

EVALUATION REPORT
EMISSION REDUCTION CREDIT BANKING APPLICATION

PROPOSED CONDITIONAL APPROVAL

FOR

Ameresco Santa Cruz Energy LLC
1231 Buena Vista Drive
Watsonville, CA 95076

BANKING TRANSACTION NO. 125
Application No. ERC-APP-26-001
Record No. ERC-26-001

PREPARED BY

Amy Clymo
Engineering and Compliance Manager

MONTEREY BAY AIR RESOURCES DISTRICT
24580 SILVER CLOUD COURT
MONTEREY, CA 93940
(831) 647-9411

August 20, 2026

End of Public Comment Period: September 30, 2026

Submit comments to: Amy Clymo aclymo@mbard.org via email or mail to the Monterey Bay Air Resources District address above.

Applicant: Ameresco Santa Cruz Energy LLC

Mailing Address: 111 Speen Street, Suite 410
Framingham, MA 01701

Facility Contact: Mark Chiplock
Authorized Representative
mchiplock@ameresco.com
(508) 661-2255

Stevia Smith
Neogenyx Fuels
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Portland, ME 04101
(704) 989-2023
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Facility Location: 1231 Buena Vista Drive
Watsonville, CA 95076

Banking Application:

Ameresco Santa Cruz Energy LLC applied to bank oxides of nitrogen (NO_x), volatile organic compounds (VOC), carbon monoxide (CO), oxides of sulfur (SO_x), and particulate matter (PM) emissions from the shutdown of three landfill gas internal combustion engines, as authorized under Monterey Bay Air Resources District (MBARD) permits GNR-0017721A (serial number 6228161), GNR-0017722A (serial number 3397883), and GNR-0017650 (serial number 4378971). Note: Ameresco Santa Cruz Energy LLC had a fourth engine permit (GNR-0017720, Serial Number 4292051) which was not operated or located at the facility but served as a backup if one of the other engines was scheduled to be offline for rebuild. This engine has no operational data and was not included in the emission reduction calculations. This application for emissions banking is allowed in MBARD Rule 215 Banking of Emission Reductions Section 3.3.3, *Source Shutdowns or Curtailments*. The application is provided in Attachment 1.

Banking of Emissions Reduction Credits (ERCs) from Source Shutdown or Curtailment:

Section 3.3.3 of Rule 215 requires the proposed emissions reductions to be banked from a source shutdown must meet the requirements in subsections 3.3.3.1 through 3.3.3.5 as discussed below.

Section 3.3.3.1 requires the reductions to be banked are real, enforceable, quantifiable, permanent, and surplus. The emission reductions proposed to be banked are:

Real, as these emission reductions have occurred due to the shutdown of the equipment confirmed through receipt of a permit cancellation form;

- In 1999, MBARD initially issued two Authority to Construct (ATC) applications to the County of Santa Cruz for two landfill gas engines. The County then applied for a third landfill gas engine permit. The County of Santa Cruz is a public agency that owns and operates the Buena Vista Landfill. The evaluation (dated 2001) for the County of Santa Cruz to operate the landfill gas engines deemed NO_x, VOC, and CO offsets were not required because landfill gas control was required by the New Source Performance Standard 40 CFR Part 60 Subpart WWW applicable at the time of application. This regulatory requirement was not imposed on Ameresco Santa Cruz Energy LLC as a third-party operator of the landfill gas engines, it was the responsibility of the County of Santa Cruz to control landfill gas emissions. The 2001 evaluation for the County of Santa Cruz to operate landfill gas engines also included an Air Quality Impact Analysis (AQI) for NO_x, CO, SO₂, and PM₁₀ emissions and found the emissions would not cause or contribute to an exceedance of an ambient air quality standard.
- On January 7, 2005, Ameresco Santa Cruz Energy LLC applied to transfer ownership of the landfill gas engine ATCs from the County of Santa Cruz as a separate stationary source per the definition in Rule 207 Review of New or Modified Sources, Section 2.60. Per Rule 207 Section 2.33.8.2 a change in ownership, by definition of modification, is not subject to Rule 207 review. On January 19, 2005, the ATCs were issued to Ameresco Santa Cruz Energy LLC. On February 16, 2006, the Permits to Operate were issued to Ameresco Santa Cruz Energy LLC.
- Ameresco Santa Cruz Energy LLC is not a public agency, they operated under a different industrial grouping (NAICS Code 562213) and were not under common ownership or control of the County of Santa Cruz and therefore met the definition of stationary source in Rule 207 Section 2.60. Ameresco Santa Cruz Energy LLC was responsible for maintaining the engines, annually testing the engines, submitting reports, complying with permit condition emission limits, and complying with their Title V permit operating conditions. The bankable emission reductions calculated for this application, in units of lbs/day, are less than the offset thresholds for NO_x of 137 lbs/day, VOC of 137 lbs/day, and CO of 550 lbs/day.
- In 2026, Ameresco Santa Cruz Energy LLC shutdown the engines as evidenced by cancelling the permits which resulted in emission reductions.

Enforceable, as these emission reductions have been verified by MBARD and the permits under which this equipment operated have been cancelled;

- MBARD has confirmed the landfill gas engines are no longer operating and if the engines were found operating, MBARD would issue a violation to Ameresco Santa Cruz Energy LLC for operating without a permit.

Permanent, as these emission reductions do not diminish or disappear over time and the shutdown could only be reversed by re-installing equipment which would require a permit;

- Since Ameresco Santa Cruz Energy LLC cancelled the landfill gas engine permits, there are no longer emissions occurring from the landfill gas engines at 1231 Buena Vista Dr, Watsonville. Ameresco Santa Cruz Energy LLC or another operator would be required to apply for a permit if they were to install a landfill gas engine and would be subject to Rule 207 Review of New or Modified Sources.

Quantifiable, as these emission reductions have been calculated based on operation records and MBARD approved emission factors/calculation methods, and;

- MBARD used the landfill gas engine source test data and the recorded landfill gas throughput for each engine to quantify the emission reductions based on a three-year average as discussed below.

Surplus, as these emission reductions are not required by any federal, State, Air Resources Board, District, or local agreement, law, order, plan, regulation, requirement, or rule.

- At the time the County of Santa Cruz applied to operate the landfill gas engines, they were deemed not subject to offsets for NO_x, VOC, and CO because landfill gas control was required by the New Source Performance Standard 40 CFR Part 60 Subpart WWW applicable at the time of application. The bankable emission reductions calculated for this application, in units of lbs/day, are less than the offset thresholds for NO_x of 137 lbs/day, VOC of 137 lbs/day, and CO of 550 lbs/day. Currently, there is no requirement for Ameresco Santa Cruz Energy LLC to reduce emissions so the reductions from the equipment shutdown are surplus.
- MBARD has not imposed any requirement on Ameresco Santa Cruz Energy LLC to reduce emissions or eliminate the use of the landfill gas engines. The landfill gas engines were shut down, which was an independent decision of Ameresco Santa Cruz Energy LLC.
- The responsibility to control landfill gas emissions still lies with the County of Santa Cruz as a separate stationary source.

Section 3.3.3.2 requires the emission reductions are not accounted for in the MBARD Air Quality Management Plan (AQMP). These proposed emission reductions are not accounted for in the MBARD AQMP (dated March 15, 2017) and are surplus as described above.

Section 3.3.3.3 requires the reductions are not required by MBARD Regulations which limit emissions or define BACT for the source. MBARD does not have a regulation specific to limiting emissions from landfill gas engines beyond the BACT requirements which can be triggered by Rule 207. The discussion for Section 3.3.3.4 addresses Rule 207 and the BACT requirements for the engines. The facility made the decision to shut down the engines and this was not required to limit emissions in accordance with an MBARD regulation.

Section 3.3.3.4 requires the reductions represent emissions from a source had the source been applying BACT as defined in Rule 207. BACT was required per Rule 207 at the time the engines were installed for NO_x, VOC, and CO. The engines were equipped with a LEANOX combustion control system which uses lean burn technology to control the air to fuel ratio for optimum performance. BACT was deemed to be 1.1 g/bhp-hp for NO_x, 0.6 g/bhp-hp for VOC, and 3.0 g/bhp-hp for CO which were established as permit conditions. Copies of the permits are included in Attachment 2. Based on the historical source test data, the engines met the BACT limits. Therefore, the reductions represent emissions from a source that had been applying BACT.

Section 3.3.3.5 requires the application for emission reduction credits be submitted to MBARD within 60 days of the surrender or cancellation of permits. The Title V permit cancellation was submitted to the California Air Resources Board and US Environmental Protection Agency on May 27, 2026 and the ERC application was received on June 17, 2026.

Calculation of Emission Reductions Eligible for Emission Reduction Credits:

Per Section 3.2 of Rule 215, the emissions available to be banked shall be the historical emissions from the source. MBARD Rule 207, Section 7.2 establishes historical emissions as emissions based on the actual operating conditions of the source, averaged over the three consecutive years immediately preceding the date of application. A shorter period or three consecutive years within the five-year period immediately preceding the date of application may be utilized, if deemed to represent normal operations. The five-year period immediately preceding the date of application is calendar years 2021 to 2025. A review of the data for 2021 to 2025 found the three-year period of 2023 to 2025 to be representative of normal operations. Therefore, the historical emissions for the three-year period of 2023 to 2025 were used to calculate the bankable emission reductions.

MBARD used the monthly landfill gas hours of operation and inlet landfill gas flow to each engine along with the source test data to calculate quarterly emissions for each pollutant. Table 1 summarizes the three-year average quarterly and annual emissions for each pollutant. The detailed calculations are included in Attachment 3 and the source test summary results are included in Attachment 4.

Table 1. Summary of Three-Year Quarterly and Annual Average Emissions (2023-2025)					
Pollutant	First Quarter (tons/qtr)	Second Quarter (tons/qtr)	Third Quarter (tons/qtr)	Fourth Quarter (tons/qtr)	Annual (tons/yr)
CO	19.79	19.61	20.94	14.37	74.71
NOx	5.13	5.01	5.43	3.79	19.36
SOx	0.51	0.50	0.53	0.38	1.92
VOC	0.88	0.87	0.92	0.66	3.33
PM	1.46	1.45	1.55	1.08	5.54
Pollutant	First Quarter (lbs/qtr)	Second Quarter (lbs/qtr)	Third Quarter (lbs/qtr)	Fourth Quarter (lbs/qtr)	Annual (lbs/yr)
CO	39,580	39,220	41,880	28,740	149,420
NOx	10,260	10,020	10,860	7,580	38,720
SOx	1,020	1,000	1,060	760	3,840
VOC	1,760	1,740	1,840	1,320	6,660
PM	2,920	2,900	3,100	2,160	11,080

Bankable Emissions:

Based upon Part 5 of Rule 215, the emissions available to bank are reduced by 10% to be deposited into the Community ERC Account. For this application, the calculated emissions deposited into the Community ERC Account are summarized in Table 2. The quantity of bankable emissions remaining from the engine's shutdown after the 10% community bank reduction are summarized in Table 3. As shown in the tables below, the banked emissions will be allocated per calendar quarter.

Table 2. Allocation of Banked Emission Reduction Credits to the Community Bank					
Pollutant	First Quarter (tons/qtr)	Second Quarter (tons/qtr)	Third Quarter (tons/qtr)	Fourth Quarter (tons/qtr)	Annual (tons/yr)
CO	1.98	1.96	2.09	1.44	7.47
NOx	0.51	0.50	0.54	0.38	1.93
SOx	0.05	0.05	0.05	0.04	0.19
VOC	0.09	0.09	0.09	0.07	0.34
PM	0.15	0.15	0.16	0.11	0.57
Pollutant	First Quarter (lbs/qtr)	Second Quarter (lbs/qtr)	Third Quarter (lbs/qtr)	Fourth Quarter (lbs/qtr)	Annual (lbs/yr)
CO	3,958	3,922	4,188	2,874	14,942
NOx	1,026	1,002	1,086	758	3,872
SOx	102	100	106	76	384
VOC	176	174	184	132	666
PM	292	290	310	216	1,108

Table 3. Banked Emission Reduction Credits to Ameresco Santa Cruz Energy LLC					
Pollutant	First Quarter (tons/qtr)	Second Quarter (tons/qtr)	Third Quarter (tons/qtr)	Fourth Quarter (tons/qtr)	Annual (tons/yr)
CO	17.81	17.65	18.85	12.93	67.24
NOx	4.62	4.51	4.89	3.41	17.43
SOx	0.46	0.45	0.48	0.34	1.73
VOC	0.79	0.78	0.83	0.59	2.99
PM	1.31	1.30	1.39	0.97	4.97
Pollutant	First Quarter (lbs/qtr)	Second Quarter (lbs/qtr)	Third Quarter (lbs/qtr)	Fourth Quarter (lbs/qtr)	Annual (lbs/yr)
CO	35,622	35,298	37,692	25,866	134,478
NOx	9,234	9,018	9,774	6,822	34,848
SOx	918	900	954	684	3,456
VOC	1,584	1,566	1,656	1,188	5,994
PM	2,628	2,610	2,790	1,944	9,972

Finally, Section 6.2.1.2 of Rule 215 requires banked emissions utilized as offsets at Major Sources be reduced by Reasonably Available Control Technology (RACT) at the time of use. Therefore, the potential value of these offsets when utilized at a Major Source would be determined at the time of use.

References

Engineering Evaluations for Permits 11365-11367
Source Test Reports for 2021-2025
Applicant Provided Data For 2021-2025

Attachments

Attachment 1 – Banking Application
Attachment 2 – Actual Emission Reduction Calculations
Attachment 3 – Source Test Report Summaries for 2023-2025
Attachment 4 – Permits to Operate

Attachment 1

APPLICATION FOR EMISSION REDUCTION CREDITS

This application must be filled out completely. Emission reductions proposed to be transferred must meet the requirements of District [Rule 215](#).

Fees must be paid by check, money order or credit cards. Credit cards are only accepted through our website via <https://www.mbard.org/payments>.

1. APPLICANT INFORMATION: Ameresco Santa Cruz Energy

2. LEGAL NAME OF APPLICANT: Ameresco Santa Cruz Energy LLC

3. BUSINESS MAILING ADDRESS: 111 Speen Street, Suite 410, Framingham, MA 01701

Phone number: 508-661-2255

Cell number:

Email address: mchiplock@ameresco.com

4. CONTACT PERSON AND TITLE: Mark Chiplock, Authorized Representative

City: Framingham

State: MA

Zip Code: 01701

5. BILLING CONTACT INFORMATION: Please provide billing contact information for future invoicing. MBARD will annually send an invoice to maintain the emission reduction credits active.

