

Lane Regional Air Pollution Authority
Synthetic Minor Air Contaminant Discharge Permit Application

REVIEW REPORT

Eugene Water & Electric Board

Permit Number 202505

GENERAL BACKGROUND INFORMATION

1. Eugene Water & Electric Board (EWEB) operates a steam and electricity generating facility at 500 East 4th Avenue, Eugene. The operation was first installed in 1931 with additional boilers installed in 1941, 1950, 1994, and 1995. The operation consists of the following:
 - a. Boiler 1 (B1): This is a refractory walled water-tube boiler which burns Diesel #2 and Bunker C #6 fuel oils. This boiler has a maximum rated capacity of 90,000 pounds of steam per hour (171 mmBtu/hr). There are no emissions controls on this boiler which was installed in 1931.
 - b. Boiler 2 (B2): This is a water-tube boiler with stationary grates which burns Diesel #2 and Bunker C #6 fuel oils. This boiler has a maximum rated capacity of 120,000 pounds of steam per hour (229 mmBtu/hr). Emissions controls include a Western Precipitator Multiclone Precipitator (MC2) with 190 nine-inch tubes as particulate control and was installed in 1941.
 - c. Boiler 3 (B3): This is a water-tube boiler with traveling grates which burns Diesel #2 and Bunker C #6 fuel oils. This boiler has a maximum rated capacity of 190,000 pounds of steam per hour (375.3 mmBtu/hr). Emissions controls include a Western Precipitator Multiclone Precipitator (MC3) with 120 eight-inch tubes as particulate control and was installed in 1950.
 - d. Boiler 4 (B4): This is a packaged gas boiler with bent water tubes which burns natural gas and Diesel #2 fuel oil. This boiler has a maximum rated capacity of 65,000 pounds of steam per hour (82 mmBtu/hr). It is equipped with LoNO_x burners for NO_x and CO control and was installed in 1994. This boiler is subject to NSPS requirements (40CFR60 subpart Dc).
 - e. Boiler 5 (B5): This is a Zurn Industries "O"-type boiler which burns natural gas and Diesel #2 fuel oil. This boiler has a maximum rated capacity of 100,000 pounds of steam per hour (120 mmBtu/hr). It is equipped with LoNO_x burners for NO_x and CO control and was installed in 1995. This boiler is subject to NSPS requirements (40CFR60 subpart Db).
 - f. Storage Tank T1: This above-ground tank has a capacity of 20,000 gallons, an annual throughput of 917,936 gallons, and stores Diesel #2 fuel oil at ambient temperature (emissions are assumed to be negligible).
 - g. Storage Tank T2: This is an underground tank with a capacity of 100,000 gallons, an annual throughput of 100,000 gallons, and stores Bunker C #6 fuel oil at 125 degrees F. This tank feeds two 3,000 gallon underground service tanks (emissions are assumed to be negligible).

The permit allows the combustion of on-specification used Transformer oil, as defined in 40 CFR 279, in lieu of Diesel fuel in the boilers.

2. The source is located in a nonattainment area for PM₁₀ and is a small source of this pollutant. The Eugene-Springfield area is in attainment for all other pollutants.
3. The source is located within 100 kilometers (62 miles) of three Class I Wilderness air quality

areas: Mt. Washington, Three Sisters, and Diamond Peak Wilderness areas.

4. A Land Use Compatibility Statement (LUCS), dated April 21, 1998, from the City of Eugene grants unconditional approval.
5. In addition to the air permit number 202505 the source currently holds the following permits: National Pollution Discharge Elimination System (NPDES) Waste Discharge Permit 100800, NPDES Storm Water Discharge Permit 1200-Z, and NPDES Wastewater discharge permit 1700-A.
6. The facility was inspected on May 18, 1998, and found to be in compliance with permit conditions.
7. No complaints have been received during the prior permit period.
8. No enforcement actions have been taken against this source during the prior permit period.
9. This permit, which includes Synthetic Minor conditions to keep the permittee out of the Title V permit program, is a modification of an existing Air Contaminant Discharge Permit (ACDP).
10. Primary reasons for permit issuance are:
 - a. EWEB has potential emissions of criteria pollutants in excess of the trigger levels for Title V permitting (100 tons per year). This permit limits the potential to emit each criteria pollutant for this source to less than 100 tons per year by limiting the amount of fuel which may be combusted at the facility.
 - b. EWEB submitted a Title V permit application on January 1, 1995, which covered the time period from when they became subject to Title V permitting to present. LRAPA had not taken any action on the Title V permit before EWEB requested a Synthetic Minor permit and submitted a Synthetic Minor permit application on December 31, 1997. This permit makes EWEB a Synthetic Minor source and not subject to Title V permitting unless the permittee wishes to increase the use of fuels which are limited in the permit. Increases in the amount or changes in the type of fuel combusted by this facility will require a permit modification and possibly a Title V permit application if trigger levels are exceeded.
11. Source Test Information

No stack test information was submitted with either the Title V or the Synthetic Minor permit applications. This permit requires the verification of emission factors used to set the Synthetic Minor limitations and the PSEL. The permittee is required to conduct source testing for PM₁₀, NO_x, and CO on Boilers 1 or 3 and 4 or 5. Boiler 4 is required to be tested for SO₂ and Particulate and Boiler 5 is required to be tested for SO₂, NO_x, and Particulate for compliance with the New Source Performance Standards (40CFR60 subparts Dc and Db, respectively). Fuel sulfur concentration based on supplier certificates may be used to calculate sulfur dioxide emissions in lieu of stack testing.
12. Existing Air Contaminant Discharge Source and Controls

Particulate Matter, Nitrogen Oxides, and Carbon Monoxide emissions are minimized by multiclones and low NO_x burners as listed in item 1 above.

