May 13, 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 April 2, 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 April 2, 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 April 2, 2025. 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 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.

Chiquita has prepared this analysis of the April 2, 2025 survey to address the LEA's requests in its December 24, 2024 letter. Sniffer's survey report is included as **Attachment A**. As requested in the LEA's letter, Sniffer's report shows GPS coordinates and quantitative thermal data. In addition, Chiquita has investigated each area previously identified by the LEA and marked as Areas A through E in Figure 1 of CalRecycle's November 25, 2024 letter.

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 for the April 2, 2025 survey are points 01–05, and 10–15.[1] As discussed in Chiquita's previous submittals for past surveys, 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. In addition, at the time the April 2, 2025 survey was conducted, the landfill gas wells in this area were in the process of being descaled. The higher saturation prior to the descaling may have resulted in short-term temperature elevations captured on April 2, 2025, which have since been resolved.

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 for the April 2, 2025 survey is point 19. Please note that during the April 2, 2025 survey, Sniffer's thermal camera did not detect any elevated temperatures in Area B, one of the areas of interest previously identified in the LEA's and CalRecycle's letters. Nevertheless, Sniffer included point 19 and thermal images, photographs, and GPS coordinates in accordance with the LEA's directive to track trends in Area B over time. As with the nearby Area A, GCCS infrastructure is highly concentrated in this area. As discussed in Chiquita's previous submittals for past surveys, 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. As discussed in Chiquita's previous submittal, this area was also subject to elevated temperatures

[1] Reference points 14 and 15 are on the border of the LEA's designated Area A.

where the integrity of the dirt cover was previously compromised. Chiquita repaired the dirt cover, reinstalled the geomembrane cover, and performed related work during the fourth quarter of 2024 to address this issue.

A comparison of the February 2025 and April 2025 thermal images in Area B indicates an overall decrease in temperature in that area, with the maximum temperature detected decreasing about nine (9) degrees (compare reference point 08 in the February thermal images report to reference point 19 in the April thermal images report).

Area C

The area designated by the LEA as "Area C" appears to be in grid 181. The Sniffer data reference points in Area C for the April 2, 2025 survey are points 07, 09, and 17.[2] As discussed in Chiquita's previous submittals for past surveys, 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. 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 mitigate elevated temperatures in this area. For all three of these reference points (07, 09, and 17), the thermal inspection images show concentrations of light blue and red shading running along these horizontal collection pipes, which are functioning as designed, carrying the hot liquids and gas through the GCCS system.

A comparison of the February 2025 and April 2025 thermal images in Area C indicates a decrease of about eleven (11) degrees in average temperature in that area (compare reference point 06 in the February thermal images report to reference point 17 in the April survey).

Area D

The area designated by the LEA as "Area D" appears to be in grid 181. The Sniffer data reference points within Area D for the April 2, 2025 survey are 08 and 18. The horizontal collector for the GCCS discussed above in Area C also runs through Area D. As discussed in Chiquita's previous submittals for past surveys, 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.

While there are elevated temperatures being seen in this area, they are concentrated and limited to small areas or only where the lateral line and vertical gas

[2] Reference points 7 and 9 are on the border of the LEA's designated Area C.

well are located. As previously discussed, the lateral line and vertical gas well are part of the overall GCCS system which is designed to convey the hot liquid and gas. A high temperature of 109 in the area not associated with the well or lateral line may indicate slightly elevated temperatures beneath the geomembrane cap from heat being emitted to the surface.

The FLIR technology noted elevated temperatures in a smaller overall area in the April 2025 survey as compared to the February 2025 survey.

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 for the April 2, 2025 survey is point 16. An abandoned gas well, well CV-2302, exists within Area E and is photographed on PDF page 19 of Attachment A under "Reference # 16." Additional gas wells and dewatering pumps were installed in the area to replace CV-2302. However, as discussed in previous survey analyses, 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 temperature detected in the thermal images for this area (see reference point 16 in the April survey) is below 180 degrees.[3]

Preliminary Conclusions

The Sniffer survey results do not show an increase in intensity or expansion of the reaction. Rather, the results demonstrate that the GCCS system is functioning as designed, and conveying hot liquids and gas through the GCCS system as designed. Chiquita will continue to evaluate the data in the upcoming June and August 2025 surveys.[4]

[signature on following page]

[3] During the April 2, 2025 survey, Sniffer's thermal camera detected one area with elevated temperatures outside of Areas A through E. That area, point 06, is located in an area where there is a horizontal collector under the geosynthetic cover, and showed a maximum temperature reading of 71.6°F.

[4] 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. Note that the LEA's January 29, 2025 Inspection Report (received by Chiquita on April 9, 2025) states, "The remaining surveys are due in April, June, and August 2025." As a point of clarification, the remaining surveys are being conducted in the months noted and provided, along with Chiquita's analysis, to the LEA the following month, per Chiquita's February 28, 2025 letter.

Regards,

Steven J Cassulo

Steve Cassulo
District Manager
Chiquita Canyon, LLC

Attachment: Sniffer Robotics, Inc., Emission Study Thermal Report (dated April 11, 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
Robert Ragland, Los Angeles County Department of Public Health
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Karen Gork, Los Angeles County LEA
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Steven Jareb, Los Angeles County Department of Regional Planning
Wes Mindermann, CalRecycle
Rachel Beck, CalRecycle
Todd Thalhamer, CalRecycle
Mark Debie, CalRecycle
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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

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Waste Connections Chiquita Canyon
Project: 2025 04 Thermal Study
Job: Thermal Study
Report Submitted Apr 11, 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:	**2-Apr**
	Sky:	Clear Sky
	Ground:	Dry
	Temperature:	60 °F
	Wind Direction:	NE
	Wind Speed:	5 MPH
	Barometric Pressure:	30.30"
	Humidity:	38%

LOCATION DETAILS			**INSPECTION RESULTS**				
Ref	**Image Location Latitude**	**Image Location Longitude**	**Date (UTC)**	**Time (UTC)**	**Class**	**Peak Temperature °F**	**Notes**
01	34.43672	-118.64761	4/2/2025	5:10	Thermal Imagery	***155.3***	
02	34.43666	-118.64787	4/2/2025	5:10	Thermal Imagery	***164.8***	
03	34.43687	-118.64859	4/2/2025	5:13	Thermal Imagery	***164.3***	
04	34.43672	-118.64843	4/2/2025	5:13	Thermal Imagery	***124.7***	