Business/organization/person name: Ameresco Santa Cruz Energy LLC, Attn: Mark Chiplock

Phone Number: 508-661-2255

Address: 111 Speen Street, Suite 410

E-mail Address: mchiplock@ameresco.com

City: Framingham

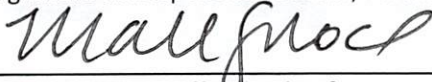
State: MA

Zip Code: 01701

Pursuant to the provisions of the Health and Safety Code of the State of California and the Rules and Regulations of the Air Pollution Control District, application is hereby made to register emission reductions. Attach a letter describing the how the proposed emission reduction was achieved, when the reduction occurred, the amount and method of quantifying each pollutant reduced, operating logs, surrender of permit for the equipment that is subject to the ERC application.

I hereby request that the Monterey Bay Air Resources District begin processing this application. I agree to pay any and all fees required by District rules for processing this application and for the transfer of any emission reduction credits. I agree that the obligation to compensate the District for time spent processing my application exists even if I abandon the project and withdraw my application or should my application subsequently be disapproved.

Signature of Responsible Official, Partner, or Sole Proprietor of Organization:



Print Name and Official Title of Person Signing This Application

Name:

Title: Authorized Representative

Date:

Mark Chiplock

6/17/2026

Attachment 2

Ameresco ERC Application**ERC-APP-26-0001****1231 Buena Vista Drive, Watsonville****Shutdown of three landfill gas engines each rated at 1,468 hp**

Engine Number	MBARD Permit Number	Engine Serial Number
1	GNR-0017721A	6228161
2	GNR-0017722A	3397883
3	GNR-0017650	4378971

ERC Summary

Pollutant	First Quarter (tons/qtr)	Second Quarter (tons/qtr)	Third Quarter (tons/qtr)	Fourth Quarter (tons/qtr)	Annual (tons/yr)
CO	19.79	19.61	20.94	14.37	74.71
NOx	5.13	5.01	5.43	3.79	19.36
SOx	0.51	0.50	0.53	0.38	1.92
VOC	0.88	0.87	0.92	0.66	3.33
PM	1.46	1.45	1.55	1.08	5.54

Banked ERCs to Ameresco

Pollutant	First Quarter (tons/qtr)	Second Quarter (tons/qtr)	Third Quarter (tons/qtr)	Fourth Quarter (tons/qtr)	Annual (tons/yr)
CO	17.81	17.65	18.85	12.93	67.24
NOx	4.62	4.51	4.89	3.41	17.43
SOx	0.46	0.45	0.48	0.34	1.73
VOC	0.79	0.78	0.83	0.59	2.99
PM	1.31	1.30	1.39	0.97	4.97

Banked ERCs to Community Bank

Pollutant	First Quarter (tons/qtr)	Second Quarter (tons/qtr)	Third Quarter (tons/qtr)	Fourth Quarter (tons/qtr)	Annual (tons/yr)
CO	1.98	1.96	2.09	1.44	7.47
NOx	0.51	0.50	0.54	0.38	1.93
SOx	0.05	0.05	0.05	0.04	0.19
VOC	0.09	0.09	0.09	0.07	0.34
PM	0.15	0.15	0.16	0.11	0.57

Per Rule 215 Section 5.1.1, MBARD shall deduct 10% of the emission reductions into the Community bank.

ERC Summary

Pollutant	First Quarter (lbs/qtr)	Second Quarter (lbs/qtr)	Third Quarter (lbs/qtr)	Fourth Quarter (lbs/qtr)	Annual (lbs/yr)
CO	39,580	39,220	41,880	28,740	149,420
NOx	10,260	10,020	10,860	7,580	38,720
SOx	1,020	1,000	1,060	760	3,840
VOC	1,760	1,740	1,840	1,320	6,660
PM	2,920	2,900	3,100	2,160	11,080

Banked ERCs to Ameresco

Pollutant	First Quarter (lbs/qtr)	Second Quarter (lbs/qtr)	Third Quarter (lbs/qtr)	Fourth Quarter (lbs/qtr)	Annual (lbs/yr)
CO	35,622	35,298	37,692	25,866	134,478
NOx	9,234	9,018	9,774	6,822	34,848
SOx	918	900	954	684	3,456
VOC	1,584	1,566	1,656	1,188	5,994
PM	2,628	2,610	2,790	1,944	9,972

Banked ERCs to Community Bank

Pollutant	First Quarter (lbs/qtr)	Second Quarter (lbs/qtr)	Third Quarter (lbs/qtr)	Fourth Quarter (lbs/qtr)	Annual (lbs/yr)
CO	3,958	3,922	4,188	2,874	14,942
NOx	1,026	1,002	1,086	758	3,872
SOx	102	100	106	76	384
VOC	176	174	184	132	666
PM	292	290	310	216	1,108

Per Rule 215 Section 5.1.1, MBARD shall deduct 10% of the emission reductions into the Community bank.

Emission Calculations**1231 Buena Vista Drive, Watsonville****Shutdown of three landfill gas engines each rated at 1,468 hp****Historical Inlet Flow for Three Engines (kscf) 2021-2025**

Year	2021	2022	2023	2024	2025
Kscf	560,208	496,254	507,601	466,260	472,284

1. Data provided by applicant.

2. ERCs will be based upon 3-Year Historical Emissions for 2023-2025 as representative of normal operations.

Engine Number	MBARD Permit Number	Engine Serial Number
1	GNR-0017721A	6228161
2	GNR-0017722A	3397883
3	GNR-0017650	4378971

Summary of 3-Year Annual Average Emissions by Pollutant**3-Year Annual Average Actual CO Emissions by Calendar Quarter**

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Annual
Allocation in tons per year (tons/yr)	19.79	19.61	20.94	14.37	74.71
Allocation in pounds per year (lbs/yr)	39,583.70	39,222.97	41,871.27	28,739.67	149,417.61

3-Year Annual Average Actual NOx Emissions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Annual
Allocation in tons per year (tons/yr)	5.13	5.01	5.43	3.79	19.36
Allocation in pounds per year (lbs/yr)	10,264.60	10,018.43	10,858.17	7,576.97	38,718.17

3-Year Annual Average Actual SOx Emissions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Annual
Allocation in tons per year (tons/yr)	0.51	0.50	0.53	0.38	1.92
Allocation in pounds per year (lbs/yr)	1,012.37	1,008.30	1,069.17	752.03	3,841.87

3-Year Annual Average Actual VOC Emissions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Annual
Allocation in tons per year (tons/yr)	0.88	0.87	0.92	0.66	3.33
Allocation in pounds per year (lbs/yr)	1,750.43	1,734.63	1,837.43	1,316.37	6,638.86

3-Year Annual Average Actual PM Emissions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Annual
Allocation in tons per year (tons/yr)	1.46	1.45	1.55	1.08	5.54
Allocation in pounds per year (lbs/yr)	2,929.23	2,903.87	3,090.07	2,163.93	11,087.10

CY2025 Operating Data Summary:						
Month	Engine 1	Engine 2	Engine 3	Engine 1	Engine 2	Engine 3
	Operation	Operation	Operation	Inlet LFG Flow	Inlet LFG Flow	Inlet LFG Flow
	Hours	Hours	Hours	kscf	kscf	kscf
January	682	711	735	16,113	16,455	17,502
February	633	633	585	14,339	14,708	13,385
March	673	674	644	14,346	14,821	13,962
April	631	607	600	13,140	12,885	12,648
May	735	661	609	15,215	13,870	13,079
June	562	528	600	11,965	11,416	12,290
July	729	485	721	16,094	10,829	16,246
August	728	727	715	15,093	15,128	14,934
September	709	715	630	15,030	15,155	13,611
October	690	579	272	15,025	12,371	5,946
November	199	395	433	4,608	8,549	8,937
December	341	534	609	7,239	12,152	13,199
Total:	7,312	7,249	7,153	158,207	158,339	155,739

Emission Factors - 2025 Source Test:

	Engine 1	Engine 2	Engine 3
	lb/hr	lb/hr	lb/hr
CO	7.12	6.52	6.86
NOx	1.19	1.14	1.68
SOx	0.089	0.15	0.137
VOC	0.21	0.29	0.21

PM Emission Factor:

23.00	lb/MMscf
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1. Engine 1 tested by Alliance Technical Group on 6/25/2025.
2. Engines 2 and 3 tested by Alliance Technical Group on 11/20/2025.

Percent of Hours Operated by Quarter (%)

Engine	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
1	27.19%	26.37%	29.62%	16.82%
2	27.84%	24.78%	26.58%	20.80%
3	27.46%	25.29%	28.88%	18.37%

Engine 1

Actual CO Emission Reductions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Allocation in tons per year (tons/yr)	7.1	6.9	7.7	4.4
Allocation in pounds per year (lbs/yr)	14154.6	13727.4	15421.9	8757.6

Actual NOx Emission Reductions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Allocation in tons per year (tons/yr)	1.2	1.1	1.3	0.7
Allocation in pounds per year (lbs/yr)	2365.7	2294.3	2577.5	1463.7

Actual SOx Emission Reductions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Allocation in tons per year (tons/yr)	0.1	0.1	0.1	0.1
Allocation in pounds per year (lbs/yr)	176.9	171.6	192.8	109.5

Actual VOC Emission Reductions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Allocation in tons per year (tons/yr)	0.2	0.2	0.2	0.1
Allocation in pounds per year (lbs/yr)	417.5	404.9	454.9	258.3

Actual PM Emission Reductions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Allocation in tons per year (tons/yr)	0.5	0.5	0.5	0.3
Allocation in pounds per year (lbs/yr)	1030.4	927.4	1063.0	618.1

Engine 2

Actual CO Emission Reductions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Allocation in tons per year (tons/yr)	6.6	5.9	6.3	4.9
Allocation in pounds per year (lbs/yr)	13157.4	11709.9	12564.0	9832.2

Actual NOx Emission Reductions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Allocation in tons per year (tons/yr)	1.2	1.0	1.1	0.9
Allocation in pounds per year (lbs/yr)	2300.5	2047.4	2196.8	1719.1

Actual SOx Emission Reductions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Allocation in tons per year (tons/yr)	0.2	0.1	0.1	0.1
Allocation in pounds per year (lbs/yr)	302.7	269.4	289.1	226.2

Actual VOC Emission Reductions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Allocation in tons per year (tons/yr)	0.3	0.3	0.3	0.2
Allocation in pounds per year (lbs/yr)	585.2	520.8	558.8	437.3

Actual PM Emission Reductions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Allocation in tons per year (tons/yr)	0.5	0.4	0.5	0.4
Allocation in pounds per year (lbs/yr)	1057.6	877.9	945.6	760.7

Engine 3

Actual CO Emission Reductions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Allocation in tons per year (tons/yr)	6.7	6.2	7.1	4.5
Allocation in pounds per year (lbs/yr)	13473.0	12409.7	14172.8	9014.0

Actual NOx Emission Reductions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Allocation in tons per year (tons/yr)	1.6	1.5	1.7	1.1
Allocation in pounds per year (lbs/yr)	3299.5	3039.1	3470.9	2207.5

Actual SOx Emission Reductions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Allocation in tons per year (tons/yr)	0.1	0.1	0.1	0.1
Allocation in pounds per year (lbs/yr)	269.1	247.8	283.0	180.0

Actual VOC Emission Reductions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Allocation in tons per year (tons/yr)	0.2	0.2	0.2	0.1
Allocation in pounds per year (lbs/yr)	412.4	379.9	433.9	275.9

Actual PM Emission Reductions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Allocation in tons per year (tons/yr)	0.5	0.4	0.5	0.3
Allocation in pounds per year (lbs/yr)	1031.5	874.4	1030.2	645.9

CY2024 Operating Data Summary:						
Month	Engine 1	Engine 2	Engine 3	Engine 1	Engine 2	Engine 3
	Operation	Operation	Operation	Inlet LFG Flow	Inlet LFG Flow	Inlet LFG Flow
	Hours	Hours	Hours	kscf	kscf	kscf
January	742	732	735	15,617	15,692	15,286
February	653	619	649	13,980	13,046	13,041
March	658	484	436	14,660	9,529	9,769
April	710	668	663	15,786	14,371	14,911
May	608	704	649	13,598	16,088	15,021
June	692	590	687	15,044	12,742	14,656
July	706	704	703	15,391	14,443	14,081
August	728	739	679	15,240	14,528	13,464
September	704	693	692	15,176	15,206	13,216
October	649	686	676	14,312	15,411	14,549
November	190	230	230	4,433	5,518	5,604
December	344	349	319	7,767	7,904	7,180
Total:	7,384	7,198	7,118	161,004	154,478	150,778

Emission Factors - 2024 Source Test:

	Engine 1	Engine 2	Engine 3
	lb/hr	lb/hr	lb/hr
CO	6.62	6.79	6.54
NOx	1.77	1.10	1.20
SOx	0.18	0.18	0.17
VOC	0.257	0.288	0.190

PM Emission Factor:

23	lb/MMscf
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Engine 2 tested 6/12/2024 and engines 1 and 3 tested 6/13/2024.

