

Lane Regional Air Protection Agency  
Simple (“Low”) Air Contaminant Discharge Permit

**REVIEW REPORT**

**Revolution Energy Solutions –RES Ag Lochmead Farms**

**Permit No. 207086**

1. General Background Information

Revolution Energy Solutions LLC, located at 1615 New Hampshire Ave, NW, Suite LL-C Washington DC, operates RES Ag – Lochmead Farms, an electricity generating plant that will deliver power to the grid under a long-term purchase agreement with Eugene People’s Utility District (EPUD). The facility uses one (1) Martin Machinery digester gas-fired internal combustion engine generator to provide electrical power. The digester gas is derived from two (2) anaerobic digester tanks connected to an existing open air anaerobic lagoon manure management system for the dairy’s farm manure. The equipment is rated at 180 kW at 60Hz, 1,800 RPM. The emission calculations use 268 brake horsepower (bhp) for emission calculations. The facility will operate nearly continuously (8,700 hrs/yr).

2. Reasons for Permit Action

The facility proposes to operate a process listed in Title 37, Table 1, Part B (B.25 - Electrical Power Generation from combustion) and is therefore required to obtain air contaminant discharge permit (ACDP). The objective of this permit action is to issue the new permit to authorize construction and operation of the proposed facility.

3. Fee Basis

The facility is considered a Simple ACDP source with the “Low Fee” designation because actual emissions and future projected emissions are less than 10 tons/year for each criteria pollutant, in accordance with LRAPA Section 37-0064.

4. Compliance Summary

This is a new facility with no history of enforcement action.

5. Performance Test Results

No performance testing has been conducted at this facility. Because the facility’s emission estimations for all pollutants are well below the Plant Site Emission Limits (PSELs), no testing to verify emission factors is required at this time. The facility is required to conduct an initial performance test within 1 year of engine startup to determine compliance with the NO<sub>x</sub>, CO, and VOC emission standards for Spark Ignition Stationary Reciprocating Internal Combustion Engines

(SI-RICE) required by the SI RICE National Emission Standard for Hazardous Air Pollutants (NESHAP).

6. Plant Site Emission Limits

The PSELs are set in accordance with Section 42-0040 and 42-0041. The facility has the capacity less than the Significant Emission Rate for all pollutants and, hence, the PSELs for those pollutants are set at the Generic PSEL level.

The estimated maximum annual emissions are shown in the table below.

Pollutant	Power Output (bhp)	Hours of Operation (hrs/yr)	Emission Factor (g/bhp-hr)	Conversion Factor (lb/g)	Emissions (tons/yr)
PM/PM10/PM2.5	268	8700	0.152	0.0022	0.4
VOC	268	8700	0.62	0.0022	1.6
SO2	268	8700	0.226	0.0022	0.6
NOx	268	8700	0.99	0.0022	2.5
CO	268	8700	1.59	0.0022	4.1

The following annual PSELs are included in the permit (all values are in tons per year).

**Annual (12-month rolling) PSEL**  
 (tons/year)

Source	PM	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>x</sub>	VOC	CO
<b>Totals</b>	<b>24</b>	<b>14</b>	<b>9</b>	<b>39</b>	<b>98</b>	<b>39</b>	<b>99</b>

7. Additional Emission Limitations

LRAPA's process weight rule specifies limits on the emissions of particulate matter for specific processes as a function of the amount of material processed. [LRAPA 32-045(A)] Because PM emissions are minimal, the source is expected to be in compliance with the process weight rule.

The permit includes general limitations for visible emissions as well as particulate matter grain-loading.

8. Hazardous Air Pollutants (HAP)

The projected HAP emissions from the source are expected to be minimal. The facility will be an area source of HAPs and will be subject to the area source National Emission Standard for HAPs for spark ignition reciprocating internal combustion engines (SI-RICE). According to the NESHAP, the engine will be in compliance with the SI-RICE NESHAP (Subpart ZZZZ) if the facility complies with the New Source Performance Standards for SI-RICE (Subpart JJJJ). See Item 10 below.

9. Typically Achievable Control Technology (TACT)

LRAPA Title 32-008 requires an existing emission unit at a facility to meet TACT if the emissions unit has emissions of criteria pollutants greater than ten (10) tons per year of any gaseous pollutant or five (5) tons per year of particulate, the emissions unit is not subject to the emissions standards under LRAPA Title 32, Title 33, Title 39, or Title 46 for the pollutants emitted, and the facility is required to have a permit. The engine-generator is subject to an NSPS standard in Title 46 and is therefore not required to meet TACT.

10. New Source Review (NSR) and Prevention of Significant Deterioration (PSD)

Because the proposed PSEs for all regulated pollutants are below the Significant Emission Rates (SERs) in LRAPA Title 38, the facility is neither subject to NSR requirements for PM10 nor the PSD requirements for SO<sub>x</sub>, NO<sub>x</sub>, CO, and VOC. The facility will be located in attainment area for all regulated pollutants.

11. New Source Performance Standards (NSPS)

The facility is subject to the NSPS for Stationary Spark Ignition (SI) Landfill/Digester Gas Internal Combustion Engines (RICE NSPS – Subpart JJJJ) and is required to meet those applicable requirements. The facility will be considered to have met the Subpart JJJJ requirement by way of meeting the Subpart ZZZZ Area Source NESHAP. See Item 8 above.

12. Continuous Compliance

To ensure compliance with the annual PSEs, the permittee is required to perform monthly emissions calculations and keep a 12-month rolling record of the following information for a period of two (2) years from date of entry, unless otherwise specified.

Monitoring or Recordkeeping Parameter	Minimum Recording Frequency
Gas burned in the engine generator (cubic feet)	Monthly
Hours of Operation for the engine generator (hrs)	Monthly
Information from equipment manufacturer(s) regarding engine emissions and the efficiency of any pollution control equipment.	These records must be retained on-site for as long as the generator is used for power production.
Description of any major maintenance to the generator	Upon occurrence

13. Reporting Requirements

The facility is required to annually report gas combusted in all combustion units at the facility and any entries in the upset log as required by Condition G15.

14. Public Notice

The draft permit was on public notice from October 8, 2010 to November 8, 2010. No written comments were submitted during the 30-day comment period.

MAX/cmw  
11/9/10