

SOUTH COAST AQMD
CLERK OF THE BOARD

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

2023 FEB 14 AM 8:50

M.O.
IV
2/15/23
RV
5/3/23

PETITIONER: AMERESCO CHIQUITA ENERGY LLC

CASE NO: 6143-2

FACILITY ID: 140373

FACILITY ADDRESS: 29201 Henry Mayo Dr
[location of equipment/site of violation; specify business/corporate address, if different, under Item 2, below]

City, State, Zip: Castaic, CA 91384

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

☒ INTERIM ☐ SHORT ☒ REGULAR ☐ EMERGENCY ☐ EX PARTE EMERGENCY

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

Andrew McClelland

Sr Environmental Compliance Specialist

111 Speen St, Ste 410

Framingham, MA Zip 01701

☎ (508) 661-2242 Ext.

Fax ()

E-mail amcclelland@ameresco.com

Zip

☎ () Ext.

Fax ()

E-mail

3. RECLAIM Permit ☐ Yes ☒ No Title V Permit ☒ Yes ☐ No

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

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

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

On January 31, 2023, Ameresco Chiquita Energy LLC (Ameresco) received an analysis report for landfill gas (LFG) samples collected on January 23, 2023. The report indicated that the LFG contained elevated levels of total reduced sulfur compounds (TRS), primarily due to the presence of dimethyl sulfide (DMS). The TRS concentration exceeded the limit of 150 ppm as H₂S in Rule 431.1(c)(2) and caused emissions in excess of the limit of 32 lbs/day for both LFG-fueled turbines. The plant was shut down at 7:51 AM on January 31, 2023.

Resuming operation of the turbines and flare as soon as feasible will benefit the corrective actions being taken to correct the conditions that are resulting in DMS generation. Specifically, warm gases have formed within the landfill, and Ameresco understands from discussion with the landfill that the temporary shutdown of operations is currently exacerbating DMS generation within the landfill. Resuming operations will assist the landfill to provide an important vacuum that will help reduce internal temperatures and reduce DMS generation.

Immediate issuance of the Interim Variance is needed because:

1. DMS is not typically present in substantial concentrations in LFG. Its presence at elevated levels is unexpected.
2. There are no immediately available control/removal methods for DMS.
3. LFG is continuously generated by the landfill and must be controlled through flaring or beneficial use as it is generated.
4. The wellfield vacuum and LFG control provided by the Ameresco plant is beneficial to the efforts at resolving the DMS generation issue.

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

Ameresco Chiquita Energy LLC receives landfill gas (LFG) from the Chiquita Canyon Landfill and processes it for use in two turbine engine-generators to produce up to 9.2 MW of electricity. A major component of the gas processing system, the temperature swing adsorption (TSA) system, uses a 12.1 MMBtu/hr LFG-fueled flare to control emissions from the regeneration of the adsorption media.

| Rule | Explanation |
|---|--|
| Rules 203(b), 3002(c), and 431.1(c)(2) Title V Permit, Facility-wide Condition 3 | Turbine #1, turbine #2, and the TSA flare will need to operate with total fuel sulfur compounds greater than 150 ppm as hydrogen sulfide (H ₂ S). |
| Rules 203(b) and 3002(c) Condition 21 of P/O No. G25211 for Turbine #1 | Turbine #1 will need to operate with SO ₂ emissions in excess of 32 lbs/day. |
| Rules 203(b) and 3002(c) Condition 21 of P/O No. G25212 for Turbine #2 | Turbine #2 will need to operate with SO ₂ emissions in excess of 32 lbs/day. |
| Rule 203(b) and 3002(c) Condition 13 of P/O No. G23448 for the TSA Flare | The TSA flare will need to operate with SO ₂ emissions in excess of 14 lbs/day. |

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

| Case No. | Date of Action | Final Compliance Date | Explanation |
|----------|----------------|-----------------------|-------------|
| | | | |
| | | | |

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

| Case No. | Date of Action | Final Compliance Date | Explanation |
|----------|----------------|-----------------------|-------------|
| | | | |
| | | | |

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

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

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

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

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

[YOU MAY ATTACH ADDITIONAL PAGES IF NECESSARY]

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

| Equipment/Activity | Application/ Permit No. | RECLAIM Device No. | Date Application/Plan Denied (if relevant) |
|--|----------------------------|-----------------------|---|
| LFG-fueled turbine-generator #1, 4.6 MW | G25211 | N/A | N/A |
| LFG-fueled turbine-generator #2, 4.6 MW | G25212 | N/A | N/A |
| LFG/waste gas flare for LFG treatment system | G23448 | N/A | N/A |
| | | | |

*Attach copy of denial letter

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

The turbine-generators are fueled by LFG and provide a beneficial use for a fuel that would otherwise be flared. Sustainable electricity generated by this equipment reduces GHG emissions and is sold to the Southern California Public Power Authority. Additionally, the vacuum and LFG control provided by the plant assists Chiquita Canyon in maintaining control of LFG emissions. Specifically, resuming Ameresco operations will assist the landfill with creating an important vacuum that will help reduce internal temperatures and help reduce DMS generation within the landfill.

The LFG/waste gas flare is required to control emissions from the regeneration of siloxane adsorption media in the TSA system. Without the TSA system, the siloxane compounds in the LFG would destroy the turbines.

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

If yes, how often: Turbine semiannual maintenance every 4,000 operating hours; TSA flare burner inspections every 2 months

Date of last maintenance and/or inspection: Turbine 1: 12/21/2022; Turbine 2: 9/26/2022; Flare: Dec. 2022

Describe the maintenance and/or inspection that was performed.

The routine maintenance events identified above are in addition to other maintenance that is performed as the need arises. The current excess LFG TRS issue would not be mitigated or corrected with additional emission unit maintenance.

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

[YOU MAY ATTACH ADDITIONAL PAGES IF NECESSARY]

Ameresco does not control the concentration of DMS in LFG delivered from Chiquita Canyon. A fuel sulfur removal system is installed at the Ameresco plant, but it is only effective in partial removal of H₂S. It has no effect on DMS and Ameresco is unaware of any media that may be used to effectively control DMS without rapid breakthrough.

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

On January 31, 2023, Ameresco received an analysis report for LFG samples collected on January 23, 2023. The report indicated that the LFG contained elevated levels of TRS, primarily due to the presence of DMS. The TRS concentration exceeded the limit of 150 ppm in Rule 431.1(c)(2). The plant was shut down at 7:51 AM on January 31, 2023.

16. List date(s) and action(s) you have taken since that time to achieve compliance.

The plant was shut down at 7:51 AM on January 31, 2023, and remains offline. Ameresco immediately notified the Chiquita Canyon landfill of the issue and plant shutdown.

Ameresco notified the SCAQMD on February 1, 2023, at 10:02 of excess SO₂ emissions (notification number 732086). The verbal report was made within 72 hours of discovery, as required by Title V Permit Administrative Condition 22(B). A written report was submitted on February 2, 2023, as required by Title V Permit Administrative Condition 22(C).

