

**OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY
 OREGON TITLE V OPERATING PERMIT
 REVIEW REPORT
 For
 ROSEBURG FOREST PRODUCTS, EWP**

Western Region
 750 Front Street N.E., Suite 120
 Salem, OR 97310
 Telephone: (503) 378-8240

Unassigned emissions	
Emission credits	
Source test	
COMS	
CEMS	
CAM	
Ambient monitoring	
Compliance schedule	

Special conditions	
Annual report	X
Semi-annual report	X
Quarterly report	
Monthly report	
Excess emissions report	X
NSPS	X

NESHAP	X
NSR	
PSD	
RACT	
Size	TV
Major HAP source	X
Federal major source	

TABLE OF CONTENTS:

INTRODUCTION	2
FACILITY DESCRIPTION	2
PLANT SITE EMISSION LIMIT (PSEL)	7
SIGNIFICANT EMISSION RATE	8
HAZARDOUS AIR POLLUTANTS	8
MONITORING REQUIREMENTS	9
TEST METHODS AND PROCEDURES	9
RECORDKEEPING REQUIREMENTS	9
REPORTING REQUIREMENTS	9
GENERAL BACKGROUND INFORMATION	9
COMPLIANCE HISTORY	9
ADDITIONAL REQUIREMENTS	10
PUBLIC NOTICE	10
ATTACHMENTS AND EMISSIONS DETAIL SHEETS	10

INTRODUCTION

1. This Review Report is for the issuance of a new Oregon Title V Operating Permit for the Roseburg Forest Products EWP Facility. The company previously held a Standard Air Contaminant Discharge Permit for the facility but desires to increase production and associated emissions of HAPs above the major source thresholds.
2. In accordance with OAR 340-218-0140, this review report is intended to provide the legal and factual basis for the proposed permit conditions. In most cases, the legal basis for a permit condition is included in the permit by citing the applicable regulation. In addition, the factual basis for the requirement may be the same as the legal basis. However, when the regulation is not specific and only provides general requirements, this review report is used to provide a more thorough explanation of the factual basis for the draft permit conditions.

FACILITY DESCRIPTION

3. The permittee operates an Engineered Wood Products [more commonly referred to as Laminated Veneer Lumber (LVL)] Facility and Veneer Dryers at this site. The facility was originally constructed in 2000 and will be expanded in 2007.

The Roseburg EWP Facility produces two products: EWP and composite wood I-beams. The sections below provide detailed descriptions of the manufacturing processes for these two products, along with a description of the wood waste collection systems that will support these manufacturing processes.

PROCESS AND CONTROL DEVICES

4. Process operations and air contaminant sources at the facility consist of the following:

- 4.a. Laminated Veneer Lumber Process Description

LVL is an engineered wood product manufactured from layers of wood veneer bound together with a heat-activated resin. The facility utilizes Douglas fir, white fir, and pine veneer and a phenol-formaldehyde (PF) resin to produce LVL. Both components (veneer and PF resin) are similar to the materials used to manufacture plywood. A portion of the LVL production is used to produce composite wood flanges that are joined with plywood or OSB webbing to form I-beams with the remainder of the LVL sold as LVL lumber.

The facility produces billets of LVL that are sawn to smaller widths depending on the desired product or face bonded together to form thicker billets. The maximum length of LVL billets produced at the plant is approximately 66 feet. The billets are used to manufacture LVL lumber or used for I-beam flange stock.

- 4.a.i. Raw Material Storage

Veneer and PF resin are the raw materials needed to manufacture LVL billets. A sealer is also applied to the portion of LVL manufactured into lumber products. The necessary veneer is supplied by Roseburg's existing plywood plants or purchased from other veneer producers. Purchased veneer is temporarily stored at a location near the veneer dryers. The LVL sealer is stored in totes and the PF resin is stored in three 11,000 gallon aboveground storage tanks (Tank 1, Tank 2, and Tank 3).

Emissions associated with raw materials handling and storage include a small amount of VOC and HAP emissions from the storage tanks.

