Lane Regional Air Protection Agency
Standard Air Contaminant Discharge Permit

Review Report

Emerald People's Utility District –
Short Mountain Generation Facility
84777 Dillard Access Road
Eugene, Oregon 97405
https://www.epud.org/

Source Information:

Primary SIC	4911
Secondary SIC	--
Primary NAICS	221118
Secondary NAICS	--
Source Category (LRAPA title 37 Table 1)	B:25. Electrical power generation from combustion, excluding units used exclusively as emergency generators and units less than 500 kW.

Source Category (LRAPA title 37 Table 1)	C:5 All sources having the potential to emit more than 100 tons or more of any regulated pollutant, except GHG, in a year.
	C:6 All sources having the potential to emit more than 10 tons or more of a single hazardous air pollutant in a year.
Public Notice Category	III

Compliance and Emissions Monitoring Requirements:

Unassigned emissions	N
Emission credits	N
Compliance schedule	N
Source test [date(s)]	See Permit

COMS	N
CEMS	N
CPMS	N
Ambient monitoring	N

Reporting Requirements

Annual report (due date)	Feb 15
Emission fee report (due date)	N
SACC (due date)	August 15
Greenhouse Gas Report (due date)	March 31

Quarterly report (due dates)	N
Monthly report (due dates)	N
Excess emissions report	Immediately
Other reports	N

Air Programs

NSPS (list subparts)	N
NESHAP (list subparts)	N
CAM	N
Regional Haze (RH)	N
Synthetic Minor (SM)	N
Part 68 Risk Management	N
Major HAP source	Y

Federal major source	N
NSR	N
PSD	N
Acid Rain	N
Clean Air Mercury Rule	N
TACT	N
>20 Megawatts	N

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Permittee Identification

1. Emerald People's Utility District – Short Mountain Generation Facility ("the facility" or "EPUD") owns and operates a landfill gas electric power generation facility located at 84777 Dillard Access Road, Eugene Oregon.

General Background

2. EPUD owns and operates an electrical generation facility at Lane County Short Mountain Landfill (SML). The facility has four (4) 820 kilowatt (1,144 hp) 4-stroke lean burn internal combustion generators (engines) that combust landfill gas (LFG) collected from SML to create electricity, which is distributed directly to EPUD's power grid. EPUD has a contract with SML to control SML's collected landfill gas (LFG). SML holds a Title V Operating Permit (Permit No. 204740) with LRAPA and SML is subject to 40 CFR part 60 subpart Cf and 40 CFR part 63 subpart AAAA.

   In 1990, EPUD applied to install seven (7) LFG engines to be installed in stages at the site. A full BACT analysis and Ambient Air Impact Modeling were performed and submitted with the application and reviewed according to LRAPA title 38 regulations for Prevention of Significant Deterioration (PSD). The PSD action was completed in 1993. EPUD installed Engines #1 and #2, emission units (EUs) 3RC 374 and 3RC 375, in May 1991 and commenced operation in February 1992. Engines #3 and #4 (EUs: 4EK 30 and 4EK 29) were installed in March 1993 and commenced operation in November 1993. The initial plan to install seven (7) engines was deferred due to lower than anticipated gas production by the landfill. EPUD decided to withdraw the request for the proposed installation of seven (7) engines. By only permitting the four (4) engines that were already installed, the facility's emissions for NO_X and CO were below the major source threshold of 100 tons per year (tpy) and therefore, the facility was not required to apply for a Title V operating permit.

   EPUD operates a treatment system that consists of PM filtration the reduces PM to 0.3 microns, an air-to-air exchanger the reduces the dew point of the LFG and 'knocks-out' the water, and a compressor that compresses the LFG to 3 psi. This is meets EPA's definition of a treatment system and therefore, EPUD is not subject to 40 CFR part 60, subpart Cf or 40 CFR part 63 subpart AAAA and does not have to demonstrate that the engines can meet the 98% destruction rate or reduce the outlet non-methane organic compounds (NMOC) concentration to less than 20 parts per million by volume (ppmv) per the federal regulations.

Reason for Permit Action and Fee Basis

3. This is a permit renewal with a modification of the existing Standard Air Contaminant Discharge Permit (ACDP) that was issued on December 5, 2011 and was originally scheduled to expire on December 5, 2016. EPUD currently operates under a Standard ACDP because the facility actual and potential emissions were below Title V major source thresholds. The current ACDP permit remains in effect until for issuance of the permit renewal.

4. The proposed renewal is incorporating a modification. EPUD proposed a modification to change the emission factors for PM, PM_{10}, $PM_{2.5}$, NO_X, CO and highest single HAP (formaldehyde) based on the results of the last performance testing done in March 2022. The change to the emission factors will increase annual potential emissions of NO_X to 119 tons per year (tpy), CO to 105 tpy, Individual FHAP (formaldehyde) to 15 tpy and Aggregate FHAP to 25 tpy. The proposed modification is considered a Type 3 change under LRAPA 34-035.