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

Economic losses: \$7,500.00 per day (estimated) _____

Number of employees laid off (if any): 2 _____

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

Average daily revenue for the past three years was used to estimate potential lost generation for each day that the Ameresco plant is unable to operate.

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

Ameresco has temporarily shut down the plant, but LFG continues to be generated and the gas must be flared, resulting in a loss of beneficial use with no reduction in SO₂ emissions. Additionally, operation of the Ameresco plant is beneficial to Chiquita Canyon's efforts at resolving the DMS generation issue.

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

| Pollutant | (A) | (B) | (C)* |
|-----------------|--|---------------------------------------|--|
| | Total Estimated Excess Emissions (lbs/day) | Reduction Due to Mitigation (lbs/day) | Net Emissions After Mitigation (lbs/day) |
| SO ₂ | 80.24 | 0 | 80.24 |
| | | | |
| | | | |

* Column A minus Column B = Column C

Excess Opacity: N/A _____ %

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

Estimate is based on 1800 SCFM fuel flow per turbine, 350 SCFM fuel flow to the TSA flare, and 164.72 ppm TRS concentration in the LFG. Mitigation is not currently feasible.

Daily emissions are calculated using the following formula:

$$\sum_{i=1}^{1440} \text{Fuel SCF}_i \times \frac{\text{H}_2\text{S ppm}_i + 159.72 \text{ ppm non H}_2\text{S TRS}}{10^6} \times \frac{28.32 \text{ L}}{\text{SCF}} \times \frac{1 \text{ mol}}{23.69 \text{ L}} \times \frac{\text{mol SO}_2}{\text{mol TRS}} \times \frac{64.07 \text{ g SO}_2}{\text{mol SO}_2} \times \frac{1 \text{ lb}}{453.6 \text{ g}}$$

Excess emissions will vary based on the concentration of TRS in the fuel.

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

Mitigation is not currently feasible.

The Chiquita Canyon landfill generates LFG continuously. If the Ameresco plant is shutdown, the LFG must be flared, eliminating a source of renewable energy for Southern California with no reduction in SO₂ emissions. Additionally, operation of the Ameresco plant is beneficial to Chiquita Canyon's efforts at resolving the DMS generation issue.

A fuel sulfur removal system is installed at the Ameresco plant, but it is only effective in partial removal of H₂S. It has no effect on DMS and Ameresco is unaware of any media that may be used to effectively control DMS without rapid breakthrough.

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

Fuel consumption of all equipment is monitored and recorded continuously. H₂S concentration of the LFG fuel at the flare and turbine headers will be measured and recorded daily using Draeger tubes. Weekly LFG analyses will be completed by an independent laboratory to determine the non-H₂S TRS concentration. The formula below will be used to calculate SO₂ emissions on a daily basis. The non-H₂S TRS concentration in the formula will be updated each week upon receipt of the laboratory analyses.

$$\sum_{i=1}^{1440} \text{Fuel SCF}_i \times \frac{\text{H}_2\text{S ppm}_i + 159.72 \text{ ppm non H}_2\text{S TRS}}{10^6} \times \frac{28.32 \text{ L}}{\text{SCF}} \times \frac{1 \text{ mol}}{23.69 \text{ L}} \times \frac{\text{mol SO}_2}{\text{mol TRS}} \times \frac{64.07 \text{ g SO}_2}{\text{mol SO}_2} \times \frac{1 \text{ lb}}{453.6 \text{ g}}$$

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

Ameresco does not currently have the ability to control non-H₂S sulfur compounds the LFG and can only partially control H₂S. The Chiquita Canyon landfill is exploring options to remove DMS from the LFG.

24. State the date you are requesting the variance to begin: 2/9/2023 _____; and the date by which you expect to achieve final compliance: unknown at this time _____.

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

List Increments of Progress here:

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

Ext. _____

Ext. _____

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

Nathan W. Hall _____
Ameresco Chiquita Energy LLC Sr Vice President – Energy Asset Operations
Ameresco Asset Holdings IV LLC, its sole member
Ameresco, Inc., its sole member
Name Company Title

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

Executed on 2/13/2023, at 30 Danforth St, Ste 108, Portland, ME 04101

Signature

Nathan W. Hall
Print Name

Title: Sr Vice President – Energy Asset Operations _____

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

Declaration Re Reduced Fee Eligibility

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

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

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

3. Therefore, I believe the petitioner qualifies for reduced fees for purpose of filing fees and excess emission fee calculations, in accordance with Rule 303(h).

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

Executed on _____, at _____, California

Signature

Print Name

Title _____

[YOU MAY ATTACH ADDITIONAL PAGES IF NECESSARY]



FACILITY PERMIT TO OPERATE AMERESCO CHIQUITA ENERGY LLC

FACILITY WIDE CONDITION(S)

Condition(s):

1. Except for open abrasive blasting operations, the operator shall not discharge into the atmosphere from any single source of emissions whatsoever any air contaminant for a period or periods aggregating more than three minutes in any one hour which is:
 - A. As dark or darker in shade as that designated no. 1 on the Ringlemann chart, as published by the United States Bureau of Mines; or
 - B. Of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in subparagraph (a) of this condition.
[Rule 401]
2. The operator shall not purchase any diesel fuel for stationary source application in the South Coast AQMD, unless the fuel is low sulfur diesel for which the sulfur content shall not exceed 15 ppm by weight as supplied by the supplier.
[Rule 431.2]
3. The operator shall not use landfill gas containing sulfur compounds in excess of 150 ppmv calculated as hydrogen sulfide averaged daily.
[Rule 431.1]
4. Continuous operation of monitoring systems not subject to Rule 218 are not required when necessary calibration, maintenance or repair activities are performed in accordance with manufacturer's recommendation. The operator shall take all reasonable actions to minimize the time required to perform such activities. In no event shall any such activities exceed 96 consecutive hours for any one calibration, maintenance, or repair episode. The operator shall notify the Executive Officer within 24 hours of the start of a calibration, maintenance, or repair activity, if the activity is expected to last more than 24 consecutive hours.
[Rule 204]
5. Accidental release prevention requirements of section 112(r)(7):

The operator shall comply with the accidental release prevention requirements pursuant to 40 CFR Part 68 and shall submit to the Executive Officer, as part of annual compliance certification, a statement that certifies compliance with all the requirements of 40 CFR Part 68, including the registration and submission of a risk management plan (RMP).

The operator shall submit any additional relevant information requested by the Executive Officer or designated agency.
[40 CFR 68-Accidental Release Prevention]
6. This facility is subject to the applicable requirements of the following rules and regulations:

| | |
|--------------------|------------------------|
| Gaseous emissions | 40 CFR 60 Subpart WWW |
| Gaseous emissions | 40 CFR 63 Subpart AAAA |
| Gaseous emissions: | Rule 1150.1 |



**FACILITY PERMIT TO OPERATE
AMERESCO CHIQUITA ENERGY LLC**

PERMIT TO OPERATE

**Permit No. G25211
A/N 458539**

Equipment Description:

Resource Recovery Landfill gas (LFG) to Energy System Consisting of:

1. Pretreated landfill gas (LFG) supply.
2. Gas turbine, no. 1, Solar, Mercury 50, landfill gas (LFG) fired, maximum 53.13 mmBtu per hour input rating (500 Btu/scf, HHV), simple cycle, with electric start motor, ten-stage axial flow compressor, Ultra Lean Premix (ULP) annular combustor, a recuperator, automatic fuel control system, start up propane augmentation, programmable controller, and driving a 4.6 megawatt (MW) electric generator.
3. Exhaust stack, 3'-3" Dia. x 25' H.

