

**LANE REGIONAL AIR PROTECTION AGENCY
 TITLE V OPERATING PERMIT
 REVIEW REPORT**

1010 Main Street
 Springfield, OR 97477

Source Information:

SIC	2436
NAICS	321212

Source Categories (Title 37, Table 1: Part and code)	B - 57
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Compliance and Emissions Monitoring Requirements:

Unassigned emissions	NA
Emission credits	NA
Compliance schedule	NA
Source test [date(s)]	See Permit

COMS	NA
CEMS	NA
Ambient monitoring	NA

Reporting Requirements

Annual report (due date)	March 15
Emission fee report (due date)	March 15
SACC (due date)	July 30
Quarterly report (due dates)	NA

Monthly report (due dates)	NA
Excess emissions report	Immediately
Other reports	Semi-annual

Air Programs

NSPS (list subparts)	Dc
NESHAP (list subparts)	A, DDDD, EEEE, FFFF, JJJJJ
CAM	NA
Regional Haze (RH)	NA
Synthetic Minor (SM)	NA
Part 68 Risk Management	NA
Title V	Yes

ACDP (SIP)	Yes
Major HAP source	Yes -former No- currently
Federal major source	NA
New Source Review (NSR)	NA
Prevention of Significant Deterioration (PSD)	NA
Acid Rain	NA
Clean Air Mercury Rule (CAMR)	NA

LANE REGIONAL AIR PROTECTION AGENCY
TITLE V OPERATING PERMIT REVIEW REPORT

Jasper Wood Products, LLC
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Jasper, Oregon 97438
<http://www.jasper-wood-products.com/>

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LIST OF ABBREVIATIONS USED IN THIS REVIEW REPORT

AQMA	Air Quality Management Area	Mlb	1000 pounds
ASTM	American Society of Testing and Materials	MM	million
BDT	bone dry ton	MSF	thousand square feet
BF	board feet/foot	NA	not applicable
CAM	Compliance Assurance Monitoring	NESHAP	National Emission Standard for Hazardous Air Pollutants
CEMS	continuous emissions monitoring system	NO _x	oxides of nitrogen
CFR	Code of Federal Regulations	NSPS	New Source Performance Standard
CMS	continuous monitoring system	NSR	New Source Review
CO	carbon monoxide	O ₂	Oxygen
CO ₂	carbon dioxide	OAR	Oregon Administrative Rules
COMS	continuous opacity monitoring system	ORS	Oregon Revised Statutes
DEQ	Oregon Department of Environmental Quality	O&M	operation and maintenance
dscf	dry standard cubic feet	Pb	lead
EF	emission factor	PCD	pollution control device
EPA	United States Environmental Protection Agency	PM	particulate matter
EU	emissions unit	PM ₁₀	particulate matter less than 10 microns in size
FCAA	Federal Clean Air Act	PM _{2.5}	particulate matter less than 2.5 microns in size
gr/dscf	grains per dry standard cubic feet	PSD	Prevention of Significant Deterioration
GHG	greenhouse gas(es)	PSEL	Plant Site Emission Limit
HAP	hazardous air pollutant	SACC	Semi Annual Compliance Certification
ID	identification code	SF	square feet/foot
I&M	inspection and maintenance	SO ₂	sulfur dioxide
LRAPA	Lane Regional Air Protection Agency	ST	source test
MB	material balance	VE	visible emissions
MBF	thousand board feet	VMT	vehicle mile traveled
		VOC	volatile organic compound

INTRODUCTION

1. This is an existing facility applying for renewal of the existing Title V federal operating permit.
2. In accordance with OAR 340-218-0120(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

3. Jasper Wood Products, LLC operates a facility performing wood-treating, drying, plywood production and other wood-working activities. The facility was previously operated by Cascade Pacific Industries, Inc. – Wood Treating Division and Progressive Panel. An addendum to change the name/ownership to the current name and owners was issued on December 13, 2001. The facility operates approximately 8,400 hours per year (24 hours per day, 7 days per week, and 50 weeks per year).
4. **Major Source Status:** The facility exceeded the 10 ton/year of any single Hazardous Air Pollutant (HAP) major source threshold based upon actual emissions of methanol for one or more 12-month rolling periods in early 2009. Because the facility did not request and obtain synthetic minor limits for HAPs prior to the September 30, 2007 compliance date for the Plywood and Composite Wood Products (PCWP) National Emission Standards for Hazardous Air Pollutants (NESHAPs) – Subpart DDDD, the facility became a major source and became subject to the PCWP NESHAP and Title V permitting by way of the “once-in-always-in” EPA policy. The facility obtained synthetic minor limits and/or became a true minor prior to the applicability date for the area source Boiler NESHAP – Subpart JJJJJ, and the permit contains the area source Boiler regulations that apply.

FACILITY DESCRIPTION

5. Jasper Wood Products, LLC manufactures plywood and treats wood with “Exterior Fire-X” and “Pyro-Guard” (interior) fire retardant. The facility does not use any CCA (chromated copper arsenate). The 2014 modification removed the kiln dried wood production and operation of a planer, finger jointer, and associated operations in the millwork building.
6. The facility consists of a maintenance shop, fire suppression system, administrative offices, plywood mill, veneer drying, wood treating areas, and buildings housing the boilers.
7. The facility has a Modul-pak wood-fired boiler providing backup steam for facility processes. Primary steam is provided by three (3) Cleaver-Brooks and an Aztec natural gas boiler(s) that can utilize fuel oil. The facility has defined the wood-fired boiler as “limited use” for purposes of the area source Boiler NESHAP. The permit limits the annual capacity factor to less than or equal to 10 percent (876 hours/year of operation). The existing gas/oil-fired boilers (20.9 MMBtu/hr Cleaver Brooks, 6.3 MMBtu/hr Cleaver Brooks, and 3.3 MMBtu/hr Aztec) will be augmented with a new 8.4 MMBtu/hr Cleaver Brooks boiler once installed.
8. The facility is capable of producing 150,000,000 square feet of 3/8” plywood per year. The plywood is produced from dried veneer purchased or manufactured onsite. Veneer drying was added with the 2014 addendum. Plywood is putty patched and touch sanded as necessary for market.
9. Some plywood and green/dry sawn lumber is treated on site with “Exterior Fire-X” and “Pyro-Guard” (interior) to act as a fire retardant. The process involves pressure injecting the chemicals using two autoclaves for pressure injection. After treatment, residual water and chemical is recycled into tanks for use

in the next batch of treating. Some treated wood is placed in the kilns to dry and then packaged or stored outside for transport.

