

**LANE REGIONAL AIR POLLUTION AUTHORITY (LRAPA)  
 TITLE V OPERATING PERMIT REVIEW REPORT**

**Trus Joist MacMillan  
 195 North Bertelsen Road  
 Eugene, Oregon 97402**

PSEL CRED	SOURCE TEST	COMS	CEMS	AMB MON	COMPL SCHED	SPEC COND	REPORT				EXCESS		NSPS	NSR	PSD	NESHAPS	SIZE	
							A	S	Q	M	R	N						
	X																	X

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## LIST OF ABBREVIATIONS USED IN THIS REVIEW REPORT

AMB	Ambient
AQMA	Air quality management area
ASTM	American Society of Testing and Materials
BDT	Bone dry ton
CEMS	Continuous emissions monitoring system
CFR	Code of Federal Regulations
CMS	Continuous monitoring system
CO	Carbon monoxide
COMPL	Compliance
COMS	Continuous opacity monitoring system
COND	Condition
CRED	Credit
DEQ	Oregon Department of Environmental Quality
dscf	dry standard cubic feet
EF	Emission factor
EPA	United State Environmental Protection Agency
EU	Emissions unit
FCAA	Federal Clean Air Act
gr/dscf	grains per dry standard cubic feet
HAP	Hazardous air pollutant
ID	Identification code
I&M	Inspection and maintenance
MB	Material balance
Mlb	1000 pounds
MON	Monitoring
NA	Not applicable
NESHAP	National emission standard for hazardous air pollutants
NO <sub>x</sub>	Oxides of nitrogen
NSPS	New source performance standard
NSR	New source review
O <sub>2</sub>	Oxygen
OAR	Oregon Administrative Rules
ORS	Oregon Revised Statutes
O&M	Operation and maintenance
Pb	Lead
PCD	Pollution Control Device
PM	Particulate matter
PM <sub>10</sub>	Particulate matter less than 10 microns in size
PSD	Prevention of significant deterioration
PSEL	Plant Site Emission Limit
SCHED	Schedule
SPEC	Special
SO <sub>2</sub>	Sulfur dioxide
ST	Source test
VE	Visible emissions
VMT	Vehicle mile traveled
VOC	Volatile organic compound

## INTRODUCTION

This permit action is a Title V Significant Modification authorizing the following changes to the facility:

1. Addition of Regenerative Thermal Oxidizer (RTO) to control emissions from the veneer dryers. Operation of the RTO will reduce the emissions of carbon monoxide (CO), organic particulate matter (PM), and volatile organic compounds (VOCs) from the facility. However, the RTO control device requires combustion of fuel (natural gas) to maintain the high temperatures necessary to destroy these pollutants. Hence, the project will require an increase in the Plant Site Emission Limits (PSEL) for oxides of nitrogen. The facility will operate the RTO only when green veneer is being dried, but not when veneer is being redried. Emissions from redried veneer are expected to be significantly lower than from green veneer. The RTO manufacturer has guaranteed certain emission reductions and these guarantees form the basis for the proposed lower emission factors for PM, CO, and VOCs.
2. Concurrently with the start of operation of the RTO, the facility will increase the total veneer throughput to the dryers from 5,218,750 cubic feet per year to 6,600,000 cubic feet per year. This production increase can be accomplished while still obtaining a net reduction in the plant's emissions of CO, PM, and VOCs. The Title V permit requires that the RTO be source tested to verify the reduced emission factors from the new equipment.
3. The facility will increase the short-term (monthly) PSEL for PM to allow for short-term variability in truck traffic at the site. The facility short-term PSEL for unpaved roads will now be calculated using a similar procedure as was done for certain other emission units at the facility (i.e., divide the yearly PSEL by 12 and then multiply by a factor of 1.25 to account for short-term variability in emissions).
4. Replacement of the Laminated Veneer Lumber (LVL) presses. The new presses will be similar to the existing presses except that the new presses will have hydraulic openings that will alleviate stress and fatigue for the presses. Also, the new presses will use natural gas to heat the hot oil instead of being electrically heated, so the project will require an increase in the PSEL for all pollutants.
5. This permit action also serves as a permit renewal, authorizing the extension of the permit to five (5) years

from the date of issuance of the modified permit.  
Therefore, the permit in its entirety is being placed on public notice. The original Title V permit application is on file and available upon request.

In accordance with OAR 340-028-2200(1)(f), this review report is intended to provide the legal and factual basis for the draft 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.

**PERMITTEE IDENTIFICATION**

1. Trus Joist MacMillan owns and operates a laminated veneer lumber manufacturing facility located at 195 North Bertelsen Road in Eugene, Oregon.