Conditions:

1. Operation of this equipment shall be conducted in compliance with all data and specifications submitted with the application under which this permit is issued, unless otherwise noted below.
[Rule 204]
2. This equipment shall be properly maintained and kept in good operating condition at all times.
[Rule 204]
3. This equipment shall be operated by personnel properly trained in its operation.
[Rule 204]
4. This equipment shall be fired only with landfill gas during normal operation. Landfill gas/propane gas blend may be used during equipment start up not to exceed 30 minutes, when the LFG quality is lower than 400 (Wobbe Index).
[Rule 204]
5. A flow indicating and recording device shall be installed and maintained in the landfill gas supply line to the gas turbine to measure and record the quantity of landfill gas (in scfm) being burned.
[Rule 1303(b)(1)-Modeling, 1303(b)(2)-Offset, 3004(a)(4)]
6. Weekly readings of the Btu content of landfill gas at the inlet to the gas turbine shall be taken using an instrument approved by the South Coast AQMD. All results shall be recorded.
[Rule 3004(a)(4)]
7. The total heat input of landfill gas burned in the gas turbine shall not exceed 53.13 mmBtu per hour (HHV @500 Btu/scf). A log shall be kept indicating the total heating value of landfill gas burned in the gas turbine based on the recorded flow rate (scfm) and the latest weekly Btu content reading.
[Rule 1303(b)(1)-Modeling, 1303(b)(2)-Offset, 3004(a)(4)]



FACILITY PERMIT TO OPERATE AMERESCO CHIQUITA ENERGY LLC

8. All recording devices shall be synchronized with respect to the time of the day.
[Rule 204]
9. The owner or operator shall provide 100% backup control. The landfill gas not utilized by this equipment shall be directed to the flare for combustion or any other combustion or processing facility which is in full use, can adequately process the volume of gas collected and has been issued a valid permit by the South Coast AQMD.
[Rule 1303(a)(1)-BACT]
10. Operation of this equipment shall not result in the release of raw landfill gas into the atmosphere. Any breakdown or malfunction which results in emissions of fuel gas shall be reported to the South Coast AQMD Compliance and Enforcement Manager of the Waste Management Team within one hour after occurrence, or within one hour of the time the operating personnel knew or reasonably should have known of the occurrence, and immediate remedial measures shall be undertaken to correct the problem and prevent further emissions into the atmosphere.
[Rule 402, 430]
11. This equipment shall be operated in compliance with the South Coast AQMD Rule 431.1.
[Rule 431.1]
12. Adequate number of sampling ports and welded nipples with caps, with its safe access shall be installed and maintained in the exhaust stack in accordance with Rule 217 and South Coast AQMD's approval.
[Rule 217]
13. A continuous combustion temperature monitoring and recording system shall be maintained, to determine exhaust temperature of last power turbine (T7) and calculate the combustion chamber temperature (TPZ) per manufacturer's recommendations, pursuant to the operation and maintenance requirements specified in 40 CFR Part 64.7. Such a system shall have an accuracy of within $\pm 1\%$ of the temperature being monitored and shall be inspected, maintained, and calibrated on an annual basis in accordance with the manufacturer's specifications using an applicable South Coast AQMD or EPA approved method.
[40 CFR 64]
14. The combustion chamber temperature of last power turbine (T7) shall be recorded at least every 15 minutes, and the hourly average shall be computed from such data points. The operator shall review the records of temperature on a daily basis to determine if a deviation occurred or shall install an alarm system to alert the operator when a deviation occurs.
[40 CFR 64]
15. All deviations shall be reported to the South Coast AQMD on a semi-annual basis pursuant to the requirements specified in 40 CFR Part 64.9 and condition nos. 22 and 23 in Section K of this permit. For the purpose of this condition, a deviation shall be defined as when the last power turbine (T7) temperature is less than 1100 degrees Fahrenheit or greater than 1300 degrees Fahrenheit, or as otherwise approved by South Coast AQMD, occurs averaged over one hour during operation except during start up and shutdown events lasting for a maximum of one hour. Multiple start up and shutdown events can occur consecutively.
[40 CFR 64]
16. For each semi-annual reporting period specified in Condition No. 23 in Section K, whenever a deviation occurs from the temperature, the operator shall take immediate corrective action, and keep records of the duration and cause (including unknown cause, if applicable) of the deviation and the corrective action taken.
[40 CFR 64]



FACILITY PERMIT TO OPERATE AMERESCO CHIQUITA ENERGY LLC

17. A semi-annual monitoring report shall be submitted to South Coast AQMD, which shall include but may not be limited to the total operating time of this equipment and the total accumulated duration of all deviations for each semi-annual reporting period.
[40 CFR 64]
18. The owner or operator shall submit an application with a quality improvement plan (QIP) in accordance with 40 CFR Part 64.8 to the South Coast AQMD if an accumulation of deviations exceeds 5% duration of this equipment's total operating time for any semi-annual reporting period specified in Condition No. 23 in Section K of this permit. The required QIP shall be submitted to the South Coast AQMD within 90 calendar days after the due date of the semi-annual monitoring report.
[40 CFR 64]
19. A continuous emission monitoring system (CEMS), approved by the Executive Officer, shall be installed, operated and maintained to measure the exhaust concentration for NO_x and O₂, on a dry basis. In addition, the system shall convert the actual NO_x concentration to a corrected NO_x concentration at 15% O₂ and continuously record the stack NO_x concentration at 15% O₂. This monitoring system shall comply with the requirements of South Coast AQMD Rule 218. Prior to installation, this monitoring system shall be approved in writing by the Executive Officer.
[Rule 218, 1303(b)(1)-Modeling, 1303(b)(2)-Offset, 3004(a)(4)]
20. The operator shall annually conduct compliance source tests in accordance with the approved test procedures. Written results of such performance tests shall be submitted within 60 days after testing. Notice shall be provided to the South Coast AQMD 10 days prior to the testing so that an observer may be present. All source testing and analytical methods shall be submitted to the South Coast AQMD, Waste Management Team Manager, for approval at least 30 days prior to start of the tests. The tests shall include, but may not be limited to, a test of the inlet landfill gas and the gas turbine exhaust for:
 - A. Methane and total non-methane hydrocarbons
 - B. Carbon monoxide (exhaust only)
 - C. Oxides of nitrogen (exhaust only)
 - D. Carbon dioxide
 - E. Total particulates (exhaust only)
 - F. C1 through C3 sulfur compounds (speciated, inlet only)
 - G. Toxic air contaminants including, but not limited to:
Benzene, chlorobenzene, 1, 2-dichloroethane, 1, 1-dichloroethene, dichloromethane, tetrachloroethylene, tetrachloromethane, toluene, 1, 1, 1-trichloroethane, trichloroethylene, trichloromethane, vinyl chloride, and xylene isomers.
 - H. Oxygen and nitrogen
 - I. Moisture content
 - J. Temperature
 - K. Flow rate

The report shall also present the emissions data in units of pounds per hour (lb/hr), pounds per mmBtu (lb/mmBtu), and parts per million (ppmv) on a dry basis at 15% O₂ (CO, NO_x, and TNMHC). Also provide gas turbine's demonstrated efficiency at full load, in Btu/kW-hr, corrected to the higher heating value (HHV) of the fuel.

