

SOUTH COAST AQMD
CLERK OF THE BOARDS
2024 JUL 16 AM 8:51

PETITION FOR VARIANCE
BEFORE THE HEARING BOARD OF THE
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

IV 7/18/24
SV 8/29/24

PETITIONER: BOWERMAN POWER LFG, LLC _____ CASE NO: 6088-2 _____
FACILITY ID: 157152 _____

FACILITY ADDRESS: 11006 Bee Canyon Access Road _____
[location of equipment/site of violation; specify business/corporate address, if different, under Item 2, below]

City, State, Zip: Irvine, CA 90602 _____

1. TYPE OF VARIANCE REQUESTED (more than one box may be checked; see Attachment A, Item 1, before selecting)

INTERIM SHORT REGULAR EMERGENCY EX PARTE EMERGENCY

2. CONTACT: Name, title, company (if different than Petitioner), address, and phone number of persons authorized to receive notices regarding this Petition (no more than two authorized persons).

John Cirolli _____	Sharon Frank _____
Chief Legal Officer and Secretary _____	VP, Environmental, Health, and Safety _____
5313 Campbells Run Road, Suite 200 _____	5313 Campbells Run Road, Suite 200 _____
Pittsburgh, PA _____ Zip 15205	Pittsburgh, PA _____ Zip 15205
☎ (412)439-8452 _____ Ext. _____	☎ (412)789-9370 _____ Ext. _____
Fax () _____	Fax () _____
E-mail JCirolli@montaukreneables.com _____	E-mail SFrank@montaukreneables.com _____

3. RECLAIM Permit Yes No Title V Permit Yes No

Persons with disabilities may request this document in an alternative format by contacting the Clerk of the Board at 909-396-2500 or by e-mail at clerkofboard@aqmd.gov.

If you require disability-related accommodations to facilitate participating in the hearing, contact the Clerk of the Board at least five (5) calendar days prior to the hearing.

[ALL DOCUMENTS FILED WITH CLERK'S OFFICE BECOME PUBLIC RECORD]

4. **GOOD CAUSE:** Explain why your petition was not filed in sufficient time to issue the required public notice. (Required only for Emergency and Interim Variances; see Attachment A, Item 4)

April 2024: Changed inlet air filters on all engines as part of E-40 and E-60 regular maintenance required by CAT.

May 6 -May 9, 2024: Conducted annual maintenance on all seven (7) engines that includes post-combustion NOx/CO dual function catalyst brick change-out and guard catalyst change-out. This maintenance includes cleaning of catalyst housing as well as blowing excess dust from new catalyst surfaces.

May 14-15, 2024: Hydrogen Sulfide (H₂S) removal media which is part of the landfill gas (LFG) pre-treatment system was changed out.

May 30 through June 7, 2024: All engines tested for PM and inlet Sulfur as well as other criteria pollutants required by permit (attached). ICE #2 test 6/6/24; ICE #5 test 6/3/24; ICE #6 test 5/31/24; ICE #7 test 5/30/24. The PM and inlet Sulfur samples collected during the tests were sent to an outside laboratory for analytical results.

July 9, 2024: Contractor obtained analytical test results from the lab and notified Bowerman Power that ICE nos. 2, 5, 6 and 7 did not meet PM limits. Test results obtained on July 9, 2024, also showed that inlet Sulfur levels on the same test dates were high (above daily limit of 85 ppm). It was, however, noted that the Sulfur Inlet sample taken on June 7, 2024, was significantly below the daily limit of 85 ppm (25 ppm). It is noted that the daily average H₂S values as read on the Continuous Fuel Gas Monitoring System (CFGMS) for these same days were below the daily limit of 85 ppm.

Based on the laboratory results, it was determined that the inlet Sulfur levels contributed to the high PM emissions. This is confirmed by the large amounts of PM in the impinger condensable catches as noted in the lab analyses. The H₂S media change on May 14-15, 2024, had settled out by the test on June 7, 2024 resulting in compliant inlet Sulfur and exhaust PM emissions from ICE#1 on this date.

July 11, 2024: Bowerman Power has not experienced problems in past source tests with excess PM emissions. The last tests conducted on ICE #2 (6/8/23); ICE #5 (5/31/23); ICE #6 (6/1/23) and ICE#7 (6/2/23) were compliant for PM as well as all other pollutants. Bowerman Power conducted its annual maintenance as required the first week of May and the PM emission exceedances could not reasonably be anticipated based on past compliant results.

Bowerman Power filed this Variance as soon as reasonable based on the receipt and review of laboratory analytical results.

5. Briefly describe the type of business and processes at your facility.

Bowerman Power produces renewable electricity through the combustion of landfill gas collected at the Frank R. Bowerman Landfill in Irvine, CA. Bowerman Power supplies renewable electricity to the grid servicing the City of Anahelm.

6. List the equipment and/or activity(s) that are the subject of this petition (see Attachment A, Item 6, Example #1). **Attach copies of the Permit(s) to Construct and/or Permit(s) to Operate for the subject equipment. For RECLAIM or Title V facilities, attach *only* the relevant sections of the Facility Permit showing the equipment or process and conditions that are subject to this petition. You must bring the entire Facility Permit to the hearing.**

Equipment/Activity	Application/ Permit No.	RECLAIM Device No.	Date Application/Plan Denied (if relevant)*
ICE No. 2	A/N 609225 / G68570	N/A	
ICE No. 5	A/N 609228 / G68573	N/A	
ICE No. 6	A/N 609229 / G68574	N/A	
ICE No. 7	A/N 609234 / G68575	N/A	

*Attach copy of denial letter

7. Briefly describe the activity or equipment, and why it is necessary to the operation of your business. A schematic or diagram may be attached, in addition to the descriptive text.

Each internal combustion engine combusts treated landfill gas, supplying renewable electricity to the energy

grid. All engines need to operate to meet output commitments to the City of Anaheim for renewable electricity.

8. Is there a regular maintenance and/or inspection schedule for this equipment? Yes No

If yes, how often: Annual Date of last maintenance and/or inspection 5/6/24-5/9/24

Describe the maintenance and/or inspection that was performed.

Inlet air filters on each engine were cleaned by outside contractor in April 2024 (part of E-40 and E60 routine maintenance required for CAT engines.)
 Prior to source testing the guard catalysts and NOx/CO dual function catalysts were changed on each engine.
 The H2S pre-treatment media was also changed out.

9. List all District rules, and/or permit conditions [indicating the specific section(s) and subsection(s)] from which you are seeking variance relief (if requesting variance from Rule 401 or permit condition, see Attachment A). Briefly explain how you are or will be in violation of each rule or condition (see Attachment A, Item 9, Example #2).

Rule	Explanation
3002(c) Conditions 8 , 28 and 29 G68570. G68573, G68574, G68574	Exceeding Particulate Matter (PM) emissions limits as measured during annual source test.

10. Are the equipment or activities subject to this request currently under variance coverage? Yes No

Case No.	Date of Action	Final Compliance Date	Explanation

11. Are any other equipment or activities at this location currently (or within the last six months) under variance coverage? Yes No

Case No.	Date of Action	Final Compliance Date	Explanation

12. Were you issued any Notice(s) of Violation or Notice(s) to Comply concerning this equipment or activity within the past year? Yes No

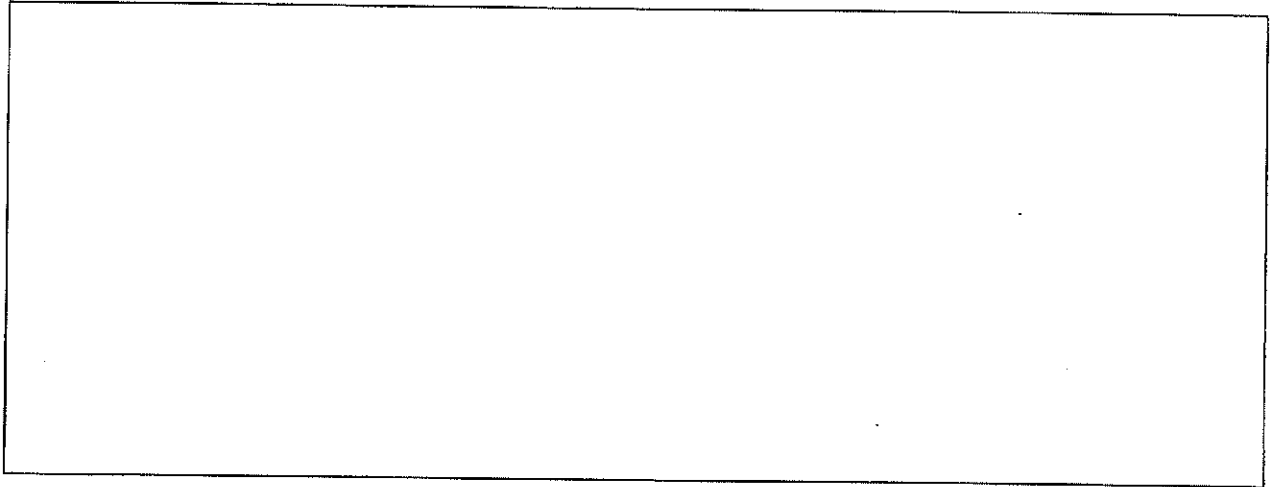
If yes, you must attach a copy of each notice.

13. Have you received any complaints from the public regarding the operation of the subject equipment or activity within the last six months? Yes No

If yes, you should be prepared to present details at the hearing.

14. Explain why it is beyond your reasonable control to comply with the rule(s) and/or permit condition(s). Provide specific event(s) and date(s) of occurrence(s), if applicable.