EMISSIONS UNIT AND POLLUTION CONTROL DEVICE IDENTIFICATION

10. The emissions units and control devices at this facility are the following:

EU ID	Emission Unit Description	Pollution Control Device Description
EU-1	Two (2) Dry Kilns	None
EU-2	Two (2) Veneer Dryers	Regenerative Catalytic Oxidizer (RCO)
EU-3	Truck bin cyclone, Sanders and skinner saws, scarfer, and tongue and groove machine	Baghouses (Torit & Day and Pneumafil Baggouses)
EU-4	Wood-fired "limited use" Boiler, 24.8 MMBtu/hr, Modul-pak	Baghouse (Industrial Boiler Baghouse)
EU-5	Natural gas-fired boilers: <ul style="list-style-type: none"> • Natural Gas-fired Boiler with No. 2 Oil Backup, 8.4 MMBtu/hr, Cleaver Brooks, not installed yet, as of 04/28/17 • Natural Gas-fired Boiler with No. 2 Oil Backup, 20.9 MMBtu/hr, Cleaver Brooks • Natural Gas-fired Boiler, 6.3 MMBtu/hr Cleaver Brooks (capable of burning No. 6 oil as backup but prohibited from doing so) • Natural Gas-fired Boiler, 3.3 MMBtu/hr, Aztec, with No. 2 Oil Backup 	None
EU-6	Wood Treating in 2 Autoclaves	None
EU-7	Two (3) Plywood Presses (1 Baldwin, 1 Columbia, and 1 Superior)	None
EU-8	Paved Road	None
EU-9	Hogged Fuel Pile	None
EU-10	Putty Patching Operations	None

11. The following is a list of condition-by-condition changes between the previous permit and the proposed permit:

New Permit Condition Number	Old Permit Condition Number	Description of change	Reason for change
Most	Most	Updated and corrected rule references	LRAPA rule changes, typos, etc.
Cover page	Cover page	Added "veneer" to the manufacturing SIC code	Facility now includes veneer manufacturing as part of the existing 2436 SIC code.

New Permit Condition Number	Old Permit Condition Number	Description of change	Reason for change
Abbreviations	---	Added CO2 and GHG	New regulated pollutants
Definitions	---	Deleted "Modified EPA Method 9"	DEQ adopted new (April 2015) opacity standards that apply in Lane Co. that are based upon EPA Method 9
1	1	No change	NA
2	2	Updated condition numbers that are LRAPA only and/or DEQ only enforceable	Rules and conditions have changed
3	3	No change	NA
4	4	Revised to include specific visible emissions monitoring for fugitive emissions and delete "asphalt, oil" from list of reasonable precautions	DEQ adopted new fugitive emissions standards in April 2015 that apply in Lane Co. that require visible emission surveys and remove oil and asphalt as dust suppressants
5	5	Standard visible emissions monitoring associated with changes to Condition 4	Standard permit template language
6	6	No change	NA
7	7	Modified the 250 micron "fallout" condition to be consistent with updated regulation by removing the phrase "LRAPA will verify that the deposition exists and will notify the permittee that the deposition must be controlled."	DEQ adopted revised fallout provisions in April 2015 that apply in Lane Co. that were determined to be more stringent.
8	8	Added "state" to the enforceability.	Standard permit template language
9	9	No change	NA
10	10	No change	NA
11	11	No change	NA
12	12	No change	NA
13	13	No change	NA
14	14	No change	NA
15	15	No change	NA
16	16	Removed 16.a and 16.b that required the facility submit an Initial Notification and a Notice of Compliance Status for the Plywood and Composite Wood Products NESHAP	Facility complied. Submissions on file.
17	17	No change	NA
---	18	Removed Initial Compliance Demonstration testing requirement for the RCO	The PCWP NESHAP requires a one-time test upon startup. Facility conducted the test on March 10, 2015
18	19	Included minimum temperature of 799 degrees Fahrenheit as the specific temperature established in the compliance test	Clarity
19	20	Removed requirement that the facility submit a plan to minimize veneer dryer fugitive emissions along with the Notice of Compliance Status	Facility complied. Plan to minimize fugitive emissions on file.

New Permit Condition Number	Old Permit Condition Number	Description of change	Reason for change
20	21	No change	NA
21	22	No change	NA
23	24	No change	NA
24	25	Revised opacity standard from a 3-minute aggregate to a 6-minute block average basis. Also included revised visible emissions monitoring requirements.	DEQ adopted revised opacity-related provisions in April 2015 that apply in Lane Co. that were determined to be more stringent.
25	26	Revised grain loading standard to include an extra significant digit in the limit.	DEQ adopted revised grain loading standards in April 2015 that apply in Lane Co. that were determined to be more stringent.
26	27	Revised grain loading standard to include an extra significant digit in the limit.	DEQ adopted revised grain loading standards in April 2015 that apply in Lane Co. that were determined to be more stringent.
27	28	No change	NA
--	29	Removed NSPS Subpart Dc 20% opacity limitation	Inapplicable requirement – because Condition27 prohibits combustion of fuel oil, the NSPS requirement doesn't apply; it would only apply if the boiler could combust fuel oil.
--	30	Removed NSPS Subpart Dc notification requirement	Inapplicable requirement – because Condition27 prohibits combustion of fuel oil, the NSPS requirement doesn't apply; it would only apply if the boiler could combust fuel oil.
--	31	Removed area source Boiler NESHAP (40 CFR 63 Subpart JJJJJ) fuel limitation.	Inapplicable requirement - because Condition27 prohibits combustion of fuel oil, the NEHSAP requirement doesn't apply; it would only apply if the boiler could combust fuel oil.
28	32	Updated and revised boiler tune-up requirement.	Tune-up required biennially instead of every 5 years. Boiler is not currently operation so it is required to be tuned-up within 30 days of startup, rather than by March 21, 2014.
29	33	Slight language changes to the area source boiler NESHAP reporting requirements	Identical to the federal register language.
30	34	Updated and revised boiler tune-up requirement.	Boiler is not currently operation so it the Notice of Compliance Status is required 120 days after conducting the initial tune-up, rather than by July 19, 2014.
31	---	Included the energy assessment requirement	Required by the area source Boiler NESHAP.
32	35	No change	NA
33	36	Changed Boiler NESHAP reporting frequency from “5-year” to “biennial”	Correction. The facility doesn't have an oxygen trim system, so the reports

New Permit Condition Number	Old Permit Condition Number	Description of change	Reason for change
			and tune-ups must be completed biennially.
34	37	No change	NA
35	38	Updated Insignificant Activities Requirements to include new grain loading and opacity standards.	DEQ adopted revised grain loading and opacity-related standards in April 2015 that apply in Lane Co. that were determined to be more stringent.
36	39	Included PSELS for PM2.5 and GHGs, and removed SO2 PSEL. Increased PM and PM10 PSELS to account for baseline emissions.	PM2.5 and GHG became regulated air pollutants during the previous permit term, and SO2 was removed because emissions are below the 1 ton/year de minimis level. The PM and PM10 PSELS were increased by adding the Generic PSEL level to the Baseline Emission Rate because the new press (2017) increased the potential to emit (17 tons/year) above the Generic PSEL level for PM10 (14 tons/year).
37	40	Added the phrase “except GHGs” to the PSEL monitoring requirement.	GHG PSEL compliance may be accomplished by way of the annual registration reporting requirements from OAR 340 division 215.
38	41	Added RCO (EU-2) as an item to require fuel usage tracking.	Natural gas fuel combustion from the RCO counts toward GHG emissions.
39	42	Included PM2.5 emission factors; included VOC emission factors for veneer drying “cooling section and fugitives”.	PM2.5 became a regulated air pollutant during the previous permit term; VOC cooling section and fugitives EF was inadvertently left out of the previous permit issuance.
40	43	Changed wood-fired boiler testing deadline. Added requirement to perform visual emissions monitoring during testing	Previous date specified had passed. Opacity monitoring during source testing is typically required for wood-fired boilers.
41	44	No change	NA
42-54	45-57	No change	NA
55	58	EPA mailing address updated	EPA updated their mailing address
56-58	59-61	Remove requirement in Condition 59.b that the annual report include certification that the risk management plan is being properly implemented.	The facility is currently not required to implement a risk management plan.
59	--	Included a list of federal air quality requirements that are not applicable	Title V rules require that the permit include such a list.
General Conditions G1. - G 29.	General Conditions G1. - G27.	Installed Masking, Concealment, and ACDP applicability conditions into General Conditions.	Standard permit template language

