



**STANDARD
 AIR CONTAMINANT DISCHARGE PERMIT**

Department of Environmental Quality
 Eastern Region
 475 NE Bellevue Dr., Suite 110
 Bend, OR 97701
 541-388-6146

This permit is being issued in accordance with the provisions of ORS 468A.040 and based on the land use compatibility findings included in the permit record.

ISSUED TO:

Amerities West LLC
 PO Box 1608
 The Dalles, OR 97058

INFORMATION RELIED UPON:

Application No.: 27138
 Date Received: 01/11/2013

PLANT SITE LOCATION:

100 Tie Plant Road
 The Dalles, OR 97058

LAND USE COMPATIBILITY FINDING:

Approving Authority: The City of The Dalles
 Approval Date: 09/20/1989

ISSUED BY THE DEPARTMENT OF ENVIRONMENTAL QUALITY

(Signature on File) March 24, 2015
 Mark W. Bailey, Eastern Region Air Quality Manager Dated

Source(s) Permitted to Discharge Air Contaminants (OAR 340-216-0020):

Source Description	Activity Type	SIC	NAICS	DEQ Table 1 Permit Category Codes
Boilers and other fuel burning equipment over 10 million Btu/hr heat input, except exclusively natural gas and propane fired units (with or without #2 diesel backup) under 30 million Btu/hr. heat input.	Primary	4961	221330	Part B, 13
Wood Preserving (excluding waterborne)	Primary	2491	321114	Part B, 83
All Other Sources not listed herein that DEQ determines an air quality concern exists or one which would emit significant malodorous emissions.	Secondary			Part B, 84

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1.0 GENERAL EMISSION STANDARDS AND LIMITS

- 1.1. Visible Emissions** Emissions from any air contaminant source must not equal or exceed 20% opacity for a period aggregating more than 3 minutes in any one hour.
- 1.2. Particulate Matter Emissions** The permittee must comply with the following particulate matter emission limits, as applicable:
- a. Particulate matter emissions from the boilers (Erie City and Cleaver Brooks) must not exceed 0.1 grains per standard cubic foot, corrected to 12% CO₂ or 50% excess air.
 - b. Particulate matter emissions from any air contaminant source other than the boilers and fugitive emission sources must not exceed 0.1 grains per standard cubic foot.
- 1.3. Fugitive Emissions** The permittee must take reasonable precautions to prevent fugitive dust emissions by:
- a. Treating vehicular traffic areas of the plant site under the control of the permittee.
 - b. Operating all air contaminant-generating processes so that fugitive type dust associated with the operation will be adequately controlled at all times.
 - c. Storing collected materials from air pollution control equipment in a covered container or other method equally effective in preventing the material from becoming airborne during storage and transfer.
- 1.4. Particulate Matter Fallout** The permittee must not cause or permit the emission of any particulate matter larger than 250 microns in size at sufficient duration or quantity, as to create an observable deposition upon the real property of another person. DEQ will verify that the deposition exists and will notify the permittee that the deposition must be controlled.
- 1.5. Nuisance and Odors** The permittee must not cause or allow air contaminants from any source to cause a nuisance. Nuisance conditions will be verified by DEQ personnel.
- 1.6. Fuels and Fuel Sulfur Content** The permittee must not use any fuel other than natural gas, propane, butane, ASTM grade fuel oils, or on-specification used oil.
- a. Fuel oils must not contain more than:
 - i. 0.3% sulfur by weight for ASTM Grade 1 distillate oil;
 - ii. 0.5% sulfur by weight for ASTM Grade 2 distillate oil;

- iii. 1.75% sulfur by weight for residual oil.
- b. The permittee is allowed to use on-specification used oil as fuel which contains no more than 0.5% sulfur by weight. The permittee must obtain analyses from the marketer or, if generated on site, have the used oil analyzed, so that it can be demonstrated that each shipment of oil does not exceed the used oil specifications contained in 40 CFR Part 279.11, Table 1.