The engine inlet air filters were changed in April 2024. On May 6-9, 2024, the guard catalyst and SCR NOx/CO dual function catalysts were changed out. Per the timeline indicated in Item No.4 above, Bowerman Power was only made aware of the laboratory results for PM and Sulfur on July 9, 2024. Prior to learning of our excess PM emissions on July 9, 2024, through previous operational experience, it was reasonable to assume that our regular maintenance was sufficient to operate each engine in compliance with the PM permit conditions.



15. When and how did you first become aware that you would not be in compliance with the rule(s) and/or permit condition(s)? Provide specific event(s) and date(s) of occurrence(s).

Bowerman Power learned of the excess PM emissions on 7/9/2024 from our source test contractor.

16. List date(s) and action(s) you have taken since that time to achieve compliance. That the Petition Form HB-V, and any related instructions, include requirement that the Petitioner include a timeline in suitable, chronological format to address the events, dates, and actions called for by Questions 15 and 16, including the dates of communication with the South Coast AQMD to notify them of the occurrence(s) giving rise to the requested variance.

- July 11, 2024 Filed Interim, Short Variance petition for continued operation of ICE Nos. 2, 5, 6, and 7.
- Scheduled PM source tests for August 1, 2024, and August 2, 2024 (Two ICEs per day)
- Engine inlet air filters are being changed again on July 11, 2024.

[Empty rectangular box for response]

17. What would be the harm to your business during **and/or after** the period of the variance if the variance were not granted?

Economic losses: \$11,710 per day _____

Number of employees laid off (if any): N/A _____

Provide detailed information regarding economic losses, if any, (anticipated business closure, breach of contracts, hardship on customers, layoffs, and/or similar impacts).

Potential fines per CA Health and Safety Code, Section 42402(b) for civil penalties up to \$11,710 per violation per day.

[Empty rectangular box for response]

18. Can you curtail or terminate operations in lieu of, or in addition to, obtaining a variance? Please explain.

No, all engines need to operate to meet output commitments to the City of Anaheim for renewable electricity.

19. Estimate excess emissions, if any, on a daily basis, including, if applicable, excess opacity (the percentage of total opacity above 20% during the variance period). If the variance will result in no excess emissions, insert "N/A" here and skip to No. 20.

Pollutant	(A)	(B)	(C)*
	Total Estimated Excess Emissions (lbs/day)	Reduction Due to Mitigation (lbs/day)	Net Emissions After Mitigation (lbs/day)
Particulate Matter (PM)	36,000	36.00	0

* Column A minus Column B = Column C

Excess Opacity: _____ %

20. Show calculations used to estimate quantities in No. 19, or explain why there will be no excess emissions.

See attached excess emissions calculations. Mitigation includes retesting the engines August 1-2, 2024 which will result in compliance with permit limits.

21. Explain how you plan to reduce (mitigate) excess emissions during the variance period to the maximum extent feasible, or why reductions are not feasible.

[YOU MAY ATTACH ADDITIONAL PAGES IF NECESSARY]

Mitigation will include retesting the engines with the clean H₂S pretreatment media and changing the engines' inlet air filters on July 11, 2024. Long term mitigation plans are the change out the H₂S media more frequently based on CFGMS daily readings that approach 60 ppm.

22. How do you plan to monitor or quantify emission levels from the equipment or activity(s) during the variance period, and to make such records available to the District? **Any proposed monitoring does not relieve RECLAIM facilities from applicable missing data requirements.**

PM emissions can only be quantified during source test. PM emissions tests have been scheduled for August 1 and 2, 2024.

23. How do you intend to achieve compliance with the rule(s) and/or permit condition(s)? Include a detailed description of any equipment to be installed, modifications or process changes to be made, permit conditions to be amended, etc., dates by which the actions will be completed, and an estimate of total costs.

We changed the engine inlet air filters on 7/11/24. In addition, The H2S media which is part of the LFG pre-treatment system is expected to reduce inlet Sulfur and therefore, reduce PM in the engine exhaust. Compliance is expected upon retesting the engines on August 1 and August 2, 2024.

24. State the date you are requesting the variance to begin: _____ July 11, 2024 _____ and the date by which you expect to achieve final compliance: _____ September 16, 2024 (source test reports to be submitted prior to this date)_____.

If the regular variance is to extend beyond one year, you must include a **Schedule of Increments of Progress**, specifying dates or time increments for steps needed to achieve compliance. See District Rule 102 for definition of Increments of Progress (see Attachment A, Item 24, Example #3).

List Increments of Progress here:

[Empty rectangular box]

25. List the names of any District personnel with whom facility representatives have had contact concerning this variance petition or any related Notice of Violation or Notice to Comply.

____ N/A _____ Ext. _____
_____ Ext. _____

If the petition was completed by someone other than the petitioner, please provide their name and title below.

Name Company Title

The undersigned, under penalty of perjury, states that the above petition, including attachments and the items therein set forth, is true and correct.

Executed on July 11, 2024, at _____ Pittsburgh, Pennsylvania

Sharon Frank
Signature

Sharon Frank
Print Name

Title: Vice President, Environmental, Health, and Safety

26. SMALL BUSINESS and TABLE III SCHEDULE A FEES: To be eligible for reduced fees for small businesses, individuals, or entities meeting small business gross receipts criterion [see District Rule 303(h)], you must complete the following:

Declaration Re Reduced Fee Eligibility

- 1. The petitioner is
 - a) € an individual, or
 - b) an officer, partner or owner of the petitioner herein, or a duly authorized agent of the petitioner authorized to make the representations set forth herein.

If you selected 1a, above, skip item 2.

- 2. The petitioner is
 - a) € a business that meets the following definition of Small Business as set forth in District Rule 102:
SMALL BUSINESS means a business which is independently owned and operated and meets the following criteria, or if affiliated with another concern, the combined activities of both concerns shall meet these criteria:
 - (a) the number of employees is 10 or less; **AND**
 - (b) the total gross annual receipts are \$500,000 or less or
 - (iii) the facility is a not-for-profit training center.

-OR-

- b) € an entity with total gross annual receipts of \$500,000 or less.
- 3. Therefore, I believe the petitioner qualifies for reduced fees for purpose of filing fees and excess emission fee calculations, in accordance with Rule 303(h).

I declare under penalty of perjury that the foregoing is true and correct.

Executed on _____, at _____, California



**FACILITY PERMIT TO OPERATE
BOWERMAN POWER LFG, LLC**

PERMIT TO OPERATE

**Permit No. G68570
A/N 609225**

Equipment Description:

Landfill gas control and gas-to-energy system consisting of:

1. Pretreated landfill gas (LFG) supply line from the Landfill Gas Treatment System (PTO G55302; A/N 606813).
2. Internal combustion engine, No. 2, Caterpillar, Model No. CG260, landfill gas fueled, four cycles, sixteen cylinders, lean burn, turbocharged, rated at 4650 BHP, driving an electrical generator with a gross electrical output of 3.37 MW.
3. Exhaust stack, 2' - 6" Dia., converging into a common exhaust stack enclosure with six other exhaust stacks, 12' - 0" Dia. x 48' - 0" H.

Conditions:

- 1) Operation of this equipment shall be conducted in accordance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below.
[Rule 204]
- 2) This equipment shall be properly maintained and kept in good operating condition at all times.
[Rule 204]
- 3) This equipment shall be operated by personnel properly trained in its operation.
[Rule 204]
- 4) This engine shall be operated in compliance with all applicable requirements of Rule 1110.2 and Rule 1150.1, whether or not explicitly stated on this permit.
[Rules 204, 1110.2, 1150.1]
- 5) This equipment shall not be operated unless its exhaust is vented to an air pollution control system which is in full use and which has been issued a Permit to Construct/Operate by the Executive Officer, except during engine start-ups and shut-downs.
[Rule 204]
- 6) This engine shall be fired with landfill gas only.
[Rules 204, 1303(b)(2)-Offset]



**FACILITY PERMIT TO OPERATE
BOWERMAN POWER LFG, LLC**

7) The operator shall combust in this engine only landfill gas that does not contain sulfur compounds, calculated as H₂S, in excess of 85 ppmv averaged daily, and 60 ppmv averaged monthly. Compliance with this sulfur concentration limit shall be demonstrated using the readings on total reduced sulfur (in ppmv) obtained from the Continuous Fuel Gas Monitoring System (CFGMS) that is installed downstream of the sulfur removal system and the landfill gas treatment system, at the inlet gas supply line to the engines. In lieu of a CFGMS, the operator shall be allowed to use an alternative monitoring method, provided that the operator submits an alternative monitoring plan for approval no later than 45 days after the date a permit to construct a sulfur removal system is issued, and that the South Coast AQMD, CARB and Region IX EPA Administrator approve the alternative monitoring plan in writing. [Rules 1303 (a)(1)-BACT, 1303 (b)(1)-Modeling, 1303 (b)(2)-Offset, 431.1]

8) The engine emissions shall not exceed the following limits (except during periods of start-up and shutdown which shall not exceed 30 minutes per incident):

<u>Pollutant</u>	<u>ppmv @15% O₂, dry</u>	<u>lbs/hour</u>
Volatile organic compounds (VOC)	30	1.21
Oxides of nitrogen (NO _x)	9.9	1.32
Carbon monoxide (CO)	225	17.75
Sulfur oxides (SO _x)	60 ppm sulfur as H ₂ S (inlet) averaged monthly	0.62
PM ₁₀		0.676

NO_x and CO concentration limits shall be averaged over 48 hours.

VOC shall be averaged over the sampling time required by the test method.