12. Categorically insignificant activities at this facility include the following:

- Constituents of a chemical mixture present at less than 1% by weight of any chemical or compound regulated under OAR Chapter 340, Divisions 218 and 220, and LRAPA Titles 12 through 51 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
- Distillate oil, kerosene, gasoline, natural gas or propane burning equipment, provided the aggregate expected actual emissions of the equipment identified as categorically insignificant do not exceed the de minimis level for any regulated pollutant, based on the expected maximum annual operation of the equipment. If a source's expected emissions from all such equipment exceed the de minimis levels, then the source may identify a subgroup of such equipment as categorically insignificant with the remainder not categorically insignificant. The following equipment may never be included as categorically insignificant:
 - Any individual distillate oil, kerosene or gasoline burning equipment with a rating greater than 0.4 million Btu/hour;
 - Any individual natural gas or propane burning equipment with a rating greater than 2.0 million Btu/hour.
- 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
- Temporary construction activities
- Warehouse activities
- Accidental fires
- Air vents from air compressors
- Electrical charging stations
- Fire brigade training
- Instrument air dryers and distribution
- 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
- Natural gas, propane, and liquefied petroleum gas (LPG) storage tanks and transfer equipment
- Pressurized tanks containing gaseous compounds
- Vacuum sheet stacker vents
- Fire suppression and training
- 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 due to circumstances beyond the reasonable control of the owner or operator, or to address a power emergency, provided that the aggregate horsepower rating of all stationary emergency generator and pump engines is not more than 3,000 horsepower. If the aggregate horsepower rating of all stationary emergency generator and pump engines is more than 3,000 horsepower, then no emergency generators and pumps at the source may be considered categorically insignificant;
- Non-contact steam vents and leaks and safety and relief valves for boiler steam distribution systems
- Non-contact steam condensate flash tanks;
- Non-contact steam vents on condensate receivers, deaerators and similar equipment;
- Boiler blowdown tanks;
- Ash piles maintained in a wetted condition and associated handling systems and activities;
- Combustion source flame safety purging on startup;

EMISSION LIMITS AND STANDARDS, TESTING, MONITORING, AND RECORDKEEPING

- 13. ACDP Conditions: There are no changes to any conditions that existed in the ACDP for which the ACDP is relied upon to provide the authority for the requirement.

- 14. Facility-wide Requirements:
 - 14.a. Condition 4 of the permit establishes ‘reasonable precautions’ for the minimization of fugitive, visible particulate matter for this facility. Monitoring and recordkeeping for this requirement includes periodic visible emission surveys and corrective action if a source of visible emissions is identified.

 - 14.b. Conditions 6 and 7 of the permit states two (2) of LRAPA’s limits for emissions that can create nuisance problems: odors and large-size fallout particulate matter. Monitoring for this condition is the maintenance of a complaint log and timely resolution.

- 15. Federal Requirements:
 - 15.a. Accidental Release Prevention (Part 68): Condition 9 of the permit is a standard Title V permit condition related to the Federal Risk Management Planning program (40 CFR Part 68). The condition requires that Title V sources comply with 40 CFR 68 if changes at the facility make it subject.

 - 15.b. Plywood NESHAP: The veneer dryers with RCO, plywood press, and wood putty emission units are subject to the requirements of the Plywood and Composite Wood Products (PCWP NESHAP or Subpart DDDD). Because the facility had actual single HAP emissions greater than the 10 ton/year major source threshold and did not have federally enforceable permit HAP limits in place at the time of the compliance date for existing sources under the PCWP NESHAP, the facility is subject to Subpart DDDD as well as several other major source NESHAPs.

 - 15.c. Boiler Area Source NESHAP: The source is considered an area source since it no longer has the potential to emit (PTE) above major source HAP thresholds. The natural gas fired boiler with oil backup is subject to the Subpart JJJJJ (6J) NESHAP, but since the facility is prohibited from firing the boiler on oil, there are no requirements that apply other than to keep records that has not combusted any oil during the reporting period. The wood-fired boiler is subject to the 6J NESHAP and is defined as “limited use” and is therefore not subject to the one-time energy assessment; the 5-year tune-up applies along with other requirements.

 - 15.d. More information about NESHAPs and federal requirements is contained in later items in this review report.

 - 15.e. Compliance Assurance Monitoring (CAM) – 40 CFR Part 64: There are no control devices to which CAM applies. All pre-control emissions are less than 100 tons/year.

Emission Unit (EU)	Control Device	Pre-control emissions
EU-4- Wood-fired Boiler	Baghouse	36.3 tons/year PM
EU-2 Veneer Dryers	RCO	11.0 tons/year VOC
EU-3 Sanders, Saws, etc.	Baghouse	27.0 tons/year PM

- 16. LRAPA and State Requirements:
 - 16.a. 0.14 gr/dscf and 20% Opacity Requirements: Particulate and visible emissions requirements applicable to all sources are included in the permit. DEQ adopted new versions of these requirements on April 15, 2015 that were determined to be more stringent than LRAPA’s

- versions. They are included in the permit with a reference to the applicable OAR until LRAPA adopts similar rules that are at least as stringent.
- 16.b. The Modul-pak wood-fired boiler (EU-4) was installed after June 1, 1970 and, therefore, does not qualify for the 40% opacity limit for “existing fuel burning equipment utilizing wood waste” in Section 32-010-2. The wood-fired boiler in EU-4 is required to meet the 20% opacity limit that applies to all other sources of visible emissions at the facility.
 - 16.c. The LRAPA Title 33 regulations for veneer manufacturing operations is applicable to the facility’s veneer drying activities added in 2014. The regulations require the facility to limit visible emissions to an average of 10% opacity and to minimize fugitive emissions from the veneer dryer heating zones.
17. Aggregate Insignificant activities:
 17.a. There are no emission units designated by the facility as Aggregate Insignificant Activities.

PLANT SITE EMISSION LIMITS, BASELINE EMISSION RATE AND SIGNIFICANT EMISSION RATE

18. **Baseline Emission Rate:** Baseline emission rates were established in a previous permit issuance and were based upon the emissions from a wood-fired boiler operating at 140 million pounds of steam per year, three (3) cyclones processing 21,412 BDT of wood waste per year, and four (4) dry kilns drying 30 million board feet per year. The baseline emission rates were adjusted with the ACDP renewal to reflect most-current emission factors to estimate actual emissions. The baseline emission rate for greenhouse gases (GHGs) is included with the permit renewal action and is based upon actual fuel combustion for the 2007 calendar year. The detail sheets contain more information on the basis of the calculations.
19. Provided below is a summary of the baseline emissions rate, netting basis, and plant site emission limits.

