



March 11, 2025

Via E-Mail

Eric Morofuji

Environmental Health Specialist
Los Angeles County Department of Public
Health Local Enforcement Agency
Environmental Programs Division
5050 Commerce Drive
Baldwin Park, California 91706
emorofuji@ph.lacounty.gov

**Re: Chiquita Canyon, LLC Analysis of February 4, 2025 FLIR Survey in
Response to the December 24, 2024 LEA Letter Regarding
Milestone 2B Compliance, Chiquita Canyon Landfill**

Dear Mr. Morofuji:

Chiquita Canyon, LLC (“Chiquita”) hereby provides this analysis of the February 4, 2025 aerial Forward Looking Infrared (“FLIR”) survey of the geosynthetic cover area of the Chiquita Canyon Landfill (“Landfill”) in response to the December 24, 2024 letter from the Los Angeles County Department of Public Health, Solid Waste Management Program, acting as the Local Enforcement Agency (“LEA”).

Aerial FLIR Survey of the Geosynthetic Cover

As previously discussed in Chiquita’s November 12, 2024 response to the LEA, Chiquita engaged Sniffer Robotics, Inc. (“Sniffer”) to perform aerial FLIR surveys of the geosynthetic cover area of the Landfill via radiometric thermal imagery. Sniffer performed the most recent FLIR survey on February 4, 2025.¹ A radiometric thermal camera measured the temperature of the surface by interpreting the intensity of the infrared signal reaching the camera. As explained in Chiquita’s November 12, 2024

¹ As reported to the LEA in January and in Chiquita’s February 28, 2025 letter to the LEA, Sniffer was unable to complete its FLIR survey flight for January 2025 as a result of the proximity of the Hughes Fire and the related January 22 evacuation warning issued by the California Department of Forestry and Fire Protection. Sniffer rescheduled and performed the survey on February 4, 2025.

letter to the LEA (transmitting the October 2024 survey), certain variables such as ambient temperature, humidity, dew on the geosynthetic cover, rain, the color of surface objects, and solar insolation can affect the accuracy and quality of these surveys. Considering these variables, Chiquita noted that the FLIR technology appears to be detecting heat data not accurately representing potential fissures or tension cracks. Chiquita therefore continues to have significant concerns about the reliability and accuracy of this technology for the purpose of identifying fissures and tension cracks.

Sniffer has prepared this report on the February 4, 2025 survey to address the LEA's requests in its December 24, 2024 letter; the report is included as **Attachment A**. As requested in that letter, Sniffer's report shows GPS coordinates and quantitative thermal data. In addition, Chiquita has conducted an investigation of each area identified by the LEA and marked as Areas A through E in Figure 1 of CalRecycle's November 25, 2024 letter. Please note that during the February 4, 2025 survey, Sniffer's thermal camera did not detect any elevated temperatures in Area B or D, two of the areas of interest identified in the LEA's and CalRecycle's letters. Nevertheless, Sniffer included thermal images, photographs, and GPS coordinates for those two areas in accordance with the LEA's directive to track trends in Areas A through E over time. Chiquita provides the following discussion:

Area A

The area designated by the LEA as "Area A" appears to be in grid 150. The Sniffer data reference points in Area A are points 02 and 07. As discussed in Chiquita's February 28, 2025 analysis of Sniffer's October 1, 2024 FLIR survey, there is active gas collection occurring in this area. Chiquita's Gas Collection and Control System ("GCCS") conveys warm gas to the Landfill's flares, as designed. There is a high concentration of GCCS piping in this area relative to the rest of the Landfill, including multiple vertical paths (landfill gas wellheads), horizontal paths (landfill gas header lines), and conveyance lines that remove hot gases and liquids from the north slope of the Landfill. It is expected that the GCCS system will have higher temperatures in this area, particularly given the higher concentration of GCCS infrastructure.

As indicated in the thermal inspection image labeled Reference # 07, background temperatures are low (represented by blue hues), with somewhat higher temperatures throughout the GCCS system (represented by green/yellow hues), which as described above, is to be expected. Comparison of the October 2024 and February 2025 surveys indicates an overall decrease in temperature in Area A (compare green hues to largely purple hues).

Area B

The area designated by the LEA as "Area B" appears to be in grid 185. The Sniffer

data reference point in Area B is point 08. As with the nearby Area A, GCCS infrastructure is highly concentrated in this area. As discussed in Chiquita's February 28, 2025 analysis of Sniffer's October 1, 2024 FLIR survey, because the GCCS system is designed to convey the landfill gas from the north slope to the flares, we would expect to see elevated temperatures here, particularly given the higher concentration of GCCS infrastructure. This area was also subject to elevated temperatures where the integrity of the dirt cover was compromised. Chiquita repaired the geomembrane cover and performed related work during the fourth quarter of 2024 to address this issue.

A comparison of the October 2024 and February 2025 thermal images in Area B indicates an overall decrease in temperature in that area. While the precise geolocations vary slightly between the surveys, the average temperatures decreased by about eleven degrees (compare data reference points 0023 and 0025 in the October 2024 thermal images report and data reference point 08 in the February 2025 report).