**FACILITY DESCRIPTION**

2. The Eugene plant receives both green and dry veneer from outside suppliers. The green veneer is dried in a gas-fired veneer dryer, stored in a conditioning room, and then sent onto the LVL presses. In the LVL presses, the prepared veneer is subjected to glue, heat, and pressure creating a LVL billet. Some of the LVL billets are transferred to the I-joist department where they are made into flanges for I-joists. Following this I-joist fabrication process, the I-joists are heat cured in an oven. Once cured, they are cut to length and shipped to market. The remaining LVL billets not destined for I-joist flanges are transferred to a secondary manufacturing department in the plant where they are ripped into a variety of widths and lengths for shipment to market as well. Wood residuals are generated throughout the manufacturing process and collected by way of a series of cyclones and baghouses. Pollutants emitted from the process include NO<sub>x</sub>, CO, VOC, SO<sub>2</sub>, and PM/PM<sub>10</sub> from veneer drying, VOCs (primarily methanol, formaldehyde, and phenol) from glue curing in the LVL presses and I-joist oven, and PM/PM<sub>10</sub> from wood residual handling. Emissions from the veneer dryers are proposed to be vented to a regenerative thermal oxidizer (RTO) when green veneer is dried and directly to atmosphere when previously dried veneer is redried.

**OPERATING SCENARIO**

3. The facility has a single operating scenario.

**EMISSIONS UNIT AND POLLUTION CONTROL DEVICE IDENTIFICATION**

4. The emissions units at this facility are the following:

Emissions Unit	EU ID	Pollution Control Device/Practice	PCD ID
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Emissions Unit	EU ID	Pollution Control Device/Practice	PCD ID
Wood Residual Handling System Baghouses 1, 2, & 3	WRH	None	NA
Veneer Drying Process Veneer Dryer 1 Veneer Dryer 2, Veneer Dryer 3	Dryers	Regenerative Thermal Oxidizer	RTO-1
Laminated Veneer Lumber (LVL) Presses Presses 1 through 9	Presses	None	NA
I-Line Process, VOC only	I-Line	None	NA
I-Line Oven	I-Oven	None	NA
Truck Loading Fugitives	TL Fugitives	None	NA
Aggregate Insignificant Activities Block Panel Cutting (PM/PM <sub>10</sub> ) Carpentry Shop (PM /PM <sub>10</sub> ) Unpaved Roads (PM /PM <sub>10</sub> ) Product Sealant (VO C) Ink (VOC)	AI	None	NA

5. Wood Residual Handling System (WRH): There are three (3) baghouses, BH1, BH2, and BH3. BH1 is connected to the cyclone which handles sawdust residue from TJI joist line, web saw, broacher, profiler, TJI reclaim saw, blocking saw, and bundle cut saw. BH1 was manufactured by Western Pneumatics with 9:1 design air to cloth ratio, 630 bags, and was installed in 1990. BH2 is connected to the cyclone which handles sawdust residue from the LVL presses. BH2 was manufactured by Carothers with 10:1 design air to cloth ratio, 460 bags, and was installed in 1979. BH3 is connected to cyclone 3, which picks up residue from the reclaim saw, the blocking saw, and the bundle cut saw. BH3 was manufactured by Carter Day with 10:1 design air to cloth ratio, 36 bags, and was installed in 1989.
6. Veneer Dryers 1, 2, and 3 (Veneer Dryers): There are 3 veneer dryers. Veneer dryer 1 is a longitudinal natural gas-fired dryer with 5 decks and 3 zones (2 heating, 1

cooling), which was installed in 1972. Veneer dryer 2 is a longitudinal natural gas-fired dryer with 6 decks and 3 zones (2 heating, 1 cooling), which was installed in 1972. Veneer dryer 3 is a longitudinal natural gas-fired dryer with 5 decks and 3 zones (2 heating, 1 cooling), which was installed in 1980. This permitting action authorizes the operation of an RTO control device to control the emissions from the dryers.

