

Public Notice

DEQ Requests Comments on the City of Medford's Regional Water Reclamation Facility's Proposed Air Quality Permit

The Oregon Department of Environmental Quality invites the public to submit written comments on the conditions for the City of Medford's Regional Water Reclamation Facility's proposed air quality permit, known officially as a Standard Air Contaminant Discharge Permit.

Summary

The proposed permit is a renewal of the existing Standard Air Contaminant Discharge Permit which was scheduled to expire on July 1, 2019. The permittee submitted a timely renewal application on May 1, 2019. Therefore, the current permit remains in effect until the renewal is issued. Upon issuance, the renewed permit will be effective for five years.

How do I participate?

To submit your comments for the public record, send them by mail, fax or email:

Suzy Luttrell
DEQ Air Quality Permit Coordinator
4026 Fairview Industrial Drive SE
Salem, OR 97302

Fax: 503-378-4196

Email: suzy.luttrell@state.or.us

Written comments are due by 5 p.m. Mon. Oct. 26, 2020.

About the facility

The facility is located at 1100 Kirtland Road in Central Point.

The City of Medford operates the publicly owned wastewater treatment facility that serves the residents of the greater Rogue Valley. The facility provides wastewater treatment with a permitted design capacity to manage and treat more than 20 million gallons per day.

The sources of potential regulated air emissions are generated from a cogeneration digester gas-fired engine, a non-smoking flare system that combusts digester gas when needed, a small natural gas-fired heating boiler, and an emergency diesel-fired generator.

What air pollutants would the permit regulate?

This permit regulates emissions of pollutants listed in the table at the end of this document.

How does DEQ determine permit requirements?

Based on the facility's location, DEQ evaluates types and amounts of pollutants, and determines permit requirements according to state and federal regulations.

How does DEQ monitor compliance with the permit requirements?

This permit would require the facility to monitor pollutants using federally approved monitoring practices and standards.

The facility is required to maintain monthly records related to the operation and maintenance of the plant and associated air contaminant discharging equipment, which includes digester gas production, natural gas usage, and total operating times for both the cogeneration engine and emergency generator.

Annual reports are required to be submitted, which are reviewed for Plant Site Emission Limit compliance. In addition, DEQ staff periodically conduct on-site inspections.

What happens after the public comment period ends?

Following the close of the comment period, DEQ will provide responses to all comments received that are pertinent to the technicalities of the proposed permit. DEQ may modify the proposed permit based on the comments received, but DEQ can only modify conditions of the permit in accordance with the rules and statutes under the authority given to the DEQ. If the facility meets all legal requirements, DEQ will issue the facility's air quality permit.

Where can I get more information?

Find out more and view the application at <https://www.oregon.gov/deq/Get-Involved/Pages/Public-Notices.aspx>, or contact DEQ Air Quality Permit Writer, Wayne Kauzlarich, at

Phone: 541-776-6136

Fax: 541-776-6262

Email: wayne.kauzlarich@state.or.us



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Western Region

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www.oregon.gov/DEQ

DEQ is a leader in restoring, maintaining and enhancing the quality of Oregon's air, land and water.

Notice issued: 9/24/2020

By: Shane Cossel

Permit number: 15-0030-ST

View the application and related documents in person at the DEQ office in Medford. For a review appointment, call Suzy Luttrell, Permit Coordinator at 503-378-5305.

DEQ can provide documents in an alternate format or in a language other than English upon request. Call DEQ at 800-452-4011 or email deqinfo@state.or.us.

Alternative Formats

Emissions limits

Regulated Criteria Pollutants:

Table 1 below presents **maximum allowable** emissions of regulated criteria pollutants for the facility. The current emission limit reflects maximum emissions the facility can emit under the existing permit. The proposed emission limit reflects maximum emissions the facility would be able to emit under the proposed permit. Typically, a facility's actual emissions are less than maximum limits established in a permit; however, actual emissions can increase up to the permitted limit.

Table 1

Criteria Pollutant	Current Limit (tons/year)	Proposed Limit (tons/year)
Particulate matter	24	24
Small particulate matter	4.5 (and 49 pounds per day)	4.5 (and 49 pounds per day)
Fine particulate matter	9	9
Sulfur dioxide	39	39
Nitrogen oxides	40	40
Carbon monoxide	99	99
Volatile organic compounds	39	39
Hazardous Air Pollutants (individual)	9	9
Hazardous Air Pollutants (cumulative)	24	24
Greenhouse Gases	74,000	74,000
For more information about criteria pollutants, go to: www.epa.gov/criteria-air-pollutants		

Hazardous air pollutants:

The City of Medford's Regional Wastewater Reclamation Facility is not a major source of hazardous air pollutants. Table 2 summarizes the amounts of hazardous air pollutants generated by the facility based on data that was reported and submitted during 2016.

The facility's emergency generator is subject to the National Emission Standards for Hazardous Air Pollutants as described in 40 CFR Part 63, Subpart ZZZZ. More detailed information regarding the facility's hazardous and toxic air pollutants can be found within the technical review report.

Table 2

Hazardous Air Pollutants	Actual Emissions (tons/year)
1,4 dichlorobenzene	0.24
All other HAP emissions	0.22
Total HAP emissions	0.46

For more information about hazardous air pollutants, go to: <https://www.epa.gov/haps/health-effects-notebook-hazardous-air-pollutants>





OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY

STANDARD

AIR CONTAMINANT DISCHARGE PERMIT

Western Region
4026 Fairview Industrial Drive SE
Salem, OR 97302

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:

City of Medford
411 W. 8th Street
Medford, OR 97501

INFORMATION RELIED UPON:

Application No.: 30737
Date Received: 05/01/2019

PLANT SITE LOCATION:

Regional Water Reclamation Facility (RWRF)
1100 Kirtland Road
Central Point, OR 97502

LAND USE COMPATIBILITY FINDING:

Approving Authority: Jackson County
Approval Date: 06/09/1998

ISSUED BY THE DEPARTMENT OF ENVIRONMENTAL QUALITY

Claudia Davis, Western Region Air Quality Manager

Dated

Source(s) Permitted to Discharge Air Contaminants (OAR 340-216-8010):

Table 1, Code	Source Description	SIC / NAICS
Part B , 75	Sewage treatment facilities employing internal combustion engines for digester gasses	4952 / 221320
Part C, 3	Sources electing to maintain netting basis	-----

TABLE OF CONTENTS

1.0	DEVICE, PROCESS AND POLLUTION CONTROL DEVICE (PCD) IDENTIFICATION	3
2.0	GENERAL EMISSION STANDARDS AND LIMITS	3
3.0	NSPS APPLICABILITY EMISSION STANDARDS.....	5
4.0	OPERATION AND MAINTENANCE REQUIREMENTS	8
5.0	PLANT SITE EMISSION LIMITS	10
6.0	COMPLIANCE DEMONSTRATION.....	11
7.0	SOURCE TESTING.....	12
8.0	RECORDKEEPING REQUIREMENTS.....	13
9.0	REPORTING REQUIREMENTS.....	15
10.0	ADMINISTRATIVE REQUIREMENTS	17
11.0	DEQ CONTACTS / ADDRESSES.....	17
12.0	GENERAL CONDITIONS AND DISCLAIMERS.....	18
13.0	EMISSION FACTORS	21
14.0	PROCESS/PRODUCTION RECORDS	23
15.0	ABBREVIATIONS, ACRONYMS, AND DEFINITIONS.....	24

1.0 DEVICE, PROCESS AND POLLUTION CONTROL DEVICE (PCD) IDENTIFICATION

The devices, processes, and pollution control devices regulated by this permit are the following:

Devices and Processes Description	Device ID	Pollution Control Device Description	PCD ID
Digester Gas Engine (digester gas-fired only)	Co-Gen #8100	None	----
Flare (digester gas-fired only)	Flare #7560	None	----
Boiler (natural gas-fired only)	Boiler #1110	None	----
Emergency Generator (diesel-fired)	4020 Standby Generator	None	----
Wastewater Influent	WI	None	----

2.0 GENERAL EMISSION STANDARDS AND LIMITS

2.1. Visible Emissions

The permittee must comply with the following visible emission limits from air contaminant sources other than fugitive emission sources, as applicable. Opacity can be measured as a six-minute block average using EPA Method 9, use of a continuous opacity monitoring system (COMS) installed and operated in accordance with the DEQ Continuous Monitoring Manual or 40 CFR Part 60, or an alternative monitoring method approved by DEQ that is equivalent to EPA Method 9.

