INFORMATION |
| 06 | FEB 18/25 | JGL | | REVISED FINISHED SHED AND ROADWAYS – ISSUED FOR INFORMATION |
| 05 | JAN 24/25 | JGL | | ISSUED FOR INFORMATION |
| 04 | JAN 23/25 | JGL | | NEW MILLL LOCATION – ISSUED FOR INFORMATION |

| REV | DATE | BY | CHKD | REVISION DESCRIPTION |
|---|---|---|---|---|
| 03 | DEC 15/24 | JGL | | RELOCATED RADIAL CRANE – ISSUED FOR INFORMATION |
| 02 | NOV 27/24 | JGL | | REVISED ROADWAYS AND MILL LOCATION – ISSUED FOR INFORMATION |
| 01 | NOV 22/24 | JGL | | ISSUED FOR INFORMATION |



GENERAL TOLERANCES
FRACTION ± 1/16"
DECIMAL ± 0.005
U.N.O.

T=THICKNESS OF THINNER PLATE BEING JOINED

HOOD LUMBER

COMACT
www.comact.com

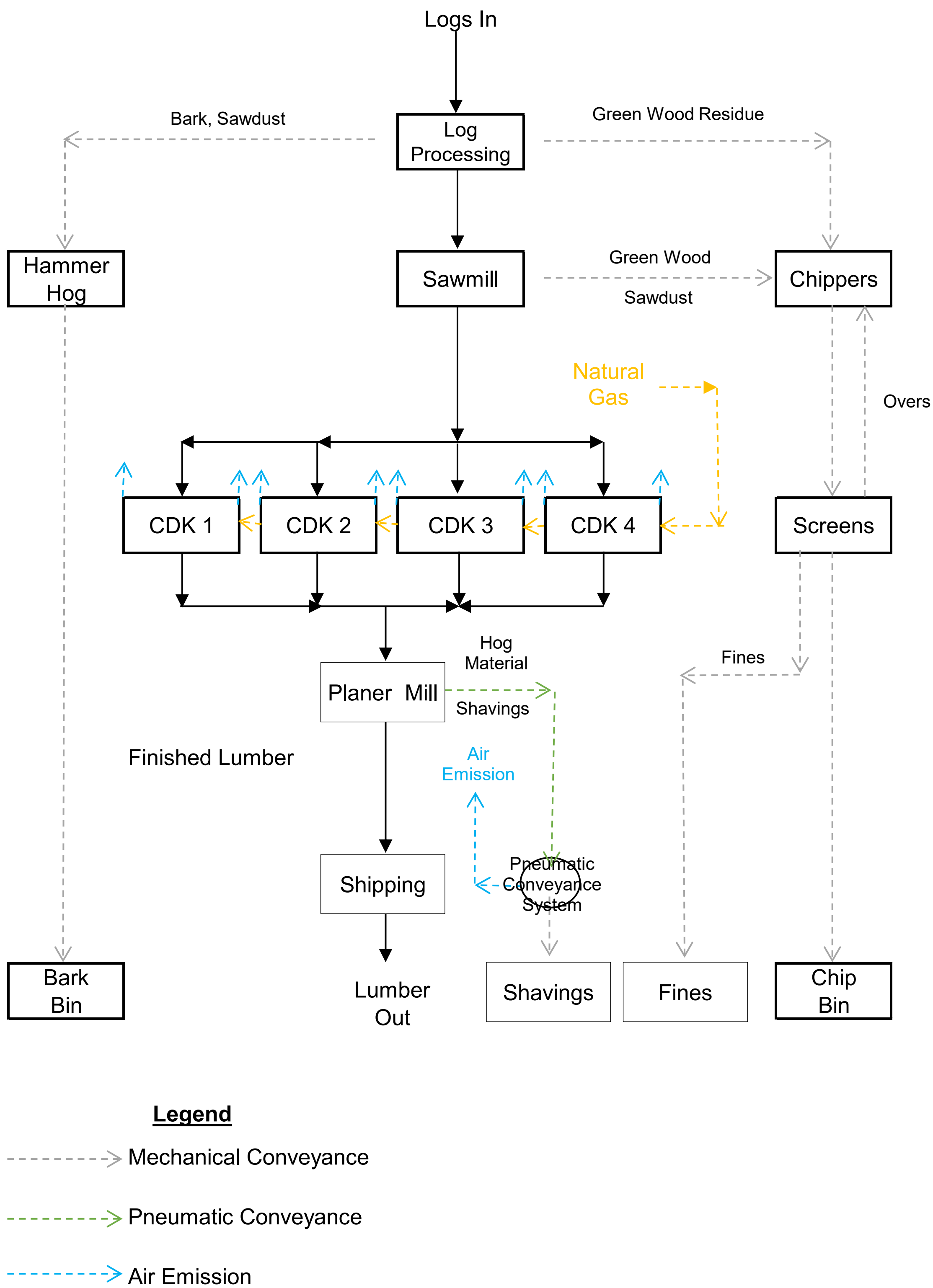
HOOD INDUSTRIES
WAYNESBORO, MS

SAWMILL AND PLANERMILL UPGRADE
OVERALL MILL SITE
GENERAL ARRANGEMENT

| | |
|---|---|
| PROJECT NO. 24-270-01 | TAG NO. 23-1523 |
| SCALE: 1"=100'-0" | DRWN: JGL |
| DATE: NOV 11/24 (M/D/Y) | CHKD: |
| DRAWING NO. 01-101-02 | REV. 09 |

# Figure 3

Hood Industries, Inc.
Waynesboro, Mississippi
Flow Diagram



# Exhibit 2

# Hood Industries, Inc.
**Waynesboro, Mississippi**
**Wayne County**
**Agency Interest #7876**

# Maximum Potential/Allowable Emissions Calculations
# for
# Permit to Construct Application


**Prepared by:**

**H. M. Rollins Company, Inc.**
**608 34th Street**
**Gulfport MS 39501**
**(228) 832-1738**


## May 23, 2025

## Revised July 22, 2025

Hood Industries, Inc.
Waynesboro, Mississippi
Summary of Criteria Pollutant Maximum Potential Emissions

Hourly Emission Rates

| Pollutant | AA-014 Kiln 1 Total | AA-019 Kiln 2 Total | AA-020 Kiln 3 Total | AA-021 Kiln 4 Total | AA-022 PCS | Gasoline Storage Tank Total | Diesel Storage Tank Total | FUG- Log Prep | FUG- Roads |
|---|---|---|---|---|---|---|---|---|---|
| PM | 0.0838 | 0.0838 | 0.0838 | 0.0838 | 6.1361 | 0.0000 | 0.0000 | 11.1355 | 1.5985 |
| TPM-10 | 0.5864 | 0.5864 | 0.5864 | 0.5864 | 2.9967 | 0.0000 | 0.0000 | 5.5677 | 0.3197 |
| TPM-2.5 | 0.5864 | 0.5864 | 0.5864 | 0.5864 | 1.1088 | 0.0000 | 0.0000 | 2.7838 | 0.0784 |
| SOx | 0.0265 | 0.0265 | 0.0265 | 0.0265 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| CO | 3.7061 | 3.7061 | 3.7061 | 3.7061 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| NOx | 3.1572 | 3.1572 | 3.1572 | 3.1572 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| VOC | 50.5708 | 50.5708 | 50.5708 | 50.5708 | 0.0000 | 0.0333 | 0.0005 | 0.0000 | 0.0000 |
| GHG | 5266.4384 | 5266.4384 | 5266.4384 | 5266.4384 | | | | | |

Annual Emission Rates

| Pollutant | AA-014 Kiln 1 Total | AA-014 Kiln 1 Total | AA-014 Kiln 1 Total | AA-014 Kiln 1 Total | AA-022 PCS | Gasoline Storage Tank Total | Diesel Storage Tank Total | FUG- Log Prep | FUG- Roads | **TOTALS TPY** |
|---|---|---|---|---|---|---|---|---|---|---|
| PM | 0.3670 | 0.3670 | 0.3670 | 0.3670 | 26.8761 | | | 48.7735 | 7.0013 | 84.1189 |
| TPM-10 | 2.5684 | 2.5684 | 2.5684 | 2.5684 | 13.1255 | | | 24.3865 | 1.4003 | 49.1859 |
| TPM-2.5 | 2.5684 | 2.5684 | 2.5684 | 2.5684 | 4.8565 | | | 12.1930 | 0.3436 | 27.6667 |
| SOx | 0.1161 | 0.1161 | 0.1161 | 0.1161 | | | | | | 0.4644 |
| CO | 16.2327 | 16.2327 | 16.2327 | 16.2327 | | | | | | 64.9308 |
| NOx | 13.8285 | 13.8285 | 13.8285 | 13.8285 | | | | | | 55.3140 |
| VOC | 221.5001 | 221.5001 | 221.5001 | 221.5001 | | 0.1460 | 0.0021 | | | 886.1485 |
| GHG | 23067 | 23067 | 23067 | 23067 | | | | | | 92268 |

Hood Industries, Inc.
Waynesboro, Mississippi
Summary of Hazardous Air Pollutant Maximum Potential Emissions

| Pollutant | AA-014 Kiln 1 Drying | AA-014 Kiln 1 Combust | AA-019 Kiln 2 Drying | AA-019 Kiln 2 Combust | AA-020 Kiln 3 Drying | AA-020 Kiln 3 Combust | AA-021 Kiln 4 Drying | AA-021 Kiln 4 Combust | **TOTALS TPY** |
|---|---|---|---|---|---|---|---|---|---|
| 1,3-Butadiene | | | | | | | | | 0.0000 |
| 1,4-Dichlorobenzene | | 0.0000 | | 0.0000 | | 0.0000 | | 0.0000 | 0.0000 |
| Acetaldehyde | 1.9999 | | 1.9999 | | 1.9999 | | 1.9999 | | 7.9996 |
| Acrolein | 0.2002 | | 0.2002 | | 0.2002 | | 0.2002 | | 0.8008 |
| Arsenic | | 0.0000 | | 0.0000 | | 0.0000 | | 0.0000 | 0.0000 |
| Barium | | 0.0009 | | 0.0009 | | 0.0009 | | 0.0009 | 0.0036 |
| Benzene | 0.0000 | 0.0004 | 0.0000 | 0.0004 | 0.0000 | 0.0004 | 0.0000 | 0.0004 | 0.0016 |
| Chromium, total | | 0.0000 | | 0.0000 | | 0.0000 | | 0.0000 | 0.0000 |
| Formaldehyde | 3.2500 | 0.0145 | 3.2500 | 0.0145 | 3.2500 | 0.0145 | 3.2500 | 0.0145 | 13.0580 |
| Methanol | 9.0000 | | 9.0000 | | 9.0000 | | 9.0000 | | 36.0000 |
| Methyl isobutyl ketone | 0.0000 | | 0.0000 | | 0.0000 | | 0.0000 | | 0.0000 |
| Naphthalene | | | | | | | | | 0.0000 |
| n-Hexane | | 0.3478 | | 0.3478 | | 0.3478 | | 0.3478 | 1.3912 |
| Nickel (and compounds) | | 0.0004 | | 0.0004 | | 0.0004 | | 0.0004 | 0.0016 |
| Phenol | 0.5002 | | 0.5002 | | 0.5002 | | 0.5002 | | 2.0008 |
| **POM/PAH (exclude naphths)** | | | | | | | | | 0.0000 |
| Propionaldehyde | 0.2002 | | 0.2002 | | 0.2002 | | 0.2002 | | 0.8008 |
| Propylene | | | | | | | | | 0.0000 |
| Styrene | 0.0000 | | 0.0000 | | 0.0000 | | 0.0000 | | 0.0000 |
| Toluene | 0.0000 | 0.0004 | 0.0000 | 0.0004 | 0.0000 | 0.0004 | 0.0000 | 0.0004 | 0.0016 |
| Xylene | 0.0000 | | 0.0000 | | 0.0000 | | 0.0000 | | 0.0000 |
| Zinc (and compounds) | | 0.0057 | | 0.0057 | | 0.0057 | | 0.0057 | 0.0228 |
| TOTAL: | 15.1505 | 0.3701 | 15.1505 | 0.3701 | 15.1505 | 0.3701 | 15.1505 | 0.3701 | 62.0824 |

Hood Industries, Inc.
Waynesboro, Mississippi
Production Information for Maximum Potential to Emit (MPTE) Air Emissions Calculations

Kiln Information

| | Kiln 1 | Kiln 2 | Kiln 3 | Kiln 4 | TOTALS |
|---|---|---|---|---|---|
| Annual Production, BF | 100,000,000 | 100,000,000 | 100,000,000 | 100,000,000 | 400,000,000 |
| Annual Operating Hours, hr | 8,760 | 8,760 | 8,760 | 8,760 | 8,760 |
| Avg. Lumber Production, MBF/hr | 11.42 | 11.42 | 11.42 | 11.42 | 45.66 |
| NG Burner Capacity, MMBTU/hr | 45.00 | 45.00 | 45.00 | 45.00 | |
| MAX Annual MMBTUs per kiln | 394,200 | 394,200 | 394,200 | 394,200 | 1,576,800 |
| Heat Content of Fuel, BTU/scf | 1,020 | 1,020 | 1,020 | 1,020 | NA |
| MAX Annual Fuel Usage, MMscf | 386.471 | 386.471 | 386.471 | 386.471 | 1,545.882 |
| MAX Hourly Fuel Use, MMscf/hr | 0.04412 | 0.04412 | 0.04412 | 0.04412 | NA |
| MAX Hourly Fuel Use, scf/hr | 44,120 | 44,120 | 44,120 | 44,120 | NA |
| Avg. Hourly Heat Input, MMBTU/hr | 35.00 | 35.00 | 35.00 | 35.00 | |
| Avg. Hourly Heat Input, MMscf/hr | 0.0441 | 0.0441 | 0.0441 | 0.0441 | NA |
| Avg. Hourly Heat Input, scf/hr | 44,118 | 44,118 | 44,118 | 44,118 | NA |

Other Production Information

| | | | |
|---|---|---|---|
| Logs Needed, tons: | 1,653,336 | Planer Mill Hours: | 8,760 |
| Logs Utilization Rate, tons/MBF: | 4.13 | Sawmill Hours: | 8,760 |

Natural Gas Burner NOx Emission Rate

| | |
|---|---|
| Volume Flue Gas (scf) per MMBtu Natural Gas Burned at 0% Excess Air: | 8,900 |
| Excess Air, %: | 30% |
| Total Volume Flue Gas, scf: | 11,570 |
| NOx Concentration in Burner Setup, ppmv: | 50 |
| NO2 volume/MMBtu, scf/MMBtu: | 0.5785 |
| Volume (scf) per lb-mole: | 379.3 |
| NO2 lb-moles: | 0.001525 |
| NO2 Weight, lb/lb-mole: | 46.0055 |
| NOx Emission Factor, lb/MMBtu: | 0.070158 |
| NOx Emission Factor, lb/MMscf (at 1020 Btu/scf): | 71.56 |

Hood Industries, Inc.
Waynesboro, Mississippi
Emission Calculations for Kilns

| Kiln Criteria Pollutant Emissions | | | | | | | |
|---|---|---|---|---|---|---|---|
| Source Description | Permit Emission Point | Pollutant | Notes | Emission Factor | Units | Emission Rates | |
| | | | | | | (lb/hr) | (tpy) |
| K-1 Lumber Drying | AA-014 | TSP | 1 | 0 | lb/MBF | 0.0000 | 0.0000 |
| | | FPM-10 | 1 | 0 | lb/MBF | 0.0000 | 0.0000 |
| | | FPM-2.5 | 1 | 0 | lb/MBF | 0.0000 | 0.0000 |
| | | PM-CON | 1 | 0.022 | lb/MBF | 0.2511 | 1.0998 |
| | | VOC | 2 | 4.43 | lb/MBF | 50.5708 | 221.5001 |
| K-1 Natural Gas Combustion | AA-014 | TSP | 4 | 1.9 | lb/ MMscf | 0.0838 | 0.3670 |
| | | FPM-10 | 4 | 1.9 | lb/ MMscf | 0.0838 | 0.3670 |
| | | FPM-2.5 | 4 | 1.9 | lb/ MMscf | 0.0838 | 0.3670 |
| | | PM-CON | 4 | 5.7 | lb/ MMscf | 0.2515 | 1.1016 |
| | | SOx | 4 | 0.6 | lb/ MMscf | 0.0265 | 0.1161 |
| | | NOx | 3 | 71.56 | lb/ MMscf | 3.1572 | 13.8285 |
| | | CO | 3 | 84 | lb/ MMscf | 3.7061 | 16.2327 |
| K-2 Lumber Drying | AA-019 | TSP | 1 | 0 | lb/MBF | 0.0000 | 0.0000 |
| | | FPM-10 | 1 | 0 | lb/MBF | 0.0000 | 0.0000 |
| | | FPM-2.5 | 1 | 0 | lb/MBF | 0.0000 | 0.0000 |
| | | PM-CON | 1 | 0.022 | lb/MBF | 0.2511 | 1.0998 |
| | | VOC | 2 | 4.43 | lb/MBF | 50.5708 | 221.5001 |
| K-2 Natural Gas Combustion | AA-019 | TSP | 4 | 1.9 | lb/ MMscf | 0.0838 | 0.3670 |
| | | FPM-10 | 4 | 1.9 | lb/ MMscf | 0.0838 | 0.3670 |
| | | FPM-2.5 | 4 | 1.9 | lb/ MMscf | 0.0838 | 0.3670 |
| | | PM-CON | 4 | 5.7 | lb/ MMscf | 0.2515 | 1.1016 |
| | | SOx | 4 | 0.6 | lb/ MMscf | 0.0265 | 0.1161 |
| | | NOx | 3 | 71.56 | lb/ MMscf | 3.1572 | 13.8285 |
| | | CO | 3 | 84 | lb/ MMscf | 3.7061 | 16.2327 |
| K-3 Lumber Drying | AA-020 | TSP | 1 | 0 | lb/MBF | 0.0000 | 0.0000 |
| | | FPM-10 | 1 | 0 | lb/MBF | 0.0000 | 0.0000 |
| | | FPM-2.5 | 1 | 0 | lb/MBF | 0.0000 | 0.0000 |
| | | PM-CON | 1 | 0.022 | lb/MBF | 0.2511 | 1.0998 |
| | | VOC | 2 | 4.43 | lb/MBF | 50.5708 | 221.5001 |
| K-3 Natural Gas Combustion | AA-020 | TSP | 4 | 1.9 | lb/ MMscf | 0.0838 | 0.3670 |
| | | FPM-10 | 4 | 1.9 | lb/ MMscf | 0.0838 | 0.3670 |
| | | FPM-2.5 | 4 | 1.9 | lb/ MMscf | 0.0838 | 0.3670 |
| | | PM-CON | 4 | 5.7 | lb/ MMscf | 0.2515 | 1.1016 |
| | | SOx | 4 | 0.6 | lb/ MMscf | 0.0265 | 0.1161 |
| | | NOx | 3 | 71.56 | lb/ MMscf | 3.1572 | 13.8285 |
| | | CO | 3 | 84 | lb/ MMscf | 3.7061 | 16.2327 |
| K-4 Lumber Drying | AA-021 | TSP | 1 | 0 | lb/MBF | 0.0000 | 0.0000 |
| | | FPM-10 | 1 | 0 | lb/MBF | 0.0000 | 0.0000 |
| | | FPM-2.5 | 1 | 0 | lb/MBF | 0.0000 | 0.0000 |
| | | PM-CON | 1 | 0.022 | lb/MBF | 0.2511 | 1.0998 |
| | | VOC | 2 | 4.43 | lb/MBF | 50.5708 | 221.5001 |
| K-4 Natural Gas Combustion | AA-021 | TSP | 4 | 1.9 | lb/ MMscf | 0.0838 | 0.3670 |
| | | FPM-10 | 4 | 1.9 | lb/ MMscf | 0.0838 | 0.3670 |
| | | FPM-2.5 | 4 | 1.9 | lb/ MMscf | 0.0838 | 0.3670 |
| | | PM-CON | 4 | 5.7 | lb/ MMscf | 0.2515 | 1.1016 |
| | | SOx | 4 | 0.6 | lb/ MMscf | 0.0265 | 0.1161 |
| | | NOx | 3 | 71.56 | lb/ MMscf | 3.1572 | 13.8285 |
| | | CO | 3 | 84 | lb/ MMscf | 3.7061 | 16.2327 |

Notes

1 NCDENR Wood Kiln Emission Calculator factor sheet for softwood steam heated kilns
2 BACT from MDEQ Permit issued to Gloster Forest Products, Gloster, MS (includes VOC from NG combustion)
3 AP-42, Table 1.4-1, Emission Factors for NOx and CO from Natural Gas Combustion
4 AP-42, Table 1.4-2, Emission Factors for Criteria Pollutants and Greenhouse Gases from Natural Gas Combustion

Hood Industries, Inc.
Waynesboro, Mississippi
Emission Calculations for Kilns

| Source Description | Permit Emission Point | Pollutant | * | Emission Factor | Units | Emission Rates (lb/hr) | Emission Rates (tpy) |
|---|---|---|---|---|---|---|---|
| K-1 Lumber Drying | AA-014 | Acetaldehyde | 1 | 0.04 | lb/MBF | 0.45660 | 1.9999 |
| | | Acrolein | 1 | 0.004 | lb/MBF | 0.04570 | 0.2002 |
| | | Formaldehyde | 1 | 0.065 | lb/MBF | 0.74200 | 3.2500 |
| | | Methanol | 1 | 0.18 | lb/MBF | 2.05480 | 9.0000 |
| | | Phenol | 1 | 0.01 | lb/MBF | 0.11420 | 0.5002 |
| | | Propionaldehyde | 1 | 0.004 | lb/MBF | 0.04570 | 0.2002 |
| K-1 Natural Gas Combustion | AA-014 | 1,4-Dichlorobenzene | 2 | 0.001 | lb/ MM scf | 0.00000 | 0.0000 |
| | | Arsenic (and compounds) | 3 | 0.0002 | lb/ MM scf | 0.00000 | 0.0000 |
| | | Barium (and compounds) | 3 | 0.004 | lb/ MM scf | 0.00020 | 0.0009 |
| | | Benzene | 2 | 0.002 | lb/ MM scf | 0.00010 | 0.0004 |
| | | Chromium | 3 | 0.001 | lb/ MM scf | 0.00000 | 0.0000 |
| | | Formaldehyde | 2 | 0.075 | lb/ MM scf | 0.00330 | 0.0145 |
| | | n-Hexane | 2 | 1.8 | lb/ MM scf | 0.07940 | 0.3478 |
| | | Nickel (and compounds) | 3 | 0.002 | lb/ MM scf | 0.00010 | 0.0004 |
| | | Toluene | 2 | 0.003 | lb/ MM scf | 0.00010 | 0.0004 |
| | | Zinc (and compounds) | 3 | 0.029 | lb/ MM scf | 0.00130 | 0.0057 |
| K-2 Lumber Drying | AA-019 | Acetaldehyde | 1 | 0.04 | lb/MBF | 0.45660 | 1.9999 |
| | | Acrolein | 1 | 0.004 | lb/MBF | 0.04570 | 0.2002 |
| | | Formaldehyde | 1 | 0.065 | lb/MBF | 0.74200 | 3.2500 |
| | | Methanol | 1 | 0.18 | lb/MBF | 2.05480 | 9.0000 |
| | | Phenol | 1 | 0.01 | lb/MBF | 0.11420 | 0.5002 |
| | | Propionaldehyde | 1 | 0.004 | lb/MBF | 0.04570 | 0.2002 |
| K-2 Natural Gas Combustion | AA-019 | 1,4-Dichlorobenzene | 2 | 0.001 | lb/ MM scf | 0.00000 | 0.0000 |
| | | Arsenic (and compounds) | 3 | 0.0002 | lb/ MM scf | 0.00000 | 0.0000 |
| | | Barium (and compounds) | 3 | 0.004 | lb/ MM scf | 0.00020 | 0.0009 |
| | | Benzene | 2 | 0.002 | lb/ MM scf | 0.00010 | 0.0004 |
| | | Chromium | 3 | 0.001 | lb/ MM scf | 0.00000 | 0.0000 |
| | | Formaldehyde | 2 | 0.075 | lb/ MM scf | 0.00330 | 0.0145 |
| | | n-Hexane | 2 | 1.8 | lb/ MM scf | 0.07940 | 0.3478 |
| | | Nickel (and compounds) | 3 | 0.002 | lb/ MM scf | 0.00010 | 0.0004 |
| | | Toluene | 2 | 0.003 | lb/ MM scf | 0.00010 | 0.0004 |
| | | Zinc (and compounds) | 3 | 0.029 | lb/ MM scf | 0.00130 | 0.0057 |
| K-3 Lumber Drying | AA-020 | Acetaldehyde | 1 | 0.04 | lb/MBF | 0.45660 | 1.9999 |
| | | Acrolein | 1 | 0.004 | lb/MBF | 0.04570 | 0.2002 |
| | | Formaldehyde | 1 | 0.065 | lb/MBF | 0.74200 | 3.2500 |
| | | Methanol | 1 | 0.18 | lb/MBF | 2.05480 | 9.0000 |
| | | Phenol | 1 | 0.01 | lb/MBF | 0.11420 | 0.5002 |
| | | Propionaldehyde | 1 | 0.004 | lb/MBF | 0.04570 | 0.2002 |
| K-3 Natural Gas Combustion | AA-020 | 1,4-Dichlorobenzene | 2 | 0.001 | lb/ MM scf | 0.00000 | 0.0000 |
| | | Arsenic (and compounds) | 3 | 0.0002 | lb/ MM scf | 0.00000 | 0.0000 |
| | | Barium (and compounds) | 3 | 0.004 | lb/ MM scf | 0.00020 | 0.0009 |
| | | Benzene | 2 | 0.002 | lb/ MM scf | 0.00010 | 0.0004 |
| | | Chromium | 3 | 0.001 | lb/ MM scf | 0.00000 | 0.0000 |
| | | Formaldehyde | 2 | 0.075 | lb/ MM scf | 0.00330 | 0.0145 |
| | | n-Hexane | 2 | 1.8 | lb/ MM scf | 0.07940 | 0.3478 |
| | | Nickel (and compounds) | 3 | 0.002 | lb/ MM scf | 0.00010 | 0.0004 |
| | | Toluene | 2 | 0.003 | lb/ MM scf | 0.00010 | 0.0004 |
| | | Zinc (and compounds) | 3 | 0.029 | lb/ MM scf | 0.00130 | 0.0057 |
| K-4 Lumber Drying | AA-021 | Acetaldehyde | 1 | 0.04 | lb/MBF | 0.45660 | 1.9999 |
| | | Acrolein | 1 | 0.004 | lb/MBF | 0.04570 | 0.2002 |
| | | Formaldehyde | 1 | 0.065 | lb/MBF | 0.74200 | 3.2500 |
| | | Methanol | 1 | 0.18 | lb/MBF | 2.05480 | 9.0000 |
| | | Phenol | 1 | 0.01 | lb/MBF | 0.11420 | 0.5002 |
| | | Propionaldehyde | 1 | 0.004 | lb/MBF | 0.04570 | 0.2002 |
| K-4 Natural Gas Combustion | AA-021 | 1,4-Dichlorobenzene | 2 | 0.001 | lb/ MM scf | 0.00000 | 0.0000 |
| | | Arsenic (and compounds) | 3 | 0.0002 | lb/ MM scf | 0.00000 | 0.0000 |
| | | Barium (and compounds) | 3 | 0.004 | lb/ MM scf | 0.00020 | 0.0009 |
| | | Benzene | 2 | 0.002 | lb/ MM scf | 0.00010 | 0.0004 |
| | | Chromium | 3 | 0.001 | lb/ MM scf | 0.00000 | 0.0000 |
| | | Formaldehyde | 2 | 0.075 | lb/ MM scf | 0.00330 | 0.0145 |
| | | n-Hexane | 2 | 1.8 | lb/ MM scf | 0.07940 | 0.3478 |
| | | Nickel (and compounds) | 3 | 0.002 | lb/ MM scf | 0.00010 | 0.0004 |
| | | Toluene | 2 | 0.003 | lb/ MM scf | 0.00010 | 0.0004 |
| | | Zinc (and compounds) | 3 | 0.029 | lb/ MM scf | 0.00130 | 0.0057 |