[Rules 1303 (a)(1)-BACT, 1303 (b)(1)-Modeling, 1303 (b)(2)-Offset, 1110.2, 40 CFR Part 63 Subpart ZZZZ, 40 CFR Part 60 Subpart JJJJ]

9) This engine shall not emit any single hazardous air pollutant (HAP) in excess of 10 tons per year, or, any combination of HAPS in excess of 25 tons per year. The operator shall demonstrate compliance with this permit condition by conducting source tests of HAPS, as listed in Section 112(b) of the Clean Air Act or in Rule 1150.1, in accordance with the schedule and test procedures specified in permit condition no. 21, as found in the post-control engine exhaust. [Rule 1150.1, 40 CFR Part 63 Subpart ZZZZ]

10) A continuous flow indicating and recording device shall be installed in the landfill gas supply line to the engine to measure and record the volumetric flow rate of landfill gas (in standard cubic feet per minute) being supplied to the engine. The recording device shall be capable of recording gas flow at least every 15 minutes. [Rules 1150.1, 1303(b)(2)-Offset, 40 CFR Part 62 Subpart F]



**FACILITY PERMIT TO OPERATE
BOWERMAN POWER LFG, LLC**

- 11) The heat input rate for the landfill gas burned in this engine shall not exceed 35.50 million BTU's per hour. The operator shall maintain an electronic data acquisition system or other electronic log to record the average hourly landfill gas flow rate based on readings taken every 15-minute intervals. The high heating value (HHV) and percent methane content of the landfill gas shall be measured at least once per week. The hourly average heat input rate (MMBTU/hour) shall be calculated based on the average hourly LFG flow rate, HHV and percent methane.
[Rule 1303(b) (2)-Offset]
- 12) Gas quality parameters, including but not limited to LFG high heating value and methane percent, shall be monitored and measured using an instrument approved by the South Coast AQMD. The monitor shall be located at the inlet header to all LFG I.C. engines. All results shall be recorded.
[Rule 1303(b) (2)-Offset]
- 13) This equipment shall either reduce the non-methane organic compounds (NMOC) by at least 98 percent by weight or reduce the outlet NMOC concentration to less than 20 ppm by volume, dry basis as hexane at 3 percent oxygen. The operator of this facility does not have to comply with the requirements of 40 CFR Part 62 Subpart F if the facility has received an approved treatment exemption from the USEPA.
[Rule 1150.1, 40 CFR Part 62 Subpart F]
- 14) This equipment shall reduce the outlet methane concentration to less than 3000 ppmv, dry basis, corrected to 15 percent oxygen.
[Rule 1150.1]
- 15) A Continuous Emissions Monitoring System (CEMS) capable of measuring and monitoring NO_x and CO emissions shall be installed, maintained and operated. This CEMS shall:
 - A. Comply with all applicable specifications, certification, operation, record keeping, quality assurance, reporting, performance and testing requirements of South Coast AQMD Rules 218 and 218.1.
 - B. Continuously measure and record NO_x, CO and O₂ exhaust gas concentrations, uncorrected and corrected to 15 percent oxygen on a dry basis.
 - C. Have data gathering and retrieval capability that has been approved by the South Coast AQMD. Data shall be recorded on a strip chart or stored electronically. If data is electronically stored, the operator shall provide for data storage redundancy of at least 15 days and shall demonstrate to the Executive Officer that the stored electronic data is equivalent to the strip chart data.
 - D. Be tested for relative accuracy at least once every two years, or every 8,760 operating hours, whichever occurs first, in accordance with Rule 1110.2. The minimum sampling time for each relative accuracy test shall be 15 minutes.
 - E. Prior to installation or modification, this CEMS monitoring system shall be certified and approved in writing by the Executive Officer.
[Rules 1110.2, 218, 218.1, 3004 (a)(4)]



FACILITY PERMIT TO OPERATE BOWERMAN POWER LFG, LLC

- 16) This engine shall be operated in compliance with all the monitoring, testing, record keeping and reporting requirements of Rule 1110.2, as outlined below:
- A. The operator shall install and maintain an operational non-resettable totalizing time meter on the engine (display reading shall be readily available) to determine the engine elapsed operating time.
 - B. Conduct source testing for VOC reported as carbon concentration in ppm by volume, corrected to 15% oxygen on dry basis, at least once every two years, or every 8,760 operating hours, whichever occurs first. The source test frequency may be reduced to once every three years if the engine has operated less than 2,000 hours since the last source test.

The source test shall be conducted for a minimum of 30 minutes during normal operation (actual duty cycle).

The operator shall use only a source test contractor that is approved by the Executive Officer under the South Coast AQMD's Laboratory Approval Program (LAP) for the necessary test methods. The operator shall comply with the procedures stated in Rule 1110.2, regarding the submittal of source test protocol, source test reports and utilities for sampling and testing equipment.

- C. Maintain a monthly operating engine log (electronic log is acceptable) that includes:
 - (i) Total hours of operation,
 - (ii) Type of gaseous fuel,
 - (iii) Fuel consumption (cubic feet of gas), and
 - (iv) Cumulative hours of operation since the last source test required in Rule 1110.2.

The log shall be made available for inspection at any time.

- D. The operator shall comply with the reporting requirements of Rule 1110.2, pertaining to any equipment breakdown that results in emissions in excess of rule or permit emission limits.
[Rule 1110.2]

- 17) A sampling port shall be installed at the inlet gas line to the engine to allow the collection of a landfill gas sample.
[Rules 217, 431.1, 1150.1]
- 18) Two sampling ports shall be installed and maintained in the engine exhaust 8 to 10 duct diameters downstream and two duct diameters upstream of any flow disturbance, at 90 degrees apart, and shall consist of two 2-1/2 inch welded nipples with caps. An equivalent method for emissions sampling may be used upon approval of the South Coast AQMD. Adequate and safe access to the test ports shall be provided.
[Rule 217]



**FACILITY PERMIT TO OPERATE
BOWERMAN POWER LFG, LLC**

- 19) Operation of this equipment shall not result in the release of raw landfill gas into the atmosphere. Any breakdown or malfunction which results in emissions of raw landfill gas shall be reported to the South Coast AQMD within one hour of occurrence, and immediate remedial measures shall be undertaken to correct the problem and prevent further emissions into the atmosphere.
[Rules 402, 430, 1150.1]
- 20) This engine shall not be operated in such a manner as to interfere with the ability of the landfill operator/owner to comply with South Coast AQMD Rule 1150.1 or any other South Coast AQMD, State or Federal rule limiting landfill gas migration or surface emissions.
[Rule 1150.1]
- 21) Once a year, no later than 45 days after the anniversary date of the initial source test (per Rule 1150.1 requirements), unless otherwise approved by the Executive Officer, the operator shall conduct source tests in accordance with South Coast AQMD approved test procedures and furnish the South Coast AQMD with written results of such source tests within 60 days after testing. Written notice of the source tests shall be provided to the South Coast AQMD ten (10) days prior to the testing so that an observer may be present. All source testing and analytical methods shall be submitted to the South Coast AQMD for approval at least 60 days prior to start of tests. The tests shall include, but may not be limited to, a test of the inlet fuel gas to the engine and the engine exhaust for:
- A. Methane
 - B. Total non-methane organics
 - C. Oxides of nitrogen (exhaust only)
 - D. Carbon monoxide (exhaust only)
 - E. Total particulates (exhaust only)
 - F. Hydrogen sulfide (inlet only)
 - G. C1 through C3 sulfur compounds and total reduced sulfur, as H₂S (speciated, inlet only)
 - H. Carbon dioxide
 - I. Aldehydes (exhaust only)
 - J. Rule 1150.1 toxic air contaminants (TAC) including, but not limited to, benzene, chlorobenzene, 1,2-dichloroethane, 1,1-dichloroethene, dichloromethane, tetrachloroethylene, tetrachloromethane, vinyl chloride, acetaldehyde, formaldehyde, 1,4-dioxane and xylene isomers.
 - K. Oxygen
 - L. Nitrogen
 - M. Moisture content
 - N. Temperature
 - O. Flow rate
 - P. NMOC destruction efficiency
 - Q. Methane destruction efficiency
 - R. BTU content (inlet only)
- [Rules 1150.1, 1303(a)(1)-BACT, 1303(b)(2)-Offset]
- 22) All recording devices shall be synchronized with respect to the time of day.
[Rule 1303(b) (2)-Offset]



**FACILITY PERMIT TO OPERATE
BOWERMAN POWER LFG, LLC**

- 23) All records required by this permit shall be retained at the facility for a minimum of five years, and shall be made available to any South Coast AQMD representative upon request.
[Rules 3004 (a)(4), 1110.2, 1150.1, 40 CFR Part 62 Subpart F]
- 24) Pertaining to the operation of this equipment, the operator shall comply with all applicable requirements of the following Code of Federal Regulations: Title 40 Part 62 Subpart F Landfill Gas Emissions From Existing Municipal Solid Waste Landfills; Title 40 Part 63 Subpart AAAA - National Emission Standards for Hazardous Air Pollutants for Municipal Solid Waste Landfills; Title 40 Part 63 Subpart ZZZZ - National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines; and Title 40 Part 60 Subpart JJJJ - Standards of Performance for Stationary Spark Ignition Internal Combustion Engines.
[40 CFR Part 60 Subparts and JJJJ, 40 CFR Part 62 Subpart F, 40 CFR Part 63 Subparts AAAA and ZZZZ]
- 25) The total annual NOx emissions from the seven (7) landfill gas fired engines permitted under application numbers 609224, 609225, 609225, 609226, 609227, 609228, 609229, and 609234, shall be less than 40 tons per year. The operator shall maintain adequate records to demonstrate compliance with this emission limit. Records shall include, but not be limited to, NOx emission readings from the Continuous Emissions Monitor (CEMS) of each engine converted to pounds per hour and pounds per year.
[Rules 1701, 1702, 1703]
- 26) If the CEMS unit is replaced or recertified between 01/01/2022 and 01/01/2025, the unit is subject to applicable provisions of Rules 218.2 and 218.3. The applicable requirements of Rules 218.2 and 218.3 shall apply no later than 01/01/2025.
[Rules 218, 218.1, 218.2, 218.3]
- 27) The engine shall not emit more than 31.72 lbs of NOx and 426.04 lbs of CO in any one day.
[Rules 1303 (a)(1)-BACT, 1303 (b)(2)-Offset]
- 28) The engine emissions shall not exceed the following monthly limits:

Pollutant	lb/month
Volatile organic compounds (VOC)	883.3
Oxides of nitrogen (NOx)	841.0
Carbon monoxide (CO)	11,635.5
Sulfur oxides (SOx)	452.6
PM ₁₀	493.5



**FACILITY PERMIT TO OPERATE
BOWERMAN POWER LFG, LLC**

Emissions and Requirements:

28) This equipment is subject to the applicable requirements of the following rules and regulations:

- CO: 225 ppmv @15% O₂, dry, Rule 1110.2
- CO: 250 ppmv @15% O₂, dry, Rule 1303 (a)(1)-BACT
- CO: 610 ppmv @15% O₂, dry, 40 CFR Part 60 Subpart JJJJ, 40 CFR Part 63 Subpart ZZZZ
- NOx: 11 ppmv @15% O₂, dry, 1303 (a)(1)-BACT
- NOx: 9.9 ppmv @15% O₂, dry, Rule 1110.2
- NOx: 150 ppmv @15% O₂, dry, 40 CFR Part 60 Subpart JJJJ, 40 CFR Part 63 Subpart ZZZZ
- NMOC: 20 ppmv, as hexane, @3% O₂, dry, or 98% by weight reduction, Rule 1150.1,
40 CFR Part 62 Subpart F, 40 CFR Part 63 Subpart AAAA
- PM: Rule 404, see Appendix B for emission limits
- PM: 0.066 grams/bhp-hr, 1303 (a)(1)-BACT
- ROG: 30 ppmv @15% O₂, dry, Rule 1110.2
- ROG: 30 ppmv @15% O₂, dry, 1303 (a)(1)-BACT
- ROG: 80 ppmv @15% O₂, dry, 40 CFR Part 60 Subpart JJJJ, 40 CFR Part 63 Subpart ZZZZ
- SOx: Based on 60 ppmv sulfur averaged monthly, as H₂S, concentration in LFG at inlet,
Rule 1303(a)(1)-BACT



**FACILITY PERMIT TO OPERATE
BOWERMAN POWER LFG, LLC**

PERMIT TO OPERATE

Permit No. G68573
A/N 609228

Equipment Description:

Landfill gas control and gas-to-energy system consisting of:

1. Pretreated landfill gas (LFG) supply line from the Landfill Gas Treatment System (PTO G55302; A/N 606813).
2. Internal combustion engine, No. 5, Caterpillar, Model No. CG260, landfill gas fueled, four cycles, sixteen cylinders, lean burn, turbocharged, rated at 4650 BHP, driving an electrical generator with a gross electrical output of 3.37 MW.
3. Exhaust stack, 2' - 6" Dia., converging into a common exhaust stack enclosure with six other exhaust stacks, 12' - 0" Dia. x 48' - 0" H.

Conditions:

- 1) Operation of this equipment shall be conducted in accordance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below.
[Rule 204]
- 2) This equipment shall be properly maintained and kept in good operating condition at all times.
[Rule 204]
- 3) This equipment shall be operated by personnel properly trained in its operation.
[Rule 204]
- 4) This engine shall be operated in compliance with all applicable requirements of Rule 1110.2 and Rule 1150.1, whether or not explicitly stated on this permit.
[Rules 204, 1110.2, 1150.1]
- 5) This equipment shall not be operated unless its exhaust is vented to an air pollution control system which is in full use and which has been issued a Permit to Construct/Operate by the Executive Officer, except during engine start-ups and shut-downs.
[Rule 204]
- 6) This engine shall be fired with landfill gas only.
[Rules 204, 1303(b)(2)-Offset]



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7) The operator shall combust in this engine only landfill gas that does not contain sulfur compounds, calculated as H₂S, in excess of 85 ppmv averaged daily, and 60 ppmv averaged monthly. Compliance with this sulfur concentration limit shall be demonstrated using the readings on total reduced sulfur (in ppmv) obtained from the Continuous Fuel Gas Monitoring System (CFGMS) that is installed downstream of the sulfur removal system and the landfill gas treatment system, at the inlet gas supply line to the engines. In lieu of a CFGMS, the operator shall be allowed to use an alternative monitoring method, provided that the operator submits an alternative monitoring plan for approval no later than 45 days after the date a permit to construct a sulfur removal system is issued, and that the South Coast AQMD, CARB and Region IX EPA Administrator approve the alternative monitoring plan in writing. [Rules 1303 (a)(1)-BACT, 1303 (b)(1)-Modeling, 1303 (b)(2)-Offset, 431.1]

8) The engine emissions shall not exceed the following limits (except during periods of start-up and shutdown which shall not exceed 30 minutes per incident):

<u>Pollutant</u>	<u>ppmv @15% O₂, dry</u>	<u>lbs/hour</u>
Volatile organic compounds (VOC)	30	1.21
Oxides of nitrogen (NO _x)	9.9	1.32
Carbon monoxide (CO)	225	17.75
Sulfur oxides (SO _x)	60 ppm sulfur as H ₂ S (inlet) averaged monthly	0.62
PM ₁₀		0.676

NO_x and CO concentration limits shall be averaged over 48 hours.

VOC shall be averaged over the sampling time required by the test method.

[Rules 1303 (a)(1)-BACT, 1303 (b)(1)-Modeling, 1303 (b)(2)-Offset, 1110.2, 40 CFR Part 63 Subpart ZZZZ, 40 CFR Part 60 Subpart JJJJ]

9) This engine shall not emit any single hazardous air pollutant (HAP) in excess of 10 tons per year, or, any combination of HAPS in excess of 25 tons per year. The operator shall demonstrate compliance with this permit condition by conducting source tests of HAPS, as listed in Section 112(b) of the Clean Air Act or in Rule 1150.1, in accordance with the schedule and test procedures specified in permit condition no. 21, as found in the post-control engine exhaust. [Rule 1150.1, 40 CFR Part 63 Subpart ZZZZ]

10) A continuous flow indicating and recording device shall be installed in the landfill gas supply line to the engine to measure and record the volumetric flow rate of landfill gas (in standard cubic feet per minute) being supplied to the engine. The recording device shall be capable of recording gas flow at least every 15 minutes. [Rules 1150.1, 1303(b)(2)-Offset, 40 CFR Part 62 Subpart F]



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- 11) The heat input rate for the landfill gas burned in this engine shall not exceed 35.50 million BTU's per hour. The operator shall maintain an electronic data acquisition system or other electronic log to record the average hourly landfill gas flow rate based on readings taken every 15-minute intervals. The high heating value (HHV) and percent methane content of the landfill gas shall be measured at least once per week. The hourly average heat input rate (MMBTU/hour) shall be calculated based on the average hourly LFG flow rate, HHV and percent methane.
[Rule 1303(b) (2)-Offset]
- 12) Gas quality parameters, including but not limited to LFG high heating value and methane percent, shall be monitored and measured using an instrument approved by the South Coast AQMD. The monitor shall be located at the inlet header to all LFG I.C. engines. All results shall be recorded.
[Rule 1303(b) (2)-Offset]
- 13) This equipment shall either reduce the non-methane organic compounds (NMOC) by at least 98 percent by weight or reduce the outlet NMOC concentration to less than 20 ppm by volume, dry basis as hexane at 3 percent oxygen. The operator of this facility does not have to comply with the requirements of 40 CFR Part 62 Subpart F if the facility has received an approved treatment exemption from the USEPA.
[Rule 1150.1, 40 CFR Part 62 Subpart F]
- 14) This equipment shall reduce the outlet methane concentration to less than 3000 ppmv, dry basis, corrected to 15 percent oxygen.
[Rule 1150.1]
- 15) A Continuous Emissions Monitoring System (CEMS) capable of measuring and monitoring NO_x and CO emissions shall be installed, maintained and operated. This CEMS shall:
 - A. Comply with all applicable specifications, certification, operation, record keeping, quality assurance, reporting, performance and testing requirements of South Coast AQMD Rules 218 and 218.1.
 - B. Continuously measure and record NO_x, CO and O₂ exhaust gas concentrations, uncorrected and corrected to 15 percent oxygen on a dry basis.
 - C. Have data gathering and retrieval capability that has been approved by the South Coast AQMD. Data shall be recorded on a strip chart or stored electronically. If data is electronically stored, the operator shall provide for data storage redundancy of at least 15 days and shall demonstrate to the Executive Officer that the stored electronic data is equivalent to the strip chart data.
 - D. Be tested for relative accuracy at least once every two years, or every 8,760 operating hours, whichever occurs first, in accordance with Rule 1110.2. The minimum sampling time for each relative accuracy test shall be 15 minutes.
 - E. Prior to installation or modification, this CEMS monitoring system shall be certified and approved in writing by the Executive Officer.
[Rules 1110.2, 218, 218.1, 3004 (a)(4)]



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16) This engine shall be operated in compliance with all the monitoring, testing, record keeping and reporting requirements of Rule 1110.2, as outlined below:

- A. The operator shall install and maintain an operational non-resettable totalizing time meter on the engine (display reading shall be readily available) to determine the engine elapsed operating time.
- B. Conduct source testing for VOC reported as carbon concentration in ppm by volume, corrected to 15% oxygen on dry basis, at least once every two years, or every 8,760 operating hours, whichever occurs first. The source test frequency may be reduced to once every three years if the engine has operated less than 2,000 hours since the last source test.

The source test shall be conducted for a minimum of 30 minutes during normal operation (actual duty cycle).