Pollutant	Baseline Emission Rate (tons/yr)	Netting Basis (tons/yr)	Plant Site Emission Limit (PSEL)			Significant Emission Rate (tons/yr)
			Previous PSEL (tons/yr)	Proposed PSEL (tons/yr)	Increase over baseline	
PM	7.1	7.1	24	31	24	25
PM ₁₀	6.4	6.4	14	20	14	15
PM _{2.5}	NA	3.5	NA	12	9	10
SO ₂	1.0	1.0	39	De minimis	--	40
NO _x	21.7	22	61	61	39	40
CO	70.0	70	99	99	29	100

Pollutant	Baseline Emission Rate (tons/yr)	Netting Basis (tons/yr)	Plant Site Emission Limit (PSEL)			Significant Emission Rate (tons/yr)
			Previous PSEL (tons/yr)	Proposed PSEL (tons/yr)	Increase over baseline	
VOC	18.1	18	57	57	39	40
GHG	17,998	17,998	NA	74,000	56,002	75,000

- 19.a. The CO, and GHG PSELs are being set at the Generic PSEL level in accordance with LRAPA Title 42; PM, PM₁₀, PM_{2.5}, NO_x and VOC PSELs are being set at a source specific level accounting for baseline/netting basis. The SO₂ PSEL is removed because potential emissions are less than the de minimis level. The capacity is listed in the emission detail sheets as the “Potential to Emit”.
20. **Netting Basis:** The “netting basis”, as defined in LRAPA Title 12, is equivalent to the Baseline Emission Rate for all pollutants except PM_{2.5}. According to applicable rules, there is no baseline emission rate for PM_{2.5} and the netting is based upon the fraction of PM₁₀ that is PM_{2.5}.
21. **Unassigned Emissions:** This facility has no (zero tons per year) unassigned emissions as defined in LRAPA Title 12 and specified in LRAPA Title 42.
22. **Emission Reduction Credits:** This facility has no Emission Reduction Credits as allowed by LRAPA Title 41.

HAZARDOUS AIR POLLUTANTS

23. The potential HAP emissions from the facility are shown in the table below. These emissions are calculated on the basis of proposed operation parameters and must be recalculated by the facility if production increases.

Hazardous Air Pollutants	Potential Emissions (tons/yr)
Acetaldehyde	1.2
Formaldehyde	1.3
Methanol	6.2
Phenol	1.3
Propionaldehyde	0.4
Miscellaneous “Boiler HAPs”	0.6
Total HAPs	11.0 tons/yr

24. **Major Source of HAPs:** The facility was a major source for HAPs because for the calendar year 2007, the potential to emit of a single HAP (methanol) was greater than 10 tons/year and the facility did not have federally enforceable permit limits to limit HAP emissions below the 10 tons of a single HAP at the compliance date for the Plywood and Composite Wood Products (PCWP) National Emission Standard for HAPs (NESHAP). The compliance date for existing PCWP sources was September 30, 2007. The facility is no longer a major source of HAPs but the PCWP NESHAP still applies due to the once-in-always-in policy that has been included in OAR 340 division 218.
25. **Subpart DDDD – Plywood and Composite Wood Products (PCWP) NESHAP:** The facility operates an affected source under the PCWP NESHAP including, but not limited to, the veneer dryers with RCO, presses and putty patching operations. Under the PCWP NESHAP there are no control requirements or work practice standards for the dry kilns used to set the fire retardant. Likewise, there are no control requirements or work practice standards for the plywood presses (there are control requirements for “reconstituted wood product presses” but not plywood presses). The primary applicable requirement under the PCWP NESHAP is for the facility’s veneer drying operations controlled by the RCO including a performance test upon initial startup of the veneer dryers and ongoing, annual catalyst activity checks. The facility is required to use only non-HAP coatings defined as having HAP contents below 0.1 percent by mass for Occupational Safety and Health Administration-defined carcinogens as specified in 29 CFR 1910.1200(d)(4), and below 1.0 percent by mass for other HAP compounds.
26. **Subpart EEEE – Organic Liquid Distribution (OLD) NESHAP:** When the facility changed wood treatment chemicals in 2007, the treatment chemical methanol content was increased to 5% methanol by weight (and increased the potential to emit for a single HAP above major source thresholds) and the facility became subject to the Organic Liquid Distribution MACT of 40 CFR 63 Subpart EEEE. The facility made one of their treatment chemicals onsite and sent it internally and externally out in containers and hence had a loading facility. As per Section 63.2342(c), an area source that does not commence construction but increases its emissions or its potential to emit such that it becomes a major source of HAPs must comply with the rule by three (3) years after the area source becomes a major source. Because the facility has switched to a wood treatment chemical with a HAP content of less than 5%, the facility is not distributing an organic liquid as defined in the rule. The permit requires that the facility comply with the OLD NESHAP and notify LRAPA prior to use of a compound with a content of HAP that is greater than or equal to 5% by weight.
27. **Subpart FFFF – Miscellaneous Organic Chemical Manufacturing NESHAP (MON):** When the facility changed wood treatment chemicals in 2007, the facility also became subject to the MON because they made one of their treatment chemicals onsite. The facility no longer operates a MON process and, even had they continued to make the affected HAP-containing treatment chemical, there were no equipment affected by the standard; the sole requirement for the facility to comply was to have submitted an Initial Notification. Should the facility change operation such that they operate a source subject to the MON, any new applicable requirements will be included in the permit.
28. **Subpart JJJJJ (‘6J’) – Boiler NESHAP:** The Modul-pak wood-fired boiler (EU-4) is subject to the area source Boiler NESHAP. The facility submitted an Initial Notification on September 16, 2011 indicating that the facility is an “existing source subject to the energy assessment requirement and plan to demonstrate compliance with the energy assessment no later than March 21, 2014. However, on March 28, 2014 the facility submitted a notice that, since the boiler has been out of service since September 2013, the facility is/was currently unable to perform the tune-up. The facility is required to perform the tune-up within 30 days of startup (as per 40 CFR 63.11223(b)(7)). The facility has requested the boiler be defined as “limited use” since it is a backup boiler and so as to avoid the energy assessment requirement. Operation of the boiler is limited to no more than 876 hours per year.

The new, 32.7 MMBtu/hr natural gas-fired boiler would be subject to the tune-up requirements, etc. in the Boiler NESHAP, but since the boiler is prohibited from firing liquid fuel, there are no requirements that apply. The boiler has not yet been installed as of the drafting of this permit renewal (2017).

Area Source Boiler NESHAP Applicability and Synthetic Minor HAP Limit Timing: A facility that has potential HAP emissions below the major source thresholds prior to a major NESHAP compliance date can be classified as an area source. The major source Boiler NESHAP (40 CFR 63 Subpart DDDD) was issued as final on January 31, 2013 after EPA reconsidered the rule and the compliance date is January 31, 2016; therefore, Jasper Wood Products can be considered an area source of HAPs for purposes of the Boiler NESHAP subject to the Subpart 6J provisions as applicable. As noted above, the facility submitted an Initial Notification for the purposes of Subpart 6J on September 16, 2011.

Tune-up: There are no emission standards in the area source Boiler NESHAP that apply to existing biomass-fired boilers. The key remaining requirements for the limited use boiler are for the facility to conduct a performance tune-up biennially (every two years). The one-time (1-time) energy assessment of the boiler and its energy use systems is not required since the facility has requested a limitation on the average annual capacity. The facility is also required to submit biennial compliance certification reports. The facility does not have an 'oxygen trim system' where the term is defined in the NESHAP as: a system of monitors that is used to maintain excess air at the desired level in a combustion device.

