



State of Oregon  
Department of  
Environmental  
Quality

OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY  
OREGON TITLE V OPERATING PERMIT  
REVIEW REPORT  
Western Region  
4026 Fairview Industrial Dr. SE  
Salem, OR 97301

**Source Information:**

SIC	2493, 4961
NAICS	321219, 221330

Source Categories (Part and code)	
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**Compliance and Emissions Monitoring Requirements:**

Unassigned emissions	X
Emission credits	X
Compliance schedule	
Source test [date(s)]	Boiler (annual), RCO (once)

COMS	X
CPMS	X
PEMS	
Ambient monitoring	

**Reporting Requirements**

Annual report (due date)	March 15
Emission fee report (due date)	March 15
SACC (due date)	March 15, August 31

Quarterly report (due dates)	
Monthly report (due dates)	X
Excess emissions report	X
Other reports (type)	GHG

**Air Programs**

NSPS (list subparts)	A, Dc
NESHAP (list subparts)	A, DDDD, DDDDD
CAM	X
Regional Haze (RH)	
Synthetic Minor (SM)	
Part 68 Risk Management	
CFC	
RACT	

TACT	
Title V	X
ACDP (SIP)	
Major HAP source	X
Federal major source	X
NSR	
PSD	
Acid Rain	

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## LIST OF ABBREVIATIONS USED IN THIS REVIEW REPORT

AMB	Ambient	MON	Monitoring
AQMA	Air Quality Management Area	NA	Not applicable
ASTM	American Society of Testing and Materials	NESHAP	National Emission Standard for Hazardous Air Pollutants
BDT	Bone dry ton	NO <sub>x</sub>	Oxides of nitrogen
CFR	Code of Federal Regulations	NSPS	New Source Performance Standard
CMS	Continuous monitoring system	NSR	New Source Review
CPMs	Continuous parameter monitoring system	O <sub>2</sub>	Oxygen
CO	Carbon monoxide	OAR	Oregon Administrative Rules
CO <sub>2</sub>	Carbon dioxide	ORS	Oregon Revised Statutes
COMPL	Compliance	O&M	Operation and maintenance
COMS	Continuous opacity monitoring system	Pb	Lead
COND	Condition	PCD	Pollution control device
CRED	Credit	PM	Particulate matter
DEQ	Oregon Department of Environmental Quality	PM <sub>10</sub>	Particulate matter less than 10 microns in aerodynamic diameter
dscf	Dry standard cubic feet	PM <sub>2.5</sub>	Particulate matter less than 2.5 microns in aerodynamic diameter
EF	Emission factor	PSD	Prevention of Significant Deterioration
EPA	United State Environmental Protection Agency	PSEL	Plant Site Emission Limit
EU	Emissions unit	QA/Qc	Quality assurance/quality control
FCAA	Federal Clean Air Act	RCO	Regenerative catalytic oxidizer
FEC	Fugitive emissions control	SERP	Source emissions reduction plan
gr/dscf	Grains per dry standard cubic feet	SCHED	Schedule
HAP	Hazardous air pollutant	SO <sub>2</sub>	Sulfur dioxide
IEUs	Insignificant emissions units	ST	Source test
ID	Identification code	VE	Visible emissions
I&M	Inspection and maintenance	VMT	Vehicle mile traveled
MDF	Medium density fiberboard	VOC	Volatile organic compound
MMBtu	Million British thermal units	WESP	Wet electrostatic precipitator
Msqft	Thousand square feet	YR	Any 12 consecutive month period

**INTRODUCTION**

1. The proposed permit is a renewal of an existing Oregon Title V Operating Permit which was issued on 8/28/2001 and was scheduled to expire on 8/1/06. The prior company, SierraPine, submitted a timely renewal application on 8/1/05, thus the permit remains in effect until the renewal permit is issued. The new owner, Roseburg Forest Products Co., resubmitted a revised renewal application on 8/8/16 as well as a significant permit modification application and both will be incorporated simultaneously in this permitting action. The significant permit modification application is to incorporate the change from WESP control on Boiler #4 to a baghouse control.
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.
3. The following changes have occurred since the last permit renewal.

Date	Permit revision or notification	Brief explanation
5/31/06	NOA #21824	Change sanderdust system and install baghouse
2007		Shut down pre-dryer and associated equipment
01/02/08	Significant Permit Modification	Addition of PCWP NESHAP requirements
1/3/08	NOA #22472	Install 3 baghouses to remove particulate from 3 press exhausts prior to use as dryer make-up air
6/11/08	Administrative Amendment	Revised excess emission reporting rules
6/12/08	Construction ACDP	Construction of RCO on particle dryers 2 and 3
10/9/08	NOA #23500	Install wall on unloader side of MDF hot press
9/8/11	NOA #26405	Replace four 42 inch refiners with two 52 inch refiners
11/14/12	NOA #27059	Disconnected 2 scrubbers installed on the dryer exhaust and Install baghouse upstream of the RCO to collect fiber emitted from the dryers for reuse in the MDF manufacturing process
3/11/15	NOA # 28094	Install green material truck dump
2/24/16	NOA #28523	Replace Boiler #4 WESP with multiclone and baghouse
7/14/16	Administrative Amendment	Changed ownership to Roseburg Forest Products Co.
11/1/16	502(b)(10) change	Changed Conditions 12 and 17 to match revised DEQ rules
12/23/16	NOA #28897	Install DriSteem humidifier

The following changes in emission sources and EU ID are proposed in this renewal.

Old EU ID	Emission Source	New EU ID	Control Device
EU1	Boiler (previously referred to as Boiler 4)	Boiler	Multiclones, Baghouse
EU2	Particle dryers #2 (Face) & #3 (Core)	Dryers 2 & 3	RCO
EU3		Misc. Fugitives	Partial enclosure

	Material handling conveyers – radial stacker, truck dump etc.		
EU4	Spray painting	Facility VOC	None
EU5	Storage piles	Piles	Partial enclosure
EU6	Press and cooling vents	Press	RCO
	Board Cooler	Board Cooler	
EU7	Material transfer equipment	M1	Baghouses/Cyclones
EU8	Hardboard rule limit (0.25 lb/Msf)	Combined as MDFHBR	
EU9	Hardboard rule limit (0.55 lb/Msf)		
EU10	2 gas turbines	Removed	

Major changes to permit conditions or permit format between the previous permit and the proposed permit are being proposed as follows.

Description of change	Reason for change
New permit condition organization	The DEQ Title V Model Permit A was used to organize testing, monitoring, and recordkeeping requirements so that they follow immediately after an applicable requirement for an emission unit.
NESHAP requirements included	Applicable NESHAPs have been promulgated since last permit renewal and are included as Appendix A (Plywood MACT) and Appendix B (Boiler MACT).

**PERMITTEE IDENTIFICATION AND FACILITY DESCRIPTION**

- Roseburg Forest Products - Medford is a wood products manufacturing facility located within the urban growth boundary of Medford and within the Medford-Ashland AQMA.

The facility was originally permitted as Medford Corporation under permit no. 15-0048 and then under Medite Corporation under permit no. 15-0073. SierraPine acquired the facility in 1997 and was issued the original Title V permit on 1/4/99. Roseburg Forest Products acquired the facility in 2015.

The plant is a medium density fiberboard (MDF) manufacturing facility. Wood furnish is processed in a digester and then a refiner where the refined furnish is combined with resins and wax. The fiber stream is pneumatically conveyed to and dried in two dryer tubes heated by natural gas panel burners, or steam coils using steam from the Boiler. The fiber is separated from the gas stream in two cyclones. The dried material enters the forming process and a mat is spread and trimmed into lengths prior to entering the steam-heated hot press. Exhaust gas and fine fiber from each fiber dryer is routed through a cyclone and also through a process baghouse unit before being routed through an RCO. Material collected in the process baghouse is recycled to the MDF manufacturing process. The steam to "cook" the wood fiber in the digester and to hot press the mats is supplied by the Boiler that can be fired on either natural gas or sanderdust from the MDF finishing process. When being fired on either sanderdust or a combination of sanderdust and natural gas, the Boiler exhaust is routed through a baghouse to control particulate emissions.

**EMISSIONS UNIT AND POLLUTION CONTROL DEVICE IDENTIFICATION**

- The emissions units, devices, and activities at this facility include the following:

EU ID	Device Description
Boiler	Nebraska boiler firing sanderdust or natural gas, installed 1992. Rated at 80,000 lbs steam/hr (with heat input capacities of 77 MM Btu /hr on SD+NG or 90 MM Btu/hr on NG only), equipped with a Ducon Multiclone followed by a Griffin Filters pulse-jet baghouse for particulate control when the Boiler is fired primarily on sanderdust. Boiler exhaust may be emitted directly to atmosphere when firing only natural gas.
Dryers 2 & 3	Direct contact, natural gas fired particle dryers with a total capacity of 43.5 BDT per hour. Dryer 3 (capacity 17.4 BDT/hr) dries the material for the core of the MDF and Dryer 2 (capacity 26.1 BDT/hr) dries the material for the face of the MDF. The emissions from the dryers are controlled by six process baghouses followed by the RCO. The RCO has a CPMS that measures and records the combustion chamber temperature.
Misc. Fugitives	Raw material handling equipment.
Piles	Raw material storage piles.
Press	The press converts the sheets of fiber into MDF under pressure and heat from steam. The emissions from the press are controlled by three process baghouses followed by the RCO. Capacity is 165,000 ft <sup>2</sup> /hr (1/8" basis) or 27,500 ft <sup>2</sup> /hr (3/4" basis).
Board Cooler	After the press, the sheets of MDF are transferred to cooling wheels before being stacked. The exhaust fans mounted over the cooling wheels emit pollutants released by the cooling process.
M1	Furnish (both raw and dried), sanderdust, and trim material are all conveyed pneumatically. The process cyclones and baghouses collect material that is returned to the MDF manufacturing process.
MDFHBR	Consists of emission units Dryers 2 & 3, Press, Board Cooler, and M1 for compliance with the DEQ Hardboard Rule in OAR 340-240-0150(2).