*Notes

1 US EPA PCWP MACT ICR Provisional Emissions Calculations Tool, September 22, 2017
2 AP-42, Table 1.4-3, Emission Factors for Speciated Organic Compounds from NG Consumption
3 AP-42, Table 1.4-4, Emission Factors for metals from Natural Gas Combustion

Hood Industries, Inc.
Waynesboro, Mississippi
Emission Calculations for Pneumatic Conveyance System

| | |
|---|---|
| Source ID: | AA-022 |
| S Operating Hours: | 8,760 |

| | |
|---|---|
| Maximum Capacity, BF/yr: | 400,000,000 |
| Raw Material Throughput, BF/hr: | 45,662 |
| Density, Pine, lb/BF: | 2.5 |
| Planer Throughput, tons/hr: | 57.08 |

| Pollutant | Emission Factor lb/ton thru | PCS Loading lb/hour | [2]Cyclone Efficiency % | Building Enclosure % | Emissions Hourly lb/hr | Emissions Annual tons/yr |
|---|---|---|---|---|---|---|
| PM | 4.3 | 245.4440 | 95 | 50 | 6.1361 | 26.8761 |
| PM10 | 2.1 | 119.8680 | 95 | 50 | 2.9967 | 13.1255 |
| PM2.5 | 0.777 | 44.3512 | 95 | 50 | 1.1088 | 4.8565 |

1 Calculation Basis from SCDHEC Wood Working Emissions for Millwork Dry Wood Output EF workbook

2 Cyclone Efficiency conservatively estimated based on manufacturer data for QuadPak cyclone

Hood Industries, Inc.
Waynesboro, Mississippi
Emission Calculations for Log Prep

Source ID: Sawmill Fugitives

| | | |
|---|---|---|
| Sawmill Operating Hours: | 8,760 | hr/yr |
| Annual Log Usage: | 1,653,336 | tons log/yr |
| Hourly Throughput: | 189 | tons log/hr |

| Log Debarking (LD-1) | | | |
|---|---|---|---|
| Pollutant | Emission Factor[1] | Emissions | |
| | (lb/ton) | (lb/hr) | (tpy) |
| PM | 0.024 | 4.5297 | 19.8401 |
| PM10 | 0.012 | 2.2648 | 9.9198 |
| PM2.5 | 0.006 | 1.1324 | 4.9599 |

| Log Bucking (LB-1) | | | |
|---|---|---|---|
| Pollutant | Emission Factor[1] | Emissions | |
| | (lb/ton) | (lb/hr) | (tpy) |
| PM | 0.035 | 6.6058 | 28.9334 |
| PM10 | 0.0175 | 3.3029 | 14.4667 |
| PM2.5 | 0.00875 | 1.6514 | 7.2331 |

| Log Preparation Fugitives Total | | |
|---|---|---|
| Pollutant | Emissions | |
| | (lb/hr) | (tpy) |
| PM | 11.1355 | 48.7735 |
| PM10 | 5.5677 | 24.3865 |
| PM2.5 | 2.7838 | 12.1930 |

Notes

1 EPA Region 10 Particulate Matter Potential to Emit Emissions for Activites at Sawmills, Excluding Boilers, Located in the Pacific Northwest Indian Country, May 2014

**$E = 4.1*P^{0.67}$** where E = allowable maximum PM emission rate

Source ID: Sawmill Fugitives

| | | |
|---|---|---|
| Sawmill Process Weight Rate (P): | 189 | tons log/hr |
| E= | 137.3 | lb/hr PM |

Source ID: Planer Mill

| | | |
|---|---|---|
| Planer Mill Process Weight Rate (P): | 150 | tons log/hr |
| E= | 117.7 | lb/hr PM |

Hood Industries, Inc.
Waynesboro, Mississippi
Emission Calculations for Paved-Unpaved Roads

| Truck Material | Truck Route | Paved Miles | Unpaved Miles |
|---|---|---|---|
| Logs | A,B,B,A | 0.876 | 0 |
| Shavings | A,C,C,A | 1.146 | 0 |
| Chips | A,C,C,A | 1.146 | 0 |
| Bark | A,C,C,A | 1.146 | 0 |
| Green Sawdust | A,C,C,A | 1.146 | 0 |
| Finished Lumber | D | 0.084 | 0 |

| Road Segment | Paved/ Unpaved | Length (mi) |
|---|---|---|
| A | Paved | 0.337 |
| B | Paved | 0.101 |
| C | Paved | 0.236 |
| D | Paved | 0.084 |

| Truck Material | Annual Throughput | Throughput Units | Truck Wt (tons) | Trucks/ Year[6] | VMT/year Paved Roads | VMT/year Unpaved Roads |
|---|---|---|---|---|---|---|
| Logs | 1,653,336 | tpy | 25 | 66133 | 57933 | 0 |
| Shavings | 72,581 | tpy | 25 | 2903 | 3327 | 0 |
| Chips | 544,443 | tpy | 25 | 21778 | 24957 | 0 |
| Bark | 132,267 | tpy | 25 | 5291 | 6063 | 0 |
| Green Sawdust | 834,934 | tpy | 25 | 33397 | 38273 | 0 |
| Finished Lumber | 400,000 | MBF/ yr | NA | 20000 | 1680 | 0 |

Unpaved Roads Emission Calculations[2,3]

$E = k (s/12)^a (W/3)^b$

$E_{ext} = E[(365-P)/365]$

E= Site specific emission factor (lb/VMT)

$E_{ext}$= extrapolated for natural mitigation (lb/VMT)

s= 0.08 Surface material silt content (%)

W= 27.5 Mean vehicle weight[2](tons)

a= 0.9 (for PM10/PM2.5)

a= 0.7 (for TSP)

b= 0.45

P= 105 # of days with at least 0.1 inches of rain

k= Pollutant specific constant

| k | | $E_{ext}$ |
|---|---|---|
| k(TSP)= | 4.9 | 0.2835 |
| k(PM10)= | 1.5 | 0.0319 |
| k(PM2.5)= | 0.15 | 0.0032 |

| Truck Material | Unpaved Road Emissions TSP (lb/hr) | TSP (tpy) | PM10 (lb/hr) | PM10 (tpy) | PM2.5 (lb/hr) | PM2.5 (tpy) |
|---|---|---|---|---|---|---|
| Logs | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Shavings | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Chips | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Bark | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Green Sawdust | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Finished Lumber | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Total | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

Paved Roads Emissions Calculations[2,5]

$E_{ext}$= $[k(sL)^{0.91}x(W)^{1.02}][1-P/(4N)]$

k= Particle size multipliers for paved roads

| | | | |
|---|---|---|---|
| k(TSP)= | 0.011 | $E_{ext}$= | 0.1885 |
| k(PM10)= | 0.0022 | $E_{ext}$= | 0.0377 |
| k(PM2.5)= | 0.00054 | $E_{ext}$= | 0.0093 |

$E_{ext}$= Annual average emission factor (same units as k)

| | | |
|---|---|---|
| W= | 27.5 | Mean vehicle weight[2](tons) |
| N= | 365 | Number of days |
| sL[7]= | 0.6 | road surface silt loading ($g/m^2$) |
| P= | 105 | # of days with at least 0.1 inches of rain |

| Truck Material | Paved Road Emissions | | | | | |
|---|---|---|---|---|---|---|
| | TSP | | PM10 | | PM2.5 | |
| | (lb/hr) | (tpy) | (lb/hr) | (tpy) | (lb/hr) | (tpy) |
| Logs | 1.2770 | 5.4590 | 0.2493 | 1.0918 | 0.0612 | 0.2680 |
| Shavings | 0.0561 | 0.3135 | 0.0143 | 0.0627 | 0.0035 | 0.0154 |
| Chips | 0.4205 | 2.3517 | 0.1074 | 0.4703 | 0.0264 | 0.1154 |
| Bark | 0.1022 | 0.5713 | 0.0261 | 0.1143 | 0.0064 | 0.0280 |
| Green Sawdust | 0.6449 | 3.6065 | 0.1647 | 0.7213 | 0.0404 | 0.1770 |
| Finished Lumber | 0.3862 | 0.1583 | 0.0072 | 0.0317 | 0.0018 | 0.0078 |
| Total | 1.6099 | 7.0013 | 0.3197 | 1.4003 | 0.0785 | 0.3436 |

| Truck Material | Total Road Emissions | | | | | |
|---|---|---|---|---|---|---|
| | TSP | | PM10 | | PM2.5 | |
| | (lb/hr) | (tpy) | (lb/hr) | (tpy) | (lb/hr) | (tpy) |
| Logs | 1.2770 | 5.4590 | 0.2493 | 1.0918 | 0.0612 | 0.2680 |
| Shavings | 0.0561 | 0.3135 | 0.0143 | 0.0627 | 0.0035 | 0.0154 |
| Chips | 0.4205 | 2.3517 | 0.1074 | 0.4703 | 0.0264 | 0.1154 |
| Bark | 0.1022 | 0.5713 | 0.0261 | 0.1143 | 0.0064 | 0.0280 |
| Green Sawdust | 0.6449 | 3.6065 | 0.1647 | 0.7213 | 0.0404 | 0.1770 |
| Finished Lumber | 0.3862 | 0.1583 | 0.0072 | 0.0317 | 0.0018 | 0.0078 |
| Total | 1.6099 | 7.0013 | 0.3197 | 1.4003 | 0.0785 | 0.3436 |

Notes

1 Truck Routes
2 Assuming maximum operations of 8760 hr/yr
3 Load weight based on average of 15 ton empty trucks and 40 ton (maximum allowable weight) full trucks
4 AP-42, Chapter 13.2.2, Unpaved Roads.
5 AP-42, Chapter 13.2.1, Paved Roads.
6 Trucks/yr based on annual throughput divided by haul weight. Finished lumber throughput divided by 20 MBF/truck.
7 Average road surface silt loading, based on testing of similar competitor operations. Value represents highest of silt loading values publicly available from lumber mill paved haul roads

Eq. 1-1 $L_T = L_S + L_w$

| | | | |
|---|---|---|---|
| $L_T$= | total routine losses, lb/yr | $L_T$= | 291.967 |
| $L_S$= | standing losses, lb/yr, see Equation 1-2 | $L_S$= | 251.801 |
| $L_w$= | working losses, lb/yr, see Equation 1-35 | $L_w$= | 40.16599 |

See following pages for calculation of standing and working losses.

**Tank Information**

| Horizontal / Vertical | Thruput gals/yr | Length/ Height ft | Diameter ft | breather vent pressure setting, psig | breather vent vaccum setting, psig | Min Liquid Height ft | Max Liquid Height ft |
|---|---|---|---|---|---|---|---|
| Horizontal | 5,000 | 7 | 5 | 0.03 | -0.03 | 0.00 | |

Table 7.1-2 Properties of Selected Petroleum Liquids

| Liquid Stored | Vapor MW | Liquid MW | Liquid Density | VP A Constant | VP B Constant | True VP @ 60F | Product Factor $K_P$ |
|---|---|---|---|---|---|---|---|
| Gasoline (RVP10) | 66 | 92 | 5.6 | 11.724 | 5237.3 | 5.2 | 1 |

Table 7.1-6 Paint Solar Absorptance

| Surface Color | Shade or Type | Reflective Condition New | Average | Aged |
|---|---|---|---|---|
| Gray | Light | 0.54 | 0.58 | 0.63 |

Table 7.1-7 Meteorological Data

| Location | $T_{AN}$ °F | $T_{AX}$ °F | V | I | $P_A$ |
|---|---|---|---|---|---|
| Meridian, MS | 53 | 75.6 | 5.8 | 1421 | 14.53 |

**Calculation of Standing Loss Emissions**

Eq. 1-4 $L_S = 365\ K_E\ (\frac{\pi}{4}D^2)\ H_{VO}\ K_S\ W_V$

| | | | |
|---|---|---|---|
| $L_S$= | standing losses, lb/yr | $L_S$= | 251.801 |
| $K_E$= | vapor space expansion factor, per day | $K_E$= | 0.257421 |
| D= | tank diameter, ft, see Equation 1-14 for horizontal tanks | D= | 6.675581 |
| $H_{VO}$= | vapor space outage, ft, see Equation 1-16 | $H_{VO}$= | 1.963495 |
| $K_S$= | vented vapor saturation factor, dimensionless, see Equation 1-21 | $K_S$= | 0.648871 |
| $W_V$= | stock vapor density, lb/ft$^3$, see Equation 1-22 | $W_V$= | 0.060099 |
| 365 | days/year | | |

Eq. 1-5 $K_E = \frac{\Delta T_V}{\Delta T_{LA}} + \frac{\Delta PV - \Delta PB}{P_A - PVA}$

| | | | |
|---|---|---|---|
| $K_E$= | vapor space expansion factor, per day | $K_E$= | 0.257421 |
| $\Delta T_V$= | average daily vapor temperature range, °R; see Note 1 | $\Delta T_V$= | 32.3036 |
| $\Delta P_V$= | average daily vapor pressure range, psi; see Note 2 | $\Delta P_V$= | 1.892644 |
| $\Delta P_B$= | breather vent pressure setting range, psi; see Note 3 | $\Delta P_B$= | 0.06 |
| $P_A$= | atmospheric pressure, psia | $P_A$= | 14.53 |
| $P_{VA}$= | vapor pressure at avg. daily liquid surface temp. psia | $P_{VA}$= | 5.2 |
| $T_{LA}$= | average daily liquid surface temperature, °R see Note 3, Eq. 1-22 | $T_{LA}$= | 529.6044 |

Eq. 1-7 $\Delta T_V = 0.7\ \Delta T_A + 0.02\alpha I$ (uninsulated tank)

| | | | |
|---|---|---|---|
| $\Delta T_V$= | average daily vapor temperature range, °R; see Note 1 | $\Delta T_V$= | 32.3036 |
| $\Delta T_A$= | average daily ambient temperature range, °R | $\Delta T_A$= | 22.6 |
| $\alpha$= | average tank surface solar absorbance, dimensionless, Table 7.1-6 | $\alpha$= | 0.58 |
| I= | average daily total insolation factor, BTU/ft$^2$d, Table 7.1-7 | I= | 1421 |

Eq. 1-9 $\Delta P_V = P_{VX} - P_{VN}$

| | | | |
|---|---|---|---|
| $\Delta P_V$= | average daily vapor pressure range, psia | $\Delta P_V$= | 1.892644 |
| $P_{VX}$= | vapor pressure at the average daily maximum liquid surface temp. Note 5 | $P_{VX}$= | 7.267802 |
| $P_{VN}$= | vapor pressure at the average daily minimum liquid surface temp. Note 5 | $P_{VN}$= | 5.375158 |

**Calculation of Standing Loss Emissions**

Eq. 1-10 $\Delta P_B = P_{BP} - P_{BV}$

| | | | |
|---|---|---|---|
| $\Delta P_B$= | breather vent pressure setting range, psig | $\Delta P_B$= | 0.06 |
| $P_{BP}$= | breather vent pressure setting, psig (assume 0.03 psig if unknown) | $P_{BP}$= | 0.03 |
| $P_{BV}$= | breather vent vacuum setting, psig (assume -0.03 psig if unknown) | $P_{BV}$= | -0.03 |

Eq. 1-11 $\Delta T_A = T_{AX} - T_{AN}$

| | | | |
|---|---|---|---|
| $\Delta T_A$= | average daily ambient temperature range °R | $\Delta T_A$= | 22.6 |
| $T_{AX}$= | average daily maximum ambient temperature range °R | $T_{AX}$= | 535.3 |
| $T_{AN}$= | average daily minimum ambient temperature range °R | $T_{AN}$= | 512.7 |

Eq. 1-28 $T_{LA} = 0.4T_{AA} + 0.6T_B + 0.005\alpha I$

| | | | |
|---|---|---|---|
| $T_{LA}$= | average daily liquid surface temperature, °R | $T_{LA}$= | 529.6044 |
| $T_{AA}$= | average daily ambient temperature, °R | $T_{AA}$= | 524 |
| $T_B$= | liquid bulk temperature, R°R | $T_B$= | 526.4725 |
| $\alpha$= | average tank surface solar absorbance, dimensionless, Table 7.1-6 | $\alpha$= | 0.58 |
| I= | average daily total insolation factor, BTU/ft$^2$d, Table 7.1-7 | I= | 1421 |

Eq. 1-14 $D_E = \sqrt{\frac{LD}{\frac{\pi}{4}}}$

| | | | |
|---|---|---|---|
| $D_E$= | effective tank diameter, ft | $D_E$= | 6.675581 |
| L= | length of the horizontal tank, ft | L= | 7 |
| D= | diameter of a vertical cross-section of the horizontal tank, ft | D= | 5 |

Eq. 1-15 $H_E = \pi/4*D$

| | | | |
|---|---|---|---|
| $H_E$= | effective height of an equivalent upright cylinder, ft | $H_E$= | 3.926991 |
| D= | diameter of a vertical cross-section of the horizontal tank, ft | D= | 5 |

**Calculation of Standing Loss Emissions**

Eq. 1-16 $H_{VO}$= $H_E / 2$ (for horizontal tanks)

| | | | |
|---|---|---|---|
| $H_{VO}$= | vapor space outage, ft | **$H_{VO}$=** | **1.963495** |
| $H_E$= | effective height of an equivalent uprigth cylinder, ft | $H_E$= | 3.926991 |

Eq. 1-21 $K_S$= $\frac{1}{1 + 0.053 PVA H_{VO}}$

| | | | |
|---|---|---|---|
| $K_S$= | vented vapor saturation factor, dimensionless | **$K_S$=** | **0.648871** |
| $H_{VO}$= | vapor space outage, ft | $H_{VO}$= | 1.963495 |
| $P_{VA}$= | vapor pressure at avg. daily liquid surface temp. psia | $P_{VA}$= | 5.2 |

Eq. 1-22 $W_v$= $\frac{M_V P_{VA}}{RT_V}$

| | | | |
|---|---|---|---|
| $W_v$= | vapor density, lb/ft$^3$ | **$W_v$=** | **0.060099** |
| $M_V$= | vapor molecular weight, lb/lb-mole | $M_V$= | 66 |
| $P_{VA}$= | vapor pressure at avg. daily liquid surface temp. psia | $P_{VA}$= | 5.2 |
| R= | the ideal gas content, 10.731 psia ft$^3$/lb-mole°R | R= | 10.731 |
| $T_V$= | average vapor temperature, °R | $T_V$= | 532.1594 |

Eq. 1-33 $T_V$= $0.7T_{AA}$ + $0.3T_B$ + $0.009\alpha I$

| | | | |
|---|---|---|---|
| $T_V$= | average vapor temperature, R° (uninsulated tank) | **$T_V$=** | **532.1594** |
| $T_{AA}$= | average daily ambient temperature, °R | $T_{AA}$= | 524 |
| $T_B$= | liquid bulk temperature, R°R | $T_B$= | 526.4725 |
| α= | average tank surface solar absorbance, dimensionless, Table 7.1-6 | α= | 0.58 |
| I= | average daily total insolation factor, BTU/ft$^2$d, Table 7.1-7 | I= | 1421 |

Eq. 1-31 $T_B$= $T_{AA}$ + $0.003\alpha I$

| | | | |
|---|---|---|---|
| $T_B$= | liquid bulk temperature, R°R | **$T_B$=** | **526.4725** |
| $T_{AA}$= | average daily ambient temperature, °R | $T_{AA}$= | 524 |
| α= | average tank surface solar absorbance, dimensionless, Table 7.1-6 | α= | 0.58 |
| I= | average daily total insolation factor, BTU/ft$^2$d, Table 7.1-7 | I= | 1421 |

**Calculation of Standing Loss Emissions**

Eq. 1-30 $T_{AA}$= $$\frac{T_{AX} + TAN}{2}$$

| | | | |
|---|---|---|---|
| $T_{AA}$= | average daily ambient temperature, °R | $T_{AA}$= | 524 |
| $T_{AX}$= | average daily maximum ambient temperature, °R | $T_{AX}$= | 535.3 |
| $T_{AN}$= | average daily minimum ambient temperature, °R | $T_{AN}$= | 512.7 |

Figure 7.1-17 $T_{LX}$= $T_{LA}$ + $0.25\Delta T_V$

$T_{LN}$= $T_{LA}$ - $0.25\Delta T_V$

| | | | |
|---|---|---|---|
| $T_{LX}$= | average daily maximum liquid surface temperature. °R | $T_{LX}$= | 537.6803 |
| $T_{LN}$= | average daily minimum liquid surface temperature. °R | $T_{LN}$= | 521.5285 |
| $T_{LA}$= | average daily liquid surface temperature, °R | $T_{LA}$= | 529.6044 |
| $\Delta T_V$= | average daily vapor temperature range, ˚R; see Note 1 | $\Delta T_V$= | 32.3036 |

Eq. 1-25 $P_{VX}$= $e^{(A-\frac{B}{TLX})}$ (daily max)

$P_{VN}$= $e^{(A-\frac{B}{TLN})}$ (daily min)

| | | | |
|---|---|---|---|
| $P_{VX}$= | vapor pressure at the average daily maximum liquid surface temp. Note 5 | $P_{VX}$= | 7.267802 |
| $P_{VN}$= | vapor pressure at the average daily minimum liquid surface temp. Note 5 | $P_{VN}$= | 5.375158 |
| $T_{LX}$= | average daily maximum liquid surface temperature. °R | $T_{LX}$= | 537.6803 |
| $T_{LN}$= | average daily minimum liquid surface temperature. °R | $T_{LN}$= | 521.5285 |
| A= | constant in the vapor pressure equation, dimensionless | A= | 11.724 |
| B= | constant in the vapor pressure equation, °R | B= | 5237.3 |

**Calculation of Working Loss Emissions**

Eq. 1-35 $L_w$= $V_Q$ $K_N$ $K_P$ $W_V$ $K_B$

| | | | |
|---|---|---|---|
| $L_w$= | working losses, lb/yr | $L_w$= | 40.16599 |
| $V_Q$= | net working loss throughput, $ft^3$/yr | $V_Q$= | 668.3333 |
| $K_N$= | working loss turnover (saturation) factor, dimensionless | $K_N$= | 1 |
| $K_P$= | working loss product factor, dimensionless | $K_P$= | 1 |
| $W_V$= | vapor density, lb/$ft^3$, see Equation 1-22 (from standing losses calculations) | $W_V$= | 0.060099 |
| $K_B$= | vent setting correction factor, dimensionless (assume $K_B$=1) | $K_B$= | 1 |

Eq. 1-38 $V_Q$= $(\Sigma H_{QI})$ $\pi/4\ D^2$

| | | | |
|---|---|---|---|
| $V_Q$= | net working loss throughput, $ft^3$/yr | $V_Q$= | 668.3333 |
| $\Sigma H_{QI}$= | annual sum of increases in liquid level, ft/yr | $\Sigma H_{QI}$= | 19.09524 |

Eq. 1-36 N= $\Sigma H_{QI} / (H_{LX} - H_{LN})$

| | | | |
|---|---|---|---|
| N= | number of turnovers per year, dimensionless | N= | 4.862562 |
| $\Sigma H_{QI}$= | annual sum of increases in liquid level, ft/yr | $\Sigma H_{QI}$= | 19.09524 |
| $H_{LX}$= | maximum liquid height, ft (Horizontal tanks = π/4*D) | $H_{LX}$= | 3.926991 |
| $H_{LN}$= | minimum liquid height, ft | $H_{LN}$= | 0.00 |

Eq. 1-37 $\Sigma H_{QI}$= $(5.614Q) / ((\pi/4)D^2)$

| | | | |
|---|---|---|---|
| $\Sigma H_{QI}$= | annual sum of increases in liquid level, ft/yr | $\Sigma H_{QI}$= | 19.09524 |
| Q= | annual net throughput, bbl/yr (42 gallons= 1 bbl) | Q= | 119.0476 |
| D= | $D_E$= effective tank diameter, ft | $D_E$= | 6.675581 |

Hood Industries, Inc.
Waynesboro, Mississippi
Calculation of Emissions for Diesel Tank

Eq. 1-1 $L_T = L_S + L_w$

| | | | |
|---|---|---|---|
| $L_T$= | total routine losses, lb/yr | $L_T$= | 4.123462 |
| $L_S$= | standing losses, lb/yr, see Equation 1-2 | $L_S$= | 1.93259 |
| $L_w$= | working losses, lb/yr, see Equation 1-35 | $L_w$= | 2.190872 |

See following pages for calculation of standing and working losses.