The operator shall use only a source test contractor that is approved by the Executive Officer under the South Coast AQMD's Laboratory Approval Program (LAP) for the necessary test methods. The operator shall comply with the procedures stated in Rule 1110.2, regarding the submittal of source test protocol, source test reports and utilities for sampling and testing equipment.

- C. Maintain a monthly operating engine log (electronic log is acceptable) that includes:
 - (i) Total hours of operation,
 - (ii) Type of gaseous fuel,
 - (iii) Fuel consumption (cubic feet of gas), and
 - (iv) Cumulative hours of operation since the last source test required in Rule 1110.2.

The log shall be made available for inspection at any time.

- D. The operator shall comply with the reporting requirements of Rule 1110.2, pertaining to any equipment breakdown that results in emissions in excess of rule or permit emission limits.
[Rule 1110.2]

17) A sampling port shall be installed at the inlet gas line to the engine to allow the collection of a landfill gas sample.
[Rules 217, 431.1, 1150.1]

18) Two sampling ports shall be installed and maintained in the engine exhaust 8 to 10 duct diameters downstream and two duct diameters upstream of any flow disturbance, at 90 degrees apart, and shall consist of two 2-1/2 inch welded nipples with caps. An equivalent method for emissions sampling may be used upon approval of the South Coast AQMD. Adequate and safe access to the test ports shall be provided.
[Rule 217]



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- 19) Operation of this equipment shall not result in the release of raw landfill gas into the atmosphere. Any breakdown or malfunction which results in emissions of raw landfill gas shall be reported to the South Coast AQMD within one hour of occurrence, and immediate remedial measures shall be undertaken to correct the problem and prevent further emissions into the atmosphere.
[Rules 402, 430, 1150.1]
- 20) This engine shall not be operated in such a manner as to interfere with the ability of the landfill operator/owner to comply with South Coast AQMD Rule 1150.1 or any other South Coast AQMD, State or Federal rule limiting landfill gas migration or surface emissions.
[Rule 1150.1]
- 21) Once a year, no later than 45 days after the anniversary date of the initial source test (per Rule 1150.1 requirements), unless otherwise approved by the Executive Officer, the operator shall conduct source tests in accordance with South Coast AQMD approved test procedures and furnish the South Coast AQMD with written results of such source tests within 60 days after testing. Written notice of the source tests shall be provided to the South Coast AQMD ten (10) days prior to the testing so that an observer may be present. All source testing and analytical methods shall be submitted to the South Coast AQMD for approval at least 60 days prior to start of tests. The tests shall include, but may not be limited to, a test of the inlet fuel gas to the engine and the engine exhaust for:
- A. Methane
 - B. Total non-methane organics
 - C. Oxides of nitrogen (exhaust only)
 - D. Carbon monoxide (exhaust only)
 - E. Total particulates (exhaust only)
 - F. Hydrogen sulfide (inlet only)
 - G. C1 through C3 sulfur compounds and total reduced sulfur, as H₂S (speciated, inlet only)
 - H. Carbon dioxide
 - I. Aldehydes (exhaust only)
 - J. Rule 1150.1 toxic air contaminants (TAC) including, but not limited to, benzene, chlorobenzene, 1,2-dichloroethane, 1,1-dichloroethene, dichloromethane, tetrachloroethylene, tetrachloromethane, vinyl chloride, acetaldehyde, formaldehyde, 1,4-dioxane and xylene isomers.
 - K. Oxygen
 - L. Nitrogen
 - M. Moisture content
 - N. Temperature
 - O. Flow rate
 - P. NMOC destruction efficiency
 - Q. Methane destruction efficiency
 - R. BTU content (inlet only)
- [Rules 1150.1, 1303(a)(1)-BACT, 1303(b)(2)-Offset]
- 22) All recording devices shall be synchronized with respect to the time of day.
[Rule 1303(b) (2)-Offset]



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- 23) All records required by this permit shall be retained at the facility for a minimum of five years, and shall be made available to any South Coast AQMD representative upon request.
[Rules 3004 (a)(4), 1110.2, 1150.1, 40 CFR Part 62 Subpart F]
- 24) Pertaining to the operation of this equipment, the operator shall comply with all applicable requirements of the following Code of Federal Regulations: Title 40 Part 62 Subpart F - Landfill Gas Emissions From Existing Municipal Solid Waste Landfills; Title 40 Part 63 Subpart AAAA - National Emission Standards for Hazardous Air Pollutants for Municipal Solid Waste Landfills; Title 40 Part 63 Subpart ZZZZ - National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines; and Title 40 Part 60 Subpart JJJJ - Standards of Performance for Stationary Spark Ignition Internal Combustion Engines.
[40 CFR Part 60 Subpart and JJJJ, 40 CFR Part 62 Subpart F, 40 CFR Part 63 Subparts AAAA and ZZZZ]
- 25) The total annual NOx emissions from the seven (7) landfill gas fired engines permitted under application numbers 609224, 609225, 609225, 609226, 609227, 609228, 609229, and 609234, shall be less than 40 tons per year. The operator shall maintain adequate records to demonstrate compliance with this emission limit. Records shall include, but not be limited to, NOx emission readings from the Continuous Emissions Monitor (CEMS) of each engine converted to pounds per hour and pounds per year.
[Rules 1701, 1702, 1703]
- 26) If the CEMS unit is replaced or recertified between 01/01/2022 and 01/01/2025, the unit is subject to applicable provisions of Rules 218.2 and 218.3. The applicable requirements of Rules 218.2 and 218.3 shall apply no later than 01/01/2025.
[Rules 218, 218.1, 218.2, 218.3]
- 27) The engine shall not emit more than 31.72 lbs of NOx and 426.04 lbs of CO in any one day.
[Rules 1303 (a)(1)-BACT, 1303 (b)(2)-Offset]
- 28) The engine emissions shall not exceed the following monthly limits:

Pollutant	lb/month
Volatile organic compounds (VOC)	883.3
Oxides of nitrogen (NOx)	841.0
Carbon monoxide (CO)	11,635.5
Sulfur oxides (SOx)	452.6
PM ₁₀	493.5



**FACILITY PERMIT TO OPERATE
BOWERMAN POWER LFG, LLC**

Emissions and Requirements:

29) This equipment is subject to the applicable requirements of the following rules and regulations:

- CO: 225 ppmv @15% O₂, dry, Rule 1110.2
- CO: 250 ppmv @15% O₂, dry, Rule 1303 (a)(1)-BACT
- CO: 610 ppmv @15% O₂, dry, 40 CFR Part 60 Subpart JJJJ, 40 CFR Part 63 Subpart ZZZZ
- NOx: 11 ppmv @15% O₂, dry, 1303 (a)(1)-BACT
- NOx: 9.9 ppmv @15% O₂, dry, Rule 1110.2
- NOx: 150 ppmv @15% O₂, dry, 40 CFR Part 60 Subpart JJJJ, 40 CFR Part 63 Subpart ZZZZ
- NMOC: 20 ppmv, as hexane, @3% O₂, dry, or 98% by weight reduction, Rule 1150.1,
40 CFR Part 62 Subpart F, 40 CFR Part 63 Subpart AAAA
- PM: Rule 404, see Appendix B for emission limits
- PM: 0.066 grams/bhp-hr, 1303 (a)(1)-BACT
- ROG: 30 ppmv @15% O₂, dry, Rule 1110.2
- ROG: 30 ppmv @15% O₂, dry, 1303 (a)(1)-BACT
- ROG: 80 ppmv @15% O₂, dry, 40 CFR Part 60 Subpart JJJJ, 40 CFR Part 63 Subpart ZZZZ
- SOx: Based on 60 ppmv sulfur averaged monthly, as H₂S, concentration in LFG at inlet,
Rule 1303(a)(1)-BACT



**FACILITY PERMIT TO OPERATE
BOWERMAN POWER LFG, LLC**

PERMIT TO OPERATE

Permit No. G68574
A/N 609229

Equipment Description:

Landfill gas control and gas-to-energy system consisting of:

1. Pretreated landfill gas (LFG) supply line from the Landfill Gas Treatment System (PTO G55302; A/N 606813).
2. Internal combustion engine, No. 6, Caterpillar, Model No. CG260, landfill gas fueled, four cycles, sixteen cylinders, lean burn, turbocharged, rated at 4650 BHP, driving an electrical generator with a gross electrical output of 3.37 MW.
3. Exhaust stack, 2' - 6" Dia., converging into a common exhaust stack enclosure with six other exhaust stacks, 12' - 0" Dia. x 48' - 0" H.

Conditions:

- 1) Operation of this equipment shall be conducted in accordance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below.
[Rule 204]
- 2) This equipment shall be properly maintained and kept in good operating condition at all times.
[Rule 204]
- 3) This equipment shall be operated by personnel properly trained in its operation.
[Rule 204]
- 4) This engine shall be operated in compliance with all applicable requirements of Rule 1110.2 and Rule 1150.1, whether or not explicitly stated on this permit.
[Rules 204, 1110.2, 1150.1]
- 5) This equipment shall not be operated unless its exhaust is vented to an air pollution control system which is in full use and which has been issued a Permit to Construct/Operate by the Executive Officer, except during engine start-ups and shut-downs.
[Rule 204]
- 6) This engine shall be fired with landfill gas only.
[Rules 204, 1303(b)(2)-Offset]



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7) The operator shall combust in this engine only landfill gas that does not contain sulfur compounds, calculated as H₂S, in excess of 85 ppmv averaged daily, and 60 ppmv averaged monthly. Compliance with this sulfur concentration limit shall be demonstrated using the readings on total reduced sulfur (in ppmv) obtained from the Continuous Fuel Gas Monitoring System (CFGMS) that is installed downstream of the sulfur removal system and the landfill gas treatment system, at the inlet gas supply line to the engines. In lieu of a CFGMS, the operator shall be allowed to use an alternative monitoring method, provided that the operator submits an alternative monitoring plan for approval no later than 45 days after the date a permit to construct a sulfur removal system is issued, and that the South Coast AQMD, CARB and Region IX EPA Administrator approve the alternative monitoring plan in writing. [Rules 1303 (a)(1)-BACT, 1303 (b)(1)-Modeling, 1303 (b)(2)-Offset, 431.1]

8) The engine emissions shall not exceed the following limits (except during periods of start-up and shutdown which shall not exceed 30 minutes per incident):

<u>Pollutant</u>	<u>ppmv @15% O₂, dry</u>	<u>lbs/hour</u>
Volatile organic compounds (VOC)	30	1.21
Oxides of nitrogen (NO _x)	9.9	1.32
Carbon monoxide (CO)	225	17.75
Sulfur oxides (SO _x)	60 ppm sulfur as H ₂ S (inlet) averaged monthly	0.62
PM ₁₀		0.676

NO_x and CO concentration limits shall be averaged over 48 hours.