Percent of Hours Operated by Quarter (%)

Engine	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
1	27.80%	27.22%	28.95%	16.02%
2	25.49%	27.26%	29.67%	17.57%
3	25.57%	28.08%	29.14%	17.21%

Engine 1

Actual CO Emission Reductions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Allocation in tons per year (tons/yr)	6.8	6.7	7.1	3.9
Allocation in pounds per year (lbs/yr)	13590.9	13306.2	14153.6	7831.5

Actual NOx Emission Reductions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Allocation in tons per year (tons/yr)	1.8	1.8	1.9	1.0
Allocation in pounds per year (lbs/yr)	3633.8	3557.7	3784.3	2093.9

Actual SOx Emission Reductions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Allocation in tons per year (tons/yr)	0.2	0.2	0.2	0.1
Allocation in pounds per year (lbs/yr)	369.5	361.8	384.8	212.9

Actual VOC Emission Reductions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Allocation in tons per year (tons/yr)	0.3	0.3	0.3	0.2
Allocation in pounds per year (lbs/yr)	527.6	516.6	549.5	304.0

Actual PM Emission Reductions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Allocation in tons per year (tons/yr)	0.5	0.5	0.5	0.3
Allocation in pounds per year (lbs/yr)	1017.9	1021.8	1053.6	609.8

Engine 2

Actual CO Emission Reductions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Allocation in tons per year (tons/yr)	6.2	6.7	7.3	4.3
Allocation in pounds per year (lbs/yr)	12459.7	13322.0	14503.4	8589.4

Actual NOx Emission Reductions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Allocation in tons per year (tons/yr)	1.0	1.1	1.2	0.7
Allocation in pounds per year (lbs/yr)	2018.5	2158.2	2349.6	1391.5

Actual SOx Emission Reductions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Allocation in tons per year (tons/yr)	0.2	0.2	0.2	0.1
Allocation in pounds per year (lbs/yr)	330.3	353.2	384.5	227.7

Actual VOC Emission Reductions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Allocation in tons per year (tons/yr)	0.3	0.3	0.3	0.2
Allocation in pounds per year (lbs/yr)	528.5	565.1	615.2	364.3

Actual PM Emission Reductions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Allocation in tons per year (tons/yr)	0.4	0.5	0.5	0.3
Allocation in pounds per year (lbs/yr)	880.1	993.6	1016.1	663.2

Engine 3

Actual CO Emission Reductions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Allocation in tons per year (tons/yr)	6.0	6.5	6.8	4.0
Allocation in pounds per year (lbs/yr)	11902.8	13073.5	13564.0	8011.5

Actual NOx Emission Reductions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Allocation in tons per year (tons/yr)	1.1	1.2	1.2	0.7
Allocation in pounds per year (lbs/yr)	2184.0	2398.8	2488.8	1470.0

Actual SOx Emission Reductions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Allocation in tons per year (tons/yr)	0.2	0.2	0.2	0.1
Allocation in pounds per year (lbs/yr)	309.4	339.8	352.6	208.3

Actual VOC Emission Reductions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Allocation in tons per year (tons/yr)	0.2	0.2	0.2	0.1
Allocation in pounds per year (lbs/yr)	345.8	379.8	394.1	232.8

Actual PM Emission Reductions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Allocation in tons per year (tons/yr)	0.4	0.5	0.5	0.3
Allocation in pounds per year (lbs/yr)	876.2	1025.5	937.5	628.7

CY2023 Operating Data Summary:						
Month	Engine 1	Engine 2	Engine 3	Engine 1	Engine 2	Engine 3
	Operation	Operation	Operation	Inlet LFG Flow	Inlet LFG Flow	Inlet LFG Flow
	Hours	Hours	Hours	kscf	kscf	kscf
January	684	681	684	13,976	13,816	13,649
February	581	587	582	12,156	12,167	11,886
March	734	731	732	16,295	15,890	15,990
April	708	711	598	15,424	15,618	13,305
May	504	617	728	10,625	13,156	15,483
June	703	712	717	14,856	15,496	16,083
July	662	737	735	14,444	16,467	16,841
August	729	727	720	16,399	16,437	16,280
September	716	702	467	16,479	16,050	10,788
October	660	631	665	14,769	14,031	14,770
November	382	508	499	8,175	11,049	10,374
December	586	589	589	12,697	13,043	12,636
Total:	7,649	7,933	7,716	166,295	173,220	168,085

Emission Factors - 2023 Source Test:

	Engine 1	Engine 2	Engine 3
	lb/hr	lb/hr	lb/hr
CO	5.94	6.79	7.29
NOx	0.75	0.79	0.77
SOx	0.20	0.22	0.22
VOC	0.394	0.377	0.447

PM Emission Factor:

23	lb/MMscf
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Percent of Hours Operated by Quarter (%)

Engine	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
1	26.13%	25.04%	27.55%	21.28%
2	25.20%	25.72%	27.30%	21.78%
3	25.89%	26.48%	24.91%	22.72%

Engine 1

Actual CO Emission Reductions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Allocation in tons per year (tons/yr)	5.9	5.7	6.3	4.8
Allocation in pounds per year (lbs/yr)	11874.1	11375.1	12515.6	9670.3

Actual NOx Emission Reductions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Allocation in tons per year (tons/yr)	0.7	0.7	0.8	0.6
Allocation in pounds per year (lbs/yr)	1499.3	1436.3	1580.3	1221.0

Actual SOx Emission Reductions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Allocation in tons per year (tons/yr)	0.2	0.2	0.2	0.2
Allocation in pounds per year (lbs/yr)	399.8	383.0	421.4	325.6

Actual VOC Emission Reductions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Allocation in tons per year (tons/yr)	0.4	0.4	0.4	0.3
Allocation in pounds per year (lbs/yr)	787.6	754.5	830.2	641.4

Actual PM Emission Reductions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Allocation in tons per year (tons/yr)	0.5	0.5	0.5	0.4
Allocation in pounds per year (lbs/yr)	975.8	940.8	1088.4	819.7

Engine 2

Actual CO Emission Reductions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Allocation in tons per year (tons/yr)	6.8	6.9	7.4	5.9
Allocation in pounds per year (lbs/yr)	13573.2	13851.6	14707.1	11733.1

Actual NOx Emission Reductions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Allocation in tons per year (tons/yr)	0.8	0.8	0.9	0.7
Allocation in pounds per year (lbs/yr)	1579.2	1611.6	1711.1	1365.1

Actual SOx Emission Reductions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Allocation in tons per year (tons/yr)	0.2	0.2	0.2	0.2
Allocation in pounds per year (lbs/yr)	439.8	448.8	476.5	380.2

Actual VOC Emission Reductions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Allocation in tons per year (tons/yr)	0.4	0.4	0.4	0.3
Allocation in pounds per year (lbs/yr)	753.6	769.1	816.6	651.5

Actual PM Emission Reductions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Allocation in tons per year (tons/yr)	0.5	0.5	0.6	0.4
Allocation in pounds per year (lbs/yr)	963.1	1018.2	1125.9	876.8

Engine 3

Actual CO Emission Reductions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Allocation in tons per year (tons/yr)	7.3	7.4	7.0	6.4
Allocation in pounds per year (lbs/yr)	14565.4	14893.5	14011.4	12779.4

Actual NOx Emission Reductions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Allocation in tons per year (tons/yr)	0.8	0.8	0.7	0.7
Allocation in pounds per year (lbs/yr)	1538.5	1573.1	1479.9	1349.8

Actual SOx Emission Reductions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Allocation in tons per year (tons/yr)	0.2	0.2	0.2	0.2
Allocation in pounds per year (lbs/yr)	439.6	449.5	422.8	385.7

Actual VOC Emission Reductions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Allocation in tons per year (tons/yr)	0.4	0.5	0.4	0.4
Allocation in pounds per year (lbs/yr)	893.1	913.2	859.1	783.6

Actual PM Emission Reductions by Calendar Quarter

Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Allocation in tons per year (tons/yr)	0.5	0.5	0.5	0.4
Allocation in pounds per year (lbs/yr)	955.1	1032.0	1009.9	868.9

Attachment 3

Source Test Summary of Results for 2025
CO, NOx, SOx, and VOC

2.0 Summary of Results

Alliance conducted compliance testing at the Ameresco facility in Watsonville, California on June 25, 2025. Testing consisted of determining the emission rates of NO_x, CO, and VOC at the exhaust of one (1) IC Engine

Tables 2-1 and 2-2 provides summaries of the emission testing results with comparisons to the applicable Monterey Bay Air Resources District (MBARD) permit limits. Any difference between the summary results listed in the following tables and the detailed results contained in appendices is due to rounding for presentation.

Table 2-1: Summary of Results – IC Engine 1 (1 of 2)
S/N 6228161

Run Number	Run 1	Run 2	Run 3	Average
Date	6/25/25	6/25/25	6/25/25	--
Carbon Monoxide Data				
Emission Rate, lb/hr	7.27	7.11	6.99	7.12
Emission Limit, lb/hr	--	--	--	9.70
Percent of Limit, %	--	--	--	73
Emission Factor, g/HP-hr	3.38	3.29	1.43	2.70
Emission Limit, g/HP-hr	--	--	--	3.0
Percent of Limit, %	--	--	--	90
Emission Factor, lb/kW-hr	0.0104	0.0101	0.0100	0.0101
Nitrogen Oxides Data				
Emission Rate, lb/hr	1.31	1.17	1.09	1.19
Emission Limit, lb/hr	--	--	--	3.56
Percent of Limit, %	--	--	--	33
Emission Factor, g/HP-hr	0.28	0.54	0.51	0.44
Emission Limit, g/HP-hr	--	--	--	1.1
Percent of Limit, %	--	--	--	40
Emission Factor, lb/kW-hr	0.0019	0.0017	0.0016	0.0017
Fuel Gas Sulfur Data				
Concentration, gr/100 scf	--	--	--	1.514
Permit Limit, gr/100 scf	--	--	--	50
Percent of Limit, %	--	--	--	3
Concentration, % volume	--	--	--	0.00044
Concentration, ppm SO _x as SO ₂ (Outlet)	--	--	--	4.40
Permit Limit, ppm SO _x as SO ₂ (Outlet)	--	--	--	2,000
Percent of Limit, %	--	--	--	< 1

Table 2-2: Summary of Results – IC Engine 1 (2 of 2)
S/N 6228161

Run Number	Run 1	Run 2	Run 3	Average
Date	6/25/25	6/25/25	6/25/25	--
VOC Data (C2-C6+) as Hexane				
Concentration, ppmvd @ 3% O ₂	8.50	8.64	8.50	8.55
Emission Limit, ppmvd @ 3% O ₂	--	--	--	20
Percent of Limit, %	--	--	--	43
Emission Factor, lb/kW-hr	0.0003	0.0003	0.0003	0.0003
VOC Data (C2-C6+) as Methane				
Concentration, ppmvd @ 15% O ₂	16.81	17.08	16.81	16.90
Emission Rate, lb/hr	0.21	0.22	0.21	0.21
Emission Limit, lb/hr	--	--	--	1.94
Percent of Limit, %	--	--	--	11
Emission Factor, g/HP-hr	0.0998	0.0997	0.0966	0.0987
Emission Limit, g/HP-hr	--	--	--	0.6
Percent of Limit, %	--	--	--	16
Emission Factor, lb/kW-hr	0.0003	0.0003	0.0003	0.0003
Methane Data				
Emission Rate, lb/hr	8.32	8.22	8.07	8.20
Concentration, ppmvd @ 15% O ₂	652.52	653.50	653.72	653.25
Emission Limit, ppmvd @ 15% O ₂	--	--	--	3,000
Percent of Limit, %	--	--	--	22

Location Ameresco Santa Cruz LLC - Watsonville, CA
Source IC Engine 1
Project No. AST-2025-2616

Run Number		Run 1	Run 2	Run 3	Average
Date		6/25/25	6/25/25	6/25/25	--
Start Time		9:54	11:16	12:40	--
Stop Time		10:58	12:22	13:45	--
Source Data					
Actual kW	kW	702	705	703	703
Maximum kW Rating	MaxkW	1,057	1,057	1,057	1,057
Source Brake Work, HP	EBW	974	979	976	976
Maximum Brake Work, HP	MaxEBW	1,468	1,468	1,468	1,468
Source Load, %	EL	66	67	66	67
Fuel Heating Value, Btu/scf	F _{HV}	384	384	384	384
Fuel Factor (O ₂ dry), dscf/MMBtu	F _d	9,994	9,994	9,994	9,994
Fuel Rate, scfm	F _R	375.4	370.7	363.8	370.0
Input Data - Outlet					
Volumetric Flow Rate (M19), dscfm	Q _s	2,056	2,037	2,005	2,033
Calculated Data - Outlet					
O ₂ Concentration, % dry	C _{O₂}	6.25	6.31	6.34	6.30
CO Concentration, ppmvd	C _{CO}	791.40	788.27	785.33	788.33
CO Concentration, ppmvd @ 15 % O ₂	C _{COe15}	318.80	318.67	318.33	318.60
CO Emission Rate, lb/hr	ER _{CO}	7.27	7.11	6.99	7.12
CO Emission Factor, g/HP-hr	EF _{CO}	3.38	3.29	1.43	2.70
CO Emission Factor, lb/kW-hr	EF _{CO}	0.0104	0.0101	0.0100	0.0101
NO _x Concentration, ppmvd	C _{NO_x}	89.06	78.86	74.79	80.90
NO _x Concentration, ppmvd @ 15 % O ₂	C _{NO_xe15}	35.88	31.88	30.31	32.69
NO _x Emission Rate, lb/hr	ER _{NO_x}	1.31	1.17	1.09	1.19
NO _x Emission Factor, g/HP-hr	EF _{NO_x}	0.28	0.54	0.51	0.44
NO _x Emission Factor, lb/kW-hr	EF _{NO_x}	0.0019	0.0017	0.0016	0.0017
Fuel Analysis					
Fuel Gas Sulfur Concentration, ppm	C _{ppm}	24.17			
Fuel Gas Sulfur Concentration, gr/scf	C _{gr/scf}	0.0151			
Fuel Gas Sulfur Concentration, gr/100 scf	C _{gr/100 scf}	1.514			
Inlet Fuel Gas Sulfur as SO ₂ Emission Rate, lb/hr	ER _{TRSi}	0.089			
Outlet Fuel Gas Sulfur as SO ₂ Emission Rate, lb/hr	ER _{TRSo}	0.089			
Outlet Fuel Sulfur as SO ₂ Concentration, % volume	C _{% vol}	0.00044			
Outlet Fuel Gas Sulfur as SO ₂ Concentration, ppm	ER _{TRS}	4.40			

Table 2-3: Summary of Results – IC Engine 2 (1 of 2)
S/N 3397883

Run Number	Run 1	Run 2	Run 3	Average
Date	11/20/25	11/20/25	11/20/25	--
Carbon Monoxide Data				
Emission Rate, lb/hr	6.51	6.54	6.51	6.52
Emission Limit, lb/hr	--	--	--	9.70
Percent of Limit, %	--	--	--	67
Emission Factor, g/HP-hr	2.66	3.05	3.04	2.92
Emission Limit, g/HP-hr	--	--	--	3.0
Percent of Limit, %	--	--	--	97
Emission Factor, lb/kW-hr	0.0002	0.0002	0.0002	0.0002
Nitrogen Oxides Data				
Emission Rate, lb/hr	1.14	1.15	1.14	1.14
Emission Limit, lb/hr	--	--	--	3.56
Percent of Limit, %	--	--	--	32
Emission Factor, g/HP-hr	0.46	0.53	0.53	0.51
Emission Limit, g/HP-hr	--	--	--	1.1
Percent of Limit, %	--	--	--	46
Emission Factor, lb/kW-hr	0.0002	0.0002	0.0002	0.0002
Fuel Gas Sulfur Data				
Concentration, gr/100 scf	--	--	--	2.6166
Permit Limit, gr/100 scf	--	--	--	50
Percent of Limit, %	--	--	--	5
Concentration, % volume	--	--	--	0.00064
Concentration, ppm SO _x as SO ₂ (Outlet)	--	--	--	6.42
Permit Limit, ppm SO _x as SO ₂ (Outlet)	--	--	--	2,000
Percent of Limit, %	--	--	--	< 1