Area C

The area designated by the LEA as "Area C" appears to be in grid 181. The Sniffer data reference point in Area C is point 06. As discussed in Chiquita's February 28, 2025 analysis of Sniffer's October 1, 2024 FLIR survey, this area is along the western portion of the Landfill, where the reaction is closer to the surface relative to the rest of the reaction area, meaning elevated temperatures are closer to the surface and therefore more readily detected by the radiometric thermal camera. At the time of the October 1, 2024 survey, work along the western portion of the Landfill to complete the western toe drain installation project was being performed in order to install a new toe drain, secondary drain, and ancillary piping to facilitate leachate drainage into the Landfill's leachate collection system and to improve gas collection by replacing the temporary plastic cover with a continuous geosynthetic cover over the area, to further mitigate the elevated temperatures. That work is now complete. In addition, in late April to early May 2024, Chiquita installed a horizontal collector for the GCCS system in this area and the nearby Area D in order to collect additional hot gas for conveyance to the flares and thereby further address elevated temperatures in this area.

An overall decrease in temperatures in Area C is evidenced by the thermal camera's detection of only slightly elevated temperatures in this area as compared to the October 2024 survey. The hues in the October 2024 survey were bright green as compared to the largely purple hues in the February 2025 survey.

Area D

The area designated by the LEA as "Area D" appears to be in grid 181. The Sniffer data reference point within Area D is point 09. The horizontal collector for the GCCS

discussed above in Area C also runs through Area D. As discussed in Chiquita's February 28, 2025 analysis of Sniffer's October 1, 2024 FLIR survey, Chiquita installed the horizontal collector for the GCCS system in this area and the nearby Area C in order to collect additional hot gas for conveyance to the flares and thereby further address elevated temperatures in this area.

An overall decrease in temperatures in Area D is evidenced by the thermal camera's detection of only slightly elevated temperatures in this area as compared to the October 2024 survey. The survey indicates only slightly elevated temperatures (represented by blue hues) along the GCCS piping network. In comparing thermal images of point 0001 in the October 2024 report with point 09 in the February 2025 report, average temperatures in this area dropped approximately seven degrees Fahrenheit, representing an overall decrease in temperature over time.

Area E

The area designated by the LEA as "Area E" appears to be in grid 177. The Sniffer data reference point within Area E is point 05. An abandoned gas well, well CV-2302, exists within Area E and is photographed on PDF page 7 of Attachment A under "Reference # 05." Additional gas wells and dewatering pumps were installed in the area to replace CV-2302. However, as discussed in Chiquita's February 28, 2025 analysis of Sniffer's October 1, 2024 FLIR survey, the abandoned borehole for CV-2302 may be continuing to emit heat to the surface, which may explain the elevated temperatures detected in the area. The other gas wells and pumps installed in the area continue to remove hot gas and liquids from the Landfill.

Nevertheless, the maximum temperatures detected in the thermal images for this area (reference points 0019 and 0021 in the October 2024 survey and reference point 05 in the February 2025 survey) are within approximately 2.4 degrees of each other.

Other Areas

On the whole, the February survey noted fewer areas of the Landfill with elevated temperatures. As acknowledged by CalRecycle in its November 25, 2024 letter, FLIR surveys can detect heat sources that may or may not be significant. This is the case with reference points 03 and 04 in the February 2025 survey. Reference point 03 was likely detected because it is in an area where the liner is black as opposed to the surrounding white liner, which we would expect to absorb more heat; and reference point 04 is the location of a condensate collection sump, which collects liquids that form in the landfill gas conveyance lines of the GCCS, and also includes a large infrastructure of black HDPE pipes on top of surrounding white liner. In addition, fluctuations in surface temperature detected by FLIR may be influenced by operational changes, including changes to the landfill gas or leachate capture and conveyance

systems.

Preliminary Conclusions

The Sniffer survey results do not show an increase in intensity or expansion of the reaction. Rather, the results demonstrate a decrease in elevated temperature areas at the surface of the Landfill, particularly at the western edge of the Landfill as described in the discussion of Area C above. Chiquita reiterates that an increase or decrease in surface temperatures is not indicative of an intensifying or subsiding of the reaction conditions, as the reaction is not taking place at shallow depths. Chiquita will continue to evaluate the data in the upcoming April, June, and August 2025 surveys.²

Regards,



Steve Cassulo
District Manager
Chiquita Canyon, LLC

Attachment: Sniffer Robotics, Inc., Emission Study Thermal Report (dated March 4, 2025)

cc: John Perkey, Waste Connections
Robert Ragland, Los Angeles County Department of Public Health
Liza Frias, Los Angeles County Department of Public Health
Nichole Quick, M.D., Los Angeles County Department of Public Health
Shikari Nakagawa-Ota, Los Angeles County Department of Public Health
Mark Como, Los Angeles County Department of Public Health
Ken Habaradas, Los Angeles County LEA
Karen Gork, Los Angeles County LEA
Renee Jensen, LEA Counsel
Blaine McPhillips, Senior Deputy County Counsel
Emiko Thompson, Los Angeles County Department of Public Works
Alex Garcia, Los Angeles County Department of Regional Planning
Phillip Chen, Los Angeles County Department of Regional Planning
Steven Jareb, Los Angeles County Department of Regional Planning

² Given the delay caused by the Hughes Fire and the related evacuation, and the resulting rescheduling of the January 2025 survey to February 2025, Chiquita requested in its February 28, 2025 letter to the LEA that the remaining three FLIR surveys be conducted in April 2025, June 2025, and August 2025.