5. The proposed modification will increase the emissions for NO_X and CO above the 100 tpy major source thresholds, formaldehyde emissions above the 10 tpy major source threshold for a single HAP and total aggregate HAP emissions above the 25 tpy major source threshold. Since the emissions for NO_X, CO and single and aggregate HAPs are over the major source threshold, the facility will be

considered a Title V source. Upon issuance of the modified Standard ACDP, the facility will have up to 12 months to apply for a Title V Operating Permit under OAR 340-218-0040(1)(a)(A).

6. A Non-PSD/NSR Moderate Technical Permit Modification fee has been assessed for the modification to the permit. The basis for this fee is there will be revisions to the monitoring, recordkeeping, reporting and new applicable requirements. The emissions increase does not trigger any air modeling.

Attainment Status

7. EPUD is located outside of the Eugene-Springfield Air Quality Management Area. The facility is located in an area that has been designated attainment/unclassified for PM_{10}, $PM_{2.5}$, NO_2, CO, SO_2, ozone (VOC) and Pb. The facility is located within 100 kilometers of three (3) Class I air quality protection areas: Waldo Lake Wilderness, Diamond Peak Wilderness area and Three Sisters Wilderness area.

Permitting History

8. LRAPA has reviewed and issued the following permitting actions to this facility:

Date Issued/Valid Through	Permit Action Type	Description
04/01/1990 – 03/31/2000	ACDP	Initial permit for 7 IC Engines and 1 Standby Gas Flare
07/15/1991	Modification	Reduced the number of engines being installed to 4 and removed flare
08/20/93	Modification	Corrected emission factors
05/14/2001 – 05/13/2006	ACDP	Renewal
12/05/01	Modification	Amended reporting requirements and corrected expiration date to 05/13/2006
4/27/2006 – 04/26/2011	Standard ACDP	Renewal
12/05/2011 – 12/5/2016	ACDP	Renewal

Emission Unit Descriptions

9. The emission units (EU) regulated by the permit are the following:

Emission Unit ID	Description	Facility ID Number	Date Installed
3RC 374	Caterpillar 3516 820 kW (1,144 bhp) 4-stroke lean burn internal combustion engine	#1	05/1991
3RC 375	Caterpillar 3516 820 kW (1,144 bhp) 4-stroke lean burn internal combustion engine	#2	05/1991
4EK 30	Caterpillar 3516 820 kW (1,144 bhp) 4-stroke lean burn internal combustion engine	#3	03/1993
4EK 29	Caterpillar 3516 820 kW (1,144 bhp) 4-stroke lean burn internal combustion engine	#4	03/1993

Operating Scenario

10. EPUD operates all engines according to the amount of incoming LFG flow.

Emission Limits and Standards

11. The facility is subject to the visible emissions limitations under LRAPA 32-010(3). For sources, other than wood-fired boilers, no person may emit or allow to be emitted any visible emissions that equal or exceed an average of 20 percent opacity for a period or periods aggregating more than three (3) minutes in any one (1) hour.

12. The facility is subject to the visible emission limitation under LRAPA 32-015(2). For non-fuel burning equipment installed, constructed or modified on or after June 1, 1970 but prior to April 16, 2015 for which there are not represented compliance test results, the particulate matter emission limit is 0.14 grains per dry standard cubic foot.

13. The engines must be operated to minimize air contamination discharges in accordance with LRAPA's highest and best requirements under LRAPA 32-005.

14. The engines must be operated and maintained at the highest reasonable efficiency and effectiveness all times and prepare and maintain an Operation and Maintenance Plan (O&M Plan) to demonstrate that the engines are being operated and maintained in a manner to minimize pollutants under LRAPA 32-007.

15. The permit limits the facility to the maximum quantity of gas that can be combusted in the 4 engines to ensure PSEL compliance.

Plant Site Emission Limits (PSELs)

16. Provided below is a summary of the baseline emission rate, netting basis, PSELs, and potential to emit (PTE):

Pollutant	Baseline Emission Rate (tpy)	Netting Basis		Plant Site Emission Limits (PSEL)		PTE (tpy)
		Previous (tpy)	Proposed (tpy)	Previous PSEL (tpy)	Proposed PSEL (tpy)	
PM	NA	0	0	24	24	10
PM_{10}	NA	0	0	14	14	10
$PM_{2.5}$	NA	0	1	9	10	10
CO	NA	88.4	88.4	88	105	105
NO_X	NA	88.4	88.4	88	119	119
SO_2	NA	0	0	39	39	3
VOC	NA	0	0	39	39	28
GHG	17,023	0	18,071	74,000	74,000	18,000

16.a. The baseline emission rate (BER) is zero for criteria pollutants because EPUD started operation in 1992 after the BER establishment date of 1978.

16.b. A netting basis was established for CO and NO_X because the engines were subject to a review for New Source Review (NSR) under LRAPA title 38.