Table 2-4: Summary of Results – IC Engine 2 (2 of 2)
S/N 3397883

Run Number	Run 1	Run 2	Run 3	Average
Date	11/20/25	11/20/25	11/20/25	--
VOC Data (C2-C6+) as Hexane				
Concentration, ppmvd @ 3% O ₂	11.42	12.47	12.15	12.02
Emission Limit, ppmvd @ 3% O ₂	--	--	--	20
Percent of Limit, %	--	--	--	60
Emission Factor, lb/kW-hr	0.0290	0.0317	0.0309	0.0305
VOC Data (C2-C6+) as Methane				
Concentration, ppmvd @ 15% O ₂	22.59	24.66	24.04	23.76
Emission Rate, lb/hr	0.28	0.31	0.29	0.29
Emission Limit, lb/hr	--	--	--	1.94
Percent of Limit, %	--	--	--	15
Emission Factor, g/HP-hr	0.114	0.142	0.138	0.131
Emission Limit, g/HP-hr	--	--	--	0.6
Percent of Limit, %	--	--	--	22
Emission Factor, lb/kW-hr	0.0324	0.0353	0.0345	0.0341
Methane Data				
Emission Rate, lb/hr	23.65	24.12	23.41	23.73
Concentration, ppmvd @ 15% O ₂	1913.23	1950.53	1911.03	1924.93
Emission Limit, ppmvd @ 15% O ₂	--	--	--	3,000
Percent of Limit, %	--	--	--	64

Location Ameresco Santa Cruz LLC - Watsonville, CA
Source IC Engine 2, S/N 3397883
Project No. AST-2025-4335

Run Number		Run 1	Run 2	Run 3	Average
Date		11/20/25	11/20/25	11/20/25	--
Start Time		10:24	11:51	13:17	--
Stop Time		11:34	12:58	14:24	--
Source Data					
Actual kW	kW	900	900	900	900
Maximum kW Rating	MaxkW	1,057	1,057	1,057	1,057
Source Brake Work, HP	EBW	1,250	1,250	1,250	1,250
Maximum Brake Work, HP	MaxEBW	1,468	1,468	1,468	1,468
Source Load, %	EL	85	85	85	85
Fuel Heating Value, Btu/scf	F _{HV}	429	429	429	429
Fuel Factor (O ₂ dry), dscf/MMBtu	F _d	9,710	9,710	9,710	9,710
Fuel Rate, scfm	F _R	377	375	372	375
Input Data - Outlet					
Volumetric Flow Rate (M19), dscfm	Q _s	2,368	2,365	2,351	2,361
Calculated Data - Outlet					
O ₂ Concentration, % dry	C _{O₂}	7.04	7.09	7.13	7.09
CO Concentration, ppmvd	C _{CO}	669.12	665.09	661.83	665.35
CO Concentration, ppmvd @ 15 % O ₂	C _{COe15}	284.86	284.21	283.49	284.19
CO Emission Rate, lb/hr	ER _{CO}	6.92	6.86	6.79	6.86
CO Emission Factor, g/HP-hr	EF _{CO}	2.51	2.49	2.46	2.49
CO Emission Factor, lb/kW-hr	EF _{CO}	0.0077	0.0076	0.0075	0.0076
NO _x Concentration, ppmvd	C _{NO_x}	102.03	99.72	96.13	99.29
NO _x Concentration, ppmvd @ 15 % O ₂	C _{NO_xe15}	43.44	42.61	41.18	42.41
NO _x Emission Rate, lb/hr	ER _{NO_x}	1.73	1.69	1.62	1.68
NO _x Emission Factor, g/HP-hr	EF _{NO_x}	0.63	0.61	0.59	0.61
NO _x Emission Factor, lb/kW-hr	EF _{NO_x}	0.0019	0.0019	0.0018	0.0019
Landfill Gas Fuel Analysis					
Landfill Gas Sulfur Concentration, ppm	C _{ppm}		40.09		
Landfill Gas Sulfur Concentration, gr/100 scf	C _{gr/100 scf}		2.5108		
Inlet Fuel Gas Sulfur as SO ₂ Emission Rate, lb/hr	ER _{TRSo}		0.150		
Outlet Fuel Gas Sulfur as SO ₂ Emission Rate, lb/hr	ER _{TRSo}		0.150		
Outlet Fuel Sulfur as SO ₂ Concentration, % volume	C _{% vol}		0.00064		
Outlet Fuel Gas Sulfur as SO ₂ Concentration, ppm	ER _{TRS}		6.37		

2.0 Summary of Results

Alliance conducted compliance testing at the Ameresco facility in Watsonville, California on **November 20, 2025**. Testing consisted of determining the emission rates of NO_x, CO, and VOC at the exhaust of two (2) IC Engines.

Tables 2-1 through 2-4 provides summaries of the emission testing results with comparisons to the applicable Monterey Bay Air Resources District (MBARD) permit limits. Any difference between the summary results listed in the following tables and the detailed results contained in appendices is due to rounding for presentation.

Table 2-1: Summary of Results – IC Engine 3 (1 of 2)
S/N 4378971

Run Number	Run 1	Run 2	Run 3	Average
Date	11/20/25	11/20/25	11/20/25	--
Carbon Monoxide Data				
Emission Rate, lb/hr	6.92	6.86	6.79	6.86
Emission Limit, lb/hr	--	--	--	9.70
Percent of Limit, %	--	--	--	71
Emission Factor, g/HP-hr	2.51	2.49	2.46	2.49
Emission Limit, g/HP-hr	--	--	--	3.0
Percent of Limit, %	--	--	--	83
Emission Factor, lb/kW-hr	0.0077	0.0076	0.0075	0.0076
Nitrogen Oxides Data				
Emission Rate, lb/hr	1.73	1.69	1.62	1.68
Emission Limit, lb/hr	--	--	--	3.56
Percent of Limit, %	--	--	--	47
Emission Factor, g/HP-hr	0.63	0.61	0.59	0.61
Emission Limit, g/HP-hr	--	--	--	1.1
Percent of Limit, %	--	--	--	55
Emission Factor, lb/kW-hr	0.0019	0.0019	0.0018	0.0019
Fuel Gas Sulfur Data				
Concentration, gr/100 scf	--	--	--	2.5108
Permit Limit, gr/100 scf	--	--	--	50
Percent of Limit, %	--	--	--	5
Concentration, % volume	--	--	--	0.00064
Concentration, ppm SO _x as SO ₂ (Outlet)	--	--	--	6.37
Permit Limit, ppm SO _x as SO ₂ (Outlet)	--	--	--	2,000
Percent of Limit, %	--	--	--	< 1

Table 2-2: Summary of Results – IC Engine 3 (2 of 2)
S/N 4378971

Run Number	Run 1	Run 2	Run 3	Average
Date	11/20/25	11/20/25	11/20/25	--
VOC Data (C2-C6+) as Hexane				
Concentration, ppmvd @ 3% O ₂	7.62	7.89	7.80	7.77
Emission Limit, ppmvd @ 3% O ₂	--	--	--	20
Percent of Limit, %	--	--	--	39
Emission Factor, lb/kW-hr	0.0004	0.0004	0.0004	0.0004
VOC Data (C2-C6+) as Methane				
Concentration, ppmvd @ 15% O ₂	15.07	15.60	15.42	15.36
Emission Rate, lb/hr	0.21	0.22	0.21	0.21
Emission Limit, lb/hr	--	--	--	1.94
Percent of Limit, %	--	--	--	11
Emission Factor, g/HP-hr	0.076	0.078	0.077	0.077
Emission Limit, g/HP-hr	--	--	--	0.6
Percent of Limit, %	--	--	--	13
Emission Factor, lb/kW-hr	0.0004	0.0004	0.0004	0.0004
Methane Data				
Emission Rate, lb/hr	8.25	8.28	8.16	8.23
Concentration, ppmvd @ 15% O ₂	593.64	599.43	595.42	596.16
Emission Limit, ppmvd @ 15% O ₂	--	--	--	3,000
Percent of Limit, %	--	--	--	20

Location Ameresco Santa Cruz LLC - Watsonville, CA

Source IC Engine 3 , SN 4378971

Project No. AST-2025-4335

Run Number		Run 1	Run 2	Run 3	Average
Date		11/20/25	11/20/25	11/20/25	--
Start Time		14:50	16:11	17:36	--
Stop Time		15:57	17:19	18:47	--
Source Data					
Actual kW	kW	700	700	700	700
Maximum kW Rating	MaxkW	1,057	1,057	1,057	1,057
Source Brake Work, HP	EBW	1,110	972	972	1,018
Maximum Brake Work, HP	MaxEBW	1,468	1,468	1,468	1,468
Source Load, %	EL	66	66	66	66
Fuel Heating Value, Btu/scf	F _{HV}	436	436	436	436
Fuel Factor (O ₂ dry), dscf/MMBtu	F _d	9,713	9,713	9,713	9,713
Fuel Rate, scfm	F _R	330	330	327	329
Input Data - Outlet					
Volumetric Flow Rate (M19), dscfm	Q _s	2,150	2,152	2,136	2,146
Calculated Data - Outlet					
O ₂ Concentration, % dry	C _{O₂}	7.31	7.33	7.35	7.33
CO Concentration, ppmvd	C _{CO}	693.84	696.47	698.50	696.27
CO Concentration, ppmvd @ 15 % O ₂	C _{CO@15}	301.29	302.82	304.17	302.76
CO Emission Rate, lb/hr	ER _{CO}	6.51	6.54	6.51	6.52
CO Emission Factor, g/HP-hr	EF _{CO}	2.66	3.05	3.04	2.92
CO Emission Factor, lb/kW-hr	EF _{CO}	0.0093	0.0093	0.0093	0.0093
NO _x Concentration, ppmvd	C _{NO_x}	73.66	74.30	74.51	74.16
NO _x Concentration, ppmvd @ 15 % O ₂	C _{NO_x@15}	31.99	32.31	32.45	32.25
NO _x Emission Rate, lb/hr	ER _{NO_x}	1.14	1.15	1.14	1.14
NO _x Emission Factor, g/HP-hr	EF _{NO_x}	0.46	0.53	0.53	0.51
NO _x Emission Factor, lb/kW-hr	EF _{NO_x}	0.0016	0.0016	0.0016	0.0016
Landfill Gas Fuel Analysis					
Landfill Gas Sulfur Concentration, ppm	C _{ppm}		41.78		
Landfill Gas Sulfur Concentration, gr/100 scf	C _{gr/100 scf}		2.6166		
Inlet Fuel Gas Sulfur as SO ₂ Emission Rate, lb/hr	ER _{TRSo}		0.137		
Outlet Fuel Gas Sulfur as SO ₂ Emission Rate, lb/hr	ER _{TRSo}		0.137		
Outlet Fuel Sulfur as SO ₂ Concentration, % volume	C _{% vol}		0.00064		
Outlet Fuel Gas Sulfur as SO ₂ Concentration, ppm	ER _{TRS}		6.42		

Source Test Summary of Results for 2024
CO, NO_x, SO_x, and VOC

2.0 Summary of Results

Alliance conducted compliance testing at the Ameresco facility in Watsonville, CA on June 12 & 13, 2024. Testing consisted of determining the emission rates of NO_x, CO, and VOC at the exhaust of three (3) IC Engines

Tables 2-1 through 2-6 provides summaries of the emission testing results with comparisons to the applicable Monterey Bay Air Resources District (MBARD) permit limits. Any difference between the summary results listed in the following tables and the detailed results contained in appendices is due to rounding for presentation.

Table 2-1: Summary of Results – IC Engine 2 (1 of 2)
SN 3397883

Run Number	Run 1	Run 2	Run 3	Average
Date	6/12/24	6/12/24	6/12/24	--
Carbon Monoxide Data				
Emission Rate, lb/hr	7.14	6.59	6.66	6.79
Emission Limit, lb/hr	--	--	--	9.70
Percent of Limit, %	--	--	--	70
Emission Factor, g/HP-hr	2.92	2.69	2.72	2.78
Emission Limit, g/HP-hr	--	--	--	3.0
Percent of Limit, %	--	--	--	93
Emission Factor, lb/kW-hr	0.0089	0.0082	0.0083	0.0085
Nitrogen Oxides Data				
Emission Rate, lb/hr	1.25	0.99	1.05	1.10
Emission Limit, lb/hr	--	--	--	3.56
Percent of Limit, %	--	--	--	31
Emission Factor, g/HP-hr	0.51	0.41	0.43	0.45
Emission Limit, g/HP-hr	--	--	--	1.1
Percent of Limit, %	--	--	--	41
Emission Factor, lb/kW-hr	0.0016	0.0012	0.0013	0.0014
Fuel Gas Sulfur Data				
Concentration, gr/100 scf	--	--	--	2.93
Permit Limit, gr/100 scf	--	--	--	50
Percent of Limit, %	--	--	--	5
Concentration, ppm SO _x as SO ₂ (Outlet)	--	--	--	7.92
Permit Limit, ppm SO _x as SO ₂ (Outlet)	--	--	--	2,000
Percent of Limit, %	--	--	--	< 1

Table 2-2: Summary of Results – IC Engine 2 (2 of 2)
SN 3397883

Run Number	Run 1	Run 2	Run 3	Average
Date	6/12/24	6/12/24	6/12/24	--
VOC Data (C2-C6+) as Hexane				
Concentration, ppmvd @ 3% O ₂	12.16	10.12	10.41	10.90
Emission Limit, ppmvd @ 3% O ₂	--	--	--	20
Percent of Limit, %	--	--	--	54
Emission Factor, lb/kW-hr	0.0004	0.0003	0.0003	0.0003
VOC Data (C2-C6+) as Methane				
Concentration, ppmvd @ 15% O ₂	24.05	20.01	20.58	21.55
Emission Rate, lb/hr	0.332	0.262	0.270	0.288
Emission Limit, lb/hr	--	--	--	1.94
Percent of Limit, %	--	--	--	15
Emission Factor, g/HP-hr	0.136	0.107	0.110	0.118
Emission Limit, g/HP-hr	--	--	--	0.6
Percent of Limit, %	--	--	--	20
Emission Factor, lb/kW-hr	0.0004	0.0003	0.0003	0.0004
Methane Data				
Concentration, ppmvd @ 15% O ₂	688.97	669.20	689.77	682.65
Emission Limit, ppmvd @ 15% O ₂	--	--	--	3,000
Percent of Limit, %	--	--	--	23