[Rule 1303(a)(1)-BACT, 1303(b)(1)-Modeling, 1303(b)(2)-Offset, 1401, 3004(a)(4)]



FACILITY PERMIT TO OPERATE AMERESCO CHIQUITA ENERGY LLC

21. During normal operation, emissions from the gas turbine shall not exceed the following:

| Contaminant | lbs/day |
|-----------------------------|---------|
| CO | 374 |
| NOx (as NO ₂) | 126 |
| PM ₁₀ | 27 |
| TNMOC (as CH ₄) | 12.5 |
| SOx (as SO ₂) | 32 |

[Rule 1303(b)(1)-Modeling, 1303(b)(2)-Offset]

22. Except during periods of startup and shutdown not to exceed 30 minutes per incident, emissions of carbon monoxide (CO) and oxides of nitrogen (NOx) shall not exceed the following limits:

Turbine loads >3000 kW
CO 68 ppmv @ 15% O₂, dry basis, averaged over 60 minutes
NOx 18.75 ppmv @ 15% O₂, dry basis, averaged over 60 minutes

Turbine loads ≤ 3000 kW
CO 68 ppmv @ 15% O₂, dry basis, averaged over 60 minutes
NOx 25 ppmv @ 15% O₂, dry basis, averaged over 60 minutes
[Rule 204]

23. All records shall be kept for a period of at least five years and shall be made available to South Coast AQMD personnel upon request.
[Rule 3004(a)(4)]

Emissions and Requirements:

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

24. CO: 2000 ppmv, dry, 15 min. avg., Rule 407
CO: 130 ppmv, @ 15% O₂, dry, Rule 1303
NOx: 25 ppmv, @ 15% O₂, dry, Rule 1303
PM: Rule 404, see Appendix B for emission limits
ROG: 20 ppmv, as hexane, @ 3% O₂, dry or 98% (by wt.) destruction efficiency, Rule 1150.1, 40 CFR 60 Subpart WWW
SOx: Based on 150 ppmv H₂S concentration in LFG, Rule 431.1
SOx: < 0.15 lb/mmBtu, 40 CFR 60 Subpart KKKK



**FACILITY PERMIT TO OPERATE
AMERESCO CHIQUITA ENERGY LLC**

PERMIT TO OPERATE

Permit No. G25212
A/N 458540

Equipment Description:

Resource Recovery Landfill Gas (LFG) to Energy System Consisting of:

1. Pretreated landfill gas (LFG) supply.
2. Gas turbine, no. 2, Solar, Mercury 50, landfill gas (LFG) fired, maximum 53.13 mmBtu per hour input rating (500 Btu/scf, HHV), simple cycle, with electric start motor, ten-stage axial flow compressor, Ultra Lean Premix (ULP) annular combustor, a recuperator, automatic fuel control system, start up propane augmentation, programmable controller, and driving a 4.6 megawatt (MW) electric generator.
3. Exhaust stack, 3'-3" Dia. x 25' H.

Conditions:

1. Operation of this equipment shall be conducted in compliance with all data and specifications submitted with the application under which this permit is issued, unless otherwise noted below.
[Rule 204]
2. This equipment shall be properly maintained and kept in good operating condition at all times.
[Rule 204]
3. This equipment shall be operated by personnel properly trained in its operation.
[Rule 204]
4. This equipment shall be fired only with landfill gas during normal operation. Landfill gas/propane gas blend may be used during equipment start up not to exceed 30 minutes, when the LFG quality is lower than 400 (Wobbe Index).
[Rule 204]
5. A flow indicating and recording device shall be installed and maintained in the landfill gas supply line to the gas turbine to measure and record the quantity of landfill gas (in scfm) being burned.
[Rule 1303(b)(1)-Modeling, 1303(b)(2)-Offset, 3004(a)(4)]
6. Weekly readings of the Btu content of landfill gas at the inlet to the gas turbine shall be taken using an instrument approved by the South Coast AQMD. All results shall be recorded.
[Rule 3004(a)(4)]
7. The total heat input of landfill gas burned in the gas turbine shall not exceed 53.13 mmBtu per hour (HHV @500 Btu/scf). A log shall be kept indicating the total heating value of landfill gas burned in the gas turbine based on the recorded flow rate (scfm) and the latest weekly Btu content reading.
[Rule 1303(b)(1)-Modeling, 1303(b)(2)-Offset, 3004(a)(4)]



**FACILITY PERMIT TO OPERATE
AMERESCO CHIQUITA ENERGY LLC**

8. All recording devices shall be synchronized with respect to the time of the day.
[Rule 204]
9. The owner or operator shall provide 100% backup control. The landfill gas not utilized by this equipment shall be directed to the flare for combustion or any other combustion or processing facility which is in full use, can adequately process the volume of gas collected and has been issued a valid permit by the South Coast AQMD.
[Rule 1303(a)(1)-BACT]
10. Operation of this equipment shall not result in the release of raw landfill gas into the atmosphere. Any breakdown or malfunction which results in emissions of fuel gas shall be reported to the South Coast AQMD Compliance and Enforcement Manager of the Waste Management Team within one hour after occurrence, or within one hour of the time the operating personnel knew or reasonably should have known of the occurrence, and immediate remedial measures shall be undertaken to correct the problem and prevent further emissions into the atmosphere.
[Rule 402, 430]
11. This equipment shall be operated in compliance with the South Coast AQMD Rule 431.1.
[Rule 431.1]
12. Adequate number of sampling ports and welded nipples with caps, with its safe access shall be installed and maintained in the exhaust stack in accordance with Rule 217 and South Coast AQMD's approval.
[Rule 217]
13. A continuous combustion temperature monitoring and recording system shall be maintained, to determine exhaust temperature of last power turbine (T7) and calculate the combustion chamber temperature (TPZ) per manufacturer's recommendations, pursuant to the operation and maintenance requirements specified in 40 CFR Part 64.7. Such a system shall have an accuracy of within $\pm 1\%$ of the temperature being monitored and shall be inspected, maintained, and calibrated on an annual basis in accordance with the manufacturer's specifications using an applicable South Coast AQMD or EPA approved method.
[40 CFR 64]
14. The combustion chamber temperature of last power turbine (T7) shall be recorded at least every 15 minutes, and the hourly average shall be computed from such data points. The operator shall review the records of temperature on a daily basis to determine if a deviation occurred or shall install an alarm system to alert the operator when a deviation occurs.
[40 CFR 64]
15. All deviations shall be reported to the South Coast AQMD on a semi-annual basis pursuant to the requirements specified in 40 CFR Part 64.9 and condition nos. 22 and 23 in Section K of this permit. For the purpose of this condition, a deviation shall be defined as when the last power turbine (T7) temperature is less than 1100 degrees Fahrenheit or greater than 1300 degrees Fahrenheit, or as otherwise approved by South Coast AQMD, occurs averaged over one hour during operation except during start up and shutdown events lasting for a maximum of one hour. Multiple start up and shutdown events can occur consecutively.
[40 CFR 64]
16. For each semi-annual reporting period specified in Condition No. 23 in Section K, whenever a deviation occurs from the temperature, the operator shall take immediate corrective action, and keep records of the duration and cause (including unknown cause, if applicable) of the deviation and the corrective action taken.
[40 CFR 64]