GENERAL BACKGROUND INFORMATION

29. **Located in an Attainment Area:** The facility is located outside the Eugene Springfield Air Quality Management Area and in an area that has been designated as attainment for PM₁₀, ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, and lead.
30. **New Source Performance Standards (NSPSs):** The new, 8.4 MMBtu/hr natural gas-fired boiler is subject to the Subpart Dc regulations, but since the boiler is prohibited from firing liquid fuel, there are no requirements that apply other than to certify that no oil has been combusted during each reporting period.
31. **Permitting History:** The following is a summary of the permitting history for the facility.
 - The facility was permitted as All American Stud under ACDP source number 200007 prior to 1983, but that permit was automatically terminated within 60 days after the exchange or sale of the facility to Olympic Cascade Company.
 - The facility was permitted as Olympic Cascade Company (206117) on May 18, 1984. Equipment included gas-fired boiler, wood-fired boiler, material handling cyclones, and treatment vat.
 - The facility changed to Jasper Drying and Milling Inc on April 9, 1985.
 - The facility was issued a renewed ACDP on May 1, 1988 as Cascade Pacific Industries – Jasper Wood Treating Division with an expiration date of April 30, 1998. The permit was modified numerous times prior to the April 1998 expiration.
 - On April 7, 1999, the facility was issued a renewed ACDP with an April 30, 2003 expiration date. The issuance date appears to have been retroactively stated as May 1, 1998.
 - On December 13, 2001, an addendum was issued to change the name to “Jasper Wood Products LLC”.
 - A renewal was signed for issuance on November 30, 2004 with an issuance date of May 1, 2003 and an expiration date of April 30, 2008.
 - The permit was modified on August 16, 2006, to change the permit from a “Regular” ACDP to a “Synthetic Minor ACDP”.
 - The facility applied for a Title V Operating permit on May 28, 2010 because of changes in the method of operation during 2009 that made them a major source of HAPs (greater than 10 tons/year of actual emissions of methanol) and subject to the major source Plywood and Composite Wood Products NESHAP.

- The ACDP was renewed on November 12, 2010 as a “Standard ACDP”, with a November 12, 2015 expiration date. The permit included changes in equipment and PSELs.
- The initial Title V Operating permit was issued June 15, 2011. That permit remains valid until this renewal is issued.

32. **Construction Approvals:** The following is a summary of the construction approvals for the facility.

- NC-206117-B17: Installation of 8.4 MMBtu/hr natural gas-fired boiler
- NC-206117-A17: Installation of Superior plywood press
- NC-206117-A14: Multiple physical and operational changes including:
 - Installation of two (2) new softwood veneer dryers with a Regenerative Catalytic Oxidizer (RCO)
 - Skinner saw
 - Installation of 8.4 MMBtu/hr natural gas-fired boiler
 - Removal of four (4) dry kilns, two (2) remaining for low temp drying of fire treatment
 - Removal of some baghouses
 - Reduction in the wood-fired boiler (EU-4) operation
 - Removal of Stetson-Ross planer
 - Removal of Aztec natural gas-fired boiler w/ oil backup
 - Removal of millworks (finger jointer, chop saw, moulder)
- NC-206117-A11: Installation of 6.3 MMBtu/hr natural gas-fired boiler
- NC-206117-A10: Installation of Williams-White plywood press, 30 opening
- NC-206117-A08: Change in wood treatment chemicals from Pyroguard to Thermex
- NC-206117-A06: Installation of Baldwin plywood press, 30 opening and 100 Hp oil-fired boiler
- NC-206117-A05: Installation of Pneumafil baghouse and removal of scrubber at planer cyclone
- NC-206117-A04: Installation of Planer transfer system scrubber (water digester)
- NC-206117-B02: Installation of Modul-Pak wood-fired boiler and baghouse
- NC-206117-A02: Installation of Baker Re-saw Line
- NC-206117-A96: Installation of millwork plant including Donaldson baghouse
- NC-206117-A94: Installation of large chest with water mist (on planer discharge)
- NC-206117-B93: Installation of milling and laminating operation with Day baghouse
- NC-206117-A93: Withdrawn for “B93” - proposed installation of a cyclone
- NC-206117-A83: Installation of a pressure treatment facility to treat shakes and shingles with fire retardant

COMPLIANCE HISTORY

33. Following is a summary of the enforcement activity related to the facility chronologically since 1993.

- On April 6, 1993, Notice of Violation and Intent to Assess Civil Penalty (NCP) No. 93-06 was issued to the facility (then Cascade Pacific Industries). The NCP was issued for violations relative to the construction and operation of a new medium-density fiberboard milling and lamination operation without first obtaining construction approval or permit modification. Violation resolved by the submittal of appropriate permit.
- On March 18, 1994, the facility (Cascade Pacific Industries) was issued NCP 94-16 for a main bin materials-handling cyclone opacity violation and for failure to minimize emissions from material handling. Violation resolved via use of opacity meter.
- On July 28, 1995, the facility (Cascade Pacific Industries) was issued a Notice of Non-Compliance (NON) No. 1103 for operating the baghouse with leaking bags. Violation corrected by the facility through the installation of proper bags.

- On August 10, 1995, the facility (Cascade Pacific Industries) was issued NON-1094 for failure to maintain records as described in permit. Violation corrected by the facility maintaining records as described in permit.
- On February 27, 1996, the facility (Cascade Pacific Industries) was issued NON-1203 for commencement of construction of an air contaminant source (millwork plant) without first obtaining approval from LRAPA. Facility resolved the violation through the submittal of proper forms, paying associated fees and requesting LRAPA review and approval of the construction.
- On June 12, 2003, the facility (Jasper Wood Products) was issued NON-2564 for removal of an air contaminant control device (scrubber) without notifying LRAPA or modifying the permit. Violations were resolved in SFO-03-2564, issued on February 13, 2004, and closed January 14, 2005. Remaining violation was later resolved through the installation of a new scrubber system. Scrubber system was replaced with a baghouse by March 31, 2006.
- On June 5, 2005, the facility (Jasper Wood Products) was issued NCP 05-2727 for failure to operate air pollution control equipment while operating process equipment. Violation resolved in SFO 05-2727 and closed on April 21, 2006. Facility was required to maintain water flow to scrubber during operation of sources required by the permit to be controlled by the scrubber. Scrubber was replaced with a baghouse by March 31, 2006.
- On December 12, 2008 the facility was issued NON-3018 for modifying a source without first submitting appropriate construction and modification notice – modification resulted in potential/actual emissions of HAP methanol to trigger PCWP NESHAP and Title V permitting requirements. The modification was a result of a change in wood treatment chemical from one with 0.03% methanol content to one with 3% methanol content. NCP-09-3018 was issued to the facility for the violation on January 29, 2009 and SFO 09-3018 was issued to the facility March 11, 2009 requiring the facility to pay a \$7,940 civil penalty and apply for a Title V permit. The facility paid the civil penalty in-full on March 23, 2009.
- On May 11, 2010, the facility was issued NON-3198 for failure to submit a Title V application within 12 months of being subject to Title V permit program. The facility submitted the Title V application on June 11, 2010. On July 27, 2010 the facility was issued Notice of Violation and Notice of Civil Penalty Assessment (NCP 3198). A civil penalty was assessed in the amount of \$4,200. On August 16, 2010 the facility submitted a memo seeking reduction in the civil penalty amount. On August 19th, the facility was issued a Stipulated Final Order (SFO No. 10-3198) including a reduced civil penalty amount of \$3,000. On September 3, 2010 the facility paid \$3,000 to Lane County and the file was closed.
- On October 19, 2011 the facility was issued NON-3326 for the following: failure to submit emission calculations in the annual report; for failure to notify LRAPA of date/time of stack test; failure to demonstrate monthly calculations of emissions; and, failure to submit deviation reports. On January 2, 2012 the facility was issued Notice of Violation and Notice of Civil Penalty Assessment (NCP 11-3326). A civil penalty was assessed in the amount of \$7,200. On April 24, 2012 the facility submitted a memo seeking reduction in the civil penalty amount. On May 1, 2012, the facility was issued a Stipulated and Final Order (SFO No. 11-3326) including a reduced civil penalty amount of \$3,600. On June 14, 2012 the facility paid \$3,600 to LRAPA and the file was closed.
- On October 22, 2012 the facility was issued NON-3422 for the following: failure to maintain records of visible emission surveys; failure to conduct monitoring of wood-fired boiler visible emissions (conducted evaluation when boiler not in operation); failure to submit deviation reports in a timely manner; failure to submit semi-annual report in a timely manner; failure to submit an inspection and maintenance plan/schedule; and, no Form R1003 included in semi-annual report. On December 19, 2012 the facility was issued Notice of Violation and Notice of Civil Penalty Assessment (NCP 12-3422). A civil penalty was assessed in the amount of \$9,600. The facility (respondent) failed to respond in a timely manner and LRAPA proceeded with Final Default Order and Judgment. The facility subsequently requested resolution