Wes Mindermann, CalRecycle
Rachel Beck, CalRecycle
Todd Thalhamer, CalRecycle
Mark Debie, CalRecycle
Jeff Lindberg California Air Resources Board
Nancy Fletcher, California Air Resources Board
Jack Cheng, South Coast Air Quality Management Board
Larry Israel, South Coast Air Quality Management Board
Enrique Casas, Los Angeles Regional Water Quality Control Board
Milasol Gaslan, Los Angeles Regional Water Quality Control Board
Terrence Mann, South Coast AQMD
Tyler Holybee, United States Environmental Protection Agency
Allison Watanabe, United States Environmental Protection Agency
Laura Friedl, United States Environmental Protection Agency
Trevor Anderson, California DTSC

ATTACHMENT A"



Proprietary and Confidential

Waste Connections Chiquita Canyon
Project: 2025 02 Thermal Study
Job: Thermal Study
Report Issued Mar 4, 2025

Emission Study Thermal Report

Information presented within provides results from the emissions monitoring inspection performed by technicians with Sniffer Robotics, Inc. associated with the emission study site and date listed herein. Following the inspection, this report will be updated and disseminated by no later than 12:00 PM local time the next day.

This report provides details of peak temperature locations as determined by the photos taken from the SnifferDRONE™ and processed. Report details include: coordinates of image locations, date and time of data collection, measured maximum temperatures (Fahrenheit), additional notes, map(s) displaying image locations, and thermal photographic documentation.

Key

Peak Temperature ≥ 68 °F

Peak Temperature < 68 °F

This daily report is not meant for compliance purposes and only intended for customer review.

WEATHER CONDITIONS		Date: 4-Feb	Sky: Overcast Clouds	Ground: Dry	Temperature: 56 °F	Wind Direction: SW	Wind Speed: 10 MPH	Barometric Pressure: 30.45"	Humidity: 73%
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LOCATION DETAILS			INSPECTION RESULTS					
Ref	Image Location Latitude	Image Location Longitude	Date (UTC)	Time (UTC)	Class	Peak Temperature °F	Notes	
01	34.43684	-118.64861	2/4/2025	-	Thermal Imagery	147.2		
02	34.43666	-118.64783	2/4/2025	-	Thermal Imagery	139.7		
03	34.43231	-118.65132	2/4/2025	-	Thermal Imagery	45.2		
04	34.43475	-118.64848	2/4/2025	-	Thermal Imagery	149.6		
05	34.43499	-118.64927	2/4/2025	-	Thermal Imagery	158.7		
06	34.43518	-118.65099	2/4/2025	-	Thermal Imagery	121.5		
07	34.43660	-118.64793	2/4/2025	-	Thermal Imagery	152.4		
08	34.43633	-118.64883	2/4/2025	-	Thermal Imagery	93.2		
09	34.43526	-118.65067	2/4/2025	-	Thermal Imagery	70.2		

