

LANE REGIONAL AIR PROTECTION AGENCY (LRAPA) TITLE V OPERATING PERMIT REVIEW REPORT

REVIEW REPORT

Murphy Company- Prairie Road Panelboard Plant

Permit No. 203102

2350 Prairie Road
 Eugene, Oregon 97404
 Website: <http://murphyplywood.com/>

Source Information:

SIC	2435, 4961
NAICS	321211, 221330

Source Categories (LRAPA Title 37, Table 1)	B.57: Plywood Manufacturing and/or Veneer Drying C.4: Sources subject to a NESHAP C.6: PTE>100 ton/yr criteria pollutant C.7: PTE>10 ton/yr single HAP
Public Notice Category	III

Compliance and Emissions Monitoring Requirements:

Unassigned emissions	y
Emission credits	n
Compliance schedule	n
Source test date	See Permit Condition 20, 21, and 34

COMS	n
CEMS	n
Ambient monitoring	n

Reporting Requirements:

Semi-annual reports (due dates)	August 30 March 15
SACC (due date)	August 30 March 15
Quarterly report (due dates)	n

Monthly report (due dates)	n
Excess emissions report	y
Other reports	n

Air Programs:

NSPS (list subparts)	n
NESHAP (list subparts)	A, JJJJJJ
CAM	y
Regional Haze (RH)	n
Synthetic Minor (SM)	y
Part 68 Risk Management	n
Title V	y
ACDP (SIP)	n

New Source Review (NSR)	n
Prevention of Significant Deterioration (PSD)	n
Acid Rain	n
Clean Air Mercury Rule (CAMR)	n
TACT	y

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LIST OF ABBREVIATIONS USED IN THIS REVIEW REPORT

ACDP	Air Contaminant Discharge Permit	MB	Material Balance
Act	Federal Clean Air Act	MBF	1,000 Board feet
ASTM	American Society of Testing and Materials	MSF	1,000 Square feet 3/8" basis
BDT	Bone dry ton	MSDS	Material Safety Data Sheets
BDU	Bone dry unit	MeOH	Methanol
BF	Board feet	NA	Not applicable
Btu	British thermal unit	NO _x	Nitrogen oxides
CEMs	Continuous emission monitoring system	NESHAP	National Emission Standard for Hazardous Air Pollutant
CFR	Code of Federal Regulations	NSPS	New Source Performance Standards
CO	Carbon Monoxide	NSR	New Source Review
CO ₂	Carbon Dioxide	O ₂	Oxygen
CO ₂ e	Carbon Dioxide Equivalent	OAR	Oregon Administrative Rules
CPMS	Continuous parameter monitoring system	ODEQ	Oregon Department of Environmental Quality
DEQ	Department of Environmental Quality	ORS	Oregon Revised Statutes
dscf	Dry standard cubic feet	O&M	Operation and maintenance
EF	Emission factor	PF	Phenol-Formaldehyde
EPA	US Environmental Protection Agency	Pb	Lead
ERC	Emission Reduction Credit	PCD	Pollution Control Device
EU	Emissions Unit	PM	Particulate matter
FCAA	Federal Clean Air Act	PM ₁₀	Particulate matter less than 10 microns in size
FSA	Fuel sampling and analysis	PM _{2.5}	Particulate matter less than 2.5 microns in size
GHG	Greenhouse Gas	ppmv	Parts per million by volume
gr/dscf	Grain per dry standard cubic foot (1 pound = 7000 grains)	ppm	Parts per million
HAP	Hazardous Air Pollutant as defined by LRAPA Title 44	PSEL	Plant Site Emission Limit
HCFC	Halogenated Chloro-Fluoro-Carbons	psia	Pounds per square inch, actual
HCOH	Formaldehyde	RTO	Regenerative Thermal Oxidizer
ID	Identification number	SCHED	Schedule
I&M	Inspection and maintenance	SERP	Source emissions reduction plan
LRAPA	Lane Regional Air Protection Agency	SPEC	Special
M	1,000	SO ₂	Sulfur dioxide
MM	1,000,000	ST	Source test
		VE	Visible emissions
		VMT	Vehicle miles traveled
		VOC	Volatile organic compounds

INTRODUCTION

1. This permit is a renewal of LRAPA Title V Operating Permit No. 203102 for Murphy Company’s Prairie Road Panelboard Plant that was issued on March 9, 2012 and scheduled to expire on March 9, 2017. The facility submitted a renewal application in a timely manner on March 8, 2016, and the existing permit will remain in effect until this renewal is issued.
2. Permitting History: The facility was owned and operated by the Georgia Pacific Corporation from some date prior to 1977 until 2005 (11/1/05) when it was purchased by Murphy Plywood.
3. 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

4. Murphy Company owns and operates a plywood/panelboard manufacturing facility located at 2350 Prairie Road in Eugene, Oregon.

FACILITY DESCRIPTION

5. The Prairie Road Panelboard Plant is a specialty panelboard/plywood manufacturing facility. Wall paneling and hardwood plywood is produced from veneer or manufactured board that is delivered to the facility. Paneling and plywood panels are manufactured by pressing layers of veneer or manufactured board to which glue has been applied. These panels are processed in a variety of ways, including trimming, patching, sanding, and similar activities. Some panels are sold without further finishing, while others are processed through the coating line. In the coating line, UV activated, waterborne, high solids finishes are applied to one or more of the panel faces to achieve the desired properties (color, texture, durability, etc.)

OPERATING SCENARIO

6. The facility has one operating scenario to cover all proposed operations.

EMISSION UNIT AND CONTROL DEVICE IDENTIFICATION

7. The emissions units regulated by the permit are the following:

Emissions Unit	EU ID	Pollution Control Device/Practice	PCD ID
Veneer Drying Operations Veneer Dryer #1 Veneer Dryer #2	EU-01	Packed-bed Wet Scrubber	VDSC

Emissions Unit	EU ID	Pollution Control Device/Practice	PCD ID
East Fuel Cell (EU-01 heat source)	EU-01A	Packed-bed Wet Scrubber	VDSC
Plywood Production Hot Press #1 and Hot Press #2	EU-02	None	NA
Finishing Line Painting and Coating Operations Drying Ovens	EU-03	None	NA
Wood Residuals Conveying System A Core Saws Skinner and Cutoff Saws Sanding Lines Groovers Big Cyclone Buffers #2 Metering Bin Cyclone	EU-04	Baghouse	Bag-1, Bag-2, and Bag-3
Wood Residuals Conveying System B Metering Bin Cyclone	EU-05	Baghouse	Bag-4
Paved and Unpaved Road Emissions	EU-07	None	NA
West Fuel Cell	EU-08	Dry ESP	NA
Hogged Fuel Pile	EU-09	Enclosed Building	NA
Putty Patching Operations, VOC only	EU-10	None	NA
Aggregate Insignificant Emissions #1 Natural Gas Boiler #2 Natural Gas Boiler Paper Cyclone Sample Department Cyclone Carpenter Shop Cyclone Rubber Cyclone	EU-AGG	None	NA

8. Veneer Dryers 1 and 2 and East Fuel Cell (EU-01 and EU-01A)

Veneer Dryer 1:

COE Manufacturing, longitudinal deck, direct-heated, with four (4) decks and three (3) zones, installed in 1967. The dryer is controlled by a Packed Bed Wet Scrubber (pollution control device ID VDSC, assumed to be medium efficiency) installed in January 1975; and

Veneer Dryer 2:

Moore Dry Kiln, longitudinal deck, direct-heated with five (5) decks and (1) zone, installed in 1971. The dryer is controlled by a Packed Bed Wet Scrubber (pollution control device ID VDSC, assumed to be medium efficiency) installed in January 1975.