in lieu of Final Default Order. On March 26, 2013, the facility was issued a Stipulated and Final Order (SFO No. 12-3422) including a reduced civil penalty amount of \$7,200 with \$1,440 paid to Lane County in care of LRAPA and \$5,760 applied to the "Oakridge Warm Homes Clean Air Project". On April 18, 2013 the facility paid the required amount(s) and the file was closed.

- On September 11, 2014 the facility was issued NON-3540 for the following: failure to remedy spillage and accumulation of wood waste dust from around transfer points, hoppers, machine centers and general plant site. On May 8, 2015, the facility was issued Notice of Violation and Notice of Civil Penalty Assessment (NCP 14-3540). A civil penalty was assessed in the amount of \$5,400. On June 29, 2015, the facility was issued a Stipulated and Final Order (SFO No. 14-3540) including a reduced civil penalty amount of \$4,000. On July 9, 2015 the facility paid the required amount and the file was closed.

SOURCE TEST RESULTS

34. The RCO controlling the veneer dryers (EU-2) was tested on March 10, 2015 for compliance with the PCWP MACT. Methanol results were 0.01 lb/hour and 94.2% destruction efficiency. The minimum 3-hour block average catalytic oxidizer temperature was established as 799 degrees Fahrenheit.
35. The Modul-Pak wood-fired boiler (EU-4) was tested on February 28, 2005, for CO and NO_x to verify emission factors. Results for CO equated to approximately 0.31 lb/1000 lb steam (5.3 lb/hr). Results for NO_x equated to approximately 0.25 lb/1000 lb steam (4.3 lb/hr).
36. The permit previously required CO, NO_x, and PM₁₀ emission factor verification testing for the Modul-pak wood-fired boiler within 180 days of issuance of the ACDP renewal/modification (ACDP was issued November 12, 2010) or by August 31, 2011. The boiler was not tested as required and LRAPA issued a civil penalty (see NON-3422 above). The facility ceased use of the Modul-Pak hog fueled boiler in September 2013. With the veneer dryer minor mod (Addendum No. 3), the facility applied to extend the testing deadline. The revised emission factor verification deadline is December 31, 2017, or within 180 days after (re)startup, whichever is later.

PUBLIC NOTICE

37. This permit was on public notice from May 22, 2017 to June 26, 2017. No comments were submitted in writing during the comment period. No public hearing was requested by 10 or more individuals or one person representing a group of 10 or more individuals. This proposed permit will be sent to EPA for a 45-day review period. LRAPA may request and EPA may agree to an expedited review of 5 days if there were no substantive or adverse comments during the comment period.

If the EPA does not object in writing, any person may petition the EPA within 60 days after the expiration of EPA's 45-day review period to make such objection. Any such petition must be based only on objections to the permit that were raised with reasonable specificity during the public comment period provided for in OAR 340-218-0210, unless the petitioner demonstrates that it was impracticable to raise such objections within such period, or unless the grounds for such objection arose after such period.

38. The proposed permit was sent to EPA on June 30, 2017, for a 45-day review period. Because no adverse comments were received and there were no substantive changes to the permit after the public comment period, LRAPA requested and EPA agreed to an expedited review. The public will have 105 days (45-day EPA review period plus 60 days) from the date the proposed permit was sent to EPA to appeal the permit with EPA.

Emission Details

EU-4 Wood Fired Boiler - Modul Pak, 24.8 MMBtu/hr					
	Max	Emission	Hourly	876 hours per year	CAM
	Design capacity	Factor	Emissions	Annual	Maximum
Pollutant	(lbs steam/hr)	(lbs/1000 lbs steam)	(pounds)	Emissions (tons)	Pre-control (tons)
PM	20,704	0.4	0.4	0.2	36.3
PM10	20,704	0.398	0.4	0.2	
PM2.5	20,704	0.3582	0.4	0.2	
SO2	20,704	0.014	0.3	0.1	
NOx	20,704	0.31	6.4	2.8	
CO	20,704	1	20.7	9.1	
VOC	20,704	0.13	2.7	1.2	
GHG*	20,704	93.8		19003	

Boiler defined as "limited use" as per NESHAP. Operation limited to 10% of total operation time (876 hours/year).
 Maximum Design Rate is 20,700 lbs steam/hour
 Boiler is operated at a maximum of 90 psi, the standard design pressure for the boiler is 150 psig.
 Fuel burned as estimated by the manufacturer, is 7,145 lb/hr at 50% moisture content.
 Emission Factors are from General ACDP for Wood-Fired Boilers except for CO
 CO Fuel Cell factor used since closer to 2/28/05 source test result of 0.31 lb CO/M lbs steam
 PM/PM10 emissions assume baghouse provides similar control as to that of ESP (95%)
 *GHG calculated using DEQ's steam calculator assuming 8760 operation and a input/output ratio of 0.001, EF units are kg/MMBtu

EU-5 Four (4) Natural Gas-fired Boilers					
Gas	Max	Emission	Conversion	Annual	8760 hours per year
	Design capacity	Factor	Factor	Emissions	
Pollutant	(cubic ft/hr)	(lbs/10 ⁶ ft ³)	(tons/lb)	(tons)	
PM/PM10/PM2.5	38,600	2.5	0.0005	0.4	
SO2	38,600	1.7	0.0005	0.3	
NOx	38,600	100	0.0005	16.9	
CO	38,600	84	0.0005	14.2	
VOC	38,600	5.5	0.0005	0.9	

The EU-5 includes four natural gas-fired boilers: maximum design rate of 8.4 million BTU/hr, 20.9 MMBtu/hr, 6.3 MMBtu/hr, and 3.3 MMBtu/hr
 Emission factors are from DEQ AQ-EF05 for small, uncontrolled boilers
 The facility has no individual gas meter for the boiler. All gas combusted at the facility is assumed to have been combusted by the boiler.
 The NOx emissions from the combustion of natural gas by the boilers and veneer dryers is therefore overestimated (conservative).

EU-7 Three Plywood Presses					
1 Baldwin press existing since 2006, one Williams-White 30-opening Hot Plywood Press in June 2010, one Superior Press in 2017					
	Max Design	Emission	Annual		
Pollutant	Capacity	Factor	Emissions		8760 hours/year
	(MSF/hour)	(lb/MSF)	(tons)		
VOC	26.4	0.07	8.1		
PM	26.4	0.12	13.9		
PM10	26.4	0.102	11.8	PM10 = 85% of PM per DEQ AQ-EF03	
PM2.5	26.4	0.051	5.9	PM2.5 = 50% of PM per DEQ AQ-EF08	
Acetaldehyde	26.4	0.007	0.8		
Formaldehyde	26.4	0.003	0.3		
Methanol	26.4	0.04	4.6		
Phenol	26.4	0.006	0.7		
Propionaldehyde	26.4	0.003	0.3		

Everette Billie of Jasper Wood Products estimates both presses maximum throughput is 143,270 MSF/year or 16.4 MSF/hour
 Emission Factors are from ODEQ general permit for sawmills and plywood/veneer sources except PM (AP-42, Table 10.5-4).