2.0 SPECIFIC PERFORMANCE AND EMISSION STANDARDS

- 2.1. Cleaver Brooks Boiler** The following New Source Performance Standards (NSPS) apply to the Cleaver Brooks boiler:
- a. Fuels: The permittee may only burn natural gas, propane, butane, or #2 distillate oil.
 - b. Sulfur dioxide:
 - i. The permittee must not combust fuel oil that contains greater than 0.5 weight percent sulfur.
 - ii. Compliance with the fuel oil sulfur limits may be determined based on a certification from the fuel supplier.
 - iii. The fuel oil sulfur limits apply at all times, including periods of startup, shutdown and malfunction.
 - c. Particulate matter:
 - i. While burning oil, the permittee must not cause to be discharged into the atmosphere from the Cleaver Brooks boiler, any gases that exhibit greater than 20 percent opacity (6-minute average), except one 6-minute period per hour of not more than 27 percent opacity.
 - ii. The opacity standard applies at all times, except during periods of startup, shutdown or malfunction.

3.0 OPERATION AND MAINTENANCE REQUIREMENTS

- 3.1. Boiler Maintenance** The permittee must perform a maintenance service on each boiler at least once in every 2-year period. As a minimum, the service must include an inspection of the burners and refractory chamber; cleaning, adjustment and repair as necessary. For water tube boilers, the service must include flushing the tubes.

3.2. Pollution Control Devices

The following pollution control devices must be operated at all times. At least once a month, the permittee must perform an inspection of the pollution control devices and make repairs, if necessary, to ensure good pollution control practices. The permittee must maintain records of the inspections and any necessary repairs.

Process/Activity	Pollution Control Devices
Conditioning (retort vacuum system), Working and Storage Tanks	Ventilation air tank/knock-out
	Oil spray
	Covers
	Vapor balancing line
Wastewater Treatment (WWT)	Water spray
	Covers
	Vapor balancing line
Sump Tanks	Covers
Retort Doors	Organic vapor mist reduction system

3.3. Management Practice Plan

The permittee must prepare and operate according to a Management Practice Plan to minimize air emissions from the preservative treatment of wood. The Management Practice Plan must include, but is not limited to, the following activities:

- a. Minimize preservative usage;
- b. Maintain records on the type of treatment process and types and amounts of wood preservatives used at the facility;
- c. Maintain charge records identifying pressure reading(s) inside the retorts;
- d. Store treated wood products on drip pads or in a primary containment area to convey preservative drippage to a collection system until drippage has ceased;
- e. Fully drain the retort to the extent practicable, prior to opening the retort door;
- f. Promptly collect any spills; and
- g. Perform relevant corrective actions or preventative measures in the event of a malfunction before resuming operations.

4.0 PLANT SITE EMISSION LIMITS

4.1. Plant Site Emission Limits (PSEL)

Plant site emissions must not exceed the following:

Pollutant	Limit	Units
PM	24	tons per year
PM ₁₀	14	tons per year
PM _{2.5}	9	tons per year
SO ₂	39	tons per year
NO _x	39	tons per year
CO	99	tons per year
VOC	39	tons per year
GHGs	74,000	tons per year

4.2. Annual Period

The annual plant site emissions limits apply to any 12-consecutive calendar month period.

5.0 COMPLIANCE DEMONSTRATION

5.1. Monitoring Requirements

The permittee must monitor the operation and maintenance of the plant and associated air contaminant control devices as follows:

- a. All operating and production parameters are to be reported to the Department annually as required according to Condition 13.0.
- b. Amounts of each type of fuel combusted in the Cleaver Brooks boiler during each day. [40 CFR 60.48c(g)] If approved by EPA, the amount of natural gas combusted may be recorded monthly instead of daily.
- c. Amounts of each type of fuel combusted in the Erie City boiler during each month.
- d. Fuel supplier certification for the #2 distillate oil shipments. [40 CFR 60.48c(f)(1)]
- e. Plant production of treated wood on a monthly basis (charges/month).
- f. Amount of wood treat solution (gallons) used per month.
- g. Storage yard inventory of treated wood products on a monthly basis (average units/month).

- h. Excess emissions records as defined in OAR 340-214-0340 (recorded on occurrence). Excess emissions are emissions in excess of the applicable standards identified in Conditions 1.0, 2.0 and 4.0 of this permit.
- i. An explanation of any permanent changes made in the plant process or production, which would affect air contaminant emissions (indicating when changes were made).
- j. A description of any maintenance to the air contaminant control system (recorded on occurrence).