- 4.a.ii. Thermal Oil Heaters

Two natural gas-fired thermal oil heaters (Heater 1 and Heater 2) are used to heat a common thermal oil header that, in turn, provides process heat to the veneer dryers and the LVL presses. Each heater has a heat input capacity of 42 million Btu per hour (MMBtu/hr). Emissions from the heaters includes CO, NO_x, PM, PM₁₀, SO₂, VOC, Pb, and HAPs.

4.a.iii. Veneer Drying

Two Coe veneer dryers (Dryer 1 and Dryer 2) are used to dry green veneer prior to its entering the manufacturing process. The veneer dryers are of a single-zone, 6-deck, longitudinal configuration with a total maximum drying capacity of 90,100 ft²/hr of Douglas Fir. The heat requirement for each dryer is supplied by thermal oil heated by Heaters 1 and 2.

Veneer dryer operation will result in emissions of PM, PM₁₀, VOC, and HAPs. Each dryer has a single stack routed to and controlled by a shared Regenerative Catalytic Oxidizer (RCO) operated with natural gas. Additional emissions of NO_x, CO, SO₂, and Pb occur from the natural gas combustion.

4.a.iv. LVL Layup Lines

The layup lines are used to sequence pieces of the proper grades of veneer into the assembly process, apply resin to the veneer, and assemble, or lay up, the glued veneer into a mat prior to pressing.

At the beginning of the layup line, a veneer feeder assembly places pieces of veneer in the layup sequence according to the type of LVL being produced. After pieces of veneer are sequenced onto the layup conveyor, they pass through a curtain coater that applies resin to the top surface of the veneer as it passes underneath the coater. Resin is applied to each piece of veneer, except for the top-most layer of veneer in the LVL billet. After glue is applied to the veneer, the LVL mat is assembled layer by layer.

It is expected that small amounts of fugitive VOC and HAP emissions are associated with the layup process. However, the quantity of these emissions is unknown. It has been assumed that these emissions are accounted for in the pressing operations.

4.a.v. Hot Pressing Operations

From the layup lines, the mat of LVL is sent for hot pressing in either Press 1 or Press 2. Press 1 is a 4-foot, eight opening press while Press 2 is a five opening press.

The heat and pressure applied during pressing cures the resin, which binds the layers of veneer. Pressure is applied to the press hydraulically. The heat requirement for the presses is supplied by thermal oil from Heaters 1 and 2.

Emissions from the LVL presses consist of PM, PM₁₀, VOC and HAP emissions resulting from heating of the wood and curing of the PF resin.

4.a.vi. Cold Pressing Operations

A cold press downstream of the hot presses is used to face bond LVL billets together to form thicker beams.

It is anticipated that there will be small amounts of fugitive VOC and HAP emissions associated with the bonding process. These emissions are accounted for in the Miscellaneous Facility VOC estimates.

4.a.vii. LVL Lumber Line

After pressing, the LVL billet is sawn to the desired width and is either sent to the LVL lumber manufacturing process or is manufactured into flanges for I-beams. For LVL lumber products, such as headers and beams, the LVL may be sawn to any width to produce a product with the desired dimensions. The wood waste generated during sawing operations is collected pneumatically into a wood waste collection system. After the LVL lumber is sawn to the desired size, it is sent through a sealer booth where a protective and cosmetic sealer is applied. The LVL lumber products are then packaged for shipment to customers.

Emissions from LVL finishing include PM and PM₁₀ from the wood waste collection system baghouses and fugitive VOC and HAP emissions from application and curing of LVL sealer. The sealer emissions are accounted for under Miscellaneous Facility VOC estimates.

4.b. I-beam Process Description

The manufacturing process for LVL flange stock is identical to that for LVL lumber, other than the finished dimensions and the application of sealer. The major steps for I-beam manufacturing are described below.