EU-1 Dry Kilns (2)					
	Max	Emission	Conversion	Annual	
	throughput	Factor	Factor	Emissions	
Pollutant	(bd feet/year)	(lb/1000 bd feet)	(ton/lb)	(tons)	
VOC	0	1.7	0.0005	0.0	
PM/PM10/PM2.5	0	0.05	0.0005	0.0	DEQ AQ-EF02 for hemlock, AQ-EF08 100% of PM10 is PM2.5
Methanol	0	0.128	0.0005	0.0	
Formaldehyde	0	0.003	0.0005	0.0	
Acetaldehyde	0	0.113	0.0005	0.0	

The two dry kilns are now being used to "flash dry" treated wood and not to drive off wood moisture.

EU-2 Two (2) Veneer Dryers				
RCO				
	Max Annual	Emission	Annual	CAM
	Throughput	Factor	Emissions	Maximum
Pollutant	(MSF 3/8")	(lbs/MSF 3/8")	(tons/year)	Pre-control
				(tons)
PM/PM10/PM2.5	200,000	0.022		2.2
NOx	200,000	0.120		12.0
CO	200,000	0.044		4.4
VOC (normal)	200,000	0.006		0.6
VOC (RCDME)	10,000	0.055		0.3
Methanol	200,000	0.018		1.8
Formaldehyde	200,000	0.001		0.1
Emission factors for PM/PM10, CO and Formaldehyde are the average from representative source tests on identical & similar GeoEnergy RCO's				
NOx emission factor is from AQGP-010 for "veneer dryer gas heat"				
Methanol emission factor is from the testing performed at the facility on 03/10/15				
VOC emission factor is from the facility's test on 03/10/15				
VOCs are estimated for both normal operation and for routine control device maintenance exemptions (RCDME), e.g., for RCO bakeouts				
PM10 = 100% PM2.5 as per AQ-EF08				
Cooling and Fugitive Sections				
	Max Annual	Emission	Annual	
	Throughput	Factor	Emissions	
Pollutant	(MSF 3/8")	(lbs/MSF 3/8")	(tons/year)	
VOC	200,000	0.14		14.0
Methanol	200,000	0.015		1.5
Formaldehyde	200,000	0.003		0.3
Phenol	200,000	0.009		0.9
Propionaldehyde	200,000	0.002		0.2
Acetaldehyde	200,000	0.007		0.7
Emission factors are from AQGP-010 for cooling and fugitive section factors (combined)				
Veneer Dryer 1 is an AKI Dryer Manufacturers longitudinal, natural gas fired dryer, max 15 MSF/hr 3/8" basis.				
Veneer Dryer 2 is a COE M62 jet, natural gas fired dryer, max 10 MSF/hr 3/8" basis				
RCO is a GeoEnergy regenerative catalytic oxidizer purchased from the Roseburg FP Junction City mill (old Trus Joist mill)				
RCO control estimate for VOC is 95%, design temp is 750-850F, <1 sec residence time, 37,000 acfm.				

EU-3 Torit and Day Baghouse (Sanders and Skinner Saws)						
Device	Pollutant	Max Annual Throughput (BDT/year)	Max Monthly Throughput (MSF/year)	Emission Factor (lbs/BDT)	Annual Emissions (tons/year)	CAM Maximum Pre-control (tons)
Total	PM/PM10/PM2.5	13,500	NA	0.04	0.3	27.0 (99% control assumption)
Sander	VOC	NA	40,000	0.18	3.6	
Sander	Methanol	NA	40,000	0.012	0.2	
Sander	Formaldehyde	NA	40,000	0.002	0.0	
Sander	Acetaldehyde	NA	40,000	0.003	0.1	
Saw	VOC	NA	78,000	0.088	3.4	
Saw	Methanol	NA	78,000	0.012	0.5	
Saw	Formaldehyde	NA	78,000	0.003	0.1	
Saw	Acetaldehyde	NA	78,000	0.0009	0.0	
Total	VOC	NA	NA	NA	7.0	
Total	Methanol	NA	NA	NA	0.7	
Total	Formaldehyde	NA	NA	NA	0.2	
Total	Acetaldehyde	NA	NA	NA	0.1	
Emission factors from AQGP-010 for sanders and saws with baghouse control						
Throughputs provided by facility						
EU-6 Wood Treating: 2 Autoclaves for Fire Retardant Application						
Pollutant	Max Annual Throughput (pounds/year)	Max Monthly Throughput (pounds/month)	Emission Factor (lbsVOC/lb solution)	Annual Emissions (tons/year)		
VOC	120,000	10230	0	0.0		
Thermex-FR fire retardant (Chemco Acquisition Inc. MSDS) contains 0% VOC by weight						
EU-9 Hogged Fuel Pile						
Pollutant	Throughput (BDT/year)	Emission Factor (lb/BDT)	Annual Emissions (tons/yr)			
PM/PM10	1,645	0.48	0.4			
PM2.5	1,645	0.072	0.1	PM2.5 is 15% of PM10 (DEQ AQ-EF08)		
VOC	1,645	0.33	0.3			
Source estimates a maximum throughput of 32,900 tons/year on a wet basis, BDT total assumes 50% moisture						
Wood-fired boiler defined as 'limited use' so reduce fuel pile throughput by same amount (10% of 16,450 BT/yr).						
PM/PM10 emission factor from sources Title V application with "GP Estimate" reference						
VOC emission factor is derived from facility's Title V application with "NCASI Tech Bull. 723 Pg 14, converted from as-carbon to as-VOC (x1.22)						