LOCATION DETAILS			INSPECTION RESULTS				
Ref	Image Location Latitude	Image Location Longitude	Date (UTC)	Time (UTC)	Class	Peak Temperature °F	Notes
05	34.43663	-118.64811	4/2/2025	5:14	Thermal Imagery	***159.4***	
06	34.43551	-118.64968	4/2/2025	5:15	Thermal Imagery	***71.6***	
07	34.43531	-118.65099	4/2/2025	5:16	Thermal Imagery	***112.5***	
08	34.43518	-118.65083	4/2/2025	5:17	Thermal Imagery	***146.3***	
09	34.43529	-118.65090	4/2/2025	5:17	Thermal Imagery	***119.7***	
10	34.43664	-118.64792	4/2/2025	4:35	Thermal Imagery	***162.5***	
11	34.43670	-118.64811	4/2/2025	4:37	Thermal Imagery	***154.4***	
12	34.43662	-118.64765	4/2/2025	4:37	Thermal Imagery	***166.5***	
13	34.43663	-118.64796	4/2/2025	4:37	Thermal Imagery	***169.2***	
14	34.43690	-118.64859	4/2/2025	4:38	Thermal Imagery	***140.4***	
15	34.43678	-118.64851	4/2/2025	4:39	Thermal Imagery	***121.5***	
16	34.43499	-118.64929	4/2/2025	4:41	Thermal Imagery	***173.8***	
17	34.43510	-118.65102	4/2/2025	4:43	Thermal Imagery	***135.5***	
18	34.43516	-118.65055	4/2/2025	4:44	Thermal Imagery	***74.8***	
19	34.43632	-118.64878	4/2/2025	2:39	Thermal Imagery	***78.8***	

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

Apr 2, 2025

Notes:
1. Basemap: High resolution RGB orthophoto provided by Waste Connections dated 2025 04 02
2. As-Built provided by SCS Engineers dated Dec 2023
3. Projected Coordinate System: WGS 1984 UTM Zone 11 N
4. Proprietary and Confidential

N

0 50 100 200
Feet

Thermal Reflectance
161 F
-24 F
Image Location

Reference # 01

Measurements

SQ1	Max	155.3 °F
	Min	14.9 °F
	Average	85.1 °F
Sp1		127.4 °F
Sp2		58.6 °F
Sp3		95.0 °F

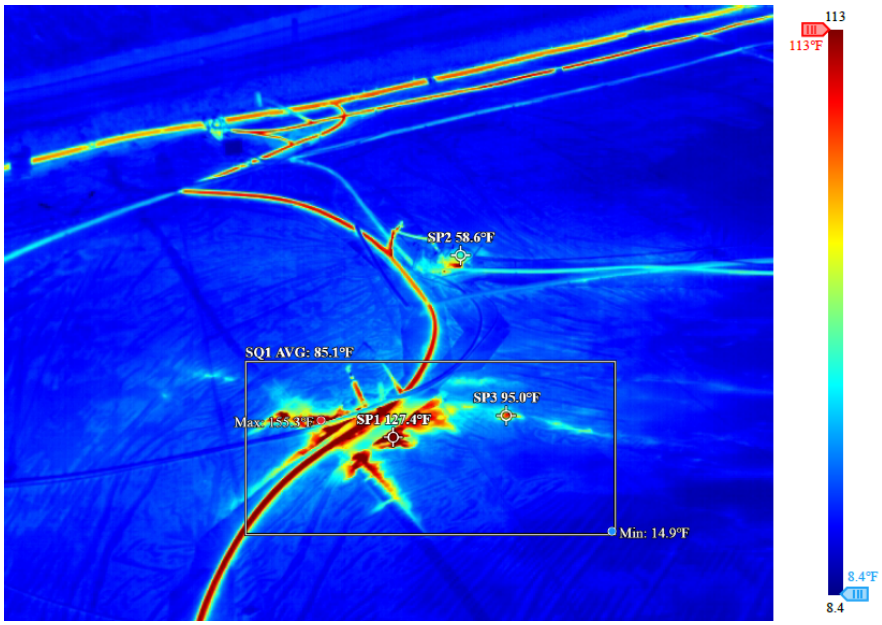
Parameters

Emissivity	1
Refl. temp.	73.4 °F

Geolocation

Location	W118° 38' 51.38" N34° 26' 12.17"

4/2/2025 5:10:43 AM



DJI_20250402051043_0001_T.JPG

4/2/2025 10:41 AM



DJI_0968.JPG

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Reference # 02

Measurements

SQ1	Max	164.8 °F
	Min	22.6 °F
	Average	93.7 °F
Sp1		127.0°F
Sp2		152.6 °F
Sp3		144.1 °F

Parameters

Emissivity	1
Refl. temp.	73.4 °F

Geolocation

Location	W118° 38' 52.32" N34° 26' 11.96""

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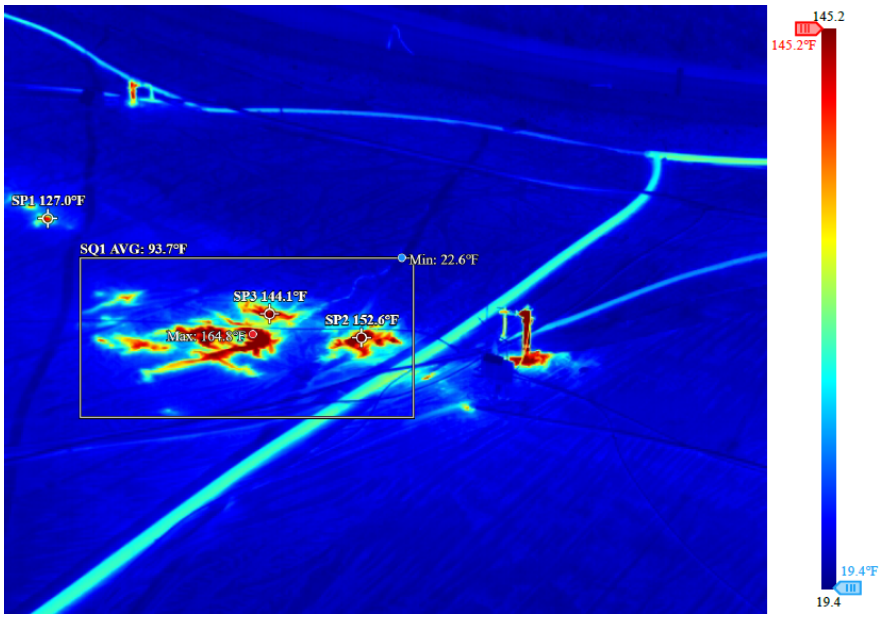

DJI_20250402051049_0003_T.JPG

4/2/2025 10:42 AM



DJI_0973.JPG

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Reference # 03

Measurements

SQ1	Max	164.3 °F
	Min	9.3 °F
	Average	86.7 °F
Sp1		96.1°F
Sp2		118.4 °F
Sp3		28.9 °F