Table 2-3: Summary of Results – IC Engine 3 (1 of 2)
SN 4378971

Run Number	Run 1	Run 2	Run 3	Average
Date	6/13/24	6/13/24	6/13/24	--
Carbon Monoxide Data				
Emission Rate, lb/hr	6.57	6.52	6.52	6.54
Emission Limit, lb/hr	--	--	--	9.70
Percent of Limit, %	--	--	--	67
Emission Factor, g/HP-hr	2.68	2.66	2.66	2.67
Emission Limit, g/HP-hr	--	--	--	3.0
Percent of Limit, %	--	--	--	89
Emission Factor, lb/kW-hr	0.0082	0.0082	0.0081	0.0082
Nitrogen Oxides Data				
Emission Rate, lb/hr	1.26	1.17	1.16	1.20
Emission Limit, lb/hr	--	--	--	3.56
Percent of Limit, %	--	--	--	34
Emission Factor, g/HP-hr	0.52	0.48	0.47	0.49
Emission Limit, g/HP-hr	--	--	--	1.1
Percent of Limit, %	--	--	--	44
Emission Factor, lb/kW-hr	0.0016	0.0015	0.0014	0.0015
Fuel Gas Sulfur Data				
Concentration, gr/100 scf	--	--	--	2.93
Permit Limit, gr/100 scf	--	--	--	50
Percent of Limit, %	--	--	--	5
Concentration, ppm SOx as SO ₂ (Outlet)	--	--	--	8.04
Permit Limit, ppm SOx as SO ₂ (Outlet)	--	--	--	2,000
Percent of Limit, %	--	--	--	< 1

Table 2-4: Summary of Results – IC Engine 3 (2 of 2)
SN 4378971

Run Number	Run 1	Run 2	Run 3	Average
Date	6/13/24	6/13/24	6/13/24	--
VOC Data (C2-C6+) as Hexane				
Concentration, ppmvd @ 3% O ₂	7.34	7.31	7.11	7.25
Emission Limit, ppmvd @ 3% O ₂	--	--	--	20
Percent of Limit, %	--	--	--	36
Emission Factor, lb/kW-hr	0.0002	0.0002	0.0002	0.0002
VOC Data (C2-C6+) as Methane				
Concentration, ppmvd @ 15% O ₂	14.52	14.45	14.05	14.34
Emission Rate, lb/hr	0.193	0.191	0.185	0.190
Emission Limit, lb/hr	--	--	--	1.94
Percent of Limit, %	--	--	--	10
Emission Factor, g/HP-hr	0.079	0.078	0.076	0.078
Emission Limit, g/HP-hr	--	--	--	0.6
Percent of Limit, %	--	--	--	13
Emission Factor, lb/kW-hr	0.0002	0.0002	0.0002	0.0002
Methane Data				
Concentration, ppmvd @ 15% O ₂	553.92	554.24	552.88	553.68
Emission Limit, ppmvd @ 15% O ₂	--	--	--	3,000
Percent of Limit, %	--	--	--	18

Table 2-5: Summary of Results – IC Engine 1 (1 of 2)
SN 6228161

Run Number	Run 1	Run 2	Run 3	Average
Date	6/13/24	6/13/24	6/13/24	--
Carbon Monoxide Data				
Emission Rate, lb/hr	6.77	6.57	6.52	6.62
Emission Limit, lb/hr	--	--	--	9.70
Percent of Limit, %	--	--	--	68
Emission Factor, g/HP-hr	2.76	2.68	2.66	2.70
Emission Limit, g/HP-hr	--	--	--	3.0
Percent of Limit, %	--	--	--	90
Emission Factor, lb/kW-hr	0.0084	0.0082	0.0082	0.0083
Nitrogen Oxides Data				
Emission Rate, lb/hr	1.78	1.80	1.75	1.77
Emission Limit, lb/hr	--	--	--	3.56
Percent of Limit, %	--	--	--	50
Emission Factor, g/HP-hr	0.72	0.73	0.71	0.72
Emission Limit, g/HP-hr	--	--	--	1.1
Percent of Limit, %	--	--	--	66
Emission Factor, lb/kW-hr	0.0022	0.0022	0.0022	0.0022
Fuel Gas Sulfur Data				
Concentration, gr/100 scf	--	--	--	2.93
Permit Limit, gr/100 scf	--	--	--	50
Percent of Limit, %	--	--	--	5
Concentration, ppm SO _x as SO ₂ (Outlet)	--	--	--	8.11
Permit Limit, ppm SO _x as SO ₂ (Outlet)	--	--	--	2,000
Percent of Limit, %	--	--	--	< 1

Table 2-6: Summary of Results – IC Engine 1 (2 of 2)
SN 6228161

Run Number	Run 1	Run 2	Run 3	Average
Date	6/13/24	6/13/24	6/13/24	--
VOC Data (C2-C6+) as Hexane				
Concentration, ppmvd @ 3% O ₂	10.01	10.10	9.85	9.99
Emission Limit, ppmvd @ 3% O ₂	--	--	--	20
Percent of Limit, %	--	--	--	50
Emission Factor, lb/kW-hr	0.0003	0.0003	0.0003	0.0003
VOC Data (C2-C6+) as Methane				
Concentration, ppmvd @ 15% O ₂	19.79	19.97	19.48	19.75
Emission Rate, lb/hr	0.259	0.259	0.252	0.257
Emission Limit, lb/hr	--	--	--	1.94
Percent of Limit, %	--	--	--	13
Emission Factor, g/HP-hr	0.106	0.106	0.103	0.105
Emission Limit, g/HP-hr	--	--	--	0.6
Percent of Limit, %	--	--	--	17
Emission Factor, lb/kW-hr	0.0003	0.0003	0.0003	0.0003
Methane Data				
Concentration, ppmvd @ 15% O ₂	658.58	651.36	649.45	653.13
Emission Limit, ppmvd @ 15% O ₂	--	--	--	3,000
Percent of Limit, %	--	--	--	22

Location Ameresco Santa Cruz LLC - Buena Vista Landfill

Source IC Engine 2 (S/N 3397883)

Project No. AST-2024-2635

Run Number		Run 1	Run 2	Run 3	Average
Date		6/12/24	6/12/24	6/12/24	--
Start Time		9:57	14:28	15:52	--
Stop Time		10:59	15:30	16:54	--
Source Data					
Actual kW	kW	799	800	800	800
Maximum kW Rating	MaxkW	1,057	1,057	1,057	1,057
Engine Brake Work, HP	EBW	1,110	1,111	1,111	1,111
Maximum Brake Work, HP	MaxEBW	1,468	1,468	1,468	1,468
Source Load, %	EL	76	76	76	76
Fuel Heating Value, Btu/scf	F _{HV}	402	402	402	402
Fuel Factor (O ₂ dry), dscf/MMBtu	F _d	9,728	9,728	9,728	9,728
Fuel Rate, scfm	F _R	399	378	379	386
Input Data - Outlet					
Volumetric Flow Rate (M19), dscfm	Q _s	2,321	2,219	2,251	2,264
Calculated Data - Outlet					
O ₂ Concentration, % dry	C _{O₂}	6.84	6.99	7.12	6.98
CO Concentration, ppmvd	C _{CO}	704.43	680.09	678.06	687.53
CO Concentration, ppmvd @ 15 % O ₂	C _{CO@15}	295.51	288.37	290.34	291.41
CO Emission Rate, lb/hr	ER _{CO}	7.14	6.59	6.66	6.79
CO Emission Factor, g/HP-hr	EF _{CO}	2.92	2.69	2.72	2.78
CO Emission Factor, lb/kW-hr	EF _{CO PPT}	0.0089	0.0082	0.0083	0.0085
NO _x Concentration, ppmvd	C _{NO_x}	75.05	62.49	65.29	67.61
NO _x Concentration, ppmvd @ 15 % O ₂	C _{NO_x@15}	31.48	26.50	27.96	28.65
NO _x Emission Rate, lb/hr	ER _{NO_x}	1.25	0.99	1.05	1.10
NO _x Emission Factor, g/HP-hr	EF _{NO_x}	0.51	0.41	0.43	0.45
CO Emission Factor, lb/kW-hr	EF _{CO PPT}	0.0016	0.0012	0.0013	0.0014

Fuel Analysis		
Fuel Gas Sulfur Concentration, ppm	C _{ppm}	46.5
Fuel Gas Sulfur Concentration, gr/scf	C _{gr/scf}	0.0293
Fuel Gas Sulfur Concentration, gr/100 scf	C _{gr/100 scf}	2.93
Inlet Fuel Gas Sulfur Emission Rate, lb/hr	ER _{TRSi}	0.18
Outlet Fuel Gas Sulfur Emission Rate, lb/hr	C _{TRS}	0.18
Outlet Fuel Gas Sulfur Concentration, ppm	ER _{TRS}	7.92

Location Ameresco Santa Cruz LLC - Buena Vista Landfill
Source IC Engine 3 (S/N 6228161)
Project No. AST-2024-2635

Run Number		Run 1	Run 2	Run 3	Average
Date		6/13/24	6/13/24	6/13/24	--
Start Time		7:50	9:12	10:33	--
Stop Time		8:52	10:17	11:37	--
Source Data					
Actual kW	kW	799	800	801	800
Maximum kW Rating	MaxkW	1,057	1,057	1,057	1,057
Engine Brake Work, HP	EBW	1,110	1,111	1,112	1,111
Maximum Brake Work, HP	MaxEBW	1,468	1,468	1,468	1,468
Source Load, %	EL	76	76	76	76
Fuel Heating Value, Btu/scf	F _{HV}	402	402	402	402
Fuel Factor (O ₂ dry), dscf/MMBtu	F _d	9,728	9,728	9,728	9,728
Fuel Rate, scfm	F _R	384	383	381	382
Input Data - Outlet					
Volumetric Flow Rate (M19), dscfm	Q _s	2,217	2,215	2,207	2,213
Calculated Data - Outlet					
O ₂ Concentration, % dry	C _{O₂}	6.76	6.77	6.79	6.77
CO Concentration, ppmvd	C _{CO}	678.70	674.56	676.51	676.59
CO Concentration, ppmvd @ 15 % O ₂	C _{COc15}	283.19	281.72	282.87	282.60
CO Emission Rate, lb/hr	ER _{CO}	6.57	6.52	6.52	6.54
CO Emission Factor, g/HP-hr	EF _{CO}	2.68	2.66	2.66	2.67
CO Emission Factor, lb/kW-hr	EF _{CO PPT}	0.0082	0.0082	0.0081	0.0082
NO _x Concentration, ppmvd	C _{NO_x}	79.33	73.73	73.39	75.48
NO _x Concentration, ppmvd @ 15 % O ₂	C _{NOxc15}	33.10	30.79	30.69	31.53
NO _x Emission Rate, lb/hr	ER _{NO_x}	1.26	1.17	1.16	1.20
NO _x Emission Factor, g/HP-hr	EF _{NO_x}	0.52	0.48	0.47	0.49
CO Emission Factor, lb/kW-hr	EF _{CO PPT}	0.0016	0.0015	0.0014	0.0015

Fuel Analysis		
Fuel Gas Sulfur Concentration, ppm	C _{ppm}	46.5
Fuel Gas Sulfur Concentration, gr/scf	C _{gr/scf}	0.0293
Fuel Gas Sulfur Concentration, gr/100 scf	C _{gr/100 scf}	2.93
Inlet Fuel Gas Sulfur Emission Rate, lb/hr	ER _{TRSi}	0.18
Outlet Fuel Gas Sulfur Emission Rate, lb/hr	C _{TRS}	0.18
Outlet Fuel Gas Sulfur Concentration, ppm	ER _{TRS}	8.04

Location Ameresco Santa Cruz LLC - Buena Vista Landfill
Source IC Engine 1 (S/N 4378971)
Project No. AST-2024-2635

Run Number		Run 1	Run 2	Run 3	Average
Date		6/13/24	6/13/24	6/13/24	--
Start Time		12:15	14:35	15:53	--
Stop Time		13:17	15:37	16:55	--
Source Data					
Actual kW	kW	801	800	800	800
Maximum kW Rating	MaxkW	1,057	1,057	1,057	1,057
Engine Brake Work, HP	EBW	1,112	1,111	1,111	1,112
Maximum Brake Work, HP	MaxEBW	1,468	1,468	1,468	1,468
Source Load, %	EL	76	76	76	76
Fuel Heating Value, Btu/scf	F _{HV}	402	402	402	402
Fuel Factor (O ₂ dry), dscf/MMBtu	F _d	9,728	9,728	9,728	9,728
Fuel Rate, scfm	F _R	378	375	374	376
Input Data - Outlet					
Volumetric Flow Rate (M19), dscfm	Q _s	2,166	2,146	2,145	2,152
Calculated Data - Outlet					
O ₂ Concentration, % dry	C _{O₂}	6.64	6.63	6.65	6.64
CO Concentration, ppmvd	C _{CO}	715.89	701.12	696.70	704.57
CO Concentration, ppmvd @ 15 % O ₂	C _{COc15}	296.20	289.91	288.46	291.52
CO Emission Rate, lb/hr	ER _{CO}	6.77	6.57	6.52	6.62
CO Emission Factor, g/HP-hr	EF _{CO}	2.76	2.68	2.66	2.70
CO Emission Factor, lb/kW-hr	EF _{CO PPT}	0.0084	0.0082	0.0082	0.0083
NO _x Concentration, ppmvd	C _{NO_x}	114.41	116.82	113.69	114.98
NO _x Concentration, ppmvd @ 15 % O ₂	C _{NOxc15}	47.34	48.30	47.07	47.57
NO _x Emission Rate, lb/hr	ER _{NO_x}	1.78	1.80	1.75	1.77
NO _x Emission Factor, g/HP-hr	EF _{NO_x}	0.72	0.73	0.71	0.72
CO Emission Factor, lb/kW-hr	EF _{CO PPT}	0.0022	0.0022	0.0022	0.0022

Fuel Analysis		
Fuel Gas Sulfur Concentration, ppm	C _{ppm}	46.5
Fuel Gas Sulfur Concentration, gr/scf	C _{gr/scf}	0.0293
Fuel Gas Sulfur Concentration, gr/100 scf	C _{gr/100 scf}	2.93
Inlet Fuel Gas Sulfur Emission Rate, lb/hr	ER _{TRSi}	0.17
Outlet Fuel Gas Sulfur Emission Rate, lb/hr	C _{TRS}	0.17
Outlet Fuel Gas Sulfur Concentration, ppm	ER _{TRS}	8.11

Source Test Summary of Results for 2023
CO, NO_x, SO_x, and VOC

2.0 Summary of Results

Alliance conducted compliance testing at the Ameresco facility in Watsonville, CA on June 7 & 8, 2023. Testing consisted of determining the emission rates of NO_x, CO, and VOC at the exhaust of three (3) IC Engines

Tables 2-1 through 2-6 provides summaries of the emission testing results with comparisons to the applicable Monterey Bay Air Resources District (MBARD) permit limits. Any difference between the summary results listed in the following tables and the detailed results contained in appendices is due to rounding for presentation.