East Fuel Cell:

Heated air produced by the sanderdust and hogged fuel-fired, 34 MMBtu/hr, East Fuel Cell (EU-01A) is the heat source for the Veneer Dryers 1 and 2. Exhaust air from the dryers is partially recirculated as

make-up air for the East Fuel Cell. All exhaust passes through the Packed Bed Wet Scrubber (pollution control device ID VDSC, assumed to be medium efficiency).

The following table summarizes the packed bed wet scrubber information for the above veneer dryers:

Device Description	ID No.	Manufacturer	Year Installed	Design Water Flow Rate (gal/min)	Design Inlet Gas Flow Rate (acfm)
Packed Bed Scrubber – Med. Eff.	VDSC	Georgia-Pacific Corp.	1975	75	26,000

9. Plywood Presses, Resin Storage, and Handling (EU-02)

Press 1

Was installed in 1959 with maximum hourly production of 19,672 ft²/hr (3/8" basis). The press-loading operations were modified in 1996 which increased the short-term production capacity of the press.

Press 2

Was installed in 1978 with maximum hourly production of 19,672 ft²/hr (3/8" basis). A Notice of Intent to Construct a modification to the press-loading operations was submitted and approved in 1996. The modification was completed in 1997.

Resin Storage and Handling

The unit includes resin, catalyst, and defoamer tanks; glue loft, shaker and spreaders. Emissions for this unit were reevaluated during the 2019 renewal and moved to Aggregate Insignificant Activities (EU-AGG). Emissions from the handling of resin are assumed to be negligible.

The maximum combined annual production of both presses is 160,000 MSF (3/8") basis.

10. Finishing Line (EU-03)

Unfinished paneling passes through a variety of coating applicators and curing ovens to be finished according to specifications. The finished product may include a topcoat, paper overlay, or wet-grain print. Coatings are applied with flooding rollers. Excess coatings are collected and recirculated to the flooding rollers. Oven #5 (color oven) was removed in November of 2018 and was not replaced.

11. Wood Residuals Conveying System A (EU-04)

Includes the following emission devices: SAW-1, SAW-2, SL-1, SD-1, SD-2, SD-3, GR-1, GR-2, GR-3, BC-1, BF-1, BF-2, BF-3, BF-4, and MB-2:

Device Description	Material	Year Installed	Max Rated Design Capacity	Description
Core Saw (SAW-1)	Sawdust	1961	NA	Sawdust from SAW-1
Core Saw (SAW-2)	Sawdust	1978	NA	Sawdust from SAW-2
Skinner & Cut-off Saws (SL-1)	Sawdust & Trim	1961	NA	Trim from SL-1 is conveyed to the hogger
#1 Sanding Line (SD-1)	Sanderdust	1972	NA	Sanderdust from SD-1
#2 Sanding Line (SD-2)	Sanderdust	2015	NA	Sanderdust from SD-2
#3 Sanding Line (SD-3)	Sanderdust	2010	NA	Sanderdust from SD-3
#1 & #3 Groovers (GR-1 & GR-3)	Sawdust	1977	NA	Sawdust from GR-1 and GR-3
#2 Groover (GR-2)	Sawdust	1961	NA	Sawdust from GR-2
Big Cyclone (BC-1)	Wood Residuals	1976	27,000 cfm	Sawdust is collected by the high efficiency cyclone
Buffers 1 and 2 (BF-1, BF-2)	Particulate Dust	1977	NA	Sawdust from BF-1 and BF-2
#2 Metering Bin Cyclone (MB-2)	Sanderdust	1974	4,300 lbs/hr	Sanderdust is pneumatically conveyed to MB-2.

The following table summarizes the baghouse information for the wood residuals conveying system A (EU-04):

Device Description	ID Number	Manufacturer	Year Installed	Design Air-to-Cloth Ratio	Design Inlet Gas Flow Rate (acfm)
Baghouse	Bag-1	Carter Day	1972	10:1	30,600
Baghouse	Bag-2	Carter Day	1983	10:1	30,600
Baghouse	Bag-3	Clarke's	1976	8:1	27,000

12. Wood Residuals Conveying System B (EU-05) includes MB-1:

Device Description	Material	Year Installed	Max Rated Design Capacity	Description
#1 Metering Bin Cyclone (MB-1)	Hogged Fuel/Sanderdust	1971	4,300 lbs/hr	Hogged Fuel/Sanderdust is pneumatically conveyed to MB-1. Cyclone exhausts to East Fuel Cell Baghouse.

The following table summarizes the baghouse information for the above material-handling system:

Device Description	ID Number	Manufacturer	Year Installed	Design Air-to-Cloth Ratio	Design Inlet Gas Flow Rate (acfm)
Baghouse	Bag-4	Clarke's	1976	8:1	7,850

13. Paved and Unpaved Roads (EU-07)

Includes the vehicular traffic on paved and unpaved roads around the plant that causes fugitive particulate matter emissions. The vehicles include forklifts, log trucks, and tractors. Emissions are based on vehicle miles traveled (VMT).

14. West Fuel Cell (EU-08) includes Dry ESP

Burns hogged fuel including plywood trim and sanderdust in a suspension firing method. Hot combustion gases are exhausted to the heat recovery boiler or the combustion gas-to-air heat exchanger. Steam from the heat recovery boiler is used to heat the Plywood Presses (EU-02). Heated air from the combustion gas-to-air heat exchanger is used in the Finishing Line (EU-03). Some hot gas is recirculated to the heat cell, while the rest is exhausted to the inlet to the Dry Electrostatic Precipitator (ESP). The fuel cell was installed in 1975 and has a rated capacity of 34 MM Btu/hr.

On December 18 and 19, 2001, the facility conducted a source test on the West Fuel Cell that showed emissions greater than the 0.1 gr/dscf exhaust gas corrected to 50% excess air or 12% CO₂. The facility entered into a Stipulated and Final Order (SFO No. 02-2367) with LRAPA in which it was agreed a Dry ESP would be installed. A Notice of Completed Construction was received by LRAPA on July 7, 2003, for the Dry ESP. The control device and West Fuel Cell were tested on August 26, 2003. The test showed that the unit was in compliance with the 0.1 grain-loading standard and now the current 0.10 grain-loading standard.

The Dry ESP is a PPC Industries model and has a design inlet gas flow rate of 20,000 ACFM.