VOC shall be averaged over the sampling time required by the test method.

[Rules 1303 (a)(1)-BACT, 1303 (b)(1)-Modeling, 1303 (b)(2)-Offset, 1110.2, 40 CFR Part 63 Subpart ZZZZ, 40 CFR Part 60 Subpart JJJJ]

9) This engine shall not emit any single hazardous air pollutant (HAP) in excess of 10 tons per year, or, any combination of HAPS in excess of 25 tons per year. The operator shall demonstrate compliance with this permit condition by conducting source tests of HAPS, as listed in Section 112(b) of the Clean Air Act or in Rule 1150.1, in accordance with the schedule and test procedures specified in permit condition no. 21, as found in the post-control engine exhaust. [Rule 1150.1, 40 CFR Part 63 Subpart ZZZZ]

10) A continuous flow indicating and recording device shall be installed in the landfill gas supply line to the engine to measure and record the volumetric flow rate of landfill gas (in standard cubic feet per minute) being supplied to the engine. The recording device shall be capable of recording gas flow at least every 15 minutes. [Rules 1150.1, 1303(b)(2)-Offset, 40 CFR Part 62 Subpart F]



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- 11) The heat input rate for the landfill gas burned in this engine shall not exceed 35.50 million BTU's per hour. The operator shall maintain an electronic data acquisition system or other electronic log to record the average hourly landfill gas flow rate based on readings taken every 15-minute intervals. The high heating value (HHV) and percent methane content of the landfill gas shall be measured at least once per week. The hourly average heat input rate (MMBTU/hour) shall be calculated based on the average hourly LFG flow rate, HHV and percent methane.
[Rule 1303(b) (2)-Offset]
- 12) Gas quality parameters, including but not limited to LFG high heating value and methane percent, shall be monitored and measured using an instrument approved by the South Coast AQMD. The monitor shall be located at the inlet header to all LFG I.C. engines. All results shall be recorded.
[Rule 1303(b) (2)-Offset]
- 13) This equipment shall either reduce the non-methane organic compounds (NMOC) by at least 98 percent by weight or reduce the outlet NMOC concentration to less than 20 ppm by volume, dry basis as hexane at 3 percent oxygen. The operator of this facility does not have to comply with the requirements of 40 CFR Part 62 Subpart F if the facility has received an approved treatment exemption from the USEPA.
[Rule 1150.1, 40 CFR Part 62 Subpart F]
- 14) This equipment shall reduce the outlet methane concentration to less than 3000 ppmv, dry basis, corrected to 15 percent oxygen.
[Rule 1150.1]
- 15) A Continuous Emissions Monitoring System (CEMS) capable of measuring and monitoring NO_x and CO emissions shall be installed, maintained and operated. This CEMS shall:
 - A. Comply with all applicable specifications, certification, operation, record keeping, quality assurance, reporting, performance and testing requirements of South Coast AQMD Rules 218 and 218.1.
 - B. Continuously measure and record NO_x, CO and O₂ exhaust gas concentrations, uncorrected and corrected to 15 percent oxygen on a dry basis.
 - C. Have data gathering and retrieval capability that has been approved by the South Coast AQMD. Data shall be recorded on a strip chart or stored electronically. If data is electronically stored, the operator shall provide for data storage redundancy of at least 15 days and shall demonstrate to the Executive Officer that the stored electronic data is equivalent to the strip chart data.
 - D. Be tested for relative accuracy at least once every two years, or every 8,760 operating hours, whichever occurs first, in accordance with Rule 1110.2. The minimum sampling time for each relative accuracy test shall be 15 minutes.
 - E. Prior to installation or modification, this CEMS monitoring system shall be certified and approved in writing by the Executive Officer.
[Rules 1110.2, 218, 218.1, 3004 (a)(4)]



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- 16) This engine shall be operated in compliance with all the monitoring, testing, record keeping and reporting requirements of Rule 1110.2, as outlined below:
- A. The operator shall install and maintain an operational non-resettable totalizing time meter on the engine (display reading shall be readily available) to determine the engine elapsed operating time.
 - B. Conduct source testing for VOC reported as carbon concentration in ppm by volume, corrected to 15% oxygen on dry basis, at least once every two years, or every 8,760 operating hours, whichever occurs first. The source test frequency may be reduced to once every three years if the engine has operated less than 2,000 hours since the last source test.

The source test shall be conducted for a minimum of 30 minutes during normal operation (actual duty cycle).

The operator shall use only a source test contractor that is approved by the Executive Officer under the South Coast AQMD's Laboratory Approval Program (LAP) for the necessary test methods. The operator shall comply with the procedures stated in Rule 1110.2, regarding the submittal of source test protocol, source test reports and utilities for sampling and testing equipment.

- C. Maintain a monthly operating engine log (electronic log is acceptable) that includes:
 - (i) Total hours of operation,
 - (ii) Type of gaseous fuel,
 - (iii) Fuel consumption (cubic feet of gas), and
 - (iv) Cumulative hours of operation since the last source test required in Rule 1110.2.

The log shall be made available for inspection at any time.

- D. The operator shall comply with the reporting requirements of Rule 1110.2, pertaining to any equipment breakdown that results in emissions in excess of rule or permit emission limits.
[Rule 1110.2]
- 17) A sampling port shall be installed at the inlet gas line to the engine to allow the collection of a landfill gas sample.
[Rules 217, 431.1, 1150.1]
- 18) Two sampling ports shall be installed and maintained in the engine exhaust 8 to 10 duct diameters downstream and two duct diameters upstream of any flow disturbance, at 90 degrees apart, and shall consist of two 2-1/2 inch welded nipples with caps. An equivalent method for emissions sampling may be used upon approval of the South Coast AQMD. Adequate and safe access to the test ports shall be provided.
[Rule 217]



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- 19) Operation of this equipment shall not result in the release of raw landfill gas into the atmosphere. Any breakdown or malfunction which results in emissions of raw landfill gas shall be reported to the South Coast AQMD within one hour of occurrence, and immediate remedial measures shall be undertaken to correct the problem and prevent further emissions into the atmosphere.
[Rules 402, 430, 1150.1]
- 20) This engine shall not be operated in such a manner as to interfere with the ability of the landfill operator/owner to comply with South Coast AQMD Rule 1150.1 or any other South Coast AQMD, State or Federal rule limiting landfill gas migration or surface emissions.
[Rule 1150.1]
- 21) Once a year, no later than 45 days after the anniversary date of the initial source test (per Rule 1150.1 requirements), unless otherwise approved by the Executive Officer, the operator shall conduct source tests in accordance with South Coast AQMD approved test procedures and furnish the South Coast AQMD with written results of such source tests within 60 days after testing. Written notice of the source tests shall be provided to the South Coast AQMD ten (10) days prior to the testing so that an observer may be present. All source testing and analytical methods shall be submitted to the South Coast AQMD for approval at least 60 days prior to start of tests. The tests shall include, but may not be limited to, a test of the inlet fuel gas to the engine and the engine exhaust for:
- A. Methane
 - B. Total non-methane organics
 - C. Oxides of nitrogen (exhaust only)
 - D. Carbon monoxide (exhaust only)
 - E. Total particulates (exhaust only)
 - F. Hydrogen sulfide (inlet only)
 - G. C1 through C3 sulfur compounds and total reduced sulfur, as H₂S (speciated, inlet only)
 - H. Carbon dioxide
 - I. Aldehydes (exhaust only)
 - J. Rule 1150.1 toxic air contaminants (TAC) including, but not limited to, benzene, chlorobenzene, 1,2-dichloroethane, 1,1-dichloroethene, dichloromethane, tetrachloroethylene, tetrachloromethane, vinyl chloride, acetaldehyde, formaldehyde, 1,4-dioxane and xylene isomers.
 - K. Oxygen
 - L. Nitrogen
 - M. Moisture content
 - N. Temperature
 - O. Flow rate
 - P. NMOC destruction efficiency
 - Q. Methane destruction efficiency
 - R. BTU content (inlet only)
- [Rules 1150.1, 1303(a)(1)-BACT, 1303(b)(2)-Offset]
- 22) All recording devices shall be synchronized with respect to the time of day.
[Rule 1303(b) (2)-Offset]