The pollution control devices at the facility include the following:

Control Device	I.D. #	EU/Device Controlled	Year Installed	Manufacturer and Model Number	Design inlet air flow rate (acfm)	Design air-to-cloth ratio/# of bags	Design Pressure Drop (in. of H <sub>2</sub> O)
Baghouse	BLRBH	Boiler (sanderdust fuel)	2016	Ducon Multiclone, Griffin Filters JA-588-CG	43,000	4.04:1/588	1-8
Baghouse	BH1	M1-ADS	1997	Torit Day	47,600	17:1	3
Baghouse	BH2	M1-Raw Material Metering	1974	Carter Day 144 RJ	9,000	20:1/144	1-2
Baghouse	BH3	M1-Face Forming	1994	Carter Day 376RFW8	20,000	5:1	2
Baghouse	BH4	M1-Core Forming	1994	Carter Day 376RFW8	20,000	5:1	2
Baghouse	BH5	M1-Reject	1995	Carter Day 484RF8	30,000	7:1	2
Baghouse	BH6	M1-Reclaim from Forming	1995				
Baghouse	BH7	M1-Sanderdust re-use	1999				
Baghouse	BH8	M1-Forming Head 1	1994	Torit Day 376RFW8	20,000	5:1	2

Baghouse	BH9	M1-Forming Head 2	1994	Torit Day 376RFW8	20,000	5:1	2
Baghouse	BH10	M1-Forming Head 4	1994	Torit Day 376RFW8	20,000	5:1	2
Baghouse	BH11	M1-Forming Head 5	1994	Torit Day 376RFW8	20,000	5:1	2
Baghouse	BH12	M1-Sander	2007	MAC	90,000	5:1	
Baghouse	BH13	M1-Trim Saws	1975	Carter Day 111RJ84	36,000	10:1/111	2
Baghouse	BH14	M1-Boiler Sanderdust fuel	1993	Carter Day 24RF10	6,000	10:1/24	2
RCO	RCO	Dryers 2 & 3, Press	2008	6 NG burners rated at 4 MM Btu/hr each	220,000	NA	

6. 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 Divisions 20 through 32 of this chapter, or less than 0.1% by weight of any carcinogen listed in the U.S. Department of Health and Human Service's Annual Report on Carcinogens when usage of the chemical mixture is less than 100,000 pounds/year
- Evaporative and tail pipe emissions from on-site motor vehicle operation
- 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: (A) Any individual distill oil, kerosene or gasoline burning equipment with a rating greater than 0.4 million Btu/hour; (B) Any individual natural gas or propane burning equipment with a rating greater than 2.0 million Btu/hour.
- Distillate oil, kerosene, gasoline, natural gas or propane burning equipment brought on site for six months or less for maintenance, construction or similar purposes, such as but not limited to generators, pumps, hot water pressure washers and space heaters, provided that any such equipment that performs the same function as the permanent equipment, must be operated within the source's existing PSEL
- Office activities
- Janitorial activities
- Grounds keeping activities including, but not limited to building painting and road and parking lot maintenance
- Instrument calibration
- Maintenance and repair shop
- Automotive repair shops or storage garages
- Air cooling or ventilating equipment not designed to remove air contaminants generated by or released from associated equipment
- Refrigeration systems with less than 50 pounds of charge of ozone depleting substances regulated under Title VI, including pressure tanks used in refrigeration systems but excluding any combustion equipment associated with such systems
- Bench scale laboratory equipment and laboratory equipment used exclusively for chemical and physical analysis, including associated vacuum producing devices but excluding research and development facilities
- Temporary construction activities
- Warehouse activities
- Accidental fires
- Air vents from air compressors

- Air purification systems
- Continuous emissions monitoring vent lines
- Demineralized water tanks
- Electrical charging stations
- Fire brigade training
- Instrument air dryers and distribution
- Routing maintenance, repair and replacement such as anticipated activities most often associated with and performed during regularly scheduled equipment outages to maintain a plant and its equipment in good operating condition, including but not limited to steam cleaning, abrasive use, and woodworking
- Electric motors
- Storage tanks, reservoirs, transfer and lubricating equipment used for ASTM grade distillate or residual fuels, lubricants, and hydraulic fluids
- On-site storage tanks not subject to any New Source Performance Standards (NSPS), including underground storage tanks (UST), storing gasoline or diesel used exclusively for fueling of the facility's fleet of vehicles
- Natural gas, propane, and liquefied petroleum gas (LPG) storage tanks and transfer equipment
- Pressurized tanks containing gaseous compounds
- Emissions from wastewater discharges to publicly owned treatment works (POTW) provided the source is authorized to discharge to the POTW, not including on-site wastewater treatment and/or holding facilities.
- Pressurized tanks containing gaseous compounds
- Storm water settling basins
- Fire suppression and training
- Paved roads and paved parking lots within an urban growth boundary
- Health, safety, and emergency response activities
- Non-contact steam condensate flash tanks
- Non-contact steam vents and leaks and safety and relief valves for boiler steam distribution systems
- Boiler blowdown tanks
- Industrial cooling towers that do not use chromium-based water treatment chemicals
- Combustion source flame safety purging on startup
- 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

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

**State Rules**

7. The following Chapter 340 Oregon Administrative Rules and federal rules that have specific requirements (e.g. emissions limits or standards, monitoring, recordkeeping, and reporting requirements) have been determined to be applicable to the Roseburg Forest Products-Medford facility:

Applicable Requirement	Pollutant	Limit	Emission Units
206-0050(2)	SERP	develop and implement	Facility
208-0110(4)	Opacity	20%	Dryers 2 & 3, Press, Board Cooler, M1
208-0210(1)	Fugitives	minimize	Facility
208-0300	Nuisances	Do not cause	Facility
208-0450	Particle fallout	None > 250 microns	Facility
226-0210(2)(b)	PM	0.14 gr/dscf	Dryers 2 & 3, Press, Board Cooler, M1



240-0110(1)(a)	PM	0.015 gr/dscf	Boiler (sanderdust fuel)
240-0110(1)(b)	Opacity	5% as six minute average	Boiler (sanderdust fuel)
240-0130	PM	Control by 98.5% if > 10 T/year from any air conveying system	M1
240-0150	PM	Hardboard rule 0.55 lb/1000 ft <sup>2</sup> of hardboard produced	Dryers 2 & 3, Press, Board Cooler, M1
240-0180	FEC Plan	develop and implement	Facility
240-0190	O&M Plan	develop and implement	Facility
240-0210	CMS	install and operate systems on boiler	Boiler (sanderdust fuel)
240-0220	Source testing	Perform annual source tests	Boiler (sanderdust fuel)

Division 206 rule 0050                      Source Emissions Reduction Plan (SERP)

OAR 340-206-0050(2) requires that a SERP be prepared for sources located in maintenance areas and be submitted to DEQ for approval. The facility, as the SierraPine Medite facility, had submitted the SERP and DEQ had approved the plan. RFP is required to implement the plan in the event DEQ declares an Air Pollution Episode.

Division 208 Rule 0110                      Visible Air Contaminant Limitations

The 20% opacity limit applies to all non-fugitive emissions units and insignificant activities at the facility because the facility is located in a special control area. Rule 0110 does not apply to the Boiler, because the facility is located in a special control area, and there is a more stringent standard of 5% opacity for the Boiler in the Medford area.

Division 226 Rule 0210                      Grain Loading Limit For Sources Other than Fuel Burning Equipment, Refuse Burning Equipment and Fugitive Emissions

The 0.14 gr/dscf limit applies to all of the non-fugitive emissions units at the facility other than fuel burning equipment.

Division 234                                      Emission Standards for Wood Product Industries

The board product industries section of this division applies since the facility is a hardboard manufacturing operation but is less restrictive than similar standards in Division 240.

Division 240                                      Rules for Areas with Unique Air Quality Needs - The Medford-Ashland Air Quality Maintenance Area

The Roseburg facility is located in Medford and several rules within this Division apply. The facility manufactures medium density fiberboard and the section pertaining to hardboard manufacturing plants applies.

Division 240 rule 0110                      Wood Waste Boilers (Medford AQMA)

This rule requires that particulate matter emissions from wood waste boilers in the Medford-Ashland AQMA be limited to LAER as defined by DEQ at the time DEQ approves the control device. A LAER analysis was submitted when the facility changed the Boiler control from an ESP to a baghouse. That analysis showed that LAER continues to be the same as when the ESP was approved. DEQ accepts the results of the most recent

analysis and LAER is determined to be 0.015 gr/dscf @ 12% CO<sub>2</sub>, or 50% excess air (or 0.035 lb/M lb steam) and applies to the Boiler when fired on sanderdust. For purposes of calculating the netting basis for the facility, a value of 0.030 gr/dscf is specified in the rule.

The opacity limit of 5% as a six minute average is applicable to the Boiler since it is located within the Medford-Ashland AQMA.

Division 240 rule 0130                      Air Conveying Systems Controls (Medford AQMA)

OAR 340-240-0130 requires that a control system with at least 98.5% collection efficiency be installed on any air conveying system that has uncontrolled emissions of 10 tons per year. The cyclone emissions in EU M1 are less than 10 tons/yr so this rule is not presently applicable to the cyclones. The existing baghouses (B1 through B14) comply with this rule with ratings of greater than 99% collection efficiency.

Division 240 rule 0150                      Hardboard Plant Emission Limit (Medford AQMA)

OAR 340-0240-0150(2) contains a Hardboard Rule and requires that a hardboard plant meet a particulate emission limit of 0.55 lb/1000 ft<sup>2</sup> of finished hardboard production (1/8" basis). This emission limit has been in the permit for nearly 30 years and has not been questioned as to its applicability by the prior owners of the facility. LRAPA also has an MDF plant within its jurisdiction and has applied their Hardboard Rule to that facility. The Roseburg Medford facility actually produces medium density fiberboard which is not hardboard. In reality, MDF is closer to particleboard in its physical properties and end uses and production is usually measured on a 3/4" basis. The Medford AQMA rules in Division 240 also contain a section on particleboard plants. However, that section sets PM limits from only wood particle dryers at a particleboard plant. On the other hand, the Hardboard Rule in Division 240 contains a more encompassing PM limit which includes the whole plant excluding the truck dump and storage areas and fuel burning equipment. For the Roseburg Medford facility this rule would cover PM emission from emission units Dryers 2 & 3, Press, Board Cooler, and M1. Emissions from these units would be calculated for each day and divided by the Press production for the day to compare to the Hardboard Rule. Although MDF is not hardboard, DEQ continues to believe that the Medford AQMA Hardboard Rule should be applied to the facility. Although the PM limit is based on 1/8" basis it can also be expressed on a 3/4' basis. In either case the emission limit is 90.8 lbs/hr based on the Press capacity.

Division 240 rule 0180                      Fugitive Emissions Control plan (Medford AQMA)

OAR 340-0240-0180 requires that RFP prepare and implement a plan for controlling fugitive emissions at the facility.

Division 240 rule 0190:                      Operation and Maintenance plan (Medford AQMA)

OAR 340-240-0190 requires that RFP prepare and implement an operation and maintenance plan for all emissions units at the facility.

Division 240 rule 0220:                      Source Testing requirements

OAR 340-240-0220 requires that RFP conduct particulate matter compliance source tests on the Boiler, when fired on sanderdust, once each calendar year

Division 240 rule 0210

Continuous monitoring requirements

OAR 340-240-0210(2) requires Roseburg to conduct continuous monitoring of carbon monoxide, oxygen, and opacity from the Boiler when fired primarily on sanderdust fuel. Continuous CO, O<sub>2</sub>, and opacity monitoring systems have been installed to comply with this requirement according to 40 CFR 60 Subpart Dc and a RATA completed on 12/29/16.

OAR 340-240-0210(2) requires monthly reporting of CO, O<sub>2</sub>, and opacity from the Boiler.

**Federal Rules**

**New Source Performance Standards**

The Boiler is subject to 40 CFR 60 Subpart Dc. Previous permits had mis-categorized the Boiler as being subject to 40 CFR 60 Subpart Db. The General Provisions of 40 CFR Part 60 requires the source to notify the Administrator of construction and start-up dates, and to perform initial testing. This has been accomplished; therefore, these requirements are no longer applicable. Subpart Dc requires the source to perform the following monitoring: monthly fuel usage [40 CFR 60.48c(g)(2)], and continuous monitoring of parameters indicative of PM control (the Boiler utilizes a continuous opacity monitoring system). Subpart Dc also requires that the Boiler not exceed 20% opacity for any 6 minute average, except for one six minute period per hour of 27% opacity, and PM emissions of not greater than 0.10 lb per million Btu. The Boiler is not subject to SO<sub>2</sub> emission limitations, recordkeeping or reporting because of the fuels (wood and natural gas) it burns.