Hood Industries, Inc.
Waynesboro, Mississippi
Calculation of Emissions for Diesel Tank

**Tank Information**

| Horizontal / Vertical | Thruput gals/yr | Length/ Height ft | Diameter ft | breather vent pressure setting, psig | breather vent vaccum setting, psig | Min Liquid Height ft | Max Liquid Height ft |
|---|---|---|---|---|---|---|---|
| Horizontal | 120,000 | 27 | 8 | 0.03 | -0.03 | 0.00 | |

Table 7.1-2 Properties of Selected Petroleum Liquids

| Liquid Stored | Vapor MW | Liquid MW | Liquid Density | VP A Constant | VP B Constant | True VP @ 60F | Product Factor $K_P$ |
|---|---|---|---|---|---|---|---|
| No. 2 Fuel Oil (Diesel) | 130 | 188 | 7.1 | 12.101 | 8907 | 0.006 | 1 |

Table 7.1-6 Paint Solar Absorptance

| Surface Color | Shade or Type | Reflective Condition New | Average | Aged |
|---|---|---|---|---|
| Gray | Light | 0.54 | 0.58 | 0.63 |

Table 7.1-7 Meteorological Data

| Location | $T_{AN}$ °F | $T_{AX}$ °F | V | I | $P_A$ |
|---|---|---|---|---|---|
| Meridian, MS | 53 | 75.6 | 5.8 | 1421 | 14.53 |

**Calculation of Standing Loss Emissions**

Eq. 1-4 $L_S = 365\ K_E\ (\frac{\pi}{4}D^2)\ H_{VO}\ K_S\ W_V$

| | | | |
|---|---|---|---|
| $L_S$= | standing losses, lb/yr | $L_S$= | 1.93259 |
| $K_E$= | vapor space expansion factor, per day | $K_E$= | 0.057183 |
| D= | tank diameter, ft, see Equation 1-14 for horizontal tanks | D= | 16.58372 |
| $H_{VO}$= | vapor space outage, ft, see Equation 1-16 | $H_{VO}$= | 3.141593 |
| $K_S$= | vented vapor saturation factor, dimensionless, see Equation 1-21 | $K_S$= | 0.999002 |
| $W_V$= | stock vapor density, lb/ft$^3$, see Equation 1-22 | $W_V$= | 0.000137 |
| 365 | days/year | | |

Eq. 1-5 $K_E = \frac{\Delta T_V}{\Delta T_{LA}} + \frac{\Delta PV - \Delta PB}{P_A - PVA}$

| | | | |
|---|---|---|---|
| $K_E$= | vapor space expansion factor, per day | $K_E$= | 0.057183 |
| $\Delta T_V$= | average daily vapor temperature range, °R; see Note 1 | $\Delta T_V$= | 32.3036 |
| $\Delta P_V$= | average daily vapor pressure range, psi; see Note 2 | $\Delta P_V$= | 0.004619 |
| $\Delta P_B$= | breather vent pressure setting range, psi; see Note 3 | $\Delta P_B$= | 0.06 |
| $P_A$= | atmospheric pressure, psia | $P_A$= | 14.53 |
| $P_{VA}$= | vapor pressure at avg. daily liquid surface temp. psia | $P_{VA}$= | 0.006 |
| $T_{LA}$= | average daily liquid surface temperature, °R see Note 3, Eq. 1-22 | $T_{LA}$= | 529.6044 |

Eq. 1-7 $\Delta T_V = 0.7\ \Delta T_A + 0.02\alpha I$ (uninsulated tank)

| | | | |
|---|---|---|---|
| $\Delta T_V$= | average daily vapor temperature range, °R; see Note 1 | $\Delta T_V$= | 32.3036 |
| $\Delta T_A$= | average daily ambient temperature range, °R | $\Delta T_A$= | 22.6 |
| α= | average tank surface solar absorbance, dimensionless, Table 7.1-6 | α= | 0.58 |
| I= | average daily total insolation factor, BTU/ft$^2$d, Table 7.1-7 | I= | 1421 |

Eq. 1-9 $\Delta P_V = P_{VX} - P_{VN}$

| | | | |
|---|---|---|---|
| $\Delta P_V$= | average daily vapor pressure range, psia | $\Delta P_V$= | 0.004619 |
| $P_{VX}$= | vapor pressure at the average daily maximum liquid surface temp. Note 5 | $P_{VX}$= | 0.011509 |
| $P_{VN}$= | vapor pressure at the average daily minimum liquid surface temp. Note 5 | $P_{VN}$= | 0.00689 |

**Calculation of Standing Loss Emissions**

Eq. 1-10 $\Delta P_B = P_{BP} - P_{BV}$

| | | | |
|---|---|---|---|
| $\Delta P_B$= | breather vent pressure setting range, psig | $\Delta P_B$= | 0.06 |
| $P_{BP}$= | breather vent pressure setting, psig (assume 0.03 psig if unknown) | $P_{BP}$= | 0.03 |
| $P_{BV}$= | breather vent vacuum setting, psig (assume -0.03 psig if unknown) | $P_{BV}$= | -0.03 |

Eq. 1-11 $\Delta T_A = T_{AX} - T_{AN}$

| | | | |
|---|---|---|---|
| $\Delta T_A$= | average daily ambient temperature range °R | $\Delta T_A$= | 22.6 |
| $T_{AX}$= | average daily maximum ambient temperature range °R | $T_{AX}$= | 535.3 |
| $T_{AN}$= | average daily minimum ambient temperature range °R | $T_{AN}$= | 512.7 |

Eq. 1-28 $T_{LA} = 0.4T_{AA} + 0.6T_B + 0.005\alpha I$

| | | | |
|---|---|---|---|
| $T_{LA}$= | average daily liquid surface temperature, °R | $T_{LA}$= | 529.6044 |
| $T_{AA}$= | average daily ambient temperature, °R | $T_{AA}$= | 524 |
| $T_B$= | liquid bulk temperature, R°R | $T_B$= | 526.4725 |
| $\alpha$= | average tank surface solar absorbance, dimensionless, Table 7.1-6 | $\alpha$= | 0.58 |
| I= | average daily total insolation factor, BTU/ft$^2$d, Table 7.1-7 | I= | 1421 |

Eq. 1-14 $D_E = \sqrt{\frac{LD}{\frac{\pi}{4}}}$

| | | | |
|---|---|---|---|
| $D_E$= | effective tank diameter, ft | $D_E$= | 16.58372 |
| L= | length of the horizontal tank, ft | L= | 27 |
| D= | diameter of a vertical cross-section of the horizontal tank, ft | D= | 8 |

Eq. 1-15 $H_E = \pi/4 * D$

| | | | |
|---|---|---|---|
| $H_E$= | effective height of an equivalent upright cylinder, ft | $H_E$= | 6.283185 |
| D= | diameter of a vertical cross-section of the horizontal tank, ft | D= | 8 |

**Calculation of Standing Loss Emissions**

Eq. 1-16 $H_{VO}$= $H_E / 2$ (for horizontal tanks)

| | | | |
|---|---|---|---|
| $H_{VO}$= | vapor space outage, ft | $H_{VO}$= | 3.141593 |
| $H_E$= | effective height of an equivalent uprigth cylinder, ft | $H_E$= | 6.283185 |

Eq. 1-21 $K_S$= $\frac{1}{1 + 0.053 PVA H_{VO}}$

| | | | |
|---|---|---|---|
| $K_S$= | vented vapor saturation factor, dimensionless | $K_S$= | 0.999002 |
| $H_{VO}$= | vapor space outage, ft | $H_{VO}$= | 3.141593 |
| $P_{VA}$= | vapor pressure at avg. daily liquid surface temp. psia | $P_{VA}$= | 0.006 |

Eq. 1-22 $W_v$= $\frac{M_V P_{VA}}{R T_v}$

| | | | |
|---|---|---|---|
| $W_v$= | vapor density, lb/ft$^3$ | $W_v$= | 0.000137 |
| $M_V$= | vapor molecular weight, lb/lb-mole | $M_V$= | 130 |
| $P_{VA}$= | vapor pressure at avg. daily liquid surface temp. psia | $P_{VA}$= | 0.006 |
| R= | the ideal gas content, 10.731 psia ft$^3$/lb-mole°R | R= | 10.731 |
| $T_V$= | average vapor temperature, °R | $T_V$= | 532.1594 |

Eq. 1-33 $T_V$= $0.7T_{AA}$ + $0.3T_B$ + $0.009\alpha I$

| | | | |
|---|---|---|---|
| $T_V$= | average vapor temperature, R° (uninsulated tank) | $T_V$= | 532.1594 |
| $T_{AA}$= | average daily ambient temperature, °R | $T_{AA}$= | 524 |
| $T_B$= | liquid bulk temperature, R°R | $T_B$= | 526.4725 |
| α= | average tank surface solar absorbance, dimensionless, Table 7.1-6 | α= | 0.58 |
| I= | average daily total insolation factor, BTU/ft$^2$d, Table 7.1-7 | I= | 1421 |

**Calculation of Standing Loss Emissions**

Eq. 1-31 $T_B$= $T_{AA}$ + $0.003\alpha I$

| | | | |
|---|---|---|---|
| $T_B$= | liquid bulk temperature, R°R | $T_B$= | 526.4725 |
| $T_{AA}$= | average daily ambient temperature, °R | $T_{AA}$= | 524 |
| $\alpha$= | average tank surface solar absorbance, dimensionless, Table 7.1-6 | $\alpha$= | 0.58 |
| I= | average daily total insolation factor, BTU/ft$^2$d, Table 7.1-7 | I= | 1421 |

Eq. 1-30 $T_{AA}$= $$\frac{T_{AX}+TAN}{2}$$

| | | | |
|---|---|---|---|
| $T_{AA}$= | average daily ambient temperature, °R | $T_{AA}$= | 524 |
| $T_{AX}$= | average daily maximum ambient temperature, °R | $T_{AX}$= | 535.3 |
| $T_{AN}$= | average daily minimum ambient temperature, °R | $T_{AN}$= | 512.7 |

Figure 7.1-17 $T_{LX}$= $T_{LA}$ + $0.25\Delta T_V$

$T_{LN}$= $T_{LA}$ - $0.25\Delta T_V$

| | | | |
|---|---|---|---|
| $T_{LX}$= | average daily maximum liquid surface temperature. °R | $T_{LX}$= | 537.6803 |
| $T_{LN}$= | average daily minimum liquid surface temperature. °R | $T_{LN}$= | 521.5285 |
| $T_{LA}$= | average daily liquid surface temperature, °R | $T_{LA}$= | 529.6044 |
| $\Delta T_V$= | average daily vapor temperature range, ˚R; see Note 1 | $\Delta T_V$= | 32.3036 |

Eq. 1-25 $P_{VX}$= $e^{(A-\frac{B}{TLX})}$ (daily max)

$P_{VN}$= $e^{(A-\frac{B}{TLN})}$ (daily min)

| | | | |
|---|---|---|---|
| $P_{VX}$= | vapor pressure at the average daily maximum liquid surface temp. Note 5 | $P_{VX}$= | 0.011509 |
| $P_{VN}$= | vapor pressure at the average daily minimum liquid surface temp. Note 5 | $P_{VN}$= | 0.00689 |
| $T_{LX}$= | average daily maximum liquid surface temperature. °R | $T_{LX}$= | 537.6803 |
| $T_{LN}$= | average daily minimum liquid surface temperature. °R | $T_{LN}$= | 521.5285 |
| A= | constant in the vapor pressure equation, dimensionless | A= | 12.101 |
| B= | constant in the vapor pressure equation, °R | B= | 8907 |

**Calculation of Working Loss Emissions**

Eq. 1-35 $L_w =$ $V_Q$ $K_N$ $K_P$ $W_V$ $K_B$

| | | | |
|---|---|---|---|
| $L_w=$ | working losses, lb/yr | $L_w=$ | 2.190872 |
| $V_Q=$ | net working loss throughput, $ft^3/yr$ | $V_Q=$ | 16040 |
| $K_N=$ | working loss turnover (saturation) factor, dimensionless | $K_N=$ | 1 |
| $K_P=$ | working loss product factor, dimensionless | $K_P=$ | 1 |
| $W_V=$ | vapor density, $lb/ft^3$, see Equation 1-22 (from standing losses calculations) | $W_V=$ | 0.000137 |
| $K_B=$ | vent setting correction factor, dimensionless (assume $K_B$=1) | $K_B=$ | 1 |

Eq. 1-38 $V_Q =$ $(\Sigma H_{QI})$ $\pi/4\ D^2$

| | | | |
|---|---|---|---|
| $V_Q=$ | net working loss throughput, $ft^3/yr$ | $V_Q=$ | 16040 |
| $\Sigma H_{QI}=$ | annual sum of increases in liquid level, ft/yr | $\Sigma H_{QI}=$ | 74.25926 |

Eq. 1-36 $N =$ $\Sigma H_{QI} / (H_{LX} - H_{LN})$

| | | | |
|---|---|---|---|
| $N=$ | number of turnovers per year, dimensionless | $N=$ | 11.81873 |
| $\Sigma H_{QI}=$ | annual sum of increases in liquid level, ft/yr | $\Sigma H_{QI}=$ | 74.25926 |
| $H_{LX}=$ | maximum liquid height, ft (Horizontal tanks = π/4*D) | $H_{LX}=$ | 6.283185 |
| $H_{LN}=$ | minimum liquid height, ft | $H_{LN}=$ | 0.00 |

Eq. 1-37 $\Sigma H_{QI} =$ $(5.614Q) / ((\pi/4)D^2)$

| | | | |
|---|---|---|---|
| $\Sigma H_{QI}=$ | annual sum of increases in liquid level, ft/yr | $\Sigma H_{QI}=$ | 74.25926 |
| $Q=$ | annual net throughput, bbl/yr (42 gallons= 1 bbl) | $Q=$ | 2857.143 |
| $D=$ | $D_E=$ effective tank diameter, ft | $D_E=$ | 16.58372 |

Hood Industries, Inc.
Waynesboro, Mississippi
Greenhouse Gas Emissions

**Emission Factors and Global Warming Potentials (GWP) from 40 CFR 98 (Tables A-1, C-1 and C-2)**

| | | Emission Factors, kg/MMBtu | | | Emission Factors, lb/MMBtu | | |
|---|---|---|---|---|---|---|---|
| Pollutant | GWP | Wood | Nat'l Gas | Diesel | Wood | Nat'l Gas | Diesel |
| CO2 | 1 | 93.8 | 53.02 | 73.96 | 206.829 | 116.909 | 163.082 |
| N2O | 298 | 0.0036 | 0.0001 | 0.0006 | 0.008 | 0.000 | 0.001 |
| CH4 | 25 | 0.0072 | 0.001 | 0.003 | 0.016 | 0.002 | 0.007 |

**Emissions from Natural Gas Fired Continuous Dry Kilns**

| | Kiln 1 | Kiln 2 | Kiln 3 | Kiln 4 |
|---|---|---|---|---|
| Maximum Potential Natural Gas Usage, Mscf/yr: | 386,471 | 386,471 | 386,471 | 386,471 |
| Maximum Potential Natural Gas Usage, MMBtu/yr: | 394,200 | 394,200 | 394,200 | 394,200 |

| | | Emissions, tons | | | | |
|---|---|---|---|---|---|---|
| Pollutant | Emission Factor, lb/MMBtu | Kiln 1 | Kiln 2 | Kiln 3 | Kiln 4 | Total All Kilns tons |
| CO2 | 116.909 | 23,043 | 23,043 | 23,043 | 23,043 | 92,172 |
| N2O | 0.0002 | 0.0435 | 0.0435 | 0.0435 | 0.0435 | 0.1740 |
| CH4 | 0.002 | 0.4346 | 0.4346 | 0.4346 | 0.4346 | 1.7384 |
| | TOTALS: | 23,043 | 23,043 | 23,043 | 23,043 | 92,174 |

| | | CO2e Emissions, tons | | | | |
|---|---|---|---|---|---|---|
| Pollutant | GWP | Kiln 1 | Kiln 2 | Kiln 3 | Kiln 4 | Total CO2e tons |
| CO2 | 1 | 23,043 | 23,043 | 23,043 | 23,043 | 92,172 |
| N2O | 298 | 13 | 13 | 13 | 13 | 52 |
| CH4 | 25 | 11 | 11 | 11 | 11 | 44 |
| | TOTALS: | 23,067 | 23,067 | 23,067 | 23,067 | 92,268 |

Notes:
Emission factors from Tables C-1 and C-2 to 40 CFR Part 98, Dec 9, 2016.

# Exhibit 3

# Hood Industries, Inc.

**Waynesboro, Mississippi**
**Wayne County**
**Agency Interest #7876**

# PSD Applicability Determination
# for
# Mill Modernization Project


**Prepared by:**

**H. M. Rollins Company, Inc.**
**608 34th Street**
**Gulfport MS 39501**
**(228) 832-1738**



**May 23, 2025**

**Revised July 22, 2025**

Hood Industries, Inc.
Waynesboro, Mississippi
PSD Applicability Determination - Future Potential to Past Actual Emissions

| | ANNUAL PAST ACTUAL EMISSIONS REPORTED TO MDEQ, TONS | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | PM | PM10 | PM2.5 | SO2 | CO | NOX | VOC | GHG |
| 2023 | 95.58 | 83.89 | 55.92 | 4.66 | 180.27 | 52.63 | 306.2 | |
| 2022 | 87.57 | 77.18 | 52.71 | 3.8 | 145.1 | 38.91 | 311.47 | |
| 2021 | 88.21 | 77.11 | 52.63 | 3.38 | 163.81 | 35.62 | 322.24 | |
| 2020 | 89.2 | 81.15 | 55.71 | 3.96 | 181.33 | 39.53 | 317.52 | |
| 2019 | 97.45 | 88.66 | 60.66 | 4.17 | 193.73 | 42.2 | 352.12 | |
| 2018 | 110.7 | 100.75 | 68.37 | 4.25 | 187.97 | 42.7 | 349.8 | 84,331 |
| 2017 | 112.8 | 102.25 | 69.56 | 4.22 | 188.1 | 42.7 | 362.98 | 86,496 |
| 2016 | 101.04 | 96.92 | 66.83 | 4.3 | 182.96 | 41.7 | 299.35 | |
| 2015 | 119.14 | 110.52 | 73.26 | 5.37 | 614.16 | 49.69 | 296.96 | |

| | TWO-YEAR AVERAGE PAST ACTUAL EMISSIONS, TONS | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | PM | PM10 | PM2.5 | SO2 | CO | NOX | VOC | GHG |
| 2022-2023 | 91.5750 | 80.5350 | 54.3150 | 4.2300 | 162.6850 | **45.7700** | 308.8350 | |
| 2021-2022 | 87.8900 | 77.1450 | 52.6700 | 3.5900 | 154.4550 | 37.2650 | 316.8550 | |
| 2020-2021 | 88.7050 | 79.1300 | 54.1700 | 3.6700 | 172.5700 | 37.5750 | 319.8800 | |
| 2019-2020 | 93.3250 | 84.9050 | 58.1850 | 4.0650 | 187.5300 | 40.8650 | 334.8200 | |
| 2018-2019 | 104.0750 | 94.7050 | 64.5150 | 4.2100 | 190.8500 | 42.4500 | 350.9600 | |
| 2017-2018 | **111.7500** | 101.5000 | 68.9650 | 4.2350 | 188.0350 | 42.7000 | **356.3900** | **85,414** |
| 2016-2017 | 106.9200 | 99.5850 | 68.1950 | 4.2600 | 185.5300 | 42.2000 | 331.1650 | |
| 2015-2016 | 110.0900 | **103.7200** | **70.0450** | **4.8350** | **398.5600** | 45.6950 | 298.1550 | |

| | TWO-YEAR AVERAGE **PAST ACTUAL** EMISSIONS **USED**, TONS | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | PM | PM10 | PM2.5 | SO2 | CO | NOX | VOC | GHG |
| 2017-2018 | 111.7500 | 101.5000 | 68.9650 | 4.2350 | 188.0350 | 42.7000 | 356.3900 | 85,414 |

Notes Green font in Two-Year Average table indicates highest past actual emissions by pollutant
For ease of analysis, years 2017-2018 were used for all pollutants
CY2017 and CY2018 Emissions Calculations submitted for AEIs attached

| | **POST-PROJECT** MAXIMUM POTENTIAL EMISSIONS, TONS | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | PM | PM10 | PM2.5 | SO2 | CO | NOX | VOC | GHG |
| TOTAL | 84.1189 | 49.1859 | 27.6667 | 0.4644 | 64.9308 | 55.3140 | 886.1485 | 92,268 |

| | PROJECT CHANGE IN EMISSIONS, TONS | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | PM | PM10 | PM2.5 | SO2 | CO | NOX | VOC | GHG |
| CHANGE | -27.63 | -52.31 | -41.30 | -3.77 | -123.10 | 12.61 | 529.76 | 6,854 |
| SER | 25 | 15 | 10 | 40 | 100 | 40 | 40 | 75,000 |
| PSD? | NO | NO | NO | NO | NO | NO | PSD | NO |

| OZONE AMBIENT AIR IMPACT ANALYSIS - SIGNIFICANCE LEVEL = 1.0 | | | | |
|---|---|---|---|---|
| POLL | MERP, TPY | INC, TPY | INC/MERP | DETERMINATION |
| NOX | 190 | 12.61 | 0.07 | |
| VOC | 2307 | 529.76 | 0.23 | |
| | | | 0.30 | NO FURTHER ANALYSIS REQ |

**Hood Industries, Inc.**
**Waynesboro, MS**
**Calculation of Future Annual Emissions**

**Lumber Drying Emissions** **Number of Kilns:** 4

| | |
|---|---|
| Kiln Production Capacity, MBF/year: | 100000 |
| Hours: | 8760 |

| Pollutant | Emission Factor | Units | Note | Average lb/hr | Per Kiln Annual tons/year | All Kilns Annual tons/year |
|---|---|---|---|---|---|---|
| PM | 0 | lb/MBF | 1 | 0.0000 | 0.0000 | 0.0000 |
| PM10 | 0.022 | lb/MBF | 1 | 0.2511 | 1.0998 | 4.3992 |
| PM2.5 | 0.022 | lb/MBF | 1 | 0.2511 | 1.0998 | 4.3992 |
| VOC (as WPP1) | 4.43 | lb/MBF | 2 | 50.5708 | 221.5001 | 886.0004 |