16.c. The netting basis for $PM_{2.5}$ was established in accordance with LRAPA 42-0046(2)(b).

16.d. PSELs are based on the maximum quantity of LFG that can be combusted in the 4 engines.

16.e. PSELs in accordance with LRAPA title 42 have been set at the generic PSEL level for PM, PM_{10}, SO_2, and VOC.

16.f. Proposed PSELs: New emission factors were used for PM, PM_{10}, $PM_{2.5}$, CO and NO_X from source test data. The increase to the PSEL for $PM_{2.5}$, CO and NO_X reflects the change.

16.g. The PSEL is set at a source specific level for $PM_{2.5}$, CO and NO_X in accordance with LRAPA title 42.

16.h. Per LRAPA 42-0048(1)(b) the BER for GHG was established using the data from the 2010 Annual Report for combusted LFG. Per LRAPA 42-0046(1)(b) the initial netting for GHG is based on the total amount of GHG at maximum capacity of all four (4) engines.

16.i. The PSEL is a federally enforceable limit on the potential to emit.

Significant Emission Rate (SER)

17. The PSEL increase over the netting basis is less than the Significant Emission Rate (SER) as defined in LRAPA title 12 for all pollutants as shown below.

Pollutant	Proposed PSEL (tpy)	PSEL Increase Over Netting Basis (tpy)	PSEL Increase Due to Utilizing Existing Baseline Period Capacity (tpy)	PSEL Increase Due to Modification (tpy)	SER (tpy)
PM	24	24	0	0	25
PM_{10}	14	14	0	0	15
$PM_{2.5}$	10	10	0	1	10
CO	105	16.6	0	16.6	100
NO_X	119	30.6	0	30.6	40
SO_2	39	39	0	0	40
VOC	39	39	0	0	40
GHG	74,000	55,929	0	0	75,000

Prevention of Significant Deterioration (PSD)

18. In 1989, EPUD proposed the phased construction of seven (7) landfill gas combustion engines and a standby flare. The installation of the first four (4) engines was subject to PSD review for NO_X. In addition to the NO_X review, CO emissions were also reviewed by LRAPA. The interdependent relationship between NO_X and CO was the basis for the decision to review CO.

Historical background information: Memorandum from Chuck Gottfried, LRAPA, June 19, 1990

The proposed site for this facility is the Lane County Solid Waste disposal site at Short Mountain (approximately 5 miles south of Eugene/Springfield and east of Interstate 5). The site is in attainment for all criteria pollutants. However, the Eugene/Springfield area is classified as a non-attainment area for PM_{10}, and is 'borderline' for attainment for ozone, having recorded two (2) exceedances of the standard in 1988, and having reached the standard of 235 $\mu g/m^3$ in 1987. The primary pollutants of concern in citing this facility are oxides of nitrogen (NO_X), which break down in the atmosphere to form ozone (O_3). For that reason, a thorough analysis of NO_X emissions is required to ensure that the facility does not contribute to exceedance of the ambient air quality standards.

Several regulations affect the permitting of this facility and the limits set on emissions from the site. Section 38-001 of LRAPA regulations requires that new major sources of air contaminants within Lane County must demonstrate that the proposed source can meet all requirements of LRAPA, the Oregon Department of Environmental Quality, and the U.S. Environmental Protection Agency.

Additionally, Section[1] 38 defines emission rates of specific pollutants and determines the appropriate category for a specific source. Section[2] 38-005(12) states that emissions in excess of 40 tons per year of nitrogen oxides from any source represent a "significant emission", and classifies those emitters as "major sources." According to information supplied to LRAPA with the application, the proposed facility is projected to emit, when finished, in excess of 100 tons of NO_X annually.

[1] title 38
[2] subsection

Type A and Type B State NSR

19. The proposed modification will not have emissions per regulated pollutant equal to or greater than the SER over the netting basis that would require a Type A or B State NSR.

Ambient Air Impact Model Review

20. EPUD was required to submit an ambient air impact model for NO_X and CO during the initial permitting of the facility. EPUD supplied LRAPA an ambient air impact model in July 1993. LRAPA reviewed the submittal and concluded that neither the air quality standards nor the Prevention of Significant Deterioration (PSD) increments for NO_X or CO would be exceeded.

Pollutant	LRAPA 38-020(5)(B) Concentration*	Model Results
NO_X	Annual average 14 µg/m^3	Annual average 13 µg/m^3
CO	8-hour average 575 µg/m^3	8- hour average 174.8 µg/m^3

*LRAPA 38-020(5)(B) is currently LRAPA 38-0070(1)(a)(B)(i) and (ii)

Review of Best Available Control Technology (BACT) Determination

21. The BACT analysis performed in February 1990 involved identifying all available control technologies, eliminating technically infeasible options, and evaluating the remaining options based on control effectiveness, energy use, environmental impacts (waste disposal), and economic impacts (including cost per ton of pollutant captured). This process accommodates consideration of possible control trade-offs such as when a technology removes air pollutants but causes pollution in another medium like water or solid waste. BACT determinations are done on a case-by-case basis to consider any unique conditions at a given facility.