**National Emissions Standards for Hazardous Air Pollutants**

As a major source of hazardous air pollutants, this facility is subject to two Federal National Emissions Standards for Hazardous Air Pollutants (NESHAPs).

40 CFR Part 63 Subpart DDDD National Emission Standards for Hazardous Air Pollutant from Plywood and Composite Wood Products Manufacturing applies to some emission units at the facility. The facility is in compliance with the limits and standards of this MACT, primarily through use of an RCO on the exhaust from Dryer 2 & 3 and the Press..

40 CFR Part 63 Subpart DDDDD National Emission Standards for Hazardous Air Pollutants from Industrial, Commercial, and Institutional Boilers and Process Heaters applies to the Boiler. The facility was granted an extension until 1/31/17 to comply with this MACT. A Boiler tune-up and one-time energy assessment required by the MACT has been done. Performance tests will be done in April 2017 to determine compliance with emissions limits contained in the MACT.

In addition, subpart M of 40 CFR Part 61 could apply if asbestos is present at the facility.

**Insignificant Activities**

8. As identified earlier in this Review Report, this facility has insignificant emissions units (IEUs) that include categorically insignificant activities and aggregate insignificant emissions, as defined in OAR 340-200-0020. For the most part, the standards that apply to IEUs are for opacity and particulate matter (grain loading). DEQ does not consider it likely that IEUs could exceed an applicable emissions limit or standard. IEUs are generally equipment or activities that do not have any emission controls (e.g., small natural gas fired space heaters) and do not typically have visible emissions. Since there are no controls, no visible emissions, and the emissions are less than one ton per year, DEQ does not believe monitoring, recordkeeping, or reporting is necessary for assuring compliance with the standards.

**PLANT SITE EMISSION LIMITS**

**BASELINE EMISSIONS RATE**

9. This facility operated in the baseline year 1978. The operating schedule was:

- a. MDF plant: 24 hours/day x 7 days/week x 50 weeks/year = 8400 hrs/yr
- b. Boilers: 24 hours/day x 7 days/week x 50 weeks/year = 8400 hrs/yr
- c. Sawmill: 24 hours/day x 7 days/week x 50 weeks/year = 8400 hrs/yr
- d. Plywood mill: 24 hours/day x 7 days/week x 50 weeks/year = 8400 hrs/yr

Reported plant production for the baseline year 1978 was:

Production parameter	Amount	Units
Finished MDF (1/8")	483,854,000	ft <sup>2</sup> /yr
Max. (1 hr. avg.) finished MDF (1/8")	94,842	ft <sup>2</sup> /hr
Amount of steam generated in boilers	1,237,700,000	lbs/yr
Max. (1 hr. avg) steam generated in boilers	200,000	lbs/hr

The baseline emission rates (netting basis) corrected for rule adjustments (tons/yr) for 1978 are as follows:

Emissions unit	PM	PM <sub>10</sub>	CO	NO <sub>x</sub>	SO <sub>2</sub>	VOC	Pb
Boilers #1 and #2	(1)	(1)	495	116	4.1	41.5	NA
Boiler #3	53 <sup>(2)</sup>	53 <sup>(2)</sup>	787	268	4.6	45.7	0.05
Boiler (Boiler #4)	23	23	NA	NA	NA	NA	NA
Veneer dryers	31	31	NA	NA	NA	119.7	NA
Plywood press vents	0.5	0.4	NA	NA	NA	30.7	NA
Dry kilns	NA	NA	NA	NA	NA	21.9	NA
Particle dryers, baghouses and cyclones at MDF plant	89	89	51	12	0.8	357	NA
MDF press and cooling vents	0.0 <sup>(3)</sup>	0.0 <sup>(3)</sup>	NA	NA	NA	74	NA
Cyclones 1, 2 & 3	1.1	1.1	NA	NA	NA	NA	NA
Cyclone 4	3.2	1.6	NA	NA	NA	NA	NA
Cyclone 5	2.0	1.0	NA	NA	NA	NA	NA
Cyclone 6	0.3	0.3	NA	NA	NA	NA	NA
Cyclone 7	6.0	3.0	NA	NA	NA	NA	NA
Cyclone 9	1.9	1.0	NA	NA	NA	NA	NA
Cyclones 10, 11, 12 & 13	9.2	4.6	NA	NA	NA	NA	NA
Cyclones 14 & 15	2.9	1.5	NA	NA	NA	NA	NA
Unpaved road dust	10.5	3.8	NA	NA	NA	NA	NA

Material handling	0.2	0.1	NA	NA	NA	NA	NA
Storage piles	1.0	1.0	NA	NA	NA	NA	NA
MDF baghouses (VOC)	NA	NA	NA	NA	NA	17.9	NA
Total	235	215	1333	396	9.5	708	0.05

**NOTE:** The baseline emission rates have been corrected in previous permits to include fugitive emissions that were being emitted in the baseline year but were not included in the prior ACDP permits.

<sup>(1)</sup> Medite voluntarily forfeited the difference between the combined PM/PM<sub>10</sub> emissions from Boilers #1 & #2, and the PM/PM<sub>10</sub> emissions from the Boiler (Boiler #4).

<sup>(2)</sup> PM/PM<sub>10</sub> emissions were reduced to reflect an allowable emission concentration of 0.03 gr/dscf as required by OAR 340-240-0110.

<sup>(3)</sup> PM/PM<sub>10</sub> emissions from the press and cooling vents were required by EPA to be fully offset as a condition of approving the current limits in OAR 340-240-0150.

**FACILITY HISTORY SINCE BASELINE**

10. The following changes have been made to the facility since the baseline year of 1978:
  - a. Medite requested a separate permit for the MDF operations - 1987
  - b. Cooling tower added for dryer scrubber water - 1989
  - c. Second scrubber added to control emissions from the particle dryers - 1993
  - d. Boilers #1, #2, & #3 were replaced by the Boiler (Boiler #4) in 1992
  - e. Medite requested permits 15-0073 and 15-0048 be combined - 1993
  - f. The entire sawmill and plywood mill permitted as 15-0048 were removed prior to 1994
  - g. Air lock cyclones on raw material target boxes; New baghouses on metering bins and rock drop system; New raw material storage silo; Raw material classifying system to separate fiber from sanderdust - 1994 (NC WRM - 0011)
  - h. Added a board cooler - 1994 (NC WRM - 0076)
  - i. Added 2 baghouses for transfer of fiber to the forming heads - 1995 (NC WRM - 0072)
  - j. Enclosed the raw material storage area - 1996 (NC 015214)
  - k. Reconfigured the fiber dryer tubes - 1995 (NC 014995)
  - l. Modified the fiber conditioning system - 1995 (NC 015048)
  - m. Replaced 2 baghouses for handling sanderdust - 1995 (NC 015188)
  - n. Added baghouse to raw material air density separation system - 1997 (NC 016515)
  - o. Replaced the reject blender cyclone - 1999 (NOA 017325)
  - p. Changed the sanderdust control system to reduce chance of explosion - 1999 (NOA 17451)
  - q. Separated the steam injection system from the reject baghouses - 1999 (NOA 17661)
  - r. Replaced the motors on the ADS pull through fans - 1999 (NOA 17676)
  - s. Removed the press vent stacks - 2000 (NOA 17874)
  - t. Added a screw conveyor from the reject fiber bin to the core fiber bin - 2000 (NOA 17875)
  - u. Improved the hydraulic system on the hot press - 2000 (NOA 18247)
  - v. Placed two, 3 megawatt gas turbine generators onsite - 2001 (NOA 18666)  
(Note: These have been removed)
  - w. Change sanderdust system and installed baghouse---2006 (NOA 21824)
  - x. Pre-dryer and associated equipment permanently shut down - 2007
  - y. Installed a RCO unit to control emissions from the particle dryers and press to comply with PCWP NESHAP - 2008 (NOA 22398)
  - z. Installed wall on unloader side of MDF hot press---2008 (NOA 23500)
  - aa. Installed three baghouses to remove particulate emissions for press exhausts so that it can be used as dryer make-up air - 2008 (NOA 22472)
  - bb. Replaced four 42 inch refiners with two 52 inch refiners---2011 (NOA 26405)

- cc. Disconnected the 2 scrubbers, CD2.1 and CD2.2 used to control emissions from the particle dryers – 2013 (NOA 27059)
- dd. Installed six baghouses upstream of the RCO unit to collect product emitted from the particle dryers for reuse in the process – 2013 (NOA 27059)
- ee. Installed a portable truck dump for the unloading of green material – 2015 (NOA 28094)
- ff. Replaced the WESP installed on the boiler with a baghouse – 2016 (NOA 28523)
- gg. Ownership change to Roseburg Forest Products Co.---2016
- hh. Installed DriSteem humidifier---2016 (NOA 28897)

**PLANT SITE EMISSION LIMITS**

- 11. The maximum projected operating schedule for the facility is 24 hrs/day x 7 days/wk x 52 wks/yr = 8760 hours per year.
- 12. The maximum projected production levels for the permitting period are as follows:

Production Parameter	Amount	Units
Boiler Steam	1,920	M pound/day
	578,160	M pound/yr
Boiler Heat Input	1,848	Million Btu/day
	556,479	Million Btu/yr
Fiber Dryer Throughput	1,044	Bone dry tons/day
	275,550	Bone dry tons/yr
	525,600	Million Btu/yr
Press and Board Cooler Throughput	625	Mft <sup>2</sup> /day - 3/4" basis
	165,000	Mft <sup>2</sup> /yr - 3/4" basis
RCO Heat Input	576	Million Btu/day
	210,240	Million Btu/yr

- 13. The projected short term Plant Site Emissions Limit for PM<sub>10</sub>, required by OAR 340-222-0042, is equal to 411 lb/day. Detailed calculations are shown in the attached detail sheets.
- 14. A summary of the annual baseline emission rates, netting basis, and the plant site emission limits is shown below. Detailed calculations are shown in the attached detail sheets.

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 Change (tons/yr)
PM	348	235	235	235	64	-171
PM <sub>10</sub>	290	215	215	215	55	-160
PM <sub>2.5</sub>	NA	NA	97	NA	50	NA
CO	1333	1333	1333	235	239	+4
NO <sub>x</sub>	396	396	396	272	200	-72
SO <sub>2</sub>	10	10	10	5.5	39	+33.5
VOC	708	708	708	559	73	-486
GHG (CO <sub>2</sub> e)	82,700	NA	82,700	NA	101,700	NA

- a The baseline period is 1978 for all pollutants, except GHGs. Baseline emissions were frozen in prior permitting actions. In accordance with OAR 340-222-0048, the baseline emission rate for GHG is based on the emissions during 2001 as requested by the facility. There is no baseline emission rate established for PM<sub>2.5</sub> in accordance with OAR 340-222-0148(3).

