

**SOURCE TEST REPORT FOR
2026 CHIQUITA CANYON LANDFILL
HERO THERMAL OXIDIZER
SCAQMD FACILITY ID: 119219
SCAQMD A/N: 661284**

Prepared For:

Chiquita Canyon Landfill

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For Submittal To:

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Test Date: **May 13, 2026**

Production Date: **October 12, 2026**

Report Number: **W002AS-065112-RT-8872**

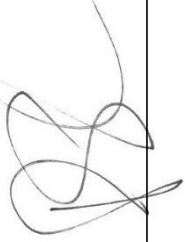


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REVIEW AND CERTIFICATION

All work, calculations, and other activities and tasks performed and presented in this document were carried out by me or under my direction and supervision. I hereby certify that, to the best of my knowledge, Montrose operated in conformance with the requirements of the Montrose Quality Management System and ASTM D7036-04 during this test project.



Signature: _____ Date: 10/12/2026

Name: Pete San Juan Title: Client Project Manager

I have reviewed, technically and editorially, details, calculations, results, conclusions, and other appropriate written materials contained herein. I hereby certify that, to the best of my knowledge, the presented material is authentic, accurate, and conforms to the requirements of the Montrose Quality Management System and ASTM D7036-04.

Signature: Surya Date: 10/12/2026

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1.0 INTRODUCTION AND SUMMARY

Montrose Air Quality Services, LLC (MAQS) was contracted to conduct source emissions testing on landfill gas-fired Hero Thermal Oxidizer (TOx) A/N: 661284 at the Chiquita Canyon Landfill (SCAQMD Facility ID: 119219) located in Castaic, California. Testing was conducted to satisfy the requirements of Notice to Comply (NTC) #E56457, issued by South Coast AQMD to Chiquita Canyon, LLC. 17 CCR § 95464(b)(3)(A)(1) requires gas control devices to achieve methane destruction efficiency (DRE) of at least 99 percent by weight.

Testing was conducted in accordance with the source test plan (MAQS Document Number W002AS-065112-PP-1498) submitted to SCAQMD on March 3, 2026. Measurements of the TOx emissions and operating parameters were conducted at the TOx exhaust and at the inlet (landfill gas) of the control device. Table 1-1 provides a test matrix of the parameters tested at each sample location. The test was conducted on May 13, 2026.

The MAQS test team consisted of Pete San Juan and Allen Dusky. Pete San Juan was the on-site qualified individual as defined in ASTM D7036-04. MAQS qualifies as an independent testing laboratory under SCAQMD Rule 304 (no conflict of interest) and is certified by the SCAQMD to conduct testing for criteria pollutants according to District Methods. Testing was coordinated by Mr. Dylan Smith of Waste Connections.

The results of the emission test are summarized in Table 1-2. The results demonstrate that the Hero TOx did not meet the requirement to achieve a methane DRE of at least 99 percent by weight specified in 17 CCR § 95464(b)(3)(A)(1). All raw data, laboratory results, calculations and QA/QC data can be found in the Appendices.

TABLE 1-1
TEST MATRIX
CHIQUITA CANYON LANDFILL
HERO THERMAL OXIDIZER
MAY 13, 2026

Parameter/Units	Inlet	Exhaust
Oxygen (O ₂)	X	X
Carbon Dioxide (CO ₂)	X	X
Moisture (H ₂ O)	X	--
Flow Rate (dscfm)	X	X
Temperature (°F)	X	X
Methane (CH ₄)	X	X
Calorific Value (Btu/scf)	X	

Chiquita Canyon Landfill
2026 Hero TOx Methane DRE Source Test

TABLE 1-2
RESULTS SUMMARY
CHIQUITA CANYON LANDFILL
HERO THERMAL OXIDIZER
MAY 13, 2026

Parameter/Units	Inlet	Exhaust	Limit
O ₂ , %	5.1	11.3	--
CO ₂ , %	48.0	16.3	--
N ₂ , %	26.3	72.3	--
H ₂ O, %	6.4	--	--
Flow Rate, dscfm	1,533	7,141	--
Temperature, °F from RM probe	148	--	--
Temperature, °F from controlling TC	--	1,559	>1,400
Hydrocarbons			
Methane, ppm	140,000	5033.3	--
Methane, ppm @ 3% O ₂	158,279	9520.5	--
Methane, lb/hr	534.7	90.27	--
Methane, Destruction Efficiency, %	--	83.1	≥99%

Note:
The results in this table are the averages of all measurements.