15. Mill Sources subject to Board Products Rule

Include emissions units Veneer Dryers (EU-01 and 01A), Plywood Presses (EU-02), Residuals Handling (EU-04 and 05), West Fuel Cell (EU-08), and Hogged Fuel Pile (EU-09) for the purposes of the Title 33 Board Products Rule (1.0 lb/MSF - 3/8" basis).

16. Aggregate Insignificant Activities (EU-AGG)

Includes natural gas-fired Boilers 1 and 2 (NG-1 and NG-2), and various cyclones (MC-1 through MC-4), as listed below:

Device Description	Material	Design Gas Flow Rate/Max Design Capacity	Year Installed	Description
Natural Gas Boiler 1 (NG-1)	Natural Gas	3.8 MMBtu/hr	1972	Steam is supplied to the hot presses at 175 psi and 370°F. Hot gases are exhausted to the atmosphere. The boiler is used as a backup for the Plywood Presses (EU-02) and is operated less than 1,500 hours per year.

Device Description	Material	Design Gas Flow Rate/Max Design Capacity	Year Installed	Description
Natural Gas Boiler 2 (NG-2)	Natural Gas	3.8 MMBtu/hr	1978	Steam is supplied to the hot presses at 175 psi and 370°F. Hot gases are exhausted to the atmosphere. The boiler is used as a backup for the Plywood Presses (EU-02) and is operated less than 1,500 hours per year.
Paper Cyclone (MC-1)	Paper trimmings	3 BDT/year	1977	This process cyclone collects excess paper from the laminating machine.
Sample Department Cyclone (MC-2)	Particulate Matter	1 BDT/year	1961	This process cyclone collects particulate generated by the sample department.
Carpenter Shop Cyclone (MC-3)	Sawdust	2 BDT/year	1989	This process cyclone collects sawdust generated in the carpenter shop.
Rubber Cyclone (MC-4)	Particulate Matter	2 Ton/year	1961	This process cyclone collects particulate generated in roller conditioning.
Resin Storage Tanks (EU-2C)	Plywood Resin	8 MM lbs/year	Unknown	Various resin storage tanks

AGGREGATE INSIGNIFICANT EMISSIONS

17. The emissions estimates from the activities included in the aggregate insignificant emissions unit (EU-AGG) are as follows:

Emissions Source	Pollutants (tons/yr)						
	PM	PM ₁₀	PM _{2.5}	VOC	NO _x	SO ₂	CO
Boilers 1 and 2	0.01	0.01	0.01	0.03	0.57	0.01	0.48
Rubber Cyclone	0.0005	0.0003	0.0001	NA	NA	NA	NA
Sample Department Cyclone	0.0003	0.0001	0.0001	NA	NA	NA	NA
Carpenter Shop Cyclone	0.0005	0.00025	0.000125	NA	NA	NA	NA
Paper Cyclone	0.0005	0.00025	0.000125	NA	NA	NA	NA
Resin Storage Tanks	NA	NA	NA	0.0106	NA	NA	NA
Totals	0.02	0.02	0.02	0.031	0.57	0.01	0.48

CATEGORICALLY INSIGNIFICANT ACTIVITIES

18. The facility 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 OAR Chapter 340, Divisions 200 through 268, excluding Divisions 248 and 262, 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 including:

- Natural gas and propane burning equipment rated at less than or equal to 2.0 million Btu/hr;
- Office activities;
- Instrument calibration
- Food service activities;
- Personal care activities;
- Janitorial activities;
- Grounds-keeping activities including but not limited to building, painting, and road and parking lot maintenance;
- 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 of the CAA (Stratospheric Ozone Protection), 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 processing 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;
- Instrument air dryers and distribution;
- 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;
- 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;
- Vacuum sheet stacker vents;
- Emissions from waste water discharges to publicly-owned treatment works (POTW) provided the facility is authorized to discharge to the POTW, not including on-site waste water treatment and/or holding facilities;
- Storm water settling basins;
- Fire suppression and training;
- Paved roads and paved parking lots within an urban 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;
- 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;
- Industrial cooling towers that do not used chromium-based water treatment chemicals;
- Uncontrolled oil/water separators in effluent treatment systems;
- On-site storage tanks not subject to any NSPS, including underground storage tanks (UST), storing gasoline or diesel used exclusively for fueling of the facility’s fleet of vehicles; and
- Combustion source flame safety purging on startup.

19. The following approved changes have been made to the permit during the last permit term:

Date	Permit Revision or Notification	Brief Explanation
October 2012	Significant Permit Modification – Addendum No. 1	Reopened for cause by LRAPA to include the PM _{2.5} and GHG PSEs that were inadvertently excluded from the permit renewal.
July 2013	Minor Modification – Addendum No. 2	Add “President” to the titles of Responsible Officials and change the Facility Contact Person to “Bill Day, Environmental Manager”. Also, change and clarify the emission factors for EU-04 and EU-05 in Table 8.

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

New Permit Condition Number	Old Permit Condition Number	Description of Change	Reason for Change
Cover Page	Cover Page	Updated facility contact names from Bill Day to Kris York and John Murphy	Facility request
List of Abbreviations	List of Abbreviations	Add definition of Modified EPA Method 9 and revised capitalization.	Clarity and consistency
1	1	NA	NA
2	2	Removed the fugitive dust requirement from the list of LRAPA-only enforceable conditions since it is part of the SIP. Added LRAPA-only enforceable condition designation for 250-micron fallout standard since it is not part of the SIP.	Update/correction
3	3	Removed “Finished Goods Cyclone” in the EU table; removed “Lignite Spray for Dust” as a control practice for EU-07 Paved and Unpaved Roads; and, Changed “Partial Coverage” to “Enclosed Building” for EU-09 Hogged Fuel Pile control practice/device. Removed EU-02C from the EU table; resin handling is now in EU-AGG. Combined EU-02A and EU-02B so that each press is included in one EU (EU-02).	Finished Goods Cyclone is no longer present; the facility has paved almost all roads and no longer applies a lignite spray; and, the facility has completely enclosed the hogged fuel pile. Press production and associated emissions in EU-02 are not tracked and reported specifically to each press.
4	4	Updated fugitive dust requirement condition to include list of reasonable precautions. Removed “only enforceable by LRAPA” designation.	Consistent with other Title V permits and rules. Fugitive dust condition is included in the SIP and is federally enforceable.