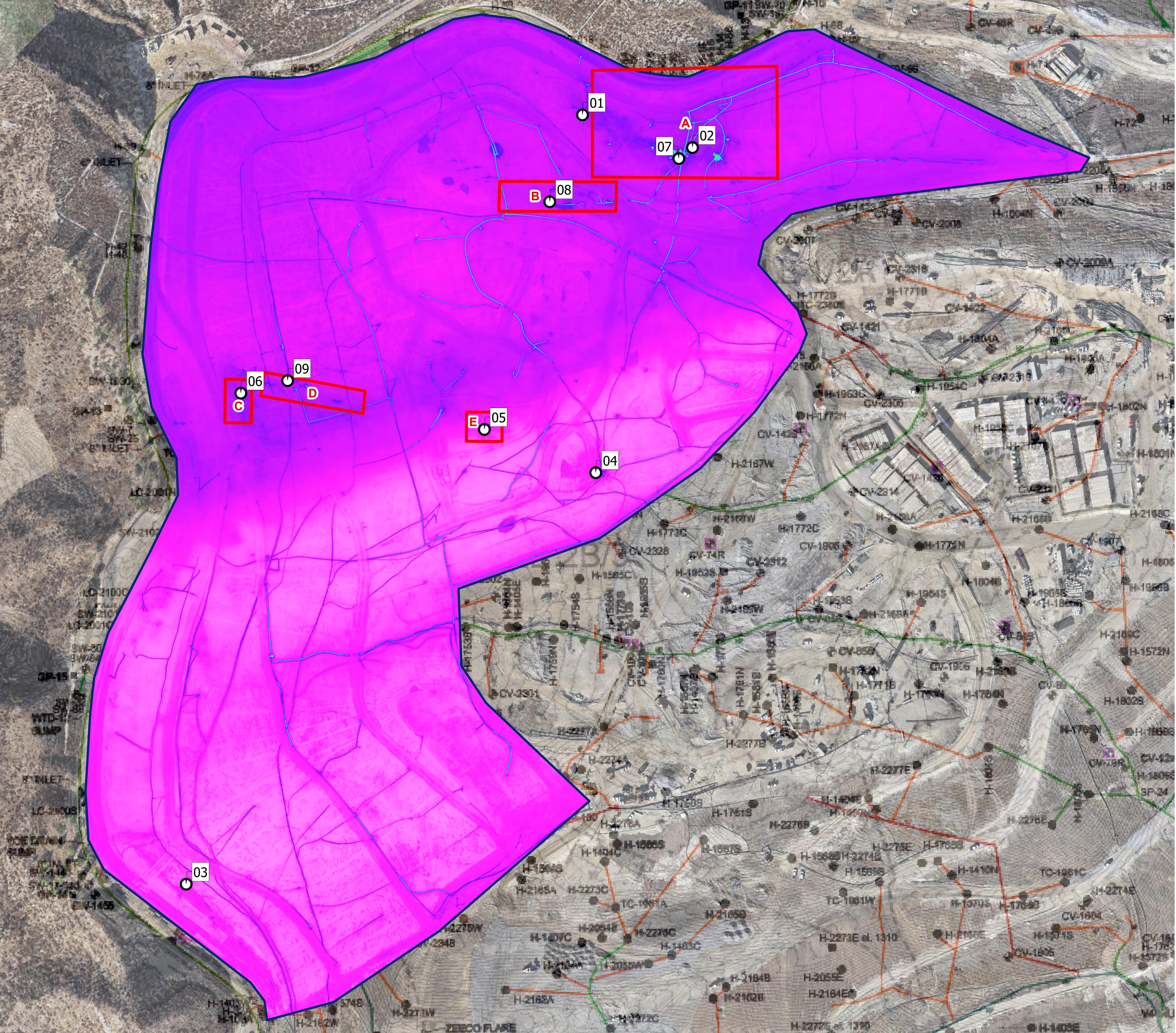


Chiquita Canyon Discrete Thermal Image Locations over Thermal Reflectance, as Recorded by the SnifferDRONE™

Feb 4, 2025

Notes:

1. Basemap: high resolution RGB imagery provided by Chiquita Canyon dated Jan 2025
2. As-Built provided by SCS Engineers dated Dec 2023
3. Projected Coordinate System: WGS 1984 UTM Zone 11 N
4. Proprietary and Confidential



Reference # 01

Measurements

Bx1	Max	147.2 °F
	Min	15.0 °F
	Average	29.0 °F
Sp1		55.1 °F
Sp2		43.0 °F
Sp3		110.2 °F
Sp4		85.4 °F
Sp5		24.2 °F

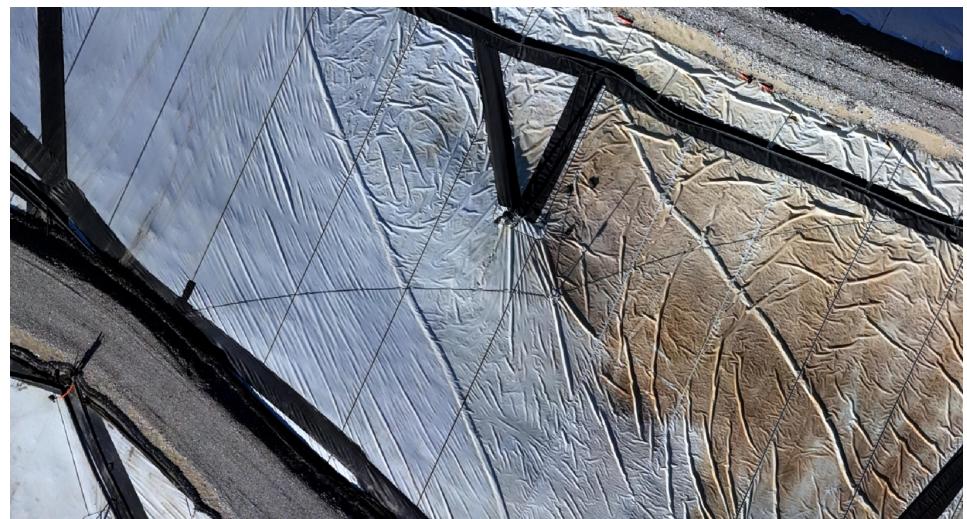
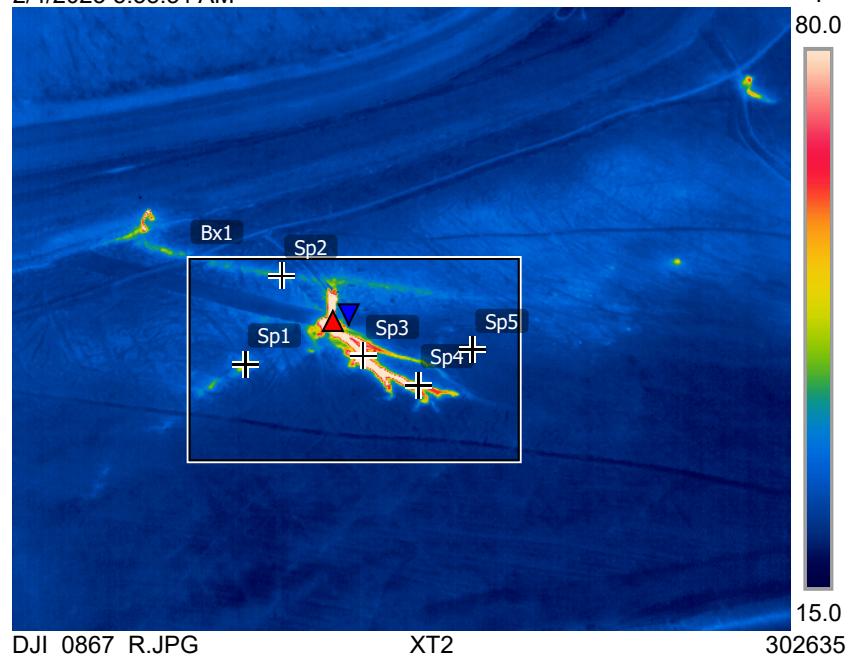
Parameters