5.2. PSEL Compliance Monitoring

Compliance with the PSEL, except for GHG, is determined for each 12-consecutive calendar month period based on the following calculation for each pollutant:

a. Boilers:

$$E = EF \times F / 2,000 \text{ lbs/ton}$$

Where,

- E = Pollutant Emissions (ton/yr);
- EF = Pollutant Emission Factor (see Condition 12.0);
- F = Fuel Combusted for the 12-month period (million cubic feet of natural gas or 1,000 gallons of oil)

b. Cyclones:

$$E = EF \times P / 2,000 \text{ lbs/ton}$$

Where,

- E = Pollutant Emissions (ton/yr);
- EF = Pollutant Emission Factor (see Condition 12.0)
- P = Process Production for the 12-month period (bone dry tons - BDT)

c. VOC from Wood Treating:

- i. The number of relief valves x 0.023 lb/hr x 8,760 hours/year x 1 ton/2,000 lbs;
- ii. The number of flanges x 0.00018 lb/hr x 8,760 hour/year x 1 ton/2,000 lbs;
- iii. The number of pump seals x 0.0047 lb/hr x 8,760 hours/year x 1 ton/2,000 lbs;
- iv. Storage yard emissions as determined by the Amerities West, LLC spreadsheet as a function of inventory and period of time;
- v. The number of charges during the 12-month period x 0.4 lb/charge (retort door emissions) x 1 ton/2,000 lbs.

- vi. The number of charges during the 12-month period x 0.1 lb/charge (vacuum system emissions) x 1 ton/2,000 lbs;
- vii. One ton per year for all insignificant sources and activities, which include valves (other than those identified above), drip pad, tank farm containment, process drains, hot sump, working tanks, storage tanks, and waste water treatment system.

5.3. Emission Factors The permittee must use the default emission factors provided in Conditions 5.2.c and 12.0 for calculating pollutant emissions, unless alternative emission factors are approved by DEQ. The permittee may request or DEQ may require using alternative emission factors provided they are based on actual test data or other documentation (e.g., AP-42 compilation of emission factors) that has been reviewed and approved by DEQ.

6.0 SPECIAL CONDITIONS

6.1. Complaints The permittee must provide written notification within five working days of all nuisance or odor complaints received by the permittee during the operation of the facility. Documentation must include the date of contact, time of claimed nuisance condition, description of claimed nuisance condition, location of receptor, and status of plant operation during the observed period. The notification must be submitted to the DEQ Eastern Region Bend Office.

The permittee must notify the Department immediately of any complaints and, if possible, DEQ may perform an investigation of the complaint either independently or in conjunction with the investigation performed by the permittee. If DEQ performs an independent investigation, results of the investigation will be shared with the permittee.

6.2. Wood Preservative Evaluation The permittee will submit a wood preservative evaluation report covering the following:

- a. Alternative preservative(s) to replace creosote while maintaining quality specification of finished product and customer acceptance.
- b. Expected naphthalene content for the current purchasing year.
- c. Availability of different creosote formulations.

The permittee will submit the report within 6 months of the permit issuance date; update it annually; and submit the results as part of the facility's annual report. The facility will document emissions reductions in the report.

- 6.3. Odor Reduction Measures** The permittee must evaluate potential sources of odors and take measures to reduce odors as follows:
- a. Develop a plan for additional work practices to minimize odors. These work practices shall be supplementary to the management practices plan required by Condition 3.3. The plan must be submitted within one year of the permit issuance for DEQ's review and approval. At a minimum, the following work practices should be evaluated:
 - i. Conducting cool charges within the retort without causing adverse consequences (adding additional cooling systems);
 - ii. Operating the vacuum system when the retort doors are open;
 - iii. Covering or enclosing the drip pad and applying an emission control system to treat the enclosure exhaust gases. Different types of enclosures (e.g., portable, fabric and fixed structure) should be considered;
 - iv. Reducing odors being emitted from the storage of railroad ties in the yard. Possible solutions include: (a) limiting the amount of railroad ties in storage; (b) covering the railroad ties; and (c) changing the way the railroad ties are stacked to reduce odors.
- 6.4. Oil Scrubber Performance Study** Within 6 months of permit issuance, the permittee, in coordination with DEQ, must develop and submit a plan for evaluating the performance of the oil scrubber in controlling VOC emissions. This study will focus on reducing VOC/HAPs emissions using the oil scrubber control device. The permittee will conduct the evaluation, which may include testing, within 60 days of the DEQ's review and approval of the plan. Results of the evaluation must be submitted to DEQ within 45 days of completion.
- 6.5. Emission Factor Review** The permittee will evaluate the representativeness of the current permit-cited emission factors for the following sources:
- a. Vacuum system VOC emission (lb/charge). Note that the current emission estimate includes a 98.75% emission control factor.
 - b. Retort door VOC emissions (lb/charge).
 - c. Storage yard (railroad ties) VOC emissions. These emissions are currently estimated by the permittee's spreadsheet based on inventory and time duration;