New Permit Condition Number	Old Permit Condition Number	Description of Change	Reason for Change
6	6	Revised 250 micron fallout condition	Rule update/revision during permit term
7	7	Changed "shall" to "must" here and throughout permit.	Style update
8	8	Revised concealment & masking condition	Rule update/revision during permit term
9	9	Included 40 CFR Part 98 citation of authority to RMP condition	Clarity and consistency
10	17	Moved 1.0 lb/1000 square feet limitation to facility wide requirements. Changed EU-02A and EU-02B to one EU-02 but specified each hot press by number	Permit reorganization to include with facility-wide conditions. Facility requested that EU-02A and EU-02B be combined to EU-02.
11	10	Removed notes that included definitions of maximum and average operating opacity	Consistent with rule revisions during the permit term
12	11	Changed "or" to "and"	Correction – both apply.
13	12	NA	NA
14	13	Changed combustion grain loading standard from "0.1" to "0.14".	Rule update/revision during permit term
15	14	Removed EUs Roads, Hogged fuel pile and aggregate insignificant from the opacity limitation requirement. Changed EU-02A and EU-02B to one EU-02.	Does not apply to fugitive sources. Aggregate insignificant opacity limitations specified in other section of permit. Facility requested that EU-02A and EU-02B be combined to EU-02.
16	15	NA	NA
17	16	NA	NA
18	18-21	Combined all aggregate insignificant requirements into one condition	Permit reorganization and consistent with template.
19	19	Updated PSELs, and unassigned emission.	PSELs based on current operational scenario and revised emission factors based upon source testing.
20	23	Revised three-test run condition to clarify that at least two valid runs must be submitted to demonstrate compliance (in lieu of "to be accepted"). Added 60-day source test report submittal date	Consistent with rule
--	24	Removed grain loading compliance testing requirement for West Fuel Cell EU-08	Previous testing showed compliance. Title V Monitoring and Testing guidance recommends that source testing be conducted at least once during every permit term. PM emissions are estimated to be less than 10 tons/year (1.32 tons/year PM maximum). PM, NOx and CO testing conducted July 2018 counts as testing for the draft permit.
--	25	Removed grain loading compliance testing requirement for Veneer Dryers EU-01 and East Fuel Cell EU-01A	Previous testing showed compliance. Title V Monitoring and Testing guidance recommends that the previous particulate compliance and CO and NOx emission factor verification testing is sufficient. PM, NOx and CO testing conducted July 2018 counts as testing for the draft permit.
21	26	Updated emission factor verification testing requirement to specify that the testing be conducted within 12 months of permit issuance in lieu of once per permit term	Clarity, staff preference
18	27	Combined all aggregate insignificant requirements into one condition	Permit reorganization and consistent with template.
22	28	Updated fugitive emission survey requirement	Rule change during permit term and consistency with template
23	29	Updated nuisance log requirement	Rule change during permit term and consistency with template

New Permit Condition Number	Old Permit Condition Number	Description of Change	Reason for Change
24-31	30-37	Condition numbering change. Changed EU-02A and EU-02B to one EU-02.	Condition numbering changed. Facility requested that EU-02A and EU-02B be combined to EU-02.
32	38	Clarify that compliance with PSELs excludes GHGs from the use of emission factors, etc.; reorganized table of recordkeeping parameters. Changed EU-02A and EU-02B to one EU-02.	Consistent with template – GHG PSEL compliance is determined by way of annual reporting required by DEQ’s division 215; clarity and permit reorganization. Facility requested that EU-02A and EU-02B be combined to EU-02.
33	Table 8, Table 9	Included the table in a permit condition; updated emission factors and emission factor verification testing requirements; removed GHG emission factor table. Added one (1) ton per year for each aggregate insignificant emission pollutant.	Clarity, consistency and permit reorganization; emission factors were revised based upon better information including source testing. Emission factor verification testing revised based upon existing emission levels and previous permit term testing – consistent with DEQ Title V Monitoring and Testing guidance; GHG PSEL compliance is determined by way of annual reporting required by DEQ’s division 215. Retaining requirement to verify VOC emission factors since the July 2018 testing did not concurrently measure VOC as propane and Methanol and Formaldehyde. Adding one (1) ton per year to table will now require source to report that as emissions, annually.
34-35	39-40	Renumbered	Permit reorganization
36	41	Updated HAP emission factors; removed HAP testing. Changed EU-02A and EU-02B to one EU-02.	Emission factors for HAPs were updated to reflect representative test results obtained during the previous permit term; HAP testing conducted in previous permit term satisfies emission factor verification requirements – will reevaluate next permit term. Facility requested that EU-02A and EU-02B be combined to EU-02.
37	42	Updated boiler area source NESHAP	The one-time energy assessment was completed during the permit term. Revisions were also made to make requirements clearer and more specific.
38	43	Renumbered	Permit reorganization
39	44	Added units to some specific recordkeeping parameters	Clarity and consistency
40	45	Updated recordkeeping condition	Rule updates during permit term, and consistency and clarity.
41	46	Added specific Title 36 citation reference	Clarity and accuracy
42	47	Renumbered	Permit reorganization
43	--	Added responsible official signature requirement	Applicable requirement
44	--	Added requirement commencement provision	Applicable requirement
45	--	Added GHG reporting requirement	Applicable requirement
46, 47	48, 49	Renumbered	Permit reorganization
48	50	Included specific annual report elements to include PSEL compliance demonstration, GHG reporting, and biennial boiler NESHAP tune-up reports	Applicable requirements and clarity & consistency
49	51	Renumbered	Permit reorganization
--	52, 53	Deleted annual reporting requirements	Redundant with new condition 49 and general testing requirements
50	--	Added condition allowing facility to used monitoring for submitting compliance certifications	Permit standardization
51	54	Update EPA mailing address	Address was updated by EPA

New Permit Condition Number	Old Permit Condition Number	Description of Change	Reason for Change
52	--	Added specific non-applicable requirements section	Permit standardization

BASELINE EMISSION RATE (BER) INFORMATION

21. The following emissions summaries have been calculated based on individual emissions units. The calculation is not intended to represent emissions limits for individual emissions units.

22. Baseline Operating Schedule:

- a. Plywood Lay-up: 24 hrs/day x 5 days/wk x 50 wks/yr = 6,000 hrs/yr
- b. Veneer Dryers: 24 hrs/day x 5 days/wk x 50 wks/yr = 6,000 hrs/yr

24. The Baseline Production Rates for all pollutants except PM_{2.5} were as follows:

Production or Process Parameter	Period	Rate	Units
Plywood (3/8")	Annual Production	113,000	MSF - 3/8" basis
Veneer Dried	Annual Veneer Dried	74,200	MSF - 3/8" basis

25. 1978 Baseline Emissions Rates (tons/yr):

Emissions Unit ID	PM	PM ₁₀	PM _{2.5}	CO	NO _x	SO ₂	VOC
Veneer Dryers	8.3	8.3	NA	53.8	19.7	NA	22.0
East Fuel Cell	NA	NA	NA	NA	NA	1.0	NA
Hot Presses	1.8	1.8	NA	NA	NA	NA	2.6
Resin Usage	NA	NA	NA	NA	NA	NA	48.8
Finishing Line	NA	NA	NA	NA	NA	NA	680
North Carter Day Baghouse	8.1	8.1	NA	NA	NA	NA	NA
#2 Clark Baghouse	7.1	7.1	NA	NA	NA	NA	NA
East Fuel Cell Baghouse	2.1	2.1	NA	NA	NA	NA	NA
Unpaved Road (Employees')	5.2	1.9	NA	NA	NA	NA	NA
Unpaved Road (Shipping)	2.7	1.0	NA	NA	NA	NA	NA
West Fuel Cell	17.4	17.4	NA	26.6	27.2	0.4	0.6
Hogged Fuel Storage	2.5	1.1	NA	NA	NA	NA	NA
Natural Gas Boilers 1 and 2 (EU-AGG)	0.3	0.3	NA	0.5	2.4	0.1	0.1
Aggregate Insignificant (all other EU-AGG)	0.30	0.30	NA	0.12	0.57	0	0.03
Total	55.7	49.4	NA	81.0	49.8	1.5	754.1

NA = Not Applicable

26. Greenhouse Gas Baseline Emission Rate (tons/yr)

Source	CO ₂	CH ₄	N ₂ O	CO ₂ e
Hogged Fuel (BDT)	32734	11	1	33423
Natural Gas (Units)	656	0.01	0.001	657
Propane (Units)	766	0.04	0.007	769
Biogenic Total	32734	11	1	33353
Anthropogenic Total	1422	0.05	0.009	1426
Total GHG	33857	11	1	34776

Greenhouse gas baseline emission rate is set based actual emissions from 2010 in accordance with the definition of "Baseline Period" in LRAPA Title 42.