    The four (4) options that were evaluated included a turbocharged engine, which was used as the baseline engine to compare the other engines, turbocharged engine with catalytic converter, a stratified turbocharged engine, and turbocharged low emission high compression engine. It was determined that the turbocharged low emission high compression engine was best overall combination of energy output and exhaust emission reduction when compared to the stratified charge or the catalytic converter technology options. The catalytic converter entailed a 1% penalty in energy, primarily due to the monthly downtime for changing the converter beads. The stratified charge

technology had a substantial 9% energy penalty when compared to low emission technology: beyond the normal range for these technologies. While the low emission technology option reduced nearly the same amount of emission as the stratified charge technology option, the low emission technology option offered a 16% advantage over the stratified charge option in the incremental energy cost of reducing NO_X emissions.

The low emission technology option posed no significant or unusual other media environmental impacts, but the use of catalytic converters posed significant environmental and disposal problems associated with the monthly cleaning and quarterly disposal of the converter's internal beads. The manufacturer's literature also stated that catalytic converters were not compatible with a landfill gas operation.

The low emission engine technology option was also significantly more economical in terms of cost per ton of NO_X removed from exhaust emission ($99/ton as opposed to $251/ton for the stratified charge technology and $299/ton for catalytic converter technology). Due to the substantial cost differential between the low emission technology and catalytic converters, as well as the additional environmental impacts and impact on engine performance, catalytic converters were no longer recognized as BACT in California. The stratified charge technology option offered unsubstantial reductions in levels of NO_X emission at a disproportionately high cost as opposed to the low emission engines.

In summary, the low emission technology option offered the best combination of emission reduction of emission reduction levels, energy impacts, environmental impacts, and economic impacts.

During the 1990 initial proposed application evaluation of the facility CO and NO_X emission limits were set using an emission rate of 5.0 (lb/hour)/unit based on an 820 kilowatt (kW) unit in accordance with manufacturer's specifications.

Federal Hazardous Air Pollutants/Toxic Air Contaminants

22. EPUD is currently permitted as a minor source of FHAPs because initially when the FHAPs emissions were calculated the FHAP were based on EPA AP-42 Chapter 2.4: *Municipal Solid Waste Landfill*, Table 2.4-1. – Default Concentrations for LFG Constituents. These FHAPs from LFG did not take into account the FHAPs produced during the combustion of methane in the engines, especially the formation of formaldehyde. Recalculating FHAP utilizing both EPA AP-42 Chapter 2.4: *Municipal Solid Waste Landfill*, Table 2.4-1. – Default Concentrations for LFG Constituents and AP-42: Chapter 3.2: *Natural Gas-fired Reciprocating Engines*, Table 3.2-2. – Uncontrolled Emission Factors for 4-Stroke Lean-Burn Engine to calculate all potential FHAP emissions from the engines, as well as source test data for formaldehyde, the individual FHAP for a facility is now over the 10 tons per year threshold for Individual FHAP and the 25 tons per year threshold for Aggregate FHAP. EPUD is now a major FHAP source with this permit modification and renewal action.

23. Under the Cleaner Air Oregon program, only existing sources that have been notified by LRAPA and new sources are required to perform risk assessments. This source has not been notified by LRAPA and is therefore, not yet required to perform a risk assessment or report annual emissions of toxic air contaminants. LRAPA required reporting of approximately 600 toxic air contaminants in 2016 and regulates approximately 260 toxic air contaminants that have Risk Based Concentrations established in rule. All FHAPs are on the list of approximately 600 toxic air contaminants. The FHAPs and toxic air contaminants listed below are based upon source testing and standard emission factors for the types of emission units at this facility. After the source is notified by LRAPA, they must update their inventory and perform a risk assessment to see if they must reduce risk from their toxic air contaminant emissions. Until then, sources will be required to report toxic air contaminant emissions triennially.

24. The table below represents the potential emissions of FHAPs/TACs from EPUD assuming operation at full capacity. The potential emissions are calculated based on standard emission factors utilizing EPA AP-42 Chapter 2.4, Table 2.4-1 and AP-42: Chapter 3.2, Table 3.2-2 being emitted by the facility, except for formaldehyde where source test data was used. Using both EPA AP-42 tables yielded the worst-case scenario of HAPs and TACs being emitted from the engines.