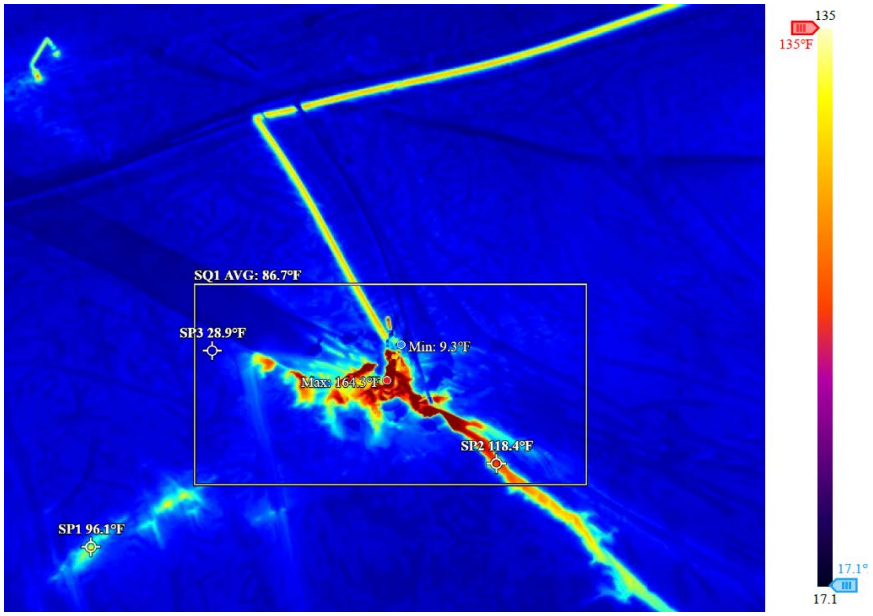
Parameters

Emissivity	1
Refl. temp.	73.4 °F

Geolocation

Location	W118° 38' 54.93" N34° 26' 12.73"

4/2/2025 05:13:46 AM



DJI_20250402051346_0004_T.JPG



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Reference # 04

Measurements

SQ1	Max	124.7 °F
	Min	15.4 °F
	Average	70.0 °F
Sp1		121.3 °F
Sp2		115.9 °F
Sp3		100.8 °F
Sp4		46.8 °F
Sp5		43.9 °F

Parameters

Emissivity	1
Refl. temp.	73.4 °F

Geolocation

Location	W118° 38' 54.34" N34° 26' 12.2"

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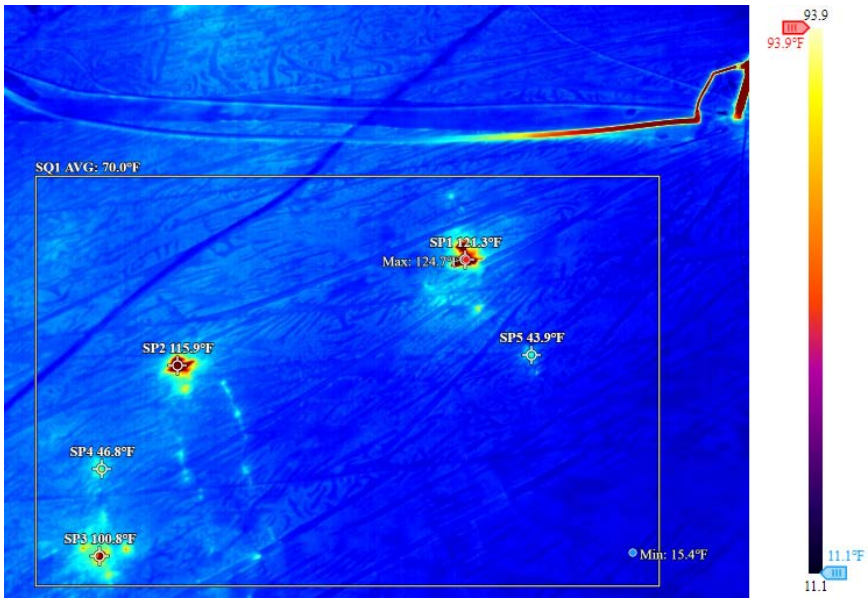

DJI_20250402051352_0005_T.JPG



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Reference # 05

Measurements

SQ1	Max	159.4 °F
	Min	22.6 °F
	Average	91.0 °F
Sp1		124.0 °F
Sp2		150.1 °F
Sp3		86.9 °F
Sp4		143.1 °F

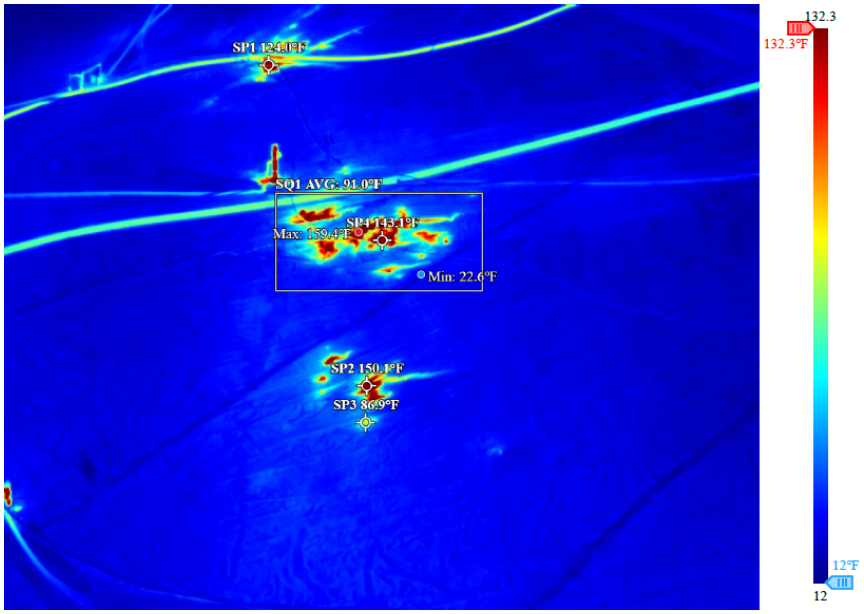
Parameters

Emissivity	1
Refl. temp.	73.4 °F

Geolocation

Location	W118° 38' 53.18" N34° 26' 11.86"

4/2/2025 5:14:05 AM



DJI_20250402051405_0006_T.JPG

4/2/2025 10:42 AM



DJI_0972.jpg

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Reference # 06

Measurements

SQ1	Max	71.6 °F
	Min	11.7 °F
	Average	71.6 °F
Sp1		53.6 °F
Sp2		33.3 °F
Sp3		47.5 °F
Sp4		25.3 °F
Sp5		13.8 °F

Parameters

Emissivity	1
Refl. temp.	73.4 °F

Geolocation

Location	W118° 38' 58.86" N34° 26' 7.84""