PLANT SITE EMISSIONS LIMITS (PSELs) and NETTING BASIS

27. The plant can be operated as much as 24 hours per day, 7 days per week, and 52 weeks per year.
28. The annual rates of veneer dried and plywood produced were revised based on a request by the facility during the permit renewal. Veneer drying was revised from 90,000 to 120,00 MSF (3/8" basis) and plywood production was revised from 180,000 to 160,000 MSF (3/8" basis). The production rates used for determining the current PSELs are as follows.

Production or Process Parameter	Period	Rate	Units
Plywood Production	Annual	160,000	MSF - 3/8" basis
Veneer Dried	Annual	120,000	MSF - 3/8" basis

29. Changes to the PSELs in this permit renewal were the result of the use of new source test data and revisions to the production rates identified above. During the previous permit term (2013, 2014 and 2018) the permittee tested several emission units including Veneer Dryers (EU-01), East Fuel Cell (EU-01A), Hot Presses (EU-02), and West Fuel Cell (EU-08).

Pollutant	Baseline Emission Rate (tons/yr)	Netting Basis		Plant Site Emission Limit (PSEL)		
		Previous (tons/yr)	Proposed (tons/yr)	Previous PSEL (tons/yr)	Proposed PSEL (tons/yr)	PSEL Increase (tons/yr)
PM	56	40	40	40	33	0
PM ₁₀	49	34	34	34	33	0
PM _{2.5}	NA	29	29	29	14	0
CO	81	82	82	175	172	5
NO _x	50	50	50	55	48	0
SO ₂	1.5	1.5	1.5	39	39	0
VOC	754	139	139	99	50	0
GHG	34849	2115	34849	74000	74000	0

- 29.a. In accordance with LRAPA Title 12, the PM_{2.5} netting basis was established as the fraction of the current PM₁₀ netting basis at the time of the previous renewal.

- 29.b. The netting basis have not been revised in this permitting action. Detailed netting basis emission calculations are found in Detail Sheets attached to this review report.
 - 29.c. A baseline emission rate is not required for PM_{2.5} in accordance with the definition of “baseline emission rate” in LRAPA Title 12.
 - 29.d. The baseline emission rate for greenhouse gases (GHG) is based on the natural gas and steam production during the consecutive 12-month period of January 2010 through December 2010. The previous baseline emission rate did not include CO₂ emissions from the combustion of biomass because EPA had deferred regulation of CO₂ from biomass. The baseline emission rate now includes CO₂ from biomass since the EPA deferral has ended. The GHG baseline is provided in Emission Detail Sheet Attachment.
 - 29.e. The PSELs for PM_{2.5}, SO₂ and GHG are equal to the generic PSEL levels in accordance with LRAPA’s Title 42.
 - 29.f. Detailed calculations for the proposed PSEL are found in Detail Sheets attached to this review report.
30. In addition to the PSEL, the permit includes the following:

Pollutant	Unassigned Emissions (tons/yr)	Emission Reduction Credits (tons/yr)
PM	7	0
PM ₁₀	1	0
PM _{2.5}	15	0
CO	0	0
NO _x	0	0
SO ₂	0	0
VOC	89	0

- a. Unassigned emissions were established with the previous renewal and revised with this draft renewal. In accordance with LRAPA 42-0045, unassigned emissions were reduced to no more than the SER for each pollutant in LRAPA Title 12, Table 2. By rule (LRAPA Title 42), unassigned emissions are equal to the netting basis minus the current PTE. For this facility, the PSEL is equivalent to the PTE. The VOC unassigned emissions are reestablished with this renewal and will be reduced to no more than the SER at the next renewal or permit opening.

SIGNIFICANT EMISSION RATE (SER)

31. The PSEL increase over the netting basis is less than the Significant Emission Rate (SER) as defined in LRAPA Title 12 for all of the pollutants and is shown below. No further air quality analysis is required for these pollutants.

Pollutant	Netting Basis (tons/year)	Proposed PSEL (tons/year)	Increase from Netting Basis (tons/year)	SER (tons/year)
Particulate, PM	40	28	0	25
Particulate, PM ₁₀	34	28	0	15
Particulate, PM _{2.5}	29	25	0	10
CO	82	172	90	100
NO _x	50	39	0	40
SO _x	1.5	39	38	40
VOC	139	50	0	40
GHG (CO ₂ e)	34,849	74,000	39,151	75,000

HAZARDOUS AIR POLLUTANTS (HAPs)

32. The maximum HAP emissions estimated for the facility are included in the following table:

Pollutant	Tons/Year
Formaldehyde	5.5
Methanol	5.9
Acetaldehyde	2.4
Acrolein	0.2
Phenol	0.02
Propionaldehyde	0.01
Other HAPs	2.1
TOTAL HAPs	17.1

33. The facility has been operating within their PSEL. The production rates associated with the PSEL are such that the facility does not operate over the major source thresholds for hazardous air pollutants. As part of the previous permit renewal, specific permit limitations and testing requirements were added to ensure the facility continues to operate under the major source HAP thresholds. The facility elected to accept federally enforceable limits on production to avoid the requirements of the Plywood & Composite Wood Products (PCWP) National Emission Standard for Hazardous Air Pollutants (NESHAP) prior to the applicable compliance date. The facility tested the dryers, presses, and fuel cells during the previous permit term to ensure compliance with the synthetic minor conditions. Tracking of methanol and other HAP emissions has been deemed sufficient to ensure compliance with the synthetic minor HAP limitations. As a synthetic minor source of HAPs, the facility is not subject to any major source NESHAP including the Plywood & Composite Wood Products NESHAP.

34. The West Fuel Cell (EU-08) is subject to and will be required to comply with the area source NESHAP applicable to boilers (40 CFR Subpart JJJJJ). EPA promulgated the boiler area source NESHAP March 21, 2011. The compliance date for the facility was March 21, 2012.
35. Calculation of HAP emissions can be seen in the emission detail sheet attached to this review report.