CAS Number	Pollutant	PTE (tpy)	FHAP	CAO TAC
71-55-6	1,1,1-Trichloroethane (methyl chloroform)	0.0125	Yes	Yes
79-34-5	1,1,2,2-Tetrachloroethane	0.0492	Yes	Yes
79-00-5	1,1,2-Trichloroethane (vinyl trichloride)	0.0103	Yes	Yes
75-34-3	1,1-Dichloroethane (ethylidene dichloride)	0.0529	Yes	Yes
526-73-8	1,2,3-Trimethylbenzene	0.0074	No	Yes
95-63-6	1,2,4-Trimethylbenzene	0.0046	No	Yes
75-35-4	1,1-Dichloroethene (vinylidene chloride)	0.0038	Yes	Yes
107-06-2	1,2-Dichloroethane (ethylene dichloride)	0.0155	Yes	Yes
78-87-5	1,2 -Dichloropropane (propylene dichloride)	0.0126	Yes	Yes
108-67-8	1,3,5-Trimethylbenzene	0.0109	No	Yes
106-99-0	1,3-Butadiene	0.0862	Yes	Yes
91-57-6	2-Methylnaphthalene	0.0107	Yes	Yes
540-84-1	2,2,4-Trimetheylpentane	0.0807	Yes	Yes
67-63-0	2-Propanol (isopropyl alcohol)	1.1631	No	Yes
83-32-9	Acenaphthene	0.0004	Yes	Yes
208-96-8	Acenaphthylene	0.0018	Yes	Yes
75-07-0	Acetaldehyde	2.6995	Yes	Yes
67-64-1	Acetone	0.0226	No	Yes
107-02-8	Acrolein	1.6598	Yes	Yes
107-13-1	Acrylonitrile	0.1297	Yes	Yes
71-43-2	Benzene	0.1997	Yes	Yes
205-99-2	Benzo(b)fluoranthene	0.0001	Yes	Yes
192-97-2	Benzo(e)pyrene	0.0001	Yes	Yes
191-24-2	Benzo(g,h,i)perylene	0.0001	Yes	Yes
92-52-4	Biphenyl	0.0685	Yes	Yes
75-27-4	Bromodichloromethane	0.0997	No	Yes
75-15-0	Carbon disulfide	0.0171	Yes	Yes
56-23-5	Carbon tetrachloride	0.0120	Yes	Yes
463-58-1	Carbonyl sulfide	0.0114	Yes	Yes
108-90-7	Chlorobenzene	0.0153	Yes	Yes
75-45-6	Chlorodifluoromethane (Freon 22)	0.0219	No	Yes
75-00-3	Chloroethane (ethyl chloride)	0.0163	Yes	Yes
67-66-3	Chloroform	0.0099	Yes	Yes
74-87-3	Chloromethane (methyl chloride)	0.0119	Yes	Yes
218-01-9	Chrysene	0.0002	Yes	Yes
106-46-7	Dichlorobenzene	0.0060	Yes	Yes
75-71-8	Dichlorodifluoromethane (Freon 12)	0.3692	No	Yes
75-43-4	Dichlorofluoromethane (Freon 21)	0.0524	No	Yes
75-09-2	Dichloromethane (methylene chloride)	0.2363	Yes	Yes
100-41-4	Ethylbenzene	0.2018	Yes	Yes
106-93-4	Ethylene dibromide	0.0143	Yes	Yes
206-44-0	Fluoranthene	0.0004	Yes	Yes
86-73-7	Fluorene	0.0018	Yes	Yes
50-00-0	Formaldehyde	15.274	Yes	Yes

CAS Number	Pollutant	PTE (tpy)	FHAP	CAO TAC
110-54-3	Hexane	0.2187	Yes	Yes
7439-97-6	Mercury	0.0002	Yes	Yes
67-56-1	Methanol	0.8073	Yes	Yes
75-09-2	Methylene Chloride (Dichloromethane)	0.0065	Yes	Yes
78-93-3	Methyl ethyl ketone	0.1975	No	Yes
108-10-1	Methyl isobutyl ketone	0.0723	Yes	Yes
110-54-3	n-Hexane	0.3584	Yes	No
91-20-3	Naphthalene	0.0240	Yes	Yes
401	PAH (CAS 1151)	0.0087	Yes	Yes
127-18-4	Perchloroethylene (tetrachloroethylene)	0.1203	Yes	Yes
85-01-8	Phenanthrene	0.0034	Yes	Yes
108-95-2	Phenol	0.0077	Yes	Yes
129-00-0	Pyrene	0.0004	Yes	Yes
100-42-5	Styrene	0.0076	Yes	No
156-60-5	t-1,2-dichloroethene	0.0153	No	Yes
79-01-6	Trichloroethylene (trichloroethene)	0.0721	Yes	Yes
75-69-4	Trichlorofluoromethane (Freon 11)	0.0203	No	Yes
108-88-3	Toluene	1.5302	Yes	Yes
75-01-4	Vinyl chloride	0.0940	Yes	Yes
1330-20-7	Xylenes	0.5555	Yes	Yes
Total (tpy)			**24.78**	**26.40**

New Source Performance Standards (NSPS)

25. 40 CFR part 60 subpart Cf – Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills requirement of destruction efficiency for Non-Methane Organic Compounds (NMOC) for a control device is not applicable to EPUD because the facility utilizes an LFG treatment system that meets EPA's criteria.