- d. VOC emissions from other miscellaneous sources and activities, including valves (other than those identified in Condition 5.2), the drip pad, tank farm containment, process drains, hot sump, working tanks, storage tanks, and the wastewater treatment system.

The goal of the emission factor study is to show how and why these emission factors are being used. The study should include review of published emission factors (e.g., AP-42) and test data collected at similar facilities. The study will also include recommendations on test programs to verify or update existing emission factors for specific sources. The study should focus on revising emission factors for those sources that will have the biggest impact on emission estimates from the facility.

The permittee shall prepare and submit the results of the study to the DEQ with 12 months of the permit issuance. Following the DEQ's review of the study results, the permittee may be asked to perform emission testing on selected sources and/or operating conditions. Authorization for this testing is provided under OAR 340-212-0120(1)(a).

7.0 RECORDKEEPING REQUIREMENTS

7.1. Operation and Maintenance

The permittee must maintain the following records related to the operation and maintenance of the plant and associated air contaminant control devices:

- a. Boiler inspection logs (on occurrence);
- b. Pollution control device inspection logs (on occurrence);
- c. Amount of natural gas, propane and butane burned in the boilers (monthly);
- d. Amount of #2 distillate oil burned in the boilers (daily and monthly);
- e. Average sulfur content (weight percent) and density (lb/gallon) of the distillate oil combusted (monthly);
- f. Fuel supplier certifications for the #2 distillate oil shipments; [40 CFR 60.48c(f)(1)]
- g. If used oil is burned, the permittee must obtain analyses from the marketer or, if generated on site, have the used oil analyzed, so that it can be demonstrated that the used oil does not exceed the used oil specifications contained in 40 CFR Part 279.11, Table 1;
- h. Amount of material throughput for the cyclones (monthly);
- i. The number of relief valves, flanges and pump seals in the system (recorded initially and then updated if there are any changes);

- j. Storage yard inventory (average units) of treated wood products (monthly);
- k. Number of charges treated (monthly);
- l. Best management plan records; and
- m. Pollutant emissions for the previous 12-month period (calculated monthly).

- 7.2. Excess Emissions** The permittee must maintain records of excess emissions as defined in OAR 340-214-0300 through 340-214-0340 (recorded on occurrence). Typically, excess emissions are caused by process upsets, startups, shutdowns or scheduled maintenance. In many cases, excess emissions are evident when visible emissions are greater than 20% opacity for 3 minutes or more in any 60-minute period. If there is an ongoing excess emission caused by an upset or breakdown, the permittee must cease operation of the equipment or facility no later than 48 hours after the beginning of the excess emissions, unless continued operation is approved by DEQ in accordance with OAR 340-214-0330(4).
- 7.3. Complaint Log** The permittee must maintain a log of all written complaints and complaints received via telephone that specifically refer to air pollution concerns associated to the permitted facility. The log must include a record of the permittee's actions to investigate the validity of each complaint and a record of actions taken for complaint resolution.
- 7.4. Retention of Records** Unless otherwise specified, all records must be maintained on site for a period of two (2) years and made available to DEQ upon request.

8.0 REPORTING REQUIREMENTS

- 8.1. Excess Emissions** The permittee must notify DEQ of excess emissions events if the excess emission is of a nature that could endanger public health.
- a. Such notice must be provided as soon as possible, but never more than one hour after becoming aware of the problem. Notice must be made to the regional office identified in Condition 9.3 by email, telephone, facsimile or in person.
 - b. If the excess emissions occur during non-business hours, the permittee must notify DEQ by calling the Oregon Emergency Response System (OERS). The current number is 1-800-452-0311.
 - c. The permittee must also submit follow-up reports when required by DEQ.