**Natural Gas Combustion Emissions**

| | |
|---|---|
| Kiln Burner Capacity, MMBtu/hr: | 45 |
| Natural Gas Heat Content, Btu/scf: | 1020 |
| Gas Usage Capacity, MMscf/hr: | 0.04412 |

| Pollutant | Emission Factor | Units | Note | Average lb/hr | Per Kiln Annual tons/year | All Kilns Annual tons/year |
|---|---|---|---|---|---|---|
| PM | 1.9 | lb/MMscf | 3 | 0.0838 | 0.3670 | 1.4680 |
| PM10 | 7.6 | lb/MMscf | 3 | 0.3353 | 1.4686 | 5.8744 |
| PM2.5 | 7.6 | lb/MMscf | 3 | 0.3353 | 1.4686 | 5.8744 |
| SO2 | 0.6 | lb/MMscf | 3 | 0.0265 | 0.1161 | 0.4644 |
| CO | 84 | lb/MMscf | 3 | 3.7061 | 16.2327 | 64.9308 |
| NOX | 71.56 | lb/MMscf | 4 | 3.1572 | 13.8285 | 55.3140 |

**Total Kiln Emissions**

| Pollutant | Per Kiln Annual tons/year | All Kilns Annual tons/year |
|---|---|---|
| PM | 0.3670 | 1.4680 |
| PM10 | 2.5684 | 10.2736 |
| PM2.5 | 2.5684 | 10.2736 |
| SO2 | 0.1161 | 0.4644 |
| CO | 16.2327 | 64.9308 |
| NOX | 13.8285 | 55.3140 |
| VOC | 221.5001 | 886.0004 |

1 North Carolina Environmental Quality Emission Estimation Spreadsheet.
2 BACT from MDEQ Permit issued to Gloster Forest Products, Gloster, MS
3 AP-42 Chapter 1.4, Natural Gas Combustion
4 NG Burner Information

**Hood Industries, Inc.**
**Waynesboro, MS**
**Calculation of Future Annual Emissions**

**Pneumatic Conveyance System**

| | |
|---|---|
| Maximum Capacity, BF/yr: | 400,000,000 |
| Raw Material Throughput, BF/hr: | 45,662 |
| Density, Pine, lb/BF: | 2.5 |
| Planer Throughput, tons/hr: | 57.08 |

| | Emission | PCS | [2]Cyclone | Building | Total PCS Emissions | |
|---|---|---|---|---|---|---|
| | Factor | Loading | Efficiency | Enclosure | Hourly | Annual |
| Pollutant | lb/ton thru | lb/hour | % | % | lb/hr | tons/yr |
| PM | 4.3 | 245.4440 | 95 | 50 | 6.1361 | 26.8761 |
| PM10 | 2.1 | 119.8680 | 95 | 50 | 2.9967 | 13.1255 |
| PM2.5 | 0.777 | 44.3512 | 95 | 50 | 1.1088 | 4.8565 |

1 Calculation Basis from SCDHEC Wood Working Emissions for Millwork Dry Wood Output EF workbook
2 Cyclone Efficiency conservatively estimated based on manufacturer data for QuadPak cyclone

**Fugitive Emissions**

Log Prep Fugitives (Debarking/Bucking (Sawing) from PTC MPTE Calculations Exhibit)

| Pollutant | tons/year |
|---|---|
| PM | 48.7735 |
| PM10 | 24.3865 |
| PM2.5 | 12.1930 |

Plant Roads Fugitives (from PTC MPTE Calculations Exhibit)

| Pollutant | tons/year |
|---|---|
| PM | 7.0013 |
| PM10 | 1.4003 |
| PM2.5 | 0.3436 |

**Insignificant Sources - Tanks**

| Pollutant | Gasoline | Diesel | Total |
|---|---|---|---|
| VOC | 0.1460 | 0.0021 | 0.1481 |

**Total Facility Annual Emissions**

| Pollutant | tons/year |
|---|---|
| PM | 84.1189 |
| PM10 | 49.1859 |
| PM2.5 | 27.6667 |
| SO2 | 0.4644 |
| CO | 64.9308 |
| NOX | 55.3140 |
| VOC | 886.1485 |

**Emission Factors and Global Warming Potentials (GWP) from 40 CFR 98 (Tables A-1, C-1 and C-2)**

| | | Emission Factors, kg/MMBtu | | | Emission Factors, lb/MMBtu | | |
|---|---|---|---|---|---|---|---|
| Pollutant | GWP | Wood | Nat'l Gas | Diesel | Wood | Nat'l Gas | Diesel |
| CO2 | 1 | 93.8 | 53.02 | 73.96 | 206.829 | 116.909 | 163.082 |
| N2O | 298 | 0.0036 | 0.0001 | 0.0006 | 0.008 | 0.000 | 0.001 |
| CH4 | 25 | 0.0072 | 0.001 | 0.003 | 0.016 | 0.002 | 0.007 |

**Emissions from Natural Gas Fired Continuous Dry Kilns**

| | Kiln 1 | Kiln 2 | Kiln 3 | Kiln 4 |
|---|---|---|---|---|
| Maximum Potential Natural Gas Usage, Mscf/yr: | 386,471 | 386,471 | 386,471 | 386,471 |
| Maximum Potential Natural Gas Usage, MMBtu/yr: | 394,200 | 394,200 | 394,200 | 394,200 |

| | | Emissions, tons | | | | |
|---|---|---|---|---|---|---|
| Pollutant | Emission Factor, lb/MMBtu | Kiln 1 | Kiln 2 | Kiln 3 | Kiln 4 | Total All Kilns tons |
| CO2 | 116.909 | 23,043 | 23,043 | 23,043 | 23,043 | 92,172 |
| N2O | 0.0002 | 0.0435 | 0.0435 | 0.0435 | 0.0435 | 0.1740 |
| CH4 | 0.002 | 0.4346 | 0.4346 | 0.4346 | 0.4346 | 1.7384 |
| | TOTALS: | 23,043 | 23,043 | 23,043 | 23,043 | 92,174 |

| | | CO2e Emissions, tons | | | | |
|---|---|---|---|---|---|---|
| Pollutant | GWP | Kiln 1 | Kiln 2 | Kiln 3 | Kiln 4 | Total CO2e tons |
| CO2 | 1 | 23,043 | 23,043 | 23,043 | 23,043 | 92,172 |
| N2O | 298 | 13 | 13 | 13 | 13 | 52 |
| CH4 | 25 | 11 | 11 | 11 | 11 | 44 |
| | TOTALS: | 23,067 | 23,067 | 23,067 | 23,067 | 92,268 |

Notes:
Emission factors from Tables C-1 and C-2 to 40 CFR Part 98, Dec 9, 2016.

# Hood Industries, Inc.
# Waynesboro, Mississippi

## Annual Air Emissions Estimate

## CY2017

## June 25, 2018

Calendar Year: 2017

| Criteria Air Pollutant | AA-001 100 MMBtuH Boiler | AA-007 Planer Mill with Cyclone | AA-008 Hog Trimmer with Cyclone | AA-009 Solid Fuel Silo Cyclone | AA-011 Steam Heat Lumber Kiln #2 | AA-013 BDF Lumber Kiln | AA-014 CDF Lumber Kiln | AA-015 CDF Silo Cyclone | AA-016 CDF Surge Bin Cyclone | Fugitive Emissions | IA-000 Insign-ificant Activities | Total Emissions Tons/year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PM | 58.92 | 4.19 | 4.19 | 3.27 | 1.97 | 8.61 | 2.14 | 4.19 | 4.19 | 19.03 | 2.10 | 112.80 |
| PM10 | 53.02 | 1.68 | 1.68 | 1.31 | 1.77 | 7.75 | 1.07 | 1.68 | 1.68 | 10.73 | 2.10 | 84.47 |
| PM2.5 | 31.81 | 0.84 | 0.84 | 0.65 | 1.65 | 7.25 | 0.93 | 0.84 | 0.84 | 5.52 | 0.61 | 51.78 |
| PM-Condensable | 2.87 | | | | 3.99 | 8.75 | 2.17 | | | | | 17.78 |
| SO2 | 4.22 | | | | | | | | | | 0.00 | 4.22 |
| NOX | 37.14 | | | | | 2.34 | 3.21 | | | | 0.01 | 42.70 |
| CO | 161.38 | | | | | 11.27 | 15.45 | | | | 0.00 | 188.10 |
| VOC | 17.56 | No Data | No Data | No Data | 128.11 | 98.71 | 118.28 | 0.00 | 0.00 | 0.00 | 0.32 | 362.98 |
| Hazardous Air Pollutant | AA-001 100 MMBtuH Boiler | AA-007 Planer Mill with Cyclone | AA-008 Hog Trimmer with Cyclone | AA-009 Solid Fuel Silo Cyclone | AA-011 Steam Heat Lumber Kiln #2 | AA-013 BDF Lumber Kiln | AA-014 CDF Lumber Kiln | AA-015 CDF Silo Cyclone | AA-016 CDF Surge Bin Cyclone | Fugitive Emissions | IA-000 Insign-ificant Activities | Total Emissions Tons/year |
| 2-Butanone (MEK) | 0.0009 | | | | | | | | | | | 0.0009 |
| Acenaphthylene | 0.0002 | | | | | | | | | | | 0.0002 |
| Acenaphthene | 0.0008 | | | | | | | | | | | 0.0008 |
| Acetaldehyde | 0.1401 | | | | | | | | | | 0.0000 | 0.1401 |
| Acrolein | 0.6752 | | | | | | | | | | 0.0000 | 0.6752 |
| Anthracene | 0.0005 | | | | | | | | | | | 0.0005 |
| Benzene | 0.7090 | | | | | | | | | | 0.0024 | 0.7114 |
| Benzo(a)pyrene | 0.0004 | | | | | | | | | | | 0.0004 |
| Carbazole | 0.0003 | | | | | | | | | | | 0.0003 |
| Carbon tetrachloride | 0.0076 | | | | | | | | | | | 0.0076 |
| Chlorobenzene | 0.0056 | | | | | | | | | | | 0.0056 |
| Chloroform | 0.0047 | | | | | | | | | | | 0.0047 |
| Cyclohexane | 0.0000 | | | | | | | | | | 0.0003 | 0.0003 |
| Ethyl benzene | 0.0052 | | | | | | | | | | 0.0002 | 0.0054 |
| Fluoranthene | 0.0003 | | | | | | | | | | | 0.0003 |
| Fluorene | 0.0006 | | | | | | | | | | | 0.0006 |
| Formaldehyde | 0.7428 | | | | 0.4767 | 2.3646 | 1.2583 | | | | 0.0000 | 4.8424 |
| Hexane | 0.0000 | | | | | | | | | | 0.0021 | 0.0021 |
| Isooctane | 0.0000 | | | | | | | | | | 0.0029 | 0.0029 |
| m,p-Xylene | 0.0000 | | | | | | | | | | 0.0008 | 0.0008 |
| Methanol | 0.0000 | | | | 6.2565 | 3.6731 | 5.0333 | | | | | 14.9629 |
| Naphthalene | 0.0164 | | | | | | | | | | | 0.0164 |
| o-Xylene | 0.0042 | | | | | | | | | | | 0.0042 |
| Phenanthrene | 0.0012 | | | | | | | | | | | 0.0012 |
| Phenol | 0.0086 | | | | | | | | | | | 0.0086 |
| Propionaldehyde | 0.0103 | | | | | | | | | | | 0.0103 |
| Styrene | 0.3207 | | | | | | | | | | | 0.3207 |
| Toluene | 0.1553 | | | | | | | | | | 0.0028 | 0.1581 |
| Trichloroethene | 0.0051 | | | | | | | | | | | 0.0051 |
| Vinyl Chloride | 0.0030 | | | | | | | | | | | 0.0030 |
| Chlorine | 0.1334 | | | | | | | | | | | 0.1334 |
| Hydrogen Chloride | 0.0485 | | | | | | | | | | | 0.0485 |
| Antimony | 0.0013 | | | | | | | | | | | 0.0013 |
| Arsenic | 0.0037 | | | | | | | | | | | 0.0037 |
| Beryllium | 0.0002 | | | | | | | | | | | 0.0002 |
| Cadmium | 0.0007 | | | | | | | | | | | 0.0007 |
| Chromium | 0.0035 | | | | | | | | | | | 0.0035 |
| Cobalt | 0.0011 | | | | | | | | | | | 0.0011 |
| Lead | 0.0081 | | | | | | | | | | | 0.0081 |
| Manganese | 0.2701 | | | | | | | | | | | 0.2701 |
| Mercury | 0.0001 | | | | | | | | | | | 0.0001 |
| Nickel | 0.0056 | | | | | | | | | | | 0.0056 |
| Phosphorus | 0.0046 | | | | | | | | | | | 0.0046 |
| Selenium | 0.0005 | | | | | | | | | | | 0.0005 |
| Total VOC HAPs | 2.8190 | 0.0000 | 0.0000 | 0.0000 | 6.7332 | 6.0377 | 6.2916 | 0.0000 | 0.0000 | 0.0000 | 0.0115 | 21.8930 |
| Total Non-VOC HAPs | 0.4814 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.4814 |
| TOTAL HAPs | 3.3004 | 0.0000 | 0.0000 | 0.0000 | 6.7332 | 6.0377 | 6.2916 | 0.0000 | 0.0000 | 0.0000 | 0.0115 | 22.3744 |

PM-2.5 Emission Factor Determinations

Where actual data or other emission factors for PM-2.5 do not exist, the following factors are used. These factors were developed from PM-2.5 emissions data provided to two wood products facilities by the Mississippi Department of Environmental Quality as a result of CY2002 PM and PM10 emissions reporting. MDEQ used EPA's PM Calculator to estimate the PM-2.5 emissions for the facilities. The reported emissions were used to create factors which represent PM-2.5 emission rates as a percentage of PM emission rates.

| | Emissions, tons/year | | |
|---|---|---|---|
| Emissions Unit | PM | PM-2.5 | PM-2.5 as %PM |
| Wood-fired Boiler | 66.4 | 50.47 | 76% |
| Veneer Dryer | 14 | 4.11 | 29% |
| Plywood Sander/Cyclone | 0.7 | 0.1 | 14% |
| Dry Veneer Cyclone | 4.9 | 0.93 | 19% |
| Log Yard Fines Cyclone | 4.6 | 0.87 | 19% |
| Log Yard Chip Discharge | 2.9 | 0.55 | 19% |
| Layup/Pressing | 12.3 | 10.2 | 83% |
| Fugitive Dust | 5.6 | 1.83 | 33% |
| Planer Mill Shavings Cyclone | 3.4 | 0.68 | 20% |
| Hog Trimmer Cyclone | 3.4 | 0.68 | 20% |
| Steam Heated Lumber Kiln | 2.3 | 2.15 | 93% |
| Other Fugitives | 5.1 | 1.5 | 29% |

PM-Condensables

This facility has no site-specific data on PM Condensables. For sources that have PM emissions that are expected to be condensable in nature, all estimated PM-2.5 emissions are considered to be PM-Condensable.

The US EPA *Compilation of Air Pollutant Emission Factors, AP-42,* Fifth Edition, Volume 1 contains no emission factors for air pollutant emissions from lumber kilns. The emissions from lumber kilns are reported to be VOCs (primarily alpha and beta pinenes), some hazardous air pollutants (methanol and formaldehyde), and some quantity of filterable particulate matter.

**Emission Factors**

*Steam-Heated*

| | | |
|---|---|---|
| **FPM:** | 0.067 | lb/MBF[1] |
| **FPM-10:** | 0.0603 | lb/MBF[1] |
| **FPM-2.5:** | 0.056 | lb/MBF[1] |
| **CPM:** | 0.134 | lb/MBF[2] |
| **CO:** | 0 | lb/MBF[1] |
| **NOx:** | 0 | lb/MBF[1] |
| **SO2:** | 0 | lb/MBF |
| **VOC as VOC:** | 4.3 | lb/MBF[11] |
| **Methanol:** | 0.21 | lb/MBF[10] |
| **Formaldehyde:** | 0.016 | lb/MBF[10] |

*Direct-Fired Batch Kiln*

| | | |
|---|---|---|
| **FPM:** | 0.375 | lb/MBF[3] |
| **FPM-10:** | 0.3375 | lb/MBF[3] |
| **FPM-2.5:** | 0.316 | lb/MBF[3] |
| **CPM:** | 0.381 | 1.016 times FPM[8] |
| **CO:** | 0.491 | lb/MBF[3] |
| **NOx:** | 0.102 | lb/MBF[3] |
| **SO2:** | 0.025 | lb/MBF[4] |
| **VOC as VOC:** | 4.3 | lb/MBF[11] |
| **Methanol:** | 0.16 | lb/MBF[10] |
| **Formaldehyde:** | 0.103 | lb/MBF[10] |

*Direct-Fired Continuous Kiln*

| | | |
|---|---|---|
| **FPM:** | 0.068 | lb/MBF[5] |
| **FPM-10:** | 0.034 | lb/MBF[6] |
| **FPM-2.5:** | 0.030 | lb/MBF[7] |
| **CPM:** | 0.069 | lb/MBF[8] |
| **CO:** | 0.73 | lb/MBF[9] |
| **NOx:** | 0.28 | lb/MBF[9] |
| **SO2:** | 0.025 | lb/MBF[4] |
| **VOC as VOC:** | 3.76 | lb/MBF[9] |
| **Methanol:** | 0.16 | lb/MBF[9] |
| **Formaldehyde:** | 0.04 | lb/MBF[9] |

[1] Emission factor from Test #5, Weyerhaeuser Corp., Mountain Pine, AR. PM10 = 90% of PM; PM2.5 = 93.5% of PM10.

[2] Emission factor from March 18, 1994 NCASI Letter to EPA Re: Lumber Kiln Test Reports

[3] Emission test conducted by GP at Cross City, FL. PM10 = 90% of PM; PM2.5 = 93.5% of PM10.

[4] US EPA AP-42, Section 1.6

[5] Based on Preliminary Determination by GEPD for Simpson Lumber Company, LLC, Meldrum, GA, based on emissions tests conducted at Bibler Brothers Lumber Company, Russelville, AR. Filterable PM factor = 0.068 lb/MBF.

[6] GEPD Permit No. 2421-107-0011-V-02-3 issued to Rayonier Wood Products LLC - Swainsboro Sawmill: PM10 = 50% of PM.

[7] Based on relationship of PM10 to PM2.5 in US EPA AP-42 Section 1.6: PM2.5 = 87% of PM10.

[8] Condensable PM emission factor based on unpublished NCASI data referenced in West Fraser, Opelika, AL Permit Application, which recommends 1.016 ratio of PM-CON to FPM.

[9] Based on unpublished and published NCASI test results as published in the NCDAQ Air Permit Review/Preliminary Determination for the Weyerhauser, Plymouth, NC, application.

[10] *Technical Bulletin No. 845,* May 2002, by the National Council for Air and Stream Improvement (NCASI) developed emission rates from lumber kilns for the following pollutants:

[11] MDEQ-Supplied Emission Factor, assumed to be NCASI EF of 3.5 lb/MBF VOC as C times 1.22 to get to VOC as VOC

## INPUT DATA AND TEST RESULTS:

Calendar Year: 2017

| | | |
|---|---|---|
| Boiler Rated Capacity | 100 | MMBtu/hr |
| Boiler Operating Hours | 8,075 | Hours/yr |
| Average Steaming Rate | 27,177 | Lb/hr |
| Logs Used | 692,180 | Tons/yr |
| Operating Hours, Sawmill | 4,182 | Hours/yr |

| | | |
|---|---|---|
| Operating Hours, Planer Cyclone | 4,190 | Hours/yr |
| Operating Hours, Hog/Trimmer | 4,190 | Hours/yr |
| Operating Hours, BDK Silo Cyclone | 3,273 | Hours/yr |
| Operating Hours, CDK Silo Cyclone | 4,190 | Hours/yr |
| Operating Hours, CDK Surge Bin Cyclone | 4,190 | Hours/yr |
| Operating Hours, Emergency Generator | 6.2 | Hours/yr |

| | | | DF Kiln EFs | | Boiler Test Data | |
|---|---|---|---|---|---|---|
| Lumber Dried, Total | 168,415 | MBF | | | | |
| Steam Kiln #2 | 59,585 | MBF | 0.375 | PM | 0.349 | lb/MMBtu (test average) |
| Batch Direct-Fired Kiln | 45,914 | MBF | NA | $SO_2$ | | |
| Continuous Direct-Fired Kiln | 62,916 | MBF | 0.102 | $NO_x$ | | |
| | | | 0.104 | VOC | 0.104 | lb/MMBtu (2001 test) |
| Gasoline used, gallons: | 2,403 | | 0.491 | CO | 0.956 | lb/MMBtu (test average) |
| Diesel used, gallons: | 133,375 | | | | | |
| Air line anti-freeze used, gallons: | 0 | SpWt, lb/gal: | 6.6 | VOC emissions, tpy | 0.0 | |

Air line anti-freeze is Methanol, a HAP and a VOC.

## Calculation of Emissions from Wood/Bark Fired Industrial Boilers

Company: Hood Industries, Inc. - Waynesboro, MS

| | | | |
|---|---|---|---|
| Boiler identification: | Boiler #1 (Gaskell Wood-Fired) | | |
| Maximum firing rate, MMBtu/hr | 100 | Calendar Year: | 2017 |
| Allowable operating hours | 8760 | Average firing rate, MMBtu/hr | 41.81 |
| Assumed thermal efficiency, % | 65 | Actual operating hours | 8,075 |

### Emission Factors, pounds per MM Btu of heat input

| Criteria Pollutants | Factor | Emission Factor Source | | Calculated Emissions: Average hourly emission rates, pounds per hour | Calculated Emissions: Actual annual emission rate, tons per year |
|---|---|---|---|---|---|
| Particulate Matter (PM) (filterable) | 0.349 | Test Data (last 3 years) | | 14.59 | 58.92 |
| Particulate Matter <10 microns (PM-10) (filterable) | 0.3141 | 90% of PM | | 13.13 | 53.02 |
| Particulate Matter <2.5 microns (PM-2.5) (filterable) | 0.18846 | 54% of PM | | 7.88 | 31.81 |
| Particulate Matter - Condensable | 0.017 | AP-42 S 1.6, 9/03 | | 0.71 | 2.87 |
| Sulfur Dioxide (SO2) | 0.025 | AP-42 S 1.6 9/03 | | 1.0452757 | 4.22 |
| Nitrogen Oxides (NOx) | 0.22 | AP-42 S 1.6 9/03 | | 9.1984258 | 37.14 |
| Carbon Monoxide (CO) | 0.956 | Test Data | | 39.971341 | 161.38 |
| Volatile Organic Cmpds (VOC) (as C by Method 25) | 0.104 | Test Data | | 4.3483467 | 17.56 |
| **Hazardous Air Pollutants (HAPs)** | | | | | |
| 2-Butanone (MEK) | 5.40E-06 | AP-42 S 1.6, 9/03 | (VOC) | 2.26E-04 | 0.0009 |
| Acenaphthylene | 9.10E-07 | AP-42 S 1.6, 9/03 | (VOC) | 3.80E-05 | 0.0002 |
| Acenapthene | 5.00E-06 | AP-42 S 1.6, 9/03 | (VOC) | 2.09E-04 | 0.0008 |
| Acetaldehyde | 8.30E-04 | AP-42 S 1.6, 9/03 | (VOC) | 3.47E-02 | 0.1401 |
| Acrolein | 4.00E-03 | AP-42 S 1.6, 9/03 | (VOC) | 1.67E-01 | 0.6752 |
| Anthracene | 3.00E-06 | AP-42 S 1.6, 9/03 | (VOC) | 1.25E-04 | 0.0005 |
| Benzene | 4.20E-03 | AP-42 S 1.6, 9/03 | (VOC) | 1.76E-01 | 0.7090 |
| Benzo(a)pyrene | 2.60E-06 | AP-42 S 1.6, 9/03 | (VOC) | 1.09E-04 | 0.0004 |
| Carbazole | 1.80E-06 | AP-42 S 1.6, 9/03 | (VOC) | 7.53E-05 | 0.0003 |
| Carbon tetrachloride | 4.50E-05 | AP-42 S 1.6, 9/03 | (VOC) | 1.88E-03 | 0.0076 |
| Chlorobenzene | 3.30E-05 | AP-42 S 1.6, 9/03 | (VOC) | 1.38E-03 | 0.0056 |
| Chloroform | 2.80E-05 | AP-42 S 1.6, 9/03 | (VOC) | 1.17E-03 | 0.0047 |
| Ethylbenzene | 3.10E-05 | AP-42 S 1.6, 9/03 | (VOC) | 1.30E-03 | 0.0052 |
| Fluoranthene | 1.60E-06 | AP-42 S 1.6, 9/03 | (VOC) | 6.69E-05 | 0.0003 |
| Fluorene | 3.40E-06 | AP-42 S 1.6, 9/03 | (VOC) | 1.42E-04 | 0.0006 |
| Formaldehyde | 4.40E-03 | AP-42 S 1.6, 9/03 | (VOC) | 1.84E-01 | 0.7428 |
| Naphthalene | 9.70E-05 | AP-42 S 1.6, 9/03 | (VOC) | 4.06E-03 | 0.0164 |
| o-Xylene | 2.50E-05 | AP-42 S 1.6, 9/03 | (VOC) | 1.05E-03 | 0.0042 |
| Phenanthrene | 7.00E-06 | AP-42 S 1.6, 9/03 | (VOC) | 2.93E-04 | 0.0012 |
| Phenol | 5.10E-05 | AP-42 S 1.6, 9/03 | (VOC) | 2.13E-03 | 0.0086 |
| Propionaldehyde | 6.10E-05 | AP-42 S 1.6, 9/03 | (VOC) | 2.55E-03 | 0.0103 |
| Styrene | 1.90E-03 | AP-42 S 1.6, 9/03 | (VOC) | 7.94E-02 | 0.3207 |
| Toluene | 9.20E-04 | AP-42 S 1.6, 9/03 | (VOC) | 3.85E-02 | 0.1553 |
| Trichloroethene | 3.00E-05 | AP-42 S 1.6, 9/03 | (VOC) | 1.25E-03 | 0.0051 |
| Vinyl Chloride | 1.80E-05 | AP-42 S 1.6, 9/03 | (VOC) | 7.53E-04 | 0.0030 |
| Chlorine | 7.90E-04 | AP-42 S 1.6, 9/03 | | 3.30E-02 | 0.1334 |
| Hydrogen Chloride | 2.87E-04 | Test Data | | 1.20E-02 | 0.0485 |
| Antimony | 7.90E-06 | AP-42 S 1.6, 9/03 | | 3.30E-04 | 0.0013 |
| Arsenic | 2.20E-05 | AP-42 S 1.6, 9/03 | | 9.20E-04 | 0.0037 |
| Beryllium | 1.10E-06 | AP-42 S 1.6, 9/03 | | 4.60E-05 | 0.0002 |
| Cadmium | 4.10E-06 | AP-42 S 1.6, 9/03 | | 1.71E-04 | 0.0007 |
| Chromium, total | 2.10E-05 | AP-42 S 1.6, 9/03 | | 8.78E-04 | 0.0035 |
| Cobalt | 6.50E-06 | AP-42 S 1.6, 9/03 | | 2.72E-04 | 0.0011 |
| Lead (Pb) | 4.80E-05 | AP-42 S 1.6, 9/03 | | 0.0020069 | 0.0081 |
| Manganese | 1.60E-03 | AP-42 S 1.6, 9/03 | | 6.69E-02 | 0.2701 |
| Mercury | 6.87E-07 | Test Data | | 2.87E-05 | 0.0001 |
| Nickel | 3.30E-05 | AP-42 S 1.6, 9/03 | | 1.38E-03 | 0.0056 |
| Phosphorous | 2.70E-05 | AP-42 S 1.6, 9/03 | | 1.13E-03 | 0.0046 |
| Selenium | 2.80E-06 | AP-42 S 1.6, 9/03 | | 1.17E-04 | 0.0005 |
| | | | | Total VOC HAP | 2.8191 |
| | | | | Total Non-VOC HAP | 0.4814 |

Notes:

1. HAPs shown are those with potential annual emission rates of greater than 0.0001 tons/year.
2. PM-10 and PM-2.5 emission rates estimated based on relationship of factors from AP-42, Section 1.6, Table 1.6-1, for boilers with mechanical collectors burning bark and wet wood.