Emissivity	1
Refl. temp.	68 °F

Geolocation

Location	W118° 38' 55.01" N34° 26' 12.64"
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2/4/2025 5:53:51 AM



Measurements

Bx1	Max	139.7 °F
	Min	22.0 °F
	Average	36.1 °F
Sp1		122.1 °F
Sp2		103.3 °F
Sp3		119.8 °F
Sp4		93.7 °F
Sp5		121.6 °F
Sp6		103.8 °F
Sp7		84.0 °F
Sp8		96.9 °F
Sp9		84.9 °F
Sp10		63.5 °F

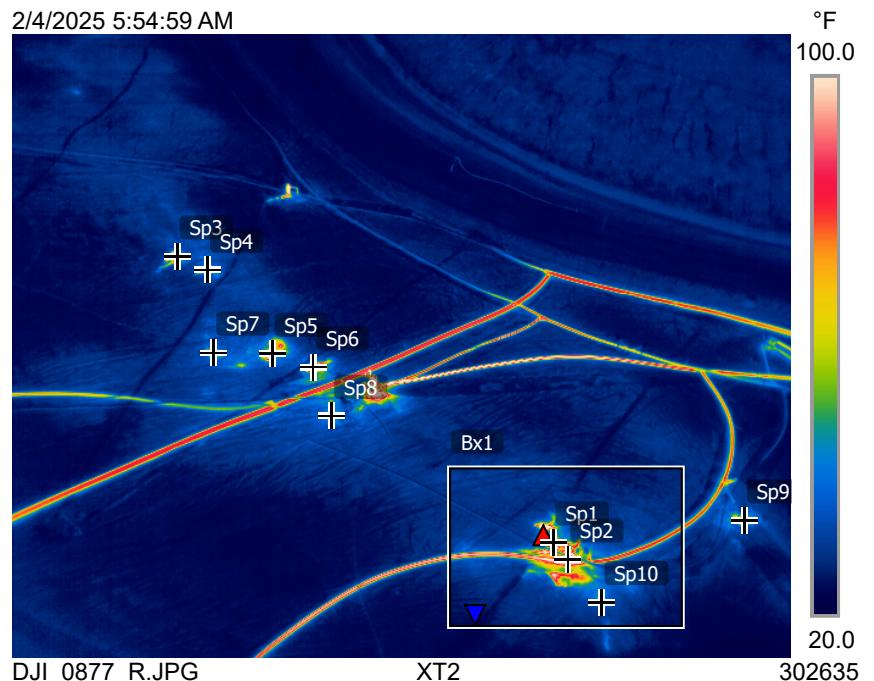
Parameters

Emissivity	1
Refl. temp.	68 °F

Geolocation

Location	W118° 38' 52.2" N34° 26' 11.99"
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Reference # 02



Measurements

Bx1	Max	45.2 °F
	Min	23.5 °F
	Average	27.3 °F
Sp1		35.6 °F
Sp2		31.6 °F
Sp3		36.5 °F

