

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  <b>ENGINEERING AND COMPLIANCE DIVISION</b>  <b>PERMIT APPLICATION EVALUATION AND CALCULATIONS</b>	PAGES 6	PAGE 1
	APPL NO 545073 Rev	DATE 3/12/2014
	PROCESSED BY GCR	CHECKED BY <i>CD</i>

**PERMIT TO OPERATE EVALUATION**  
(Change of condition to G23448, A/N 458542)

**APPLICANT'S NAME:** AMERESCO CHIQUITA ENERGY, LLC

**MAILING ADDRESS:** 111 SPEEN STREET, SUITE 410  
FARMINGHAM, MA 01701  
Attn.: Sarah Simon, Env. Compliance Manager

**EQUIPMENT ADDRESS:** 29201 HENRY MAYO DRIVE  
(AT CHIQUITA CANYON LANDFILL)  
CASTAIC, CA 91355

**FACILITY ID:** 140373

**CONTACTS:**

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**EQUIPMENT DESCRIPTION:**

LANDFILL GAS TREATMENT SYSTEM PURGE-GAS FLARE USING TREATED LFG AS FUEL,  
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]

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  <b>ENGINEERING AND COMPLIANCE DIVISION</b>  <b>PERMIT APPLICATION EVALUATION AND CALCULATIONS</b>	PAGES 6	PAGE 2
	APPL NO 545073 Rev	DATE 3/12/2014
	PROCESSED BY GCR	CHECKED BY

3. THIS EQUIPMENT SHALL BE OPERATED AND MAINTAINED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.  
[RULE 204]

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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)]
7. WHENEVER THE FLARE IS IN OPERATION, A TEMPERATURE OF NOT LESS THAN 1500 DEGREES F, ONE-HOUR 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 F 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 AQMD FOR APPROVAL AT LEAST 30 DAYS PRIOR TO THE SCHEDULED TESTING. WRITTEN NOTIFICATION OF THE SCHEDULED TEST DATE SHALL BE PROVIDED TO THE AQMD AT LEAST SEVEN (7) DAYS PRIOR TO THE DATE SO THAT THE TESTING MAY BE OBSERVED BY 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:

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  <b>ENGINEERING AND COMPLIANCE DIVISION</b>  <b>PERMIT APPLICATION EVALUATION AND CALCULATIONS</b>	PAGES 6	PAGE 3
	APPL NO 545073 Rev	DATE 3/12/2014
	PROCESSED BY GCR	CHECKED BY

- 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. NOX, AS NO2 (EXHAUST ONLY)
- E. SOX, AS S02 (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<sub>x</sub>, TNMOCS, PM10, AND SO<sub>x</sub>, 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 AQMD RULE 304(I) (CONFLICT OF INTEREST).
- C. SAMPLING FACILITIES SHALL COMPLY WITH AQMD "GUIDELINES FOR CONSTRUCTION OF SAMPLING AND TESTING FACILITIES" PURSUANT TO RULE 217.

[RULE 204, 217, RULE 1150.1]

12. THE MAXIMUM FLARE SKIN TEMPERATURE AT ANY LOCATION SHALL NOT EXCEED 250 DEGREES FAHRENHEIT.

[RULE 217]

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, RULE 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 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]

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  <b>ENGINEERING AND COMPLIANCE DIVISION</b>  <b>PERMIT APPLICATION EVALUATION AND CALCULATIONS</b>	PAGES	PAGE
	6	4
	APPL NO 545073 Rev	DATE 3/12/2014
	PROCESSED BY GCR	CHECKED BY

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 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, ONE-HOUR AVERAGE, 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 1,400 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 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 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 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 AQMD TO DEMONSTRATE COMPLIANCE WITH ALL APPLICABLE REQUIREMENTS SPECIFIED IN THIS CONDITION AND 40 CFR PART 64.9 FOR A MINIMUM OF FIVE YEARS. [40CFR PART 64]

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 AQMD WITHIN 24 HOURS OF DETECTION AND REPAIRED WITHIN 3

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  <b>ENGINEERING AND COMPLIANCE DIVISION</b>  <b>PERMIT APPLICATION EVALUATION AND CALCULATIONS</b>	PAGES 6	PAGE 5
	APPL NO 545073 Rev	DATE 3/12/2014
	PROCESSED BY GCR	CHECKED BY

WORKING DAYS OF DETECTION. A LOG SHOWING THE RESULTS OF EACH INSPECTION SHALL BE MAINTAINED AND SHALL BE AVAILABLE TO 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 AQMD PERSONNEL UPON REQUEST.  
[RULE3004 (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, 40CFR60 SUBPART WWW  
PM: RULE 404, SEE APPENDIX B FOR EMISSIONS LIMITS  
PM: 0.1 gr/scf, RULE 409

**BACKGROUND:**

On November 27, 2012, Ameresco Chiquita Energy, LLC submitted this application for change of permit condition (458542 PC granted 6/15/2007). The proposed change of permit conditions is to allow longer period temperature averaging period from 15 minutes to one hour (applicant has agreed to keep 1500 deg. F flare temperature as on the existing permit). In the interim period, on 6/27/2013, a final permit to operate G23448 was issued for flare under Title V administrative revision that also incorporated Compliance Assurance Monitoring (CAM) conditions.

This facility was issued NOV P61359 on 10/4/13 for gas turbines' source tests (5/21 - 5/23/13) failure that exceeded SOx emission rate, and failure to report deviation within 72 hours as required by Section K, Cond. 22 (B) of Title V Permit.

**Revised Equipment Description and Conditions:**

Equipment description was revised to clarify that the flare serves the purge gas (regeneration gas from the LFG treatment system) using treated LFG as fuel for the flare.

Above Conditions #7 and #15 are revised to show flare temperature (1500 deg F) to be maintained based on one-hour average, except during flare start up and shutdown periods.

**Emissions:**

No change in emissions is expected. AEIS/NSR values kept same as under current permit.

**RULES EVALUATION:**

Rule 1150.1 (f) (1) (A) ( iii ) requires the facility keep a record of the average combustion temperature measured at least every 15 minutes and averaged over the same time period of the source test. Since the method 25 test for TNMOC is approximately one hour, the proposed change for temperature, one hour averages, is expected to align more closely with the rule.

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  <b>ENGINEERING AND COMPLIANCE DIVISION</b>  <b>PERMIT APPLICATION EVALUATION AND CALCULATIONS</b>	PAGES 6	PAGE 6
	APPL NO 545073 Rev	DATE 3/12/2014
	PROCESSED BY GCR	CHECKED BY

Rule 1150.1 (f) (1) (L) requires continuous records of temperature during periods where 3-hour average combustion temperature was more than 82 deg F. below the average combustion temperature during the most recent source test. The proposed change for one hour average for temperature is expected to align more closely with the rule.

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Compliance with all applicable Rules and regulations is expected.

**RECOMMENDATION:**

Permit to operate is recommended with conditions listed above, Pgs. 1-5. Issue permit under TV revision A/N 545076.