Emission Factors

Emission Unit	Pollutant	Emission Factor	Emission Factor Units	Reference
EU4 Boiler (wood)	PM	0.4	(lbs/1000 lbs steam)	DEQ AQ-EF02
EU4 Boiler (wood)	PM10	0.398	(lbs/1000 lbs steam)	DEQ AQ-EF03 (99.5% PM10)
EU4 Boiler (wood)	PM2.5	0.3582	(lbs/1000 lbs steam)	DEQ AQ-EF03 (99% PM2.5)
EU4 Boiler (wood)	SO2	0.014	(lbs/1000 lbs steam)	DEQ AQ-EF02
EU4 Boiler (wood)	NOx	0.31	(lbs/1000 lbs steam)	DEQ AQ-EF02
EU4 Boiler (wood)	CO	1.0	(lbs/1000 lbs steam)	DEQ AQ-EF02 (fuel cell)
EU4 Boiler (wood)	VOC	0.13	(lbs/1000 lbs steam)	DEQ AQ-EF02
EU5 Boiler (gas)	PM	2.5	lbs/MMSCF	DEQ AQ-EF05
EU5 Boiler (gas)	PM10	2.5	lbs/MMSCF	DEQ AQ-EF05
EU5 Boiler (gas)	PM2.5	2.5	lbs/MMSCF	DEQ AQ-EF05
EU5 Boiler (gas)	SO2	1.7	lbs/MMSCF	DEQ AQ-EF05
EU5 Boiler (gas)	NOx	100	lbs/MMSCF	DEQ AQ-EF05
EU5 Boiler (gas)	CO	84	lbs/MMSCF	DEQ AQ-EF05
EU5 Boiler (gas)	VOC	5.5	lbs/MMSCF	DEQ AQ-EF05
EU7 Plywood Press	PM	0.12	lb/MSF	AP-42, Table 10.5-4
EU7 Plywood Press	PM10	0.102	lb/MSF	AP-42, Table 10.5-4
EU7 Plywood Press	PM2.5	0.051	lb/MSF	AP-42, Table 10.5-4
EU7 Plywood Press	VOC	0.07	lb/MSF	DEQ AQGP-010
EU2 -Venner Dryer (RCO)	PM	0.022	(lbs/MSF 3/8")	ST on similar equipment
EU2 -Venner Dryer (RCO)	PM10	0.022	(lbs/MSF 3/8")	ST on similar equipment
EU2 -Venner Dryer (RCO)	PM2.5	0.022	(lbs/MSF 3/8")	DEQ AQ-EF08
EU2 -Venner Dryer (RCO)	NOx	0.12	(lbs/MSF 3/8")	DEQ AQGP-010
EU2 -Venner Dryer (RCO)	CO	0.0435	(lbs/MSF 3/8")	ST on similar equipment
EU2 -Venner Dryer (RCO)	VOC (normal)	0.005513113	(lbs/MSF 3/8")	ST 03/10/15
EU2 -Venner Dryer (RCO)	VOC (RCDME)	0.055131133	(lbs/MSF 3/8")	ST 03/10/15 x 10
EU2 -Cooling and Fug.	VOC	0.14	(lbs/MSF 3/8")	DEQ AQGP-010
EU-3 sander and saw	PM	0.04	lb/BDT	DEQ AQGP-010
EU-3 sander and saw	PM10	0.04	lb/BDT	DEQ AQGP-010
EU-3 sander and saw	PM2.5	0.04	lb/BDT	DEQ AQGP-010
EU-3 sander	VOC	0.18	lb/BDT	DEQ AQGP-010
EU-3 saw	VOC	0.088	lb/BDT	DEQ AQGP-010
EU-9 Hog Fuel Pile	PM	0.48	lb/BDT	Facility Estimate (GP Permit)
EU-9 Hog Fuel Pile	PM10	0.48	lb/BDT	Facility Estimate (GP Permit)
EU-9 Hog Fuel Pile	PM2.5	0.072	lb/BDT	DEQ AQ-EF08
EU-9 Hog Fuel Pile	VOC	0.33	lb/BDT	NCASI Tech Bull. 723 Pg 14, converted from as-carbon to as-VOC (x1.22)
EU-10 Putty Patch	VOC	0.18	lb/gal	Mfg SDS

RCO Test Data

RCO	Test Date	Species	VOC	PM	CO	NOx	Methanol	Formaldehyde
RCO-R	5/9/2012	Fir/W fir	0.003	0.011	0.031	0.003	0.0005	0.0003
RCO-R	5/9/2012	Pine	0.003	0.017	0.056	0.004	0.001	0.0007
RCO-S	6/17/2008	Fir	0.017	0.02				
RCO-S	6/10/2014		0.132	0.038			0.003	
RCO-J	9/12/2007	Fir	0.017	0.022			0.0013	0.0008
RCO JWP	3/10/2015	Fir	0.005513				0.018115	
	Average (excl JWP)		0.034	0.022	0.044	0.004	0.001	0.001

All values in lb/MSF 3/8" basis

RCO-R is the Rogue River facility

RCO-S is the Sutherlin facility

RCO-J is the Junction City facility (the actual RCO used at Jasper).

The applicant included the Rogue and Sutherlin facility tests as representative of Jasper emissions

Wood-Boiler HAPs

	Emission Factor (lb/ton fuel)	Annual Throughput (tons/year)	Annual Emission (pounds/year)
Acenaphthene	4.10E-06	50,847	0.2
Flourene	8.22E-06	50,847	0.4
Fluoranthene	1.83E-05	50,847	0.9
Benzoanthracene	3.27E-06	50,847	0.2
Benzofluoranthenes	7.65E-07	50,847	0.0
Benzopyrene	6.75E-08	50,847	0.0
Benzoperylene	1.41E-06	50,847	0.1
Chrysene	4.52E-07	50,847	0.0
Inenopyrene	3.60E-07	50,847	0.0
Acenaphthylene	4.76E-05	50,847	2.4
Methyl anthracene	1.40E-04	50,847	7.1
Acrolein	4.00E-06	50,847	0.2
Formaldehyde	8.20E-03	50,847	416.9
Acetaldehyde	1.92E-03	50,847	97.6
Benzene	9.95E-03	50,847	505.9
Napthalene	3.39E-03	50,847	172.4
2,3,7,8-Tetrachlorodibenzo-p-dioxir	3.60E-11	50,847	0.0
2-chlorophenol	5.13E-07	50,847	0.0
2,4-dinitrophenol	4.23E-06	50,847	0.2
4-nitrophenol	2.97E-06	50,847	0.2
			1204.9 pounds
			= 0.6 tons

Emission factors are from AP-42 Table 1.6-4, 2/99 for wood waste boilers with PM controls.

Annual throughput obtained by converting max steam rate to units/hr combusted.

Total potential wood-fired steaming rate is 16,700 + 20,700 = 37,400 lb steam/hour

1 lb steam = 970 BTU, 100,000 BTU = 1 therm, 125 therms = 1 unit hog fuel, 1 unit hog fuel = 2.0 BDT Sanderdust

Baseline Emission Rates

Wood-fired Boiler (Suspension Fuel Cell)

Pollutant	Max Design capacity (lbs steam/year)	Emission Factor (lbs/1000 lbs steam)	Annual Emissions (tons)
PM	140,000,000	0.4	1.4
PM10	140,000,000	0.2	0.7
SO2	140,000,000	0.014	1.0
NOx	140,000,000	0.31	21.7
CO	140,000,000	1	70.0
VOC	140,000,000	0.13	9.1

Emission Factors are from General ACDP for Fuel Cell
 PM/PM10 emissions assume baghouse provides similar control as to that of ESP (95%)
 Boiler was uncontrolled in baseline year but rate is reduced assuming control is needed to meet rules

Three (3) Cyclones

Pollutant	Max Annual Throughput (BDT/year)	Emission Factor (lbs/BDT)	Annual Emissions (tons/year)
PM/PM10	21,412	0.5	5.4

Emission factor from General ACDP for medium-efficiency cyclone
 Throughput is estimate of actual planer shavings and sawdust

Four (4) Dry Kilns

Pollutant	Max throughput (bd feet/year)	Emission Factor (lb/1000 bd feet)	Conversion Factor (ton/lb)	Annual Emissions (tons)
VOC	30,000,000	0.6	0.0005	9.0
PM/PM10	30,000,000	0.02	0.0005	0.3

Estimate of throughput is from 1984 permit application
 VOC and PM/PM10 factors are from General ACDP for predominant species dried (doug fir)

GHG Actual Emissions from 2007 Calendar Year

Boiler Fuel	Amount	Units	CO2e Emissions
Natural Gas	500,000	Hundred Cubic Ft	2725
Wood	7,000	Ton	11728
Distillate No. 2	186,845	Gallon	1909
See copy of Excel calculator for details			TOTAL
			16362 metric ton
			17998.2 US ton

SUMMARY

Pollutant	Baseline
PM	7.1
PM10	6.4
SO2	1.0
NOx	21.7
CO	70.0
VOC	18.1
GHG	17998