4.b.i. Raw Material Storage

The raw materials required to produce I-beams include LVL billets, solid sawn lumber, plywood or oriented strand board (OSB), and phenol-resorcinol-formaldehyde (PRF) resin and/or melamine-formaldehyde (MF) resin. LVL billets are produced on-site as described above. Solid sawn lumber, plywood, OSB and PRF and MF resin are imported to the facility and placed in storage prior to use. The PRF and MF resins are stored in totes.

Emissions from raw material storage consist of small amounts of VOC and HAP emissions from the PRF resin which are accounted for under Miscellaneous Facility VOC estimates.

4.b.ii. Flange Preparation

I-beam manufacturing begins with preparation of flange stock. Flange stock is made from LVL, which is sawn lengthwise to widths ranging from 1.5 to 3.5 inches, depending on the type of I-beam being produced. Alternatively, solid sawn lumber flanges are processed through a finger-joint line, with the solid sawn lumber being end joined together into flanges from 34-66 feet long. The finger-joints are glued together with MF glue and cured through a radio frequency (RF) curing tunnel. The strips of flange stock are staged on a flange feeder deck and fed two at a time into the beam assembly line. Each piece of flange stock has a groove cut lengthwise down the center of the flange. This groove matches the projecting edge of the web material when assembled into a beam. PRF or MF resin is then injected into this groove by a glue applicator. The wood waste generated during grooving operations is collected pneumatically into a wood waste collection system.

Emissions from flange preparation include PM and PM₁₀ from the wood waste collection system baghouses and fugitive VOC and HAP emissions from application of PRF and MF resin and the curing of the finger-joints through the RF curing tunnel (all accounted for under Miscellaneous Facility VOC estimates).

4.b.iii. Web Preparation

Web material for the I-beams is manufactured from plywood or OSB that is imported to the facility. Webbing panels are sawn into 8-foot long strips and to widths as necessary for the I-beam being produced. The long edges of each strip are shaped to fit into the groove on the inside face of the flanges. The short edges of the pieces of web material are shaped such that pieces of web material can be joined by gluing to produce a continuous web section as it is assembled into an I-beam. The glue used to join the web panels is the same PRF resin used to secure the flange to the web. The wood waste generated during web preparation is collected pneumatically into a wood waste collection system.

Emissions from web preparation include PM and PM₁₀ from the wood waste collection system baghouses and fugitive VOC and HAP emissions from application of PRF resin (accounted for under Miscellaneous Facility VOC estimates).

4.b.iv. Beam Assembly

The layed-up I-beams are conveyed through a machine that compresses the flange and web material into an I-beam. The assembled, continuous I-beam exiting this process is cut by a flying saw into individual I-beams of the proper length.

Emissions from I-beam assembly operations include PM and PM₁₀ from the wood waste collection system baghouses.

4.b.v. Beam Curing and Packaging

Assembled I-beams are conveyed to a conditioning or curing oven and heated, which causes the resin to properly cure. Two natural gas heaters (Burner 1 and Burner 2), rated at 2.25 MMBtu/hr each, fire directly into the oven to supply the necessary heat. Following curing, the I-beams are gathered together and packaged prior to shipment to customers.

Emissions from I-beam curing consist of fugitive PM and PM₁₀, VOC, NO_x, CO, SO₂, Pb, and HAP emissions from the natural gas combustion and fugitive VOC and HAP emissions from curing of PRF resin (accounted for under Miscellaneous Facility VOC estimates). There are no emissions from packaging operations.

4.c. Wood Waste Collection System

There are a number of wood detailing and sawing operations associated with the facility manufacturing processes that generate wood waste materials. Examples of these operations include the existing I-joint flying saw, the LVL billet rip saw, I-beam flange grooving, web material sawing and edge shaping, and bundle sawing operations and new operations including a finger joint line, two rip saws, and an additional woodwaste hog (and a motor upgrade on the existing hog). The wood wastes generated by these processes are all captured and pneumatically conveyed to three baghouses (BH-1, BH-2, or BH-3). The material collected in these three baghouses is dropped into a second pneumatic system and conveyed to a cyclone at a collection bin. The exhaust from the collection bin cyclone is controlled by either of two baghouses (BH-1 or BH-2). The wood waste in the collection bin is transferred to trucks prior to transporting off-site for re-use or for sale.