FACILITY PERMIT TO OPERATE AMERESCO CHIQUITA ENERGY LLC

17. A semi-annual monitoring report shall be submitted to South Coast AQMD, which shall include but may not be limited to the total operating time of this equipment and the total accumulated duration of all deviations for each semi-annual reporting period.
[40 CFR 64]
18. The owner or operator shall submit an application with a quality improvement plan (QIP) in accordance with 40 CFR Part 64.8 to the South Coast AQMD if an accumulation of deviations exceeds 5% duration of this equipment's total operating time for any semi-annual reporting period specified in Condition No. 23 in Section K of this permit. The required QIP shall be submitted to the South Coast AQMD within 90 calendar days after the due date of the semi-annual monitoring report.
[40 CFR 64]
19. A continuous emission monitoring system (CEMS), approved by the Executive Officer, shall be installed, operated and maintained to measure the exhaust concentration for NO_x and O₂, on a dry basis. In addition, the system shall convert the actual NO_x concentration to a corrected NO_x concentration at 15% O₂ and continuously record the stack NO_x concentration at 15% O₂. This monitoring system shall comply with the requirements of South Coast AQMD Rule 218. Prior to installation, this monitoring system shall be approved in writing by the Executive Officer.
[Rule 218, 1303(b)(1)-Modeling, 1303(b)(2)-Offset, 3004(a)(4)]
20. The operator shall annually conduct compliance source tests in accordance with the approved test procedures. Written results of such performance tests shall be submitted within 60 days after testing. Notice shall be provided to the South Coast AQMD 10 days prior to the testing so that an observer may be present. All source testing and analytical methods shall be submitted to the South Coast AQMD, Waste Management Team Manager, for approval at least 30 days prior to start of the tests. The tests shall include, but may not be limited to, a test of the inlet landfill gas and the gas turbine exhaust for:
 - A. Methane and total non-methane hydrocarbons
 - B. Carbon monoxide (exhaust only)
 - C. Oxides of nitrogen (exhaust only)
 - D. Carbon dioxide
 - E. Total particulates (exhaust only)
 - F. C1 through C3 sulfur compounds (speciated, inlet only)
 - G. Toxic air contaminants including, but not limited to:
Benzene, chlorobenzene, 1, 2-dichloroethane, 1, 1-dichloroethene, dichloromethane, tetrachloroethylene, tetrachloromethane, toluene, 1, 1, 1-trichloroethane, trichloroethylene, trichloromethane, vinyl chloride, and xylene isomers.
 - H. Oxygen and nitrogen
 - I. Moisture content
 - J. Temperature
 - K. Flow rate

The report shall also present the emissions data in units of pounds per hour (lb/hr), pounds per mmBtu (lb/mmBtu), and parts per million (ppmv) on a dry basis at 15% O₂ (CO, NO_x, and TNMHC). Also provide gas turbine's demonstrated efficiency at full load, in Btu/kW-hr, corrected to the higher heating value (HHV) of the fuel.

[Rule 1303(a)(1)-BACT, 1303(b)(1)-Modeling, 1303(b)(2)-Offset, 1401, 3004(a)(4)]



FACILITY PERMIT TO OPERATE AMERESCO CHIQUITA ENERGY LLC

21. During normal operation, emissions from the gas turbine shall not exceed the following:

| Contaminant | lbs/day |
|---------------------------------------|---------|
| CO | 374 |
| NO _x (as NO ₂) | 126 |
| PM ₁₀ | 27 |
| TNMOC (as CH ₄) | 12.5 |
| SO _x (as SO ₂) | 32 |

[Rule 1303(b)(1)-Modeling, 1303(b)(2)-Offset]

22. Except during periods of startup and shutdown not to exceed 30 minutes per incident, emissions of carbon monoxide (CO) and oxides of nitrogen (NO_x) shall not exceed the following limits:

Turbine loads >3000 kW

| | |
|-----------------|---|
| CO | 68 ppmv @ 15% O ₂ , dry basis, averaged over 60 minutes |
| NO _x | 18.75 ppmv @ 15% O ₂ , dry basis, averaged over 60 minutes |

Turbine loads ≤ 3000 kW

| | |
|-----------------|--|
| CO | 68 ppmv @ 15% O ₂ , dry basis, averaged over 60 minutes |
| NO _x | 25 ppmv @ 15% O ₂ , dry basis, averaged over 60 minutes |

[Rule 204]

23. All records shall be kept for a period of at least five years and shall be made available to South Coast AQMD personnel upon request.
[Rule 3004(a)(4)]

Emissions and Requirements:

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

24. CO: 2000 ppmv, dry, 15 min. avg., Rule 407
CO: 130 ppmv, @ 15% O₂, dry, Rule 1303
NO_x: 25 ppmv, @ 15% O₂, dry, Rule 1303
PM: Rule 404, see Appendix B for emission limits
ROG: 20 ppmv, as hexane, @ 3% O₂, dry or 98% (by wt.) destruction efficiency, Rule 1150.1, 40 CFR 60 Subpart WWW
SO_x: Based on 150 ppmv H₂S concentration in LFG, Rule 431.1
SO_x: < 0.15 lb/mmBtu, 40 CFR 60 Subpart KKKK



**FACILITY PERMIT TO OPERATE
AMERESCO CHIQUITA ENERGY LLC**

PERMIT TO OPERATE

Permit No. G23448
A/N 458542

Equipment Description:

Landfill Gas (LFG) Flare Consisting of:

1. Exhaust gas from the LFG treatment system.
2. Flare, John Zink, Model Zule Ultra Low Emission, rated at 400 scfm capacity, 12,140,000 Btu per hour biogas burner, with a flame arrester, propane gas pilot with automated Tru-Lite igniter, combustion air blower, automatic ignition, flare shut down, and with a programmable logic controller (PLC) system.
3. Exhaust stack, 4'- 0" Dia. x 40'- 0" H.