Parameters

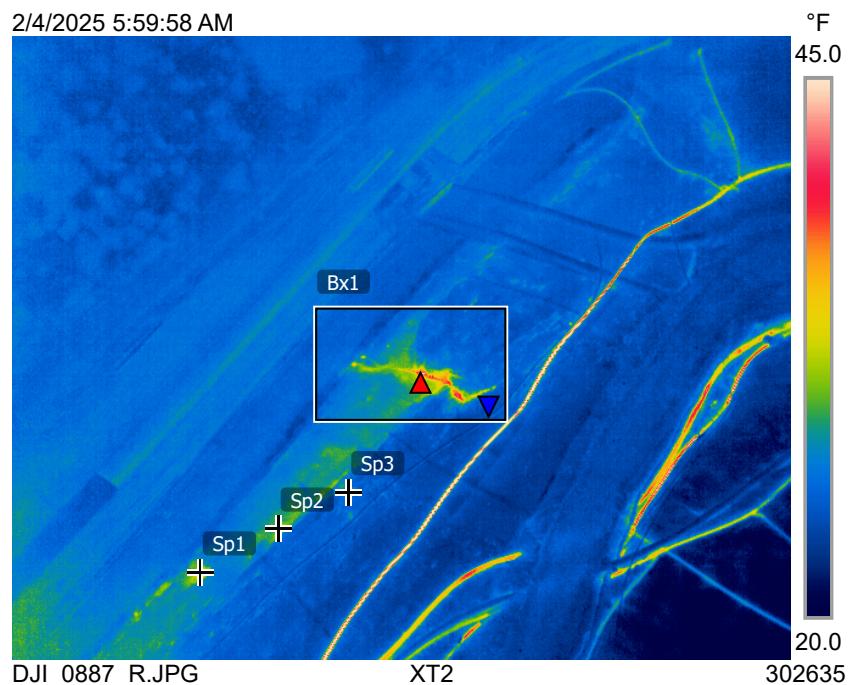
Emissivity	1
Refl. temp.	68 °F

Geolocation

Location	W118° 39' 4.77" N34° 25' 56.3"
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Reference # 03

2/4/2025 5:59:58 AM



Reference # 04

Measurements

Bx1	Max	149.6 °F
	Min	66.2 °F
	Average	80.0 °F
Sp1		134.1 °F
Sp2		123.5 °F
Sp3		125.0 °F
Sp4		77.0 °F

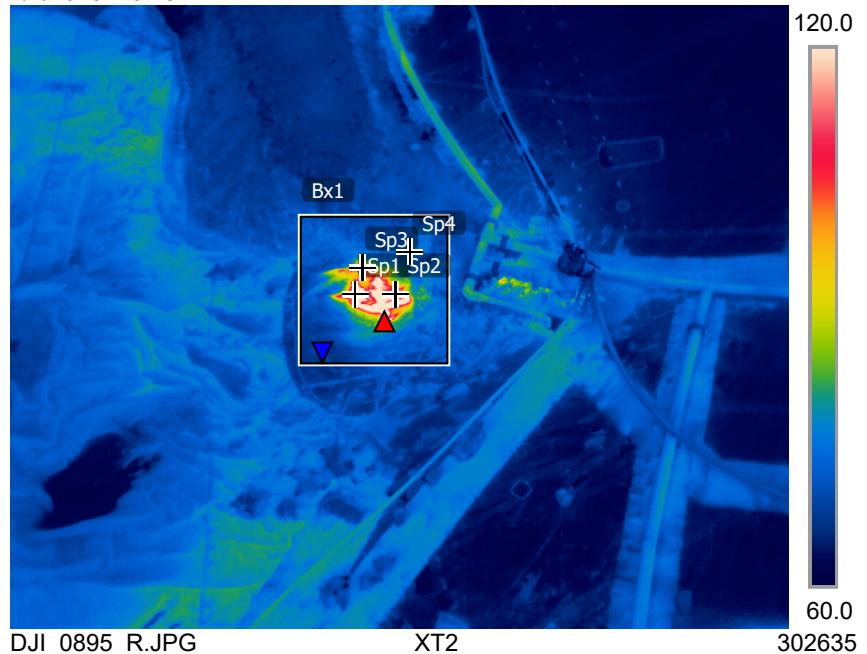
Parameters

Emissivity	1
Refl. temp.	68 °F

Geolocation

Location	W118° 38' 54.52" N34° 26' 5.11"
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2/4/2025 1:07:51 PM



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Reference # 05

Measurements

Bx1	Max	158.7 °F
	Min	55.1 °F
	Average	69.4 °F
Sp1		120.5 °F
Sp2		134.4 °F
Sp3		145.1 °F
Sp4		126.6 °F
Sp5		73.6 °F

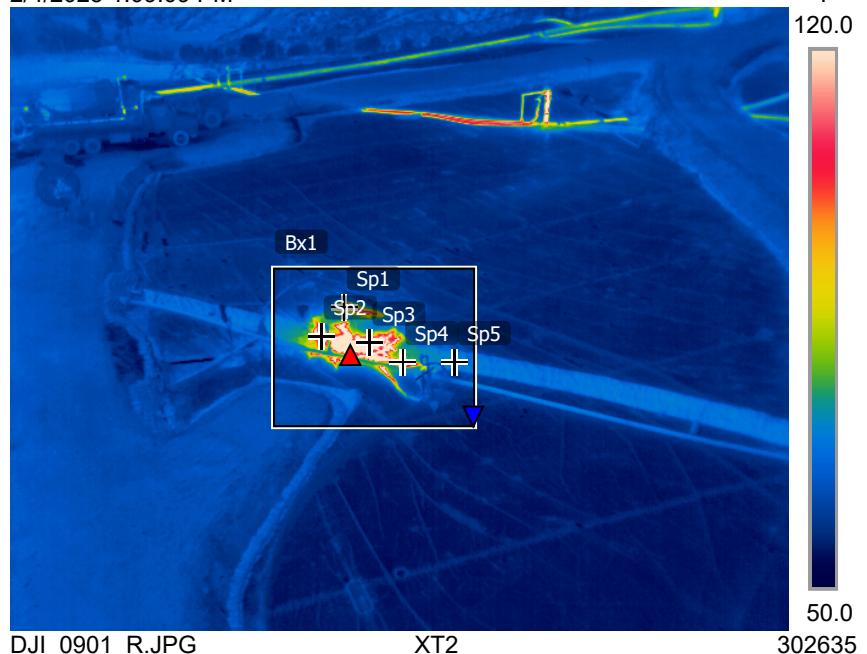
Parameters

Emissivity	1
Refl. temp.	68 °F

Geolocation

Location	W118° 38' 57.37" N34° 26' 5.98"
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2/4/2025 1:09:09 PM