# Hood Industries, Waynesboro
## Historic Boiler Test Data

| Test Date | Rated Capacity, MMBtu/hr | Firing Rate, MMBtu/hr | % of capac. | Steam rate M lb/hr | Efficiency @ 1000 Btu/lb | Stack temp. °F | Flow rate, ACFM | Moisture Content, Bws, dimensionless | O2, % | Excess air, % | Flow rate, Qstd | PM grain/scf | PM lb/hr | Calculated Test Result PM lb/MMBtu | CO, lb/MMBtu | HCL, lb/MMBtu | HG, lb/MMBtu |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12/8/1997 | 130 | 103.84 | 0.80 | | ND | 446 | 62,795 | | | | 31,347 | | 43.69 | 0.421 | | | |
| 11/16/1998 | 130 | 87.44 | 0.67 | | ND | 438 | 61,603 | | | | 30,051 | 0.272 | 80.69 | 0.923 | | | |
| 12/21/1999 | 100 | 96.12 | 0.96 | | ND | 437 | 65,797 | 0.137 | 11.6 | 121.6 | 33,486 | 0.226 | 64.93 | 0.676 | | | |
| 10/24/2000 | 100 | 83.44 | 0.83 | 64.3 | 77.1 | 450 | 62,462 | 0.125 | 12.5 | 147.9 | 32,146 | 0.264 | 72.9 | 0.874 | | | |
| 9/24/2001 | 100 | 98.75 | 0.99 | | ND | 450 | 61,406 | 0.146 | 10.4 | 98.3 | 30,521 | 0.197 | 51.82 | 0.525 | | | |
| 10/15/2002 | 100 | 117.33 | 1.17 | 56.0 | 47.7 | 451 | 64,211 | 0.216 | 7.8 | 59.9 | 28,951 | 0.300 | 75.82 | 0.646 | | | |
| 10/14/2003 | 100 | 108.87 | 1.09 | 55.6 | 51.1 | 438 | 61,283 | 0.166 | 9.1 | 77.3 | 29,832 | 0.237 | 60.6 | 0.557 | | | |
| 10/5/2004 | 100 | 87.72 | 0.88 | 58 | 66.1 | 493 | 63,497 | 0.175 | 11.1 | 116.2 | 28,837 | 0.288 | 71.47 | 0.815 | | | |
| 10/4/2005 | 100 | 109.25 | 1.09 | 53 | 48.5 | 460 | 69,579 | 0.162 | 10.2 | 95.4 | 33,494 | 0.211 | 60.83 | 0.557 | | | |
| 6/16/2006 | 100 | 97.19 | 0.97 | 50 | 51.4 | 448 | 67,890 | 0.133 | 11.6 | 125.2 | 34,391 | 0.195 | 57.95 | 0.596 | | | |
| 8/28/2007 | 100 | 92.57 | 0.93 | 50 | 54.0 | 451 | 66,442 | 0.154 | 11.5 | 123.1 | 32,636 | 0.190 | 53.19 | 0.575 | | | |
| 9/11/2008 | 100 | 94.99 | 0.95 | 50 | 52.6 | 460 | 70,216 | 0.146 | 11.9 | 132.0 | 34,731 | 0.210 | 62.7 | 0.660 | | | |
| 8/28/2009 | 100 | 96.38 | 0.96 | 49.7 | 51.6 | 471 | 65,029 | 0.169 | 10.5 | 99.2 | 30,283 | 0.184 | 47.82 | 0.496 | | | |
| 8/26/2010 | 100 | 97.23 | 0.97 | 49.2 | 50.6 | 485 | 70,085 | 0.149 | 11.4 | 120.0 | 33,446 | 0.092 | 26.48 | 0.272 | | | |
| 8/23/2011 | 100 | 93.42 | 0.93 | 46.4 | 49.7 | 496 | 65,542 | 0.168 | 10.8 | 107.1 | 30,413 | 0.122 | 31.84 | 0.341 | | | |
| 10/8/2012 | 100 | 93.31 | 0.93 | 46.9 | 50.2 | 492 | 64,132 | 0.180 | 10.4 | 100.8 | 29,175 | 0.140 | 35.07 | 0.376 | | | |
| 9/27/2013 | 100 | 98.85 | 0.99 | 45.3 | 45.9 | 503 | 69,450 | 0.159 | 10.8 | 105.0 | 31,949 | 0.137 | 37.651 | 0.381 | | | |
| 9/18/2014 | 100 | 88.87 | 0.89 | 44.7 | 50.3 | 516 | 67,722 | 0.144 | 11.7 | 124.9 | 31,529 | 0.157 | 42.592 | 0.479 | | | |
| 8/25/2015 | 100 | 84.35 | 0.84 | 49.9 | 59.1 | 535 | 52,178 | 0.166 | 8.9 | 74.0 | 23,073 | 0.124 | 24.955 | 0.296 | 1.255 | 5.12E-04 | 7.79E-07 |
| 8/12/2016 | 100 | 89.65 | 0.9 | 46.7 | 52.1 | 528 | 50,651 | 0.187 | 7.7 | 57.7 | 21,949 | 0.129 | 24.37 | 0.272 | 0.657 | 6.23E-05 | 5.95E-07 |
| | | | | | 53.6 | | | | | | | | Averages: | 0.537 | 0.956 | 2.87E-04 | 6.87E-07 |
| | | | | | | | | | | | | | Last 3 Year Averages: | 0.349 | 0.956 | 2.87E-04 | 6.87E-07 |

Hood Industries, Inc.
Waynesboro, Mississippi
Calculation of VOC and HAP-VOC Emissions

***Volatile Organic Compound Emissions*** Calendar Year: 2017

| Emission Point Description and ID No. | | Operating Levels | Operating Level Units | Conversion Factor | Conversion Factor Units | Emission Factor | Emission Factor Units | Emissions, tons/yr |
|---|---|---|---|---|---|---|---|---|
| Wood-fired Steam Boiler | AA-001 | See the boiler emission spreadsheet attached | | | | | | 17.56 |
| Planer Cyclone | AA-007 | 4,190 | hr/yr | None | NA | No Data | lb/hr | No Data |
| Hog/Trimmer Cyclone | AA-008 | 4,190 | hr/yr | None | NA | No Data | lb/hr | No Data |
| Solid Fuel Silo Cyclone | AA-009 | 3,273 | hr/yr | None | NA | No Data | lb/hr | No Data |
| Steam Dry Kiln #2 | AA-011 | 59,585 | MBF | None | NA | 4.3 | lb/MBF | 128.11 |
| Batch DF Lumber Kiln | AA-013 | 45,914 | MBF | None | NA | 4.3 | lb/MBF | 98.71 |
| Continuous DF Kiln | AA-014 | 62,916 | MBF | None | NA | 3.76 | lb/MBF | 118.28 |
| CDF Silo Cyclone | AA-015 | 4,190 | hr/yr | None | NA | No Data | lb/hr | No Data |
| CDF Surge Bin Cyclone | AA-016 | 4,190 | hr/yr | None | NA | No Data | lb/hr | No Data |
| Air-line anti-freeze | | See the "Summary" spreadsheet attached | | | | | | 0.00 |
| Insignificant Activities | IA-000 | See the "Insignificant" spreadsheet attached | | | | | | 0.32 |
| **Total Calculated VOC Emissions as C as measured by RM 25A, tons/year:** | | | | | | | | 362.98 |

The emissions from the boiler are taken from the boiler emission spreadsheet attached, and are based on data from the most recent compliance test. The emissions from the lumber dry kilns are calculated using the actual annual production taken from corporate production records and the emission factors presented in the Title V permit application, as shown herein.

***Hazardous Air Pollutant (HAP) Emissions which are also VOC emissions***

| | | | |
|---|---|---|---|
| Wood-fired Steam Boiler | AA-001 | See the "Boiler" spreadsheet attached | 2.82 |
| Planer Cyclone | AA-007 | No Data | No Data |
| Hog/Trimmer Cyclone | AA-008 | No Data | No Data |
| Solid Fuel Silo Cyclone | AA-009 | No Data | No Data |
| Steam Dry Kiln #2 | AA-011 | See the table below | 6.73 |
| Batch DF Lumber Kiln | AA-013 | See the table below | 6.04 |
| Continuous DF Kiln | AA-014 | See the table below | 6.29 |
| CDF Silo Cyclone | AA-015 | No Data | No Data |
| CDF Surge Bin Cyclone | AA-016 | No Data | No Data |
| Air-line anti-freeze | | See the "Summary" spreadsheet attached | 0.00 |
| Insignificant Activities | IA-000 | See the "Insignificant" spreadsheet attached | 0.01 |
| | | **Total of the HAP-VOC emissions, tons/year:** | **21.89** |

Steam-Heated Lumber Kilns

| Pollutant | Emission Factor, lb/MBF | Kiln 2 HAPs, lbs/yr | Kiln 2 HAPs, tons/yr |
|---|---|---|---|
| Formaldehyde | 0.016 | 953 | 0.5 |
| Methanol | 0.210 | 12,513 | 6.3 |
| **Sum** | **0.226** | | |

Direct-Fired Lumber Kiln

| Pollutant | Emission Factor, lb/MBF | BDK HAPs, lbs/yr | BDK HAPs, tons/yr | Emission Factor, lb/MBF | CDK HAPs, lbs/yr | CDK HAPs, tons/yr | Total HAPs, tons/yr |
|---|---|---|---|---|---|---|---|
| Formaldehyde | 0.103 | 4,729 | 2.4 | 0.040 | 2,517 | 1.3 | 4.1 |
| Methanol | 0.160 | 7,346 | 3.7 | 0.160 | 10,067 | 5.0 | 15.0 |
| **Sum** | **0.263** | | | **0.200** | | | |

**Sum of the HAP VOC emissions from the kilns, tons** **19.06239**

Hood Industries, Inc.
Waynesboro, Mississippi
Calculation of Actual PM Emissions

Calendar Year: 2017

| Emission Point Description and ID No. | | Operating Results | Operating Units | PM Emission Factor | Emission Factor Units | Estimated Particulate Matter Emissions, tpy |
|---|---|---|---|---|---|---|
| Wood-fired Steam Boiler | AA-001 | See wood combustion spreadsheets attached. | | | | 58.92 |
| Planer Cyclone | AA-007 | 4,190.0 | hours | 2 | lb/hr | 4.19 |
| Hog/Trimmer Cyclone | AA-008 | 4,190.0 | hours | 2 | lb/hr | 4.19 |
| Solid Fuel Silo Cyclone | AA-009 | 3,273.0 | hours | 2 | lb/hr | 3.27 |
| Steam Dry Kiln #2 | AA-011 | 59,585.3 | MBF | 0.066 | lb/MBF | 1.97 |
| Batch DF Lumber Kiln | AA-013 | 45,913.7 | MBF | 0.375 | lb/MBF | 8.61 |
| Continuous DF Kiln | AA-014 | 62,916.0 | MBF | 0.068 | lb/MBF | 2.14 |
| CDF Silo Cyclone | AA-015 | 4,190.0 | hours | 2 | lb/hr | 4.19 |
| CDF Surge Bin Cyclone | AA-016 | 4,190.0 | hours | 2 | lb/hr | 4.19 |
| Insignificant Activities (see sheet) | | | | | | 2.10 |
| Total Calculated PM Emissions, tons/yr: | | | | | | 93.76 |

| Emission Point Description and ID No. | | Operating Results | Operating Units | PM-CON Emission Factor | Emission Factor Units | Estimated Condensable Particulate Matter Emissions, tpy |
|---|---|---|---|---|---|---|
| Wood-fired Steam Boiler | AA-001 | See wood combustion spreadsheets attached. | | | | 0.00 |
| Planer Cyclone | AA-007 | 4,190.0 | hours | NA | lb/hr | ND |
| Hog/Trimmer Cyclone | AA-008 | 4,190.0 | hours | NA | lb/hr | ND |
| Solid Fuel Silo Cyclone | AA-009 | 3,273.0 | hours | NA | lb/hr | ND |
| Steam Dry Kiln #2 | AA-011 | 59,585.3 | MBF | 0.134 | lb/MBF | 3.99 |
| Batch DF Lumber Kiln | AA-013 | 45,913.7 | MBF | 0.381 | lb/MBF | 8.75 |
| Continuous DF Kiln | AA-014 | 62,916.0 | MBF | 0.069 | lb/MBF | 2.17 |
| CDF Silo Cyclone | AA-015 | 4,190.0 | hours | NA | lb/hr | ND |
| CDF Surge Bin Cyclone | AA-016 | 4,190.0 | hours | NA | lb/hr | ND |
| Insignificant Activities (see sheet) | | | | | | 0.00 |
| Total Calculated PM Emissions, tons/yr: | | | | | | 14.91 |

These emissions were calculated using emission factors and production and hour data as shown. Emissions from the boiler were calculated on the wood combustion spreadsheets attached.

Filterable PM, PM-10, PM-2.5 and PM-CON emissions from the lumber kilns are estimated using information presented in the Title V Operating Permit application.

Emissions from the wood residue handling system were calculated using the factors shown (FIRE) and the actual hours of operation.

Hood Industries, Inc.
Waynesboro, Mississippi
Calculation of Fugitive Emissions from the Sawmill Processes

Calendar Year: 2017

The emissions from this source are comprised of fugitive emissions from the following equipment:

| | | | |
|---|---|---|---|
| Log Saws | Boiler Fuel Hog | Band mill | Planer |
| Chippers (4) | Trim Hog | Gang saws(1) | Chip screens(3) |
| Edgers (2) | Twin band saws | Trimmers (2) | |

***Emission Factor Information:***

| Year | Sawmill Hours | Logs Used, tons | Lumber, MBF | Tons of logs used per MBF | Lumber Production Rate, MBF/hr | Log Consumption Rate, tons/hr |
|---|---|---|---|---|---|---|
| 2000 | 3,645 | 628,218 | 138,528 | 4.53 | 38.00 | 172.35 |
| 2001 | 4,090 | 545,447 | 134,966 | 4.04 | 33.00 | 133.36 |
| 2002 | 4,210 | 584,956 | 141,047 | 4.15 | 33.50 | 138.94 |
| 2003 | 4,340 | 638,431 | 143,214 | 4.46 | 33.00 | 147.10 |
| 2004 | 3,786 | 658,416 | 156,024 | 4.22 | 41.21 | 173.91 |
| 2005 | 3,349 | 604,933 | 153,575 | 3.94 | 45.86 | 180.63 |
| 2006 | 3,797 | 669,329 | 167,116 | 4.01 | 44.01 | 176.28 |
| 2007 | 4,160 | 602,963 | 146,321 | 4.12 | 35.17 | 144.94 |
| 2008 | 2,672 | 427,711 | 97,427 | 4.39 | 36.46 | 160.07 |
| 2009 | 1,941 | 353,655 | 84,312 | 4.19 | 43.44 | 182.20 |
| 2010 | 2,248 | 416,898 | 98,399 | 4.24 | 43.77 | 185.45 |
| 2011 | 2,441 | 461,974 | 109,954 | 4.20 | 45.04 | 189.26 |
| 2012 | 2,487 | 485,500 | 117,185 | 4.14 | 47.12 | 195.22 |
| 2013 | 2,319 | 460,402 | 114,715 | 4.01 | 49.47 | 198.53 |
| 2014 | 2,384 | 465,963 | 115,588 | 4.03 | 48.48 | 195.45 |
| 2015 | 2,765 | 509,008 | 127,597 | 3.99 | 46.15 | 184.09 |
| 2016 | 2,969 | 537,046 | 133,928 | 4.01 | 45.11 | 180.88 |
| 2017 | 4,182 | 692,180 | 168,415 | 4.11 | 40.27 | 165.51 |
| | | | Average: | 4.15 | 41.62 | 172.46 |

■ For an emission factor, use the sum of the log debarking factor at FIRE 6.2 for SCC code 30700801 and 10% of the log sawing factor from the same source at code 30700802. The log sawing factor was reduced because the sawing operations are conducted inside buildings which serve to minimize any release to the ambient air. The sum of these factors is 0.055 lb of PM per ton of logs processed. The sum of the PM-10 factors is 0.031 lb of PM-10 per ton of log processed.

***Calculation of Actual Emissions For Reporting Year:***

**PM Emissions:**

| | | | | | | |
|---|---|---|---|---|---|---|
| Average hourly rate = | 165.51 | tons/hr x | 0.055 | lb PM/ton = | 9.10 | lbs PM/hr |
| Actual annual rate = | 9.10 | lbs PM/hr x | 4,182 | hours = | 19.03 | tons/year |

**PM-10 Emissions:**

| | | | | | | |
|---|---|---|---|---|---|---|
| Average hourly rate = | 165.51 | tons/hr x | 0.031 | lb PM/ton = | 5.13 | lbs PM/hr |
| Actual annual rate = | 5.13 | lbs PM/hr x | 4,182 | hours = | 10.73 | tons/year |

Hood Industries, Inc.
Waynesboro, Mississippi
Emissions from Insignificant Activities and Fugitives

| | | | | | | | | | | **Calendar Year:** | **2017** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Insignificant Activities Listed in the Title V Permit Application | | Amount Used | Units | Turnovers | Emissions Estimating Methods | VOC, pounds | VOC, tons | HAP (VOC), pounds | HAP (VOC), tons | PM, pounds | PM, tons |
| 2000 | gal Gasoline tank | 2,403 | gals | 1.202 | Use TANKS | 614.6 | 0.31 | 23.14 | 0.01 | | |
| 10000 | gal Diesel fuel tank | 133,375 | gals | 13.338 | Use TANKS | 9.28 | 0.00 | 0 | 0.00 | | |
| 1000 | gal Hydraulic Oil tank 4 | 3,000 | gals | 3.000 | Use TANKS | 0.62 | 0.00 | 0 | 0.00 | | |
| 2000 | gal Hyd Oil tank 2 | 12,500 | gals | 3.125 | Use TANKS; (as diesel fuel) | 1.39 | 0.00 | 0 | 0.00 | | |
| 2000 | gal Lube Oil tank 3 | 12,500 | gals | 3.125 | Use TANKS; (as diesel fuel) | 1.39 | 0.00 | 0 | 0.00 | | |
| 4500 | gal Used Oil tank 5 | 8,000 | gals | 0.889 | Use TANKS; (as diesel fuel) | 2.96 | 0.00 | 0 | 0.00 | | |
| Maintenance Room Vent Cyclone | | 4,190 | hours | NA | Use default value of 1 lb/hr (PM) | | | | | 4190 | 2.10 |
| | | | | | **Totals:** | 630.24 | 0.3151 | 23.14 | 0.0116 | 4190 | 2.095 |

Hood Industries, Inc.
Waynesboro, Mississippi
Emissions from Insignificant Activities and Fugitives

**Data for calendar year: 2017**

| Insignificant Activities Listed in the Title V Permit Application | Hexane Emissions, pounds | Benzene Emissions, pounds | IsoOctane Emissions, pounds | Toluene Emissions, pounds | Ethyl benzene Emissions, pounds | Xylene Emissions, pounds | Cyclo-Hexane Emissions, pounds | | |
|---|---|---|---|---|---|---|---|---|---|
| | HAP VOCs | | | | | | | | |
| 2000 gal Gasoline tank | 4.28 | 4.82 | 5.83 | 5.56 | 0.38 | 1.61 | 0.66 | | |
| 10000 gal Diesel fuel tank | | | | | | | | | |
| 1000 gal Hydraulic Oil tank 4 | | | | | | | | | |
| 2000 gal Hyd Oil tank 2 | | | | | | | | | |
| 2000 gal Lube Oil tank 3 | | | | | | | | | |
| 4500 gal Used Oil tank 5 | | | | | | | | | |
| Maintenance Room Vent Cyclone | | | | | | | | | |
| Total Emissions, lbs: | 4.28 | 4.82 | 5.83 | 5.56 | 0.38 | 1.61 | 0.66 | 0 | 0 |
| Total Emissions, tons: | 0.0021 | 0.0024 | 0.0029 | 0.0028 | 0.0002 | 0.0008 | 0.0003 | 0.0000 | 0.0000 |

Calendar Year: 2017

**Emergency Generator**

Rated Horsepower = 135 Hours of Operation = 6.2

Emission Factors for Uncontrolled Gasoline and Diesel Industrial Engines (English Units), AP-42, 5th Edition, Table 3.3-1.

| Pollutant | Diesel Fuel Factors (lbs/hp-hr) | Rated Power (hp) | Emissions | |
|---|---|---|---|---|
| | | | Maximum (lbs/hr) | Annual (tons/yr) |
| Particulates | 0.0022 | 135 | 0.30 | 0.001 |
| SO2 | 0.0021 | 135 | 0.28 | 0.001 |
| NOx | 0.0310 | 135 | 4.19 | 0.013 |
| CO | 0.0067 | 135 | 0.90 | 0.003 |
| VOC | 0.0025 | 135 | 0.33 | 0.001 |

| HAP | Diesel Fuel Factors (lbs/MMBtu) | Fuel Feed MMBtu/hr | Emissions | |
|---|---|---|---|---|
| | | | Maximum (lbs/hr) | Annual (tons/yr) |
| Acetaldehyde | 7.67E-04 | 0.945 | 0.0007 | 0.0000 |
| Acrolein | 9.25E-05 | 0.945 | 0.0001 | 0.0000 |
| Benzene | 9.33E-04 | 0.945 | 0.0009 | 0.0000 |
| Formaldehyde | 1.18E-03 | 0.945 | 0.0011 | 0.0000 |
| Toluene | 4.09E-04 | 0.945 | 0.0004 | 0.0000 |
| Xylene | 2.85E-04 | 0.945 | 0.0003 | 0.0000 |