26. 40 CFR part 60 subpart Cc – Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills is not applicable to EPUD because 40 CFR part 60 subpart Cf supersedes this regulation.

27. 40 CFR part 60 subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines in not applicable to EPUD because the engines are not compression ignition internal combustion engines.

28. 40 CFR part 60 subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines is not applicable to EPUD because the engines were built prior to the compliance date of July 1, 2008.

National Emission Standards for Hazardous Air Pollutants (NESHAP)

29. 40 CFR part 63 subpart AAAA – National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfill requirement of destruction efficiency for Non-Methane Organic Compounds (NMOC) for a control device is not applicable to EPUD because the facility utilizes an LFG treatment system that meets EPA's criteria.

30. 40 CFR part 63 subpart ZZZZ – National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines is not applicable to EPUD because per 40 CFR 63.6590(b)(3)(ii), stationary RICE does not have to meet the requirements of 40 CFR part 63

subpart ZZZZ if it is an existing spark ignition 4 stroke lean burn (4SLB) stationary RICE with a site rating of more than 500 brake horsepower located at a major source of HAP emissions. EPUD's engines are 1,144 brake horsepower and are located at a major source of HAP emissions.

Toxic Release Inventory

31. The Toxics Release Inventory (TRI) is a federal program that tracks the management of certain toxic chemicals that may pose a threat to human health and the environment. 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.

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. NOTE: The TRI Program is a federal program over which LRAPA has no regulatory authority. LRAPA does not guarantee the accuracy of any information copied from EPA's TRI website.

In order to report emissions to the TRI program, a facility must operate under a reportable NAICS code, meet a minimum employee threshold, and manufacture, process, or otherwise use chemicals in excess of the applicable reporting threshold for the chemical. For 2211 – Electric Utilities all six-digit NAICS codes are covered, but only reporting is required for facilities that combust coal and/or oil for the purposes of generating power for distribution in commerce. Though EPUD's NAICS code is 221118, the facility does not combust coal and/or oil to generate power, therefore the facility does not have to report any emissions under the TRI program.

Compliance History

32. EPUD is regularly inspected by LRAPA. The following table indicates the inspection history of this facility since the facility began operation:

Type of Inspection	Date	Results
LRAPA - Full Compliance Evaluation	08/11/1994	In compliance
LRAPA - Full Compliance Evaluation	04/15/1998	In compliance
LRAPA - Full Compliance Evaluation	11/22/1999	In compliance
LRAPA - Full Compliance Evaluation	12/04/2000	In compliance
LRAPA - Full Compliance Evaluation	05/30/2003	In compliance
LRAPA - Full Compliance Evaluation	09/27/2005	In compliance
LRAPA - Full Compliance Evaluation	07/26/2006	In compliance
LRAPA - Full Compliance Evaluation	03/17/2011	In compliance
LRAPA - Full Compliance Evaluation	06/24/2016	In compliance
LRAPA - Full Compliance Evaluation	04/21/2021 and 06/10/2021	In compliance

33. Since the renewal of the Standard ACDP on December 5, 2011, LRAPA has received no complaints about the facility.

Performance Test Results

34. EPUD tested Engine #1 (EU: 3RC 374) on March 2, 2022, and Engine #4 (EU: 4EK 29) on March 3, 2022. The engines were tested to verify emission factor for PM, NO_x, CO, VOC, total reduced sulfur (TRS) and formaldehyde. The engines were also tested to demonstrate compliance with a non-methane organic compounds (NMOC) total destruction rate by 3,000 ppmv or 98% under 40 CFR part 60 subpart Cf and 40 CFR part 63 subpart AAAA. To demonstrate initial compliance with requirements of OAR chapter 340 division 239 the engines were tested to show compliance with the methane destruction rate of 20 ppmv or 99%. Both engines tested met the destruction efficiencies standards for NMOC and methane.

35. Since the March 2, 2022, performance test, LRAPA has determined that the facility's LFG treatment system meets EPA criteria 40 CFR part 60 subpart Cf and 40 CFR part 63 subpart AAAA, therefore EPUD is no longer required to test for NMOC destruction.