- b The proposed netting basis is equal to the prior netting basis for all pollutants except GHGs and PM<sub>2.5</sub> since the facility has not had any Prevention of Significant Deterioration approvals under OAR 340-224-0060. Because this is the first permit renewal since 2001, the netting basis is not being reduced and unassigned emissions are equal to the difference between the proposed PSEL and the prior netting basis. The netting basis for PM<sub>2.5</sub> is being established for the first time in this permit action in accordance with OAR 340-222-0046(2)(b).
- c In accordance with OAR 340-222-0041(1), the proposed PSEL for SO<sub>2</sub> is being set at the generic PSEL level because anticipated emissions are greater than the DEQ de minimis level but less than the SER.
- d In accordance with OAR 340-222-0041(2), the proposed PSEL for PM, PM<sub>10</sub>, PM<sub>2.5</sub>, CO, NO<sub>x</sub>, VOC, and GHG are being set at the source's potential to emit.
- e The changes in the PSELs for all pollutants from the last permit reflects both proposed production or fuel usage changes, installation of an RCO to control press and dryer exhausts, installation of a baghouse to control Boiler emissions, and emission factor changes and source test results since the last permit.
- f The PSEL is a federally enforceable limit on the potential to emit.
- g. Emission Reduction Credits were generated by the facility in the 2/18/97 ACDP due to shutdown of equipment at the facility. The issued permit stated that the "shutdown credits must be used within two years of permit issuance unless the permittee submits and obtains written Department approval of a plan for use of the credits as part of a specific future project." When the original Title V permit was issued on 1/4/99 it retained the TV shutdown credits and stated that "the shutdown credits will be banked by the Department for use in attaining and maintaining standards if not used by February 18, 1999, unless the permittee submits a specific plan for use of the credits as offsets within the same source, and such plan is approved by the Department." On 2/10/99, the facility applied for two Notice of Approvals for construction requesting use of some of the offsets for a future RTO and a new NG burner on the rotary pre-dryer. The requested shutdown credits totaled 48 T/Y for NO<sub>x</sub>, 48 T/Y for CO, and 37 T/y for VOC. No record can be found in the DEQ files that these requests were ever approved by DEQ. In the 8/28/01 Title V renewal permit the shutdown credits continued to be shown and the permit stated that "the shutdown credits can only be used for installation of a thermal oxidizer, a molding operation, or an additional predryer as per plans that have been submitted to the Department." The review report stated that "the time period for submitting plans to utilize the shutdown credits included in the PSELs has expired. The credits can only be used for projects for which a plan has been submitted and approved." The following table shows the shutdown credit values (in tons/year) as they appeared in the various permits:

Pollutant	2/18/97 ACDP	1/4/99 TV	8/28/01 TV
PM <sub>10</sub>	14.1	---	---
SO <sub>2</sub>	4.0	4	4
VOC	17.9	150	150
NO <sub>x</sub>	127.4	124	124
CO	956.7	1098	1098

As can be seen from the table, the values changed somewhat from the 2/18/97 ACDP to the 1/4/99 TV, possibly due to emission factor changes but no notes exist in the files as to the changes. And PM<sub>10</sub> credits were unexplainably eliminated in the Title V permit.

Based on the written record in the DEQ files and the issued permits, DEQ believes that the shutdown credits have either already been used (for the RCO) or have totally expired and should be eliminated in this permitting action.

15. Because this permit was last renewed prior to 7/1/07, this permit renewal includes the following unassigned emissions until the next permit renewal. At the next permit renewal, the unassigned emissions will be reduced to no more than the SER if they are not used by the facility and the netting basis will be reduced accordingly.

Pollutant	Unassigned Emissions (tons/yr)
PM	171
PM <sub>10</sub>	160
PM <sub>2.5</sub>	47
CO	1094
NO <sub>x</sub>	196
SO <sub>2</sub>	-0-
VOC	635
GHG (CO <sub>2</sub> e)	-0-

**SIGNIFICANT EMISSION RATE**

16. The proposed PSELs are less than the significant emission rate (SER) over the netting basis for all pollutants as shown below and no further air quality analysis is required.

Pollutant	SER	Netting Basis	Requested PSEL	Requested increase over netting basis	Increase due to utilizing capacity that existed in the netting basis period	Increase due to physical changes or changes in the method of operation	Increase due to use of generic PSEL level
PM	25	235	64				
PM <sub>10</sub>	5*	215	55				
PM <sub>2.5</sub>	10	97	50				
CO	100	1333	239				
NO <sub>x</sub>	40	396	200				
SO <sub>2</sub>	40	9.5	39	29.5	0.6	-1.5	30.4
VOC	40	708	73				
GHG (CO <sub>2</sub> e)	75,000	82,731	101,659	18,928	6546	12,382	

\* In the Medford-Ashland Maintenance Area, the SER for PM<sub>10</sub> is 5 tons/yr.

**HAZARDOUS AIR POLLUTANTS**

22. According to the emissions estimates provided by the permittee in the Title V renewal application, this facility is a major source of HAP emissions. The total potential estimated HAP emissions are 50 tons/yr. A summary of the potential estimated emissions is provided below with details in the attachments to this review report.

Pollutant	Emissions (tons/year)
Methanol	23.4
Formaldehyde	18.4
Acetaldehyde	1.1
Phenol	1.6
Hexane	0.7
Acrolein	1.1
Styrene	0.6
Benzene	1.3
Chlorine	0.2
Hydrogen chloride	0.2
Other Boiler Organics	0.50



Boiler Metals	0.07
Other Process Organics	0.76
Other Process Metals	0.0006
TOTAL HAPs	49.9
Highest Single HAP	23.4 Methanol

23. The facility is subject to two MACT standards:

40 CFR Part 63 Subpart DDDD National Emission Standards for Hazardous Air Pollutant from Plywood and Composite Wood Products Manufacturing are applicable to a number of emission units at the facility. The facility is in compliance with the limits and standards of this MACT. The requirements of 40 CFR 63 Subpart DDDD are incorporated into the permit as Appendix A.

40 CFR Part 63 Subpart DDDDD National Emission Standards for Hazardous Air Pollutants from Industrial, Commercial, and Institutional Boilers and Process Heaters is applicable to the Boiler. EPA finalized the Boiler MACT requirements on January 31, 2013 with compliance required by January 31, 2016 unless an extension was granted. DEQ granted a one-year extension until 1/31/17 for the facility to comply with this MACT. A Boiler tune-up and one-time energy assessment required by the MACT has been done. Performance tests will be done in April 2017 to determine compliance with emissions limits contained in the MACT. The requirements of 40 CFR 63 Subpart DDDDD are incorporated into the permit as Appendix B.

#### STRATOSPHERIC OZONE DEPLETING SUBSTANCES

24. The permittee does not manufacture, sell, distribute, or use in the manufacturing of a product any stratospheric ozone-depleting substances. Therefore, the 1990 Clean Air Act, as amended, Sections 601- 608, do not apply to the facility except that air conditioning and fire extinguishers or other equipment containing Class I or Class II substances must be serviced by certified repairmen to ensure that the substances are recycled or destroyed appropriately.

#### TEST METHODS AND PROCEDURES

25. Compliance Testing

The permittee is being required to conduct compliance particulate matter source emissions tests on the Boiler, and the particle dryers/press/RCO. The Boiler will be tested once each calendar year, and the particle dryers/press/RCO will be tested once during the permit term, Oregon Method 5 will be used to test the particulate emissions from the Boiler, and Oregon Method 7 shall be used to measure the emissions from the other emissions units. During the testing of the Boiler and Dryers 2 & 3/Press, the operating parameters of the control equipment will be recorded so proper control equipment operating levels can be determined. The test results will be used to demonstrate that the equipment is capable of operating in compliance with the grain loading limits.

26. Emission factor verification source tests:

In general, emission factors are used to establish Plant Site Emissions Limits (PSELs). They are also used to demonstrate compliance with the PSEL. Since most emission factors are not based on actual emissions data from the specific source, DEQ is requiring that some emission units be tested to verify that the emission factors are reasonably accurate. The DEQ Compliance Monitoring Guidance Document is used for determining which emissions units should be tested. In general, those emissions units with greater than 5 tons per year of PM or 10 tons per year of any gaseous pollutant are required to have an emission factor verification test.

The permittee will be required conduct emission factor verification tests on the Boiler and dryers/press/RCO for CO, NO<sub>x</sub>, and VOC at least once during the permit term.

## MONITORING REQUIREMENTS

27. Section 70.6(a)(3)(i) of 40 CFR Part 70 requires that all monitoring and analysis procedures or test methods required under applicable requirements be contained in the Title V permits. In addition, where the applicable requirement does not require periodic testing or monitoring, periodic monitoring must be prescribed that is sufficient to yield reliable data from the relevant time period that is representative of the source's compliance with the permit. The requirement to include in a permit testing, monitoring, recordkeeping, reporting, and compliance certification sufficient to assure compliance does not require the permit to impose the same level of rigor with respect to all emissions units and applicable requirement situations. It does not require extensive testing or monitoring to assure compliance with the applicable requirements for emissions units that do not have significant potential to violate emissions limitations or other requirements under normal operating conditions.

Insignificant emissions units include both categorically insignificant activities and aggregate insignificant emissions. DEQ is not requiring monitoring for the categorically insignificant activities that were identified in the application because these were identified by DEQ during the Title V program development and included in the rules as activities that do not have any potential for causing significant environmental impacts. The activities generate insignificant emissions (less than 1 ton per year) and do not involve control devices.

DEQ is also not requiring monitoring for the aggregate insignificant emissions, which are those activities that are not identified in the rule as categorically insignificant but the combined emissions are less than one ton per year. In most cases, these are simple uncontrolled activities to pieces of equipment that do not have any potential to cause a significant impact on the environment.

28. The permit does include specific monitoring requirements for emissions units other than insignificant activities. In most cases, the monitoring is not a direct measure of compliance because the emissions are either not measured or they are measured with methods or procedures other than reference test methods. Even though the monitoring consists of procedures other than reference test methods, the monitoring has been developed such that it should be capable of providing a reasonable assurance that the emissions units are in compliance with the underlying emissions limits and standards and the information may be used for enforcement purposes pursuant to the credible evidence rules promulgated by EPA.
- a. For sources of fugitive particulate matter emissions the permit includes a visible emissions monitoring protocol for identifying any potential sources of excess fugitive emissions. If excess fugitive emissions are detected, the permittee is required to immediately take corrective action or implement the facility's Fugitive Emissions Control Plan. The results of the visible emissions monitoring, corrective action, and/or tests shall be recorded and maintained on site.
  - b. For non-fugitive emissions sources (RCO (Dryers 2 & 3, Press), Board Cooler, and MI), the permittee is required to periodically perform a visible emissions survey using EPA Method 22. Since it is not expected that all of these sources will have any visible emissions, the VE survey is an initial screening test to determine if a more precise visible emissions test is necessary. If the survey shows no visible emissions, then there is no indication that there would be a violation of the VE opacity limits and no further testing is required. If, however, during the survey, visible emissions are observed for more than 5% of the survey period (18 seconds during a 6 minute survey period), then the permit requires an EPA Method 9 test be performed to measure the opacity.

## COMPLIANCE ASSURANCE MONITORING

29. Compliance assurance monitoring (CAM) applies only to the Boiler at the facility because the uncontrolled PM emissions are greater than 100 tons per year, the unit is subject to PM emission standards, and uses a control device. A high temperature baghouse now controls emissions from the Boiler (replaced the wet ESP in 2016). Prior permits had CAM requirements based on the ESP. Proper operation of the baghouse by itself may not be enough to provide a reasonable assurance of compliance with the low PM emissions standard of 0.015 gr/dscf. While the collection efficiency of the baghouse is relatively constant, increased PM loading due to the Boiler's operation could result in higher outlet emissions. As a result it is necessary to monitor both the control device performance and operation of the Boiler. The Boiler exhaust has a COMS to measure opacity from the system on a continuous basis and is a good indication of PM emission control. In addition, the Boiler exhaust will be continuously monitored for carbon monoxide and oxygen concentrations and will provide a reasonable assurance of good combustion in the Boiler. The combination of these two measures can be considered CAM for the Boiler.