2/4/2025 1:09:09 PM



Reference # 06

Measurements

Bx1	Max	121.5 °F
	Min	56.0 °F
	Average	69.8 °F
Sp1		103.8 °F
Sp2		75.1 °F
Sp3		74.5 °F
Sp4		76.6 °F

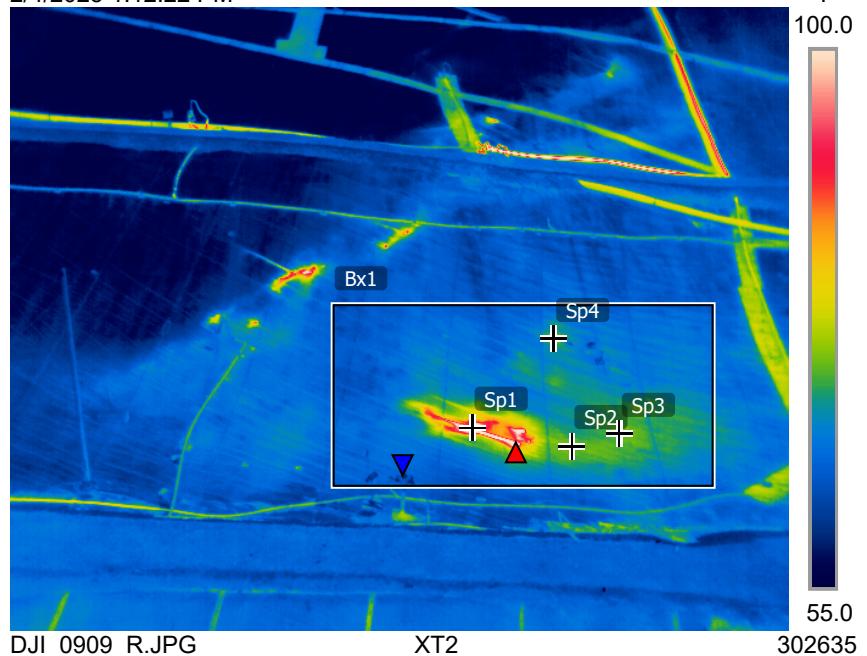
Parameters

Emissivity	1
Refl. temp.	68 °F

Geolocation

Location	W118° 39' 3.58" N34° 26' 6.66"
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2/4/2025 1:12:22 PM



2/4/2025 1:12:22 PM



Measurements

Bx1	Max	152.4 °F
	Min	58.0 °F
	Average	68.7 °F
Sp1		126.4 °F
Sp2		111.5 °F
Sp3		116.4 °F
Sp4		118.2 °F
Sp5		105.8 °F
Sp6		99.7 °F

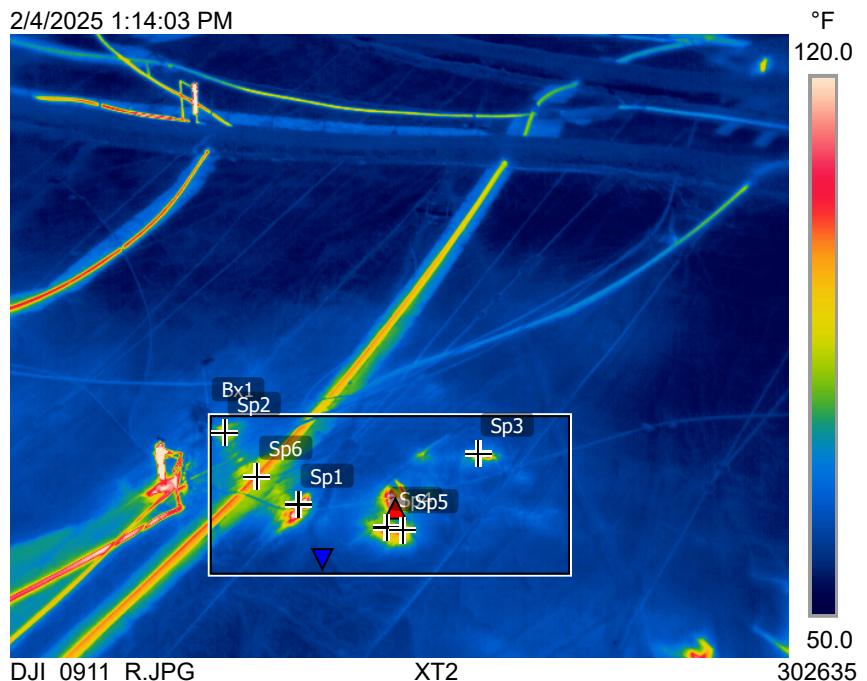
Parameters

Emissivity	1
Refl. temp.	68 °F

Geolocation

Location	W118° 38' 52.54" N34° 26' 11.75"
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Reference # 07