2.0 UNIT DESCRIPTION

The Thermal Oxidizer is described as a Vapor Combustor and is Manufactured by Clean Cap Tech. It has a heat input capacity of 45 MMBtu/hr and a maximum inlet fuel flow rate of 3,300 scfm. The combustor uses approximately 50 standard cubic feet per hour of propane pilot assist gas. The reaction gas going into the unit is not expected to be greater than 22.46% methane. The TOx will be permitted to operate 24 hours per day, 7 days per week, and 52 weeks per year, except during periods of scheduled and unscheduled maintenance.

The vapor combustor will also combust vapor vented from the liquid storage tanks in the LFG condensate and leachate collection/storage system and LFG condensate and leachate treatment system.

The exhaust stack is rectangular in shape and approximately 46 feet in height above grade.

3.0 TEST DESCRIPTION

3.1 TEST CONDITIONS

The Thermal Oxidizer was operated at capacity for available landfill gas throughout each test period. Temperature and fuel flow rate were monitored and recorded by test personnel throughout each test period. The Thermal Oxidizer's middle thermocouple was used for control temperature settings. Temperature set point was 1,560°F. Process data can be found in Appendix B.

3.2 SAMPLE LOCATIONS

Samples were collected at the Thermal Oxidizer exhaust and at the inlet (landfill gas fuel) to the Thermal Oxidizer. The SCAQMD Method 1.1 sample point calculations and a schematic drawing of the sample locations are included in Appendix A.

At the Thermal Oxidizer exhaust, a telescopic aerial lift was used for access to a single sample port located at the center of the rectangular duct.

The Thermal Oxidizer inlet duct has an inner diameter of 8 inches.

3.3 TEST PROCEDURES

The test procedures used for the inlet and Thermal Oxidizer exhaust measurements are summarized below in Tables 3-1 and 3-2, respectively. The procedures selected are consistent with source test plan submitted to SCAQMD. Brief discussions of each procedure are given below in Sections 3.3.1 through 3.3.3.

TABLE 3-1
INLET TEST PROCEDURES
CHIQUITA CANYON LANDFILL
HERO THERMAL OXIDIZER
MAY 13, 2026

Parameter	Sample Medium	Analytical Technique	Reference Method	Number of Replicates
Flow Rate	On-Site Flow Meter	Flow Meter	Facility Meter	3
Moisture	Wet Bulb/Dry Bulb	Psychrometric Chart	SCAQMD 4.1	3
N ₂ , O ₂ , and CO ₂	Tedlar Bag	GC/FID/TCD	SCAQMD 10.1/ASTM D-1945	3
Methane	Tedlar Bag	GC/FID	EPA 18	3
Btu/CF and F Factor	Tedlar Bag	GC/FID/TCD	ASTM D-3588	3

TABLE 3-2
EXHAUST TEST PROCEDURES
CHIQUITA CANYON LANDFILL
HERO THERMAL OXIDIZER
MAY 13, 2026

Parameter	Sample Medium	Analytical Technique	Reference Method	Number of Replicates
Flow Rate	N/A	Calculated	EPA 19	3
N ₂ , O ₂ / CO ₂	Tedlar Bag	GC/FID/TCD	EPA 3C / SCAQMD 10.1	3
Methane	Tedlar Bag	GC/FID	EPA 18	3

3.3.1 SCAQMD Method 3.1 – Gas Analysis for Dry Molecular Weight and Excess Air

Integrated samples were collected into Tedlar bags from the stack and analyzed for oxygen (O₂) and carbon dioxide (CO₂) by gas chromatograph (GC). Exhaust N₂ was calculated by the difference from the concentration of the other major exhaust gas components such as O₂ and CO₂. Molecular weight of the stack gas is calculated from the percentages of carbon dioxide (CO₂), oxygen (O₂) and nitrogen (N₂). Thermal Oxidizer inlet landfill gas was analyzed by GC for O₂, CO₂, and N₂.

3.3.2 EPA Method 18 – Measurement of Methane Emissions by Gas Chromatography

The Method 18 sampling apparatus was used to collect methane in ten liters Tedlar bags. Triplicate integrated samples were collected simultaneously from a single point at the inlet and outlet of the Thermal Oxidizer to determine the Methane destruction efficiency (DRE) across the control device on a mass basis.

The apparatus consists of a stainless-steel probe connected by Teflon line to a Tedlar sample bag contained in an airtight canister. Evacuation of the air in the canister causes sample gas to be drawn into the bag. Only new Tedlar bags were used, and bags were purged before collecting the sample.