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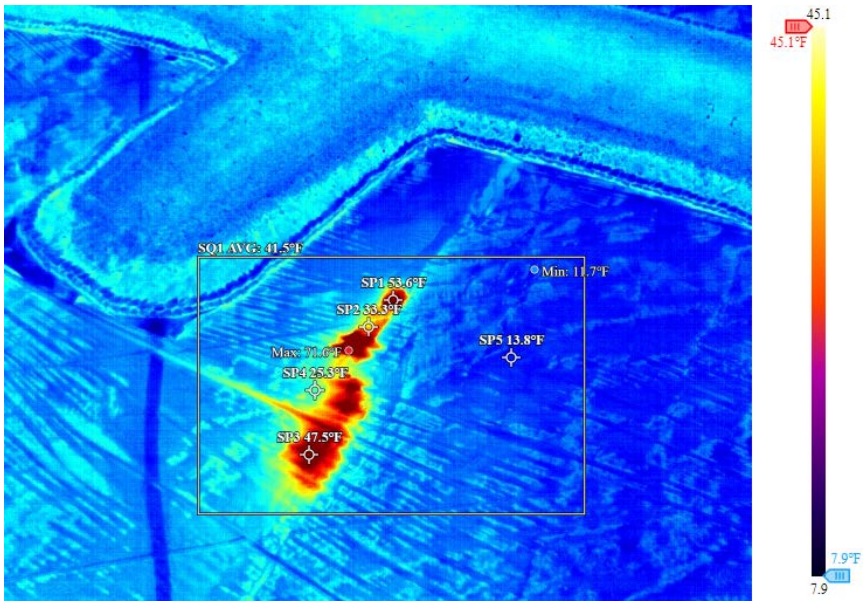

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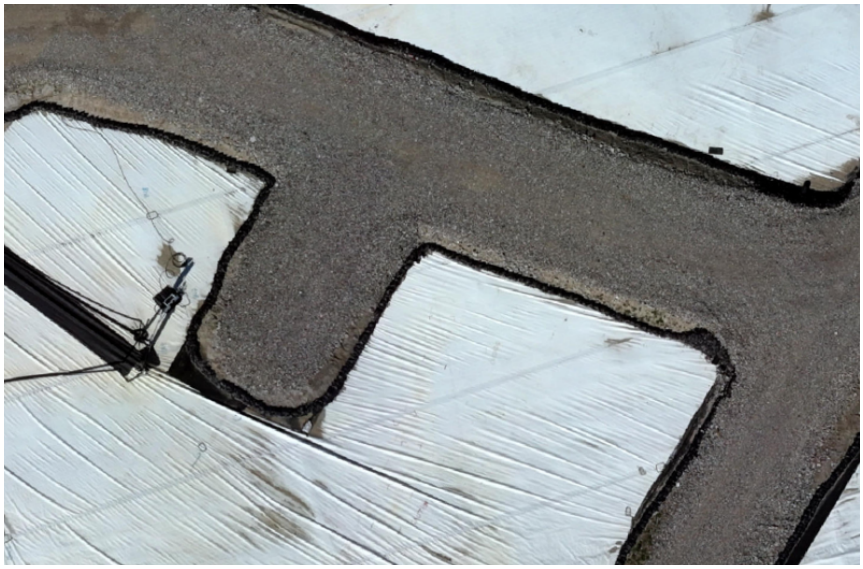

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Reference # 07

Measurements

SQ1	Max	112.5 °F
	Min	13.8 °F
	Average	63.1 °F
Sp1		106.2 °F
Sp2		83.7 °F
Sp3		45.9 °F
Sp4		73.0 °F
Sp5		43.9 °F
Sp6		23.9 °F

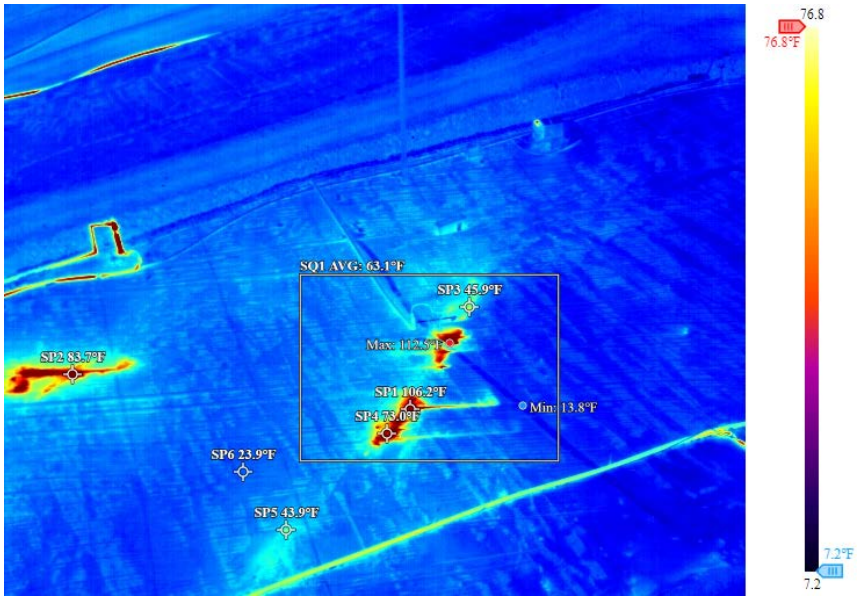
Parameters

Emissivity	1
Refl. temp.	73.4 °F

Geolocation

Location	W118° 39' 3.56" N34° 26' 7.11"

4/2/2025 05:16:35 AM



DJI_20250402051635_0012_T.JPG



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Reference # 08

Measurements

SQ1	Max	146.3 °F
	Min	23.9 °F
	Average	85.1 °F
Sp1		92.7 °F
Sp2		56.8 °F

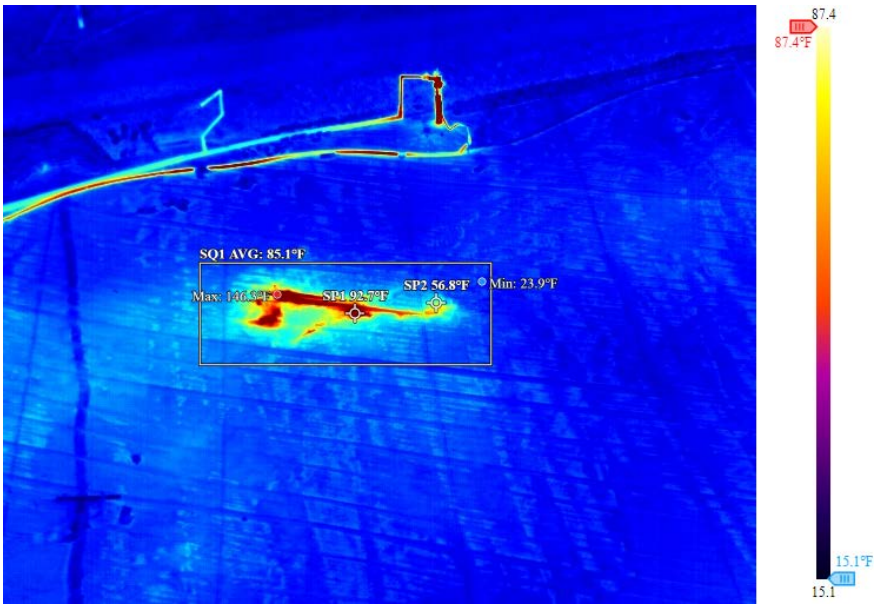
Parameters

Emissivity	1
Refl. temp.	73.4 °F

Geolocation

Location	W118° 39' 3.0" N34° 26' 6.64"