2/4/2025 1:14:03 PM



Reference # 08

Measurements

Bx1	Max	91.6 °F
	Min	29.3 °F
	Average	38.4 °F
Sp1		44.1 °F
Sp2		39.7 °F
Sp3		74.7 °F
Sp4		93.2 °F
Sp5		45.2 °F

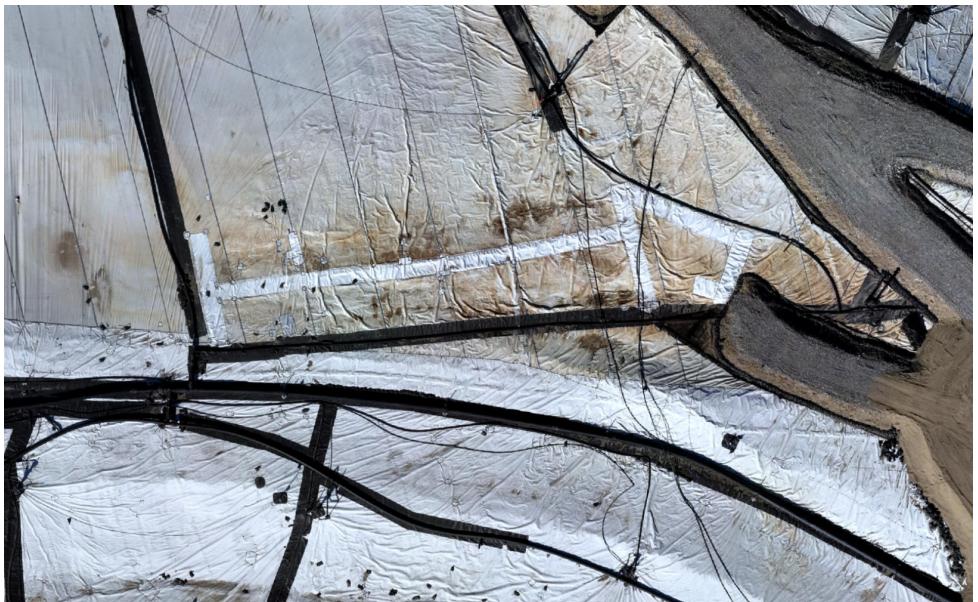
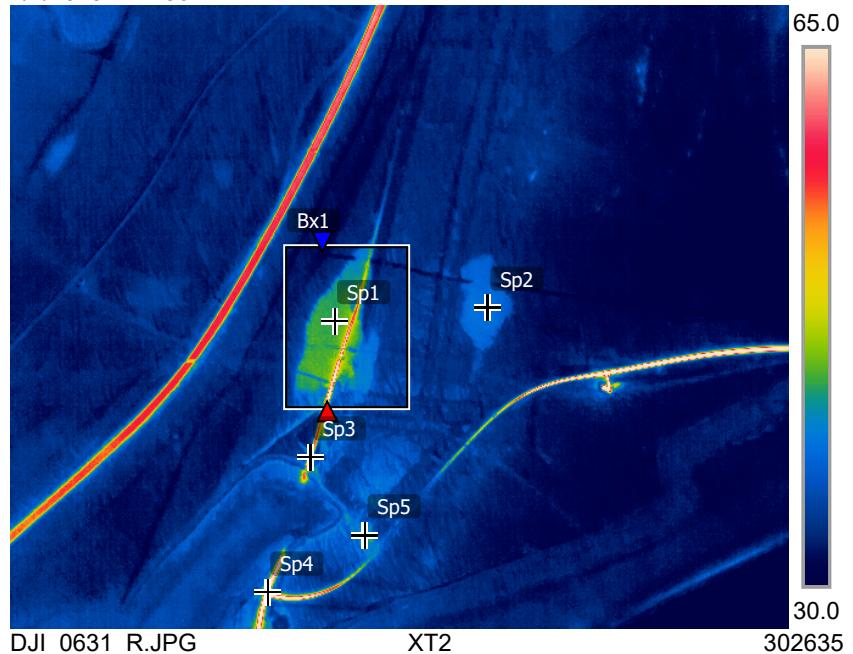
Parameters

Emissivity	1
Refl. temp.	68 °F

Geolocation

Location	W118° 38' 55.8" N34° 26' 10.8"
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2/4/2025 4:44:36 AM



Measurements

Bx1	Max	70.2 °F
	Min	27.1 °F
	Average	33.6 °F
Sp1		55.4 °F
Sp2		63.2 °F
Sp3		51.7 °F
Sp4		54.2 °F
Sp5		44.0 °F
Sp6		56.1 °F
Sp7		50.6 °F
Sp8		45.1 °F

Parameters

Emissivity	1
Refl. temp.	68 °F

Geolocation

Location	W118° 39' 2.4" N34° 26' 6.94"
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Reference # 09

2/4/2025 4:49:37 AM