Table 2-1: Summary of Results – IC Engine 3 (1 of 2)
SN 4378971

Run Number	Run 1	Run 2	Run 3	Average
Date	6/7/23	6/7/23	6/7/23	--
Carbon Monoxide Data				
Emission Rate, lb/hr	7.21	7.38	7.28	7.29
Emission Limit, lb/hr	--	--	--	9.70
Percent of Limit, %	--	--	--	75
Emission Factor, g/HP-hr	2.77	2.84	2.80	2.80
Emission Limit, g/HP-hr	--	--	--	3.0
Percent of Limit, %	--	--	--	93
Emission Factor, lb/kW-hr	0.0085	0.0087	0.0086	0.0086
Nitrogen Oxides Data				
Emission Rate, lb/hr	0.84	0.76	0.71	0.77
Emission Limit, lb/hr	--	--	--	3.56
Percent of Limit, %	--	--	--	22
Emission Factor, g/HP-hr	0.32	0.29	0.27	0.30
Emission Limit, g/HP-hr	--	--	--	1.1
Percent of Limit, %	--	--	--	27
Emission Factor, lb/kW-hr	0.0010	0.0009	0.0008	0.0009
Fuel Gas Sulfur Data				
Concentration, gr/100 scf	--	--	--	3.67
Permit Limit, gr/100 scf	--	--	--	50
Percent of Limit, %	--	--	--	5
Concentration, ppm SO _x as SO ₂ (Outlet)	--	--	--	8.99
Permit Limit, ppm SO _x as SO ₂ (Outlet)	--	--	--	2,000
Percent of Limit, %	--	--	--	< 1

Table 2-2: Summary of Results – IC Engine 3 (2 of 2)
SN 4378971

Run Number	Run 1	Run 2	Run 3	Average
Date	6/7/23	6/7/23	6/7/23	--
VOC Data (C2-C6+) as Hexane				
Concentration, ppmvd @ 3% O ₂	15.81	16.94	16.11	16.29
Emission Limit, ppmvd @ 3% O ₂	--	--	--	20
Percent of Limit, %	--	--	--	81
Emission Factor, lb/kW-hr	0.0005	0.0005	0.0005	0.0005
VOC Data (C2-C6+) as Methane				
Concentration, ppmvd @ 15% O ₂	31.28	33.50	31.85	32.21
Emission Rate, lb/hr	0.433	0.467	0.441	0.447
Emission Limit, lb/hr	--	--	--	1.94
Percent of Limit, %	--	--	--	23
Emission Factor, g/HP-hr	0.166	0.180	0.170	0.172
Emission Limit, g/HP-hr	--	--	--	0.6
Percent of Limit, %	--	--	--	29
Emission Factor, lb/kW-hr	0.0005	0.0005	0.0005	0.0005
Methane Data				
Concentration, ppmvd @ 15% O ₂	766.61	753.72	765.78	762.03
Emission Limit, ppmvd @ 15% O ₂	--	--	--	3,000
Percent of Limit, %	--	--	--	25

Table 2-3: Summary of Results – IC Engine 2 (1 of 2)
SN 3397883

Run Number	Run 1	Run 2	Run 3	Average
Date	6/7/23	6/7/23	6/7/23	--
Carbon Monoxide Data				
Emission Rate, lb/hr	6.80	6.81	6.77	6.79
Emission Limit, lb/hr	--	--	--	9.70
Percent of Limit, %	--	--	--	70
Emission Factor, g/HP-hr	2.61	2.62	2.60	2.61
Emission Limit, g/HP-hr	--	--	--	3.0
Percent of Limit, %	--	--	--	87
Emission Factor, lb/kW-hr	0.0080	0.0080	0.0080	0.0080
Nitrogen Oxides Data				
Emission Rate, lb/hr	0.76	0.80	0.81	0.79
Emission Limit, lb/hr	--	--	--	3.56
Percent of Limit, %	--	--	--	22
Emission Factor, g/HP-hr	0.29	0.31	0.31	0.30
Emission Limit, g/HP-hr	--	--	--	1.1
Percent of Limit, %	--	--	--	28
Emission Factor, lb/kW-hr	0.0009	0.0009	0.0010	0.0009
Fuel Gas Sulfur Data				
Concentration, gr/100 scf	--	--	--	3.67
Permit Limit, gr/100 scf	--	--	--	50
Percent of Limit, %	--	--	--	5
Concentration, ppm SOx as SO ₂ (Outlet)	--	--	--	9.15
Permit Limit, ppm SOx as SO ₂ (Outlet)	--	--	--	2,000
Percent of Limit, %	--	--	--	< 1

Table 2-4: Summary of Results – IC Engine 2 (2 of 2)
SN 3397883

Run Number	Run 1	Run 2	Run 3	Average
Date	6/7/23	6/7/23	6/7/23	--
VOC Data (C2-C6+) as Hexane				
Concentration, ppmvd @ 3% O ₂	14.01	13.48	13.63	13.71
Emission Limit, ppmvd @ 3% O ₂	--	--	--	20
Percent of Limit, %	--	--	--	69
Emission Factor, lb/kW-hr	0.0004	0.0004	0.0004	0.0004
VOC Data (C2-C6+) as Methane				
Concentration, ppmvd @ 15% O ₂	27.70	26.65	26.96	27.11
Emission Rate, lb/hr	0.386	0.371	0.373	0.377
Emission Limit, lb/hr	--	--	--	1.94
Percent of Limit, %	--	--	--	19
Emission Factor, g/HP-hr	0.148	0.143	0.144	0.145
Emission Limit, g/HP-hr	--	--	--	0.6
Percent of Limit, %	--	--	--	24
Emission Factor, lb/kW-hr	0.0005	0.0004	0.0004	0.0004
Methane Data				
Concentration, ppmvd @ 15% O ₂	627.04	625.59	630.33	627.65
Emission Limit, ppmvd @ 15% O ₂	--	--	--	3,000
Percent of Limit, %	--	--	--	21

Table 2-5: Summary of Results – IC Engine 1 (1 of 2)
SN 6228161

Run Number	Run 1	Run 2	Run 3	Average
Date	6/8/23	6/8/23	6/8/23	--
Carbon Monoxide Data				
Emission Rate, lb/hr	5.98	5.96	5.88	5.94
Emission Limit, lb/hr	--	--	--	9.70
Percent of Limit, %	--	--	--	61
Emission Factor, g/HP-hr	2.50	2.50	2.46	2.49
Emission Limit, g/HP-hr	--	--	--	3.0
Percent of Limit, %	--	--	--	83
Emission Factor, lb/kW-hr	0.0077	0.0076	0.0075	0.0076
Nitrogen Oxides Data				
Emission Rate, lb/hr	0.78	0.73	0.73	0.75
Emission Limit, lb/hr	--	--	--	3.56
Percent of Limit, %	--	--	--	21
Emission Factor, g/HP-hr	0.33	0.31	0.30	0.31
Emission Limit, g/HP-hr	--	--	--	1.1
Percent of Limit, %	--	--	--	28
Emission Factor, lb/kW-hr	0.0010	0.0009	0.0009	0.0010
Fuel Gas Sulfur Data				
Concentration, gr/100 scf	--	--	--	3.67
Permit Limit, gr/100 scf	--	--	--	50
Percent of Limit, %	--	--	--	5
Concentration, ppm SO _x as SO ₂ (Outlet)	--	--	--	9.07
Permit Limit, ppm SO _x as SO ₂ (Outlet)	--	--	--	2,000
Percent of Limit, %	--	--	--	< 1

Table 2-5: Summary of Results – IC Engine 1 (2 of 2)
SN 6228161

Run Number	Run 1	Run 2	Run 3	Average
Date	6/8/23	6/8/23	6/8/23	--
VOC Data (C2-C6+) as Hexane				
Concentration, ppmvd @ 3% O ₂	15.34	15.26	16.25	15.62
Emission Limit, ppmvd @ 3% O ₂	--	--	--	20
Percent of Limit, %	--	--	--	78
Emission Factor, lb/kW-hr	0.0004	0.0004	0.0005	0.0005
VOC Data (C2-C6+) as Methane				
Concentration, ppmvd @ 15% O ₂	30.34	30.17	32.14	30.89
Emission Rate, lb/hr	0.389	0.387	0.407	0.394
Emission Limit, lb/hr	--	--	--	1.94
Percent of Limit, %	--	--	--	20
Emission Factor, g/HP-hr	0.163	0.162	0.170	0.165
Emission Limit, g/HP-hr	--	--	--	0.6
Percent of Limit, %	--	--	--	28
Emission Factor, lb/kW-hr	0.0005	0.0005	0.0005	0.0005
Methane Data				
Concentration, ppmvd @ 15% O ₂	652.41	644.46	629.89	642.25
Emission Limit, ppmvd @ 15% O ₂	--	--	--	3,000
Percent of Limit, %	--	--	--	21

Location Ameresco Santa Cruz LLC - Buena Vista Landfill
Source IC Engine - 3 (S/N 4378971)
Project No. AST-2023-2301

Run Number		Run 1	Run 2	Run 3	Average
Date		6/7/23	6/7/23	6/7/23	--
Start Time		10:59	12:26	13:57	--
Stop Time		11:59	13:26	14:57	--
Engine Data					
Actual kW	kW	850	850	850	850
Maximum kW Rating	MaxkW	1,057	1,057	1,057	1,057
Engine Brake Work, HP	EBW	1,181	1,181	1,181	1,181
Maximum Brake Work, HP	MaxEBW	1,468	1,468	1,468	1,468
Engine Load, %	EL	80	80	80	80
Fuel Heating Value, Btu/scf	F _{HV}	427	427	427	427
Fuel Factor (O ₂ dry), dscf/MMBtu	F _d	9,707	9,707	9,707	9,707
Fuel Rate, scfh	F _R	22,650	22,800	22,650	22,700
Input Data - Outlet					
Volumetric Flow Rate (M19), dscfm	Q _s	2,447	2,458	2,456	2,454
Calculated Data - Outlet					
O ₂ Concentration, % dry	C _{O₂}	7.54	7.51	7.58	7.54
CO Concentration, ppmvd	C _{CO}	675.19	687.87	678.87	680.64
CO Concentration, ppmvd @ 15 % O ₂	C _{COc15}	298.10	303.09	300.78	300.65
CO Emission Rate, lb/hr	ER _{CO}	7.21	7.38	7.28	7.29
CO Emission Factor, g/HP-hr	EF _{CO}	2.77	2.84	2.80	2.80
CO Emission Factor, lb/kW-hr	EF _{CO PPT}	0.0085	0.0087	0.0086	0.0086
NO _x Concentration, ppmvd	C _{NO_x}	48.07	43.14	40.09	43.77
NO _x Concentration, ppmvd @ 15 % O ₂	C _{NOxc15}	21.22	19.01	17.76	19.33
NO _x Emission Rate, lb/hr	ER _{NO_x}	0.84	0.76	0.71	0.77
NO _x Emission Factor, g/HP-hr	EF _{NO_x}	0.32	0.29	0.27	0.30
NO _x Emission Factor, lb/kW-hr	EF _{NO_x PPT}	0.0010	0.0009	0.0008	0.0009

Fuel Analysis		
Fuel Gas Sulfur Concentration, ppm	C _{ppm}	58.3
Fuel Gas Sulfur Concentration, gr/scf	C _{gr/scf}	0.037
Fuel Gas Sulfur Concentration, gr/100 scf	C _{gr/100 scf}	3.67
Inlet Fuel Gas Sulfur Emission Rate, lb/hr	ER _{TRSi}	0.22
Outlet Fuel Gas Sulfur Emission Rate, lb/hr	C _{TRS}	0.22
Outlet Fuel Gas Sulfur Concentration, ppm	ER _{TRS}	8.99

Location Ameresco Santa Cruz LLC - Buena Vista Landfill
Source IC Engine 2 (S/N 3397883)
Project No. AST-2023-2301

Run Number		Run 1	Run 2	Run 3	Average
Date		6/7/23	6/7/23	6/7/23	--
Start Time		15:59	17:24	18:49	--
Stop Time		16:59	18:24	19:49	--
Engine Data					
Actual kW	kW	850	850	850	850
Maximum kW Rating	MaxkW	1,057	1,057	1,057	1,057
Engine Brake Work, HP	EBW	1,181	1,181	1,181	1,181
Maximum Brake Work, HP	MaxEBW	1,468	1,468	1,468	1,468
Fuel Heating Value, Btu/scf	F _{HV}	427	427	427	427
Fuel Factor (O ₂ dry), dscf/MMBtu	F _d	9,707	9,707	9,707	9,707
Fuel Rate, scfh	F _R	22,800	22,800	22,650	22,750
Input Data - Outlet					
Volumetric Flow Rate (M19), dscfm	Q _s	2,422	2,424	2,402	2,416
Calculated Data - Outlet					
O ₂ Concentration, % dry	C _{O₂}	7.31	7.32	7.28	7.30
CO Concentration, ppmvd	C _{CO}	643.28	643.51	646.16	644.32
CO Concentration, ppmvd @ 15 % O ₂	C _{COc15}	279.25	279.56	280.01	279.61
CO Emission Rate, lb/hr	ER _{CO}	6.80	6.81	6.77	6.79
CO Emission Factor, g/HP-hr	EF _{CO}	2.61	2.62	2.60	2.61
CO Emission Factor, lb/kW-hr	EF _{CO PPT}	0.0080	0.0080	0.0080	0.0080
NO _x Concentration, ppmvd	C _{NO_x}	44.06	45.82	47.33	45.74
NO _x Concentration, ppmvd @ 15 % O ₂	C _{NOxc15}	19.12	19.91	20.51	19.85
NO _x Emission Rate, lb/hr	ER _{NO_x}	0.76	0.80	0.81	0.79
NO _x Emission Factor, g/HP-hr	EF _{NO_x}	0.29	0.31	0.31	0.30
NO _x Emission Factor, lb/kW-hr	EF _{NO_x PPT}	0.0009	0.0009	0.0010	0.0009

Fuel Analysis		
Fuel Gas Sulfur Concentration, ppm	C _{ppm}	58.3
Fuel Gas Sulfur Concentration, gr/scf	C _{gr/scf}	0.037
Fuel Gas Sulfur Concentration, gr/100 scf	C _{gr/100 scf}	3.67
Inlet Fuel Gas Sulfur Emission Rate, lb/hr	ER _{TRSi}	0.22
Outlet Fuel Gas Sulfur Emission Rate, lb/hr	C _{TRS}	0.22
Outlet Fuel Gas Sulfur Concentration, ppm	ER _{TRS}	9.15