**Hood Industries**
**Waynesboro, Mississippi**
**Calculation of Emissions of Greenhouse Gases (GHGs)**

**Emission Factors and Global Warming Potentials (GWP) from 40 CFR 98 (Tables A-1, C-1 and C-2)**

| | | Emission Factors, kg/MMBtu | | Emission Factors, lb/MMBtu | |
|---|---|---|---|---|---|
| Pollutant | GWP | Wood Residual Fuels | Diesel Fuel | Wood Residual Fuels | Diesel Fuel |
| CO2 | 1 | 93.8 | 73.96 | 206.8290 | 163.082 |
| CH4 | 25 | 0.032 | 0.003 | 0.0706 | 0.007 |
| N2O | 298 | 0.0042 | 0.0006 | 0.0093 | 0.001 |

**Emissions from Wood-Fired Boiler and Direct-Fired Kiln**

| | | | | | | |
|---|---|---|---|---|---|---|
| Boiler 1 CY Heat Input: | | | | | 337,624 | MMBtu/yr |
| Kiln 4 CY Heat Input: | 35.0 | MMBtu/hr x | 6,546.0 | hrs = | 229,110 | MMBtu/yr |
| Kiln 5 CY Heat Input: | 40.0 | MMBtu/hr x | 6,294.0 | hrs = | 251,760 | MMBtu/yr |

| | Emissions by Pollutant | | | Total CO2e Emissions | | | |
|---|---|---|---|---|---|---|---|
| Pollutant | Boiler 1 tons | Kiln 4 tons | Kiln 5 tons | Boiler 1 tons | Kiln 4 tons | Kiln 5 tons | |
| CO2 | 34,915 | 23,693 | 26,036 | 34,915 | 23,693 | 26,036 | |
| CH4 | 11.911 | 8.083 | 8.882 | 298 | 202 | 222 | |
| N2O | 1.563 | 1.061 | 1.166 | 466 | 316 | 347 | |
| | | | | 35,679 | 24,212 | 26,605 | 86,495 |

**Emissions from Internal Combustion Engines**

| | Horsepower | Fuel Feed, MMBtu/hr | Hours/Year |
|---|---|---|---|
| Emergency Generator | 135 | 0.945 | 6.2 |

| | Emergency Generator | | |
|---|---|---|---|
| Pollutant | Annual Emissions, tons | CO2e EF, lb/MMBtu | Total CO2e tons |
| CO2 | 0.4754 | 163.082 | 0.4754 |
| CH4 | 0.0000 | 0.165 | 0.0005 |
| N2O | 0.0000 | 0.394 | 0.0011 |
| | | 163.6414 | 0.4771 |

**<u>Total Greenhouse Gas Emissions from the Facility</u>**

| | | Boiler/Kilns | | Other (non-biomass) | | | |
|---|---|---|---|---|---|---|---|
| Pollutant | GWP | Total tons | Total CO2e tons | Total tons | Total CO2e tons | Total tons | Total CO2e tons |
| CO2 | 1 | 84,644 | 84,644 | 0 | 0 | 84,645 | 84,645 |
| CH4 | 25 | 28.876 | 722 | 0.00 | 0.00 | 28.9 | 722 |
| N2O | 298 | 3.790 | 1,129 | 0.00 | 0.00 | 3.8 | 1,129 |
| | | | 86,495 | | 0 | 84,677 | 86,496 |

# Hood Industries, Inc.
# Waynesboro, Mississippi

## Annual Air Emissions Estimate

## CY2018

June 26, 2019

# Hood Industries, Inc.
Waynesboro, Mississippi
Summary of Annual Air Emissions

Calendar Year: 2018

| Criteria Air Pollutant | AA-001 100 MMBtuH Boiler | AA-007 Planer Mill with Cyclone | AA-008 Hog Trimmer with Cyclone | AA-009 Solid Fuel Silo Cyclone | AA-011 Steam Heat Lumber Kiln #2 | AA-013 BDF Lumber Kiln | AA-014 CDF Lumber Kiln | AA-015 CDF Silo Cyclone | AA-016 CDF Surge Bin Cyclone | Fugitive Emissions | IA-000 Insign-ificant Activities | Total Emissions Tons/year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ALL PM (AERR) | 62.22 | 4.29 | 4.29 | 4.25 | 5.82 | 16.57 | 4.09 | 2.68 | 3.07 | 18.48 | 2.14 | 127.90 |
| PM | 59.33 | 4.29 | 4.29 | 4.25 | 1.92 | 8.22 | 2.03 | 2.68 | 3.07 | 18.48 | 2.14 | 110.70 |
| PM10 | 53.40 | 1.72 | 1.72 | 1.70 | 1.73 | 7.40 | 1.02 | 1.07 | 1.23 | 10.42 | 2.14 | 83.55 |
| PM2.5 | 32.04 | 0.86 | 0.86 | 0.85 | 1.62 | 6.92 | 0.89 | 0.54 | 0.61 | 5.36 | 0.62 | 51.17 |
| PM-Condensable | 2.89 | | | | 3.90 | 8.35 | 2.06 | | | | | 17.20 |
| SO2 | 4.25 | | | | | | | | | | 0.00 | 4.25 |
| NOX | 37.40 | | | | | 2.24 | 3.05 | | | | 0.01 | 42.70 |
| CO | 162.53 | | | | | 10.76 | 14.68 | | | | 0.00 | 187.97 |
| VOC | 17.68 | No Data | No Data | No Data | 125.15 | 94.23 | 112.42 | 0.00 | 0.00 | 0.00 | 0.32 | 349.80 |
| Hazardous Air Pollutant | AA-001 100 MMBtuH Boiler | AA-007 Planer Mill with Cyclone | AA-008 Hog Trimmer with Cyclone | AA-009 Solid Fuel Silo Cyclone | AA-011 Steam Heat Lumber Kiln #2 | AA-013 BDF Lumber Kiln | AA-014 CDF Lumber Kiln | AA-015 CDF Silo Cyclone | AA-016 CDF Surge Bin Cyclone | Fugitive Emissions | IA-000 Insign-ificant Activities | Total Emissions Tons/year |
| 2-Butanone (MEK) | 0.0009 | | | | | | | | | | | 0.0009 |
| Acenaphthylene | 0.0002 | | | | | | | | | | | 0.0002 |
| Acenaphthene | 0.0009 | | | | | | | | | | | 0.0009 |
| Acetaldehyde | 0.1411 | | | | | | | | | | 0.0000 | 0.1411 |
| Acrolein | 0.6800 | | | | | | | | | | 0.0000 | 0.6800 |
| Anthracene | 0.0005 | | | | | | | | | | | 0.0005 |
| Benzene | 0.7140 | | | | | | | | | | 0.0024 | 0.7164 |
| Benzo(a)pyrene | 0.0004 | | | | | | | | | | | 0.0004 |
| Carbazole | 0.0003 | | | | | | | | | | | 0.0003 |
| Carbon tetrachloride | 0.0077 | | | | | | | | | | | 0.0077 |
| Chlorobenzene | 0.0056 | | | | | | | | | | | 0.0056 |
| Chloroform | 0.0048 | | | | | | | | | | | 0.0048 |
| Cyclohexane | 0.0000 | | | | | | | | | | 0.0003 | 0.0003 |
| Ethyl benzene | 0.0053 | | | | | | | | | | 0.0002 | 0.0055 |
| Fluoranthene | 0.0003 | | | | | | | | | | | 0.0003 |
| Fluorene | 0.0006 | | | | | | | | | | | 0.0006 |
| Formaldehyde | 0.7480 | | | | 0.4657 | 2.2570 | 1.1959 | | | | 0.0000 | 4.6666 |
| Hexane | 0.0000 | | | | | | | | | | 0.0021 | 0.0021 |
| Isooctane | 0.0000 | | | | | | | | | | 0.0029 | 0.0029 |
| m,p-Xylene | 0.0000 | | | | | | | | | | 0.0008 | 0.0008 |
| Methanol | 0.0000 | | | | 6.1118 | 3.5060 | 4.7837 | | | | | 14.4015 |
| Naphthalene | 0.0165 | | | | | | | | | | | 0.0165 |
| o-Xylene | 0.0043 | | | | | | | | | | | 0.0043 |
| Phenanthrene | 0.0012 | | | | | | | | | | | 0.0012 |
| Phenol | 0.0087 | | | | | | | | | | | 0.0087 |
| Propionaldehyde | 0.0104 | | | | | | | | | | | 0.0104 |
| Styrene | 0.3230 | | | | | | | | | | | 0.3230 |
| Toluene | 0.1564 | | | | | | | | | | 0.0028 | 0.1592 |
| Trichloroethene | 0.0051 | | | | | | | | | | | 0.0051 |
| Vinyl Chloride | 0.0031 | | | | | | | | | | | 0.0031 |
| Chlorine | 0.1343 | | | | | | | | | | | 0.1343 |
| Hydrogen Chloride | 0.0488 | | | | | | | | | | | 0.0488 |
| Antimony | 0.0013 | | | | | | | | | | | 0.0013 |
| Arsenic | 0.0037 | | | | | | | | | | | 0.0037 |
| Beryllium | 0.0002 | | | | | | | | | | | 0.0002 |
| Cadmium | 0.0007 | | | | | | | | | | | 0.0007 |
| Chromium | 0.0036 | | | | | | | | | | | 0.0036 |
| Cobalt | 0.0011 | | | | | | | | | | | 0.0011 |
| Lead | 0.0082 | | | | | | | | | | | 0.0082 |
| Manganese | 0.2720 | | | | | | | | | | | 0.2720 |
| Mercury | 0.0001 | | | | | | | | | | | 0.0001 |
| Nickel | 0.0056 | | | | | | | | | | | 0.0056 |
| Phosphorus | 0.0046 | | | | | | | | | | | 0.0046 |
| Selenium | 0.0005 | | | | | | | | | | | 0.0005 |
| Total VOC HAPs | 2.8393 | 0.0000 | 0.0000 | 0.0000 | 6.5775 | 5.7630 | 5.9796 | 0.0000 | 0.0000 | 0.0000 | 0.0115 | 21.1709 |
| Total Non-VOC HAPs | 0.4847 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.4847 |
| TOTAL HAPs | 3.3240 | 0.0000 | 0.0000 | 0.0000 | 6.5775 | 5.7630 | 5.9796 | 0.0000 | 0.0000 | 0.0000 | 0.0115 | 21.6556 |

PM-2.5 Emission Factor Determinations

Where actual data or other emission factors for PM-2.5 do not exist, the following factors are used. These factors were developed from PM-2.5 emissions data provided to two wood products facilities by the Mississippi Department of Environmental Quality as a result of CY2002 PM and PM10 emissions reporting. MDEQ used EPA's PM Calculator to estimate the PM-2.5 emissions for the facilities. The reported emissions were used to create factors which represent PM-2.5 emission rates as a percentage of PM emission rates.

| | Emissions, tons/year | | |
|---|---|---|---|
| Emissions Unit | PM | PM-2.5 | PM-2.5 as %PM |
| Wood-fired Boiler | 66.4 | 50.47 | 76% |
| Veneer Dryer | 14 | 4.11 | 29% |
| Plywood Sander/Cyclone | 0.7 | 0.1 | 14% |
| Dry Veneer Cyclone | 4.9 | 0.93 | 19% |
| Log Yard Fines Cyclone | 4.6 | 0.87 | 19% |
| Log Yard Chip Discharge | 2.9 | 0.55 | 19% |
| Layup/Pressing | 12.3 | 10.2 | 83% |
| Fugitive Dust | 5.6 | 1.83 | 33% |
| Planer Mill Shavings Cyclone | 3.4 | 0.68 | 20% |
| Hog Trimmer Cyclone | 3.4 | 0.68 | 20% |
| Steam Heated Lumber Kiln | 2.3 | 2.15 | 93% |
| Other Fugitives | 5.1 | 1.5 | 29% |

PM-Condensables

This facility has no site-specific data on PM Condensables. For sources that have PM emissions that are expected to be condensable in nature, all estimated PM-2.5 emissions are considered to be PM-Condensable.

Hood Industries, Inc.
Waynesboro, Mississippi
Lumber Kiln Emission Factors

The US EPA *Compilation of Air Pollutant Emission Factors, AP-42,* Fifth Edition, Volume 1 contains no emission factors for air pollutant emissions from lumber kilns. The emissions from lumber kilns are reported to be VOCs (primarily alpha and beta pinenes), some hazardous air pollutants (methanol and formaldehyde), and some quantity of filterable particulate matter.

**Emission Factors**

| | *Steam-Heated* | | *Direct-Fired Batch Kiln* | | *Direct-Fired Continuous Kiln* | |
|---|---|---|---|---|---|---|
| **FPM:** | 0.067 | lb/MBF[1] | 0.375 | lb/MBF[3] | 0.068 | lb/MBF[5] |
| **FPM-10:** | 0.0603 | lb/MBF[1] | 0.3375 | lb/MBF[3] | 0.034 | lb/MBF[6] |
| **FPM-2.5:** | 0.056 | lb/MBF[1] | 0.316 | lb/MBF[3] | 0.030 | lb/MBF[7] |
| **CPM:** | 0.134 | lb/MBF[2] | 0.381 | 1.016 times FPM[8] | 0.069 | lb/MBF[8] |
| **CO:** | 0 | lb/MBF[1] | 0.491 | lb/MBF[3] | 0.73 | lb/MBF[9] |
| **NOx:** | 0 | lb/MBF[1] | 0.102 | lb/MBF[3] | 0.28 | lb/MBF[9] |
| **SO2:** | 0 | lb/MBF | 0.025 | lb/MBF[4] | 0.025 | lb/MBF[4] |
| **VOC as VOC:** | 4.3 | lb/MBF[11] | 4.3 | lb/MBF[11] | 3.76 | lb/MBF[9] |
| **Methanol:** | 0.21 | lb/MBF[10] | 0.16 | lb/MBF[10] | 0.16 | lb/MBF[9] |
| **Formaldehyde:** | 0.016 | lb/MBF[10] | 0.103 | lb/MBF[10] | 0.04 | lb/MBF[9] |

[1] Emission factor from Test #5, Weyerhaeuser Corp., Mountain Pine, AR. PM10 = 90% of PM; PM2.5 = 93.5% of PM10.

[2] Emission factor from March 18, 1994 NCASI Letter to EPA Re: Lumber Kiln Test Reports

[3] Emission test conducted by GP at Cross City, FL. PM10 = 90% of PM; PM2.5 = 93.5% of PM10.

[4] US EPA AP-42, Section 1.6

[5] Based on Preliminary Determination by GEPD for Simpson Lumber Company, LLC, Meldrum, GA, based on emissions tests conducted at Bibler Brothers Lumber Company, Russelville, AR. Filterable PM factor = 0.068 lb/MBF.

[6] GEPD Permit No. 2421-107-0011-V-02-3 issued to Rayonier Wood Products LLC - Swainsboro Sawmill: PM10 = 50% of PM.

[7] Based on relationship of PM10 to PM2.5 in US EPA AP-42 Section 1.6: PM2.5 = 87% of PM10.

[8] Condensable PM emission factor based on unpublished NCASI data referenced in West Fraser, Opelika, AL Permit Application, which recommends 1.016 ratio of PM-CON to FPM.

[9] Based on unpublished and published NCASI test results as published in the NCDAQ Air Permit Review/Preliminary Determination for the Weyerhauser, Plymouth, NC, application.

[10] *Technical Bulletin No. 845,* May 2002, by the National Council for Air and Stream Improvement (NCASI) developed emission rates from lumber kilns for the following pollutants:

[11] MDEQ-Supplied Emission Factor, assumed to be NCASI EF of 3.5 lb/MBF VOC as C times 1.22 to get to VOC as VOC

## INPUT DATA AND TEST RESULTS:

Calendar Year: 2018

| | | |
|---|---|---|
| Boiler Rated Capacity | 100 | MMBtu/hr |
| Boiler Operating Hours | 7,732 | Hours/yr |
| Annual Steam Produced | 221,010 | kLbs |
| Logs Used | 672,140 | Tons/yr |
| Operating Hours, Sawmill | 4,305 | Hours/yr |

| | | |
|---|---|---|
| Operating Hours, Planer Cyclone | 4,286 | Hours/yr |
| Operating Hours, Hog/Trimmer | 4,286 | Hours/yr |
| Operating Hours, BDK Silo Cyclone | 4,249 | Hours/yr |
| Operating Hours, CDK Silo Cyclone | 2,680 | Hours/yr |
| Operating Hours, CDK Surge Bin Cyclone | 3,073 | Hours/yr |
| Operating Hours, Emergency Generator | 6.5 | Hours/yr |

| | | |
|---|---|---|
| Lumber Dried, Total | 161,829 | MBF |
| Steam Kiln #2 | 58,207 | MBF |
| Batch Direct-Fired Kiln | 43,826 | MBF |
| Continuous Direct-Fired Kiln | 59,796 | MBF |

| DF Kiln EFs | | Boiler Test Data | |
|---|---|---|---|
| 0.375 | PM | 0.349 | lb/MMBtu (test average) |
| NA | $SO_2$ | | |
| 0.102 | $NO_x$ | | |
| 0.104 | VOC | 0.104 | lb/MMBtu (2001 test) |
| 0.491 | CO | 0.956 | lb/MMBtu (test average) |

| | | | | | |
|---|---|---|---|---|---|
| Gasoline used, gallons: | 2,107 | | | | |
| Diesel used, gallons: | 126,219 | | | | |
| Air line anti-freeze used, gallons: | 0 | SpWt, lb/gal: | 6.6 | VOC emissions, tpy | 0.0 |

Air line anti-freeze is Methanol, a HAP and a VOC.

Calculation of Emissions from Wood/Bark Fired Industrial Boilers

| | | | |
|---|---|---|---|
| Company: | Hood Industries, Inc. - Waynesboro, MS | | |
| Boiler identification: | Boiler #1 (Gaskell Wood-Fired) | | |
| Maximum firing rate, MMBtu/hr | 100 | Calendar Year: | 2018 |
| Allowable operating hours | 8760 | Average firing rate, MMBtu/hr | 43.98 |
| Assumed thermal efficiency, % | 65 | Actual operating hours | 7,732 |

## Emission Factors, pounds per MM Btu of heat input

| Criteria Pollutants | Factor | Emission Factor Source | | Calculated Emissions: Average hourly emission rates, pounds per hour | Calculated Emissions: Actual annual emission rate, tons per year |
|---|---|---|---|---|---|
| Particulate Matter (PM) (filterable) | 0.349 | Test Data (last 3 years) | | 15.35 | 59.33 |
| Particulate Matter <10 microns (PM-10) (filterable) | 0.3141 | 90% of PM | | 13.81 | 53.40 |
| Particulate Matter <2.5 microns (PM-2.5) (filterable) | 0.18846 | 54% of PM | | 8.29 | 32.04 |
| Particulate Matter - Condensable | 0.017 | AP-42 S 1.6, 9/03 | | 0.75 | 2.89 |
| Sulfur Dioxide (SO2) | 0.025 | AP-42 S 1.6 9/03 | | 1.0993778 | 4.25 |
| Nitrogen Oxides (NOx) | 0.22 | AP-42 S 1.6 9/03 | | 9.6745242 | 37.40 |
| Carbon Monoxide (CO) | 0.956 | Test Data | | 42.040205 | 162.53 |
| Volatile Organic Cmpds (VOC) (as C by Method 25) | 0.104 | Test Data | | 4.5734114 | 17.68 |
| **Hazardous Air Pollutants (HAPs)** | | | | | |
| 2-Butanone (MEK) | 5.40E-06 | AP-42 S 1.6, 9/03 | (VOC) | 2.37E-04 | 0.0009 |
| Acenaphthylene | 9.10E-07 | AP-42 S 1.6, 9/03 | (VOC) | 4.00E-05 | 0.0002 |
| Acenapthene | 5.00E-06 | AP-42 S 1.6, 9/03 | (VOC) | 2.20E-04 | 0.0009 |
| Acetaldehyde | 8.30E-04 | AP-42 S 1.6, 9/03 | (VOC) | 3.65E-02 | 0.1411 |
| Acrolein | 4.00E-03 | AP-42 S 1.6, 9/03 | (VOC) | 1.76E-01 | 0.6800 |
| Anthracene | 3.00E-06 | AP-42 S 1.6, 9/03 | (VOC) | 1.32E-04 | 0.0005 |
| Benzene | 4.20E-03 | AP-42 S 1.6, 9/03 | (VOC) | 1.85E-01 | 0.7140 |
| Benzo(a)pyrene | 2.60E-06 | AP-42 S 1.6, 9/03 | (VOC) | 1.14E-04 | 0.0004 |
| Carbazole | 1.80E-06 | AP-42 S 1.6, 9/03 | (VOC) | 7.92E-05 | 0.0003 |
| Carbon tetrachloride | 4.50E-05 | AP-42 S 1.6, 9/03 | (VOC) | 1.98E-03 | 0.0077 |
| Chlorobenzene | 3.30E-05 | AP-42 S 1.6, 9/03 | (VOC) | 1.45E-03 | 0.0056 |
| Chloroform | 2.80E-05 | AP-42 S 1.6, 9/03 | (VOC) | 1.23E-03 | 0.0048 |
| Ethylbenzene | 3.10E-05 | AP-42 S 1.6, 9/03 | (VOC) | 1.36E-03 | 0.0053 |
| Fluoranthene | 1.60E-06 | AP-42 S 1.6, 9/03 | (VOC) | 7.04E-05 | 0.0003 |
| Fluorene | 3.40E-06 | AP-42 S 1.6, 9/03 | (VOC) | 1.50E-04 | 0.0006 |
| Formaldehyde | 4.40E-03 | AP-42 S 1.6, 9/03 | (VOC) | 1.93E-01 | 0.7480 |
| Naphthalene | 9.70E-05 | AP-42 S 1.6, 9/03 | (VOC) | 4.27E-03 | 0.0165 |
| o-Xylene | 2.50E-05 | AP-42 S 1.6, 9/03 | (VOC) | 1.10E-03 | 0.0043 |
| Phenanthrene | 7.00E-06 | AP-42 S 1.6, 9/03 | (VOC) | 3.08E-04 | 0.0012 |
| Phenol | 5.10E-05 | AP-42 S 1.6, 9/03 | (VOC) | 2.24E-03 | 0.0087 |
| Propionaldehyde | 6.10E-05 | AP-42 S 1.6, 9/03 | (VOC) | 2.68E-03 | 0.0104 |
| Styrene | 1.90E-03 | AP-42 S 1.6, 9/03 | (VOC) | 8.36E-02 | 0.3230 |
| Toluene | 9.20E-04 | AP-42 S 1.6, 9/03 | (VOC) | 4.05E-02 | 0.1564 |
| Trichloroethene | 3.00E-05 | AP-42 S 1.6, 9/03 | (VOC) | 1.32E-03 | 0.0051 |
| Vinyl Chloride | 1.80E-05 | AP-42 S 1.6, 9/03 | (VOC) | 7.92E-04 | 0.0031 |
| Chlorine | 7.90E-04 | AP-42 S 1.6, 9/03 | | 3.47E-02 | 0.1343 |
| Hydrogen Chloride | 2.87E-04 | Test Data | | 1.26E-02 | 0.0488 |
| Antimony | 7.90E-06 | AP-42 S 1.6, 9/03 | | 3.47E-04 | 0.0013 |
| Arsenic | 2.20E-05 | AP-42 S 1.6, 9/03 | | 9.67E-04 | 0.0037 |
| Beryllium | 1.10E-06 | AP-42 S 1.6, 9/03 | | 4.84E-05 | 0.0002 |
| Cadmium | 4.10E-06 | AP-42 S 1.6, 9/03 | | 1.80E-04 | 0.0007 |
| Chromium, total | 2.10E-05 | AP-42 S 1.6, 9/03 | | 9.23E-04 | 0.0036 |
| Cobalt | 6.50E-06 | AP-42 S 1.6, 9/03 | | 2.86E-04 | 0.0011 |
| Lead (Pb) | 4.80E-05 | AP-42 S 1.6, 9/03 | | 0.0021108 | 0.0082 |
| Manganese | 1.60E-03 | AP-42 S 1.6, 9/03 | | 7.04E-02 | 0.2720 |
| Mercury | 6.87E-07 | Test Data | | 3.02E-05 | 0.0001 |
| Nickel | 3.30E-05 | AP-42 S 1.6, 9/03 | | 1.45E-03 | 0.0056 |
| Phosphorous | 2.70E-05 | AP-42 S 1.6, 9/03 | | 1.19E-03 | 0.0046 |
| Selenium | 2.80E-06 | AP-42 S 1.6, 9/03 | | 1.23E-04 | 0.0005 |
| | | | | Total VOC HAP | 2.8395 |
| | | | | Total Non-VOC HAP | 0.4847 |

Notes:

1. HAPs shown are those with potential annual emission rates of greater than 0.0001 tons/year.
2. PM-10 and PM-2.5 emission rates estimated based on relationship of factors from AP-42, Section 1.6, Table 1.6-1, for boilers with mechanical collectors burning bark and wet wood.