4/2/2025 5:17:20 AM



DJI_20250402051720_0014_T.JPG



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Reference # 09

Measurements

SQ1	Max	119.7 °F
	Min	7.7 °F
	Average	63.7 °F
Sp1		80.8 °F
Sp2		111.4 °F
Sp3		92.7 °F
Sp4		46.9 °F
Sp5		18.5 °F

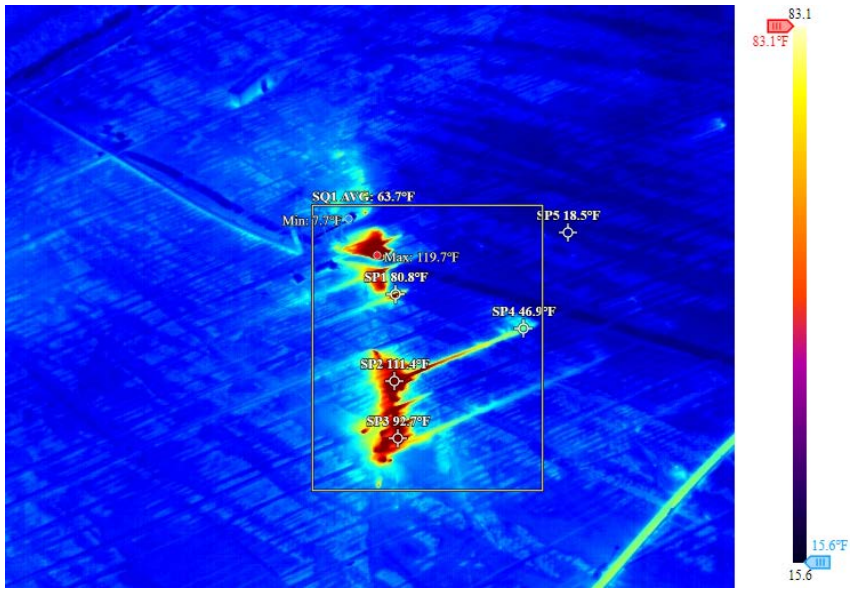
Parameters

Emissivity	1
Refl. temp.	73.4 °F

Geolocation

Location	W118° 39' 3.23" N34° 26' 7.06"

4/2/2025 5:17:38 AM



DJI_20250402051738_0015_T.JPG



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Reference # 10

Measurements

SQ1	Max	162.5 °F
	Min	12.9 °F
	Average	87.6 °F
Sp1		134.6 °F
Sp2		123.1 °F
Sp3		123.8 °F
Sp4		150.4 °F
Sp5		22.8 °F

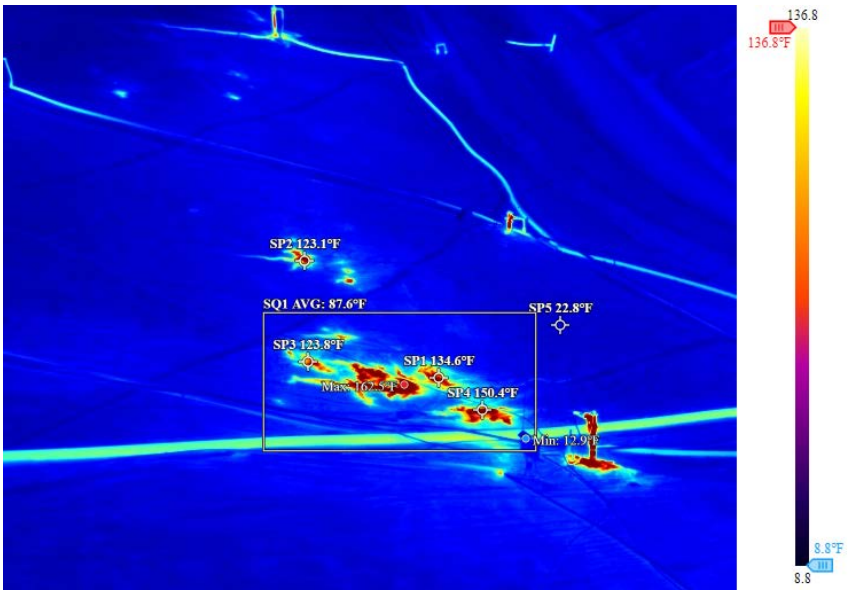
Parameters

Emissivity	1
Refl. temp.	73.4 °F

Geolocation

Location	W118° 38' 52.52" N34° 26' 11.92"

4/2/2025 4:35:15 AM



DJI_20250402043515_0004_T.JPG

4/2/2025 10:41 AM



DJI_0967.jpg

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Reference # 11

Measurements

SQ1	Max	154.4 °F
	Min	22.6 °F
	Average	88.5 °F
Sp1		148.6 °F
Sp2		140.5 °F
Sp3		88.2 °F
Sp4		77.0 °F

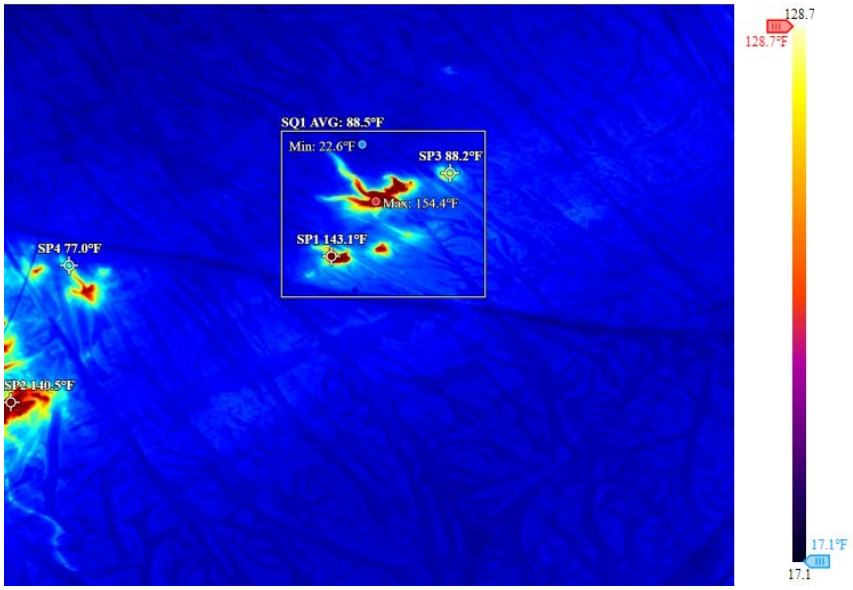
Parameters

Emissivity	1
Refl. temp.	73.4 °F

Geolocation

Location	W118° 38' 53.18" N34° 26' 12.12"

4/2/2025 4:37:08 AM



DJI_20250402043708_0008_T.JPG



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Reference # 12

Measurements

SQ1	Max	166.5 °F
	Min	22.6 °F
	Average	94.6 °F
Sp1		152.8 °F
Sp2		134.1 °F
Sp3		118.6 °F