On completion of each run, the bag samples were sealed and transported to the laboratory. The contents of each bag sample were analyzed by gas chromatograph (GC) with a Flame Ionization Detector (FID) for the determination of methane content at the inlet and outlet, and emission rate was calculated as follows:

Equation:

$$\text{lb/hr} = \text{PPMv} * \text{DSCFM} * \text{C.F.} * \text{M.W.}$$

Where:

PPMv = Parts Per Million (Volume)

DSCFM = Dry Standard Cubic Feet Per Minute

M.W. = Molecular Weight of Methane (16-lb/lb-mole)

C.F. = Conversion Factor = 1.583×10^{-7} @ 60°F;

= 1.558×10^{-7} @ 68°F

Enthalpy Analytical, was used for the analysis. The following equation was used to determine the Methane DRE.

$$\text{METHANE DRE} = \left(\frac{\text{Methane}_{in} - \text{Methane}_{out}}{\text{Methane}_{in}} \right) (100\%) \text{ based on mass emission rates}$$

3.3.3 EPA Method 19 – Calculation of Exhaust Flow Rate from Known F-Factor

Fuel meter readings were recorded from the certified facility meter and provided during the test. Inlet landfill gas samples were collected in Tedlar bags and analyzed for F-Factor (dscf/MMBtu) and higher heating value (HHV) Btu/scf by ASTM D1945/D3588. Lab result values were used for the calculation of volumetric flow rate and were compared with the measured exhaust flow rate. The following equation was used to calculate the volumetric flow rate.

$$Q_{sd} = \left(\frac{F_d \times \text{GCV} \times \text{FF}}{1 \times 10^6} \right) \left(\frac{20.9 - O_2}{20.9} \right)$$

4.0 RESULTS AND OVERVIEW

4.1 TEST RESULTS

The results of the source tests of the Hero landfill gas Thermal Oxidizer at Chiquita Canyon Landfill demonstrate that Methane Destruction Efficiency (DRE) does not meet the requirement of ≥99% by weight, as specified in 17 CCR § 95464(b)(3)(A)(1).

Detailed results can be found in the appendices. Table 1-2 presented the summarized test results and the allowed limit. Table 4-1 presents detailed test results of each parameter. The Thermal Oxidizer was operated at a landfill gas flow rate of 1,638 scfm as measured by the on-site flow meter. The Thermal Oxidizer temperature controller was set at 1,560°F at the middle thermocouple.

TABLE 4-1
GENERAL RESULTS
CHIQUITA CANYON LANDFILL
HERO THERMAL OXIDIZER
MAY 13, 2026

Parameter/Units	Inlet				Exhaust			
	First Run	Second Run	Third Run	Average	First Run	Second Run	Third Run	Average
O ₂ , %	5.2	5.0	5.0	5.1	11.0	12.0	11.0	11.3
CO ₂ , %	48.0	48.0	48.0	48.0	17.0	15.0	17.0	16.3
N ₂ , %	27.0	26.0	26.0	26.3	72.0	73.0	72.0	72.3
H ₂ O, %	6.4	6.4	6.4	6.4	--	--	--	--
Flow Rate, scfm	1642	1636	1635	1638	--	--	--	--
Flow Rate, dscfm	1,537	1,531	1,531	1,533	6,828	7,649	6,946	7,141
Temperature, °F	148	148	148	148	--	--	--	--
Temperature, °F ⁽¹⁾	--	--	--	--	1,561	1,557	1,559	1,559
Hydrocarbons								
Methane, ppm	140,000	140,000	140,000	140,000	4700.0	6200.0	4200.0	5033.33
Methane, ppm @ 3% O ₂	159,618	157,610	157,610	158,279	8497.98	12469.66	7593.94	9520.53
Methane, lb/hr	536.0	534.1	534.0	534.7	79.95	118.16	72.69	90.27
Methane, Destruction Efficiency, %	--	--	--	--	85.1	77.9	86.4	83.1

Note: The exhaust volume flow values are based on Method 19 calculated flow rate.

(1) Temperature from the controlling Thermocouple

4.2 TEST OVERVIEW

Landfill gas flow rate was measured by the certified facility meter. Notably, no propane usage was recorded by the propane flow meter during the test. The propane flow meter displayed 0.00 Nm₃/hr during the entire testing.

Tedlar bag samples of the inlet landfill gas were collected for analysis of HHV and F-Factor, in accordance with the protocol. Triplicate EPA Method 18 samples were taken on the inlet and exhaust.