In prior permits, CAM also applied to Dryers 2 and 3 which had wet scrubber controls. In 2013 the scrubbers were replaced by 6 baghouses designed to recover fiber for reuse in the process. These new baghouses now represent inherent process equipment. The baghouse exhausts are then routed to an RCO (primarily for VOC/HAP) control which is now the control device for the dryers. PM emissions after the baghouses are less than 100 tons/year and therefore CAM no longer applies to the dryers.

A more detailed CAM analysis for the emission units at the facility is attached to this review report.

30. New Source Performance Standards monitoring:

For emission unit Boiler, the permittee is required to maintain records of the type and amount of fuel burned on a monthly basis. The continuous opacity monitoring system will be used for direct opacity monitoring when fired on sanderdust.

31. Plant Site Emissions Limit monitoring:

The permittee is required to monitor production parameters (e.g., fuel usage, MDF production, BDT furnish dried) and calculate the pollutant emissions using a pre-determined emission factor. Although the emission factor is not an enforceable limit, the value is used for compliance determinations. If data is provided that shows that the factor is incorrect, DEQ will incorporate the corrected PSELs and emission factors either as a permit revision or at permit renewal.

## RECORDKEEPING REQUIREMENTS

32. The permit includes requirements for maintaining records of all monitoring and testing information for a minimum of 5 years. These records include test results, continuous emissions monitoring data and QA/QC data, parameter monitoring data, visible emissions data, the date and time of measurements, and all corrective actions, including the date, time, and outcome. These records shall be made available to DEQ inspectors upon request.

## REPORTING REQUIREMENTS

33. The permittee is required to submit reports to DEQ semi-annually and annually. The semi-annual reports are for certifying compliance with the terms and conditions of the permit. The report will include a list of all permit deviations, the probable cause, and the corrective action as a result of the deviation. In addition, the annual report will include the medium density fiberboard production on a 3/4" basis, dryer wood material throughput, boiler steam, type and quantity of fuel is burned in the Boiler and dryers, and other production information.

34. The permittee is required to notify DEQ before each source test and submit source tests reports after each test.
35. The source is subject to immediate reporting of excess emissions.
36. The permittee is also subject to annual greenhouse gas reporting under OAR 340 Division 215.
37. OAR 340-240-0210(2) also requires monthly reporting of CO, O<sub>2</sub>, and opacity from the Boiler.

#### **GENERAL BACKGROUND INFORMATION**

38. The permittee has a storm water permit number 1200Z, File 107623 issued by DEQ.
39. This source is located in a maintenance area for PM<sub>10</sub>, CO, and Ozone. The source is a significant source of PM<sub>10</sub> and CO as well as the precursors to Ozone, NO<sub>x</sub> and VOC.

#### **COMPLIANCE HISTORY**

40. The facility was inspected on 9/24/03, 9/22/05, 9/6/07, 9/24/09, 9/20/11, 9/18/13, and 7/29/15. The inspections found the source to be in compliance with permit conditions except for the 9/24/09 inspection. The boiler had exceeded the NO<sub>x</sub> limit of 0.10 lb/MM Btu during a 7/15/09 source test. A 11/10/09 follow-up source test showed the facility be in compliance with the NO<sub>x</sub> limit.
41. A Pre-enforcement Notice was issued on 5/11/16 and an MAO executed on 9/29/16 for failure to meet the grain loading limit for the Boiler. A new baghouse was installed to replace the WESP and a source test was conducted on 12/22/16 which showed the Boiler to be in compliance with the limit.

#### **SOURCE TEST RESULTS**

42. The results of recent source tests conducted on the Boiler and the RCO are shown in the attachments. For PM since the baghouse installation, only one set of source tests has been conducted on the Boiler. Because of this small data set, DEQ is also using the results of the more recent PM tests on the Boiler when the ESP was operating in order to determine a more representative long-term emission factor for PM. During the next permitting term additional annual PM source tests must be conducted on the Boiler as required by OAR 340 Division 240 and should provide a representative emission factor for the Boiler with baghouse control. At permit renewal time, the ESP source test values can then be eliminated in the emission factor calculation and only the baghouse source tests used.

#### **PUBLIC NOTICE**

43. This permit will be put on public notice from April 20, 2017, to May 25, 2017. A proposed permit was sent to EPA for an expedited review of 5 days on May 31, 2017. EPA had no objection to the issuance of this permit.

No public comments were received during the public comment period. The company submitted four comments during the public notice period concerning some typographical errors and clarification language for one condition. The changes were made in the proposed permit. One of the company's requests was determined to not be correct and no change was made to the permit.

If 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 it was impracticable to raise such objections within such period, or unless the grounds for such objection arose after such period.

**ATTACHMENTS**

**EMISSIONS DETAIL SHEETS**

- Baseline Emissions
- PM<sub>2.5</sub> Initial Netting Basis
- Projected Emissions
- Aggregate Insignificant Emissions
- Categorically Insignificant Emissions
- HAP Emissions
- Equipment Installation Dates
- Source Test Results
- CAM Analysis

## Roseburg Forest Products---Medford

### Baseline Emissions\* PM (1978)

Emission Unit/Point	Operating Parameter	Emission Factor		Emissions (tons/year)
		Rate	Reference	
Boiler #3	657,300 M lb steam	0.161 lb/M lb steam	ST	52.9
Boiler #4	665,710 M lb steam	0.07 lb/M lb steam	Rule limit	23.3
Veneer dryers	204,620 MSF	0.3 lb/MSF	Rule limit	30.7
Plywood press	185,987 MSF	0.005 lb/MSF	ST	0.5
Cyclones 1,2,3	6000 hours	0.37 lb/hr	ST	1.1
Cyclone 4	6000 hours	1.07 lb/hr	ST	3.2
Cyclone 5	6000 hours	0.67 lb/hr	ST	2.0
Cyclone 6	6000 hours	0.1 lb/hr	ST	0.3
Cyclone 7	4000 hours	3.0 lb/hr	ST	6.0
Cyclone 9	7600 tons	0.5 lb/ton	DEQ	1.9
Cyclones 10,11,12,13	36,800 tons	0.5 lb/ton	DEQ	9.2
Cyclones 14 and 15	11,600 tons	0.5 lb/ton	DEQ	2.9
Particle dryers, baghouses, cyclones	7521 hours	23.71 lb/hr	Rule limit	89.2
Press & cooling vents	486,000 MSF	0 lb/MSF	Rule limit	0.0
Unpaved roads	See 8/28/01 detail sheets		AP-42	10.5
Storage piles	1 pile	1 ton/pile	DEQ limit	1.0
			Total	234.7

\*The value above (234.7 T/Y) reflects the netting basis and not the baseline emissions. Baseline emissions exceeded this value and exceeded DEQ rule limits and the emissions have been adjusted downward to the rule limits where appropriate. The PM netting basis is rounded to 235 T/Y.

PM<sub>10</sub> (1978)

Emission Unit/Point	Operating Parameter	Emission Factor		Emissions (tons/year)
		Rate	Reference	
Boiler #3	657,300 M lb steam	0.161 lb/M lb steam	ST	52.9
Boiler #4	665,710 M lb steam	0.07 lb/M lb steam	Rule limit	23.3
Veneer dryers	204,620 MSF	0.3 lb/MSF	Rule limit	30.7
Plywood press	185,987 MSF	0.00425 lb/MSF	ST	0.4
Cyclones 1,2,3	6000 hours	0.37 lb/hr	ST	1.1
Cyclone 4	6000 hours	0.54 lb/hr	ST	1.6
Cyclone 5	6000 hours	0.33 lb/hr	ST	1.0
Cyclone 6	6000 hours	0.1 lb/hr	ST	0.3
Cyclone 7	4000 hours	1.5 lb/hr	ST	3.0
Cyclone 9	7600 tons	0.25 lb/ton	DEQ	1.0
Cyclones 10,11,12,13	36,800 tons	0.25 lb/ton	DEQ	4.6
Cyclones 14 and 15	11,600 tons	0.25 lb/ton	DEQ	1.5
Particle dryers, baghouses, cyclones	7521 hours	23.71 lb/hr	Rule limit	89.2
Press & cooling vents	486,000 MSF	0 lb/MSF	Rule limit	0.0
Unpaved roads	See 8/28/01 detail sheets		AP-42	3.8
Storage piles	1 pile	1 ton/pile	DEQ limit	1.0
			Total	215.4

\*The value above (215.4 T/Y) reflects the netting basis and not the baseline emissions. Baseline emissions exceeded this value and exceeded DEQ rule limits and the emissions have been adjusted downward to the rule limits where appropriate. The PM<sub>10</sub> netting basis is rounded to 215 T/Y.

CO (1978)

Emission Unit/Point	Operating Parameter	Emission Factor		Emissions (tons/year)
		Rate	Reference	
Boilers #1 & #2	580,400 M lb steam	1.706 lb/M lb steam	ST	495.1
Fiber dryers	164,000 BDT	0.62 lb/BDT	ST	50.9
Boiler #3	657,300 M lb steam	2.395 lb/M lb steam	ST	787.1
			Total	1333.1

The baseline emission rate is rounded and equal to the netting basis at 1333 T/Y.

NO<sub>x</sub> (1978)

Emission Unit/Point	Operating Parameter	Emission Factor		Emissions (tons/year)
		Rate	Reference	
Boilers #1 & #2	580,400 M lb steam	0.4 lb/M lb steam	ST	116.1
Fiber dryers	164,000 BDT	0.15 lb/BDT	ST	12.3
Boiler #3	657,300 M lb steam	0.815 lb/M lb steam	ST	267.8
			Total	396.2

The baseline emission rate is rounded and equal to the netting basis at 396 T/Y.

SO<sub>2</sub> (1978)

Emission Unit/Point	Operating Parameter	Emission Factor		Emissions (tons/year)
		Rate	Reference	
Boilers #1 & #2	580,400 M lb steam	0.014 lb/M lb steam	ACDP	4.1
Fiber dryers	164,000 BDT	0.01 lb/BDT	ACDP	0.8
Boiler #3	657,300 M lb steam	0.014 lb/M lb steam	ACDP	4.6
			Total	9.5

The baseline emission rate is rounded and equal to the netting basis at 10 T/Y.



VOC (1978)

Emission Unit/Point	Operating Parameter	Emission Factor		Emissions (tons/year)
		Rate	Reference	
Boilers #1 & #2	580,400 M lb steam	0.143 lb/M lb steam	ST	41.5
Fiber dryers	510,000 MSF	1.4 lb/MSF	ST	357.0
Boiler #3	657,300 M lb steam	0.139 lb/M lb steam	ST	45.7
Veneer dryers	186,701 MSF	1.282 lb/MSF	RFP permit	119.7
Dry kilns	25,803 MBF	1.7 lb/MBF	NCASI	21.9
Plywood press vent	185,987 MSF	0.33 lb/MSF	AP-42	30.7
Press & cooling vents	510,000 MSF	0.29 lb/MSF	ST	74.0
Baghouses	510,000 MSF	0.07 lb/MSF	ST	17.9
			Total	708.4

The baseline emission rate is rounded and equal to the netting basis at 708 T/Y.