13. Plant Site Emission Limit (PSEL) Information

The Hourly PSEL is set at the maximum potential hourly emissions for the facility based on rated capacity of each boiler. Compliance with the hourly PSEL shall be demonstrated by certifying that the boilers have not been modified to increase their capacity.

Hourly PSEL
 (pounds per hour)

<u>Source</u>	<u>PM</u>	<u>PM₁₀</u>	<u>VOC</u>	<u>NO_x</u>	<u>SO₂</u>	<u>CO</u>	<u>Pb</u>
Boilers	74	74	3.4	252	1012	50	NA
Totals	74	74	3.4	252	1012	50	NA

The Hourly PSEL is based on capacity of the boilers and the hourly usage of 5337 gallons of Diesel, 3463 gallons of Bunker C fuel oil, and 193,566 cubic feet of natural gas. Any changes in operation that may increase the emissions or the PSEL must be approved by LRAPA.

The Annual PSEL is set in agreement with the Synthetic Minor limits. Compliance with the Annual PSEL shall be demonstrated by multiplying the actual fuel usage by the appropriate emission factor listed below and summing the totals:

Annual PSEL
 (tons per calendar year)

<u>Source</u>	<u>PM</u>	<u>PM₁₀</u>	<u>VOC</u>	<u>NO_x</u>	<u>SO₂</u>	<u>CO</u>	<u>Pb</u>
Boilers	3.4	3.4	2.0	73	35	99	NA
Totals	3.4	3.4	2.0	73	35	99	NA

The Annual PSEL is based on the annual usage of 917,936 gallons of Diesel, 100,000 gallons of Bunker C fuel oil and 1,196,803,440 cubic feet of natural gas. Any changes in operation that may increase the emissions or the PSEL must be approved by LRAPA.

14. The following table of emission factors was used to set the Synthetic Minor limitations and the PSEL listed above. These same emission factors shall be used to demonstrate compliance with the Synthetic Minor and PSEL limitations.

Emission Factors

<u>Emission Unit</u>	<u>Fuel</u>	<u>Units</u>	<u>PM/PM₁₀</u>	<u>CO</u>	<u>NO_x</u>	<u>SO₂</u>	<u>VOC</u>
			0				

Boiler 1	#2	lbs/mgal ¹	2.0	5.0	20	42.6	0.34
	#6	lbs/mgal	20.5	5.0	67	274.75	0.76
Boiler 2	#2	lbs/mgal	2.0	5.0	20	42.6	0.34
	#6	lbs/mgal	20.5	5.0	67	274.75	0.76
Boiler 3	#2	lbs/mgal	2.0	5.0	20	42.6	0.34
	#6	lbs/mgal	20.5	5.0	67	274.75	0.76
Boiler 4	NG	lbs/mmcft ²	2.5	156	104	2.6	4.0
	#2	lbs/mgal	2.0	21	14	42.6	0.57
Boiler 5	NG	lbs/mmcft	2.5	156	104	2.6	1.4
	#2	lbs/mgal	2.0	21	14	42.6	0.57

¹ mgal = 1000 gallons

² mmcft = million cubic feet

a. Baseline Emission Rates (BER)

Actual fuel usage data from 1971 was used to establish baseline emissions. The year 1971 was used as baseline year because it was more representative of normal operation than either 1977 or 1978. LRAPA rules allow for an earlier year to be used as baseline if it is more representative of normal operation. Refer to the detail sheets for a break out of the emissions by emissions unit.

Baseline (1971) Emission Rate

PM/PM ₁₀	CO	NO _x	SO ₂	VOC
409	963	152	18	63

Refer to the attached detail sheets for emission calculations for BER and current PSEL.

b. Significant Emission Rate (SER)

All allowed emissions are less than the BER, except for SO₂ which is still less than a SER above baseline as shown below.

Pollutant	Proposed PSEL (tons/year)	BER (tons/yr)	Increase from BER (tons/year)	SER (tons/year)
Particulate, PM	3.4	409	-406	25
Particulate, PM ₁₀	3.4	409	-406	15
CO	99	963	-864	100
NO _x	73	152	-79	40
VOC	2.0	63	-61	40
SO ₂	35	18	17	40
Pb	NA	NA	NA	0.6

Negative increases from baseline indicate a decrease in emissions.

Title V Information

15. This source would have the potential to emit criteria pollutants in excess of 100 tons per year if this permit did not limit the combustion of fuel in the boilers. This permit limits the combustion of fuel in the boilers, on a 12-month rolling sum, to levels which are below Title V trigger levels. Therefore, this source is not subject to Title V permitting unless they wish to increase the amount of fuel being burned. If the permittee wishes to increase fuel combustion they must first apply for and receive a Title V permit.
16. The proposed permit was placed on public notice from August 25, 1998 to September 24, 1998. LRAPA did not receive any requests for a hearing.

DPK/bp