- a. Emissions from Co-Gen #8100, Boiler #1110, and Flare #7560 must not equal or exceed 20% opacity. [OAR 340-208-0110(3)(b) and (4)]
- b. Any devices or processes installed, constructed, or modified on or after April 16, 2015 must not equal or exceed 20% opacity. [OAR 340-208-0110(4) and (7)]

2.2. Fugitive Emissions

- a. The permittee must take reasonable precautions to prevent fugitive dust emissions from leaving the property of a source. Reasonable precautions include, but are not limited to: [OAR 340-208-0210]

- i. Using, where possible, water or chemicals for control of dust in the demolition of existing buildings or structures, construction operations, the grading of roads or the clearing of land;
 - ii. Applying water or other suitable chemicals on unpaved roads, materials stockpiles, and other surfaces which can create airborne dusts;
 - iii. Enclosing (full or partial) material stockpiles in cases where application of water or other suitable chemicals are not sufficient to prevent particulate matter, including dust, from becoming airborne;
 - iv. Installing adequate containment during sandblasting or other similar operations;
 - v. Covering, at all times when in motion, open bodied trucks transporting materials likely to become airborne; and
 - vi. Promptly removing earth or other material that does or may become airborne from paved streets.
- b. In no case may fugitive dust emissions leave the property of a source for a period or periods totaling more than 18 seconds in a six-minute period. Fugitive emissions must be measured by EPA Method 22 with the minimum observation time of six minutes.

2.3. Particulate Matter Emissions

The permittee must comply with the following particulate matter emission limits. For fuel burning equipment that burns fuels, other than wood, emission results are corrected to 50% excess air.

- a. Particulate matter emissions from Co-Gen #8100 must not exceed 0.10 grains per standard cubic foot. [OAR 340-226-0210(2)(a)(A), (b)(A) and (c)]
- b. Particulate matter emissions from Flare #7560 must not exceed 0.10 grains per dry standard cubic foot. [OAR 340-228-0210(2)(a)(A), (b)(A) and (c)].
- c. Particulate matter emissions from Boiler #1110 must not exceed 0.14 grains per dry standard cubic foot. [OAR 340-228-0210(2)(b)(B)]
- d. Particulate matter emissions from any fuel burning equipment (except solid fuel burning devices that have been certified under OAR 340-262-0500) that is installed, constructed or modified on or after April 16, 2015 must not exceed 0.10 grains per dry standard cubic foot, corrected to 12% CO₂ or 50% excess air. [OAR 340-228-0210(2)(c)]
- e. Particulate matter emissions from any device or process (other than fugitive emissions sources, fuel burning equipment, refuse burning equipment, or solid fuel burning devices certified under OAR 340-262-0500) that is installed, constructed or modified after April 16, 2015 must not exceed 0.10 grains per dry standard cubic foot. [OAR 340-226-0210(2)(c)]

2.4. Particulate Matter Fallout

The permittee must not cause or permit the deposition 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. [OAR 340-208-0450]

2.5. 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. [OAR 340-208-0300]. The permittee must maintain a log of each nuisance air quality complaint received. Once an air quality complaint is received, a facility representative must immediately investigate the nature of the nuisance complaint and provide a response to both DEQ and the complainant within 24 hours, if possible. All logs of received complaints will be submitted to DEQ, as per Permit Condition 9.2.

2.6. Fuels and Fuel Sulfur Content

- a. If the permittee burns any of the following fuels, the sulfur content cannot exceed:
 - i. 0.0015% sulfur by weight for ultra low sulfur diesel;
 - ii. 0.3% sulfur by weight for ASTM Grade 1 distillate oil; [OAR 340-228-0110]
 - iii. 0.5% sulfur by weight for ASTM Grade 2 distillate oil; [OAR 340-228-0110]
 - iv. 1.75% sulfur by weight for residual oil; [OAR 340-228-0100]

3.0 NSPS APPLICABILITY EMISSION STANDARDS

3.1. New Source Performance Standards

The permittee must comply with New Source Performance Standards, 40 CFR Part 60, Subpart JJJJ – (*Standards of Performance for Spark Ignition Internal Combustion Engines (SI ICE)*).

3.2. Cogeneration Engine Emission Standards

- a. The permittee must comply with the applicable emissions standards, in Table 1, for engines with a maximum engine power greater than or equal to 500 horsepower (HP). [40 CFR 60.4233(e)]
- b. The permittee must operate and maintain the engine to achieve the emission standards, in Table 1, over the entire life of the engine. [40 CFR 60.4232]

Table 1

NO_x, CO, VOC Emission Standards for Stationary Non-Emergency
SI ICE Landfill/Digester Gas Engines

Engine Type and Fuel	Engine Power (horsepower)	Manufacture Date	Emission Standards					
			g/hp-hr			ppmvd @ 15% O ₂		
			NO _x	CO	VOC	NO _x	CO	VOC
Landfill/Digester Gas (lean burn 500≤HP<1,350)	Lean burn 500≤HP<1,350	on/after 7/1/2010	2.0	5.0	1.0	150	610	80

3.3. Cogeneration Engine Emission Standards Compliance

The permittee must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. [40 CFR 60.4243(b)(2)]

3.4. Cogeneration Engine Performance Testing

The permittee must demonstrate compliance of the emission standards by conducting a performance (source) testing every 8,760 hours of operation or every 3 years, whichever comes first.

- a. The permittee must conduct each performance test within 10% of 100% peak (or the highest achievable) load and according to the requirements in 40 CFR 40.8 and under the specific conditions that are specified by Table 2 in 40 CFR Part 60 Subpart JJJJ [40 CFR 60.4244(a)]
- b. The permittee may not conduct performance tests during periods of startup, shutdown, or malfunction, as specified in 40 CFR 60.8(c). If the engine is non-operational, the permittee does not need to startup the engine solely to conduct a performance test; however, the permittee must conduct the performance test immediately upon startup of the engine. [40 CFR 60.4244(b)]
- c. The permittee must conduct three separate test runs for each required performance test, as specified in 40 CFR 60.8(f). Each test run must be conducted within 10% of 100% peak (or the highest achievable) load and last at least 1 hour. [40 CFR 60.4244(c)]
- d. To determine compliance with the NO_x mass per unit output emission limitation, convert the concentration of NO_x in the engine exhaust using Equation 1:

$$ER = \frac{C_d \times 1.912 \times 10^{-3} \times Q \times T}{HP - hr} \quad (\text{Eq. 1})$$

Where:

ER = Emission rate of NO_x in g/HP-hr.

C_d = Measured NO_x concentration in parts per million by volume (ppmv).

1.912 x 10⁻³ = Conversion constant for ppm NO_x to grams per standard cubic meter at 20 degrees Celsius.

Q = Stack gas volumetric flow rate, in standard cubic meters per hour, dry basis.

T = Time of test run, in hours.

HP-hr = Brake work of the engine, horsepower-hour. [40 CFR 60.4244(d)]

- e. To determine compliance with the CO mass per unit output emission limitation, convert the concentration of CO in the engine exhaust using Equation 2:

$$ER = \frac{C_d \times 1.164 \times 10^{-3} \times Q \times T}{HP - hr} \quad (\text{Eq. 2})$$

Where:

ER = Emission rate of CO in g/HP-hr.

C_d = Measured CO concentration in ppmv.

1.164×10^{-3} = Conversion constant for ppm CO to grams per standard cubic meters at 20 degrees Celsius.

Q = Stack gas volumetric flow rate, in standard cubic meter per hour, dry basis.

T = Time of test run, in hours.

HP-hr = Brake work of the engine, horsepower-hour. [40 CFR 60.4244(e)]

- f. When calculating emissions of VOC, emissions of formaldehyde should not be included. To determine compliance with the VOC mass per unit output emission limitation, convert the concentration of VOC in the engine exhaust using Equation 3:

$$ER = \frac{C_d \times 1.833 \times 10^{-3} \times Q \times T}{HP - hr} \quad (\text{Eq. 3})$$

Where:

ER = Emission rate of VOC in g/HP-hr.

C_d = VOC concentration measured as propane in ppmv.

1.833×10^{-3} = Conversion constant for ppm VOC as propane, to grams per standard cubic meters at 20 degrees Celsius.

Q = Stack gas volumetric flow rate, in standard cubic meters per hour, dry basis.

T = Time of test run, in hours.

HP-hr = Brake work of the engine, horsepower-hour. [40 CFR 60.4244(f)]

- g. If choosing to measure VOC emissions using either Method 18 of 40 CFR Part 60, Appendix A, or Method 320 of 40 CFR Part 63, Appendix A, then the permittee has the option of correcting the measured VOC emissions to account for the potential differences in measured values between these methods and Method 25A. The results from Method 18 and Method 320 can be corrected for response factor differences using Equations 4 and 5. The corrected VOC concentration can then be placed on a propane basis using Equation 6.

$$RF_i = \frac{C_{Mi}}{C_{Ai}} \quad (\text{Eq. 4})$$

Where:

RF_i = Response factor of compound 'i' when measured with EPA Method 25A.

C_{Mi} = Measured concentration of compound 'i' in ppmv as carbon.

C_{Ai} = True concentration of compound 'i' in ppmv as carbon.

$$C_{icorr} = RF_i \times C_{imeas} \quad (\text{Eq. 5})$$

Where:

C_{icorr} = Concentration of compound 'i' corrected to the value that would have been measured by EPA Method 25A, ppmv as carbon.