Emissions from the wood waste collection systems include PM and PM₁₀ from the baghouses.

4.d. Raw Material and Final Product Shipping

Veneer, PRF resin, PF resin, LVL sealer, plywood and OSB are transported to the facility by truck. OSB can also be delivered to the facility by rail. Finished LVL lumber and I-beams can either be transported off-site via truck or by rail. All truck access is via paved roadways.

Emissions from shipping include fugitive PM and PM₁₀ emissions from paved road traffic.

4.e. Miscellaneous Facility VOCs

A number of resins, sealers, ink, and other products used in the manufacturing processes at the facility will emit minor quantities of VOCs and HAPs from their application to the wood products. The emissions from the use of these materials is accounted for in this emissions unit.

4.f. Roads

This emissions unit consists of vehicular traffic on paved roads and parking lots at the facility.

4.g. Facility-1

This emissions unit is defined for the purpose of the annual PSEL and consists of emissions units Dryers 1 & 2; Heaters 1 & 2, Presses 1 & 2, Burners 1 & 2, Facility VOC, Roads, and aggregate insignificant activities.

5. Categorically insignificant activities: The permittee has the following categorically insignificant activities on site:

- Constituents of a chemical mixture present at less than 1% by weight of any chemical or compound regulated under Divisions 20 through 32 of this chapter, or less than 0.1% by weight of any carcinogen listed in the U.S. Department of Health and Human Service's Annual Report on Carcinogens when usage of the chemical mixture is less than 100,000 pounds/year
- Evaporative and tail pipe emissions from on-site motor vehicle operation
- Natural gas and propane burning equipment rated at less than 2.0 million Btu/hr
- Office activities
- Janitorial activities
- Personal care activities
- Groundskeeping activities including, but not limited to building painting and road and parking lot maintenance
- Instrument calibration
- Maintenance and repair shop
- Automotive repair shops or storage garages
- Air cooling or ventilating equipment not designed to remove air contaminants generated by or released from associated equipment
- Refrigeration systems with less than 50 pounds of charge of ozone depleting substances regulated under Title VI, including pressure tanks used in refrigeration systems but excluding any combustion equipment associated with such systems
- Bench scale laboratory equipment and laboratory equipment used exclusively for chemical and physical analysis, including associated vacuum producing devices but excluding research and development facilities
- Temporary construction activities
- Warehouse activities
- Accidental fires
- Air vents from air compressors
- Electrical charging stations
- Fire brigade training
- Process raw water filtration systems
- Fire suppression
- Routine maintenance, repair, and replacement such as anticipated activities most often associated with and performed during regularly scheduled equipment outages to maintain a plant and its equipment in good operating condition, including but not limited to steam cleaning, abrasive use, and woodworking
- Electric motors
- Storage tanks, reservoirs, transfer and lubricating equipment used for ASTM grade distillate or residual fuels, lubricants, and hydraulic fluids
- On-site storage tanks not subject to any New Source Performance Standards (NSPS), including underground storage tanks (UST), storing gasoline or diesel used exclusively for fueling of the facility's fleet of vehicles
- Natural gas, propane, and liquefied petroleum gas (LPG) storage tanks and transfer equipment
- Pressurized tanks containing gaseous compounds
- Vacuum sheet stacker vents
- Storm water settling basins
- Fire suppression and training
- Health, safety, and emergency response activities
- Oil/water separators in effluent treatment systems
- Combustion source flame safety purging on startup

6. The emissions from the following activities are included in the aggregate insignificant emissions:

- 6.a. VOC from Resin Storage Tanks 1-3 and Burners 1 & 2
- 6.b. PM/PM₁₀ Burners 1 & 2 and Baghouses 1-3

Pollutant	Emission Source	AI Emissions (tons/yr)
VOC	Resin Storage Tanks 1-3	0.008
	Burners 1 & 2	0.07
PM/PM ₁₀	Burners 1 & 2	0.03
	Baghouses 1-3	0.02

PLANT SITE EMISSION LIMIT (PSEL)

BASELINE EMISSION RATE

- 7. The baseline emission rate for this source is zero since it did not operate in the baseline year 1978.