**FACILITY PERMIT TO OPERATE
BOWERMAN POWER LFG, LLC**

- 23) All records required by this permit shall be retained at the facility for a minimum of five years, and shall be made available to any South Coast AQMD representative upon request.
[Rules 3004 (a)(4), 1110.2, 1150.1, 40 CFR Part 62 Subpart F]
- 24) Pertaining to the operation of this equipment, the operator shall comply with all applicable requirements of the following Code of Federal Regulations: Title 40 Part 62 Subpart F - Landfill Gas Emissions From Existing Municipal Solid Waste Landfills; Title 40 Part 63 Subpart AAAA - National Emission Standards for Hazardous Air Pollutants for Municipal Solid Waste Landfills; Title 40 Part 63 Subpart ZZZZ - National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines; and Title 40 Part 60 Subpart JJJJ - Standards of Performance for Stationary Spark Ignition Internal Combustion Engines.
[40 CFR Part 60 Subpart and JJJJ, 40 CFR Part 62 Subpart F, 40 CFR Part 63 Subparts AAAA and ZZZZ]
- 25) The total annual NOx emissions from the seven (7) landfill gas fired engines permitted under application numbers 609224, 609225, 609225, 609226, 609227, 609228, 609229, and 609234, shall be less than 40 tons per year. The operator shall maintain adequate records to demonstrate compliance with this emission limit. Records shall include, but not be limited to, NOx emission readings from the Continuous Emissions Monitor (CEMS) of each engine converted to pounds per hour and pounds per year.
[Rules 1701, 1702, 1703]
- 26) If the CEMS unit is replaced or recertified between 01/01/2022 and 01/01/2025, the unit is subject to applicable provisions of Rules 218.2 and 218.3. The applicable requirements of Rules 218.2 and 218.3 shall apply no later than 01/01/2025.
[Rules 218, 218.1, 218.2, 218.3]
- 27) The engine shall not emit more than 31.72 lbs of NOx and 426.04 lbs of CO in any one day.
[Rules 1303 (a)(1)-BACT, 1303 (b)(2)-Offset]
- 28) The engine emissions shall not exceed the following monthly limits:

Pollutant	lb/month
Volatile organic compounds (VOC)	883.3
Oxides of nitrogen (NOx)	841.0
Carbon monoxide (CO)	11,635.5
Sulfur oxides (SOx)	452.6
PM ₁₀	493.5



**FACILITY PERMIT TO OPERATE
BOWERMAN POWER LFG, LLC**

Emissions and Requirements:

- 29) This equipment is subject to the applicable requirements of the following rules and regulations:
- CO: 225 ppmv @15% O₂, dry, Rule 1110.2
 - CO: 250 ppmv @15% O₂, dry, Rule 1303 (a)(1)-BACT
 - CO: 610 ppmv @15% O₂, dry, 40 CFR Part 60 Subpart JJJJ, 40 CFR Part 63 Subpart ZZZZ
 - NOx: 11 ppmv @15% O₂, dry, 1303 (a)(1)-BACT
 - NOx: 9.9 ppmv @15% O₂, dry, Rule 1110.2
 - NOx: 150 ppmv @15% O₂, dry, 40 CFR Part 60 Subpart JJJJ, 40 CFR Part 63 Subpart ZZZZ
 - NMOC: 20 ppmv, as hexane, @3% O₂, dry, or 98% by weight reduction, Rule 1150.1,
40 CFR Part 62 Subpart F, 40 CFR Part 63 Subpart AAAA
 - PM: Rule 404, see Appendix B for emission limits
 - PM: 0.066 grams/bhp-hr, 1303 (a)(1)-BACT
 - ROG: 30 ppmv @15% O₂, dry, Rule 1110.2
 - ROG: 30 ppmv @15% O₂, dry, 1303 (a)(1)-BACT
 - ROG: 80 ppmv @15% O₂, dry, 40 CFR Part 60 Subpart JJJJ, 40 CFR Part 63 Subpart ZZZZ
 - SOx: Based on 60 ppmv sulfur averaged monthly, as H₂S, concentration in LFG at inlet,
Rule 1303(a)(1)-BACT



**FACILITY PERMIT TO OPERATE
BOWERMAN POWER LFG, LLC**

PERMIT TO OPERATE

Permit No. G68575
A/N 609234

Equipment Description:

Landfill gas control and gas-to-energy system consisting of:

1. Pretreated landfill gas (LFG) supply line from the Landfill Gas Treatment System (PTO G55302; A/N 606813).
2. Internal combustion engine, No. 7, Caterpillar, Model No. CG260, landfill gas fueled, four cycles, sixteen cylinders, lean burn, turbocharged, rated at 4650 BHP, driving an electrical generator with a gross electrical output of 3.37 MW.
3. Exhaust stack, 2' - 6" Dia., converging into a common exhaust stack enclosure with six other exhaust stacks, 12' - 0" Dia. x 48' - 0" H.

Conditions:

- 1) Operation of this equipment shall be conducted in accordance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below.
[Rule 204]
- 2) This equipment shall be properly maintained and kept in good operating condition at all times.
[Rule 204]
- 3) This equipment shall be operated by personnel properly trained in its operation.
[Rule 204]
- 4) This engine shall be operated in compliance with all applicable requirements of Rule 1110.2 and Rule 1150.1, whether or not explicitly stated on this permit.
[Rules 204, 1110.2, 1150.1]
- 5) This equipment shall not be operated unless its exhaust is vented to an air pollution control system which is in full use and which has been issued a Permit to Construct/Operate by the Executive Officer, except during engine start-ups and shut-downs.
[Rule 204]
- 6) This engine shall be fired with landfill gas only.
[Rules 204, 1303(b)(2)-Offset]



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7) The operator shall combust in this engine only landfill gas that does not contain sulfur compounds, calculated as H₂S, in excess of 85 ppmv averaged daily, and 60 ppmv averaged monthly. Compliance with this sulfur concentration limit shall be demonstrated using the readings on total reduced sulfur (in ppmv) obtained from the Continuous Fuel Gas Monitoring System (CFGMS) that is installed downstream of the sulfur removal system and the landfill gas treatment system, at the inlet gas supply line to the engines. In lieu of a CFGMS, the operator shall be allowed to use an alternative monitoring method, provided that the operator submits an alternative monitoring plan for approval no later than 45 days after the date a permit to construct a sulfur removal system is issued, and that the South Coast AQMD, CARB and Region IX EPA Administrator approve the alternative monitoring plan in writing. [Rules 1303 (a)(1)-BACT, 1303 (b)(1)-Modeling, 1303 (b)(2)-Offset, 431.1]

8) The engine emissions shall not exceed the following limits (except during periods of start-up and shutdown which shall not exceed 30 minutes per incident):

<u>Pollutant</u>	<u>ppmv @15% O₂, dry</u>	<u>lbs/hour</u>
Volatile organic compounds (VOC)	30	1.21
Oxides of nitrogen (NO _x)	9.9	1.32
Carbon monoxide (CO)	225	17.75
Sulfur oxides (SO _x)	60 ppm sulfur as H ₂ S (inlet) averaged monthly	0.62
PM ₁₀		0.676

NO_x and CO concentration limits shall be averaged over 48 hours.

VOC shall be averaged over the sampling time required by the test method.

[Rules 1303 (a)(1)-BACT, 1303 (b)(1)-Modeling, 1303 (b)(2)-Offset, 1110.2, 40 CFR Part 63 Subpart ZZZZ, 40 CFR Part 60 Subpart JJJJ]

9) This engine shall not emit any single hazardous air pollutant (HAP) in excess of 10 tons per year, or, any combination of HAPS in excess of 25 tons per year. The operator shall demonstrate compliance with this permit condition by conducting source tests of HAPS, as listed in Section 112(b) of the Clean Air Act or in Rule 1150.1, in accordance with the schedule and test procedures specified in permit condition no. 21, as found in the post-control engine exhaust. [Rule 1150.1, 40 CFR Part 63 Subpart ZZZZ]

10) A continuous flow indicating and recording device shall be installed in the landfill gas supply line to the engine to measure and record the volumetric flow rate of landfill gas (in standard cubic feet per minute) being supplied to the engine. The recording device shall be capable of recording gas flow at least every 15 minutes. [Rules 1150.1, 1303(b)(2)-Offset, 40 CFR Part 62 Subpart F]



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- 11) The heat input rate for the landfill gas burned in this engine shall not exceed 35.50 million BTU's per hour. The operator shall maintain an electronic data acquisition system or other electronic log to record the average hourly landfill gas flow rate based on readings taken every 15-minute intervals. The high heating value (HHV) and percent methane content of the landfill gas shall be measured at least once per week. The hourly average heat input rate (MMBTU/hour) shall be calculated based on the average hourly LFG flow rate, HHV and percent methane.
[Rule 1303(b) (2)-Offset]
- 12) Gas quality parameters, including but not limited to LFG high heating value and methane percent, shall be monitored and measured using an instrument approved by the South Coast AQMD. The monitor shall be located at the inlet header to all LFG I.C. engines. All results shall be recorded.
[Rule 1303(b) (2)-Offset]
- 13) This equipment shall either reduce the non-methane organic compounds (NMOC) by at least 98 percent by weight or reduce the outlet NMOC concentration to less than 20 ppm by volume, dry basis as hexane at 3 percent oxygen. The operator of this facility does not have to comply with the requirements of 40 CFR Part 62 Subpart F if the facility has received an approved treatment exemption from the USEPA.
[Rule 1150.1, 40 CFR Part 62 Subpart F]
- 14) This equipment shall reduce the outlet methane concentration to less than 3000 ppmv, dry basis, corrected to 15 percent oxygen.
[Rule 1150.1]
- 15) A Continuous Emissions Monitoring System (CEMS) capable of measuring and monitoring NOx and CO emissions shall be installed, maintained and operated. This CEMS shall:
 - A. Comply with all applicable specifications, certification, operation, record keeping, quality assurance, reporting, performance and testing requirements of South Coast AQMD Rules 218 and 218.1.
 - B. Continuously measure and record NOx, CO and O₂ exhaust gas concentrations, uncorrected and corrected to 15 percent oxygen on a dry basis.
 - C. Have data gathering and retrieval capability that has been approved by the South Coast AQMD. Data shall be recorded on a strip chart or stored electronically. If data is electronically stored, the operator shall provide for data storage redundancy of at least 15 days and shall demonstrate to the Executive Officer that the stored electronic data is equivalent to the strip chart data.
 - D. Be tested for relative accuracy at least once every two years, or every 8,760 operating hours, whichever occurs first, in accordance with Rule 1110.2. The minimum sampling time for each relative accuracy test shall be 15 minutes.
 - E. Prior to installation or modification, this CEMS monitoring system shall be certified and approved in writing by the Executive Officer.
[Rules 1110.2, 218, 218.1, 3004 (a)(4)]



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- 16) This engine shall be operated in compliance with all the monitoring, testing, record keeping and reporting requirements of Rule 1110.2, as outlined below:
- A. The operator shall install and maintain an operational non-resettable totalizing time meter on the engine (display reading shall be readily available) to determine the engine elapsed operating time.
 - B. Conduct source testing for VOC reported as carbon concentration in ppm by volume, corrected to 15% oxygen on dry basis, at least once every two years, or every 8,760 operating hours, whichever occurs first. The source test frequency may be reduced to once every three years if the engine has operated less than 2,000 hours since the last source test.