**8.2. Semi-Annual
NSPS Reports**

The permittee must submit semi-annual reports to the Department and EPA. The semi-annual reports must be postmarked by the 30th day following the end of each semi-annual period (January 1 to June 30 and July 1 to December 31). The semi-annual reports must include the following information:

- a. Calendar dates covered in the reporting period;
- b. Each 30-day average sulfur content (weight percent) of fuel oil calculated during the reporting period, ending with the last 30-day period in the semi-annual period; reasons for any noncompliance with the emission standards; and a description of corrective actions taken.
- c. If fuel supplier certification is used to demonstrate compliance, records of fuel supplier certification as described under 40 CFR 60.48c(f)(1). In addition to records of fuel supplier certifications, the semi-annual report must include a certified statement signed by the permittee that the records of fuel supplier certifications submitted represent all of the fuel combusted during the semi-annual period.
- d. Fuel supplier certifications for distillate oil must include the following information:
 - i. The name of the oil supplier; and
 - ii. A statement from the oil supplier that the oil complies with the specifications under the definition of distillate oil in 40 CFR 60.41c.
- e. The EPA address is:
Part 70 Air Quality Permits
U.S. EPA Region 10, AWT-107
1200 Sixth Avenue, Suite 900
Seattle, WA 98101

8.3. Annual Reports

For each year this permit is in effect, the permittee must submit to DEQ by **February 15th** two (2) copies of the following information for the previous calendar year:

- a. Operating parameters:
 - i. Amount of natural gas, propane and butane burned in the boilers (cubic feet);
 - ii. Amount of distillate oil burned in the boilers (gallons);
 - iii. Average sulfur content (weight percent) and density (lb/gallon) of the distillate oil combusted during the year;
 - iv. Amount of material through the cyclones (bone dry tons);

- v. The average number of relief valves, flanges and pump seals;
 - vi. The amount of treat solution used per month;
 - vii. The number of charges treated;
 - viii. The pollutant emissions for each 12-month period during the year (tons).
- b. Update annually emission reduction report as required by Condition 6.2.
 - c. Records of all planned and unplanned excess emissions events.
 - d. Summary of complaints relating to air quality received by permittee during the year.
 - e. List permanent changes made in plant process, production levels, and pollution control equipment which affected air contaminant emissions.
 - f. List major maintenance performed on pollution control equipment.

8.4. Greenhouse Gas Registration and Reporting

If the calendar year emission rate of greenhouse gases (CO₂e) is greater than or equal to 2,756 tons (2,500 metric tons), the permittee must register and report its greenhouse gas emissions with DEQ in accordance with OAR 340-215. The Department would suggest the company contact the DEQ Greenhouse Gas Program contact person to learn more about registering and reporting greenhouse gas emissions through EZ-Filer: <http://www.deq.state.or.us/aq/climate/permitHolder.htm>

8.5. Notice of Change of Ownership or Company Name

The permittee must notify DEQ in writing using a Departmental "Transfer Application" form within 60 days after the following:

- a. Legal change of the name of the company as registered with the Corporations Division of the State of Oregon;
- b. Sale or exchange of the activity or facility.

8.6. Construction or Modification Notices

The permittee must notify DEQ in writing using a Departmental "Notice of Intent to Construct" form or other permit application forms and obtain approval in accordance with OAR 340-210-0205 through 340-210-0250 before:

- a. Constructing, installing or establishing a new stationary source that will cause an increase in any regulated pollutant emissions;
- b. Making any physical change or change in operation of an existing stationary source that will cause an increase, on an hourly basis at full production, in any regulated pollutant emissions; or
- c. Constructing or modifying any air pollution control equipment.

- 8.7. Where to Send Reports and Notices** The reports, with the permit number prominently displayed, must be sent to the Permit Coordinator for the region where the source is located as identified in Condition 9.3.

9.0 ADMINISTRATIVE REQUIREMENTS

- 9.1. Permit Renewal Application** The completed application package for renewal of this permit is due 60 days prior to permit expiration. Two (2) copies of the application must be submitted to the DEQ Permit Coordinator listed in Condition 9.3
- 9.2. Permit Modifications** Application for a modification of this permit must be submitted not less than **60** days prior to the source modification. A special activity fee must be submitted with an application for the permit modification. The fees and two (2) copies of the application must be submitted to the DEQ Business Office.
- 9.3. Department Contact Information** All reports, notices and applications should be directed to the Permit Coordinator for the area where the source is located. Information about air quality permits and DEQ’s regulations may be obtained online at www.oregon.gov/DEQ/. All inquiries about this permit should be directed to the Eastern Regional Office.