C_{imeas} = Concentration of compound 'i' measured by EPA Method 320, ppmv as carbon.

$$C_{Peq} = 0.6098 \times C_{icorr} \quad (\text{Eq. 6})$$

Where:

C_{Peq} = Concentration of compound 'i' in mg of propane equivalent per DSCM. [40 CFR 60.4244(g)]

3.5. Notification and Recordkeeping Requirements

The permittee must keep records for the following information: [40 CFR 60.4245(a)]

- a. All notifications submitted to comply with this subpart and all documentation supporting any notification. [40 CFR 60.4245(a)(1)]
- b. Maintenance conducted and performed on the engine. [40 CFR 60.4245(a)(2)]
- c. Documentation that the operation engine meets the applicable emission standards. [40 CFR 60.4245(a)(4)]

The permittee must submit an initial notification as required in 40 CFR 60.7(a)(1). The notification must include the following information: [40 CFR 60.4245(c)]

- a. Name and address of the owner or operator; [40 CFR 60.4245(c)(1)]
 - i. The address of the affected source; [40 CFR 60.4245(c)(2)]
 - ii. Engine information including make, model, engine family, serial number, model year, maximum engine power, and engine displacement; [40 CFR 60.4245(c)(3)]
 - iii. Emission control equipment; and [40 CFR 60.4245(c)(4)]
 - iv. Fuel used. [40 CFR 60.4245(c)(5)]

3.6. Performance/Source Testing Reporting

The permittee must submit a copy to DEQ's Regional Source Test Coordinator of each performance test within 60 days after the test has been completed. [40 CFR 60.4245(d)]

4.0 OPERATION AND MAINTENANCE REQUIREMENTS

4.1. Operation & Maintenance Plan

The permittee must prepare and implement an operation and maintenance (O&M) plan in accordance with OAR 340-240-0190. The plan must be kept on site and be made available upon request.

4.2. Fugitive Emissions Control Plan

The permittee must prepare and implement site-specific plans for the control of fugitive emissions in accordance with OAR 340-240-0180. The plan must be kept on site and be made available upon request.

4.3. Highest and Best Practicable Treatment and Control

The permittee must provide the highest and best practicable treatment and control of air contaminant emissions in every case so as to maintain overall air quality at the highest possible levels, and to maintain contaminant concentrations, visibility reduction, odors, soiling, and other deleterious factors at the lowest possible levels as provided below. [OAR 340-226-0100]

4.4. Operation of Pollution Control Devices and Processes

The permittee must operate and ensure proper functioning of all air pollution control devices and components at all times when the associated emission source is operating. [OAR 340-226-0120]

4.5. Operation and Maintenance for Emergency Stationary RICE

The permittee must comply with the following requirements for the *Caterpillar* 4020 standby emergency stationary reciprocating internal combustion engines (RICE): [40 CFR 63.6640(f)]

- a. Change oil and filter every 500 hours of operation or annually, whichever comes first; [40 CFR 63.6603(a), table 2d(4)(a)]
- b. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first; [40 CFR 63.6603(a), table 2d(4)(b)]
- c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary; [40 CFR 63.6603(a), table 2d(4)(c)]
- d. The permittee must operate and maintain the stationary RICE according to the manufacturer's emission-related written instructions. If the permittee develops their own maintenance plan and it is approved by DEQ, that plan may substitute for the manufacturer's instructions. [40 CFR 63.6625(e)]
- e. During periods of startup, minimize the engine's time spent at idle and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply; and [40 CFR 63.6603(a), table 2d]
- f. The permittee must install a non-resettable hour meter on each emergency stationary RICE, if one is not already installed. [40 CFR 63.6625(f)]
- g. The permittee must operate and maintain the stationary RICE according to the manufacturer's emission related operation and maintenance instructions. [40 CFR 63.6640(a), Table 6 (9)]

4.6. Operating Conditions for Emergency Stationary RICE

The permittee must operate any emergency stationary RICE in compliance with the following conditions: [40 CFR 63.6640(f)]

- a. There is no time limit on the use of emergency stationary RICE in emergency situations.
- b. Emergency stationary RICE may be operated for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by the manufacturer, the vendor, or the insurance company associated with the engine. Required maintenance and testing of such units is limited to 50 hours per year.
- c. The permittee is prohibited from using any emergency stationary RICE for any non-emergency use including but not limited to peak shaving, demand response operation, and/or generation of income from the sale of power. To perform such activity, the permittee must first obtain a modified permit in accordance with Condition 10.2 or a separate permit for power generation that appropriately addresses and allows this activity.

5.0 PLANT SITE EMISSION LIMITS

5.1. Plant Site Emission Limits (PSEL)

The permittee must not cause or allow plant site emissions to exceed the following: [OAR 340-222-0040 and/or OAR 340-222-0041, OAR 340-222-0060]

Pollutant	Limit	Units
PM	24	tons per year
PM _{2.5}	9	
SO ₂	39	
NO _x	40	
CO	99	
VOC	39	
GHGs (CO ₂ e)	74,000	
Single HAP	9	
Combined HAPs	24	

5.2. PM₁₀ PSEL for Medford-Ashland AQMA

The permittee must not cause or allow plant site emissions of PM₁₀ to exceed the following: [OAR 340-222-0040, OAR 340-222-0042]

Pollutant	Limit	Units
PM ₁₀	4.5	tons per year
	49	pounds per day

5.3. Annual Period

The annual plant site emissions limits apply to any 12-consecutive calendar month period. [OAR 340-222-0035]

6.0 COMPLIANCE DEMONSTRATION

6.1. Monitoring Requirements

The permittee must monitor the operation and maintenance of the facility and associated air contaminant control devices as follows: [OAR 340-226-0120]

- a. Quantity of digester gas combusted within Co-Gen #8100 and Flare #7560, recorded separately in units of MMcf (monthly); and
- b. Quantity of natural gas combusted within Boiler #1110, in units of MMcf (monthly); and
- c. Total amount of hours of operation of Co-Gen #8100, (monthly); and
- d. Total amount of hours of operation of 4020 Standby Generator (monthly).

6.2. PSEL Compliance Monitoring using Emission Factors

The permittee must calculate the emissions for each 12-consecutive calendar month period based on the following calculation for each pollutant except GHGs: [OAR 340-222-0080]

$$E = \Sigma(EF \times P) \times 1 \text{ ton}/2000 \text{ pounds}$$

where:

- E = pollutant emissions (tons/year);
Σ = symbol representing “summation of”;
EF = pollutant emission factor (see Condition 13.0);
P = process production (see Condition 14.0)

6.3. Emission Factors

The permittee must use the default emission factors provided in Condition 13.0 for calculating pollutant emissions, unless alternative emission factors are approved in writing 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. [OAR 340-222-0080]

6.4. PSEL Compliance Monitoring

The permittee must demonstrate compliance with the PSEL by totaling the emissions from all point sources calculated under Conditions 6.2 and 6.5. [OAR 340-222-0080]

6.5. Greenhouse Gas Emissions

The permittee must calculate greenhouse gas emissions in metric tons and short tons for each 12-consecutive calendar month period to determine compliance with the GHG PSEL by using the following: [OAR 340-215-0040]

- a. DEQ Fuel Combustion Greenhouse Gas Calculator
<https://www.oregon.gov/deq/FilterDocs/ghgCalculatorFuelCombust.xlsx>

7.0 SOURCE TESTING

7.1. Source Testing Requirements

The permittee will conduct source tests on the cogeneration engine to ensure that emissions standards are being complied with for NO_x, CO and VOC pollutants, utilizing the procedures identified with 40 CFR Part 60 Subpart JJJJ and reference test methods, as described in Table 2 below. Results from the source tests will continue to establish overall emission factor verification for said pollutants. Source tests must be conducted every 8,760 hours of engine operation or every 3 years, whichever comes first.

- a. Emission results are to be expressed in units of ppmvd @ 15% O₂, g/hp-hr, lb/hr, and lb/MMcf of digester gas.
- b. The following parameters must be monitored and recorded during the source tests:
 - i. Opacity readings on the exhaust stack following the procedures of EPA Method 9;
 - ii. Engine-generator operating parameters including engine temperature, electrical production rate, digester-gas flow to the engine, and engine load; and,
 - iii. Measured CH₄ content of digester gas.
- c. All tests must be conducted in accordance with DEQ's Source Sampling Manual and the approved pretest plan. The pretest plan must be submitted at least 30 days in advance and approved by the Regional Source Test Coordinator. Test data and results must be submitted for review to the Regional Source Test Coordinator within 60 days of the test unless otherwise approved in the pretest plan.

Table 2

Tested Pollutant	Reference Test Method*
NO _x	EPA Method 7E
CO	EPA Method 10 Note: Method 10 shall be modified to include improved quality assurance procedures of Method 6C - contact DEQ's Source Test Coordinator for details.
VOC	EPA Method 18, 25, 25A, 320, or 'ALT-106' (Method 18 based on NCASI Method CI/WP-98.01) • Method must be optimized/calibrated to ethanol
Opacity	EPA Method 9

*Substitution of alternative test methods must be pre-approved by the DEQ.