Lead (1978)

Emission Unit/Point	Operating Parameter	Emission Factor		Emissions (tons/year)
		Rate	Reference	
Boilers #1 & #2	580,400 M lb steam	2.2E-06 lb/M lb steam	AP-42	Neg.
Boiler #3	657,300 M lb steam	0.00015 lb/M lb steam	AP-42	0.05
			Total	0.05

The baseline emission rate is equal to the netting basis at 0.05 T/Y.

GHGs (2001)

Emission Unit/Point	Operating Parameter	Emission Factor		Emissions (tons/year)
		Rate	Reference	
Boiler #4---wood	616,599 MM Btu	209.6 lb/MM Btu	40 CFR Part 98, Subpart C	64,620
Facility NG	307,492 MM Btu	117.8 lb/MM Btu	40 CFR Part 98, Subpart C	18,111
			Total	82,731

The baseline emission rate is rounded and equal to the netting basis at 82,700 T/Y.

### PM<sub>2.5</sub> Initial Netting Basis

(5/1/11 initial netting basis based on PM<sub>2.5</sub> fraction of PM<sub>10</sub> netting basis)

Emission Unit/Point	PM <sub>10</sub> Netting Basis (tons/year)	Emission Factor		PM <sub>2.5</sub> Emissions (tons/year)
		PM <sub>2.5</sub> % of PM <sub>10</sub>	Reference	
Boiler #3	52.9	20	DEQ AQ-EF03*	10.58
Boiler #4	23.3	20	DEQ AQ-EF03*	4.66
Veneer dryers	30.7	95	DEQ AQ-EF03**	29.17
Plywood press	0.4	50	DEQ AQ-EF08	0.20
Cyclones 1,2,3	1.1	50	DEQ AQ-EF08	0.55
Cyclone 4	1.6	50	DEQ AQ-EF08	0.80
Cyclone 5	1.0	50	DEQ AQ-EF08	0.50
Cyclone 6	0.3	50	DEQ AQ-EF08	0.15
Cyclone 7	3.0	50	DEQ AQ-EF08	1.50
Cyclone 9	1.0	50	DEQ AQ-EF08	0.50
Cyclones 10,11,12,13	4.6	50	DEQ AQ-EF08	2.30
Cyclones 14 and 15	1.5	50	DEQ AQ-EF08	0.75
Particle dryers, baghouses, cyclones	89.2	50	DEQ Est.	44.60
Press & cooling vents	0.0	50	DEQ AQ-EF08	0
Unpaved roads	3.8	10	DEQ AQ-EF08	0.38
Storage piles	1.0	15	DEQ AQ-EF08	0.50
Total	215.4			97.14***

\*Low pressure wet scrubbers were used on boilers in the baseline period.

\*\*Wet ESP was used on veneer dryers in the baseline period.

\*\*\*The initial PM<sub>2.5</sub> netting basis is rounded and set at 97 T/Y.

## Roseburg Forest Products---Medford

### Projected Emissions PM

Emission Unit/Point	Operating Parameter	Emission Factor		Emissions (tons/year)
		Rate	Reference	
Boiler (sanderdust)	578,160 M lb steam	0.035 lb/M lb steam	LAER Limit	10.1
RCO (Dryers #2 & #3 & Press)	275,550 BDT furnish	0.198 lb/BDT	2008-2012 STs	27.3
Press (uncaptured)	165,000 MSF ¾"	0.0466 lb/MSF	STs & Golder Est.	3.8
RCO NG	206.1 MM ft <sup>3</sup>	2.5 lb MM ft <sup>3</sup>	DEQ AQ-EF05	0.3
Board Cooler	165,000 MSF ¾"	0.054 lb/MSF	AP-42 Table10.6.3-4	4.5
Misc. Fugitives (indoor)	275,550 BDT furnish	2.596E-04 lb/BDT	AP-42 13.2.4 & Golder Est.	0.04
Misc. Fugitives (outdoor with partial enclosure)	275,550 BDT furnish	2.124E-03 lb/BDT	AP-42 13.2.4 & Golder Est.	0.3
Piles	---	1.0 T/Y	DEQ	1.0
M1				
C1	964 BDT	5 lb/BDT	DEQ AQ-EF02	2.4
C2	148 BDT	5 lb/BDT	DEQ AQ-EF02	0.4
C3	446 BDT	5 lb/BDT	DEQ AQ-EF02	1.1
C4	2106 BDT	5 lb/BDT	DEQ AQ-EF02	5.3
BH1	55,110 BDT	0.04 lb/BDT	DEQ AQ-EF02	1.1
BH2	55,110 BDT	0.04 lb/BDT	DEQ AQ-EF02	1.1
BH3	33,066 BDT	0.04 lb/BDT	DEQ AQ-EF02	0.7
BH4	22,044 BDT	0.04 lb/BDT	DEQ AQ-EF02	0.4
BH6	55,109 BDT	0.04 lb/BDT	DEQ AQ-EF02	1.1
BH8	16,533 BDT	0.04 lb/BDT	DEQ AQ-EF02	0.3
BH9	11,022 BDT	0.04 lb/BDT	DEQ AQ-EF02	0.2
BH10	11,022 BDT	0.04 lb/BDT	DEQ AQ-EF02	0.2
BH11	16,533 BDT	0.04 lb/BDT	DEQ AQ-EF02	0.3
BH12	44,639 BDT	0.04 lb/BDT	DEQ AQ-EF02	0.9
AI				1.0
			Total	63.84

The source specific PSEL will be set at 64 tons/year.

PM<sub>10</sub>

Emission Unit/Point	Operating Parameter	Emission Factor		Emissions (tons/year)
		Rate	Reference	
Boiler (sanderdust)	578,160 M lb steam	0.035 lb/M lb steam	LAER Limit	10.1
RCO (Dryers #2 & #3 & Press)	275,550 BDT furnish	0.198 lb/BDT	2008-2012 STs	27.3
Press (uncaptured)	165,000 MSF ¾"	0.0148 lb/MSF	STs & Golder Est.	1.2
RCO NG	206.1 MM ft <sup>3</sup>	2.5 lb MM ft <sup>3</sup>	DEQ AQ-EF05	0.3
Board Cooler	165,000 MSF ¾"	0.0038 lb/MSF	NCASI	0.3
Misc. Fugitives (indoor)	275,550 BDT furnish	1.232E-04 lb/BDT	AP-42 13.2.4 & Golder Est.	0.02
Misc. Fugitives (outdoor with partial enclosure)	275,550 BDT furnish	1.008E-03 lb/BDT	AP-42 13.2.4 & Golder Est.	0.14
Piles	---	1.0 T/Y	DEQ	1.0
M1				
C1	964 BDT	4.25 lb/BDT	DEQ AQ-EF03	2.0
C2	148 BDT	4.25 lb/BDT	DEQ AQ-EF03	0.3
C3	446 BDT	4.25 lb/BDT	DEQ AQ-EF03	0.9
C4	2106 BDT	4.25 lb/BDT	DEQ AQ-EF03	4.5
BH1	55,110 BDT	0.04 lb/BDT	DEQ AQ-EF03	1.1
BH2	55,110 BDT	0.04 lb/BDT	DEQ AQ-EF03	1.1
BH3	33,066 BDT	0.04 lb/BDT	DEQ AQ-EF03	0.7
BH4	22,044 BDT	0.04 lb/BDT	DEQ AQ-EF03	0.4
BH6	55,109 BDT	0.04 lb/BDT	DEQ AQ-EF03	1.1
BH8	16,533 BDT	0.04 lb/BDT	DEQ AQ-EF03	0.3
BH9	11,022 BDT	0.04 lb/BDT	DEQ AQ-EF03	0.2
BH10	11,022 BDT	0.04 lb/BDT	DEQ AQ-EF03	0.2
BH11	16,533 BDT	0.04 lb/BDT	DEQ AQ-EF03	0.3
BH12	44,639 BDT	0.04 lb/BDT	DEQ AQ-EF03	0.9
AI				1.0
			Total	55.36

The source specific PSEL will be set at 55 tons/year.

PM<sub>10</sub> (short-term)

Emission Unit/Point	Operating Parameter	Emission Factor		Emissions (lbs/day)
		Rate	Reference	
Boiler (sanderdust)	1920 M lb steam	0.035 lb/M lb steam	LAER Limit	67.2
RCO (Dryers #2 & #3 & Press)	1044 BDT furnish	0.198 lb/BDT	2008-2012 STs	206.7
Press (uncaptured)	625 MSF ¾"	0.0148 lb/MSF	STs & Golder Est.	9.3
RCO NG	0.565 MM ft <sup>3</sup>	2.5 lb MM ft <sup>3</sup>	DEQ AQ-EF05	1.4
Board Cooler	625 MSF ¾"	0.0038 lb/MSF	NCASI	2.4
Misc. Fugitives (indoor)	1044 BDT furnish	1.232E-04 lb/BDT	AP-42 13.2.4 & Golder Est.	0.13
Misc. Fugitives (outdoor with partial enclosure)	1044 BDT furnish	1.008E-03 lb/BDT	AP-42 13.2.4 & Golder Est.	1.1
Piles	---	10.0 lb/day	DEQ	10.0
M1				
C1	3.65 BDT	4.25 lb/BDT	DEQ AQ-EF03	15.5
C2	0.56 BDT	4.25 lb/BDT	DEQ AQ-EF03	2.4
C3	1.69 BDT	4.25 lb/BDT	DEQ AQ-EF03	7.2
C4	7.98 BDT	4.25 lb/BDT	DEQ AQ-EF03	33.9
BH1	209 BDT	0.04 lb/BDT	DEQ AQ-EF03	8.4
BH2	209 BDT	0.04 lb/BDT	DEQ AQ-EF03	8.4
BH3	125 BDT	0.04 lb/BDT	DEQ AQ-EF03	5.0
BH4	83.5 BDT	0.04 lb/BDT	DEQ AQ-EF03	3.3
BH6	209 BDT	0.04 lb/BDT	DEQ AQ-EF03	8.4
BH8	62.6 BDT	0.04 lb/BDT	DEQ AQ-EF03	2.5
BH9	41.8 BDT	0.04 lb/BDT	DEQ AQ-EF03	1.7
BH10	41.8 BDT	0.04 lb/BDT	DEQ AQ-EF03	1.7
BH11	62.6 BDT	0.04 lb/BDT	DEQ AQ-EF03	2.5
BH12	169 BDT	0.04 lb/BDT	DEQ AQ-EF03	6.8
AI				5.5
			Total	411.4

The short-term source specific PSEL will be set at 411 lbs/day.