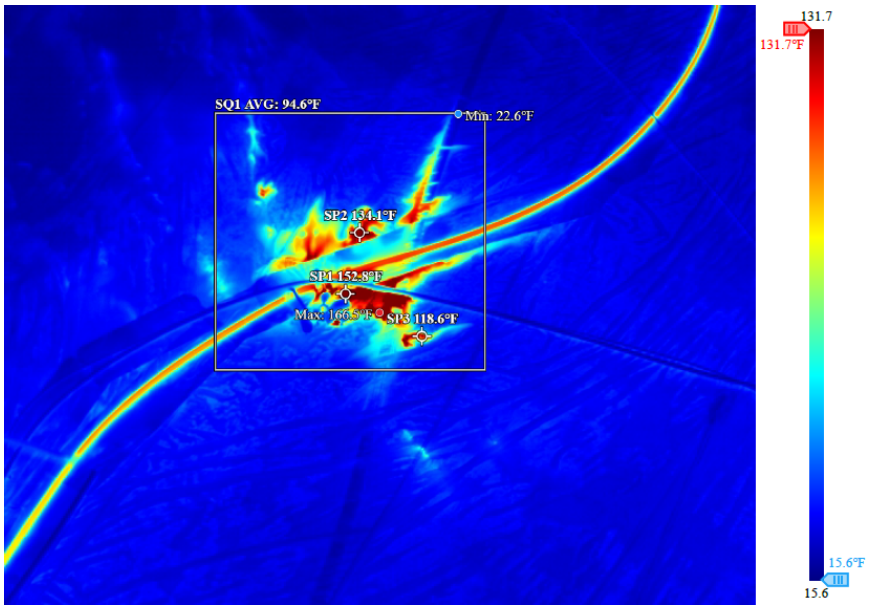
Parameters

Emissivity	1
Refl. temp.	73.4 °F

Geolocation

Location	W118° 38' 51.54" N34° 26' 11.84"

4/2/2025 4:37:29 AM



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4/2/2025 10:42 AM



DJI_0969.jpg

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Reference # 13

Measurements

SQ1	Max	169.2 °F
	Min	23.9°F
	Average	96.6 °F
Sp1		166.5 °F
Sp2		163.4 °F
Sp3		114.3 °F
Sp4		144.7 °F
Sp5		163.4 °F

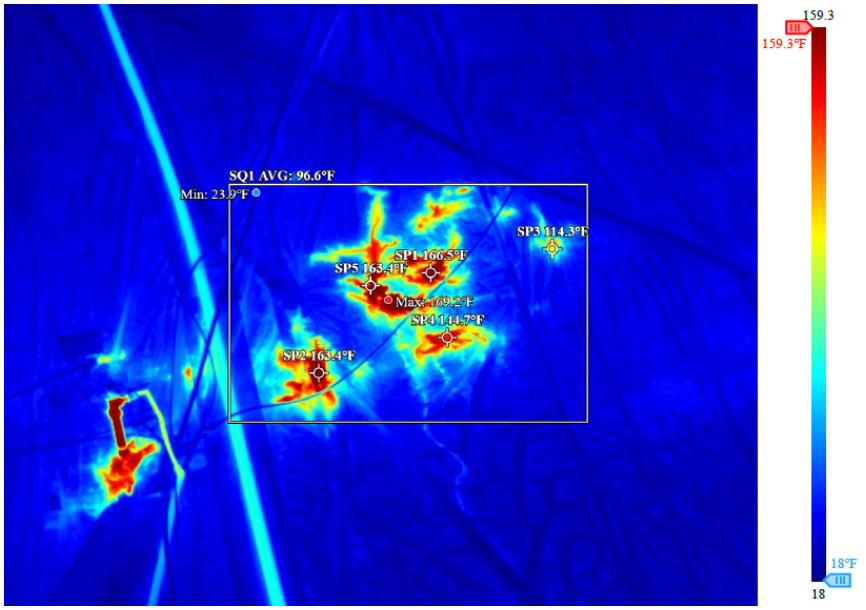
Parameters

Emissivity	1
Refl. temp.	73.4 °F

Geolocation

Location	W118° 38' 52.67" N34° 26' 11.87"

4/2/2025 4:37:37 AM



DJI_20250402043737_0012_T.JPG

4/2/2025 10:42 AM



DJI_0971.jpg

Proprietary and Confidential

Reference # 14

Measurements

SQ1	Max	140.4 °F
	Min	12.9°F
	Average	76.6 °F
Sp1		78.3 °F
Sp2		73.9 °F
Sp3		104.4 °F
Sp4		22.8 °F

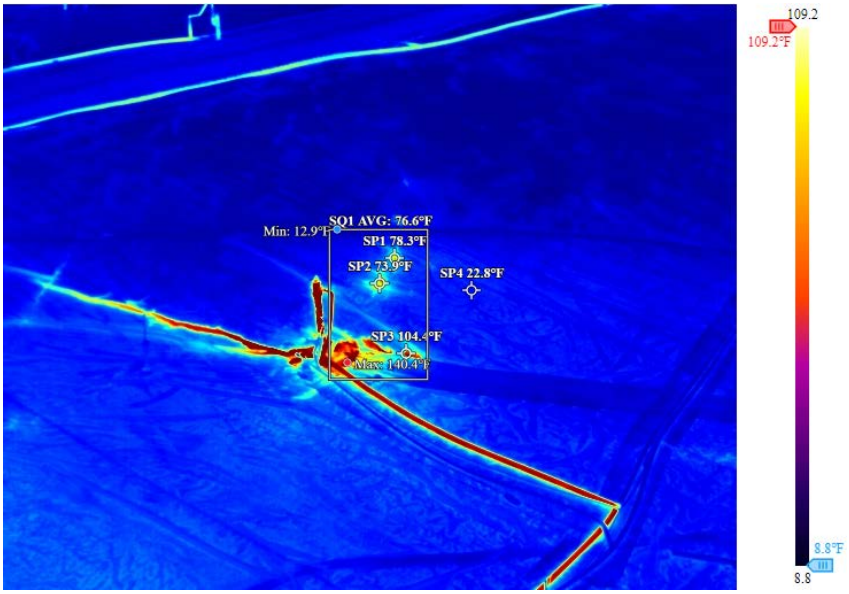
Parameters

Emissivity	1
Refl. temp.	73.4 °F

Geolocation

Location	W118° 38' 54.91" N34° 26' 12.82"

4/2/2025 4:38:10 AM



DJI_20250402043810_0013_T.JPG



Proprietary and Confidential

Reference # 15

Measurements

SQ1	Max	121.5 °F
	Min	19.2°F
	Average	70.3 °F
Sp1		117.0 °F
Sp2		63.7 °F
Sp3		83.7 °F
Sp4		37.4 °F