- d. Only regular operating staff may adjust the combustion system or production processes and emission control parameters during the source test and within two hours prior to the source test. Any operating adjustments made during the source test, which are a result of consultation with source testing personnel, equipment vendors or consultants, may render the source test invalid.

8.0 RECORDKEEPING REQUIREMENTS

8.1 Operation and Maintenance

The permittee must maintain the following records related to the operation and maintenance of the facility and associated air contaminant control devices: [OAR 340-214-0114]

- a. Digester gas production on a monthly basis;
- b. Natural gas used on a monthly basis;
- c. Total operating hours of Co-Gen #8100, on a monthly basis;
- d. Fuel oil usage on a monthly basis, in gallons;
- e. Total volume of influent, on a monthly basis;
- f. The rolling 12-month total emissions calculated as required by Condition 6.0, and;
- g. The following records for the 4020 Standby emergency stationary RICE Generator: [40 CFR 63.6655(f)]
 - i. Date, start time, end time and hours of operation of each emergency stationary RICE that is recorded through the non-resettable hour meter;
 - ii. Notification of the emergency situation; including what classified the operation as emergency;
 - iii. Date, start time, end time and hours of non-emergency operation used for maintenance checks and readiness testing;
 - iv. Records of operation and maintenance requirements in Condition 4.5.

8.2 Excess Emissions

- a. The permittee must maintain the records of excess emissions listed below and 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 as a six-minute block average.
 - i. The date and time of the beginning of the excess emissions event and the duration or best estimate of the time until return to normal operation;
 - ii. The date and time the permittee notified DEQ of the event;
 - iii. The equipment involved;
 - iv. Whether the event occurred during planned startup, planned shutdown, scheduled maintenance, or as a result of a breakdown, malfunction, or emergency;
 - v. Steps taken to mitigate emissions and corrective action taken, including whether the approved procedures for a planned startup, shutdown, or maintenance activity were followed;
 - vi. The magnitude and duration of each occurrence of excess emissions during the course of an event and the increase over normal rates or concentrations as determined by continuous monitoring or best estimate (supported by operating data and calculations); and
 - vii. The final resolution of the cause of the excess emissions.

- b. If there is an ongoing excess emission caused by an upset or breakdown, the permittee must immediately take action to minimize emissions by reducing or ceasing operation of the equipment or facility, unless doing so could result in physical damage to the equipment or facility, or cause injury to employees. In no case may the permittee operate more 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).
- c. In the event of any excess emissions which are of a nature that could endanger public health and occur during non-business hours, weekends, or holidays, the permittee must immediately notify DEQ by calling the Oregon Emergency Response System (OERS). The current number is 1-800-452-0311.
- d. If startups or shutdowns may result in excess emissions, the permittee must submit startup/shutdown procedures used to minimize excess emissions to DEQ for prior authorization, as required in OAR 340-214-0310. New or modified procedures must be received by DEQ in writing at least 72 hours prior to the first occurrence of the excess emission event. The permittee must abide by the approved procedures and have a copy available at all times.
- e. If permittee anticipates that scheduled maintenance may result in excess emissions, the permittee must submit scheduled maintenance procedures used to minimize excess emissions to DEQ for prior authorization, as required in OAR 340-214-0320. New or modified procedures must be received by DEQ in writing at least 72 hours prior to the first occurrence of the excess emission event. The permittee must abide by the approved procedures and have a copy available at all times.
- f. The permittee must maintain a log of all excess emissions in accordance with OAR 340-214-0340(3).

8.3. Complaint Log

The permittee must maintain a log of all complaints received by the permittee in person, in writing, by telephone or through other means that specifically refer to air pollution concerns associated to the permitted facility. Documentation must include date of contact, date and time of observed nuisance condition, description of nuisance condition, location of receptor, status of plant operation during the observed period, and date and time of response to complainant. 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. [OAR 340-214-0114]

8.4. Retention of Records

Unless otherwise specified, the permittee must retain all records for a period of at least five (5) years from the date of the monitoring sample, measurement, report, or application and make them available to DEQ upon request. The permittee must maintain the two (2) most recent years of records onsite. [OAR 340-214-0114]

9.0 REPORTING REQUIREMENTS

9.1 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. The permittee must also submit follow-up reports when required by DEQ.
 - i. 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 11.0 by email, telephone, facsimile, or in person.
 - ii. 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.

9.2 Annual Report

For each year this permit is in effect, the permittee must submit to DEQ by **February 15** two (2) paper copies and one (1) electronic copy of the following information for the previous calendar year:

- a. Operating parameters:
 - i. Quantity of digester gas combusted in Co-Gen #8100 and Flare #7560, reported separately;
 - ii. Quantity of natural gas combusted in Boiler #1110; and
 - iii. Total hours of operation of Co-Gen #8100.
- b. The following records 4020 Standby Generator: [40 CFR 63.6655(f)]
 - i. Hours of operation that is recorded through the non-resettable hour meter;
 - ii. Hours of emergency operation; including what classified the operation as emergency; and
 - iii. Hours of non-emergency operation used for maintenance checks and readiness testing.
- c. Total volume of influent, on an annual basis.
- d. Calculations of annual pollutant emissions determined each month in accordance with Condition 6.2.
- e. Summary of complaints relating to air quality received by permittee during the year in accordance with Condition 8.3.
- f. A brief summary listing the date, time, and the affected device/process for each excess emission that occurred during the reporting period.
- g. List permanent changes made in facility process, production levels, and pollution control equipment which affected air contaminant emissions.
- h. List major maintenance performed on pollution control equipment.

9.3. Greenhouse Gas Registration and Reporting

- a. If the calendar year greenhouse gas emissions (CO₂e) are ever greater than or equal to 2,756 tons (2,500 metric tons), the permittee must annually register and report its greenhouse gas emissions with DEQ in accordance with OAR 340 division 215.
- b. If the calendar year greenhouse gas emissions (CO₂e) are less than 2,756 tons (2,500 metric tons) for three consecutive years, the permittee may stop reporting greenhouse gas emissions but must retain all records used to calculate greenhouse gas emissions for the five years following the last year that they were required to report. The permittee must resume reporting its greenhouse gas emissions if the calendar year greenhouse gas emissions (CO₂e) are greater than or equal to 2,756 tons (2,500 metric tons) in any subsequent calendar year.

9.4. Notice of Change of Ownership or Company Name

The permittee must notify DEQ in writing using a DEQ “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; or
- b. Sale or exchange of the activity or facility.

9.5. Construction or Modification Notices

The permittee must notify DEQ in writing using a DEQ “Notice of Intent to Construct Form,” or other permit application form 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.

9.6. Air Toxics Emission Inventory

The permittee must submit an air toxics emission inventory every three years. DEQ will notify the permittee in writing and provide a reporting form. [OAR 340-245-0040]

10.0 ADMINISTRATIVE REQUIREMENTS

10.1. Permit Renewal Application

The permittee must submit the completed application package for renewal of this permit **180 days prior to the expiration date**. Two (2) paper copies and one (1) electronic copy of the application must be submitted to the DEQ Permit Coordinator listed in Condition 11.2. [OAR 340-216-0040]

10.2. Permit Modifications

Application for a modification of this permit must be submitted within 60 days prior to the source modification. When preparing an application, the applicant should also consider submitting the application 180 days prior to allow DEQ adequate time to process the application and issue a permit before it is needed. 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.

10.3. Annual Compliance Fee

The permittee must pay the annual fees specified in OAR 340-216-8020, Table 2, Part 2 and 3 for a Standard ACDP 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 5 of the table will be assessed as appropriate.**

10.4. Change of Ownership or Company Name Fee

The permittee must pay the non-technical permit modification fee specified in OAR 340-216-8020, Table 2, Part 4 with an application for changing the ownership or the name of the company.

10.5. Special Activity Fees

The permittee must pay the special activity fees specified in OAR 340-216-8020, Table 2, Part 4 with an application to modify the permit.

11.0 DEQ CONTACTS / ADDRESSES

11.1. Business Office

The permittee must submit payments for invoices, applications to modify the permit, and any other payments to DEQ's Business Office:

Oregon Dept. of Environmental Quality
Financial Services – Revenue Section
700 NE Multnomah St., Suite 600
Portland, Oregon 97232-4100

11.2. Permit Coordinator

The permittee must submit all notices, reports (annual reports, source test plans and reports, etc.), and applications that do not include payment to the Permit Coordinator.

Oregon Dept. of Environmental Quality
Western Region
Air Quality Permit Coordinator
4026 Fairview Industrial Drive SE
Salem, OR 97302-1142
wraqpermits@deq.state.or.us

11.3. Report Submittals

Unless otherwise notified, the permittee must submit all reports (annual reports, source test plans and reports, etc.) to DEQ's Region. If you know the name of the Air Quality staff member responsible for your permit, please include it:

Oregon Dept. of Environmental Quality
Western Region
4026 Fairview Industrial Drive SE
Salem, OR 97302-1142

11.4. Web Site

Information about air quality permits and DEQ's regulations may be obtained from the DEQ web page at www.oregon.gov/deq/.