Recordkeeping Requirements

36. The facility is required to keep and maintain a record of the following information for a period of five (5) years:

Activity	Units	Recording Frequency
Landfill gas combusted	MMscf	Monthly
PSEL monitoring calculation per Condition **Error! Reference source not found.**	Tons	Monthly
Visible Emission (VE) Survey	≤ 20%	Quarterly
Operation and Maintenance Plan	NA	Maintain the current version on-site
Routine maintenance performed on engines	NA	Upon occurrence
Performance test results according to Condition **Error! Reference source not found.**	NA	Upon occurrence
Engine(s) downtime in excess of one (1) consecutive hour according to Condition **Error! Reference source not found.**	NA	Upon occurrence

Reporting Requirements

37. The facility must submit the following reports to LRAPA by the dates indicated:

Report	Reporting Period	Recording Frequency
Semiannual emissions as calculated according to Condition 6 of the permit, including the supporting throughput and emission factor information.	Semiannual	February 15 & August 15
Quarterly Visible Emission Surveys	Semiannual	February 15 & August 15
The excess emission log information required by Condition G.13 of the permit, as applicable.	Annual	February 15
GHG Report	Annual	March 31

Public Notice

38. The draft permit was on public notice from December 5, 2022 to January 9, 2023. No written comments were received during the 35-day comment period.

BE/rr
1/10/2023

Calculation Sheets:

EPUD Engines: Caterpillar 3516 IC Engine, 820 kWh								
Pollutant [1]	Maximum Design Capacity [2]	Maximun Design Capacity	Emission Factor	Hourly Emission Rate	Annual Emissions	Annual Emissions per Engine [2]	Total Annual Emissions for All 4 Engines [3]	PSELs [4]
	(cubic ft/hr)	MMCF/hr	lb/MMCF	lb/hr	lb/yr	tons/year	tons/year	tons/year
PM	18,431	0.018431	31.8	0.5861	5,134.29	2.57	**10.27**	**24**
PM_{10}	18,431	0.018431	31.8	0.5861	5,134.29	2.57	**10.27**	**14**
$PM_{2.5}$	18,431	0.018431	31.8	0.5861	5,134.29	2.57	**10.27**	**10**
CO	18,431	0.018431	326.2	6.0122	52,666.80	26.33	**105.33**	**105**
NO_x	18,431	0.018431	368.9	6.7992	59,560.96	29.78	**119.12**	**119**
SO_2	18,431	0.018431	8.1	0.1493	1,307.79	0.65	**2.62**	**39**
VOC	18,431	0.018431	87.9	1.6201	14,191.94	7.10	**28.38**	**39**
Formaldehyde	18,431	0.018431	47.2	0.8699	7620.70	3.81	**15.24**	**15**
1. NO_x, CO, PM, PM_{10}, $PM_{2.5}$, VOC and Formaldehyde emission factors are derived from the March 2022 Performance Test on Engines #1 and #4 (EUs: 3RC 374 and 4EK 29]								
2. Based on only 1 engine operating at maximum capacity								
3. Based on all 4 engines operating at maximum capacity								
4. Rounded to the nearest 10th								

Information above table is based on:

Information Table: 4 Engines		1 Engine
cf/hour	73,724	18,431
cf/day	1,769,376	442,344
cf/year	645,822,240	161,455,560
CF to MMCF Conversion	0.000001	
MMcf/hr	0.074	0.018431
MMcf/day	1.769	0.442344
MMcf/year	645.822	161.456
Hours/year	8760	8760
Pounds/ton	2000	2000
Number of Engines	4	1

Combined Landfill Gas and Natural Gas Combustion Emissions Total Table

TAC	HAP	Compound	CAS	LFG Combustion Emissions (ton/yr)	Natural Gas Combustion Emissions (ton/yr)	Total Emissions for each Component (ton/yr)
TAC	HAP	1,1,1-Trichloroethane (methyl chloroform)	71-55-6	0.0125		**0.0125**
TAC	HAP	1,1,2,2-Tetrachloroethane	79-34-5	0.0362	0.0129	**0.0492**
TAC	HAP	1,1,2-Trichloroethane (vinyl trichloride)	79-00-5		0.0103	**0.0103**
TAC	HAP	1,1-Dichloroethane (ethylidene dichloride)	75-34-3	0.0452	0.0076	**0.0529**
TAC		1,2,3-Trimethylbenzene	526-73-8		0.0074	**0.0074**
TAC		1,2,4-Trimethylbenzene	95-63-6		0.0046	**0.0046**
TAC	HAP	1,1-Dichloroethene (vinylidene chloride)	75-35-4	0.0038		**0.0038**
TAC	HAP	1,2-Dichloroethane (ethylene dichloride)	107-06-2	0.0079	0.0076	**0.0155**
TAC	HAP	1,2 -Dichloropropane (propylene dichloride)	78-87-5	0.0040	0.0087	**0.0126**
TAC		1,3,5-Trimethylbenzene	108-67-8		0.0109	**0.0109**
TAC	HAP	1,3-Butadiene	106-99-0		0.0862	**0.0862**
TAC	HAP	2-Methylnaphthalene	91-57-6		0.0107	**0.0107**
TAC	HAP	2,2,4-Trimetheylpentane	540-84-1		0.0807	**0.0807**
TAC		2-Propanol (isopropyl alcohol)	67-63-0	1.1631		**1.1631**
TAC	HAP	Acenaphthene	83-32-9		0.0004	**0.0004**
TAC	HAP	Acenaphthylene	208-96-8		0.0018	**0.0018**
TAC	HAP	Acetaldehyde	75-07-0		2.6995	**2.6995**
TAC		Acetone	67-64-1	0.0226		**0.0226**
TAC	HAP	Acrolein	107-02-8		1.6598	**1.6598**
TAC	HAP	Acrylonitrile	107-13-1	0.1297		**0.1297**
TAC	HAP	Benzene	71-43-2	0.0576	0.1421	**0.1997**
TAC	HAP	Benzo(b)fluoranthene	205-99-2		0.0001	**0.0001**
TAC	HAP	Benzo(e)pyrene	192-97-2		0.0001	**0.0001**
TAC	HAP	Benzo(g,h,i)perylene	191-24-2		0.0001	**0.0001**
TAC	HAP	Biphenyl	92-52-4		0.0685	**0.0685**
TAC		Bromodichloromethane	75-27-4	0.0997		**0.0997**