7. Presses 1-9 (Presses): This permitting action authorizes the replacement of the 9 existing presses at the facility and the operation of the new presses. Following are details of the existing presses: Press 1 was installed in 1972. Presses 2 and 3 were installed in 1973. Press 4 was installed in 1975. Presses 5 and 6 were installed in 1980. Presses 7 and 8 were installed in 1981. Press 9 was installed in 1984.
8. I-Line: Adhesive is applied to web and flange material to manufacture structural I-joists. The process was installed in 1972 with the maximum rated design capacity of 262,300 lb of adhesive used per month and 18,300,000 linear feet of I-joist produced per month.
9. I-Line Oven (Oven): Natural gas burners heat the I-Line oven chamber to cure the adhesive. The oven burners were manufactured by Maxon and the oven was installed in 1973. The oven has 2 burners with a rated design capacity of 3.5 MM Btu/hr.
10. Truck Loading fugitives (TL fugitives): This emissions unit accounts for the fugitives resulting from loading the truck trailers.
11. Aggregate Insignificant (EU-AI): Aggregate Insignificant include emissions described below:

- Blocking Panel Cutting (PM/PM<sub>10</sub>)
- Carpentry Shop (PM/PM<sub>10</sub>)
- Unpaved roads (PM/PM<sub>10</sub>)
- Fire Suppression Abort System (PM/PM<sub>10</sub>)
- Ink (VOC)
- Product Sealant (VOC)

#### **CATEGORICALLY INSIGNIFICANT ACTIVITIES**

12. Categorically insignificant activities include the following:

- 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 per year
- Evaporative and tail pipe emissions from on-site motor vehicle operation
- Distillate oil, kerosene, and gasoline fuel-burning equipment rated at less than or equal to 0.4 million Btu/hr
- Natural gas and propane-burning equipment rated at less than or equal to 2.0 million Btu/hr
- Office activities
- Food service 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 or 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
- Air purification systems
- Electrical charging stations
- Fire brigade training
- Instrument air dryers and distribution
- Blueprint making
- 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
- Paved roads and paved parking lots within an growth boundary
- Hazardous air pollutant emissions of fugitive dust from paved and unpaved roads, except for those sources that have processes or activities that contribute to the deposition and entrainment of hazardous air pollutants from surface soils
- Health, safety, and emergency response activities
- Emergency generators and pumps used only during loss of primary equipment or utility service
- Oil/water separators in effluent treatment systems
- Combustion source flame safety urging on startup

**AGGREGATE INSIGNIFICANT ACTIVITIES**

13. Aggregate insignificant activities include the following:

Emissions Source	Pollutants (lbs/yr)		
	PM	PM <sub>10</sub>	VOC
Blocking Panel Cutting	50	50	NA
Carpentry Shop	50	50	NA
Ink	NA	NA	1000
Product Sealant	NA	NA	50
Unpaved Driveway	380	140	NA

Emissions Source	Pollutants (lbs/yr)		
	PM	PM <sub>10</sub>	VOC
Fire Suppression Abort System	365	183	NA
<b>Totals</b>	<b>845</b>	<b>423</b>	<b>1050</b>

**EMISSION LIMITS AND STANDARDS, TESTING, MONITORING AND RECORDKEEPING**

14. To assure that the RTO control device is operated at its fullest efficiency in accordance with LRAPA 33-060-3.A(5) and LRAPA 32-007(2), new monitoring, recordkeeping, and reporting requirements have been added to the permit. The permittee is required to source test the unit to determine compliance with NO<sub>x</sub>, PM, and VOC emission factors and limitations. The control device is required to be operated whenever green veneer is being dried. The permittee is required to maintain a continuous temperature monitoring device for the RTO to assure proper combustion and destruction of pollutants in the unit. Corrective action is required if the combustion temperature falls below the value recorded during the source test.

To assure that the RTO operates whenever green veneer is dried, the permittee is required to have an interlock system which only allows the RTO to be bypassed when the dryer temperature is below 300° F. Temperatures below that level are indicative of redry mode, the emissions from which are not required to be routed to the RTO. The permittee is required to record any instances of manual override of the interlock system.

The permittee is required to record the amount of green veneer, redry veneer, and total veneer throughput to the dryers.

No new applicable requirements are triggered by the addition of the RTO control device.

15. The replacement presses trigger no new applicable requirements. However, since the press heaters result in an increase in the PSEL, new monitoring requirements have been added. The permittee is required to monitor the amount of gas burned in the press heaters. The permittee is also

required to monitor opacity from the presses.