Conditions:

1. Operation of this equipment shall be conducted in compliance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below.
[Rule 204]
2. This equipment shall be properly maintained and kept in good operating condition at all times.
[Rule 204]
3. This equipment shall be operated and maintained by personnel properly trained in its operation.
[Rule 204]
4. A flow indicator and recording device shall be maintained in the landfill gas (fuel) supply line to the flare to measure and record the quantity of landfill gas (in scfm) burned in flare.
[Rule 1303(b)(2)-Offset, 3004(a)(4)]
5. The total volume of landfill gas burned in flare shall not exceed maximum heat input rate of 12.1 mmBtu per hour. A log shall be kept indicating the total heating value of landfill gas burned in flare based on the recorded flow rate (scfm) and the latest weekly Btu content (Btu/scf) reading.
[Rule 1303(b)(1) and (b)(2)-Modeling and Offset, 1401]
6. This equipment shall be equipped with a temperature indicator and recorder which measures and records the exhaust gas temperature in the flare stack. The temperature indicator and recorder shall operate whenever the flare is in operation. The temperature shall be measured at a location above the flame zone, at least 0.6 second downstream of the burner, and not less than three (3) feet below the top of the stack.
[Rule 1303(a)(1)-BACT, 3004(a)(4)]



FACILITY PERMIT TO OPERATE AMERESCO CHIQUITA ENERGY LLC

7. Whenever the flare is in operation, a temperature of not less than 1500 degrees Fahrenheit, 15 minute average, as measured by the temperature indicator and recorder shall be maintained except during periods of startup and shutdown. Startup is defined as the period from flare ignition to the time when 1500 degrees Fahrenheit is achieved, not to exceed 30 minutes. Shutdown is the period from when the gas valve begins to be shut and completely shuts off, not to exceed 30 minutes.
[Rule 1303(a)(1)-BACT]
8. All recording devices shall be synchronized with respect to time of the day.
[Rule 204]
9. The automatic shutdown safety system shall be tested monthly for proper operation of the flare and the results recorded.
[Rule 1303(a)(1)-BACT]
10. The operator shall annually (within 45 days of anniversary of initial test) conduct performance tests in accordance with the test procedures. A source test protocol shall be provided to the South Coast AQMD for approval at least 30 days prior to the scheduled testing. Written notification of the scheduled test date shall be provided to the South Coast AQMD at least seven (7) days prior to the date so that the testing may be observed by South Coast AQMD personnel. The testing shall be conducted when the equipment is in full operation, and shall include, but not limited to, a test of the inlet to the flare and the flare exhaust for:
 - A. Methane
 - B. Total non-methane organic compounds (TNMOC)
 - C. Qualitative identification of chemical compounds using a gas chromatograph / mass spectrometry method (GC / MS) for its volume concentration (exhaust only).
 - D. NO_x, as NO₂ (exhaust only)
 - E. SO_x, as SO₂ (exhaust only)
 - F. CO (exhaust only)
 - G. PM₁₀ (exhaust only)
 - H. Oxygen
 - I. Moisture content
 - J. Temperature
 - K. Flow rate[Rule 1303(b)(1) and (b)(2)-Modeling and Offset, 1401, 3004(a)(4)]
11. The source test report for the flare tested shall include;
 - A. Emissions of CO, NO_x, TNMOC, PM₁₀, and SO_x, in units of lbs/hr and ppmv (except PM₁₀), overall TNMOC destruction efficiency (wt. %), and TNMOC emissions (ppmv), dry basis, as hexane at 3% oxygen.
 - B. The test shall be performed by a testing laboratory certified to meet the criteria in South Coast AQMD Rule 304(I) (no conflict of interest).
 - C. Sampling facilities shall comply with South Coast AQMD "Guidelines for Construction of Sampling and Testing Facilities" pursuant to Rule 217.
[Rule 204, 217, 1150.1]
12. The maximum flare skin temperature at any location shall not exceed 250 degrees Fahrenheit.
[Rule 217]



FACILITY PERMIT TO OPERATE AMERESCO CHIQUITA ENERGY LLC

- 13 Emissions from the flare shall not exceed the following:

| Pollutant | lbs/day |
|------------|---------|
| CO | 18 |
| NOx as NO2 | 7 |
| PM10 | 6 |
| ROG | 21 |
| SOx as SO2 | 14 |

[Rule 1303(a)(1)-BACT, 1303(b)(1) and (b)(2)-Modeling and Offset, 1401]

14. Operation of this equipment shall not result in the release of raw landfill gas into the atmosphere. Any breakdown or malfunction of this equipment resulting in the emission of raw landfill gas shall be reported to the South Coast AQMD within twenty four hours after occurrence and immediate remedial measures shall be undertaken to correct the problem and prevent further emissions into the atmosphere.

[Rule 430]

15. The operator shall operate and maintain this equipment according to the following requirements:

The exhaust temperature shall be maintained at a minimum of 1,500 degrees Fahrenheit whenever the equipment it serves is in operation.

Continuous exhaust temperature monitoring and recording system shall be pursuant to the operation and maintenance requirements specified in 40 CFR Part 64.7. Such a system shall have an accuracy of within $\pm 1\%$ of the temperature being monitored and shall be inspected, maintained, and calibrated on an annual basis in accordance with the manufacturer's specifications using an applicable South Coast AQMD or EPA approved method.

For the purpose of this condition, a deviation shall be defined as when a temperature of less than 1,500 degrees Fahrenheit occurs during normal operation. The operator shall review the records of temperature on a daily basis to determine if a deviation occurs or shall install an alarm system to alert the operator when a deviation occurs.

Semi-annual reporting specified in Condition No. 23 in Section K, whenever a deviation occurs in which the temperature of the flare falls below 1,500 degrees Fahrenheit, the operator shall take necessary corrective actions as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. Records of the duration and cause (including unknown cause, if applicable) of the deviation and the corrective actions taken shall be included in the semi-annual reporting.

All deviations shall be reported to the South Coast AQMD on a semi-annual basis pursuant to the requirements specified in 40 CFR Part 64.9 and condition nos. 22 and 23 in Section K of this permit.

The operator shall submit an application with a quality improvement plan (QIP) in accordance with 40 CFR Part 64.8 to the South Coast AQMD if an accumulation of deviations exceeds 5 percent duration of this equipment's total operating time for any semi-annual reporting period specified in Condition No. 23 in Section K of this permit. The required QIP shall be submitted to the South Coast AQMD within 90 calendar days after the due date for the semi-annual monitoring report.

The operator shall keep adequate records in a format that is acceptable to the South Coast AQMD to demonstrate compliance with all applicable requirements specified in this condition and 40 CFR Part 64.9 for a minimum of five years.