STRATOSPHERIC OZONE-DEPLETING SUBSTANCES

36. The facility does not manufacture, sell, distribute, or use in the manufacturing of a product any stratospheric ozone-depleting substances and the EPA 1990 Clean Air Act as amended, Sections 601-618, does not apply to the facility except that air conditioning units and fire extinguishers containing Class I or Class II substances must be serviced by certified repairmen to ensure that the substances are recycled or destroyed appropriately.

MONITORING REQUIREMENTS

37. Section 70.6(a)(3) of the federal Title V permit rules, requires 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 facility's compliance with the permit.

However, the requirements 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). For this reason, this permit does not include any monitoring for insignificant emissions units and activities.

38. The Title V permit does include monitoring for all requirements that apply to significant emissions units in addition to the testing requirements in the permit. Periodic visible emissions observations are required for all particulate emissions sources. In addition, the permit includes monitoring of operating parameters for the boilers and pollution control devices. It is assumed that as long as these processes and controls are properly operated, the particulate emissions levels will be below the emissions limits specified in the permit.
39. **Compliance Assurance Monitoring (CAM):** The facility is subject to the provisions of 40 CFR Part 64 -- Compliance Assurance Monitoring (CAM) because of its classification as a Title V facility, and because of control equipment, emission limitations and pre-control emissions at or above Title V major source levels at one (1) or more pollutant-specific emission units. CAM applies to emissions units EU-04 and EU-05 (Wood Residuals Conveying Systems) for particulate matter. CAM doesn't apply to EU-01 and EU-08 because potential pre-control device emissions that are less than 100% of the amount required for the emission unit to be classified as a Part 70 major source. The permit includes CAM requirements for the applicable units and/or control devices. The following table evaluates CAM applicability for all emission units with control devices:

Emission Unit	Uses a Control	Pollutant	Uncontrolled Potential	Pre-control	Is there an Emission	Subject to CAM
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	Device for a Regulated Pollutant		Emissions Exceed Major Source Threshold	Emissions (tons/year)	Limitation or Standard for this Pollutant	for the Pollutant
Veneer Dryers EU-01 and East Fuel Cell EU-01A	Yes	Particulate Matter	No	52	Yes	No
Wood Residuals Conveying A EU-04	Yes	Particulate Matter	Yes	>100	Yes	Yes
Wood Residuals Conveying B EU-04	Yes	Particulate Matter	Yes	>100	Yes	Yes
West Fuel Cell EU-08	Yes	Particulate Matter	No	25	Yes	No

CAM is specified in the permit's monitoring section under Condition 27. Daily pressure drop readings and specific parametric action levels for the baghouse control device on EU-04 are CAM requirements included in the permit. 1-time-per-day monitoring frequencies are allowed by rule since the post control emissions for the affected EUs are less than the major source threshold. The CAM requirements have not been revised with this renewal.

RECORDKEEPING REQUIREMENTS

- 40. The permit includes requirements for maintaining records of all testing, monitoring, and production information necessary for assuring compliance with the standards and calculating long-term plant site emissions.

REPORTING REQUIREMENTS

- 41. The permit includes a requirement for submitting semi-annual and annual monitoring reports and compliance certifications. Excess emissions are required to be reported to LRAPA immediately within 1 hour as well as recorded in a log book attached to the annual report. Emissions fees reports are required annually. The annual report is also required to include annual greenhouse gas (GHG) emissions in terms of CO₂ equivalents (CO₂eq).

SOURCE TESTING AND RESULTS

- 42. The emission detail sheets attached to this review report contain a summary of the compliance and emission factor verification testing conducted at the facility.
- 43. The permit requires the facility verify emission factors (EF) for the Veneer Dryers (EU-01) and the Presses (EU-2A & 2B) for VOC within 12 months of expiration of the permit. The EF verification testing is in accordance with the once/term testing frequency specified in Oregon's Title V Monitoring and Testing Guidance since the EU's have pollutant-specific emissions of greater than 10 tons/year.

44. Testing in July of 2018 was used to satisfy the requirements that would have been placed in this draft permit renewal. The facility voluntarily tested EU-01 and EU-01A for PM, CO and NO_x. The facility also tested EU-08 for CO and NO_x. The testing performed to measure VOC for both EU-01 and EU-08 was not used since concurrent measurement of formaldehyde and methanol was not performed.
45. The testing for HAPs is removed with this permit since the previous test results show that, based upon the facility capacity, the facility has potential HAP emissions below the major source thresholds.

GENERAL BACKGROUND INFORMATION

46. The proposed permit is a renewal of an existing Title V Federal Operating Permit (No. 203102) which was renewed previously on March 9, 2012. The Title V permit was originally scheduled to expire on March 9, 2017. A complete renewal application was received before the permit expired and the permit was extended administratively until the permit is renewed.
47. The facility is located in an attainment area for PM, PM_{2.5}, VOC, NO_x, SO₂ and a maintenance area for CO and PM₁₀.
48. The facility is located within 100 kilometers of two (2) Class I air quality protection areas: Diamond Peak Wilderness and Three Sisters Wilderness area.

COMPLIANCE HISTORY

49. The facility was issued Notice of Violation No. 02-2367 on March 15, 2002 for the emission of PM in excess of 0.1 grain per standard cubic foot, corrected to 12% CO₂ or 50% excess air, from emission unit EU-08. The facility installed a Dry ESP and retested to show compliance with the above referenced standard.
50. The facility was issued Notice of Noncompliance (NON) No. 3218 on September 17, 2010 for failing to include affirmation of compliance with the permit "General Conditions"; failing to submit Title V renewal application in a timely manner; and failing to recognize intermittent compliance in semi-annual certifications. Murphy submitted an account addressing the deficiencies. It was agreed that an acknowledgment of the deficiencies and subsequent inclusion of required report corrections was sufficient to reconcile and the Notice of Non-Compliance has been closed.

ADDITIONAL REQUIREMENTS

51. This facility is not currently subject to federal regulations for New Source Performance Standards (NSPSs).
52. This facility is not currently subject to federal regulations for New Source Review/Prevention of Significant Deterioration (NSR/PSD).

PUBLIC NOTICE

48. This draft permit will be on public notice from March 20, 2019 to April 23, 2019. Comments may be submitted in writing during the comment period. LRAPA will hold a public hearing if requested by 10 or more individuals or one person representing a group of 10 or more individuals. After the comment period and hearing, if requested, LRAPA will review the comments and modify the permit as may be appropriate. A proposed permit will then be sent to EPA for a 45-day review period. LRAPA may

Expiration Date: [5 years from issuance]

requested 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 340-2180210, 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.