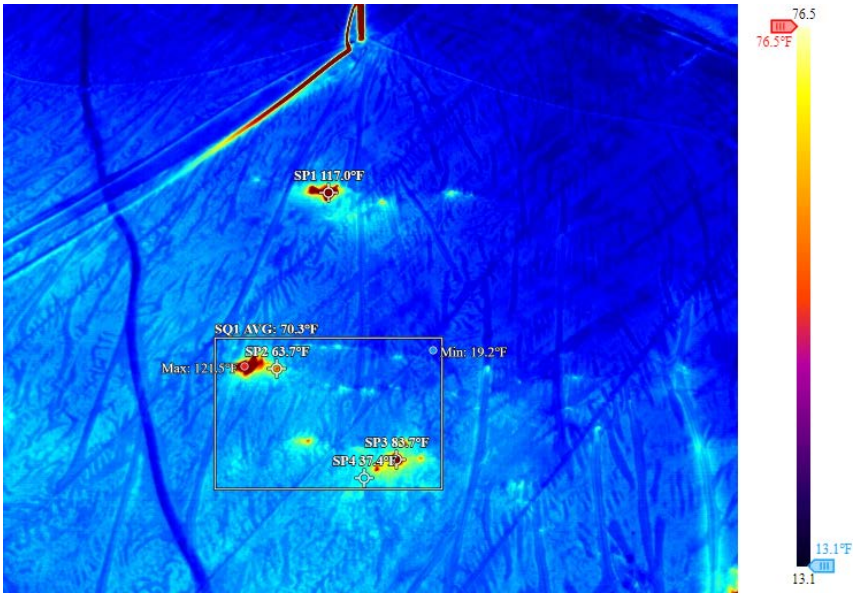
Parameters

Emissivity	1
Refl. temp.	73.4 °F

Geolocation

Location	W118° 38' 54.62" N34° 26' 12.4"

4/2/2025 4:39:42 AM



DJI_20250402043942_0017_T.JPG



Proprietary and Confidential

Reference # 16

Measurements

SQ1	Max	173.8 °F
	Min	9.3 °F
	Average	91.6 °F
Sp1		131.5 °F
Sp2		81.0 °F
Sp3		166.5 °F

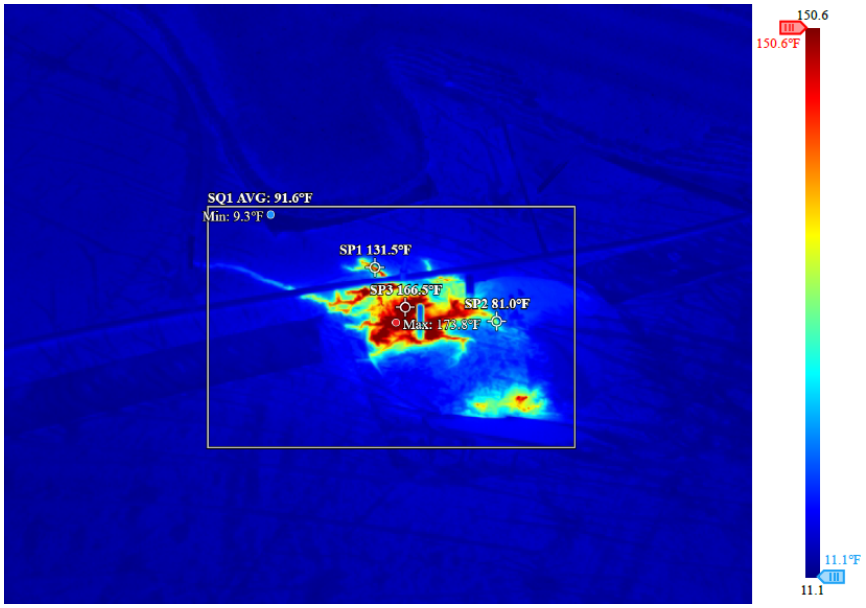
Parameters

Emissivity	1
Refl. temp.	73.4 °F

Geolocation

Location	W118° 38' 57.43" N34° 26' 5.97"

4/2/2025 4:41:27 AM



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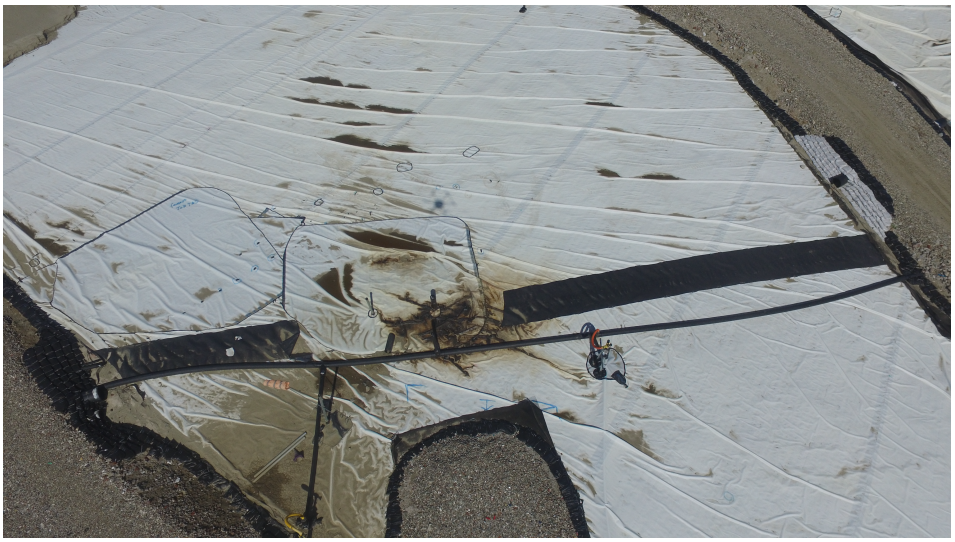
4/2/2025 10:29 AM



DJI_0963.jpg

Proprietary and Confidential

Reference # 17

Measurements

SQ1	Max	135.5 °F
	Min	23.5 °F
	Average	79.5 °F
Sp1		80.6 °F
Sp2		72.0 °F
Sp3		110.8 °F
Sp4		80.1 °F
Sp5		21.7 °F

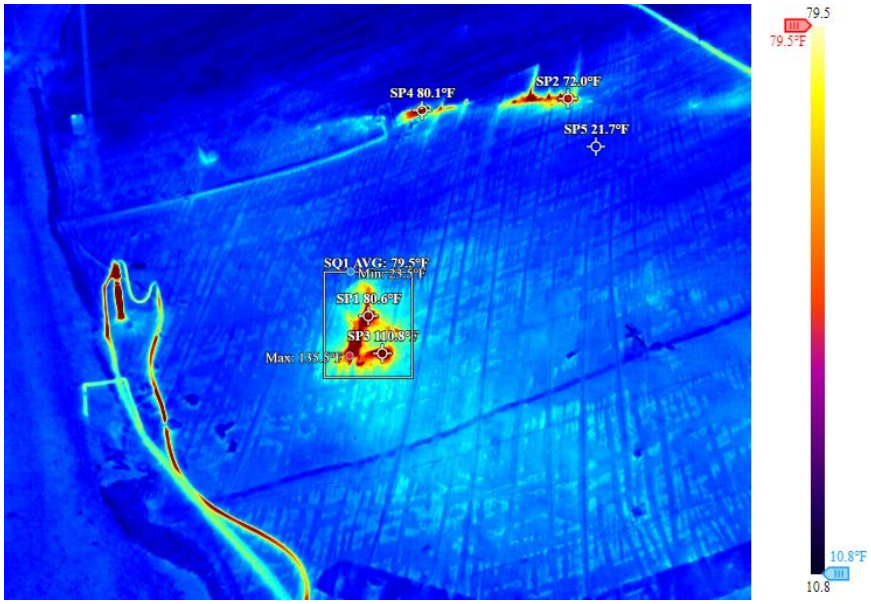
Parameters

Emissivity	1
Refl. temp.	73.4 °F

Geolocation

Location	W118° 39' 3.68" N34° 26' 6.37"