12.0 GENERAL CONDITIONS AND DISCLAIMERS

12.1. Permitted Activities

- a. Until this permit expires or is modified or revoked, the permittee is allowed to discharge air contaminants from the following:
 - i. Processes and activities directly related to or associated with the devices/processes listed in Condition 1.0 of this permit;
 - i. Any categorically insignificant activities, as defined in OAR 340-200-0020, at the source; and
 - ii. Construction or modification changes that are Type 1 or Type 2 changes under OAR 340-210-0225 that are approved by DEQ in accordance with OAR 340-210-0215 through 0250, if the permittee complies with all of the conditions of DEQ's approval to construct and all of the conditions of this permit.
- b. Discharge of air contaminants from any other equipment or activity not identified herein is not authorized by this permit.

12.2. Other Regulations

In addition to the specific requirements listed in this permit, the permittee must comply with all other applicable legal requirements enforceable by DEQ.

12.3. Conflicting Conditions

In any instance in which there is an apparent conflict relative to conditions in this permit, the most stringent conditions apply. [OAR 340-200-0010]

12.4. 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. [OAR 340-208-0400]

12.5. DEQ 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.

12.6. Permit Availability

The permittee must have a copy of the permit available at the facility at all times. [OAR 340-216-0020(3)]

12.7. Open Burning

The permittee may not conduct any open burning except as allowed by OAR 340, division 264.

12.8. 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.

12.9. 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.

12.10. 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: [OAR 340-216-0082]
 - i. A timely and complete application for renewal of this permit or for a different ACDP has been submitted; or
- b. A timely and complete application for renewal or for an Oregon Title V Operating Permit has been submitted, or
- c. Another type of permit (ACDP or Oregon Title V Operating Permit) has been issued authorizing operation of the source.
- d. 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.

12.11. Permit Termination, Revocation, or Modification

DEQ may terminate, revoke, or modify this permit pursuant to OAR chapter 340 division 216. [OAR 340-216-0082].

13.0 EMISSION FACTORS

Emissions device or activity	Pollutant	Emission Factor (EF)	EF units	Conversion	EF Reference
Digester Gas Engine (Co-Gen #8100)					
Fuel = digester gas	PM/PM ₁₀ / PM _{2.5}	11.65	lb/MMcf	(0.0194 lb/MMBtu) x (600 Btu/ft ³)	AP-42 – Table 3.2-3 (7/2000)
	SO ₂	84.6	lb/MMcf	----	Digester Gas Mass Balance
	NO _x	88.7	lb/MMcf	-----	Avg. of ST data 2014-2019
	CO	193.2	lb/MMcf	-----	
	VOC	12.9	lb/MMcf	-----	
	HAPs	1.08% of VOC	lb/MMcf	-----	EPA speciate profile #1001

Emissions device or activity	Pollutant	Emission Factor (EF)	EF units	Conversion	EF Reference
Flare #7560					
Fuel = digester gas	PM/PM ₁₀ / PM _{2.5}	15.0	lb/MMcf	(0.025 lb/MMBtu) x (600 Btu/ft ³)	AP-42 – Section 2.4 (10/08)
	SO ₂	84.6	lb/MMcf	-----	Digester Gas Mass Balance
	NO _x	40.8	lb/MMcf	(0.068 lb/MMBtu) x (600 Btu/ft ³)	AP-42 – Table 13.5-1 (09/91)
	CO	222	lb/MMcf	(0.37 lb/MMBtu) x (600 Btu/ft ³)	
	VOC	84	lb/MMcf	(0.14 lb/MMBtu) x (600 Btu/ft ³)	
	HAPs	20% of VOC	lb/MMcf	-----	EPA speciate profile #0051

Emissions device or activity	Pollutant	Emission Factor (EF)	EF units	-----	EF Reference
Boiler (#1110)					
Fuel = natural gas	PM/PM ₁₀ / PM _{2.5}	2.5	lb/MMcf	-----	DEQ AQ-EF05
	SO ₂	1.7	lb/MMcf	-----	
	NO _x	100	lb/MMcf	-----	
	CO	84	lb/MMcf	-----	
	VOC	5.5	lb/MMcf	-----	

Emissions device or activity	Pollutant	Emission Factor (EF)	EF units	-----	EF Reference
Backup Generator (4020 Standby Generator)					
Fuel = ultra low sulfur diesel	PM/PM ₁₀ / PM _{2.5}	0.25	lb/hr	-----	<i>Caterpillar</i> Technical Data
	SO ₂	0.02	lb/hr	-----	Mass Balance
	NO _x	15.6	lb/hr	-----	<i>Caterpillar</i> Technical Data
	CO	1.02	lb/hr	-----	
	VOC	1.02	lb/hr	-----	
	HAPs	1.08% of VOC	lb/hr	-----	EPA speciate profile #1001

Emissions device or activity	Pollutant	Emission Factor (EF)	EF units	-----	EF Reference
Influent flow	VOC	3	lb/MMgal	-----	AIRS

14.0 PROCESS/PRODUCTION RECORDS

Emissions device or activity	Process or production parameter	Frequency
Co-Gen Engine #8100	Digester gas combusted (MMcf)	Monthly, Annual
Flare #7560	Digester gas combusted (MMcf)	Monthly, Annual
Boiler #1110	Natural gas combusted (MMcf)	Monthly, Annual
4020 Standby e-generator	Hours operated	Monthly, Annual
Influent flow	Million gallons	Monthly, Annual

15.0 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 31 st	ORS	Oregon Revised Statutes
CAO	Cleaner Air Oregon	O&M	operation and maintenance
CFR	Code of Federal Regulations	Pb	lead
CO	carbon monoxide	PCD	pollution control device
CO _{2e}	carbon dioxide equivalent	PM	particulate matter
DEQ	Oregon Department of Environmental Quality	PM ₁₀	particulate matter less than 10 microns in size
dscf	dry standard cubic foot	PM _{2.5}	particulate matter less than 2.5 microns in size
EPA	US Environmental Protection Agency	ppm	part per million
FCAA	Federal Clean Air Act	PSD	Prevention of Significant Deterioration
Gal	gallon(s)	PSEL	Plant Site Emission Limit
GHG	greenhouse gas	PTE	Potential to Emit
g/hp-hr	grams/horsepower-hour	RACT	Reasonably Available Control Technology
gr/dscf	grains per dry standard cubic foot	scf	standard cubic foot
HAP	Hazardous Air Pollutant as defined by OAR 340-244-0040	SER	Significant Emission Rate
I&M	inspection and maintenance	SIC	Standard Industrial Code
lb	pound(s)	SIP	State Implementation Plan
MMBtu	million British thermal units	SO ₂	sulfur dioxide
NA	not applicable	Special Control Area	as defined in OAR 340-204-0070
NESHAP	National Emissions Standards for Hazardous Air Pollutants	TACT	Typically Achievable Control Technology
NO _x	nitrogen oxides	VE	visible emissions
NSPS	New Source Performance Standard	VOC	volatile organic compound
		year	A period consisting of any 12-consecutive calendar months



STANDARD AIR CONTAMINANT DISCHARGE PERMIT REVIEW REPORT

Regional Water Reclamation Facility
 1100 Kirtland Road
 Central Point, OR 97502

Source Information:

SIC	4952
NAICS	221320

Source Categories (Table 1 Part, Code)	Part B, #75 Part C, #3
Public Notice Category	II

Compliance and Emissions Monitoring Requirements:

FCE	
Compliance schedule	
Unassigned emissions	
Emission credits	
Special Conditions	

Source test: (Co-Gen #8100)	Every 8,760 hours or every 3 years
CEMS	
PEMS	
Ambient monitoring	

Reporting Requirements

Annual report (due date)	February 15
Quarterly report (due dates)	

Monthly report (due dates)	
Excess emissions report	
Other (specify)	

Air Programs

Synthetic Minor (SM)	
SM -80	
NSPS (list subparts)	JJJJ
NESHAP (list subparts)	ZZZZ
CAO	

NSR	
PSD	
GHG	
RACT	
TACT	

TABLE OF CONTENTS

PERMITTING3
SOURCE DESCRIPTION4
COMPLIANCE HISTORY5
EMISSIONS6
TITLE V MAJOR SOURCE APPLICABILITY7
CLEANER AIR OREGON RISK ASSESSMENT8
ADDITIONAL REQUIREMENTS9
SOURCE TESTING10
PUBLIC NOTICE11
APPENDIX A – EMISSION CALCULATION SHEETS12
APPENDIX B – EMISSION FACTOR CONVERSIONS15

PERMITTING

PERMITTEE IDENTIFICATION

1. City of Medford Regional Water Reclamation Facility (RWRf)
1100 Kirtland Road
Central Point, OR 97502

PERMITTING ACTION

2. The proposed permit is a renewal of an existing Standard Air Contaminant Discharge Permit (ACDP) that was issued on July 29, 2014 and was originally scheduled to expire on July 1, 2019. The permittee is on a Standard ACDP because the permittee elects to maintain their netting basis emission rate per OAR 340-216-8010 Table 1, Part C, #3. The existing ACDP remains in effect until final action has been taken on the renewal application because the permittee submitted a timely and complete application for renewal.
3. The City of Medford's Regional Water Reclamation Facility (RWRf) has been determined to be an existing source for the purposes of Cleaner Air Oregon in accordance with OAR 340-245-0020 because the air quality permit application was submitted and deemed complete, or construction had commenced on this facility prior to November 16, 2018. As an existing source the permittee is required to perform a risk assessment in accordance with OAR 340-245-0050, and demonstrate compliance with the Risk Action Levels for an "Existing Source" in OAR 340-245-8010 Table 1 when called in by DEQ. City of Medford RWRf has not yet been called in; therefore, has yet to perform a risk assessment.