**PLANT SITE EMISSION LIMIT (PSEL) INFORMATION**

16. The plant can be operated as much as 24 hours per day, seven (7) days per week, and 52 weeks per year.
17. The production rates used as a basis for determining the PSELS are as follows:

Production or Process Parameter	Period	Rate	Units
Microllam LVL production	Annual	7,722,000	cu ft
	Max hourly	2,088	cu ft

18. The annual PSEL (tons per year) is shown below:

Emissions Unit ID	PM	PM <sub>10</sub>	CO	NO <sub>x</sub>	SO <sub>2</sub>	VOC
Veneer Drying	34.5	34.5	0.8	24.5	Negl.	7.5
Presses	0.6	0.6	2.0	4.9	NA	47.5
WRH	22.6	22.6	NA	NA	NA	NA
I-Oven	0.4	0.4	1.2	2.9	Negl.	0.3
I-Line Process	NA	NA	NA	NA	NA	6.3
Truck Loading Fugitives	2.4	2.4	NA	NA	NA	NA
Aggregate Insignificant	1.0	1.0	NA	NA	NA	1.0
<b>Total</b>	<b>61.4</b>	<b>61.4</b>	<b>4.0</b>	<b>32.3</b>	<b>Negl.</b>	<b>62.6</b>

Negl. = less than 0.5 tons per year

19. The short-term daily PSEL (pounds per day) for emissions units veneer dryers and WRH are shown below:

Emissions Unit ID	PM	PM <sub>10</sub>	CO	NO <sub>x</sub>	SO <sub>2</sub>	VOC
Veneer Dryers	632	632	24.3	145.9	0.8	267.5
WRH	293	293	NA	NA	NA	NA
<b>Total</b>	<b>925</b>	<b>925</b>	<b>24.3</b>	<b>145.9</b>	<b>0.8</b>	<b>267.5</b>

20. The short-term daily PSEL (pounds per month) for emissions units truck loading fugitives, presses, I-line process, and oven are shown below:

Emissions Unit ID	PM	PM <sub>10</sub>	CO	NO <sub>x</sub>	SO <sub>2</sub>	VOC
I-Oven	73	73	243	607	4.0	67
Truck Loading Fugitives	492	492	NA	NA	NA	NA
Presses	123	123	408	1021	6	9885
I-Line Process	NA	NA	NA	NA	NA	1,312
<b>Total</b>	<b>688</b>	<b>688</b>	<b>651</b>	<b>1628</b>	<b>10</b>	<b>11,264</b>

#### SIGNIFICANT EMISSION RATE

21. The PSEL increase over the baseline emissions is less than the Significant Emission Rate (SER) for PM, PM<sub>10</sub>, CO, NO<sub>x</sub>, VOC, and SO<sub>2</sub> as shown below. No further air quality analysis is required for these pollutants.

Pollutant	Baseline Emissions (tons/yr)	Previous PSEL (tons/yr)	Proposed PSEL (tons/yr)	Change in PSEL (tons/yr)	Increase from baseline (tons/yr)	SER (tons/yr)
Particulate, PM	62.3	69.8	61.4	-8.3	-0.9	25
Particulate, PM <sub>10</sub>	54.9	69.8	61.4	-8.3	+6.5	15
CO	1.3	2.9	4.0	+1.1	+2.7	100

NO <sub>x</sub>	5.7	12.9	32.3	+19.4	+26.6	40
VOC	52.6	72.9	62.6	-10.3	+10.0	40
SO <sub>x</sub>	Negl.	0.1	Negl.	0	0	40

Negl. = less than 0.5 tons per year

**NEW SOURCE REVIEW REQUIREMENTS**

22. The proposed modification does not trigger New Source Review (NSR) Requirements for PM<sub>10</sub> nor Prevention of Significant Deterioration (PSD) Requirements for the remaining criteria pollutants.

**HAZARDOUS AIR POLLUTANTS**

23. The facility is a major source of Hazardous Air Pollutants (HAPs) because the potential emissions of methanol are greater than 10 tons per year and the total combined HAP emissions are greater than 25 tons per year. In addition, the LVL presses emission unit would in itself be a major source of HAPs. Emissions of HAPs will not change from that emitted prior to this permit modification. The facility has the potential to emit the following HAPs (tons per year):

Pollutant	LVL Presses	I-Line Process	Veneer Dryers	Total
Methanol	51.7	0.7	.2	52.6
Formaldehyde	4.9	1.0	NA	5.9
Phenol	0.1	1.5	NA	1.6
<b>Total HAPs</b>	<b>56.7</b>	<b>3.2</b>	<b>0.2</b>	<b>60.1</b>

The replacement LVL presses would, in and of themselves, be a major source of HAPs, since the emissions of methanol would be greater than 10 tons per year. Therefore, since wood products production is an industry category which EPA has identified as a major emitter of HAPs but has not yet promulgated a MACT standard for the category, the Clean Air Act section 112(g) requirements promulgated at 40 CFR 63, Subpart B, could apply to the new presses. However, LRAPA has determined that the presses themselves do not constitute the "construction of a new source" as defined in the rule. The project could be subject to the rule, however, under the "reconstruction of a process or production unit" provisions of the rule, if the costs of replacing the presses is more than 50% of the fixed capital costs of constructing an entirely new process or production unit. LRAPA has determined that the presses themselves do not constitute a process or production unit because they cannot independently produce a product or intermediate product on their own. LRAPA and Trus Joist have agreed that the intermediate product of concern is Laminated Veneer Lumber (LVL) and,

therefore, the process or production unit would consist of all portions of the facility that are necessary components of the production of LVL product. Hence, in order to be subject to the rule, the cost of the new presses would need to exceed 50% of the cost of building an entirely new LVL production line.