[40 CFR Part 64]



**FACILITY PERMIT TO OPERATE
AMERESCO CHIQUITA ENERGY LLC**

16. The owner/operator shall conduct a gas leak detection program with a combustible detector calibrated for methane by inspecting the blowers and all equipment downstream of the blowers. This inspection program shall be conducted once a week. All leaks detected above 500 ppm shall be reported to the South Coast AQMD within 24 hours of detection and repaired within 3 working days of detection. A log showing the results of each inspection shall be maintained and shall be available to South Coast AQMD personnel upon request.
[Rule 402, 1303(a)(1)-BACT, 1401]
17. All records shall be kept and maintained for at least five years and shall be made available to South Coast AQMD personnel upon request.
[Rule 3004(a)(4)]

Emissions and Requirements:

18. This equipment is subject to the applicable requirements of the following rules and regulations:
- CO: 2000 ppmv, Rule 407
 - CO: 0.06 lb/mmBtu heat input- BACT/LAER
 - NOx: 0.025 lb/mmBtu heat input- BACT/LAER, averaged over a 60 minute time period
 - NMOC: 98% destruction or 20 ppmv, Rule 1150.1, 40 CFR 60 Subpart WWW
 - PM: Rule 404, see Appendix B for emissions limits
 - PM: 0.1 gr/scf, Rule 409

**BEFORE THE HEARING BOARD OF THE
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT**

In the Matter of

AMERESCO CHIQUITA ENERGY LLC

CASE NO. 6143-2

Amendment to the Minute Order

AMENDMENT TO THE MINUTE ORDER

The Minute Order of the Hearing Board for the above case, dated March 10, 2023, is hereby amended as follows:

On Page 3

$$\sum_{i=1}^{1440} \text{Fuel SCF}_i \times \frac{\text{H}_2\text{S ppm}_i + 159.72 \text{ ppm non H}_2\text{S TRS}}{10^6} \times \frac{28.32 \text{ L}}{\text{SCF}} \times \frac{1 \text{ mol}}{23.69 \text{ L}} \times \frac{\text{mol SO}_2}{\text{mol TRS}} \times \frac{64.07 \text{ g SO}_2}{\text{mol SO}_2} \times \frac{1 \text{ lb}}{453.6 \text{ g}}$$

$$\text{Fuel SCF}_i \times \frac{\text{H}_2\text{S ppm}_i + \text{non H}_2\text{S TRS ppm}_i}{10^6} \times \frac{28.32 \text{ L}}{\text{SCF}} \times \frac{1 \text{ mol}}{23.69 \text{ L}} \times \frac{\text{mol SO}_2}{\text{mol TRS}} \times \frac{64.07 \text{ g SO}_2}{\text{mol SO}_2} \times \frac{1 \text{ lb}}{453.6 \text{ g}}$$

TRS: Total reduced sulfur concentration calculated as H₂S using South Coast AQMD Method 307-91

lb./scf: pounds per standard cubic feet

scf/day: Standard cubic feet per day

LFG: landfill gas

SOx: oxides of sulfur expressed as sulfur dioxide.

Non H₂S TRM ppm_i shall be calculated using the most recent H₂S ppm value from the daily Draeger tube readings and the most recent TRS ppm value less H₂S ppm from the daily SCAQMD Method 307.91 laboratory analysis required pursuant to Condition 2. One-minute SOx emissions shall be summed for each day to determine emissions in excess of the following permit limits:

- P/O #G25211, Condition 21: Turbine #1 is limited to 32 lbs SOx/day.
- P/O #G25212, Condition 21: Turbine #2 is limited to 32 lbs SOx/day.
- P/O #G23448, Condition 13: The flare is limited to 14 lbs SOx/day.

DATED: March 31, 2023

FOR THE BOARD:


Cynthia Verdugo-Peralta, Chair

Prepared by Altheresa Rothschild



M.O.
RV
5/3/23

**BEFORE THE HEARING BOARD OF THE
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
MINUTE ORDER**

AMERESCO CHIQUITA ENERGY LLC

29201 Henry Mayo Drive
Castaic, CA 91384

Case No: 6143-2

Facility ID: 140373

Hearing Date: 02/15/2023

Hearing Type: Interim

Consent Calendar:

Next Hearing: 5/3/23

HEARING BOARD ACTION

Action: Granted

Starting Date: 02/15/2023

Ending Date: 05/03/2023

RULES

203(b) {from Facility Wide Condition No. 3; Permit Condition Nos. 11, 21, and 24 of Permit to Operate (P/O) Nos. G25211 and G25212; and from Permit Condition No. 13 of P/O No. G23448}

431.1(c)(2)

3002(c)(1) {from Facility Wide Condition No. 3; Permit Condition Nos. 11, 21, and 24 of Permit to Operate (P/O) Nos. G25211 and G25212; and from Permit Condition No. 13 of P/O No. G23448}

| EQUIPMENT DESCRIPTION | DEVICE/APPLICATION/PERMIT |
|------------------------------|----------------------------------|
| Turbine-Generator #1 | G25211 |
| Turbine-Generator #2 | G25212 |
| LFG/Waste Gas Flare | G23448 |

CONDITIONS

1. Petitioner shall expedite, to the maximum extent feasible, replacement of granular activated carbon media in the Landfill Gas Treatment System (under Permit G58597, A/N 598260), including the execution of contracts, as well as the delivery, replacement, startup, and testing of any operations necessary to replenish and/or replace spent granular activated carbon media in the Landfill Gas Treatment System. Petitioner shall ensure adequate stock of all odor control products and supplies are maintained on site.
2. Petitioner shall sample, analyze, and record the landfill gas sulfur compounds combusted in each turbine (under Permits G25211, A/N 459539 and G25212, A/N 458540) and flare (under Permit G23448, A/N 458542) at least once each day using colorimetric tests for hydrogen sulfide (H₂S) and at least once each day sample for analysis for total sulfur compounds as H₂S using South Coast AQMD Method 307-91. Petitioner shall record South Coast AQMD Method 307-91 analysis upon receipt of laboratory analysis report. Each recorded measurement or result shall be documented with the time and date of the measurement or sample collection was conducted and initialed by the personnel that conducted the measurement or sample collection. Sulfur compounds readings and analysis shall be reported to South Coast AQMD pursuant to Condition No. 4.

3. Petitioner shall maintain a record of the following information. And provide such records to the South Coast AQMD pursuant to Condition No. 4:
 - a. The hourly and daily flow of landfill gas combusted, in standard cubic feet, in each turbine (under Permits G25211, A/N 459539 and G25212, A/N 458540) and flare (under Permit G23448, A/N 458542) and the total amount of landfill gas combusted at the facility;
 - b. The daily flow of landfill gas not combusted, in standards cubic feet, if applicable;
 - c. The results of the sulfur readings, sampling, and analyses, calculated as hydrogen sulfide (H₂S);
 - d. Daily excess emission in pounds (lbs.) of sulfur oxides (SO_x) per day for each turbine (under Permits G25211, A/N 459539 and G25212, A/N 458540) and flare (under Permit G23448, A/N 458542), including any assumptions, equations, supporting information., and basis for the calculations used in the excess emissions calculations.
4. Petitioner shall submit a written report weekly beginning Monday, February 20, 2023, on the progress if the status of the Landfill Gas Turbines (under Permits G25211, A/N 459539 and G25212, A/N 458540) and flare (under Permit G23448, A/N 458542), Landfill Gas Treatment System (under Permit G58597, A/N 598260), and efforts to resolve the total sulfur concentration in the landfill gas exceeding 150 ppmv calculated as H₂S. Weekly reports shall be submitted to the District each Monday not later than 5:00 p.m. via email, to [Baitong Chen, Air Quality Engineer, bchen@aqmd.gov]; Nathaniel Dickel, Senior Air Quality Engineer, (ndickel@aqmd.gov), and Gerardo Vergara, Air Quality Inspector, (gvergara@aqmd.gov)]. Each weekly report shall contain at a minimum the following information:
 - A. The landfill gas sulfur compounds measurements and laboratory analysis identified in Condition No. 2.
 - B. The landfill gas records and calculations identified in Condition No. 3.
 - C. Estimated schedule for any replacement or refurbishment of granular activated carbon media in the Landfill Gas Treatment System (under Permit G58597, A/N 598260) identified in Condition No. 1.
 - D. Description of any problems or delays, if any, encountered or projected to occur pertinent to the execution of contracts, as well as the delivery, replacement, startup. And testing of any operation necessary to replenish and/or replace spent granular activated carbon media in the Landfill Gas Treatment System (under Permit GV58597, A/N 598260).
 - E. Specifications of the equipment and materials used for the daily colorimetric tests (include in initial weekly report (due Monday February 20, 2023), and in the subsequent weekly report(s) only if there is a change in the specifications of the colorimetric instrumentation or method used).
 - F. Status updates pursuant to Condition No. 5 (beginning February 27, 2023).
 - G. Status updates pursuant to Condition No. 6 (beginning February 27, 2023).
5. Petitioner shall reasonably assist Chiquita Canyon Landfill, LLC (FID #119219) in Chiquita Canyon Landfill, LLC 's investigation of the availability, viability, and utilization, including pilot testing if needed, of an alternative sulfur compound pursuant to the variance granted in Case No. 6177-3. Petitioner shall report and submit status updates on its assistance in the weekly report per Condition No. 4 starting in the weekly report that is due February 27, 2023, by 5:00 p.m.
6. Petitioner shall reasonably assist Chiquita Canyon Landfill, LLC (FID# 119219) in Chiquita Canyon Landfill, LLC's investigation of the availability, viability and utilization of valid and active South Coast AQMD permitted Various Location sulfur compound treatment system that controls, treats, or removes dimethyl sulfide and other sulfur