Max/cmw
3/18/19

ATTACHMENT TO REVIEW REPORT – EMISSION DETAIL SHEETS

Emissions Detail Sheets							
Emissions Unit	Production Rate	Units	Pollutant	Emission Factor	Units	Reference	Annual Emissions (ton/yr)
EU-01: Veneer Dryer	120,000	MSF 3/8/yr	Formaldehyde	0.0664	lb/MSF 3/8'	NCASI Tech. Bull. 768 (cooling and fugitives), 2013 Source Test (ST-heating section)	3.98
EU-01: Veneer Dryer	120,000	MSF 3/8/yr	Methanol	0.0522	lb/MSF 3/8'	NCASI Tech. Bull. 768 (cooling and fugitives), 2013 ST (heating section)	3.13
EU-01: Veneer Dryer	120,000	MSF 3/8/yr	Acetaldehyde	0.03103	lb/MSF 3/8'	NCASI Tech. Bull. 768 (cooling and fugitives), 2013 ST	1.86
EU-01: Veneer Dryer	120,000	MSF 3/8/yr	Total HAP	0.17	lb/MSF 3/8'	NCASI Tech. Bull. 768 (cooling and fugitives), 2013 ST (heating section)	9.95
EU-01: Veneer Dryer	120,000	MSF 3/8/yr	VOC	0.556	lb/MSF 3/8'	NCASI Tech. Bull. 768 (cooling and fugitives), 2014 and 1994 ST (heating section)	33.33
EU-01: Veneer Dryer and EU-01A East Fuel Cell	120,000	MSF 3/8/yr	PM ₁₀	0.423	lb/MSF 3/8'	Average 2001, 2013, 2018 and 1994 ST	25.35
EU-01: Veneer Dryer and EU-01A East Fuel Cell	120,000	MSF 3/8/yr	PM _{2.5}	0.106	lb/MSF 3/8'	Ave of PM Source Tests, PM _{2.5} Fraction = 0.25, AQ-EF03 Med Eff Wet Scrubber	6.34
EU-01: Veneer Dryer and EU-01A East Fuel Cell	120,000	MSF 3/8/yr	NO _x	0.406	lb/MSF 3/8'	Average of 2018 and 2013 ST	24.36
EU-01: Veneer Dryer and EU-01A East Fuel Cell	120,000	MSF 3/8/yr	CO	1.767	lb/MSF 3/8'	Average of 2018 and 2013 ST	106.02
EU-01A: East Fuel Cell	14,500	BDT	SO ₂	0.22	lb/ton of fuel	AP-42 1.6, converted to lb/ton using HHV of 4472 Btu/lb	1.62
EU-01A: East Fuel Cell	14,500	BDT	HAPs (not already included in EU-01)	0.26	lb/ton of fuel	AP-42 1.6, converted to lb/ton using HHV of 4472 Btu/lb. See also EU-1A HAPs sheet	1.90
EU-01A: East Fuel Cell	14,500	BDT	GHG (CO ₂ e)	1.59	lb/ton of fuel	40 CFR Part 98: 15.38 MMBtu/ton, 93.8 kg CO ₂ /MMBtu, 0.0011 kg/US ton	23.019
EU-02A & 02B: Presses	160000	MSF 3/8/yr	Formaldehyde	0.0010	lb/MSF 3/8'	2013 ST	0.08
EU-02A & 02B: Presses	160000	MSF 3/8/yr	Methanol	0.022	lb/MSF 3/8'	2013 ST	1.76
EU-02A & 02B: Presses	160000	MSF 3/8/yr	Phenol	0.0003	lb/MSF 3/8'	2013 ST	0.02
EU-02A & 02B: Presses	160000	MSF 3/8/yr	Acetaldehyde	0.0010	lb/MSF 3/8'	2013 ST	0.08
EU-02A & 02B: Presses	160000	MSF 3/8/yr	Acrolein	0.00010	lb/MSF 3/8'	2013 ST	0.01
EU-02A & 02B: Presses	160000	MSF 3/8/yr	Propionaldehyde	0.00010	lb/MSF 3/8'	2013 ST	0.01
EU-02A & 02B: Presses	160000	MSF 3/8/yr	Total HAP	0.025	lb/MSF 3/8'	sum of 2013 ST HAPs	1.96
EU-02A & 02B: Presses	160000	MSF 3/8/yr	VOC	0.1027	lb/MSF 3/8'	EPA Region 10 WPP1	8.22
EU-02A & 02B: Presses	160000	MSF 3/8/yr	PM ₁₀	0.011	lb/MSF 3/8'	2013 ST	0.88
EU-02A & 02B: Presses	160000	MSF 3/8/yr	PM _{2.5}	0.01	lb/MSF 3/8'	DEQ AQ-EF08 (50%)	0.44
EU-03: Finishing Line			VOC			VOCs determined by mass balance. Amount here based on actual emissions for 2016	1.6
EU-04: Wood Residuals Conveying System A	160000	MSF 3/8/yr	Methanol	1.00E-02	lbs/Mft ³ 3/8'	NCASI Tech. Bull. 768	0.80
EU-04: Wood Residuals Conveying System A	160000	MSF 3/8/yr	Formaldehyde	2.00E-03	lbs/Mft ³ 3/8'	NCASI Tech. Bull. 768	0.16
EU-04: Wood Residuals Conveying System A	160000	MSF 3/8/yr	Acetaldehyde	2.00E-03	lbs/Mft ³ 3/8'	NCASI Tech. Bull. 768	0.16
EU-04: Wood Residuals Conveying System A	160000	MSF 3/8/yr	VOC	1.40E-02	lbs/Mft ³ 3/8'	Sum of Methanol, Formaldehyde and Acetaldehyde	1.12
EU-04: Wood Residuals Conveying System A	160000	MSF 3/8/yr	PM ₁₀	0.012	lbs/Mft ³ 3/8'	2001 source test (ply press production basis)	0.96
EU-04: Wood Residuals Conveying System A	160000	MSF 3/8/yr	PM _{2.5}	0.012	lbs/Mft ³ 3/8'	2001 test + (PM _{2.5} Fraction = 0.99)	0.95
EU-05: Wood Residuals Conveying System B	3.40E+09	acfm	PM ₁₀	0.01	gr/s/cf	GP Estimate	2.43
EU-05: Wood Residuals Conveying System B	3.40E+09	acfm	PM _{2.5}	0.01	gr/s/cf	GP Estimate + (PM _{2.5} Fraction = 0.99)	2.40
EU-6: Bleaching Operations	Bleaching operations no longer occur at the facility						0
EU-07: Paved and Unpaved Road	See attached road fugitive Calculator						0.46
EU-07: Paved and Unpaved Road			PM ₁₀				0.46
EU-07: Paved and Unpaved Road			PM _{2.5}				0.07
EU-8: West Fuel Cell	7,500	BDT/yr	VOC	1.20	lb/ton fuel	2013 ST VOC as propane plus HCOH and MeOH	4.49
EU-8: West Fuel Cell	7,500	BDT/yr	PM ₁₀	0.39	lb/ton fuel	2013 ST	1.46
EU-8: West Fuel Cell	7,500	BDT/yr	PM _{2.5}	0.35	lb/ton fuel	DEQ AQ-EF08 (ESP)	1.33
EU-8: West Fuel Cell	7,500	BDT/yr	NO _x	6.1	lb/ton fuel	2018 ST, 2013 ST, 1994 ST	22.86
EU-8: West Fuel Cell	7,500	BDT/yr	CO	17.2	lb/ton fuel	2018 ST, 2013 ST, 1994 ST	64.50
EU-8: West Fuel Cell	7,500	BDT/yr	SO ₂	0.22	lb/ton fuel	AP-42 1.6, converted to lb/ton using HHV of 4472 Btu/lb	0.84
EU-8: West Fuel Cell	7,500	BDT/yr	GHG (CO ₂ e)	1.6	lb/ton fuel	40 CFR Part 98: 15.38 MMBtu/ton, 93.8 kg CO ₂ /MMBtu, 0.0011 kg/US ton	11.906
EU-8: West Fuel Cell	7,500	BDT/yr	Formaldehyde	0.3310	lb/ton fuel	2013 ST	1.24
EU-8: West Fuel Cell	7,500	BDT/yr	Methanol	0.0660	lb/ton fuel	2013 ST	0.25
EU-8: West Fuel Cell	7,500	BDT/yr	Acetaldehyde	0.0750	lb/ton fuel	2013 ST	0.28
EU-8: West Fuel Cell	7,500	BDT/yr	Acrolein	0.0580	lb/ton fuel	2013 ST	0.22
EU-8: West Fuel Cell	7,500	BDT/yr	Phenol	0.0000	lb/ton fuel	2013 ST	0.00
EU-8: West Fuel Cell	7,500	BDT/yr	Propionaldehyde	0.0000	lb/ton fuel	2013 ST	0.00
EU-8: West Fuel Cell	7,500	BDT/yr	Benzene	0.0280	lb/ton fuel	2013 ST	0.11
EU-8: West Fuel Cell	7,500	BDT/yr	HCl	0.0050	lb/ton fuel	2013 ST	0.02
EU-8: West Fuel Cell	7,500	BDT/yr	Manganese	0.0004	lb/ton fuel	2013 ST	0.001
EU-8: West Fuel Cell	7,500	BDT/yr	Other HAP	0.0238	lb/ton fuel	AP-42 1.6, converted to lb/ton using HHV of 4472 Btu/lb	0.09
EU-8: West Fuel Cell	7,500	BDT/yr	Total HAP	0.5872	lb/MMBtu	2013 ST and AP-42 1.6	2.20
EU-9: Hogged Fuel Pile	5.00E+02	Tons/yr	PM ₁₀	0.24	lbs/ton	GP Estimate	0.06
EU-9: Hogged Fuel Pile	5.00E+02	Tons/yr	PM _{2.5}	0.036	lbs/ton	GP Estimate (PM _{2.5} Fraction = 0.15)	0.01
EU-9: Hogged Fuel Pile	5.00E+02	Tons/yr	VOC	0.33	lbs/ton	NCASI Tech Bul. 723 Pg. 14 x 1.22 (as propane)	0.08
EU-AGG			PM ₁₀ /PM _{2.5}	1		See EU-AGG tab	1.0
EU-AGG			VOC	1			1.0
EU-AGG			NO _x	1			1.0
EU-AGG			CO	1			1.0