Location Ameresco Santa Cruz LLC - Buena Vista Landfill
Source IC Engine 1 (S/N 6228161)
Project No. AST-2023-2301

Run Number		Run 1	Run 2	Run 3	Average
Date		6/8/23	6/8/23	6/8/23	--
Start Time		11:23	12:53	14:20	--
Stop Time		12:23	13:53	15:20	--
Engine Data					
Actual kW	kW	780	780	780	780
Maximum kW Rating	MaxkW	1,057	1,057	1,057	1,057
Engine Brake Work, HP	EBW	1,083	1,083	1,083	1,083
Maximum Brake Work, HP	MaxEBW	1,468	1,468	1,468	1,468
Fuel Heating Value, Btu/scf	F _{HV}	427	427	427	427
Fuel Factor (O2 dry), dscf/MMBtu	F _d	9,707	9,707	9,707	9,707
Fuel Rate, scfh	F _R	21,000	21,000	20,700	20,900
Input Data - Outlet					
Volumetric Flow Rate (M19), dscfm	Q _s	2,249	2,248	2,218	2,238
Calculated Data - Outlet					
O ₂ Concentration, % dry	C _{O₂}	7.42	7.41	7.43	7.42
CO Concentration, ppmvd	C _{CO}	609.48	607.39	607.04	607.97
CO Concentration, ppmvd @ 15 % O ₂	C _{COc15}	266.68	265.73	265.81	266.07
CO Emission Rate, lb/hr	ER _{CO}	5.98	5.96	5.88	5.94
CO Emission Factor, g/HP-hr	EF _{CO}	2.50	2.50	2.46	2.49
CO Emission Factor, lb/kW-hr	EF _{CO PPT}	0.0077	0.0076	0.0075	0.0076
NO _x Concentration, ppmvd	C _{NO_x}	48.43	45.26	45.69	46.46
NO _x Concentration, ppmvd @ 15 % O ₂	C _{NOxc15}	21.19	19.80	20.01	20.33
NO _x Emission Rate, lb/hr	ER _{NO_x}	0.78	0.73	0.73	0.75
NO _x Emission Factor, g/HP-hr	EF _{NO_x}	0.33	0.31	0.30	0.31
NO _x Emission Factor, lb/kW-hr	EF _{NO_x PPT}	0.0010	0.0009	0.0009	0.0010

Fuel Analysis		
Fuel Gas Sulfur Concentration, ppm	C _{ppm}	58.3
Fuel Gas Sulfur Concentration, gr/scf	C _{gr/scf}	0.037
Fuel Gas Sulfur Concentration, gr/100 scf	C _{gr/100 scf}	3.67
Inlet Fuel Gas Sulfur Emission Rate, lb/hr	ER _{TRSi}	0.20
Outlet Fuel Gas Sulfur Emission Rate, lb/hr	C _{TRS}	0.20
Outlet Fuel Gas Sulfur Concentration, ppm	ER _{TRS}	9.07

Attachment 4

**PERMIT TO OPERATE**

24580 SILVER CLOUD CT., MONTEREY, CA 93940 TELEPHONE (831) 647-9411 • FAX (831) 647-8501

OPERATION UNDER THIS PERMIT MUST BE CONDUCTED IN COMPLIANCE WITH ALL DATA AND SPECIFICATIONS INCLUDED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED. THE EQUIPMENT MUST BE PROPERLY MAINTAINED AND KEPT IN GOOD CONDITION AT ALL TIMES. THIS PERMIT TO OPERATE MUST BE POSTED OR ACCESSIBLE.

LEGAL OWNER OR OPERATOR:	AMERESCO SANTA CRUZ ENERGY LLC dba AMERESCO
EQUIPMENT LOCATED AT:	Buena Vista Landfill 1231 Buena Vista Drive, Watsonville CA
EQUIPMENT DESCRIPTION AND CONDITIONS:	THIS PERMIT TO OPERATE IS ISSUED AND IS VALID FOR THIS EQUIPMENT ONLY WHILE IT IS IN THE CONFIGURATION SET FORTH IN THE FOLLOWING DESCRIPTION:

LANDFILL GAS INTERNAL COMBUSTION ENGINE-GENERATOR SET #3 (S/N: 6228161)

Jenbacher "JES AG" Model #J320GSC82, Spark Ignited-Lean Burn Engine, Engine Serial No. 6228161, 1,095 KW (1,468 BHp) @ 1,800 RPM, Turbocharged And Intercooled, With Fuel Consumption Of 423 SCFM. GE Jenbacher Generator, Type JGS320GS-L, With 1,057 KW Output.

THE EQUIPMENT FOR WHICH THIS AUTHORITY TO CONSTRUCT IS ISSUED MAY BE OPERATED ONLY WHEN IN COMPLIANCE WITH THE FOLLOWING CONDITIONS:

Conditions:

1. Annual landfill gas usage and power generated shall be reported to the Monterey Bay Air Resources District (MBARD), upon request. [Basis: MBARD Rule 207]
2. Two sampling ports must be provided in the exhaust stack 90 degrees apart, a minimum of 8 duct diameters downstream and 2 diameters upstream of any flow disturbances, and shall consist of 4 inch NPT couplings welded to the stack and 4 inch pipe plugs. A means of providing safe access to the sampling ports must be provided. [Basis: MBARD Rule 207]
3. Engine-generator set #3 shall only be operated when one or more of the other engine-generator sets (#1, #2, or #4) is not in operation. [Basis: MBARD Rule 207]
4. The emissions from the engine shall not exceed the following limits: [Basis: MBARD Rule 207]

** Page 1 of 4 **

THIS PERMIT BECOMES VOID UPON ANY CHANGE OF OWNERSHIP OR ADDRESS, OR ANY ALTERATION.

THIS PERMIT DOES NOT AUTHORIZE THE EMISSIONS OF AIR CONTAMINANTS IN EXCESS OF THOSE ALLOWED BY ARTICLE 1, CHAPTER 3, PART 4, DIVISION 26 OF THE HEALTH & SAFETY CODE OF THE STATE OF CALIFORNIA OR THE RULES AND REGULATIONS OF THE AIR POLLUTION CONTROL DISTRICT. THIS PERMIT CANNOT BE CONSIDERED AS PERMISSION TO VIOLATE EXISTING LAWS, ORDINANCES, REGULATION OR STATUTES OF OTHER GOVERNMENTAL AGENCIES.

Mary Miranda
For, AIR POLLUTION CONTROL OFFICER

DATE: 8/22/2023

Pollutant	Emission Rate (grams/bhp-hr)	Emission Rate (lb/hr)
NO _x	1.1	3.56
VOC	0.6	1.94
COF	3.0	9.70

5. The engine shall be operated so as to achieve an exhaust methane concentration of less than 3,000 ppmv dry corrected to 15% O₂. [CCR Title 17 Section §95464(b)(3)(1)]
6. The sulfur content of any gaseous fuel shall not exceed 50 grains per 100 cubic feet of gaseous fuel, calculated as hydrogen sulfide at standard conditions. [Basis: MBARD Rule 412]
7. Annual engine performance tests shall be conducted on or prior to December 31 of each year. Ameresco Santa Cruz Energy LLC dba Ameresco shall conduct performance tests in accordance with CARB 100 for NO_x, CO and EPA Method 18 for VOCs, or other methods as approved by the MBARD and EPA. The written results of the performance tests shall be provided to the District within 60 days after testing. If the engine has not been operational during a given calendar year, no annual performance test is required. A testing protocol shall be submitted to MBARD for approval at least 30 days prior to the scheduled testing date. MBARD must be notified at least ten days prior to actual testing in order that an MBARD representative may be present. [Basis: CCR Title 17 Sections §95464(b), §95471(f)]

The performance tests shall include, but not limited to, the determination of the following exhaust parameters:

- a. Oxides of Nitrogen (NO_x), as NO₂: ppmv at 15% O₂ dry, lbm/hr and lbm/kW.
- b. Carbon Monoxide (CO): ppmv at 15% O₂ dry, lbm/hr and lbm/kW.
- c. Methane and non-methane hydrocarbons (VOC): ppmv and lbm/hr.

And the following process parameters

- d. Hydrogen Sulfide concentration within landfill gas using ASTM Method D3246, or equivalent: expressed as ppm (volume) and grains per 100 SCF @ STP.
 - e. Landfill gas consumption.
 - f. Stack flow rate (SDCFM), temperature, % O₂, and % H₂O.
 - g. Electricity generated, kW.
 - h. Stack SO₂ concentration expressed as ppm and %.
8. If the testing cannot be completed on or prior to December 31 and Ameresco Santa Cruz Energy LLC dba Ameresco can establish that the engine-generator was not operating at a sufficient rate for a period of time that could have allowed the testing to be completed, the testing can be delayed, such that it is conducted as soon as practicably possible, but not to exceed 90 days after engine-generator is restarted, and Ameresco Santa Cruz Energy, LLC dba Ameresco meets the following notification requirements: [Basis: District Rule 207]

- a. Ameresco Santa Cruz Energy LLC dba Ameresco must notify MBARD that they will be unable to meet the testing requirement as soon as it becomes known and provide a tentative schedule of possible test dates.
 - b. Ameresco Santa Cruz Energy LLC dba Ameresco must provide MBARD with at least five days prior notification of the anticipated test date.
9. Ameresco Santa Cruz Energy LLC dba Ameresco shall operate and maintain the landfill gas-fired engine in accordance with manufacturer specifications and shall implement the following engine management practice standards. [Basis: 40 CFR 63, Subpart ZZZZ]
 - a. Change oil and filter every 1,440 hours of operation or annually, whichever comes first;
 - b. Inspect spark plugs every 1,440 hours of operation or annually, whichever comes first, and replace as necessary; and,
 - c. Inspect all hoses and belts every 1,440 hours of operation or annually, whichever comes first, and replace as necessary.

The specified oil change-out frequency above may be extended provided an optional oil analysis program is instituted with prior MBARD approval as follows:

- i. The oil analysis program must be performed at the same frequency as the oil change-out timelines.
 - ii. The oil analysis program must, at a minimum, analyze the Total Acid Number, Viscosity, and Percent Water Content of the present engine oil. Should the Total Acid Number increase no more than 3.0 milligrams of potassium hydroxide per gram from the Total Acid Number for new oil, viscosity change no more than 20 percent from the viscosity for new oil, and water content by volume be no more than 0.5 percent, the present engine oil does not need to be changed. If any of the limits are exceeded, the oil must be changed within two (2) working days of receiving the results of the analysis, or before recommencing operation if the engine is out of service.

Maintenance records shall be retained for at least five years and made readily available to MBARD staff upon request. Records of the oil analysis results and oil changes shall be retained with the maintenance records as required by this permit.

10. Ameresco Santa Cruz Energy LLC dba Ameresco shall prepare and submit an annual report for the period of January 1 through December 31 of each year. Each annual report must be submitted to MBARD reports@mbard.org and CARB at LMR@arb.ca.gov or through CARB's Cal E-GGRT reporting tool by March 15 of the following year. The annual report must contain the following information: [Basis: CCR Title 17 Sections §95469 & §95470]
 - a. Municipal Solid Waste (MSW) landfill name, address, and solid waste information system (SWIS) identification number;

- b. LFG engine's year of installation, rating, fuel type, and total amount of landfill gas combusted in the LFG engine;
- c. The date the LFG engine was installed and was in full operation;
- d. The percent methane destruction efficiency of the LFG engine;
- e. Type and amount of supplemental fuels burned with the landfill gas in each device;
- f. Results of the source tests required in Condition 7;
- g. All gas control system downtime in excess of one hour, the reason for the downtime, and the length of time the gas control system was shutdown; and,
- h. Results of the quarterly leak monitoring of the gas control system equipment components which contain landfill gas and are under positive pressure. Note that component leak testing at gas-to-energy facilities may be conducted prior to scheduled maintenance or planned outage periods.

- 11. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three (3) minutes in any one (1) hour which is as dark as or darker than Ringelmann 1, or equivalent 20% opacity. [Basis: MBARD Rule 400]
- 12. No emissions shall constitute a public nuisance. [Basis: MBARD Rule 402]

Note: This permit replaces Permit to Operate GNR-0017721 issued to Ameresco Santa Cruz Energy LLC dba Ameresco on October 5, 2018. The annual renewal date for this permit remains December 28.

**PERMIT TO OPERATE**

24580 SILVER CLOUD CT., MONTEREY, CA 93940 TELEPHONE (831) 647-9411 • FAX (831) 647-8501

OPERATION UNDER THIS PERMIT MUST BE CONDUCTED IN COMPLIANCE WITH ALL DATA AND SPECIFICATIONS INCLUDED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED. THE EQUIPMENT MUST BE PROPERLY MAINTAINED AND KEPT IN GOOD CONDITION AT ALL TIMES. THIS PERMIT TO OPERATE MUST BE POSTED OR ACCESSIBLE.

LEGAL OWNER OR OPERATOR:	AMERESCO SANTA CRUZ ENERGY LLC dba AMERESCO
EQUIPMENT LOCATED AT:	Buena Vista Landfill 1231 Buena Vista Drive, Watsonville CA
EQUIPMENT DESCRIPTION AND CONDITIONS:	THIS PERMIT TO OPERATE IS ISSUED AND IS VALID FOR THIS EQUIPMENT ONLY WHILE IT IS IN THE CONFIGURATION SET FORTH IN THE FOLLOWING DESCRIPTION:

LANDFILL GAS INTERNAL COMBUSTION ENGINE GENERATOR SET #4 (S/N: 3397883):

GE Jenbacher Model #J320GS, Serial #3397883, Spark Ignited Lean-Burn Engine, 1,095 KW (1,468 BHp) @ 1,800 RPM, Turbocharged And Intercooled; And GE Jenbacher Generator, 1,057 KW Output.

THE EQUIPMENT FOR WHICH THIS AUTHORITY TO CONSTRUCT IS ISSUED MAY BE OPERATED ONLY WHEN IN COMPLIANCE WITH THE FOLLOWING CONDITIONS:

Conditions:

1. Annual landfill gas usage and power generated shall be reported to the Monterey Bay Air Resources District (MBARD), upon request. [Basis: MBARD Rule 207]
2. Engine-generator set #4 shall only be operated when one or more of the other engine-generator sets (#1, #2, or #3) is not in operation. [Basis: MBARD Rule 207]
3. The emissions from the engine shall not exceed the following limits: [Basis: MBARD Rule 207]

Pollutant	Emission Rate (grams/bhp-hr)	Emission Rate (lb/hr)
NO _x	1.1	3.56
VOC	0.6	1.94
COF	3.0	9.70

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THIS PERMIT BECOMES VOID UPON ANY CHANGE OF OWNERSHIP OR ADDRESS, OR ANY ALTERATION.