Eastern Region Counties	Department Contact Information
Baker, Crook, Deschutes, Gilliam, Grant, Harney, Hood River, Jefferson, Klamath, Lake, Malheur, Morrow, Sherman, Umatilla, Union, Wallowa, Wasco, Wheeler	Department of Environmental Quality Eastern Region – Bend Office 475 NE Bellevue Drive, Suite 110 Bend, OR 97701-7415 Office: 541-388-6146 or 866-863-6668 Permit Coordinator: 541-633-2021

10.0 FEES

- 10.1. Annual Compliance Fee** The Annual Fee specified in OAR 340-216-0020, Table 2, Part 2 for a Standard ACDP is due on **December 1** of each year this permit is in effect. An invoice indicating the amount, as determined by DEQ regulations will be mailed prior to the above date. **Late fees in accordance with Part 4 of the table will be assessed as appropriate.**
- 10.2. Change of Ownership or Company Name** The non-technical permit modification fee specified in OAR 340-216-0020, Table 2, Part 3(a) is due with an application for changing the ownership or the name of the company.

- Fee**
- 10.3. Special Activity Fees** The special activity fees specified in OAR 340-216-0020, Table 2, Part 3 (b through i) are due with an application to modify the permit.
- 10.4. Where to Submit Fees** Fees must be submitted to:
Department of Environmental Quality
Business Office
811 SW Sixth Avenue
Portland, OR 97204-1390

11.0 GENERAL CONDITIONS AND DISCLAIMERS

- 11.1. Permitted Activities** This permit allows the permittee to discharge air contaminants from processes and activities related to the air contaminant source(s) listed on the first page of this permit until this permit expires, is modified or is revoked.
- 11.2. Other Regulations** In addition to the specific requirements listed in this permit, the permittee must comply with all other legal requirements enforceable by DEQ.
- 11.3. Conflicting Conditions** In any instance in which there is an apparent conflict relative to conditions in this permit, the most stringent conditions apply.
- 11.4. Masking of Emissions** The permittee must not cause or permit the installation of any device or use any means designed to mask the emissions of an air contaminant that causes or is likely to cause detriment to health, safety or welfare of any person or otherwise violate any other regulation or requirement.
- 11.5. Department Access** The permittee must allow DEQ's representatives access to the plant site and pertinent records at all reasonable times for the purposes of performing inspections, surveys, collecting samples, obtaining data, reviewing and copying air contaminant emissions discharge records and conducting all necessary functions related to this permit in accordance with ORS 468-095.
- 11.6. Permit Availability** The permittee must have a copy of the permit available at the facility at all times.
- 11.7. Open Burning** The permittee may not conduct any open burning except as allowed by OAR 340 Division 264.
- 11.8. Asbestos** The permittee must comply with the asbestos abatement requirements in OAR 340, Division 248 for all activities involving asbestos-containing materials, including, but not limited to, demolition, renovation, repair, construction and maintenance.

- 11.9. Property Rights** The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.
- 11.10. Permit Expiration**
- a. A source may not be operated after the expiration date of the permit, unless any of the following occur prior to the expiration date of the permit:
 - i. a timely and complete application for renewal or for an Oregon Title V Operating Permit has been submitted, or
 - ii. another type of permit (ACDP or Oregon Title V Operating Permit) has been issued authorizing operation of the source.
 - b. For a source operating under an ACDP or Oregon Title V Operating Permit, a requirement established in an earlier ACDP remains in effect notwithstanding expiration of the ACDP, unless the provision expires by its terms or unless the provision is modified or terminated according to the procedures used to establish the requirement initially.
- 11.11. Permit Termination, Revocation or Modification** DEQ may modify or revoke this permit pursuant to OAR 340-216-0082 and 340-216-0084.