PM<sub>2.5</sub>

Emission Unit/Point	PM <sub>10</sub> PSEL (tons/year)	Emission Factor		PM <sub>2.5</sub> Emissions (tons/year)
		PM <sub>2.5</sub> % of PM <sub>10</sub>	Reference	
Boiler (sanderdust)	10.1	99	DEQ AQ-EF03	10.00
RCO (Dryers #2 & #3 & Press)	27.3	100	DEQ AQ-EF08	27.30
Press (uncaptured)	1.2	50	DEQ AQ-EF08	0.60
RCO NG	0.3	100	DEQ AQ-EF08	0.30
Board Cooler	0.3	50	DEQ AQ-EF08	0.15
Misc. Fugitives (all)	0.16	15	AP-42 13.2.4	0.02
Piles	1.0	15	DEQ AQ-EF08	0.15
M1				
C1	2.0	59	DEQ AQ-EF03	1.18
C2	0.3	59	DEQ AQ-EF03	0.18
C3	0.9	59	DEQ AQ-EF03	0.53
C4	4.5	59	DEQ AQ-EF03	2.66
BH1	1.1	100	DEQ AQ-EF08	1.10
BH2	1.1	100	DEQ AQ-EF08	1.10
BH3	0.7	100	DEQ AQ-EF08	0.70
BH4	0.4	100	DEQ AQ-EF08	0.40
BH6	1.1	100	DEQ AQ-EF08	1.10
BH8	0.3	100	DEQ AQ-EF08	0.30
BH9	0.2	100	DEQ AQ-EF08	0.20
BH10	0.2	100	DEQ AQ-EF08	0.20
BH11	0.3	100	DEQ AQ-EF08	0.30
BH12	0.9	100	DEQ AQ-EF08	0.90
AI	1.0	100	DEQ Est.	1.00
Total				50.37

The source specific PSEL will be set at 50 tons/year.

CO

Emission Unit/Point	Operating Parameter	Emission Factor		Emissions (tons/year)
		Rate	Reference	
Boiler (sanderdust)	578,160 M lb steam	0.389 lb/M lb steam	2016-2017 CEMS data	112.5
RCO (Dryers #2 & #3 and Press)	275,550 BDT furnish	0.857 lb/BDT	2008-2011 STs	118.1
RCO NG only	206.1 MM ft <sup>3</sup>	84 lb MM ft <sup>3</sup>	DEQ AQ-EF05	8.7
			Total	239.3

The source specific PSEL will be set at 239 tons/year.

NO<sub>x</sub>

Emission Unit/Point	Operating Parameter	Emission Factor		Emissions (tons/year)
		Rate	Reference	
Boiler (sanderdust)	578,160 M lb steam	0.613 lb/M lb steam	2016-2017 CEMS data	177.2
RCO (Dryers #2 & #3 and Press)	275,550 BDT furnish	0.090 lb/BDT	2008, 2010, 2011 STs	12.4
RCO NG only	206.1 MM ft <sup>3</sup>	100 lb MM ft <sup>3</sup>	DEQ AQ-EF05	10.3
			Total	199.9

The source specific PSEL will be set at 200 tons/year.

SO<sub>2</sub>

Emission Unit/Point	Operating Parameter	Emission Factor		Emissions (tons/year)
		Rate	Reference	
Boiler (sanderdust)	556,479 MM Btu	0.025 lb/MM Btu	AP-42 Table 1.6-2	7.0
RCO (Dryers #2 & #3 and Press)	275,550 BDT furnish	0.01 lb/BDT	ACDP	1.4
RCO NG only	206.1 MM ft <sup>3</sup>	1.7 lb MM ft <sup>3</sup>	DEQ AQ-EF05	0.2
			Total	8.6

The source specific PSEL will be set at the generic PSEL level of 39 tons/year.

VOC

Emission Unit/Point	Operating Parameter	Emission Factor		Emissions (tons/year)
		Rate	Reference	
Boiler (sanderdust)	556,479 MM Btu	0.017 lb/MM Btu	AP-42 Table 1.6-3	4.7
RCO (Dryers #2 & #3 and Press)	275,550 BDT furnish	0.249 lb/BDT	2008-2009 STs	34.3
Press (uncaptured)	165,000 MSF ¾"	0.0416 lb/MSF	AP-42 Table 10.6.3-6 & Golder Est.	3.4
RCO NG only	206.1 MM ft <sup>3</sup>	5.5 lb MM ft <sup>3</sup>	DEQ AQ-EF05	0.6
Board Cooler	165,000 MSF ¾"	0.017 lb/MSF	NCASI	1.4
Misc. Fugitives	275,550 BDT furnish	0.165 lb/BDT	NCASI TB 723	22.7
Sawing & Hog	165,000 MSF ¾"	0.0039 lb/MSF	AP-42 Table 10.6.3-7 & Golder Est.	0.3
Sander	165,000 MSF ¾"	0.0066 lb/MSF	AP-42 Table 10.6.3-7	0.5
Former & Blender	55,110 BDT furnish	0.067 lb/BDT	AP-42 Table 10.6.3-7	1.8
Facility VOC			Co. Est.	2.0
AI				1.0
			Total	72.7

The source specific PSEL will be set at 73 tons/year.

Lead

Emission Unit/Point	Operating Parameter	Emission Factor		Emissions (tons/year)
		Rate	Reference	
Boiler (sanderdust)	556,479 MM Btu	5.8E-06 lb/MM Btu	NCASI TB 858 Table 20B	0.0016
Dryers #2 & #3 NG	515.3 MM ft <sup>3</sup>	0.0005 lb/MM ft <sup>3</sup>	AP-42 Table 1.4-2	0.00013
RCO NG	206.1 MM ft <sup>3</sup>	0.0005 lb/MM ft <sup>3</sup>	AP-42 Table 1.4-2	0.00005
			Total	0.00178

Because projected emissions are less than the de minimis level, no PSEL will be set.



GHGs

Emission Unit/Point	Operating Parameter	Emission Factor		Emissions (tons/year)
		Rate	Reference	
Boiler (sanderdust)	556,479 MM Btu	209.6 lb/MM Btu	40 CFR Part 98, Subpart C	58,319
Dryers #2 & #3 NG	525,600 MM Btu	117.8 lb/MM Btu	40 CFR Part 98, Subpart C	30,958
RCO NG only	210,240 MM Btu	117.8 lb/MM Btu	40 CFR Part 98, Subpart C	12,383
			Total	101,660

The source specific PSEL will be set at 101,700 tons/year.

Roseburg Forest Products---Medford

Aggregate Insignificant Emissions

Emission Unit/Point	Operating Parameter	Emission Factor		Emissions (tons/year)
		Rate	Reference	
PM				
BH5	2756 BDT	0.04 lb/ BDT	DEQ AQ-EF02	0.055
BH7	8928 BDT	0.04 lb/ BDT	DEQ AQ-EF02	0.179
BH13	22,320 BDT	0.04 lb/ BDT	DEQ AQ-EF02	0.447
BH14	13,392 BDT	0.04 lb/ BDT	DEQ AQ-EF02	0.268
			Total PM	0.949
VOC				
Gasoline Dispensing	3560 gallons	10.5 lb/M gallon	DEQ General Permit	0.02
Resin /Wax Tanks	See application Table 32		Tanks 4.09d	0.000155
			Total VOC	0.02

Categorically Insignificant Emissions

Emission Unit/Point	Operating Parameter	Emission Factor		Emissions (tons/year)
		Rate	Reference	
PM				
Paved Roads	See application Table 30			6.4
PM <sub>10</sub>				
Paved Roads	See application Table 30			1.3
PM <sub>2.5</sub>				
Paved Roads	See application Table 30			0.3
VOC				
Gasoline Storage Tanks	See application Table 33		Tanks 4.09d	0.19

Roseburg Forest Products---Medford

HAP Emissions

Emission Unit/Point	Operating Parameter	Pollutant	Emission Factor		Emissions (tons/year)
			Rate*	Reference	
Boiler—worst case of sanderdust or NG	556,479 MM Btu or 545.6 MM ft <sup>3</sup> NG	Acetaldehyde	8.3E-04	AP-42 Table 1.6-3	0.231
		Acetophenone	3.2E-09		8.9E-07
		Acrolein	4.0E-03		1.113
		Benzene	3.3E-03	NCASI TB 858 Table 20A	0.918
		Bis(2-Ethylhexyl)phthalate	4.7E-08	AP-42 Table 1.6-3	1.3E-05
		Bromomethane	1.5E-05		0.004
		Carbon tetrachloride	4.5E-05		0.013
		Chlorine	7.9E-04		0.220
		Chlorobenzene	3.3E-05		0.009
		Chloroform	2.8E-05		0.008
		Chloromethane	2.3E-05		0.006
		1,2-Dibromoethene	5.5E-05		0.015
		1,2-Dichloroethane	2.9E-05		0.008
		Dichloromethane	2.9E-04		0.081
		1,2-Dichloropropane	3.3E-05		0.009
		2,4-Dinitrophenol	1.8E-07		5.0E-05
		Ethylbenzene	3.1E-05		0.009
		Formaldehyde	1.3E-03	NCASI TB 858 Table 20A	0.362
		Hydrogen chloride	6.7E-04		0.186
		Methanol	8.3E-04		0.231
		Naphthalene	9.7E-05	AP-42 Table 1.6-3	0.027
		4-Nitrophenol	1.1E-07		3.0E-05
		Pentachlorophenol	5.1E-08		1.4E-05
		Phenol	5.1E-05		0.014
		Propionaldehyde	6.1E-05		0.017
		Styrene	1.9E-03		0.529
		2,3,7,8-Tetrachlorodibenzo-p-dioxins	8.6E-12		2.4E-09
		Tetrachloroethene	3.8E-05		0.011
Toluene	9.2E-04		0.256		

		1,1,1-Trichloroethane	3.1E-05		0.009
		Trichloroethene	3.0E-05		0.008
		2,4,6-Trichlorophenol	2.2E-08		6.1E-06
		Vinyl chloride	1.8E-05		0.005
		Xylenes	2.5E-05		0.007
		Acenaphthene	1.8E-06	AP-42 Table 1.4-3	4.9E-07
		Acenaphthylene	1.8E-06		4.9E-07
		Anthracene	2.4E-06		6.5E-07
		Benz(a)anthracene	1.8E-06		4.9E-07
		Benzo(a)pyrene	1.2E-06		3.3E-07
		Benzo(b)fluoranthene	1.8E-06		4.9E-07
		Benzo(g,h,i)perylene	1.2E-06		3.3E-07
		Benzo(k)fluoranthene	1.8E-06		4.9E-07
		Chrysene	1.8E-06		4.9E-07
		Dibenzo(a,h)anthracene	1.2E-06		3.3E-07
		Dichlorobenzene	1.2E-03		3.3E-04
		7,12-Dimethylbenz(a)anthracene	1.6E-05		4.4E-06
		Fluoranthene	3.0E-06		8.2E-07
		Fluorene	2.8E-06		7.6E-07
		Hexane	1.8		0.491
		Indo(1,2,3-cd)pyrene	1.8E-06		4.9E-07
		2-Methylnaphthalene	2.4E-05		6.5E-06
		3-Methylchloranthrene	1.8E-06		4.9E-07
		Phenanthrene	1.7E-05	4.6E-06	
		Pyrene	5.0E-06	1.4E-06	
		Antimony	7.9E-06	AP-42 Table 1.6-4	0.002
		Arsenic	1.0E-06	NCASI TB 858 Table 20B	2.8E-04
		Beryllium	1.1E-06	AP-42 Table 1.6-4	3.1E-04
		Cadmium	4.1E-06		0.001