PROPOSED PLANT SITE EMISSION LIMIT

- 8. The proposed operating schedule is shown below:

24 hrs/day x 7 days/wk x 52 wks/yr = 8,760 hrs/yr

- 9. The proposed plant production is shown below (a more detailed breakdown can be found in the detail sheets):

- 9.a. Veneer dried (DF, pine, cedar) (3/8") 210,000,000 sq ft/yr
- 9.b. Veneer redried (3/8") 31,500,000 sq ft/yr
- 9.c. Press 1 LVL produced 7,380,000 cu ft/yr
- 9.d. Press 2 LVL produced 4,620,000 cu ft/yr
- 9.e. Natural gas usage in Heaters 1 & 2 500,000,000 cu ft/yr
- 9.f. Natural gas usage in Burners 1 & 2 27,000,000 cu ft/yr
- 9.g. Natural gas usage in RCO 42,000,000 cu ft/yr


- 10. The proposed annual Plant Site Emission Limit calculations are shown in the attached detail sheets and are summarized below.

Pollutant	Baseline Emission Rate (tons/yr)	Netting Basis		Plant Site Emission Limits (PSEL)		
		Previous (tons/yr)	Proposed (tons/yr)	Previous PSEL (tons/yr)	Proposed PSEL (tons/yr)	PSEL Increase (tons/yr)
PM	-0-	-0-	-0-	24	24	-0-
PM ₁₀	-0-	-0-	-0-	14	14	-0-
SO ₂	-0-	-0-	-0-	NA	NA	-0-
NO _x	-0-	-0-	-0-	39	39	-0-
CO	-0-	-0-	-0-	99	99	-0-
VOC	-0-	-0-	-0-	39	39	-0-

- a. baseline emission rates equal zero for all pollutants since this facility did not exist in the 1977-78 baseline period.
- b. netting basis is equal to the baseline emission rate for all pollutants since the facility has not had any Prevention of Significant Deterioration approvals under OAR 340-224-0070.
- c. The proposed PSELs for all pollutants except SO₂ have been set at the Department’s Generic PSEL levels in accordance with OAR 340-222-0041(1) since the projected emission levels are less than the Generic PSEL level but

- greater than the de minimis level.
- d. No PSELs are being established for SO₂ or Pb because the potential to emit of these pollutants is less than the Department's de minimis level.
 - e. The PSELs for all pollutants reflects the installation of additional process equipment and increased production rates at the facility as well as use of the Generic PSEL level for all pollutants. In addition, the VOC emission factors for wood product operations reflects the Department's VOC guidance where total VOCs are calculated as propane along with the addition of methanol and formaldehyde emissions when known.
 - f. The PSEL is a federally enforceable limit on the potential to emit.

SIGNIFICANT EMISSION RATE ANALYSIS

11.  proposed Plant Site Emission Limits are less than the Netting Basis plus the Significant Emission Rate for all pollutants. Thus, no further air quality analysis is required.

Pollutant	SER	Requested increase over netting basis	Increase due to utilizing capacity that existed in the baseline period	Increase due to physical changes or changes in the method of operation	Increase due to changes in rules (OAR 340-222-0041(1))
PM	25	24	-0-	20	4
PM ₁₀	15	14	-0-	14	-0-
SO ₂	40	NA	-0-	0.4	---
NO _x	40	39	-0-	11	28
CO	100	99	-0-	12	87
VOC	40	39	-0-	38	1