- compounds pursuant to the variance granted in Case No. 6177-3. Petitioner shall report and submit status updates on its assistance in the weekly report per Condition No. 4 starting in the weekly report that is due February 27, 2023, by 5:00 p.m.
7. Whenever South Coast AQMD permitted Various Location equipment is brought or operated on site to process, treat, or control the landfill gas, the Petitioner shall:
- Notify South Coast AQMD in writing of the date and time that the equipment is brought to the facility in the corresponding weekly report per Condition No. 4 and include a copy of the various locations permit(s) in the corresponding weekly report per Condition No. 4.
 - Maintain a daily log including the following information for each permit unit: permit number, application number, equipment location, and start and end time of equipment operation (as applicable). Petitioner shall submit the daily log in the corresponding weekly report per Condition No. 4.
 - Notify South Coast AQMD in writing of the date and time that the equipment is removed from the facility in the corresponding weekly report per Condition No. 4.
8. Petitioner shall pay all applicable fees to the Clerk of the Board, or the variance shall be invalidated pursuant to Rule 303(k), except for excess emission fees, which shall be paid within fifteen (15) days of notification in writing that the fees are due, unless otherwise ordered by the Hearing Board.
9. Petitioner shall pay excess emission based on the following equation:

$$\sum_{i=1}^{1440} \text{Fuel SCF}_i \times \frac{\text{H}_2\text{S ppm}_i + 159.72 \text{ ppm non H}_2\text{S TRS}}{10^6} \times \frac{28.32 \text{ L}}{\text{SCF}} \times \frac{1 \text{ mol}}{23.69 \text{ L}} \times \frac{\text{mol SO}_2}{\text{mol TRS}} \times \frac{64.07 \text{ g SO}_2}{\text{mol SO}_2} \times \frac{1 \text{ lb}}{453.6 \text{ g}}$$

TRS: Total reduced sulfur concentration calculated as H₂S using South Coast AQMD Method 307-91

lb./scf: pounds per standard cubic feet

scf/day: Standard cubic feet per day

LFG: landfill gas

SOx: oxides of sulfur expressed as sulfur dioxide.

10. The granting of relief pursuant to this variance shall not exempt Petitioner from complying with all other applicable South Coast AQMD Rules and Regulations, including those for nuisance per Rule 402.
11. Petitioner shall pay all applicable fee to the Clerk of the Board, or the variance shall be invalidated pursuant to Rule 303(k), except for excess emissions fees (as calculated according to Table II of South Coast AQMD Rule 303), which shall be paid within fifteen (15) days of notification in writing that the fees are due, unless otherwise ordered by the Hearing Board.
12. Petitioner shall notify the South Coast AQMD (Attention: Kathryn Roberts, kroberts@aqmd.gov) and the Clerk of the Board in writing when final compliance has been achieved.

EXCESS EMISSIONS

SOx: 80.24 lbs./day

Failure to comply in full with any and all conditions and increments of progress may result in modification or revocation of this order by the Hearing Board, and/or enforcement actions by the South Coast AQMD.

REMINDER

The Regular Variance hearing is scheduled for May 3, 2023.

Present:

Cynthia Verdugo-Peralta, Chair
Robert Pearman, Esq., Vice Chair
Micah Ali
Mohan Balagopalan
Dr. Allan Bernstein, DPM

Representing the Petitioner:

Aron Potash, Attorney at Law

Representing the Respondent:

Kathryn Roberts, Senior Deputy District Counsel

Witnesses for the Petitioner:

Andrew McClelland, Senior Environmental Specialist
Richard Peary, Director of Compliance
Nathan Hall, Senior Vice President, Asset Operations

Petitioner's Exhibits:

#1 - Weekly Report from SCS Engineering dated 2/13/23
#2 - Timeline

Respondent's Exhibits:

A - Proposed Interim Variance Conditions

Comments:

Testimony was presented that petition processes landfill gas produced by Chiquita Canyon Landfill and turns it into electricity. On January 31, 2023, petitioner shut down its landfill gas-to-energy plant due to high sulfur in the landfill gas that it received from Chiquita Canyon Landfill. Petitioner received an analysis report for landfill gas samples that had been collected on January 23, 2023. The report indicated that the landfill gas contained elevated level for total reduced sulfur compounds (TRS), mainly due to the presence of dimethyl sulfide (DMS). The TRS exceeded the 150 parts per million (ppm) limit as hydrogen sulfide (H₂S) in Rule 431.1, and caused emissions in excess of the limit of 32 lbs./day for both landfill gas-fueled turbines. Petitioner immediately shut its plants. DMS is not typically present in substantial concentrations in landfill gas, its presence at elevated levels is unexpected. Petitioner does not currently have the ability to control non-H₂S sulfur compounds in the landfill gas and can only partially control H₂S. There are no immediately available control/removal methods for DMS. Resuming operations of the turbines and flares as soon as possible will benefit the corrective actions that are being taken to correct the conditions resulting in DMS generation. Petitioner submitted a petition on February 14, 2023, which was as soon as petitioner was able to get the petition

prepared, which was not enough time to meet the notice requirements to the public for a regular variance to be held on February 15, 2023.

Motion: [] Good Cause Balagopalan/Bernstein 5-0

Motion: [] Verdugo-Peralta/Bernstein 5-0

Board Review/Approval


Cynthia Verdugo-Peralta, Chair

Dated

03/10/23

Prepared by