# Hood Industries, Waynesboro
## Historic Boiler Test Data

| Test Date | Rated Capacity, MMBtu/hr | Firing Rate, MMBtu/hr | % of capac. | Steam rate M lb/hr | Efficiency @ 1000 Btu/lb | Stack temp. °F | Flow rate, ACFM | Moisture Content, Bws, dimensionless | O2, % | Excess air, % | Flow rate, Qstd | PM grain/scf | PM lb/hr | Calculated Test Result PM lb/MMBtu | CO, lb/MMBtu | HCL, lb/MMBtu | HG, lb/MMBtu |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12/8/1997 | 130 | 103.84 | 0.80 | | ND | 446 | 62,795 | | | | 31,347 | | 43.69 | 0.421 | | | |
| 11/16/1998 | 130 | 87.44 | 0.67 | | ND | 438 | 61,603 | | | | 30,051 | 0.272 | 80.69 | 0.923 | | | |
| 12/21/1999 | 100 | 96.12 | 0.96 | | ND | 437 | 65,797 | 0.137 | 11.6 | 121.6 | 33,486 | 0.226 | 64.93 | 0.676 | | | |
| 10/24/2000 | 100 | 83.44 | 0.83 | 64.3 | 77.1 | 450 | 62,462 | 0.125 | 12.5 | 147.9 | 32,146 | 0.264 | 72.9 | 0.874 | | | |
| 9/24/2001 | 100 | 98.75 | 0.99 | | ND | 450 | 61,406 | 0.146 | 10.4 | 98.3 | 30,521 | 0.197 | 51.82 | 0.525 | | | |
| 10/15/2002 | 100 | 117.33 | 1.17 | 56.0 | 47.7 | 451 | 64,211 | 0.216 | 7.8 | 59.9 | 28,951 | 0.300 | 75.82 | 0.646 | | | |
| 10/14/2003 | 100 | 108.87 | 1.09 | 55.6 | 51.1 | 438 | 61,283 | 0.166 | 9.1 | 77.3 | 29,832 | 0.237 | 60.6 | 0.557 | | | |
| 10/5/2004 | 100 | 87.72 | 0.88 | 58 | 66.1 | 493 | 63,497 | 0.175 | 11.1 | 116.2 | 28,837 | 0.288 | 71.47 | 0.815 | | | |
| 10/4/2005 | 100 | 109.25 | 1.09 | 53 | 48.5 | 460 | 69,579 | 0.162 | 10.2 | 95.4 | 33,494 | 0.211 | 60.83 | 0.557 | | | |
| 6/16/2006 | 100 | 97.19 | 0.97 | 50 | 51.4 | 448 | 67,890 | 0.133 | 11.6 | 125.2 | 34,391 | 0.195 | 57.95 | 0.596 | | | |
| 8/28/2007 | 100 | 92.57 | 0.93 | 50 | 54.0 | 451 | 66,442 | 0.154 | 11.5 | 123.1 | 32,636 | 0.190 | 53.19 | 0.575 | | | |
| 9/11/2008 | 100 | 94.99 | 0.95 | 50 | 52.6 | 460 | 70,216 | 0.146 | 11.9 | 132.0 | 34,731 | 0.210 | 62.7 | 0.660 | | | |
| 8/28/2009 | 100 | 96.38 | 0.96 | 49.7 | 51.6 | 471 | 65,029 | 0.169 | 10.5 | 99.2 | 30,283 | 0.184 | 47.82 | 0.496 | | | |
| 8/26/2010 | 100 | 97.23 | 0.97 | 49.2 | 50.6 | 485 | 70,085 | 0.149 | 11.4 | 120.0 | 33,446 | 0.092 | 26.48 | 0.272 | | | |
| 8/23/2011 | 100 | 93.42 | 0.93 | 46.4 | 49.7 | 496 | 65,542 | 0.168 | 10.8 | 107.1 | 30,413 | 0.122 | 31.84 | 0.341 | | | |
| 10/8/2012 | 100 | 93.31 | 0.93 | 46.9 | 50.2 | 492 | 64,132 | 0.180 | 10.4 | 100.8 | 29,175 | 0.140 | 35.07 | 0.376 | | | |
| 9/27/2013 | 100 | 98.85 | 0.99 | 45.3 | 45.9 | 503 | 69,450 | 0.159 | 10.8 | 105.0 | 31,949 | 0.137 | 37.651 | 0.381 | | | |
| 9/18/2014 | 100 | 88.87 | 0.89 | 44.7 | 50.3 | 516 | 67,722 | 0.144 | 11.7 | 124.9 | 31,529 | 0.157 | 42.592 | 0.479 | | | |
| 8/25/2015 | 100 | 84.35 | 0.84 | 49.9 | 59.1 | 535 | 52,178 | 0.166 | 8.9 | 74.0 | 23,073 | 0.124 | 24.955 | 0.296 | 1.255 | 5.12E-04 | 7.79E-07 |
| 8/12/2016 | 100 | 89.65 | 0.9 | 46.7 | 52.1 | 528 | 50,651 | 0.187 | 7.7 | 57.7 | 21,949 | 0.129 | 24.37 | 0.272 | 0.657 | 6.23E-05 | 5.95E-07 |
| | | | | | 53.6 | | | | | | | | Averages: | 0.537 | 0.956 | 2.87E-04 | 6.87E-07 |
| | | | | | | | | | | | | | Last 3 Year Averages: | 0.349 | 0.956 | 2.87E-04 | 6.87E-07 |

***Volatile Organic Compound Emissions*** Calendar Year: 2018

| Emission Point Description and ID No. | | Operating Levels | Operating Level Units | Conversion Factor | Conversion Factor Units | Emission Factor | Emission Factor Units | Emissions, tons/yr |
|---|---|---|---|---|---|---|---|---|
| Wood-fired Steam Boiler | AA-001 | See the boiler emission spreadsheet attached | | | | | | 17.68 |
| Planer Cyclone | AA-007 | 4,286 | hr/yr | None | NA | No Data | lb/hr | No Data |
| Hog/Trimmer Cyclone | AA-008 | 4,286 | hr/yr | None | NA | No Data | lb/hr | No Data |
| Solid Fuel Silo Cyclone | AA-009 | 4,249 | hr/yr | None | NA | No Data | lb/hr | No Data |
| Steam Dry Kiln #2 | AA-011 | 58,207 | MBF | None | NA | 4.3 | lb/MBF | 125.15 |
| Batch DF Lumber Kiln | AA-013 | 43,826 | MBF | None | NA | 4.3 | lb/MBF | 94.23 |
| Continuous DF Kiln | AA-014 | 59,796 | MBF | None | NA | 3.76 | lb/MBF | 112.42 |
| CDF Silo Cyclone | AA-015 | 2,680 | hr/yr | None | NA | No Data | lb/hr | No Data |
| CDF Surge Bin Cyclone | AA-016 | 3,073 | hr/yr | None | NA | No Data | lb/hr | No Data |
| Air-line anti-freeze | | See the "Summary" spreadsheet attached | | | | | | 0.00 |
| Insignificant Activities | IA-000 | See the "Insignificant" spreadsheet attached | | | | | | 0.32 |
| **Total Calculated VOC Emissions as C as measured by RM 25A, tons/year:** | | | | | | | | 349.78 |

The emissions from the boiler are taken from the boiler emission spreadsheet attached, and are based on data from the most recent compliance test. The emissions from the lumber dry kilns are calculated using the actual annual production taken from corporate production records and the emission factors presented in the Title V permit application, as shown herein.

***Hazardous Air Pollutant (HAP) Emissions which are also VOC emissions***

| | | | |
|---|---|---|---|
| Wood-fired Steam Boiler | AA-001 | See the "Boiler" spreadsheet attached | 2.84 |
| Planer Cyclone | AA-007 | No Data | No Data |
| Hog/Trimmer Cyclone | AA-008 | No Data | No Data |
| Solid Fuel Silo Cyclone | AA-009 | No Data | No Data |
| Steam Dry Kiln #2 | AA-011 | See the table below | 6.58 |
| Batch DF Lumber Kiln | AA-013 | See the table below | 5.76 |
| Continuous DF Kiln | AA-014 | See the table below | 5.98 |
| CDF Silo Cyclone | AA-015 | No Data | No Data |
| CDF Surge Bin Cyclone | AA-016 | No Data | No Data |
| Air-line anti-freeze | | See the "Summary" spreadsheet attached | 0.00 |
| Insignificant Activities | IA-000 | See the "Insignificant" spreadsheet attached | 0.01 |
| **Total of the HAP-VOC emissions, tons/year:** | | | **21.17** |

Steam-Heated Lumber Kilns

| Pollutant | Emission Factor, lb/MBF | Kiln 2 HAPs, lbs/yr | Kiln 2 HAPs, tons/yr |
|---|---|---|---|
| Formaldehyde | 0.016 | 931 | 0.5 |
| Methanol | 0.210 | 12,224 | 6.1 |
| **Sum** | **0.226** | | |

Direct-Fired Lumber Kiln

| Pollutant | Emission Factor, lb/MBF | BDK HAPs, lbs/yr | BDK HAPs, tons/yr | Emission Factor, lb/MBF | CDK HAPs, lbs/yr | CDK HAPs, tons/yr | Total HAPs, tons/yr |
|---|---|---|---|---|---|---|---|
| Formaldehyde | 0.103 | 4,514 | 2.3 | 0.040 | 2,392 | 1.2 | 3.9 |
| Methanol | 0.160 | 7,012 | 3.5 | 0.160 | 9,567 | 4.8 | 14.4 |
| **Sum** | **0.263** | | | **0.200** | | | |
| **Sum of the HAP VOC emissions from the kilns, tons** | | | | | | | **18.3201** |

Hood Industries, Inc.
Waynesboro, Mississippi
Calculation of Actual PM Emissions

Calendar Year: 2018

| Emission Point Description and ID No. | | Operating Results | Operating Units | PM Emission Factor | Emission Factor Units | Estimated Particulate Matter Emissions, tpy |
|---|---|---|---|---|---|---|
| Wood-fired Steam Boiler | AA-001 | See wood combustion spreadsheets attached. | | | | 59.33 |
| Planer Cyclone | AA-007 | 4,286.0 | hours | 2 | lb/hr | 4.29 |
| Hog/Trimmer Cyclone | AA-008 | 4,286.0 | hours | 2 | lb/hr | 4.29 |
| Solid Fuel Silo Cyclone | AA-009 | 4,249.0 | hours | 2 | lb/hr | 4.25 |
| Steam Dry Kiln #2 | AA-011 | 58,207.2 | MBF | 0.066 | lb/MBF | 1.92 |
| Batch DF Lumber Kiln | AA-013 | 43,825.6 | MBF | 0.375 | lb/MBF | 8.22 |
| Continuous DF Kiln | AA-014 | 59,796.2 | MBF | 0.068 | lb/MBF | 2.03 |
| CDF Silo Cyclone | AA-015 | 2,680.0 | hours | 2 | lb/hr | 2.68 |
| CDF Surge Bin Cyclone | AA-016 | 3,073.0 | hours | 2 | lb/hr | 3.07 |
| Insignificant Activities (see sheet) | | | | | | 2.14 |
| | | Total Calculated PM Emissions, tons/yr: | | | | 92.22 |

| Emission Point Description and ID No. | | Operating Results | Operating Units | PM-CON Emission Factor | Emission Factor Units | Estimated Condensable Particulate Matter Emissions, tpy |
|---|---|---|---|---|---|---|
| Wood-fired Steam Boiler | AA-001 | See wood combustion spreadsheets attached. | | | | 0.00 |
| Planer Cyclone | AA-007 | 4,286.0 | hours | NA | lb/hr | ND |
| Hog/Trimmer Cyclone | AA-008 | 4,286.0 | hours | NA | lb/hr | ND |
| Solid Fuel Silo Cyclone | AA-009 | 4,249.0 | hours | NA | lb/hr | ND |
| Steam Dry Kiln #2 | AA-011 | 58,207.2 | MBF | 0.134 | lb/MBF | 3.90 |
| Batch DF Lumber Kiln | AA-013 | 43,825.6 | MBF | 0.381 | lb/MBF | 8.35 |
| Continuous DF Kiln | AA-014 | 59,796.2 | MBF | 0.069 | lb/MBF | 2.06 |
| CDF Silo Cyclone | AA-015 | 2,680.0 | hours | NA | lb/hr | ND |
| CDF Surge Bin Cyclone | AA-016 | 3,073.0 | hours | NA | lb/hr | ND |
| Insignificant Activities (see sheet) | | | | | | 0.00 |
| | | Total Calculated PM Emissions, tons/yr: | | | | 14.31 |

These emissions were calculated using emission factors and production and hour data as shown. Emissions from the boiler were calculated on the wood combustion spreadsheets attached.

Filterable PM, PM-10, PM-2.5 and PM-CON emissions from the lumber kilns are estimated using information presented in the Title V Operating Permit application.

Emissions from the wood residue handling system were calculated using the factors shown (FIRE) and the actual hours of operation.

Hood Industries, Inc.
Waynesboro, Mississippi
Calculation of Fugitive Emissions from the Sawmill Processes

Calendar Year: 2018

The emissions from this source are comprised of fugitive emissions from the following equipment:

| | | | |
|---|---|---|---|
| Log Saws | Boiler Fuel Hog | Band mill | Planer |
| Chippers (4) | Trim Hog | Gang saws(1) | Chip screens(3) |
| Edgers (2) | Twin band saws | Trimmers (2) | |

***Emission Factor Information:***

| Year | Sawmill Hours | Logs Used, tons | Lumber, MBF | Tons of logs used per MBF | Lumber Production Rate, MBF/hr | Log Consumption Rate, tons/hr |
|---|---|---|---|---|---|---|
| 2000 | 3,645 | 628,218 | 138,528 | 4.53 | 38.00 | 172.35 |
| 2001 | 4,090 | 545,447 | 134,966 | 4.04 | 33.00 | 133.36 |
| 2002 | 4,210 | 584,956 | 141,047 | 4.15 | 33.50 | 138.94 |
| 2003 | 4,340 | 638,431 | 143,214 | 4.46 | 33.00 | 147.10 |
| 2004 | 3,786 | 658,416 | 156,024 | 4.22 | 41.21 | 173.91 |
| 2005 | 3,349 | 604,933 | 153,575 | 3.94 | 45.86 | 180.63 |
| 2006 | 3,797 | 669,329 | 167,116 | 4.01 | 44.01 | 176.28 |
| 2007 | 4,160 | 602,963 | 146,321 | 4.12 | 35.17 | 144.94 |
| 2008 | 2,672 | 427,711 | 97,427 | 4.39 | 36.46 | 160.07 |
| 2009 | 1,941 | 353,655 | 84,312 | 4.19 | 43.44 | 182.20 |
| 2010 | 2,248 | 416,898 | 98,399 | 4.24 | 43.77 | 185.45 |
| 2011 | 2,441 | 461,974 | 109,954 | 4.20 | 45.04 | 189.26 |
| 2012 | 2,487 | 485,500 | 117,185 | 4.14 | 47.12 | 195.22 |
| 2013 | 2,319 | 460,402 | 114,715 | 4.01 | 49.47 | 198.53 |
| 2014 | 2,384 | 465,963 | 115,588 | 4.03 | 48.48 | 195.45 |
| 2015 | 2,765 | 509,008 | 127,597 | 3.99 | 46.15 | 184.09 |
| 2016 | 2,969 | 537,046 | 133,928 | 4.01 | 45.11 | 180.88 |
| 2017 | 4,182 | 692,180 | 168,415 | 4.11 | 40.27 | 165.51 |
| 2018 | 4,305 | 672,140 | 161,829 | 4.15 | 37.59 | 156.13 |
| | | | Average: | 4.15 | 41.40 | 171.60 |

■ For an emission factor, use the sum of the log debarking factor at FIRE 6.2 for SCC code 30700801 and 10% of the log sawing factor from the same source at code 30700802. The log sawing factor was reduced because the sawing operations are conducted inside buildings which serve to minimize any release to the ambient air. The sum of these factors is 0.055 lb of PM per ton of logs processed. The sum of the PM-10 factors is 0.031 lb of PM-10 per ton of log processed.

***Calculation of Actual Emissions For Reporting Year:***

**PM Emissions:**

| | | | | | | |
|---|---|---|---|---|---|---|
| Average hourly rate = | 156.13 | tons/hr x | 0.055 | lb PM/ton = | 8.59 | lbs PM/hr |
| Actual annual rate = | 8.59 | lbs PM/hr x | 4,305 | hours = | 18.48 | tons/year |

**PM-10 Emissions:**

| | | | | | | |
|---|---|---|---|---|---|---|
| Average hourly rate = | 156.13 | tons/hr x | 0.031 | lb PM/ton = | 4.84 | lbs PM/hr |
| Actual annual rate = | 4.84 | lbs PM/hr x | 4,305 | hours = | 10.42 | tons/year |

Hood Industries, Inc.
Waynesboro, Mississippi
Emissions from Insignificant Activities and Fugitives

| Insignificant Activities Listed in the Title V Permit Application | Amount Used | Units | Turnovers | Emissions Estimating Methods | VOC, pounds | VOC, tons | HAP (VOC), pounds | HAP (VOC), tons | PM, pounds | PM, tons |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Calendar Year: | 2018 |
| 2000 gal Gasoline tank | 2,107 | gals | 1.054 | Use TANKS | 614.6 | 0.31 | 23.14 | 0.01 | | |
| 10000 gal Diesel fuel tank | 126,219 | gals | 12.622 | Use TANKS | 9.28 | 0.00 | 0 | 0.00 | | |
| 1000 gal Hydraulic Oil tank 4 | 3,000 | gals | 3.000 | Use TANKS | 0.62 | 0.00 | 0 | 0.00 | | |
| 2000 gal Hyd Oil tank 2 | 12,500 | gals | 3.125 | Use TANKS; (as diesel fuel) | 1.39 | 0.00 | 0 | 0.00 | | |
| 2000 gal Lube Oil tank 3 | 12,500 | gals | 3.125 | Use TANKS; (as diesel fuel) | 1.39 | 0.00 | 0 | 0.00 | | |
| 4500 gal Used Oil tank 5 | 8,000 | gals | 0.889 | Use TANKS; (as diesel fuel) | 2.96 | 0.00 | 0 | 0.00 | | |
| Maintenance Room Vent Cyclone | 4,286 | hours | NA | Use default value of 1 lb/hr (PM) | | | | | 4286 | 2.14 |
| | | | | **Totals:** | 630.24 | 0.3151 | 23.14 | 0.0116 | 4286 | 2.143 |

Hood Industries, Inc.
Waynesboro, Mississippi
Emissions from Insignificant Activities and Fugitives

**Data for calendar year:** **2018**

| Insignificant Activities Listed in the Title V Permit Application | HAP VOCs | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Hexane Emissions, pounds | Benzene Emissions, pounds | IsoOctane Emissions, pounds | Toluene Emissions, pounds | Ethyl benzene Emissions, pounds | Xylene Emissions, pounds | Cyclo-Hexane Emissions, pounds | | |
| 2000 gal Gasoline tank | 4.28 | 4.82 | 5.83 | 5.56 | 0.38 | 1.61 | 0.66 | | |
| 10000 gal Diesel fuel tank | | | | | | | | | |
| 1000 gal Hydraulic Oil tank 4 | | | | | | | | | |
| 2000 gal Hyd Oil tank 2 | | | | | | | | | |
| 2000 gal Lube Oil tank 3 | | | | | | | | | |
| 4500 gal Used Oil tank 5 | | | | | | | | | |
| Maintenance Room Vent Cyclone | | | | | | | | | |
| Total Emissions, lbs: | 4.28 | 4.82 | 5.83 | 5.56 | 0.38 | 1.61 | 0.66 | 0 | 0 |
| Total Emissions, tons: | 0.0021 | 0.0024 | 0.0029 | 0.0028 | 0.0002 | 0.0008 | 0.0003 | 0.0000 | 0.0000 |

Hood Industries, Inc.
Waynesboro, Mississippi
Calculation of Emissions from RICE Engines

Calendar Year: 2018

**Emergency Generator**

Rated Horsepower = 135 Hours of Operation = 6.5

Emission Factors for Uncontrolled Gasoline and Diesel Industrial Engines (English Units), AP-42, 5th Edition, Table 3.3-1.

| Pollutant | Diesel Fuel Factors (lbs/hp-hr) | Rated Power (hp) | Emissions | |
|---|---|---|---|---|
| | | | Maximum (lbs/hr) | Annual (tons/yr) |
| Particulates | 0.0022 | 135 | 0.30 | 0.001 |
| SO2 | 0.0021 | 135 | 0.28 | 0.001 |
| NOx | 0.0310 | 135 | 4.19 | 0.013 |
| CO | 0.0067 | 135 | 0.90 | 0.003 |
| VOC | 0.0025 | 135 | 0.33 | 0.001 |

| HAP | Diesel Fuel Factors (lbs/MMBtu) | Fuel Feed MMBtu/hr | Emissions | |
|---|---|---|---|---|
| | | | Maximum (lbs/hr) | Annual (tons/yr) |
| Acetaldehyde | 7.67E-04 | 0.945 | 0.0007 | 0.0000 |
| Acrolein | 9.25E-05 | 0.945 | 0.0001 | 0.0000 |
| Benzene | 9.33E-04 | 0.945 | 0.0009 | 0.0000 |
| Formaldehyde | 1.18E-03 | 0.945 | 0.0011 | 0.0000 |
| Toluene | 4.09E-04 | 0.945 | 0.0004 | 0.0000 |
| Xylene | 2.85E-04 | 0.945 | 0.0003 | 0.0000 |

**Hood Industries**
**Waynesboro, Mississippi**
**Calculation of Emissions of Greenhouse Gases (GHGs)**

**Emission Factors and Global Warming Potentials (GWP) from 40 CFR 98 (Tables A-1, C-1 and C-2)**

| | | Emission Factors, kg/MMBtu | | Emission Factors, lb/MMBtu | |
|---|---|---|---|---|---|
| Pollutant | GWP | Wood Residual Fuels | Diesel Fuel | Wood Residual Fuels | Diesel Fuel |
| CO2 | 1 | 93.8 | 73.96 | 206.8290 | 163.082 |
| CH4 | 25 | 0.032 | 0.003 | 0.0706 | 0.007 |
| N2O | 298 | 0.0042 | 0.0006 | 0.0093 | 0.001 |

**Emissions from Wood-Fired Boiler and Direct-Fired Kiln**

| | | | | | | |
|---|---|---|---|---|---|---|
| Boiler 1 CY Heat Input: | | | | | 340,016 | MMBtu/yr |
| Kiln 4 CY Heat Input: | 35.0 | MMBtu/hr x | 6,249.0 | hrs = | 218,715 | MMBtu/yr |
| Kiln 5 CY Heat Input: | 40.0 | MMBtu/hr x | 5,982.0 | hrs = | 239,280 | MMBtu/yr |

| | Emissions by Pollutant | | | Total CO2e Emissions | | | |
|---|---|---|---|---|---|---|---|
| Pollutant | Boiler 1 tons | Kiln 4 tons | Kiln 5 tons | Boiler 1 tons | Kiln 4 tons | Kiln 5 tons | |
| CO2 | 35,163 | 22,618 | 24,745 | 35,163 | 22,618 | 24,745 | |
| CH4 | 11.996 | 7.716 | 8.442 | 300 | 193 | 211 | |
| N2O | 1.574 | 1.013 | 1.108 | 469 | 302 | 330 | |
| | | | | 35,932 | 23,113 | 25,286 | 84,331 |

**Emissions from Internal Combustion Engines**

| | Horsepower | Fuel Feed, MMBtu/hr | Hours/Year |
|---|---|---|---|
| Emergency Generator | 135 | 0.945 | 6.5 |

| | Emergency Generator | | |
|---|---|---|---|
| Pollutant | Annual Emissions, tons | CO2e EF, lb/MMBtu | Total CO2e tons |
| CO2 | 0.4970 | 163.082 | 0.4970 |
| CH4 | 0.0000 | 0.165 | 0.0005 |
| N2O | 0.0000 | 0.394 | 0.0012 |
| | | 163.6414 | 0.4987 |

**<u>Total Greenhouse Gas Emissions from the Facility</u>**

| | | Boiler/Kilns | | Other (non-biomass) | | | |
|---|---|---|---|---|---|---|---|
| Pollutant | GWP | Total tons | Total CO2e tons | Total tons | Total CO2e tons | Total tons | Total CO2e tons |
| CO2 | 1 | 82,526 | 82,526 | 0 | 0 | 82,526 | 82,526 |
| CH4 | 25 | 28.154 | 704 | 0.00 | 0.00 | 28.2 | 704 |
| N2O | 298 | 3.695 | 1,101 | 0.00 | 0.00 | 3.7 | 1,101 |
| | | | 84,331 | | 0 | 82,558 | 84,331 |

# Exhibit 4

# HOOD INDUSTRIES, INC.
# WAYNESBORO, MISSISSIPPI

## New Source Review


**Prepared By:**
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**May 23, 2025**

**Revised July 22, 2025**

## TABLE OF CONTENTS



## LIST OF APPENDICES

# 1.0 NEW SOURCE REVIEW

The facility is a major source of PM and VOC located in an area that is not considered Nonattainment, as shown by EPA's map of "Counties Designated "Nonattainment" for Clean Air Act's Ambient Air Quality Standards (NAAQS)" updated as of April 30, 2025 in EPA's Green Book. A copy of this map is included in Appendix C of this application. As a result, the requirements of EPA's Prevention of Significant Deterioration (PSD) regulations apply to this project.