Based upon a letter dated February 24, 1999, and documentation provided by Trus Joist, LRAPA has determined that the "new source case-by-case MACT" requirements (Clean Air Act Section 112(g) and 40 CFR 63 Subpart B) do not apply to the press replacement project. Replacing the LVL presses does not constitute a "reconstruction" of the LVL production process, as defined in the rule, because the total capital cost of replacing the presses was demonstrated to be less than 50% of the total capital cost of constructing an entirely new LVL production process. Capital costs considered in this calculation do not include the costs of the exterior building and underlying land.

Additional information regarding this MACT determination can be found in LRAPA correspondence dated March 2, 1999, and February 8, 1999. This information is on file and available upon request.

#### **GENERAL BACKGROUND INFORMATION**

24. This source is located in an attainment area for all criteria pollutants, except PM<sub>10</sub> .
25. This source is located within 100 kilometers of four (4) Class I air quality protection areas.
26. The Title V permit for this source was issued on June 20, 1997.

#### **COMPLIANCE HISTORY**

27. Pursuant to the requirements of condition 14 of existing Title V Permit No. 208256 and LRAPA 33-060-3A(2), the facility began performing weekly visible emissions tests using EPA Method 9 in July 1997. Based on the results of these tests, it was determined that the facility was not in compliance with the visible emission standard on several occasions after July 1997. LRAPA issued a Notice of Noncompliance (NON) in October 1997 which required the facility to come into continuous compliance with the standard. On December 18, 1997, LRAPA issued Stipulated

Final Order (SFO) No. 97-1427 with the goal of establishing conditions and a schedule to require the facility to operate in compliance with the standard.

28. Condition 16.b of the SFO stated the following: "If TJM determines for one or more of the dryers that process and maintenance procedures are insufficient to ensure compliance . . . TJM shall issue purchase orders for control equipment appropriate to ensure compliance . . . . A description of the controls selected and a construction schedule shall be submitted . . . . In no event shall the final completion date be later than May 15, 1999."
29. Pursuant to condition 16.b of the SFO, the facility determined that add-on controls were necessary to ensure compliance with the opacity standard. The facility selected a 37,000 acfm regenerative thermal oxidizer (RTO) as the preferred control method and submitted a Notice of Approval to Construct application to LRAPA on July 15, 1998. To allow the facility to begin building the control device as soon as possible, LRAPA issued a conditional Notice of Approval to Construct the device on September 14, 1998. The Notice only authorized construction of the RTO, and prohibited any physical connection to a fuel supply or to the dryers themselves.

#### **PUBLIC NOTICE**

30. In addition to the changes noted in this review report, this permit action also serves as a permit renewal, authorizing the extension of the permit to five (5) years from the date of issuance of the modified permit. Therefore, the permit in its entirety is being placed on public notice.

This permit was on public notice from March 31, 1999 to April 30, 1999. No written comment was received from the public during the comment period. Comments from the permittee and LRAPA's responses and actions are detailed in the Checklist Attachment. No request for a public hearing was received during the comment period. The proposed permit was sent to EPA for a 45-day review period on May 14, 1999.

LRAPA requested an expedited review of 5 days because no substantive or adverse comments were received during the comment period. Any person may petition the EPA within 60 days after the EPA's 45-day review period to make an objection to the permit. However, any petition shall be based only on objections that were raised during the public comment period. On May 28, 1999, LRAPA received notice that EPA has no objection to issuance of this permit.

31. The emission detail sheets are attached.

srm/bp  
6/10/99

PLANT SITE EMISSIONS DETAIL SHEET  
Corrected (1977) Baseline — Calendar Year 1977  
**Pollutant: Particulate**

PLANT SITE EMISSIONS DETAIL SHEET  
Corrected (1977) Baseline — Calendar Year 1977  
**Pollutant: Gaseous Pollutants**

PLANT SITE EMISSIONS DETAIL SHEET  
Projected — **Pollutant: Particulate**

PLANT SITE EMISSIONS DETAIL SHEET  
Projected — **Pollutant: Gaseous Pollutants**