OTHER PERMITS

4. Other permits issued or required by the DEQ for this source include:
 - General Storm Water NPDES 1200z
 - Individual NPDES #100985

ATTAINMENT STATUS

5. The source is located in an attainment area for NO_x, SO₂, and CO, and in a maintenance area for PM₁₀ and ground level Ozone (O₃).
6. The source is not located within 10 kilometers of any Class I Air Quality Protection Area.

SOURCE DESCRIPTION

OVERVIEW

7. The City of Medford operates a publicly owned wastewater treatment facility that serves the residents of the greater Rogue Valley. The facility was built in 1971 which provides sewage treatment and has a permitted design treatment capacity of more than 20 million gallons of water per day. The facility has 2 anaerobic digesters, with only one (1) on-line at a time, in which microorganisms break down the organic material. Each anaerobic digester has the capacity to produce 7,435 scf/hr of digester gas. During anaerobic digestion, digester gas, also known as biogas, is generated. Digester gas consists mostly of methane(CH₄) and carbon dioxide (CO₂). As determined through direct daily measurements for carbon dioxide, the facility's biogas is composed of approximately 63% CH₄ and 37% CO₂.

Prior to being vented to the atmosphere, produced digester gas is controlled and minimized within combustion units. The combustion units serve both as an emission unit and a control unit. These units include a digester gas cogeneration engine and an automated flare system. The cogeneration engine utilizes the digester gas as fuel to generate on-site electricity for in-house use. The produced digester gas is predominantly combusted within the facility's digester gas cogeneration engine. In case of generator maintenance or malfunction, the digester gas is routed to the automated flare system. In total, the facility's equipment that produces air emissions currently includes a digester gas-fired co-generation engine, a biogas combustion flare system, a natural gas-fired heating boiler and an emergency back-up diesel oil-fired generator.

PROCESS AND CONTROL DEVICES

8. Current air contaminant sources at the facility consist of the following:
 - a. Co-Gen #8100: facility's primary emission/control unit to combust digester gas
 - Manufacturer: *Dresser Waukesha*
 - Model: VGF48GLD - lean burn
 - Manufactured (constructed): August 2012
 - Installed: 2013
 - Power Rating: 1048 bhp, 745 kWe, 1800 rpm
 - Fuel Used: Digester gas only (no other fuel used)
 - NSPS applicability: Yes – 4J
 - b. Flare #7560: facility's back-up emission/control unit to combust digester gas
 - Manufacturer: *Varec Biogas*
 - Model: 244WL
 - Manufactured: 2019
 - Installed: June 2019
 - Stack diameter: 8"
 - NSPS/NESHAP applicability: No

- c. Boiler #1110: natural gas-fired heating unit.
- Manufacturer: *Hurst Boiler Co.*
 - Manufactured: February 2004
 - Installed: May 2004
 - Heat input capacity: 5.2 MMBtu/hr
 - Fuel: natural gas only (no back-up fuel)
 - NSPS/NESHAP applicability: No
- d. Standby 4020 e-generator set: back-up emergency only electrical generator
- Manufacturer: *Caterpillar*
 - Manufacture date: October 1999
 - Installed: December 1999
 - Engine model: *3508B TA*
 - Generator model: SR-4B
 - Fuel: ultra low sulfur diesel (≤ 15 ppm or 0.0015% by wt.)
 - Power Rating: 1489 HP; 1800 rpm; 480 volts
 - NESHAP applicability: Yes – 4Z
 - NSPS applicability: No
- e. Wastewater influent: incoming wastewater to be treated

There are no air emission control devices for any of the above-mentioned equipment.

CONTINUOUS MONITORING DEVICES

9. The facility has the following continuous monitoring devices:
- To obtain facility-wide parameters, equipment operation and processing records are being maintained via permittee's automated software program, *Antero* and *Operator10* by *AllMax*.
 - Co-Gen #8100: continuous recorders for both fuel flow and total engine load.
 - Flare #7560: pilot flare is monitored by a thermocouple. An automatic re-ignition is provided should the pilot flare become extinguished.

COMPLIANCE HISTORY

10. The facility was last inspected on August 7, 2019 and found to be in compliance with the applicable permit conditions.
11. During the prior permit period there were no known complaints recorded for this facility.
12. No enforcement actions have been taken against this source since the last permit renewal.

EMISSIONS

13. Proposed PSEL information:

Pollutant	Baseline Emission Rate (tons/yr)	Netting Basis		Plant Site Emission Limits (PSEL)		
		Previous (tons/yr)	Proposed (tons/yr)	Previous PSEL (tons/yr)	Proposed PSEL (tons/yr)	PSEL Increase (tons/yr)
PM	0.2	0.2	0.2	24	24	0
PM ₁₀	0.2	0.2	0.2	4.5	4.5	0
PM ₁₀ (daily)	N/A	N/A	N/A	49 lbs/day	49 lbs/day	0
PM _{2.5}	N/A	N/A	0.2	9	9	0
SO ₂	1.4	1.4	1.4	39	39	0
NO _x	1.2	1.2	1.2	40	40	0
CO	1.0	1.0	1.0	99	99	0
VOC	5.1	5.1	5.1	39	39	0
GHG (CO ₂ e)	N/A	N/A	N/A	74,000	74,000	0

- a. The baseline emission rate was established in previous permitting actions and there is no new information that effects the previous determination.
- b. The netting basis for PM_{2.5} was established during the previous permitting action. No new information effects the previous determination.
- c. The basis for the facility’s Plant Site Emission Limits (PSEL) is provided within Appendix A at the end of this Review Report.
- d. The proposed PSELs for PM, PM₁₀, PM_{2.5}, SO₂, VOC, and GHG are equal to the generic PSELs in accordance with OAR 340-222-0040.
- e. The proposed PSEL for NO_x is the netting basis, plus 39 tons.
- f. The previous PSEL is the PSEL in the last permit.
- g. The PSEL is a federally enforceable limit on the potential to emit.

SIGNIFICANT EMISSION RATE ANALYSIS

- 14. For each pollutant, the proposed Plant Site Emission Limit is less than the sum of the Netting Basis and the significant emission rate, thus no further air quality analysis is required at this time.

15. An analysis of the proposed PSEL increases over the Netting Basis is shown in the following table.

Pollutant	SER	Requested increase over proposed netting basis	Increase due to utilizing capacity that existed in baseline period	Increase due to physical changes or changes in method of operation	Increase due to changes to rules (i.e., the Generic PSEL)
PM	25	23.8	0	0.9	22.9
PM ₁₀	15/5*	4.3	0	0.9	3.4
PM _{2.5}	10	8.8	0	0.9	7.9
SO ₂	40	37.6	0	6.3	31.3
NO _x	40	38.8	0	8.9	29.9
CO	100	98	0	16.8	81.2
VOC	40	33.9	0	17.4	16.5
GHG (CO _{2e})	75,000	74,000**	0	0	74,000

*SER for Medford-Ashland AQMA

** source has elected to decline a Baseline Rate for GHG

TITLE V MAJOR SOURCE APPLICABILITY

16. A major source is a facility that has the potential to emit 100 tons/year or more of any criteria pollutant or 10 tons/year or more of any single HAP or 25 tons/year or more of combined HAPs.
17. A source that has the potential to emit at the major source levels but accepts a PSEL below major source levels is called a Synthetic Minor (SM).
18. A source that has the potential to emit above the Title V major source thresholds but is willing to take a limit that is 80% or greater of the major source thresholds (e.g., 80 tons per year or greater for criteria pollutants) is called a Synthetic Minor 80 (SM-80).
19. A source that has the potential to emit less than major source thresholds is called a true minor.
20. A source that has the potential to emit less than major source thresholds but is required by rule to obtain a Title V permit is called a Title V minor source.

CRITERIA POLLUTANTS

21. This facility is a true minor source of criteria pollutant emissions. The basis for this determination can be found in the Appendix A of this Review Report.

HAZARDOUS AIR POLLUTANTS AND TOXIC AIR CONTAMINANTS

22. This source is not a major source of hazardous air pollutants. The basis of this determination is from the source’s submitted air toxic emissions inventory from 2016. The submitted information includes both hazardous air pollutants and toxic air contaminant emissions. NOTE: TAC pollutants are not currently regulated.