THIS PERMIT DOES NOT AUTHORIZE THE EMISSIONS OF AIR CONTAMINANTS IN EXCESS OF THOSE ALLOWED BY ARTICLE 1, CHAPTER 3, PART 4, DIVISION 26 OF THE HEALTH & SAFETY CODE OF THE STATE OF CALIFORNIA OR THE RULES AND REGULATIONS OF THE AIR POLLUTION CONTROL DISTRICT. THIS PERMIT CANNOT BE CONSIDERED AS PERMISSION TO VIOLATE EXISTING LAWS, ORDINANCES, REGULATION OR STATUTES OF OTHER GOVERNMENTAL AGENCIES.

Mary Girardo
For, AIR POLLUTION CONTROL OFFICER

DATE: 8/22/2023

4. The engine shall be operated so as to achieve an exhaust methane concentration of less than 3,000 ppmv dry corrected to 15% O₂. [CCR Title 17 Section §95464(b)(3)(1)]
5. The sulfur content of any gaseous fuel shall not exceed 50 grains per 100 cubic feet of gaseous fuel, calculated as hydrogen sulfide at standard conditions. [Basis: MBARD Rule 412]
6. Two sampling ports must be provided in the exhaust stack 90 degrees apart, a minimum of 8 duct diameters downstream and 2 diameters upstream of any flow disturbances, and shall consist of 4 inch NPT couplings welded to the stack and 4 inch pipe plugs. A means of providing safe access to the sampling ports must be provided. [Basis: MBARD Rule 207]
7. Annual engine performance tests shall be conducted on or prior to December 31 of each year. Ameresco Santa Cruz Energy LLC dba Ameresco shall conduct performance tests in accordance with CARB 100 for NO_x, CO and EPA Method 18 for VOCs, or other methods as approved by the MBARD and EPA. The written results of the performance tests shall be provided to the District within 60 days after testing. If the engine has not been operational during a given calendar year, no annual performance test is required. A testing protocol shall be submitted to MBARD for approval at least 30 days prior to the scheduled testing date. MBARD must be notified at least ten days prior to actual testing in order that an MBARD representative may be present. [Basis: CCR Title 17 Sections §95464(b), §95471(f)]

The performance tests shall include, but not limited to, the determination of the following exhaust parameters:

- a. Oxides of Nitrogen (NO_x), as NO₂: ppmv at 15% O₂ dry, lbm/hr and lbm/kW.
- b. Carbon Monoxide (CO): ppmv at 15% O₂ dry, lbm/hr and lbm/kW.
- c. Methane and non-methane hydrocarbons (VOC): ppmv and lbm/hr.

And the following process parameters

- d. Hydrogen Sulfide concentration within landfill gas using ASTM Method D3246, or equivalent: expressed as ppm (volume) and grains per 100 SCF @ STP.
 - e. Landfill gas consumption.
 - f. Stack flow rate (SDCFM), temperature, % O₂, and % H₂O.
 - g. Electricity generated, kW.
 - h. Stack SO₂ concentration expressed as ppm and %.
8. If the testing cannot be completed on or prior to December 31 and Ameresco Santa Cruz Energy LLC dba Ameresco can establish that the engine-generator was not operating at a sufficient rate for a period of time that could have allowed the testing to be completed, the testing can be delayed, such that it is conducted as soon as practicably possible, but not to exceed 90 days after engine-generator is restarted, and Ameresco Santa Cruz Energy, LLC dba Ameresco meets the following notification requirements: [Basis: District Rule 207]

- a. Ameresco Santa Cruz Energy LLC dba Ameresco must notify MBARD that they will be unable to meet the testing requirement as soon as it becomes known and provide a tentative schedule of possible test dates.
- b. Ameresco Santa Cruz Energy LLC dba Ameresco must provide MBARD with at least five days prior notification of the anticipated test date.

9. Ameresco Santa Cruz Energy LLC dba Ameresco shall operate and maintain the landfill gas-fired engine in accordance with manufacturer specifications and shall implement the following engine management practice standards. [Basis: 40 CFR 63, Subpart ZZZZ]

- a. Change oil and filter every 1,440 hours of operation or annually, whichever comes first;
- b. Inspect spark plugs every 1,440 hours of operation or annually, whichever comes first, and replace as necessary; and,
- c. Inspect all hoses and belts every 1,440 hours of operation or annually, whichever comes first, and replace as necessary.

The specified oil change-out frequency above may be extended provided an optional oil analysis program is instituted with prior MBARD approval as follows:

- i. The oil analysis program must be performed at the same frequency as the oil change-out timelines.
- ii. The oil analysis program must, at a minimum, analyze the Total Acid Number, Viscosity, and Percent Water Content of the present engine oil. Should the Total Acid Number increase no more than 3.0 milligrams of potassium hydroxide per gram from the Total Acid Number for new oil, viscosity change no more than 20 percent from the viscosity for new oil, and water content by volume be no more than 0.5 percent, the present engine oil does not need to be changed. If any of the limits are exceeded, the oil must be changed within two (2) working days of receiving the results of the analysis, or before recommencing operation if the engine is out of service.

Maintenance records shall be retained for at least five years and made readily available to MBARD staff upon request. Records of the oil analysis results and oil changes shall be retained with the maintenance records as required by this permit.

10. Ameresco Santa Cruz Energy LLC dba Ameresco shall prepare and submit an annual report for the period of January 1 through December 31 of each year. Each annual report must be submitted to MBARD reports@mbard.org and CARB at LMR@arb.ca.gov or through CARB's Cal E-GGRT reporting tool by March 15 of the following year. The annual report must contain the following information: [Basis: CCR Title 17 Sections §95469 & §95470]

- a. Municipal Solid Waste (MSW) landfill name, address, and solid waste information system (SWIS) identification number;
- b. LFG engine's year of installation, rating, fuel type, and total amount of landfill gas combusted

- in the LFG engine;
- c. The date the LFG engine was installed and was in full operation;
- d. The percent methane destruction efficiency of the LFG engine;
- e. Type and amount of supplemental fuels burned with the landfill gas in each device;
- f. Results of the source tests required in Condition 7;
- g. All gas control system downtime in excess of one hour, the reason for the downtime, and the length of time the gas control system was shutdown; and,
- h. Results of the quarterly leak monitoring of the gas control system equipment components which contain landfill gas and are under positive pressure. Note that component leak testing at gas-to-energy facilities may be conducted prior to scheduled maintenance or planned outage periods.

11. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three (3) minutes in any one (1) hour which is as dark as or darker than Ringelmann 1, or equivalent 20% opacity. [Basis: MBARD Rule 400]
12. No emissions shall constitute a public nuisance. [Basis: MBARD Rule 402]

Note: This permit replaces Permit to Operate GNR-0017722 issued to Ameresco Santa Cruz Energy LLC dba Ameresco on October 5, 2018. The annual renewal date for this permit remains December 28.



MONTEREY BAY AIR RESOURCES DISTRICT
PERMIT TO OPERATE

GNR-0017650

24580 SILVER CLOUD CT., MONTEREY, CA 93940 TELEPHONE (831) 647-9411 • FAX (831) 647-8501
OPERATION UNDER THIS PERMIT MUST BE CONDUCTED IN COMPLIANCE WITH ALL DATA AND SPECIFICATIONS INCLUDED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED. THE EQUIPMENT MUST BE PROPERLY MAINTAINED AND KEPT IN GOOD CONDITION AT ALL TIMES. THIS PERMIT TO OPERATE MUST BE POSTED OR ACCESSIBLE.

LEGAL OWNER AMERESCO SANTA CRUZ ENERGY LLC
OR OPERATOR: dba AMERESCO

EQUIPMENT Buena Vista Landfill
LOCATED AT: 1231 Buena Vista Drive, Watsonville CA

EQUIPMENT THIS PERMIT TO OPERATE IS ISSUED AND IS VALID FOR THIS EQUIPMENT ONLY
DESCRIPTION WHILE IT IS IN THE CONFIGURATION SET FORTH IN THE FOLLOWING
AND DESCRIPTION:
CONDITIONS:

INTERNAL COMBUSTION ENGINE FOR ENGINE-GENERATOR SET #2 (S/N: 4378971):

Jenbacher "JES AG" Type J320GSC, Spark Ignited-Lean Burn Engine, Engine No. 4378971, 1,468 BHp @ 1,800 RPM, With Fuel Consumption Of 423 SCFM. GE Jenbacher Generator, Type JGS320GS-L, With 1,057 KW Output.

THE EQUIPMENT FOR WHICH THIS AUTHORITY TO CONSTRUCT IS ISSUED MAY BE OPERATED ONLY WHEN IN COMPLIANCE WITH THE FOLLOWING CONDITIONS:

Conditions:

1. Annual landfill gas usage and power generated shall be reported to the District, upon request.
2. Two sampling ports must be provided in the exhaust stack 90 degrees apart, a minimum of 8 duct diameters downstream and 2 diameters upstream of any flow disturbances, and shall consist of 4 inch NPT couplings welded to the stack and 4 inch pipe plugs. A means of providing safe access to the sampling ports must be provided.
3. Engine-generator set #2 shall only be operated when one or more of the other engine-generator sets (#1, #3, or #4) is not in operation.
4. The emissions from this engine shall not exceed the following concentration limits:

<u>Pollutant:</u>	<u>grams/bhp-hr</u>	<u>lbs/hr</u>
NO _x	1.1	3.56
VOC	0.6	1.94
CO	3.0	9.70

** Page 1 of 3 **

THIS PERMIT BECOMES VOID UPON ANY CHANGE OF OWNERSHIP OR ADDRESS, OR ANY ALTERATION.

THIS PERMIT DOES NOT AUTHORIZE THE EMISSIONS OF AIR CONTAMINANTS IN EXCESS OF THOSE ALLOWED BY ARTICLE 1, CHAPTER 3, PART 4, DIVISION 26 OF THE HEALTH & SAFETY CODE OF THE STATE OF CALIFORNIA OR THE RULES AND REGULATIONS OF THE AIR POLLUTION CONTROL DISTRICT. THIS PERMIT CANNOT BE CONSIDERED AS PERMISSION TO VIOLATE EXISTING LAWS, ORDINANCES, REGULATION OR STATUTES OF OTHER GOVERNMENTAL AGENCIES.

Mary Miranda, For
AIR POLLUTION CONTROL OFFICER
DATE 11/8/2018

5. The engine shall be operated so as to achieve an exhaust methane concentration of less than 3,000 ppmv at 15% O₂ dry.
6. The sulfur content of any gaseous fuel shall not exceed 50 grains per 100 cubic feet, calculated as hydrogen sulfide at standard conditions.
7. Annual engine performance tests shall be conducted on or prior to December 31 of each year. Ameresco Santa Cruz Energy LLC dba Ameresco shall conduct performance tests in accordance with CARB 100 for NO_x, CO and EPA Method 18 for VOCs, or other methods as approved by the District and EPA. The written results of the performance tests shall be provided to the District within 60 days after testing. If the engine has not been operational during a given calendar year, no annual performance test is required. A testing protocol shall be submitted to the District for approval at least 30 days prior to the scheduled testing date. The District must be notified at least ten days prior to actual testing in order that a District representative may be present.

The performance tests shall include, but not limited to, the determination of the following exhaust parameters:

- a) Oxides of Nitrogen (NO_x), as NO₂: ppmv at 15% O₂ dry, lbm/hr and lbm/kW.
- b) Carbon Monoxide (CO): ppmv at 15% O₂ dry, lbm/hr and lbm/kW.
- c) Methane and non-methane hydrocarbons (VOC): ppmv and lbm/hr.

And the following process parameters

- d) Hydrogen Sulfide concentration within landfill gas using ASTM Method D3246, or equivalent: expressed as ppm (volume) and grains per 100 SCF @ STP.
 - e) Landfill gas consumption.
 - f) Stack flow rate (SDCFM), temperature, % O₂, and % H₂O.
 - g) Electricity generated, kW.
 - h) Stack SO₂ concentration expressed as ppm and %.
8. If the testing cannot be completed on or prior to December 31 and Ameresco Santa Cruz Energy LLC dba Ameresco can establish that the engine-generator was not operating at a sufficient rate for a period of time that could have allowed the testing to be completed, the testing can be delayed, such that it is conducted as soon as practicably possible, but not to exceed 90 days after engine-generator is restarted, and Ameresco Santa Cruz Energy LLC dba Ameresco meets the following notification requirements:
 - a. Ameresco Santa Cruz Energy LLC dba Ameresco must notify the District that they will be unable to meet the testing requirement as soon as it becomes known and provide a tentative schedule of possible test dates.
 - b. Ameresco Santa Cruz Energy LLC dba Ameresco must provide the District with at least five days prior notification of the anticipated test date.
 9. Ameresco Santa Cruz Energy LLC dba Ameresco shall operate and maintain the landfill gas-fired engine in accordance with manufacturer specifications and shall implement the following engine management practice standards.
 - a) Change oil and filter every 1,440 hours of operation or annually, whichever comes first;
 - b) Inspect spark plugs every 1,440 hours of operation or annually, whichever comes first, and replace as necessary; and,

- c) Inspect all hoses and belts every 1,440 hours of operation or annually, whichever comes first, and replace as necessary.

The specified oil change-out frequency above may be extended provided an optional oil analysis program is instituted with prior District approval as follows:

- i. The oil analysis program must be performed at the same frequency as the oil change-out timelines.
- ii. The oil analysis program must, at a minimum, analyze the Total Acid Number, Viscosity, and Percent Water Content of the present engine oil. Should the Total Acid Number increase no more than 3.0 milligrams of potassium hydroxide per gram from the Total Acid Number for new oil, viscosity change no more than 20 percent from the viscosity for new oil, and water content by volume be no more than 0.5 percent, the present engine oil does not need to be changed. If any of the limits are exceeded, the oil must be changed within two (2) working days of receiving the results of the analysis, or before recommencing operation if the engine is out of service.

Maintenance records shall be retained for at least five years and made readily available to District staff upon request. Records of the oil analysis results and oil changes shall be retained with the maintenance records as required by this permit.

- 10. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark or darker than Ringelmann 1, or equivalent 20 percent opacity.
- 11. No emissions shall constitute a public nuisance

Note: This permit replaces Permit to Operate 13817A issued to Ameresco Santa Cruz Energy LLC dba Ameresco on April 19, 2013. The annual renewal date of this permit is December 28.