Plantwide Potential Emissions based on capacity	Tons/year	Unassigned (ton/year)					
PM	33	8					
PM10	33	1					
PM _{2.5}	13	15					
VOC	50	89					
NO _x	48	--					
SO ₂	2.5	--					
GHG	34,925						
CO	172	--					
Formaldehyde	5.5	--					
Methanol	5.9	--					
Acetaldehyde	2.4	--					
Acrolein	0.2	--					
Phenol	0.02	--					
Propionaldehyde	0.01	--					
Other HAPs	2.1	--					
Total HAPs	17.1	--					

Highest Single HAP and Total HAP Emission Factors			
Pollutant	Process/Device	Emission Factor	Units
Methanol	Fuel Cells (EU-01A and EU-08)	0.066	lb/BDT
	Presses (EU-02A & EU-02B)	0.022	plywood
	Veneer Dryers (EU-01)	0.052	plywood
Total HAP	Fuel Cells (EU-01A and EU-08)	0.850	lb/BDT
	Presses (EU-02A & EU-02B)	0.025	plywood
	Veneer Dryers (EU-01)	0.166	plywood

EU-01 Veneer Dryer HAPs

PTE HAP Emission Inventory

Dryer Activity	VOC	Total HAP	Acetaldehyde	Formaldehyde	Methanol	Phenol	Propionaldehyde	m,p-Xylene	o-Xylene
Heating	0.486	0.097	0.026	0.03	0.04	0	0	0.001	0
Cooling	0.0295	0.0241	0.0042	0	0.0039	0.0091	0	0.0043	0.0026
Fugitives	0.0026	0.0447	0	0.0364	0.0083	0	0	0	0
TOTAL (lb/MSF 3/8")	0.5181	0.166	0.0302	0.0664	0.052	0.0091	0	0.0053	0.0026

Cooling, Fugitive and xylene heating section factors from EPA Region X (NCASI TB 768, updated 2015 and 2016), using highest emitting wood species.
Heating section emission factors 2013 VOC as propane plus methanol and formaldehyde

Aggregate Insignificant Emissions

Device	Pollutant	Max Heat Input (MMBtu/hr)	Max Heat Input (MMSCF/hr)	Emission Factor (lb/MMSCF)	Annual Emissions (ton/yr)
Natural Gas-Fired Boilers #1 and #2 (NG-1 and NG-2)	PM/PM10/PM2.5	7.6	0.0076	2.5	0.01
	SO2			1.7	0.01
	NOx			100	0.57
	CO			84	0.48
	VOC			5.5	0.03

Actual hours of each boiler operation = 1500 per year
Emission factors from AQ-EF05

Device	Pollutant	Material Throughput (BDT/year)	Emission Factor (lb/BDT)	Annual Emissions (ton/yr)
Rubber Cyclone (MC-4)	PM	2	0.5	0.0005
	PM10		0.425	0.0004
	PM2.5		0.25	0.0003
Sample Dept Cyclone (MC-2)	PM	1	0.5	0.0003
	PM10		0.425	0.0002
	PM2.5		0.25	0.0001
Carpenter Shop Cyclone (MC-3)	PM	2	0.5	0.0005
	PM10		0.425	0.000425
	PM2.5		0.25	0.00025
Paper Cyclone (MC-1)	PM	3	0.5	0.0005
	PM10		0.425	0.000425
	PM2.5		0.25	0.00025
TOTAL			PM	0.016
			PM10	0.016
			PM2.5	0.015

Emission factors from AQ-EF02, AQ-EF03
Updated material throughput amounts (BDT/year) provided from facility consultant 12/8/17 email.

Device	Pollutant	Material Throughput (lb/yr)	Related Production Basis (MMSF/yr 3.8")	Emission Factor (lb/MMSF 3/8")	Annual Emissions (ton/yr)
Resin Storage Tank(s) EU-2C	VOC	8,000,000	160	0.133	0.0106

Emission factor from Swanson Title V which cites Weyerhaeuser Foster 2006 Permit
Also reviewed Roseburg Forest Products, Riddle Plywood (and other) detail sheets that used AP-42 Chapter 7
Other facilities have more resin usage (~10 million pounds/year) and VOC emissions of 0.066 ton/year