4/2/2025 4:43:50 AM



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4/2/2025 10:20 AM



DJI_0957.jpg

Proprietary and Confidential

Reference # 18

Measurements

SQ1	Max	74.8 °F
	Min	14.9 °F
	Average	45.0 °F
Sp1		53.6 °F
Sp2		44.6 °F

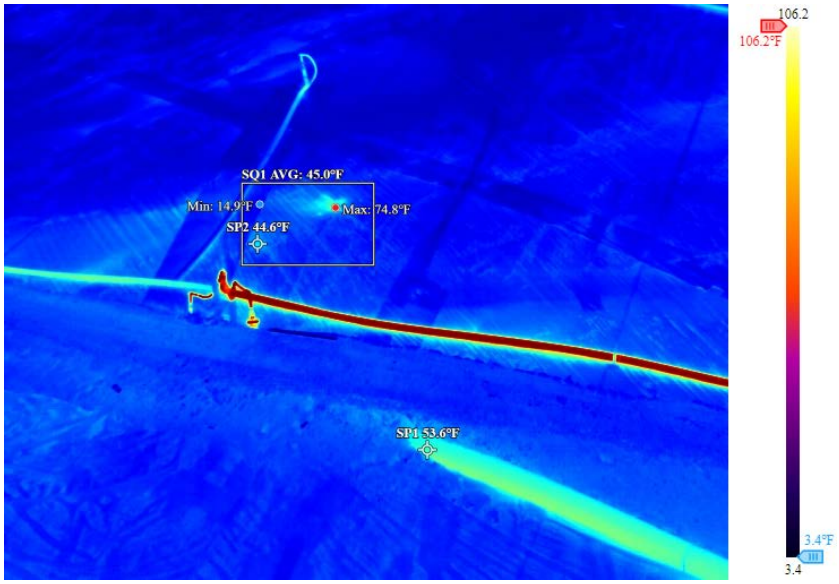
Parameters

Emissivity	1
Refl. temp.	73.4 °F

Geolocation

Location	W118° 39' 1.98" N34° 26' 6.58"

4/2/2025 4:44:16 AM



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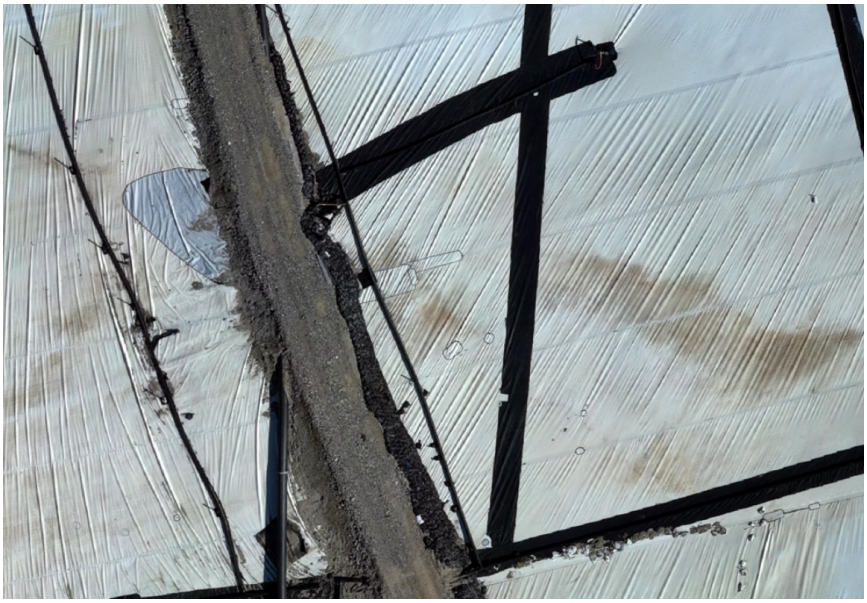


Proprietary and Confidential

Reference # 19

Measurements

SQ1	Max	78.8 °F
	Min	21.7 °F
	Average	50.4 °F
Sp1		82.4 °F
Sp2		41.4 °F
Sp3		24.6 °F
Sp4		44.1 °F
Sp5		29.8 °F
Sp6		29.8 °F

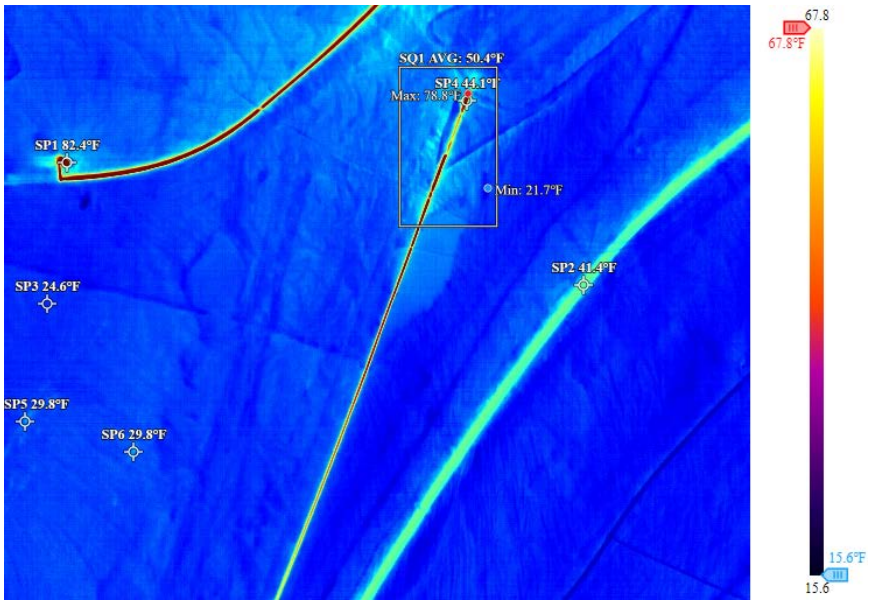
Parameters

Emissivity	1
Refl. temp.	73.4 °F

Geolocation

Location	W118° 38' 55.62" N34° 26' 10.77"

4/2/2025 2:39:13 AM



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4/2/2025 10:41 AM



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