		Chromium	1.4E-03	AP-42 Table 1.4-4	3.8E-04
		Cobalt	1.9E-07	NCASI TB 858 Table 20B	5.3E-05
		Lead	5.8E-06		0.002
		Manganese	1.5E-04		0.042
		Mercury	9.9E-07		2.8E-04
		Nickel	3.3E-05	AP-42 Table 1.6-4	0.009
		Phosphorus	2.7E-05		0.008
		Selenium	3.0E-06	NCASI TB 858 Table 20B	8.3E-04
Dryers 2&3 with RCO	275,550 BDT furnish	Acetaldehyde	0.0046	NCASI & Golder Est.	0.634
		Acetophenone	4.78E-05		0.007
		Bis(2- Ethylhexyl)phthalat e	5.3E-05		0.007
		Chloromethane	3.02E-04		0.042
		Formaldehyde	0.00848		1.168
		Hexane	2.78E-04		0.038
		Isoctane	1.24E-04		0.017
		Methanol	0.0887		12.221
		MIBK	9.86E-04		0.136
		Methylene chloride	5.74E-04		0.079
		Phenol	0.00316		0.435
		Propionaldehyde	0.00102		0.141
Press (captured emissions) with RCO	165,000 MSF	Acetaldehyde	0.00150	NCASI & Golder Est.	0.124
		Acrolein	1.37E-04		0.011
		Benzene	0.00334		0.281
		Formaldehyde	0.1289		10.634
		Methanol	0.0465		3.836
		MIBK	0.0030		0.248
		Phenol	0.0055		0.454
		Propionaldehyde	1.02E-04		0.008
Press (uncaptured emissions)	165,000 MSF	Acetaldehyde	4.12E-04	NCASI & Golder Est.	0.034
		Acrolein	3.77E-05		0.003
		Benzene	0.00093		0.077
		Formaldehyde	0.0354		2.921
		Methanol	0.0255		2.104
		MIBK	8.32E-04		0.069
		Phenol	0.00151		0.125
		Propionaldehyde	2.81E-05		0.002
Board Cooler	165,000 MSF	Acetaldehyde	7.18E-04	NCASI	0.059
		Acrolein	2.21E-04		0.018
		Formaldehyde	0.035		2.888
		Methanol	0.039		3.218
RCO NG		Acenaphthene	1.8E-06		1.9E-07

206.1 MM ft <sup>3</sup> NG	Acenaphthylene	1.8E-06	AP-42 Table 1.4-3	1.9E-07
	Anthracene	2.4E-06		2.5E-07
	Benz(a)anthracene	1.8E-06		1.9E-07
	Benzene	2.1E-03		2.2E-04
	Benzo(a)pyrene	1.2E-06		1.2E-07
	Benzo(b)fluoranthene	1.8E-06		1.9E-07
	Benzo(g,h,i)perylene	1.2E-06		1.2E-07
	Benzo(k)fluoranthene	1.8E-06		1.9E-07
	Chrysene	1.8E-06		1.9E-07
	Dibenzo(a,h)anthracene	1.2E-06		1.2E-07
	Dichlorobenzene	1.2E-03		1.2E-04
	7,12-Dimethylbenz(a)anthracene	1.6E-05		1.6E-06
	Fluoranthene	3.0E-06		3.0E-07
	Fluorene	2.8E-06		2.9E-07
	Formaldehyde	0.075		0.008
	Hexane	1.80		0.185
	Indo(1,2,3-cd)pyrene	1.8E-06		1.9E-07
	2-Methylnaphthalene	2.4E-05		2.5E-06
	3-Methylchloranthrene	1.8E-06		1.9E-07
	Naphthalene	6.1E-04		6.3E-05
	Phenanthrene	1.7E-05	1.8E-06	
	Pyrene	5.0E-06	5.2E-07	
	Toluene	3.4E-03	3.5E-04	
	Arsenic	2.0E-04	AP-42 Table 1.4-4	2.1E-05
	Beryllium	1.2E-05		1.2E-06
	Cadmium	1.1E-03		1.1E-04
	Chromium	1.4E-03		1.4E-04
	Cobalt	8.4E-05		8.7E-06
	Manganese	3.8E-04		3.9E-05
	Mercury	2.6E-04		2.7E-05
	Nickel	2.1E-03		2.2E-04
	Selenium	2.4E-05		2.5E-06
	Lead	0.0005	AP-42 Table 1.4-2	5.2E-05

Sawing and Hog	165,000 MSF	Methanol	0.0114	AP-42 Table 10.6.3-7 & Golder Est.	0.941
Sander	165,000 MSF	Formaldehyde	2.7E-03	AP-42 Table 10.6.3-7	0.223
		Methanol	4.3E-03		0.347
		Phenol	6.9E-03		0.569
		Styrene	1.4E-03		0.116
Former and Blender	55,110 BDT furnish	Formaldehyde	0.0051	AP-42 Table 10.6.3-7	0.14
		Methanol	0.017		0.47

\*Emission factors in lb/MM Btu (sanderdust) or lb/MM ft<sup>3</sup> (NG) for Boiler, lb/BDT for Dryers, Former and Blender, lb/MSF for Press, Board Cooler, Sander, Sawing and Hog, and lb/MM ft<sup>3</sup> for RCO NG usage

### HAP Summary

Pollutant	Emissions (tons/year)
Methanol	23.4
Formaldehyde	18.4
Acetaldehyde	1.1
Phenol	1.6
Hexane	0.7
Acrolein	1.1
Styrene	0.6
Benzene	1.3
Chlorine	0.2
Hydrogen chloride	0.2
Other Boiler Organics	0.50
Boiler Metals	0.07
Other Process Organics	0.76
Other Process Metals	0.0006
<b>TOTAL HAPs</b>	<b>49.9</b>
<b>Highest Single HAP</b>	<b>23.4 Methanol</b>

## Roseburg Forest Products---Medford Equipment Installation Dates

Emission Unit	Equipment Control Equipment	Installation Year
Boiler	Boiler	1992
	Multiclone	2016
	BLRBH	2016
Dryers 2 & 3	Particle Dryer 2 (Face)	1975 (1995 mod)
	Particle Dryer 3 (Core)	1975 (1995 mod)
	6 Baghouses	2013
	RCO	2008
Press	MDF Press	1973 (2000 mod)
	3 Baghouses	2008
	RCO	2008
Board Cooler	Board Cooler 1	1974
	Board Cooler 2	1995
M1	Air Density Separation	
	BH1	1997
	Raw Material Metering	1974
	BH2	1974
	Face Pull Through	
	BH3	1994
	Core Pull through	
	BH4	1994
	Reject	
	BH5	1995
	Reclaim	
	BH6	1996
	Sanderdust Re-use	



	BH7	1999
Forming Head 1		
	BH8	1994
Forming Head 2		
	BH9	1994
Forming Head 4		
	BH10	1994
Forming Head 5		
	BH11	1994
Sander		1974
	BH12	2006
Inline Saw		
	BH13	1975
Boiler Sanderdust		
	BH14	1993
Waste House		
	(C1) 4 Cyclones	1974
RCO Relay		
	C2 cyclone	2013
Raw Material Building		
	C3 cyclone	1974
Green Chip Hog		
	C4 cyclone	2012

Roseburg Forest Products---Medford  
 Source Test Results

Boiler Source Tests

On Sanderdust with BH control

Date	Run	PM		Steam Produced (lb/hr)
		gr/dscf	lb/M lb steam	
12/22/16	1	0.0053	0.014	66,000
	2	0.0051	0.014	65,600
	3	0.0060	0.016	66,200
92% SD, 8% NG heat input				
	Avg.	0.0055	0.015	

On Sanderdust with ESP control

Date	Run	PM		Steam Produced (lb/hr)
		gr/dscf	lb/M lb steam	
11/14/14	1	0.0133	0.037	61,053
	2	0.0126	0.036	58,269
	3	0.0154	0.045	58,313
11/6/13	1	0.017	0.041	60,462
	2	0.013	0.033	60,465
	3	0.013	0.033	60,000
8/28/12	1	0.0089	0.024	64,762
	2	0.0084	0.023	65,902
	3	0.0177	0.049	64,030
5/24/11	1	0.0082	0.022	64,699
	2	0.0047	0.013	65,760
	3	0.0057	0.015	65,714
6/15/10	1	0.0069	0.018	64,380
	2	0.0070	0.018	64,390
	3	0.0082	0.022	64,426
	Avg.	0.0101	0.029	

Because only one source test has been done since the baghouse installation on the Boiler, it is more appropriate to use the LAER limit of 0.035 lb/M lb steam for PSEL calculations at this time. During the next permit term, additional PM source tests will be done and a new emission factor calculated for use in the next permit renewal.

On Sanderdust with BH control

Month	NO <sub>x</sub> CEMS		CO CEMS		Total Steam Produced (M lb/month)
	Lbs/month	lb/M lb steam	Lbs/month	lb/M lb steam	
Oct. 2016	22,034	0.610	10,458	0.290	36,095
Nov. 2016	23,906	0.700	17,759	0.520	34,151
Dec. 2016	22,968	0.686	16,092	0.480	33,498
Jan. 2017	20,062	0.556	11,521	0.319	36,081
Feb. 2017	15,312	0.513	10,030	0.336	29,864
	Avg.	0.613		0.389	

RCO Source Tests

Date	Run	PM			CO			MDF Production M ft <sup>2</sup> ¾" basis
		gr/dscf	lb/hr	lb/BDT	ppm	lb/hr	lb/BDT	
10/28/08	1	0.0058	6.41	0.229	19.7	11.08	0.363	16.331
	2	0.0040	4.47	0.150	21.3	11.98	0.392	16.331
	3	0.0041	4.56	0.163	18.2	10.35	0.342	16.758
	4				16.1	9.15	0.303	16.758
	5				18.8	10.64	0.390	15.075
	6				13.8	7.81	0.286	15.075
6/18/10	1	0.0013	1.233	0.047	69.67	35.54	1.347	15.708
	2	0.0007	0.791	0.030	61.39	31.89	1.199	18.393
	3	0.0008	0.900	0.036	62.08	32.32	1.300	16.974
5/26/11	1	0.0049	4.515	0.162	81.95	38.2	1.370	17.166
	2	0.0016	1.478	0.053	78.86	36.8	1.329	17.935
	3	0.0018	1.653	0.067	88.48	41.2	1.661	14.921
8/29/12	1	0.0189	20.02	0.870				15.505
	2	0.0063	6.48	0.275				15.505
	3	0.0072	7.25	0.299				15.505
	Avg.	---	---	0.198	---	---	0.857	

Date	Run	NO <sub>x</sub>			VOC			MDF Production M ft <sup>2</sup> ¾" basis
		ppm	lb/hr	lb/BDT	ppm	lb/hr	lb/BDT	
10/28/08	1	4.6	4.25	0.139	6.7	6.54	0.214	16.331
	2	4.4	4.06	0.133	2.6	2.83	0.094	16.331
	3	2.9	2.71	0.090	5.2	5.06	0.185	16.758
	4	2.7	2.52	0.083				16.758
	5	3.0	2.79	0.102				15.075
	6	2.4	2.23	0.082				15.075
3/10/09	1				19.5	6.89	0.26	15.770
	2				20.8	9.58	0.37	14.308
	3				21.2	9.81	0.37	16.114
6/18/10	1	2.670	2.238	0.085				15.708
	2	1.973	1.684	0.063				18.393
	3	1.817	1.554	0.063				16.974
5/26/11	1	2.83	2.16	0.077				17.166
	2	2.84	2.17	0.078				17.935
	3	2.61	2.00	0.081				14.921
	Avg.	---	---	0.090	---	---		

Roseburg Forest Products---Medford  
CAM Applicability Analysis 2017\*