Hazardous Air Pollutants & Toxic Air Contaminants	2016 Emissions (pounds/year)	2016 Emissions (tons/year)
1,4 Dichlorobenzene (Highest Reported HAP)	482	0.24
All other HAP emissions	448	0.22
Total HAP Emissions	930	0.46
Hydrogen Sulfide (Highest Reported TAC)	6,220	3.11
All other TAC emissions	4,530	2.27
Total TAC Emissions*	10,750	5.38

*TAC pollutants are not currently regulated

CLEANER AIR OREGON RISK ASSESSMENT

23. In 2016, DEQ required reporting of approximately 600 toxic air contaminants. Please refer to the following link for reported information:
https://www.deq.state.or.us/AQPermitonline/15-0030-ST-01_ATEI_2016.PDF
24. The City of Medford’s RWRf has not been called in, at the time of this writing, and therefore, has not performed a risk assessment.

TOXICS RELEASE INVENTORY

25. The Toxics Release Inventory (TRI) is federal program that tracks the management of certain toxic chemicals that may pose a threat to human health and the environment, over which DEQ has no regulatory authority. It is a resource for learning about toxic chemical releases and pollution prevention activities reported by certain industrial facilities. Section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA) created the TRI Program. In general, [chemicals covered by the TRI Program](#) are those that cause:
- Cancer or other chronic human health effects;
 - Significant adverse acute human health effects; or
 - Significant adverse environmental effects.

26. There are currently over 650 chemicals covered by the TRI Program. Facilities that manufacture, process or otherwise use these chemicals in amounts above established levels must submit annual TRI reports on each chemical.
27. The City of Medford's RWRf is not covered by the TRI program because it does not manufacture, process or use TRI-listed chemicals in quantities above threshold levels in a given year.

ADDITIONAL REQUIREMENTS

NEW SOURCE PERFORMANCE STANDARDS APPLICABILITY

28. 40 CFR Part 60, Subpart JJJJ is applicable to the source since the co-generation digester gas engine (Co-Gen #8100) is a lean burning, Spark Ignition Reciprocating Internal Combustion Engine (SI-RICE) that meets both the horsepower requirement ($500 \leq \text{HP} < 1,350$) and manufactured date qualification (on or after 7/1/2010).
29. The *Hurst* natural gas boiler (Boiler #1110) is not subject to 40 CFR Part 60, Subpart Dc. Applicability is based on a boiler's heating capacity and date of manufacture. The heat capacity of a given boiler must be >10 MMBtu/hr but < 100 MMBtu/hr to be subject to the regulation. Since the *Hurst* boiler has a heating capacity of < 10 MMBtu/hr, Subpart Dc does not apply.

NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS APPLICABILITY

30. The SI-RICE co-generation digester gas engine (Co-Gen #8100) is subject to the area source requirements of 40 CFR Part 63, Subpart ZZZZ. However, since the affected area source is concurrently subject to the NSPS RICE Subpart JJJJ, the source is known to comply with the requirements of the NESHAP RICE Subpart ZZZZ by meeting the requirements of 40 CFR Part 60, Subpart JJJJ under 40 CFR § 63.6590(c).
31. The *Caterpillar* 4020 standby emergency diesel-fired generator is subject to the area source emergency operation requirements of 40 CFR Part 63, Subpart ZZZZ due to its manufactured date of 1999.
32. The *Hurst* natural gas boiler (Boiler #1110) is not subject to 40 CFR, Part 63 Subpart JJJJJ (6J) for Industrial, Commercial, and Institutional boilers for area sources since it is defined as a gas-fired boiler under 40 CFR §63.11237.

GREENHOUSE GAS REPORTING APPLICABILITY

33. OAR Chapter 340 division 215 is applicable to the source because emissions of greenhouse gases exceed 2,500 metric tons (2,756 short tons) of CO₂ equivalents per year.

REASONABLY AVAILABLE CONTROL TECHNOLOGY APPLICABILITY

34. The facility is located in the Medford-Ashland AQMA but it is not one of the listed source categories in OAR 340-232-0010 and does not meet the applicability criteria, thus the RACT rules do not apply.

TYPICALLY ACHIEVABLE CONTROL TECHNOLOGY APPLICABILITY

35. The source is likely meeting OAR 340-226-0130 Highest and Best Practicable Treatment and Control: Typically Achievable Control Technology (TACT) by complying with 40 CFR Part 60, Subpart JJJJ and 40 CFR Part 63, Subpart ZZZZ.

SOURCE TESTING

PRIOR TESTING RESULTS

36. The results of the most recent source tests for the *Waukesha* SI-RICE are listed below:

Emissions Standards/Limits	NO _x		CO		VOC	
	g/hp-hr (2.0)	ppmvd @ 15% O ₂ (150)	g/hp-hr (5.0)	ppmvd @ 15% O ₂ (610)	g/hp/hr (1.0)	ppmvd @ 15% O ₂ (80)
Source Test Year & Results						
2015	---	25.9	---	122	---	8.1
2016	0.63	45.6	1.06	126.8	0.03	2.5
2017	0.25	13.9	1.2	103.0	0.054	3.1
2018	1.03	58.9	1.51	141.8	0.17	10.1
2019	0.52	29.6	1.42	132.0	0.03	1.3

ST Year	CO – lb/kw-hr	CO – lb/MMcf	CO – lb/hr	NO _x – lb/kw-hr	NO _x – lb/MMcf	NO _x – lb/hr	VOC – lb/kw-hr	VOC – lb/MMcf	VOC – lb/hr
2015	0.0040	204	1.4	0.0014	71.0	0.5	0.0005	21.3	0.15
2016	0.0031	182	1.43	0.0019	108	0.85	0.000088	5.5	0.04
2017	0.0034	171	1.3	0.00074	37.6	0.29	0.00016	8.0	0.061
2018	0.0045	242	1.7	0.0030	165	1.2	0.0005	27.1	0.20
2019	0.0042	167	1.6	0.0016	61.7	0.58	0.000069	2.7	0.025
Avg.	0.0038	193.2	1.5	0.0018	88.7	0.68	0.0003	12.9	0.1

PROPOSED TESTING

37. The *Dresser Waukesha* co-generation is to be tested at every 8,760 hours of operation or every 3 years, whichever one comes first. The test is to ensure compliance emission standards for NO_x, CO and VOC are being achieved and obtained during operation, as per CFR 40 Part 60, Subpart JJJJ.

PUBLIC NOTICE

38. Pursuant to OAR 340-216-0066(4)(a)(A), issuance of Standard Air Contaminant Discharge Permits require public notice in accordance with OAR 340-209-0030(3)(b), which requires DEQ to provide notice of the proposed permit action and a minimum of 30 days for interested persons to submit written comments. **The public notice was emailed/mailed on Sept. 24, 2020 and the comment period will end on Oct. 26, 2020.**

WK: MA

APPENDIX A – EMISSION CALCULATION SHEETS

Baseline Emission Calculations – 1978:

Emission Point	Operating Parameters and Capacities		Emission Factors/Units			Reference	tons/yr
Boiler (Natural & Digester Gas- Fired)	Annual Production Rate 23.18 MMcf/yr	Est. Heat Capacity 2.5 MMBtu/hr	PM	7.6	lb/MMcf	AP-42	0.0881
			PM ₁₀			100% PM	0.0881
			PM _{2.5}			100% PM ₁₀	0.0881
			SO ₂	0.6		Mass Balance	1.3971
			NO _x	100		AP-42	1.1589
			CO	84		AP-42	0.9735
			VOC	5.5		AP-42	0.0637
			HAPs	34 % of total VOC		EPA Speciate Profile 0003	0.0217
Back-up Generator #1* (Natural Gas-Fired)	Max Hours of Operation 250 hrs/yr	Max Rating 180 HP	PM	0.18	g/hp-hr	AP-42	0.0089
			PM ₁₀			100% PM	0.0089
			PM _{2.5}			100% PM ₁₀	0.0089
			SO ₂	3.41	lb/hp-hr	AP-42, 3.4-1	0.1691
			NO _x	0.022		AP-42	0.4950
			CO	0.019	AP-42	0.4275	
			TOC	1.2	g/hp-hr	AP-42	0.0596
			HAPs	1.08 % of total TOC		EPA Speciate Profile 1001	0.0006
Back-up Generator #2* (Diesel) (Caterpillar 3508B DI TA JW: Lo BSFC)	Max Hours of Operation 250 hrs/yr	Max Rating 1000 kW	PM	0.29	lb/hr	Caterpillar	0.04
			PM ₁₀			Caterpillar	0.04
			PM _{2.5}			Caterpillar	0.04
			SO ₂	4.92S**	g/kW-hr	AP-42, 3.4-1	0.7
			NO _x	40.87	lb/hr	Caterpillar	5.1
			CO	2.97		Caterpillar	0.4
			TOC	0.7		Caterpillar	0.09
			HAPs	1.08% of TOC		EPA Speciate profile 1001	0.001

*-As provided and calculated by permittee

**-Where S is % sulfur in fuel oil

Current Potential to Emit (PTE) PSEL Calculations:

Emission Point	Operating Parameters and Capacities		Emission Factors/Units			Reference	tons/yr
Co-Gen (#8100) Engine (digester gas)	Annual Production Rate ¹ 149.3 MMcf/yr	Hours of Operation: 8,760 Max Rating: kw = 745 =1048 bhp	PM	11.65	lb/MMcf	AP-42 – Table 3.2-3 (7/2000)	0.9
			PM ₁₀				0.9
			PM _{2.5}				0.9
			SO ₂	84.6		Mass Balance	6.3
			NOx	88.7		Avg. of ST Results 2015- 2019	6.6
			CO	193.2			14.4
			VOC	12.9		EPA Speciate profile #1001	1.0
			HAPs	1.08% of VOC			0.01
Boiler (#1110) (natural gas-fired)	Annual Production Rate 5 MMcf/yr	Heat Input Capacity 5.2 MMBtu/hr	PM	2.5	lb/MMcf	DEQ AQ- EF05	0.01
			PM ₁₀				0.01
			PM _{2.5}				0.01
			SO ₂	1.7			Neg.
			NOx	100			0.25
			CO	84			0.21
			VOC	5.5			0.01
			HAPs	34 % of total VOC		EPA Speciate Profile #0003	0.003
Flare (#7560) ² (digester gas) (only used when Co- Gen engine is not in operation)	Maximum Annual Production Rate 149.3 MMcf/yr	-----	PM	15	lb/MMcf	AP-42 – Section 2.4 (10/08)	1.1
			PM ₁₀				1.1
			PM _{2.5}				1.1
			SO ₂	84.6		Mass Balance	6.3
			NOx	40.8		AP-42 – Table 13.5-1 (09/91)	3.1
			CO	222			16.5
			VOC	84		EPA Speciate Profile #0051	6.3
			HAPs	20% of total VOC			1.3

¹- PTE is based on a maximum production rate of 149.3 million ft³ of produced digester gas as per a 2003 report by TW Environmental, Inc.

²- Flare PTE numbers are represented at maximum digester gas production rate, if and when, Co-Gen engine is not operating

Current Potential To Emit (PTE) PSEL Calculations Continued:

Emission Point	Operating Parameters and Capacities		Emission Factors/Units			Reference	tons/yr
4020 Standby e-Generator (Diesel) (Caterpillar 3508B TA engine with Caterpillar SR-4B generator)	Max Hours of Operation	Max Rating	PM	0.25	lb/hr	Caterpillar Technical Data Sheet (08/05)	0.03
			PM ₁₀				0.03
			PM _{2.5}				0.03
			SO ₂				0.003
			NO _x				2.0
			CO				0.13
			VOC				0.13
			HAPs				1.08% of VOC
Wastewater Influent Flow	Production Rate						
	20 MM gallons/day ~ 7.3 billion gallons/year	-----	VOC	3	lb/MM gallons	AIRS	11

Actual GHG Emissions Reported to DEQ: 2016-2108

Reporting Year	Biogenic Emissions	Anthropogenic Emissions	Total Emissions (CO ₂ e mt)
2018	2766	108	2873
2017	3087	118	3205
2016	2436	124	2560

PTE Summary Table (total PTE was calculated using highest emission amounts from individual units)

Pollutant	Tons/year
PM/PM ₁₀ /PM _{2.5}	< 1 (~5.2 lbs/day)
SO ₂	6.3
NO _x	8.9
CO	16.8
VOC	17.4
Total HAPs	< 1
GHG	< 74,000 CO ₂ e mt

APPENDIX B – EMISSION FACTOR CONVERSIONS

Digester Gas engine (Co-Gen #8100):

PM/PM₁₀/PM_{2.5} = by combining both filterable and condensable as provided within AP-42 - Table 3.2-3

$$\text{PM/PM}_{10}/\text{PM}_{2.5} = 0.0194 \text{ lb/MMBtu} \times 600 \text{ Btu/ft}^3 = \underline{\underline{11.65 \text{ lb/MMft}^3}}$$

SO₂ = assuming 500 ppmvd of H₂S within digester gas = 500 ft³ H₂S /1,000,000 ft³
assuming ideal gas density = 379.5 ft³ / lb-mol H₂S
assuming gas heat content = 600 Btu/ft³

$$\frac{500 \text{ ft}^3 \text{ H}_2\text{S}}{10^6 \text{ ft}^3} \times \frac{\text{lb-mol H}_2\text{S}}{379.5 \text{ ft}^3 \text{ H}_2\text{S}} \times \frac{\text{lb-mol SO}_2}{\text{lb-mol H}_2\text{S}} \times \frac{64.06 \text{ lb SO}_2}{\text{lb-mol SO}_2} \times \frac{\text{ft}^3}{600 \text{ Btu}} \times \frac{10^6 \text{ Btu}}{\text{MMBtu}} = \frac{0.141 \text{ lb SO}_2}{\text{MMBtu}}$$

$$\text{SO}_2 = \frac{0.141 \text{ lb SO}_2}{\text{MMBtu}} \times \frac{600 \text{ Btu}}{\text{ft}^3} = \underline{\underline{84.6 \text{ lb/MMft}^3}}$$

Flare #7560: *

$$\text{PM/PM}_{10}/\text{PM}_{2.5} = 0.025 \text{ lb/MMBtu} \times 600 \text{ Btu/ft}^3 = \underline{\underline{15 \text{ lb/MMft}^3}}$$

SO₂ = assuming 500 ppmvd of H₂S within digester gas = 500 ft³ H₂S /1,000,000 ft³
assuming ideal gas density = 379.5 ft³ / lb-mol H₂S
assuming gas heat content = 600 Btu/ft³

$$\frac{500 \text{ ft}^3 \text{ H}_2\text{S}}{10^6 \text{ ft}^3} \times \frac{\text{lb-mol H}_2\text{S}}{379.5 \text{ ft}^3 \text{ H}_2\text{S}} \times \frac{\text{lb-mol SO}_2}{\text{lb-mol H}_2\text{S}} \times \frac{64.06 \text{ lb SO}_2}{\text{lb-mol SO}_2} \times \frac{\text{ft}^3}{600 \text{ Btu}} \times \frac{10^6 \text{ Btu}}{\text{MMBtu}} = \frac{0.141 \text{ lb SO}_2}{\text{MMBtu}}$$

$$\text{SO}_2 = \frac{0.141 \text{ lb SO}_2}{\text{MMBtu}} \times \frac{600 \text{ Btu}}{\text{ft}^3} = \underline{\underline{84.6 \text{ lb/MMft}^3}}$$

$$\text{NO}_x = 0.068 \text{ lb/MMBtu} \times 600 \text{ Btu/ft}^3 = \underline{\underline{40.8 \text{ lb/MMft}^3}}$$

$$\text{CO} = 0.37 \text{ lb/MMBtu} \times 600 \text{ Btu/ft}^3 = \underline{\underline{222 \text{ lb/MMft}^3}}$$

$$\text{VOC} = 0.14 \text{ lb/MMBtu} \times 600 \text{ Btu/ft}^3 = \underline{\underline{84 \text{ lb/MMft}^3}}$$

* lb/MMBtu values for PM/PM₁₀/PM_{2.5} data obtained from AP-42 Section 2.4 (10/08)
lb/MMBtu values for NO_x, CO, VOC data obtained from AP-42 Table 13.5-1 (09/91)

Caterpillar Standby 4020 Emergency Diesel Generator Set

To convert emissions to lb/hr:

Given:

HP= 1489*

1 lb = 454 grams

PM/PM₁₀/PM_{2.5} = 0.075 g/hp-hr

NO_x = 4.74 g/hp-hr

CO = 0.31 g/hp-hr

VOC (hydrocarbons) = 0.31 g/hp-hr

SO₂ data:

- ultra low sulfur diesel content ≤ 0.0015% (by wt.) = 15 ppm **
- Max. gallons of fuel/hr: 74 gallons/hr
- Wt. of diesel = 7.05 lb/gal

Solution:

PM/PM₁₀/PM_{2.5} = lb/hr = 0.075 g/hp-hr x 1 lb/454 grams x 1489 horsepower = **0.25 lb/hr**

NO_x = lb/hr = 4.74 g/hp-hr x 1 lb/454 grams x 1489 Hp = **15.6 lb/hr**

CO = lb/hr = 0.31 g/hp-hr x 1 lb/454 grams x 1489 Hp = **1.02 lb/hr**

VOC = lb/hr = 0.31 g/hp-hr x 1 lb/454 grams x 1489 Hp = **1.02 lb/hr**

SO₂ = lb/hr = $\frac{74 \text{ gallons diesel}}{\text{hour}} \times \frac{7.05 \text{ lbs}}{\text{gal}} \times (0.000015) \text{ S} \times \frac{64.06 \text{ lb S}}{\text{lb-mol}} \times \frac{\text{lb-mol}}{32.06 \text{ lb S}} = \mathbf{\underline{\underline{0.02 \text{ lb/hr}}}}$

* Provided by facility from Caterpillar Technical Data Sheet – (08/05)

** Provided by facility from R.W. Hays Oil data sheet – (07/16)