12.0 EMISSION FACTORS

Emissions Device or Activity	Pollutant	Emission Factor (EF)	EF Units	EF Reference
Boilers – Natural Gas (propane, butane)	PM/PM ₁₀ PM _{2.5}	2.5	lb/10 ⁶ ft ³	DEQ
	SO ₂	2.6	lb/10 ⁶ ft ³	DEQ
	NO _x	100	lb/10 ⁶ ft ³	AP-42
	CO	84	lb/10 ⁶ ft ³	AP-42
	VOC	5.5	lb/10 ⁶ ft ³	AP-42
Boilers – #2 Distillate Oil	PM	3.3	lb/10 ³ gallons	AP-42
	PM ₁₀	2.3	lb/10 ³ gallons	AP-42
	PM _{2.5}	1.6	lb/10 ³ gallons	AP-42
	SO ₂	a (<i>below</i>)	lb/10 ³ gallons	Calculation
	NO _x	20	lb/10 ³ gallons	AP-42
	CO	5	lb/10 ³ gallons	AP-42
	VOC	0.2	lb/10 ³ gallons	AP-42

- a. Sulfur dioxide emissions are calculated using the following formula:

$$E = \frac{2S}{100} \times F \times d \times 1\text{ton}/2,000 \text{ lbs}$$

Where;

- E = Sulfur dioxide emissions in tons/year
- 2 = Conversion constant (molecular weight of sulfur dioxide divided by the molecular weight of sulfur - 64/32)
- S = Sulfur content of fuel (weight percent)
- F = Amount of #2 distillate oil burned during the 12-month period (gallons)
- d = Density of the #2 distillate oil (lbs/gallon)

Cyclone PM/PM₁₀/PM_{2.5} Emission Factors

Pollutant	Annual Throughput	Emission Factor (EF)	EF Units
PM	BDT/yr	0.5	lbs PM/BDT
PM ₁₀	BDT/yr	0.425	lbs PM/BDT
PM _{2.5}	BDT/yr	0.25	lbs PM/BDT

Medium efficiency cyclone

PM_{2.5} is 50% of PM 0.5 *50% = 0.25

PM₁₀ is 85% of PM 0.5*85% = 0.425

Reference DEQ Emission Factor AQ-EF03

13.0 PROCESS/PRODUCTION RECORDS

Emissions Device or Activity	Process or Production Parameter	Frequency
Fuel Burning : Natural Gas	MMft ₃	Monthly
Fuel Burning Distillate Oil	Mgal	Monthly
Cyclones Woodwaste	BDT	Monthly
Wood Treat- Retorts	Number of Charges	Daily
Cyclones-Production- Saw Operations	Pieces of Material Produced	Monthly
Wood Treat Solution	Gallons	Monthly
Railroad Yard Storage	Number of Railroad Ties	Monthly

14.0 ABBREVIATIONS, ACRONYMS AND DEFINITIONS

ACDP	Air Contaminant Discharge Permit	NSR	New Source Review
ASTM	American Society for Testing and Materials	O ₂	Oxygen
AQMA	Air Quality Maintenance Area	OAR	Oregon Administrative Rules
calendar year	The 12-month period beginning January 1st and ending December 31st	ORS	Oregon Revised Statutes
CFR	Code of Federal Regulations	O&M	Operation and Maintenance
CO	Carbon Monoxide	Pb	Lead
CO _{2e}	Carbon Dioxide Equivalent	PCD	Pollution Control Device
DEQ	Oregon Department of Environmental Quality	PM	Particulate Matter
dscf	dry standard cubic foot	PM ₁₀	Particulate Matter less than 10 microns in size
EPA	US Environmental Protection Agency	PM _{2.5}	Particulate Matter less than 2.5 microns in size
FCAA	Federal Clean Air Act	ppm	parts per million
Gal	Gallon(s)	PSD	Prevention of Significant Deterioration
GHG	Greenhouse Gas	PSEL	Plant Site Emission Limit
gr/dscf	grains per dry standard cubic foot	PTE	Potential to Emit
HAP	Hazardous Air Pollutant as defined by OAR 340-244-0040	RACT	Reasonably Available Control Technology
I&M	Inspection and Maintenance	scf	standard cubic foot
lb	Pound(s)	SER	Significant Emission Rate
MMBtu	Million British thermal units	SIC	Standard Industrial Code
NA	Not Applicable	SIP	State Implementation Plan
NESHAP	National Emissions Standards for Hazardous Air Pollutants	SO ₂	Sulfur Dioxide
NO _x	Nitrogen Oxides	Special Control Area	as defined in OAR 340-204-0070
NSPS	New Source Performance Standard	VE	Visible Emissions
		VOC	Volatile Organic Compound
		year	A period consisting of any 12-consecutive calendar months