HAZARDOUS AIR POLLUTANTS

12. The facility is a major source of Hazardous Air Pollutants and is subject to two MACT standards:
- 12.a. 40 CFR Part 63 Subpart DDDD National Emission Standards for Hazardous Air Pollutant from Plywood and Composite Wood Products Manufacturing are applicable to some emission units of the facility. The facility must be in compliance with the limits and standards of this MACT by no later than October 1, 2008 or may risk out by that date.
 - 12.b. 40 CFR Part 63 Subpart DDDDD National Emission Standards for Hazardous Air Pollutants from Industrial, Commercial, and Institutional Boilers and Process Heaters are applicable to EUs Heaters 1 & 2. The facility must be in compliance with the limits and standards of this MACT by no later than September 13, 2007 or may risk out by that date.

Estimated HAP emissions from the facility are as follows prior to implementation of the Plywood and Boiler MACTs.

Hazardous Air Pollutant	Emissions (tons/year)
Formaldehyde	3.10
Acetaldehyde	2.90
Phenol	0.32
Toluene	0.39
Methanol	13.10
Others	0.57
TOTAL	20.4

HAP emissions following implementation of the Plywood and Boiler MACTs cannot be estimated at this time due to uncertainty as to how the facility will be required to comply with the Plywood MACT.

MONITORING REQUIREMENTS

13. Section 70.6(a)(3)(i) requires that all monitoring and analysis procedures or test methods required under applicable requirements be contained in Title V permits. In addition, where the applicable requirement does not require periodic testing or monitoring, periodic monitoring must be prescribed that is sufficient to yield reliable data from the relevant time period that is representative of the source's compliance with the permit.

The requirement to include in a permit testing, monitoring, recordkeeping, reporting, and compliance certification sufficient to assure compliance does not require the permit to impose the same level of rigor with respect to all emissions units and applicable requirement situations. It does not require extensive testing or monitoring to assure compliance with the applicable requirements for emissions units that do not have significant potential to violate emission limitations or other requirements under normal operating conditions. Where compliance with the underlying applicable requirement for an insignificant emission unit is not threatened by a lack of a regular program of monitoring and where periodic testing or monitoring is not otherwise required by the applicable requirement, then in this instance, the status quo (i.e., no monitoring) will meet section 70.6(a)(3)(i).

14. Emission factor verification testing is not being required. As stated in the permit, the emission factors are not enforceable limits unless otherwise specified (e.g., grain loading).

TEST METHODS AND PROCEDURES

15. Although no source testing is being required, the permit contains conditions describing the source test methods to be used if testing is done.

RECORDKEEPING REQUIREMENTS

16. The permit includes requirements for maintaining records of all testing, monitoring, and production information necessary for assuring compliance with the standards and calculating plant site emissions. The permittee is required to retain all records of monitoring for a 5 year period. These records shall be made available to DEQ inspectors upon request.

REPORTING REQUIREMENTS

17. The permittee is required to submit reports to the Department semi-annually and annually. The semi-annual reports are for certifying compliance with the terms and conditions of the permit. The report will include a list of all permit deviations, the probable cause, and the corrective action as a result of the deviation. In addition, the annual report will include production information.
18. The source is subject to immediate (within one hour) reporting of excess emissions.

GENERAL BACKGROUND INFORMATION

19. Other permits issued or required by the Department of Environmental Quality for this source include a General NPDES Permit 1200Z for discharges of stormwater and an on-site sewage treatment plant permit.
20. This source is located in an area that is in attainment for all pollutants.
21. The source is located within 100 kilometers of two Class I air quality protection areas, Crater Lake National Park and the Kalmiopsis Wilderness.

COMPLIANCE HISTORY

22. Inspections were performed on 9/13/01, 9/11/02, and 9/22/04 and found the facility to be in compliance with the ACDP permit conditions.