The source test shall be conducted for a minimum of 30 minutes during normal operation (actual duty cycle).

The operator shall use only a source test contractor that is approved by the Executive Officer under the South Coast AQMD's Laboratory Approval Program (LAP) for the necessary test methods. The operator shall comply with the procedures stated in Rule 1110.2, regarding the submittal of source test protocol, source test reports and utilities for sampling and testing equipment.

- C. Maintain a monthly operating engine log (electronic log is acceptable) that includes:
 - (i) Total hours of operation,
 - (ii) Type of gaseous fuel,
 - (iii) Fuel consumption (cubic feet of gas), and
 - (iv) Cumulative hours of operation since the last source test required in Rule 1110.2.

The log shall be made available for inspection at any time.

- D. The operator shall comply with the reporting requirements of Rule 1110.2, pertaining to any equipment breakdown that results in emissions in excess of rule or permit emission limits.
[Rule 1110.2]
- 17) A sampling port shall be installed at the inlet gas line to the engine to allow the collection of a landfill gas sample.
[Rules 217, 431.1, 1150.1]
- 18) Two sampling ports shall be installed and maintained in the engine exhaust 8 to 10 duct diameters downstream and two duct diameters upstream of any flow disturbance, at 90 degrees apart, and shall consist of two 2-1/2 inch welded nipples with caps. An equivalent method for emissions sampling may be used upon approval of the South Coast AQMD. Adequate and safe access to the test ports shall be provided.
[Rule 217]



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- 19) Operation of this equipment shall not result in the release of raw landfill gas into the atmosphere. Any breakdown or malfunction which results in emissions of raw landfill gas shall be reported to the South Coast AQMD within one hour of occurrence, and immediate remedial measures shall be undertaken to correct the problem and prevent further emissions into the atmosphere.
[Rules 402, 430, 1150.1]
- 20) This engine shall not be operated in such a manner as to interfere with the ability of the landfill operator/owner to comply with South Coast AQMD Rule 1150.1 or any other South Coast AQMD, State or Federal rule limiting landfill gas migration or surface emissions.
[Rule 1150.1]
- 21) Once a year, no later than 45 days after the anniversary date of the initial source test (per Rule 1150.1 requirements), unless otherwise approved by the Executive Officer, the operator shall conduct source tests in accordance with South Coast AQMD approved test procedures and furnish the South Coast AQMD with written results of such source tests within 60 days after testing. Written notice of the source tests shall be provided to the South Coast AQMD ten (10) days prior to the testing so that an observer may be present. All source testing and analytical methods shall be submitted to the South Coast AQMD for approval at least 60 days prior to start of tests. The tests shall include, but may not be limited to, a test of the inlet fuel gas to the engine and the engine exhaust for:
- A. Methane
 - B. Total non-methane organics
 - C. Oxides of nitrogen (exhaust only)
 - D. Carbon monoxide (exhaust only)
 - E. Total particulates (exhaust only)
 - F. Hydrogen sulfide (inlet only)
 - G. C1 through C3 sulfur compounds and total reduced sulfur, as H₂S (speciated, inlet only)
 - H. Carbon dioxide
 - I. Aldehydes (exhaust only)
 - J. Rule 1150.1 toxic air contaminants (TAC) including, but not limited to, benzene, chlorobenzene, 1,2-dichloroethane, 1,1-dichloroethene, dichloromethane, tetrachloroethylene, tetrachloromethane, vinyl chloride, acetaldehyde, formaldehyde, 1,4-dioxane and xylene isomers.
 - K. Oxygen
 - L. Nitrogen
 - M. Moisture content
 - N. Temperature
 - O. Flow rate
 - P. NMOC destruction efficiency
 - Q. Methane destruction efficiency
 - R. BTU content (inlet only)
- [Rules 1150.1, 1303(a)(1)-BACT, 1303(b)(2)-Offset]
- 22) All recording devices shall be synchronized with respect to the time of day.
[Rule 1303(b) (2)-Offset]



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- 23) All records required by this permit shall be retained at the facility for a minimum of five years, and shall be made available to any South Coast AQMD representative upon request.
[Rules 3004 (a)(4), 1110.2, 1150.1, 40 CFR Part 62 Subpart F]
- 24) Pertaining to the operation of this equipment, the operator shall comply with all applicable requirements of the following Code of Federal Regulations: Title 40 Part 62 Subpart F - Landfill Gas Emissions From Existing Municipal Solid Waste Landfills; Title 40 Part 63 Subpart AAAA - National Emission Standards for Hazardous Air Pollutants for Municipal Solid Waste Landfills; Title 40 Part 63 Subpart ZZZZ - National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines; and Title 40 Part 60 Subpart JJJJ - Standards of Performance for Stationary Spark Ignition Internal Combustion Engines.
[40 CFR Part 60 Subpart and JJJJ, 40 CFR Part 62 Subpart F, 40 CFR Part 63 Subparts AAAA and ZZZZ]
- 25) The total annual NOx emissions from the seven (7) landfill gas fired engines permitted under application numbers 609224, 609225, 609225, 609226, 609227, 609228, 609229, and 609234, shall be less than 40 tons per year. The operator shall maintain adequate records to demonstrate compliance with this emission limit. Records shall include, but not be limited to, NOx emission readings from the Continuous Emissions Monitor (CEMS) of each engine converted to pounds per hour and pounds per year.
[Rules 1701, 1702, 1703]
- 26) If the CEMS unit is replaced or recertified between 01/01/2022 and 01/01/2025, the unit is subject to applicable provisions of Rules 218.2 and 218.3. The applicable requirements of Rules 218.2 and 218.3 shall apply no later than 01/01/2025.
[Rules 218, 218.1, 218.2, 218.3]
- 27) The engine shall not emit more than 31.72 lbs of NOx and 426.04 lbs of CO in any one day.
[Rules 1303 (a)(1)-BACT, 1303 (b)(2)-Offset]
- 28) The engine emissions shall not exceed the following monthly limits:

Pollutant	lb/month
Volatile organic compounds (VOC)	883.3
Oxides of nitrogen (NOx)	841.0
Carbon monoxide (CO)	11,635.5
Sulfur oxides (SOx)	452.6
PM ₁₀	493.5



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Emissions and Requirements:

29) This equipment is subject to the applicable requirements of the following rules and regulations:

- CO: 225 ppmv @15% O₂, dry, Rule 1110.2
- CO: 250 ppmv @15% O₂, dry, Rule 1303 (a)(1)-BACT
- CO: 610 ppmv @15% O₂, dry, 40 CFR Part 60 Subpart JJJJ, 40 CFR Part 63 Subpart ZZZZ
- NOx: 11 ppmv @15% O₂, dry, 1303 (a)(1)-BACT
- NOx: 9.9 ppmv @15% O₂, dry, Rule 1110.2
- NOx: 150 ppmv @15% O₂, dry, 40 CFR Part 60 Subpart JJJJ, 40 CFR Part 63 Subpart ZZZZ
- NMOC: 20 ppmv, as hexane, @3% O₂, dry, or 98% by weight reduction, Rule 1150.1,
40 CFR Part 62 Subpart F, 40 CFR Part 63 Subpart AAAA
- PM: Rule 404, see Appendix B for emission limits
- PM: 0.066 grams/bhp-hr, 1303 (a)(1)-BACT
- ROG: 30 ppmv @15% O₂, dry, Rule 1110.2
- ROG: 30 ppmv @15% O₂, dry, 1303 (a)(1)-BACT
- ROG: 80 ppmv @15% O₂, dry, 40 CFR Part 60 Subpart JJJJ, 40 CFR Part 63 Subpart ZZZZ
- SOx: Based on 60 ppmv sulfur averaged monthly, as H₂S, concentration in LFG at inlet,
Rule 1303(a)(1)-BACT

Estimated Excess PM Emissions									
	Emissions Rate lbs/Hr (Source test result)	Permit limit lbs/Hr ¹	Emissions Rate lbs/Month (Calculated from lbs/Hr*24*30)	Permit Limit lbs/Month ²	Emissions Rate g/bhp (Source test result)	Permit limit g/bHp ³	Excess Emissions lbs/Hr (Source Test Result - Permit limit)	Excess Emissions lbs/Day (lbs/Hr*24)	
Engine No. 2	1.017	0.676	732.240	493.500	0.099	0.066	0.341	8.184	
Engine No. 5	1.143	0.676	822.960	493.500	0.112	0.066	0.467	11.208	
Engine No. 6	0.976	0.676	702.720	493.500	0.095	0.066	0.300	7.200	
Engine No. 7	1.068	0.676	768.960	493.500	0.104	0.066	0.392	9.408	
Total								36.000	

¹ Permit Condition No. 8

² Permit Condition No. 28

³ Permit Condition No. 29