As stated at 40 CFR 52.21(a)(2)(iv)(*a*), a project is a major modification for an NSR pollutant if it causes two types of emissions increases - a significant emissions increase and a significant net emissions increase. The determination of whether a major modification is triggered by this project is found in Exhibit 3 of the Permit to Construct Application. Step 1 of the PSD Applicability Determination is the determination of whether a Significant Emissions Increase will occur. For this step, one of three tests must be conducted, depending upon the type of units involved in the project, in accordance with §52.21(a)(2)(iv)(*c*) through (*f*).

For this project, only one existing air emissions unit, continuous dry kiln AA-014, is being retained. MDEQ has indicated that although the heating mechanism is being changed, it may still be considered as an existing unit. However, for ease of analysis, maximum potential emissions will be used for this kiln. All other emissions units will be "new". Therefore, the Actual-to-Potential test is required.

Since all units are being considered to be "new", there are no baseline emissions for existing sources. However, per the EPA Memo "Project Emissions Accounting Under the New Source Review Preconstruction Permitting Program," March 13, 2019, the baseline actual emissions of any other units associated with the project should be included in the Step 1 determination. The baseline actual emissions from all currently existing units are therefore considered and presented in the Past Actual tables at the top of the PSD Determination worksheet.

The results of the Step 1 determination are shown on page 1 of the PSD Applicability Determination in Exhibit 3. As shown there, a significant emissions increase was determined for VOC. Therefore, a Step 2 determination is required to be conducted to see if a significant net emissions increase will occur as a result of this project.

The Step 2 determination includes emissions increases and/or decreases which have occurred during the contemporaneous period (within 5 years of the project). There have been no cases where this applies. Therefore, the Step 1 analysis remains.

The PSD Applicability Determination in Exhibit 3 shows that both a significant emissions increase and a significant net emissions increase will occur for VOC. As a result, a BACT analysis is required. That analysis is presented in section 2.0 of this document. Additionally, a Source Impact Analysis is required. This analysis is found in section 3.0.

## 2.0 BEST AVAILABLE CONTROL TECHNOLOGY ANALYSIS

### 2.1 <u>Control Device Review for Continuous Lumber Dry Kilns</u>

A Top-down BACT analysis was performed for the VOC emissions from the continuous lumber dry kilns.

### 2.1.1 Process Description

The continuous kilns are steel-frame, insulated, metal clad buildings approximately 220 feet long by 33 feet wide and approximately 22 feet tall. There are two sets of railroad rails that run through each kiln. The kiln is open on each end. Heat for drying is provided by a natural-gas burner. Multiple fans are located inside the kiln, and these fans circulate air within the kiln.

Lumber is stacked in packages and placed on kiln carts. The kiln carts are fed into the kiln and proceed slowly through. Upon exit from the kiln, the packages are unloaded and stored or transported to the Planer Mill.

### 2.1.2 Emissions from the Dry Kiln

As developed in Exhibit 3, significant net emission increases of volatile organic compounds (VOC) will occur from the lumber kilns. These VOC emissions are believed to be primarily alpha and beta pinenes. There is data which indicates that six hazardous air pollutants may be emitted from the wood, with the majority being methanol and formaldehyde (EPA PCWP MACT guidance document, “Development of a Provisional Emissions Calculation Tool for Inclusion in the Final PCWP ICR,” September 22, 2017).

### 2.1.3 Identification of Control Technologies

Based on general process knowledge, technical literature, equipment vendor information, and the RACT/BACT/LAER Clearinghouse (RBLC) maintained by the U.S. EPA, six control options were identified. These options are:

- Incineration
- Adsorption
- Absorption
- Condensation
- Biological Treatment
- Proper Maintenance and Operation

Each option is discussed below:

- Incineration

This technology may be employed with several different approaches including direct incineration, regenerative thermal oxidation, or catalytic oxidation. These devices use the VOC laden air stream as a fuel source in addition to natural gas. High VOC content streams can see significant destruction efficiencies, as high as 99% depending on the exact characteristics of the incoming air stream and the oxidation technology used.

- Adsorption

Adsorption is another technology that could be used for the control of VOC air emissions. In the adsorption process, organics are collected on the surface of a porous solid such as activated carbon or synthetic resins. As a VOC laden air stream passes through the material, it is adsorbed into the activated carbon or synthetic resin. Over time the adsorbents must be replaced or regenerated when they become saturated with VOC. These systems may produce control efficiencies in the 90% range.

- Absorption

Absorption can be employed to capture VOC into a liquid substrate, most commonly water. This can be accomplished in what is typically referred to as a wet scrubber, and these devices can typically be found controlling emissions from boiler stacks, usually for PM.

- Condensation

Condensation is a simple vapor-liquid equilibrium process whereby the VOC vapors are cooled and converted into a liquid. This technology is difficult to employ on its own and may need a secondary control technology as well.

- Biological Treatment

Typically known as biofiltration, this technology uses micro-organisms to absorb and breakdown the incoming waste stream. This technology is more common in wastewater treatment.

- Proper Maintenance and Operation

This technology employs best operating practices, proper maintenance, and proper drying techniques based on the type of lumber and wood moisture content to effectively reduce VOC emissions. This method has been demonstrated successfully in many other PSD projects in the U.S. for dry kilns.

### 2.1.4 Identification of Technically Infeasible Options

Evaluation of the feasibility of the identified technologies narrows the scope of potential BACT applications considerably.

Beyond the technical aspects of the suitability of the different BACT applications, it must first be determined how to capture the fugitive VOC stream such that it may be routed to a control device. Due to the nature of lumber kilns, which are open on both ends, creating only dispersed fugitive emissions, there is no known successful attempt to capture these fugitive releases. Irrespective of this issue, an individual analysis of each technology's suitability is below.

- Incineration

Incineration as a VOC control technology is generally done with a regenerative thermal oxidizer, RTO, or in a regenerative catalytic oxidizer, RCO. To achieve a destruction and removal efficiency of greater than 90% in an RTO, a temperature of approximately 1,500°F with a residence time of at least one second is required. With the kiln exit temperature being only 140°F and containing significant moisture, routing this air to a 1500°F RTO would create significant issues inside the device. Additionally, due to the resinous nature of the VOCs released from lumber drying, it would foul the duct work and media in the device over time. Thus, due to the resinous characteristics, the high moisture content, and very low exit temperature of the kiln exhaust, an RTO is infeasible.

In an RCO, the required temperature is typically reduced to 500°F - 800°F. While an RCO may be more suitable for this application since it operates at a much lower temperature, it is still four times higher than a typical kiln exhaust temperature. As in an RTO, the resinous nature of the VOCs released from lumber drying could foul the duct work and media in the device. The catalysts are very susceptible to fowling due to particulates or other air stream contaminants causing frequent catalyst changeouts or an additional control device upstream of the RCO. Due to the resinous nature of the VOCs, the high moisture content and low exit temperature, an RCO is infeasible.

- Adsorption

Using a media such as activated carbon to adsorb the VOC into the activated carbon substrate may be accomplished at a temperature suitable with the kiln exhaust; however, the high moisture content and resinous nature of the VOCs reduces the capacity and efficiency of the carbon causing “blinding” of the carbon and in turn reduced efficiencies and frequent changeouts of the material.

- Absorption

Technology such as a wet scrubber is compatible with the kiln exhaust temperature; however, this technology requires an exhaust stream that is soluble in water and the VOC in the kiln exhaust is relatively insoluble in water. A different scrubbing absorbent could be considered, but these are typically classified as VOC which conflicts with the control purpose.

- Condensation

This technology can not achieve a typical EPA-required removal efficiency of 90% for pinenes, the dominant VOC in the exhaust stream, using standard condensers. A technical analysis shows that a condensing temperature of -35°F would be required, which makes this control technology infeasible, if not impossible due to the freezing of the water vapor in the system. In addition, the drying of 100 MMBF/yr of lumber removes approximately 68,500 gallons of water in vapor form from the wood per day per kiln. All of this water would be condensed in any type of condensing control device and would become process wastewater. The sawmill industry is not allowed a discharge of process wastewater into navigable water by the National Pollutant Discharge Elimination System (NPDES) regulations found at 40 CFR Part 429, Subpart K, Sawmills and Planing Mills Subcategory. The Best Available Control Technology Economically Achievable (BACT) and the New Source Performance Standards both read: “There shall be no discharge of process wastewater pollutants into navigable waters.” If a discharge was allowed, the cost of the treatment system to treat the 275,000 gallons of wastewater could be equal to or greater than the cost of the kilns themselves. That would make this alternative, if it was regulatorily feasible, economically infeasible. Condensation technology is technically infeasible due to the inability to adequately control the VOC present using this technology, the regulatory prohibition on the direct discharge of process wastewater, and the estimated prohibitive cost in designing and building a water treatment system, and the ongoing extensive monitoring and energy costs of maintaining the system.

- <u>Biological Treatment</u>

These systems typically operate at 105°F or less causing incompatibility with the higher temperature VOC stream which would harm the micro-organisms. Additionally, the resinous VOC stream would have a tendency to fowl the biofilter. The cooling of the VOC stream would also create more process wastewater problems similar to the condensation approach.

Irrespective of the infeasibility of capturing the fugitive emissions or the infeasibility of current technologies, a further analysis of control technologies employed at other sites utilizing dry kilns, was performed using the U.S. EPA's RACT/BACT/LAER Clearinghouse (RBLC), and it yielded no facilities that have employed any form of add-on control device on any form of dry kiln. In these cases, the permittee and permitting authority agreed that no add-on controls were feasible and any technology listed was shown as some form of "proper operation and maintenance" or "best operating practices".

### 2.1.5 Selection of BACT

Hood has identified six potential control technologies for the control of VOC emissions from lumber kilns. Hood believes that five of those technologies are technically infeasible, and proposes that the remaining technology, "proper operation and maintenance", be utilized as BACT for this project.

Hood will implement this BACT for VOC by developing an operation and maintenance (O&M) plan for the new kilns. The O&M Plan shall address all preventative maintenance, parametric monitoring, work practices, and manufacturer recommendations for the proper operation of the kilns. The plan shall specify the proper operating ranges and conditions, frequency of monitoring, and maintenance schedules.

Additionally, the O&M Plan shall include, but not be limited to, visual inspections, proper wet bulb operation, entrance/exit baffle inspection, greasing of kiln cartwheels and fan shafts, hydraulic oil levels, moisture content equipment calibration, and temperature probe calibration.

Numerically, Hood proposes that BACT for the kilns be set as shown below:

| Pollutant | BACT Determination | BACT Emission Limit Per Kiln | Equivalent Emissions Per Kiln |
|---|---|---|---|
| VOC as WPP1 | Proper Kiln Operation and Maintenance Practices | 4.43 lb/MBF | 221.5 TPY (at max. capacity of 100 MMBF/yr) |

Emissions will be quantified using emission factors and kiln production records.

## 3.0 SOURCE IMPACT ANALYSIS

### 3.1 Existing Air Quality

The area immediately surrounding the Waynesboro sawmill is industrial in nature, with the outer lying areas being primary rural and in attainment for all regulated pollutants. Being that VOC is the only pollutant which has significant emissions increase, ozone is the pollutant that must be considered.

## 3.2 Air Quality Monitoring Requirements

The ambient air quality analysis must consider or generate air quality monitoring data to determine if emissions of the pollutant will cause or contribute to a violation of a standard. The source may be exempt from preconstruction monitoring requirements if the air quality impacts are less than de minimis monitoring concentrations.

There are no de minimis air quality levels provided for ozone. However, any net emissions increase of VOC or NOx of 100 tons or more require an ambient air impact analysis. The proposed VOC increase of 529.76 tons is greater than 100, therefore this analysis is required.

Hood proposes to use the existing air quality monitors in Meridian, MS, to determine the background air quality. The MDEQ Air Quality Data Summary for 2024 indicates that the design ozone values for monitoring from central to south Mississippi range from 54 to 58 ppb, well below the ozone standard of 70 ppb. Although the area surrounding the Waynesboro sawmill is industrial, it is much less industrialized than the area covered by the Meridian monitor. As a result, the Meridian monitor is a conservative representation of ozone levels in the area of the project.

## 3.3 Analysis of Additional Impacts

A PSD review must consider the additional impacts of the project on growth, soil and vegetation impacts, and visibility impairment.

### 3.3.1 Impact of Growth

As this mill modernization project will occur on an existing site, there will be limited to no impact on the residential, commercial, or government infrastructure as a result of this project.

### 3.3.2 Impact on Soils and Vegetation

The property is located within the Waynesboro Industrial Park. Other areas around the facility include some undeveloped land. Aside from the placement of a new log truck entrance road through the adjacent property purchased by Hood for this project, there is no expected significant impact on soils or vegetation.

### 3.3.3 Impact on Visibility

There is no Class I area within 100 km of this site. The Breton National Wildlife Refuge is located approximately 204 km from the site. MDEQ has indicated that Federal Land Managers have requested notification for projects within 300 km. However, applying post-project maximum potential emissions from the Criteria Totals tab of the calculations workbook in Exhibit 2 to the Annual Emissions/Distance (Q/D) screening tool found in the Federal Land Managers' Air Quality Related Values Work Group (FLAG) Phase I Report - Revised (2010), yields the following result:

$Q = 0.46\ (SO_2) + 55.31\ (NO_X) + 49.19\ (PM10) + 0\ (H_2SO_4) = 104.96$

$Q/D = 104.96/204 = 0.515$

FLAG 2010 indicates that a Q/D value less than or equal to 10 is an indication that a project will have no adverse impact and therefore that no further analysis should be required for either ozone or visibility.

This project should not create significant impacts at off-site locations, to include Class II areas or visibility-sensitive areas/receptors such as airports, state forests and/or parks, scenic vistas, areas of special historic interest, and other sensitive areas.

This project is not expected to adversely affect visibility in the area.

### 3.3.4 Ozone Ambient Impact Analysis

This project has a significant net emissions increase of VOC of greater than 100 tons. As a result, an ambient air impact analysis for Ozone is required.

Because VOC increases are above 40 tons, the project falls under Case 2 of Table III-1 of the EPA’s July 2022 Guidance for Ozone and Fine Particulate Matter Permit Modeling. As such, Hood has conducted a Tier 1 Approach demonstration, following final guidance in EPA’s April 2019 Memo “Guidance on the Development of Modeled Emission Rates for Precursors (MERPs) as a Tier 1 Demonstration Tool for Ozone and PM2.5 under the PSD Permitting Program.” In that memo, EPA modeled hypothetical sources in various states to determine source level maximum predicted downwind impacts on 8-hr ozone.

The EPA's MERPs View Qlik application available on the EPA SCRAM website was used to derive the most conservative MERP for ozone for comparison in this analysis. Being that the Waynesboro facility is located in the South Climate Zone, all hypothetical source data from that Zone was downloaded and evaluated to select the most conservative MERPs for both VOC and NOx. The lowest values are 2307 and 190, respectively.

Using the lowest MERP identified above, which Hood believes is a worst-case representation of the project's source characteristics and the local chemical and physical environment, a Preliminary Impact Determination was conducted using the following equation:

$$\frac{NO_X \text{ Increase (tpy)}}{NO_X \text{ MERP (tpy)}} + \frac{\text{VOC Increase (tpy)}}{\text{VOC MERP (tpy)}} < 1$$

For this project, the equation calculates as:

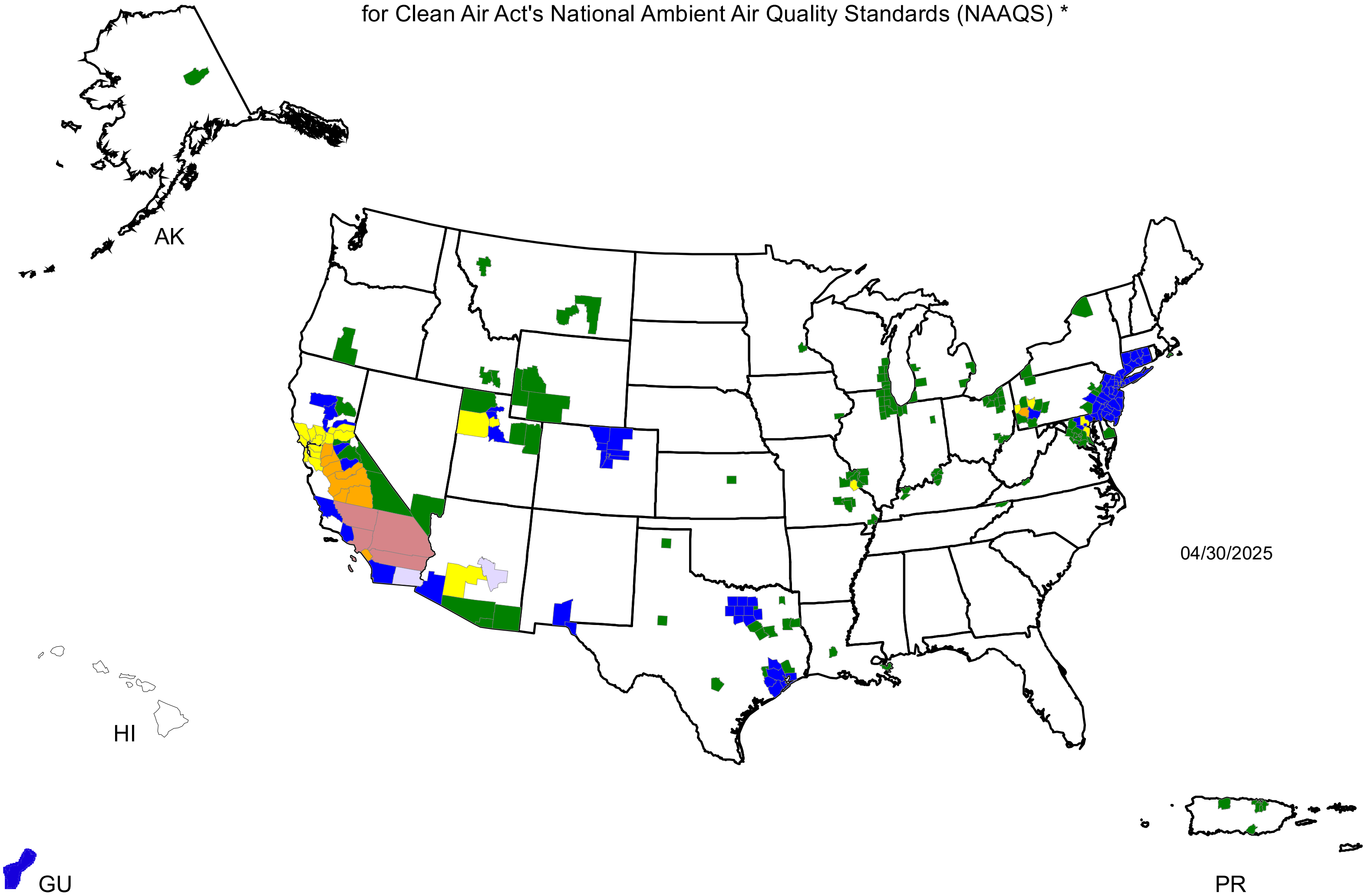
$$\frac{12.61}{190} + \frac{529.76}{2307} = 0.30 < 1$$

As a value less than 1 indicates that the SIL for ozone will not be exceeded when considering the combined impacts of the precursors on 8-hour daily maximum ozone, a cumulative analysis is not required, and this project does not result in unacceptable impacts to ozone.

# Appendix A

# Counties Designated "Nonattainment"

for Clean Air Act's National Ambient Air Quality Standards (NAAQS) *




Legend **

- County Designated Nonattainment for 6 NAAQS Pollutants
- County Designated Nonattainment for 5 NAAQS Pollutants
- County Designated Nonattainment for 4 NAAQS Pollutants
- County Designated Nonattainment for 3 NAAQS Pollutants
- County Designated Nonattainment for 2 NAAQS Pollutants
- County Designated Nonattainment for 1 NAAQS Pollutant

* The National Ambient Air Quality Standards (NAAQS) are health standards for Carbon Monoxide, Lead (1978 and 2008), Nitrogen Dioxide, 8-hour Ozone (2008), Particulate Matter (PM-10 and PM-2.5 (1997, 2006 and 2012), and Sulfur Dioxide.(1971 and 2010)

** Included in the counts are counties designated for NAAQS and revised NAAQS pollutants. Revoked 1-hour (1979) and 8-hour Ozone (1997) are excluded. Partial counties, those with part of the county designated nonattainment and part attainment, are shown as full counties on the map.

**Table 4-1.** Lowest, median, and highest illustrative MERP values (tons per year) by precursor, pollutant and climate zone.

Note: illustrative MERP values are derived based on EPA modeling and EPA recommended SILs from EPA's final SILs guidance (U.S. Environmental Protection Agency, 2018).

| | 8-hr $O_3$ from $NO_X$ | | | 8-hr $O_3$ from VOC | | |
|---|---|---|---|---|---|---|
| Climate Zone | Lowest | Median | Highest | Lowest | Median | Highest |
| Northeast | 209 | 495 | 5,773 | 2,068 | 3,887 | 15,616 |
| Southeast | 170 | 272 | 659 | 1,936 | 7,896 | 42,964 |
| Ohio Valley | 126 | 340 | 1,346 | 1,159 | 3,802 | 13,595 |
| Upper Midwest | 125 | 362 | 4,775 | 1,560 | 2,153 | 30,857 |
| Rockies/Plains | 184 | 400 | 3,860 | 1,067 | 2,425 | 12,788 |
| South | 190 | 417 | 1,075 | 2,307 | 4,759 | 30,381 |
| Southwest | 204 | 422 | 1,179 | 1,097 | 10,030 | 144,744 |
| West | 218 | 429 | 936 | 1,094 | 1,681 | 17,086 |
| Northwest | 199 | 373 | 4,031 | 1,049 | 2,399 | 15,929 |

| | Daily PM2.5 from $NO_X$ | | | Daily PM2.5 from $SO_2$ | | |
|---|---|---|---|---|---|---|
| Climate Zone | Lowest | Median | Highest | Lowest | Median | Highest |
| Northeast | 2,218 | 15,080 | 34,307 | 623 | 3,955 | 8,994 |
| Southeast | 1,943 | 8,233 | 23,043 | 367 | 2,475 | 5,685 |
| Ohio Valley | 2,570 | 10,119 | 32,257 | 348 | 3,070 | 16,463 |
| Upper Midwest | 2,963 | 10,043 | 29,547 | 454 | 2,482 | 6,096 |
| Rockies/Plains | 1,740 | 9,389 | 31,263 | 251 | 2,587 | 19,208 |
| South | 1,881 | 8,079 | 24,521 | 274 | 1,511 | 10,112 |
| Southwest | 6,514 | 26,322 | 101,456 | 1,508 | 8,730 | 27,219 |
| West | 1,073 | 8,570 | 34,279 | 188 | 2,236 | 24,596 |
| Northwest | 3,003 | 11,943 | 20,716 | 1,203 | 3,319 | 8,418 |

| | Annual PM2.5 from $NO_X$ | | | Annual PM2.5 from $SO_2$ | | |
|---|---|---|---|---|---|---|
| Climate Zone | Lowest | Median | Highest | Lowest | Median | Highest |
| Northeast | 10,142 | 47,396 | 137,596 | 4,014 | 21,353 | 41,231 |
| Southeast | 5,679 | 45,076 | 137,516 | 859 | 14,447 | 25,433 |
| Ohio Valley | 7,625 | 31,931 | 150,868 | 3,098 | 23,420 | 58,355 |
| Upper Midwest | 10,011 | 33,497 | 139,184 | 2,522 | 17,997 | 45,113 |
| Rockies/Plains | 9,220 | 39,819 | 203,546 | 2,263 | 16,939 | 106,147 |
| South | 7,453 | 41,577 | 110,478 | 1,781 | 11,890 | 58,612 |
| Southwest | 11,960 | 128,564 | 779,117 | 10,884 | 38,937 | 105,417 |
| West | 3,182 | 29,779 | 103,000 | 2,331 | 11,977 | 66,773 |
| Northwest | 7,942 | 21,928 | 71,569 | 11,276 | 15,507 | 18,263 |