23. No complaints have been recorded for the facility and no enforcement actions have been taken against the facility .

ADDITIONAL REQUIREMENTS

24. This source is not currently subject to federal regulations for New Source Review.
25. This source is not currently subject to federal regulations for Prevention of Significant Deterioration (PSD).
26. This source is currently subject to the two federal regulations for National Emissions Standards for Hazardous Air Pollutants (NESHAPS) shown in Item 12.
27. 40 CFR Part 60, Subpart Dc is applicable to Heaters 1 and 2 because the heat input capacity of the units is greater than 10 MM Btu/hr. The company obtained a fuel recordkeeping waiver from Region 10 EPA on 10/7/02 to allow for monthly (rather than daily) recording of natural gas usage in the heaters.

PUBLIC NOTICE

28. Because this is an issuance of a new Title V permit, which is a Category III permitting action, the permit was placed on a 35-day public notice period from January 16, 2007, to February 21, 2007. Two comments were received. The Douglas County Planning Department indicated it had no objections to the permit. The company submitted comments requesting minor changes in permit language 2 conditions. The Department agrees with the requests and has modified the permit. The Department also noted two minor language errors in the permit during the notice period and has corrected those. A proposed permit with the minor changes will then be sent to EPA for review. The Department has requested EPA to do an expedited 5 day review since there were no substantive or adverse comments during the comment period. EPA had no objection to the issuance of this permit. The public will have 105 days (45 day EPA review period plus 60 days) from the date the proposed permit is sent to EPA to appeal the permit with EPA.

ATTACHMENTS

EMISSION DETAIL SHEETS
Projected Emissions

Roseburg Forest Products
 EWP
 Projected Emissions

PM

Emissions Unit	Annual Production Rate	Emission Factor		Emissions (tons/year)
		Rate	Reference	
Heaters 1 & 2	500 MM ft ³ NG	6.0 lb/MM ft ³	Vendor Estimate	1.5
Burners 1 & 2	27 MM ft ³ NG	2.5 lb/MM ft ³	DEQ Factor	Negl.
Veneer Dryers 1 & 2 with RCO Control	210,000 Msf DF/Pine	0.011 lb/Msf	10/04 ST	1.2
	-0- Msf Other Species	0.0065 lb/Msf	Company Est.	-0-
	31,500 Msf redry	0.001 lb/Msf	Eng. Estimate	Negl.
Press 1	7380 Mcf LVL	2.12 lb/Mcf	7/03 ST	7.8
Press 2	4620 Mcf LVL	2.12 lb/Mcf	Press 1 ST	4.9
Paved Roads	59,976 VMT	0.152 lb/VMT	AP-42 13.2.1	4.6
Baghouses 1-3	38,000 BDT	0.001 lb/ BDT	DEQ Factor	Negl.
TOTAL				20.0

PM₁₀

Emissions Unit	Annual Production Rate	Emission Factor		Emissions (tons/year)
		Rate	Reference	
Heaters 1 & 2	500 MM ft ³ NG	100% of PM	Vendor Estimate	1.5
Burners 1 & 2	27 MM ft ³ NG	100% of PM	DEQ Factor	Negl.
Veneer Dryers 1 & 2 with RCO Control	210,000 Msf DF/Pine	100% of PM	DEQ Factor	1.2
	-0- Msf Other Species	100% of PM	DEQ Factor	-0-
	31,500 Msf redry	100% of PM	DEQ Factor	Negl.
Press 1	7380 Mcf LVL	85% of PM	DEQ Factor	6.6
Press 2	4620 Mcf LVL	85% of PM	DEQ Factor	4.2
Paved Roads	59,976 VMT	0.030 lb/VMT	AP-42 13.2.1	0.9
Baghouses 1-3	38,000 BDT	100% of PM	DEQ Factor	Negl.
TOTAL				14.4

CO

Emissions Unit	Annual Production Rate	Emission Factor		Emissions (tons/year)
		Rate	Reference	
Heaters 1 & 2	500 MM ft ³ NG	36.7 lb/MM ft ³	Vendor Estimate	9.2
Burners 1 & 2	27 MM ft ³ NG	84 lb/MM ft ³	DEQ Factor	1.1
Veneer Dryers RCO	42 MM ft ³ NG	84 lb/MM ft ³	DEQ Factor	1.8
TOTAL				12.1