Combined Landfill Gas and Natural Gas Combustion Emissions Total Table Continued

TAC	HAP	Compound	CAS	LFG Combustion Emissions (ton/yr)	Natural Gas Combustion Emissions (ton/yr)	Total Emissions for each Component (ton/yr)
TAC	HAP	Carbon disulfide	75-15-0	0.0171		**0.0171**
TAC	HAP	Carbon tetrachloride	56-23-5	0.0001	0.0119	**0.0120**
TAC	HAP	Carbonyl sulfide	463-58-1	0.0114		**0.0114**
TAC	HAP	Chlorobenzene	108-90-7	0.0055	0.0098	**0.0153**
TAC		Chlorodifluoromethane	75-45-6	0.0219		**0.0219**
TAC	HAP	Chloroethane (ethyl chloride)	75-00-3	0.0157	0.0006	**0.0163**
TAC	HAP	Chloroform	67-66-3	0.0007	0.0092	**0.0099**
TAC	HAP	Chloromethane (methyl chloride)	74-87-3	0.0119		**0.0119**
TAC	HAP	Chrysene	218-01-9		0.0002	**0.0002**
TAC	HAP	Dichlorobenzene	106-46-7	0.0060		**0.0060**
TAC		Dichlorodifluoromethane	75-71-8	0.3692		**0.3692**
TAC		Dichlorofluoromethane	75-43-4	0.0524		**0.0524**
TAC	HAP	Dichloromethane (methylene chloride)	75-09-2	0.2363		**0.2363**
TAC	HAP	Ethylbenzene	100-41-4	0.1890	0.0128	**0.2018**
TAC	HAP	Ethylene dibromide	106-93-4	0.0000	0.0143	**0.0143**
TAC	HAP	Fluoranthene	206-44-0		0.0004	**0.0004**
TAC	HAP	Fluorene	86-73-7		0.0018	**0.0018**
TAC		Fluorotrichloromethane (Trichlorofluoromethane)	75-69-4	0.0203		**0.0203**
TAC	HAP	Formaldehyde	50-00-0		15.2414	**15.2414**
TAC	HAP	Hexane	110-54-3	0.2187		**0.2187**
TAC	HAP	Mercury	7439-97-6	0.0002		**0.0002**
TAC	HAP	Methanol	67-56-1		0.8073	**0.8073**
TAC		Methyl ethyl ketone	78-93-3	0.1975		**0.1975**
TAC	HAP	Methyl isobutyl ketone	108-10-1	0.0723		**0.0723**
	HAP	n-Hexane	110-54-3		0.3584	**0.3584**
TAC	HAP	Naphthalene	91-20-3		0.0240	**0.0240**

Combined Landfill Gas and Natural Gas Combustion Emissions Total Table Continued

TAC	HAP	Compound	CAS	LFG Combustion Emissions (ton/yr)	Natural Gas Combustion Emissions (ton/yr)	Total Emissions for each Component (ton/yr)
TAC	HAP	PAH (CAS 1151)	401		0.0087	**0.0087**
TAC	HAP	Perchloroethylene (tetrachloroethylene)	127-18-4	0.1203		**0.1203**
TAC	HAP	Phenanthrene	85-01-8		0.0034	**0.0034**
TAC	HAP	Phenol	108-95-2		0.0077	**0.0077**
TAC	HAP	Pyrene	129-00-0		0.0004	**0.0004**
	HAP	Styrene	100-42-5		0.0076	**0.0076**
TAC		t-1,2-dichloroethene	156-60-5	0.0153		**0.0153**
TAC	HAP	Trichloroethylene (trichloroethene)	79-01-6	0.0721		**0.0721**
TAC	HAP	Toluene	108-88-3	1.3984	0.1317	**1.5302**
TAC	HAP	Vinyl chloride	75-01-4	0.0892	0.0048	**0.0940**
TAC	HAP	Xylenes	1330-20-7	0.4961	0.0594	**0.5555**
					Total TAC	**26.40**
					Total HAP	**24.78**