NO_x

Emissions Unit	Annual Production Rate	Emission Factor		Emissions (tons/year)
		Rate	Reference	
Heaters 1 & 2	500 MM ft ³ NG	30.2 lb/MM ft ³	Vendor Estimate	7.6
Burners 1 & 2	27 MM ft ³ NG	100 lb/MM ft ³	DEQ Factor	1.4
Veneer Dryers RCO	42 MM ft ³ NG	100 lb/MM ft ³	DEQ Factor	2.1
TOTAL				11.1

SO₂

Emissions Unit	Annual Production Rate	Emission Factor		Emissions (tons/year)
		Rate	Reference	
Heaters 1 & 2	500 MM ft ³ NG	1.7 lb/MM ft ³	DEQ Factor	0.4
Burners 1 & 2	27 MM ft ³ NG	1.7 lb/MM ft ³	DEQ Factor	Negl.
Veneer Dryers RCO	42 MM ft ³ NG	1.7 lb/MM ft ³	DEQ Factor	Negl.
TOTAL				0.4

Pb

Emissions Unit	Annual Production Rate	Emission Factor		Emissions (tons/year)
		Rate	Reference	
Heaters 1 & 2	500 MM ft ³ NG	0.0005 lb/MM ft ³	AP-42 Table 1.4-2	0.0001
Burners 1 & 2	27 MM ft ³ NG	0.0005 lb/MM ft ³	AP-42 Table 1.4-2	0.000007
Veneer Dryers RCO	42 MM ft ³ NG	0.0005 lb/MM ft ³	AP-42 Table 1.4-2	0.00001
TOTAL				0.000117

VOC

Emissions Unit	Annual Production Rate	Emission Factor		Emissions (tons/year)
		Rate	Reference	
Heaters 1 & 2	500 MM ft ³ NG	5.5 lb/ MM ft ³	DEQ Factor	1.4
Burners 1 & 2	27 MM ft ³ NG	5.5 lb/MM ft ³	DEQ Factor	0.1
Veneer Dryers 1 & 2 with RCO Control	210,000 Msf DF/Pine	0.0485 lb/Msf*	2002/2004 STs	5.1
	-0- Msf Other Species	0.034 lb/Msf*	Company Est.	-0-
	31,500 Msf redry	0.0036 lb/Msf*	Eng. Estimate	0.1
Press 1	7380 Mcf LVL	3.80 lb/Mcf*	7/03 ST	14.0
Press 2	4620 Mcf LVL	3.80 lb/Mcf*	Press 1 ST	8.8
Misc. Facility VOC		Material balance	Company Estimate	8.3
PF Storage Tanks 1-3	2,865,000 gallons PF resin	---	Tanks AP-42 7.1	Negl.
			TOTAL	37.8

*Total VOCs as propane plus methanol and formaldehyde

HAPs

Emissions Unit	Annual Production Rate	Pollutant	Emissions (tons/year)
Heaters 1 & 2	500 MM ft ³ NG	Formaldehyde	0.019
		Total HAPs	0.47
Burners 1 & 2	27 MM ft ³ NG	Formaldehyde	0.001
		Total HAPs	0.025
Veneer Dryers 1 & 2 with RCO Control	210,000 Msf DF/Pine -0- Msf Other Species 31,500 Msf redry	Methanol	0.18
		Formaldehyde	2.422
		Acetaldehyde	2.90
		Total HAPs	5.53
Presses 1 & 2	12,000 Mcf LVL	Methanol	12.7
		Formaldehyde	0.5
		Total HAPs	13.2
Facility VOC		Methanol	0.281
		Formaldehyde	0.163
		Phenol	0.322
		Toluene	0.385
		MDI	0.002
		Total HAPs	1.153
PF Storage Tanks 1-3	2,865,000 gallons PF resin	Methanol	0.001
		Formaldehyde	0.001
		Phenol	0.001
		Total HAPs	0.003
		GRAND TOTAL	20.4